



Report:

Mercury Emission Testing at the Clean Harbors Sarnia Facility (May 2018)

Date: June 6, 2018



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Submitted to: Erica Carabott
Facility Compliance Manager
Clean Harbors Canada Inc.
4090 Telfer Road, Corunna, Ontario N0N 1G0
Tel: (519) 864-3890
Cell: (519) 328-3394
E-mail: carabott.eric@cleanharbors.com

Prepared by: Tina Sanderson, B.Sc.
Senior Specialist, Emission Testing
ORTECH Consulting Inc.
804 Southdown Rd., Mississauga, Ontario L5J 2Y4
Tel: (905) 822-4120, Ext. 522
Email: tsanderson@ortech.ca

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EXECUTIVE SUMMARY

ORTECH Consulting Inc. (ORTECH) was requested by Clean Harbors Canada Inc. (Clean Harbors) to conduct a mercury emission testing program at the incineration facility located in Corunna, Ontario.

Mercury emission tests were performed at the Incinerator Exhaust Stack following the procedures outlined in US EPA Method 30B, “*Determination of Total Vapour Phase Mercury Emissions from Coal-Fired Combustion Sources Using Carbon Sorbent Traps*” to determine the amount of total vapour phase mercury present in the gas stream.

The test method states that the recovery spike must be within 50 to 150 percent of the expected mass collected in the traps during sampling. Six pairs of tube samples were collected during one day of testing on May 16, 2018. To ensure that at least one of the spike concentrations would fall within the concentration range requirements of the test method one tube from each of the six pairs of adsorbent tubes were spiked with increasing amounts of mercury, ranging from 100 ng to 2600 ng, by the analytical laboratory prior to commencing the test program.

The results of three of the pairs of tubes, including the spike that best represented the mercury concentration in the stack gas at the time of testing, are reported.

The average combustion gas values for each test period were obtained from the plant continuous emission monitoring (CEM) system. The average oxygen concentration for each test was used to determine the dry reference concentration adjusted to 11% oxygen.

The average mercury emission data from the triplicate total vapour phase mercury tests reported is provided below:

Mercury Parameter	Average
Dry Reference Concentration ($\mu\text{g}/\text{Rm}^3$)*	2.55
Dry Adjusted Concentration ($\mu\text{g}/\text{Rm}^3$)**	2.38

* reference conditions are 25°C and 1 atmosphere

** at 25°C and 1 atmosphere, adjusted to 11% oxygen

During the emission testing program, the powdered activated carbon (PAC) injection rate was 23.9 lb/hr.

1. INTRODUCTION

ORTECH Consulting Inc. (ORTECH) was requested by Clean Harbors Canada Inc. (Clean Harbors) to conduct a mercury emission testing program at the incineration facility located in Corunna, Ontario.

Mercury emission tests were performed at the Incinerator Exhaust Stack following the procedures outlined in US EPA Method 30B to determine the amount of total vapour phase mercury present in the gas stream.

The average combustion gas values for each test period were obtained from the plant continuous emission monitoring (CEM) system. The average oxygen concentration for each test was used to determine the dry reference concentration adjusted to 11% oxygen.

Six pairs of adsorbent tubes were collected during one day of sampling on May 16, 2018. The spike tubes from each test pair were spiked with increasing amounts of mercury, ranging from 100 ng to 2600 ng, prior to commencing the test program to ensure that at least one of the spike concentrations would fall within the concentration range requirements of the test method. The test method states that the recovery spike must be within 50 to 150 percent of the expected mass collected in the traps during sampling. The results of three of the pairs of tubes, including the spike that best represented the mercury concentration in the stack gas at the time of testing, are reported.

All tables referenced herein are included in Appendix 1.

2. SAMPLING LOCATION

The Incinerator Exhaust Stack has an inside diameter of 1.52 meters at the sampling platform and 1.22 meters at the stack exit. The stack height above grade is 68.6 meters.

Mercury sampling was conducted at the breeching connecting the induced draft fan to the stack. Sampling was conducted at a single point in the center of the duct.

Previous testing programs conducted by ORTECH at the Clean Harbors Incinerator Exhaust Stack have shown that there is no stack gas stratification between the breeching connecting the induced draft fan to the stack and the stack sampling platform location.

3. SAMPLING METHODOLOGY

Mercury emission tests were performed following the procedures outlined in US EPA Method 30B, “Determination of Total Vapour Phase Mercury Emissions from Coal-Fired Combustion Sources Using Carbon Sorbent Traps”.

ORTECH used a dual probe assembly so that the mercury traps are positioned 1 to 2 inches apart. Each probe was heated to approximately 135°C to prevent condensation of the stack gas on the sampling media. Each mercury trap was also specially designed for sampling at wet sources. Each tube had an extended section of glass to allow for the heating of the stack gas before it came into contact with the sampling media.

The sampling methodology is briefly described as follows. Each sorbent trap was removed from the clean sorbent trap storage container, the end caps were removed from the traps and the traps were attached to the end of the sampling probe and leak checked. The probe was inserted into the stack and the sample pumps were started. Stack gas was drawn through the traps and into the sampling probe and the sampled gas stream then passed through a series of empty impingers followed by a silica gel trap to remove any remaining traces of moisture prior to the pump and dry gas meter.

A run consisted of paired mercury traps, identified as either A or B, sampled simultaneously. In each tube pair one of either the A or B tube was spiked with a known quantity of mercury. Due to the variability in the mercury concentration in the stack gas and the necessity to have the spiked tubes prepared at least two weeks in advance of the testing program, six pairs of tubes were used for the sampling program to ensure that at least one of the spike concentrations would fall within the concentration range requirements of the test method.

Each test run was sixty minutes in duration at an approximate sampling rate of one liter per minute.

At five minute time increments throughout each test, the following information was measured and recorded for each sampling train:

- Elapsed sampling time
- Dry gas meter volume
- Dry gas meter temperatures
- Control module orifice pressure
- Sampling pump vacuum

At the start and finish of each sampling run the sampling trains were leak-checked. The leakage rate for each train must not exceed 4% of the average sampling rate for the collection period. If a trap pair did not have an acceptable initial leak check, the leak was found and repaired and/or the traps were replaced with a new pair until no leak was discernible. All the leak checks performed for the traps used showed no discernible leak through the test train.

Field testing data sheets for the mercury tests are provided in Appendix 2.

All of the sampling equipment used during the emission testing program was calibrated following the applicable reference method. Equipment calibration data is provided in Appendix 3.

4. ANALYSIS METHODOLOGY

At the end of each successful sampling run, the mercury traps were removed from the test train, capped and placed in their appropriate sample container. Each trap was labeled prior to being shipped to Ohio Lumex for analysis.

The traps were analyzed by thermal decomposition with atomic absorption following the procedures detailed in US EPA Method 7473 (direct thermal desorption with atomic absorption and no gold amalgamation). The method is applicable for total mercury “direct” testing of 40 CFR Part 75 Appendix K and EPA Method 30B sorbent traps.

The analysis is briefly described as follows. The sorbent trap tube end cap is removed; the glass wool plug closest to the appropriate carbon bed is carefully removed and separated from the carbon fraction. The sorbent is transferred into a quartz ladle and then covered with anhydrous sodium carbonate. The ladle is inserted into the heated analyzer thermo catalytic conversion chamber. Mercury is converted from a bound state to the atomic state by thermal decomposition in the furnace and is then detected by atomic absorption. The mercury concentration is measured and recorded using an automated data acquisition system. Both the glass wool plug and the sorbent of each bed are analyzed for the trap and the final mercury mass is the sum of the measurements.

The Ohio Lumex analytical report for total vapour phase mercury is provided in Appendix 4.

5. QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

The analysis of samples for mercury was performed by thermal decomposition with atomic absorption. Specific analytical QC procedures for the mercury analysis are summarized below:

- Calibrations are performed on the day of the analysis.
- Three or more calibration points are used for the calibration curve.
- The field samples analyzed must fall within a calibrated range.
- For each calibration curve, $R^2 \geq 0.99$, and the analyzer response must be within $\pm 10\%$ for each standard used in the calibration.
- Following calibration, a second source standard is analyzed. The measured value of the independently prepared standard must be within $\pm 10\%$ of the expected value.
- A blank analysis is conducted prior to analyzing the samples and must be less than the method detection limit.
- At the end of each set of analysis, a calibration standard is tested which must be within $\pm 10\%$ of the expected value.

Six unspiked mercury traps and six pre-spiked mercury traps were ordered approximately two weeks before the field testing program from Ohio Lumex. The pre-spiked mercury traps were spiked with known quantities of mercury ranging from 100 ng to 2600 ng in order to ensure that at least one of the traps met the spiking criterion stated in the test method. The recovery spike must be within 50 to 150 percent of the expected mass collected in the traps during sampling according to the test method. The spiking levels for the field recovery traps was estimated using mercury emission data from previous testing programs conducted between 2014 and January 2018. The pre-spiked mercury trap for Test No. 1 (100 ng) was used for spike recovery determination as the concentration best fit the requirements of the QA/QC criteria. The average mercury collected for Test No. 1, Test No. 2 and Test No. 3 (153 ng) was within 50% of the spike concentration (100 ng).

The field spike recovery provides specific verification of the performance of the combined sampling and analytical approach for the test program. Six sets of paired samples, one of each pair which is spiked with a known quantity of mercury, were collected. The samples were analyzed and the spike concentration for Test No. 1 fell closest to the spike range criterion stated in the test method. The spike recovery for Test No. 1 was 99.3%. US EPA Method 30B requires the spike recovery to be between 85% and 115%.

US EPA Method 30B requires the paired sorbent trap agreement to be $\leq 10\%$ relative deviation for mercury concentrations greater than $1 \mu\text{g}/\text{Rm}^3$ or $\leq 20\%$ relative deviation for mercury concentrations less than $1 \mu\text{g}/\text{Rm}^3$. If the paired trap agreement is greater than the above stated limits the run is not valid. All of the traps collected during the test program had concentrations greater than $1 \mu\text{g}/\text{Rm}^3$. The average dry adjusted mercury concentration ranged from a low of $2.11 \mu\text{g}/\text{Rm}^3$ (Tube Pair No. 1) to a high of $2.52 \mu\text{g}/\text{Rm}^3$ (Tube Pair No. 3) for the three tests reported. The paired trap agreement was 0.3% for Test No. 1, 3.8% for Test No. 2, and 9.5% for Test No. 3.

6. RESULTS

Six mercury runs were collected during one day of sampling on May 16, 2018. A run consisted of paired mercury traps, identified as either A or B, sampled simultaneously. The spike tubes from each test pair were spiked with increasing amounts of mercury, ranging from 100 ng to 2600 ng, prior to commencing the test program to ensure that at least one of the spike concentrations would fall within the concentration range requirements of the test method. The results for Test No. 1, Test No. 2 and Test No. 3 are reported.

The sampling schedule is summarized in Table 1. This information includes test dates and times for each of the mercury runs performed. All test times match plant time (i.e. daylight savings time).

Mercury emission sample analyses for Test No. 1, Test No. 2 and Test No. 3 are provided in Table 3. Mercury was detected in Section 1 of each trap in quantities greater than the method detection limit (0.393 ng) in all of the traps. Mercury was also collected in Section 2 in five of the six traps in quantities greater than or equal to the method detection limit. However, the amount detected in Section 2 was less than 0.4% of the mercury collected in Section 1, indicating that there was no breakthrough or potential loss of mercury. US EPA Method 30B states that $\leq 10\%$ of the total mercury collected should be collected in Section 2 for mercury concentrations greater than $1 \mu\text{g}/\text{Rm}^3$ or $\leq 20\%$ of the total mercury collected should be collected in Section 2 for mercury concentrations less than $1 \mu\text{g}/\text{Rm}^3$.

Included in Table 2 are the mercury concentration calculations for Test No. 1, Test No. 2 and Test No. 3. The average oxygen concentration measured by the Clean Harbors CEM system for each test was used to determine the dry reference concentration adjusted to 11% oxygen.

Six unspiked mercury traps and six pre-spiked mercury traps were ordered approximately two weeks before the field testing program from Ohio Lumex. The pre-spiked mercury traps were spiked with known quantities of mercury ranging from 100 ng to 2600 ng in order to ensure that at least one of the traps met the spiking criterion stated in the test method. The pre-spiked mercury traps for Test No. 1 (100 ng) was used for spike recovery determination as the concentration best fit the requirements of the QA/QC criteria.

US EPA Method 30B states that it is acceptable to use the field recovery runs as test runs for emission testing as long as they meet the paired trap agreement criteria. The mass of the mercury spike initially present in each of the spiked traps was subtracted from the total mercury collected in Section 1 of the trap. The difference represents the amount of mercury in the stack gas.

The paired trap agreement was 0.3% for Test No. 1, 3.8% for Test No. 2, and 9.5% for Test No. 3. The mercury emission data from the total vapour phase mercury tests is provided below:

Mercury Parameter	Test 1	Test 2	Test 3	Average
Dry Reference Conc. ($\mu\text{g}/\text{Rm}^3$)*	2.22	2.70	2.72	2.55
Dry Adjusted Conc. ($\mu\text{g}/\text{Rm}^3$)**	2.11	2.49	2.52	2.38

* Reference conditions are 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen

The incinerator exhaust stack mercury concentration limit as stated in Environmental Compliance Approval No. 8-1030-94-006 (formerly Certificate of Approval (Air) No. 8-1030-94-006) is 50 $\mu\text{g}/\text{Rm}^3$ adjusted to 11% oxygen. The mercury concentrations were below this limit during the test program.

The spiked mercury trap recovery calculations for Test No. 1 are shown in Table 3; the spike recovery for Test No. 1 was 99.3%. US EPA Method 30B requires the spike recovery to be between 85% and 115%.

7. FACILITY PROCESS DATA

Incinerator process data was supplied by Clean Harbors personnel for the emission test periods. The process data is provided in Appendix 5 as average values for each test for the following process parameters:

- incinerator feed rates (rich, lean, emulsion and alkaline streams)
- volumetric flowrates (secondary air and stack gases)
- temperatures (primary zone, secondary zone, spray dryer inlet and outlet, stack gases)
- pressures (burner, spray dryer outlet, baghouse differential)
- combustion gas stack concentrations (CO, HCl, CO₂, H₂O, THC, O₂, SO₂)
- stack gas opacity
- carbon injection rate

During the emission testing program, the average powdered activated carbon (PAC) injection rate was 23.9 lb/hr.

APPENDIX 1

**Data Tables
(2 pages)**

Table 1: Mercury Test Schedule

Test Number	Test Date	Sampling Period		Sampling Time
		Start	Finish	min
1	May 16, 2018	9:35	10:35	60
2	May 16, 2018	10:48	11:48	60
3	May 16, 2018	12:07	13:07	60
4	May 16, 2018	13:21	14:21	60
5	May 16, 2018	14:34	15:34	60
6	May 16, 2018	15:48	16:48	60

Note: All test times match plant time (i.e. daylight savings time).

Table 2: Mercury Emission Data

Test/Run No.	Tube ID	Mercury Collected			Dry Gas Volume Sampled Rm ^{3*}	Mercury Concentration		Paired Trap Agreement %
		Section 1 ng	Section 2 ng	Total ng		Dry Reference µg/Rm ^{3*}	Dry Adjusted µg/Rm ^{3**}	
1	A ***	138.7	0.6	139	0.0629	2.21	2.11	-
	B	144.8	0.4	145	0.0653	2.22	2.12	-
	Average					2.22	2.11	0.3
2	A	158.3	0.4	159	0.0612	2.59	2.40	-
	B***	160.5	<0.4	161	0.0574	2.80	2.59	-
	Average					2.70	2.49	3.8
3	A***	172.9	0.6	174	0.0582	2.98	2.76	-
	B	139.0	0.5	140	0.0566	2.46	2.28	-
	Average					2.72	2.52	9.5
Average				153		2.55	2.38	

Note: Concentration data is only reported for three tests as required by US EPA Method 30B

* At 25°C and 1 atmosphere

** At 25°C and 1 atmosphere, adjusted to 11% oxygen

*** Spiked tube, mercury collected corrected for the original spike (100 ng for Test No. 1, 250 ng for Test No. 3, and 500 ng for Test No. 3).

Table 3: Mercury Spike Tube Recovery

Test No.	Total Collected ng	Spike Tube Volume Sampled Rm ^{3*}	Mercury Concentration ng/Rm ^{3*}	Total Collected ng	Unspike Tube Volume Sampled Rm ^{3*}	Mercury Concentration ng/Rm ^{3*}	Spike Concentration ng/Rm ^{3*}	Spike Recovery %
	1	239	0.0629	3803	145.2	0.0653	2225	1578
2	411	0.0574	7154	158.7	0.0612	2594	4560	NA
3	674	0.0582	11570	139.5	0.0566	2464	9105	NA
Average								99.3

Note: The spike tubes were spiked with mercury by the analytical laboratory prior to sampling. The original spike concentrations were 100 ng for Test No. 1, 250 ng for Test No. 2, and 500 ng for Test No. 3.

"NA" Not Applicable. Spike recovery was not calculated as spike concentration was outside the range specified in US EPA Method 30B.

APPENDIX 2

**Mercury Field Data Sheets
(7 pages)**

**Clean Harbors, Sarnia
Mercury Tube Sampling Train
Sample Volume Corrections**

Incinerator Exhaust Stack

Test # - Tube (tube pair field ID)	DGMCF	Initial DGM Reading (L)	Final DGM Reading (L)	Actual Vol. Sampled (L)	Barometric Pressure (in.Hg)	Average DGM Pressure del H (in H ₂ O)	Average DGM Temperature (°C)	Corrected Volume (L)*	Corrected Volume (Rm ³)*
T1A OL288258 Spiked T1B OL460171	1.011 0.985	66.15 49.50	131.00 117.65	64.85 68.15	29.4 29.4	1.0 3.0	32.9 30.5	62.93 65.26	0.0629 0.0653
T2A OL460039 T2B OL038507 Spiked	1.011 0.985	32.30 19.50	98.20 81.75	65.90 62.25	29.4 29.4	1.0 3.0	46.6 42.2	61.17 57.38	0.0612 0.0574
T3A OL421230 Spiked T3B OL460099	1.011 0.985	0.95 84.40	65.00 146.90	64.05 62.50	29.4 29.4	1.0 3.0	53.2 47.5	58.21 56.61	0.0582 0.0566
T4A OL460185 T4B OL335289 Spiked	1.011 0.985	66.40 48.50	132.20 110.70	65.80 62.20	29.3 29.3	1.0 3.0	49.5 43.5	60.42 56.99	0.0604 0.0570
T5A OL335291 Spiked T5B OL460112	1.011 0.985	33.20 11.85	93.65 70.85	60.45 59.00	29.3 29.3	1.0 3.0	45.3 42.5	56.23 54.22	0.0562 0.0542
T6A OL460198 T6B OL336451 Spiked	1.011 0.985	95.10 72.40	161.50 132.65	66.40 60.25	29.3 29.3	1.0 3.0	45.8 41.9	61.65 55.45	0.0617 0.0554

* dry at 25°C and 1 atmosphere

ORTECH Environmental Mercury Tube Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test No.:	1

Test location:	Stack Breeching
Date:	May 16, 2018
Project No.:	21869

Train A

Tube Identification:	OL288258	Spiked	Yes
Spike Concentration	100ng		

Measuring Device	MII
Control Module	A12010
Barometer	Env.Can.

Barometric Pressure	29.40
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Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	66.15	23	23	1.0	5.0
5	71.6	25	25	1.0	5.5
10	77.0	26	26	1.0	6.0
15	82.4	28	28	1.0	6.5
20	87.8	29	29	1.0	7.0
25	93.2	31	31	1.0	7.0
30	98.6	33	33	1.0	7.0
35	104.0	34	34	1.0	7.0
40	109.4	36	36	1.0	7.0
45	114.8	38	38	1.0	7.0
50	120.2	39	39	1.0	7.0
55	125.6	41	41	1.0	7.0
60	131.00	44	44	1.0	7.0

Start Time:	9:35	Initial Leak Check	<0.01 Lpm@ 16 "Hg	DGMCF:	1.011
Finish Time:	10:35	Final Leak Check	<0.01 Lpm@ 15 "Hg	Sample Volume:	64.85
				Average DGM Temp:	32.8
				Average DGM Δ H:	1.0

Train B

Tube Identification:	OL460171	Spiked	No
Spike Concentration	NA		

Measuring Device	MII
Control Module	A10117

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	49.50	23	23	3.0	5.0
5	55.2	24	24	3.0	6.0
10	60.9	25	25	3.0	6.0
15	66.5	27	27	3.0	6.5
20	72.2	28	28	3.0	7.0
25	77.9	29	29	3.0	7.0
30	83.6	30	30	3.0	7.0
35	89.3	32	32	3.0	7.0
40	94.9	33	33	3.0	7.0
45	100.6	34	34	3.0	7.0
50	106.3	35	35	3.0	7.0
55	112.0	37	37	3.0	7.0
60	117.65	39	39	3.0	7.0

Start Time:	9:35	Initial Leak Check	<0.01 Lpm@ 17 "Hg	DGMCF:	0.985
Finish Time:	10:35	Final Leak Check	<0.01 Lpm@ 16 "Hg	Sample Volume:	68.15
				Average DGM Temp:	30.5
				Average DGM Δ H:	3.0

Operator: D. D. O'G

ORTECH Environmental Mercury Tube Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test No.:	2

Test location:	Stack Breaching
Date:	May 16, 2018
Project No.:	21869

Train A

Tube Identification:	OL460039	Spiked	No
Spike Concentration	NA		

Measuring Device	MI
Control Module	A12010
Barometer	Env.Can.

Barometric Pressure 29.39

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	32.30	41	41	1.0	5.0
5	37.8	42	42	1.0	5.5
10	43.3	43	43	1.0	6.0
15	48.8	44	44	1.0	6.5
20	54.3	45	45	1.0	7.0
25	59.8	46	46	1.0	7.0
30	65.3	47	47	1.0	7.0
35	70.7	47	47	1.0	7.0
40	76.2	48	48	1.0	7.0
45	81.7	49	49	1.0	7.0
50	87.2	50	50	1.0	7.0
55	92.7	51	51	1.0	7.0
60	98.20	53	53	1.0	8.5

Start Time:	10:48	Initial Leak Check	<0.01 Lpm@ 15 "Hg	DGMCF:	1.011
Finish Time:	11:48	Final Leak Check	<0.01 Lpm@ 15 "Hg	Sample Volume:	65.9
				Average DGM Temp:	46.6
				Average DGM Δ H:	1.0

Train B

Tube Identification:	OLC038507	Spiked	Yes
Spike Concentration	250ng		

Measuring Device	MI
Control Module	A10117

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	19.50	37	37	3.0	5.0
5	24.7	38	38	3.0	6.0
10	29.9	39	39	3.0	6.0
15	35.1	40	40	3.0	6.5
20	40.3	40	40	3.0	7.0
25	45.4	41	41	3.0	7.0
30	50.6	42	42	3.0	7.0
35	55.8	43	43	3.0	7.0
40	61.0	44	44	3.0	7.0
45	66.2	45	45	3.0	7.5
50	71.4	45	45	3.0	7.5
55	76.6	46	46	3.0	7.5
60	81.75	48	48	3.0	7.5

Start Time:	10:48	Initial Leak Check	<0.01 Lpm@ 16 "Hg	DGMCF:	0.985
Finish Time:	11:48	Final Leak Check	<0.01 Lpm@ 16 "Hg	Sample Volume:	62.25
				Average DGM Temp:	42.2
				Average DGM Δ H:	3.0

Operator: Dil KJ

ORTECH Environmental Mercury Tube Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test No.:	3

Test location:	Stack Breeching
Date:	May 16, 2018
Project No.:	21869

Train A

Tube Identification:	OL421230	Spiked	Yes
Spike Concentration	500ng		

Measuring Device	MII
Control Module	A12010
Barometer	Env.Can.

Barometric Pressure	29.37
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Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	0.95	49	49	1.0	5.0
5	6.3	50	50	1.0	5.5
10	11.6	50	50	1.0	6.0
15	17.0	51	51	1.0	6.5
20	22.3	52	52	1.0	7.0
25	27.6	52	52	1.0	7.0
30	33.0	53	53	1.0	7.0
35	38.3	54	54	1.0	7.0
40	43.7	55	55	1.0	7.0
45	49.0	55	55	1.0	7.0
50	54.3	56	56	1.0	7.0
55	59.7	57	57	1.0	7.0
60	65.00	58	58	1.0	8.0

Start Time:	12:07	Initial Leak Check	<0.01 Lpm@ 16 "Hg	DGMCF:	1.011
Finish Time:	13:07	Final Leak Check	<0.01 Lpm@ 15 "Hg	Sample Volume:	64.05
				Average DGM Temp:	53.2
				Average DGM Δ H:	1.0

Train B

Tube Identification:	OL460099	Spiked	No
Spike Concentration	NA		

Measuring Device	MII
Control Module	A10117

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	84.40	45	45	3.0	4.5
5	89.6	45	45	3.0	6.0
10	94.8	46	46	3.0	6.0
15	100.0	47	47	3.0	6.0
20	105.2	47	47	3.0	6.0
25	110.4	47	47	3.0	6.0
30	115.7	48	48	3.0	6.0
35	120.9	48	48	3.0	6.0
40	126.1	48	48	3.0	6.0
45	131.3	49	49	3.0	6.0
50	136.5	49	49	3.0	6.0
55	141.7	49	49	3.0	6.0
60	146.90	50	50	3.0	6.0

Start Time:	12:07	Initial Leak Check	<0.01 Lpm@ 17 "Hg	DGMCF:	0.985
Finish Time:	13:07	Final Leak Check	<0.01 Lpm@ 16 "Hg	Sample Volume:	62.50
				Average DGM Temp:	47.6
				Average DGM Δ H:	3.0

Operator: D. J. UG

ORTECH Environmental Mercury Tube Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test No.:	4

Test location:	Stack Breeching
Date:	May 16, 2018
Project No.:	21869

Train A

Tube Identification:	OL460185	Spiked	No
Spike Concentration	NA		

Measuring Device	MII
Control Module	A12010
Barometer	Env.Can.

Barometric Pressure	29.34
---------------------	-------

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	66.40	50	50	1.0	4.5
5	71.9	50	50	1.0	5.5
10	77.4	50	50	1.0	6.0
15	82.9	50	50	1.0	6.5
20	88.3	50	50	1.0	7.0
25	93.8	50	50	1.0	7.0
30	99.3	50	50	1.0	7.0
35	104.8	49	49	1.0	7.0
40	110.3	49	49	1.0	7.0
45	115.8	49	49	1.0	7.0
50	121.2	49	49	1.0	7.0
55	126.7	49	49	1.0	7.0
60	132.20	49	49	1.0	7.5

Start Time:	13:21	Initial Leak Check	<0.01 Lpm@ 16 "Hg	DGMCF:	1.011
Finish Time:	14:21	Final Leak Check	<0.01 Lpm@ 15 "Hg	Sample Volume:	65.8
				Average DGM Temp:	49.5
				Average DGM ΔH :	1.0

Train B

Tube Identification:	OL335289	Spiked	Yes
Spike Concentration	800ng		

Measuring Device	MII
Control Module	A10117

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure ΔH "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	48.50	44	44	3.0	4.0
5	53.7	44	44	3.0	6.0
10	58.9	44	44	3.0	6.0
15	64.1	44	44	3.0	6.5
20	69.2	44	44	3.0	10.5
25	74.4	44	44	3.0	10.5
30	79.6	44	44	3.0	10.5
35	84.8	43	43	3.0	10.5
40	90.0	43	43	3.0	10.5
45	95.2	43	43	3.0	10.5
50	100.3	43	43	3.0	10.5
55	105.5	43	43	3.0	10.5
60	110.70	43	43	3.0	10.5

Start Time:	13:21	Initial Leak Check	<0.01 Lpm@ 17 "Hg	DGMCF:	0.985
Finish Time:	14:21	Final Leak Check	<0.01 Lpm@ 16 "Hg	Sample Volume:	62.20
				Average DGM Temp:	43.5
				Average DGM ΔH :	3.0

Operator: D. J. U.

ORTECH Environmental Mercury Tube Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test No.:	5

Test location:	Stack Breeching
Date:	May 16, 2018
Project No.:	21869

Train A

Tube Identification:	OL335291	Spiked	Yes
Spike Concentration	1400ng		

Measuring Device	MII
Control Module	A12010
Barometer	Env.Can.

Barometric Pressure	29.33
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Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	33.20	43	43	1.0	6.0
5	38.2	43	43	1.0	5.5
10	43.3	44	44	1.0	6.0
15	48.3	44	44	1.0	6.5
20	53.4	45	45	1.0	7.0
25	58.4	45	45	1.0	7.0
30	63.4	45	45	1.0	7.0
35	68.5	46	46	1.0	9.5
40	73.5	46	46	1.0	9.5
45	78.5	46	46	1.0	9.5
50	83.6	47	47	1.0	9.5
55	88.6	47	47	1.0	9.5
60	93.65	48	48	1.0	9.5

Start Time:	14:34	Initial Leak Check	<0.01 Lpm@ 16 "Hg	DGMCF:	1.011
Finish Time:	15:34	Final Leak Check	<0.01 Lpm@ 15 "Hg	Sample Volume:	60.45
				Average DGM Temp:	45.3
				Average DGM Δ H:	1.0

Train B

Tube Identification:	OL460112	Spiked	No
Spike Concentration	NA		

Measuring Device	MII
Control Module	A10117

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	11.85	40	40	3.0	5.0
5	16.8	40	40	3.0	6.0
10	21.7	41	41	3.0	6.0
15	26.6	41	41	3.0	6.5
20	31.5	42	42	3.0	7.0
25	36.4	42	42	3.0	7.0
30	41.4	42	42	3.0	7.0
35	46.3	43	43	3.0	7.0
40	51.2	43	43	3.0	7.0
45	56.1	44	44	3.0	7.0
50	61.0	44	44	3.0	7.0
55	65.9	45	45	3.0	7.0
60	70.85	45	45	3.0	7.5

Start Time:	14:34	Initial Leak Check	<0.01 Lpm@ 17 "Hg	DGMCF:	0.985
Finish Time:	15:34	Final Leak Check	<0.01 Lpm@ 16 "Hg	Sample Volume:	59.00
				Average DGM Temp:	42.5
				Average DGM Δ H:	3.0

Operator: *D. J. UG*

ORTECH Environmental Mercury Tube Data Sheet

Plant:	Clean Harbors
Plant Location:	Corunna, ON
Test No.:	6

Test location:	Stack Breeching
Date:	May 16, 2018
Project No.:	21869

Train A

Tube Identification:	OL460198	Spiked	No
Spike Concentration	NA		

Measuring Device	MII
Control Module	A12010
Barometer	Env.Can.

Barometric Pressure	29.30
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Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	95.10	43	43	1.0	5.0
5	100.6	43	43	1.0	5.5
10	106.2	44	44	1.0	6.0
15	111.7	44	44	1.0	6.5
20	117.2	45	45	1.0	7.0
25	122.8	45	45	1.0	7.0
30	128.3	46	46	1.0	7.0
35	133.8	46	46	1.0	7.0
40	139.4	47	47	1.0	7.0
45	144.9	47	47	1.0	7.0
50	150.4	48	48	1.0	7.0
55	156.0	48	48	1.0	7.0
60	161.50	49	39	1.0	7.5

Start Time:	15:48	Initial Leak Check	<0.01 Lpm@ 16 "Hg	DGMCF:	1.011
Finish Time:	16:48	Final Leak Check	<0.01 Lpm@ 15 "Hg	Sample Volume:	66.4
				Average DGM Temp:	45.4
				Average DGM Δ H:	1.0

Train B

Tube Identification:	OL336451	Spiked	Yes
Spike Concentration	2600ng		

Measuring Device	MII
Control Module	A10117

Clock Time	Dry Gas Meter L	Meter Temperature		Meter Pressure Δ H "H ₂ O	Pump Vacuum "Hg Gauge
		Outlet °C	Inlet °C		
0	72.40	41	41	3.0	4.5
5	77.4	41	41	3.0	6.0
10	82.4	41	41	3.0	6.0
15	87.5	41	41	3.0	6.5
20	92.5	42	42	3.0	7.0
25	97.5	42	42	3.0	7.0
30	102.5	42	42	3.0	7.0
35	107.5	42	42	3.0	7.0
40	112.6	42	42	3.0	7.0
45	117.6	42	42	3.0	7.0
50	122.6	43	43	3.0	7.0
55	127.6	43	43	3.0	7.0
60	132.65	43	43	3.0	8.0

Start Time:	15:48	Initial Leak Check	<0.01 Lpm@ 17 "Hg	DGMCF:	0.985
Finish Time:	16:48	Final Leak Check	<0.01 Lpm@ 16 "Hg	Sample Volume:	60.25
				Average DGM Temp:	41.9
				Average DGM Δ H:	3.0

Operator: D. D. U. G.

APPENDIX 3

**ORTECH Equipment Calibration Data
(4 pages)**

ORTECH Environmental
Dry Gas Meter Calibration Data

Calibration Procedure	03-J004
Meter Number	Vost 3
Date	May 8, 2018
Barometric Pressure	29.80
System Leak Check	0.01 LPM @ 21 " Hg

MII NUMBERS	
DGM	A12010
Gasometer	A01463
Barometer	COE 20028

Calibrated By	Dillon Berjmbau
Signature	<i>[Signature]</i>
Reviewed and Accepted By	<i>[Signature]</i>

$ft^3 = cm^3 \times 1.332$ litres per cm³/28.3168 litres per ft³



DGMCF = $\frac{V_{std} ft^3}{V_{dgm} ft^3} \times \frac{T_{dgm} \text{ } ^\circ F + 460}{T_{std} \text{ } ^\circ F + 460} \times \frac{P_{bar} \text{ (in. Hg)}}{(P_{bar} \text{ in. Hg} + DGM \text{ Pressure}/13.6)}$

Initial	Gasometer Reading		Gasometer Volume ft ³	Gasometer Temperature °C	DGM Reading		DGM Volume ft ³	DGM Average Temperature °C	DGM Pressure in. H ₂ O	DGM Outlet °C	DGM Calibration Factor	Time min.	Flow Rate lpm
	Final	cm			Initial	Final							
83.50	67.10	16.40	0.771	21.3	7688.57	7710.70	0.782	29.0	1.0	29.0	1.010	20	1.1
67.10	51.60	15.50	0.729	21.3	7710.70	7731.60	0.738	30.0	1.0	30.0	1.015	20	1.0
51.60	36.20	15.40	0.724	21.3	7731.60	7752.62	0.742	32.0	1.0	32.0	1.009	20	1.1

DGMCF AVERAGE
1 Lpm 1.011

Acceptance Criteria:
Individual values of DGM calibration factor must be within $\pm 1.5\%$ of the average value.
If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05 , otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use.
(Environment Canada Reference Method EPS 1/RM/8, Section 6)

ORTECH Environmental Trendicator Calibration

Calibration Procedure	03-J005
Trendicator Type	Nutech
MII	A12010
Date	May 8, 2018
Calibrated By	Dillon Berimbau
Signature	
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°C)	Trendicator Display Value		Percent Difference (%)
	Before Adjustment (°C)	After Adjustment (°C)	
0	0	NA	0.0
10	10		0.0
20	20		0.0
50	50		0.0
75	75		0.0
100	100		0.0
125	126		-0.8
150	151		-0.7
200	200		0.0
300	301		-0.3
400	401		-0.3
500	501		-0.2
600	602		-0.3

$$\% \text{ Difference} = \frac{(\text{micromite} - \text{after adjustment reading}) \times 100}{\text{micromite}}$$



Acceptance Criteria:

Trendicator display must read within $\pm 1.5\%$ of the micromite value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use. (MOE Source Testing Code, Version #2, Method 5)

ORTECH Environmental
Dry Gas Meter Calibration Data

Calibration Procedure	03-J004
Meter Number	Vost 2
Date	May 8, 2018
Barometric Pressure	29.77
System Leak Check	<0.01 lpm @ 21"Hg

MII NUMBERS	
DGM	A10117
Gasometer	A01463
Barometer	COE20028

Calibrated By	Dillon Berimbau
Signature	
Reviewed and Accepted By	

$$ft^3 = cm^3 \times 1.332 \text{ litres per cm}^3 / 28.3168 \text{ litres per ft}^3$$

$$DGMCF = \frac{V_{std} \text{ ft}^3}{V_{dgm} \text{ ft}^3} \times \frac{T_{dgm} \text{ } ^\circ\text{F} + 460}{T_{std} \text{ } ^\circ\text{F} + 460} \times \frac{P_{bar} \text{ (in. Hg)}}{(P_{bar} \text{ in. Hg} + DGM \text{ Pressure}) / 13.6}$$



Initial	Gasometer Reading cm		Gasometer Volume ft ³	Gasometer Temperature °C	DGM Reading L		DGM Volume ft ³	DGM Average Temperature °C	DGM Pressure in. H ₂ O	DGM Outlet °C	DGM Calibration Factor	Time min.	Flow Rate lpm
	Final	cm			Initial	Final							
68.60	53.10	15.50	0.729	22.0	7685.650	7707.010	0.754	28.0	3.0	28.0	0.979	20	1.1
53.10	37.80	15.30	0.720	22.0	7707.010	7727.840	0.736	28.0	3.0	28.0	0.991	20	1.0
37.80	22.60	15.20	0.715	22.0	7727.840	7748.670	0.736	28.0	3.0	28.0	0.984	20	1.0

Acceptance Criteria:

Individual values of DGM calibration factor must be within $\pm 1.5\%$ of the average value. If not the calibration must be repeated. Also, the DGMCF average value must be 1.00 ± 0.05 , otherwise the meter must be repaired and/or adjusted as necessary and recalibrated prior to use. (Environment Canada Reference Method EPS 1/RM/8, Section 6)

DGMCF AVERAGE
1 Lpm 0.985

ORTECH Environmental Trendicator Calibration

Calibration Procedure	03-J005
Trendicator Type	Nutech
MIU	A10117
Date	May 8, 2018
Calibrated By	Dillon Berimbau
Signature	
Reviewed and Accepted By	

Fluke Calibrator Output (COE 20024) (°C)	Trendicator Display Value		Percent Difference (%)
	Before Adjustment (°C)	After Adjustment (°C)	
0	0	NA	0.0
10	10		0.0
20	20		0.0
50	50		0.0
75	75		0.0
100	100		0.0
125	125		0.0
150	150		0.0
200	200		0.0
300	300		0.0
400	400		0.0
500	500		0.0
600	600	↓	0.0

$$\% \text{ Difference} = \frac{(\text{micromite} - \text{after adjustment reading})}{\text{micromite}} \times 100$$

Acceptance Criteria:

Trendicator display must read within $\pm 1.5\%$ of the micromite value at each output. Otherwise, the Trendicator must be repaired and/or adjusted as necessary, and recalibrated prior to use. (MOE Source Testing Code, Version #2, Method 5)

APPENDIX 4

**Mercury Analytical Report
(1 page)**

Sorbent Trap Analysis Report

Project Number: 2014032 Plant: ORTECH Environmental
 Turn-around: Standard Contact: David Utley
Date: 2018-05-25
Analyst(s): Patrick Cook
Method: EPA 7473
Method Uncertainty: ± 10%

Trap ID	AGS Mass (ng)	Section 1 Mass (ng)	Section 2 Mass (ng)	Total Mass (ng) ¹	Section 3 Mass (ng)	Spike Level (ng)	Breakthrough (%) ²	Spike Recovery (%) ³	Source	Notes
OL288258		238.7	0.6	239.3		100	0.23%			Run 1
OL460171		144.8	0.4	145.2			0.27%			Run 1
OL460039		158.3	0.4	158.7			0.22%			Run 2
OLC038507		410.5	0.2	410.7		250	0.06%			Run 2
OL421230		672.9	0.6	673.5		500	0.09%			Run 3
OL460099		139.0	0.5	139.5			0.36%			Run 3
OL460185		155.2	0.6	155.8			0.39%			Run 4
OL335289		1081	2.4	1083		800	0.22%			Run 4
OL335291		1672	1.1	1673		1400	0.06%			Run 5
OL460112		134.2	0.4	134.6			0.29%			Run 5
OL460198		161.0	0.0	161.0			0.00%			Run 6
OL336451		2975	0.7	2976		2600	0.03%			Run 6

MDL = 0.393 ng LOQ = 5 ng

Laboratory NELAP Accreditation #E871092



¹ Total Mass = PF+AGS+S1+S2

² Breakthrough = S2 / (PF+AGS+S1)

³ Spike Recovery = S3 / Spike Level

For PS-12B Only

R = Data invalidation qualifier. Refer to notes

APPENDIX 5

**Clean Harbors Process Data
(18 pages)**

2018-05-16 10:29:00	38.265	10.94	171.18	219.015	5.65875	339.525	16.8	24.49125	26195.59	14084.33	97794	1491.75	1123.1	512.8	191	175	-7.9	-32.1	-70.575	287.75
2018-05-16 10:30:00	37.965	10.77	174.9262	219.69	5.5475	332.85	16.6875	23.28375	26368.4	14202.3	96642	1488.625	1123.1	512.8	191	175	-11.35	-37.35	-75.75	277.8125
2018-05-16 10:31:00	38.415	10.75	172.1813	217.8	4.9375	296.25	16.0875	23.5725	26195.59	14196.69	96871	1491.875	1122	512.7	191	175	-8.65	-32.1	-69.6375	287.625
2018-05-16 10:32:00	37.965	10.805	171.4725	218.61	5.355	321.3	16.5	24.57	26631.07	14236.01	100321	1487.75	1122	512.4	191	175	-19.25	-44.2	-86.0625	255.625
2018-05-16 10:33:00	39.03	10.925	171.7538	220.5	5.74625	344.775	16.275	24.17625	26451.35	14123.65	96224	1487.125	1122	512.4	191	175	-15.75	-42.8	-79.9875	266.625
2018-05-16 10:34:00	38.865	11.13	171.7987	220.05	5.04875	302.925	16.8375	24.2025	26368.4	14494.44	97644	1487.875	1122	512.6	191	173.5	-12.1	-36.5	-77.925	251.5
2018-05-16 10:35:00	39.3	11	168.5812	219.015	5.46	327.6	16.8375	23.31	26195.59	14455.11	95898	1494.5	1122	512.8	191	172.9	-12.3	-44.6	-77.1375	238.1875
May 16/2018																				
Test 1	Waste Flows			Flows			Air Flows			Temperatures			Pressures							
	Rich	Emulsion	Lean	Alkaline	TDU Row	TDU Flow	Leachate	PAC Flow	Primary	Secondary	Stack	Primary	Secondary	Quench	Spray/Dryer	Stack	Incrinerator	SDA Inlet	SD Outlet	Baghouse
	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FI	PV-236	PV-209C	FT-260C	TE-240	TE-241	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622
Max	39.3	13.2	174.9	222.1	5.7	344.8	17.6	24.6	27336.2	14511.3	103713.0	1505.3	1124.2	512.8	191.0	175.7	-7.1	-31.4	-69.6	287.8
Min	37.5	10.8	166.4	216.3	4.3	260.4	14.6	23.1	26098.8	14073.1	94839.0	1487.1	1114.1	506.6	189.5	172.9	-35.1	-67.3	-107.3	199.5
Average	38.3	12.3	171.8	218.9	4.7	284.3	16.5	24.0	26559.7	14281.0	98417.6	1495.6	1120.3	510.2	190.5	174.5	-15.5	-43.2	-82.2	257.7
Variance	0.092116	0.349885	1.987411	1.93978	0.109852	395.8056	0.198634	0.2414554	67925.61	11800.83	3953448	21.77879	8.079607	3.870486	0.504098	0.372	58.36739	94.86845	107.2828	623.7271

2018-05-16	11:42:00	38.73	10.675	173.5087	219.375	4.95125	297.075	17.1	24.57	26637.99	14157.36	102047	1516	1137.1	521.6	195.5	179.2	-28.15	-58.7	-99	198.375
2018-05-16	11:43:00	39.96	10.905	171.7538	219.96	4.87875	292.725	16.9875	24.07125	26555.04	14033.76	98152	1510.375	1137.1	521.4	195.5	179.2	-13.75	-38.85	-78.6	258.6875
2018-05-16	11:44:00	38.685	10.575	169.8075	219.555	4.85	291	16.9125	23.12625	26720.94	14033.76	100142	1510.875	1137.1	521.6	195.5	179.2	-29.35	-58.8	-100.763	197.1875
2018-05-16	11:45:00	39.765	11.145	174.1162	223.29	4.85	291	15.825	24.07125	26375.31	13876.46	98554	1507.5	1137.1	522.1	195.5	179.2	-6.75	-33.45	-71.2875	253
2018-05-16	11:46:00	39.045	11.055	172.08	221.175	4.8425	290.55	16.425	24.33375	26900.66	13988.82	99786	1511.625	1137.1	522.1	195.5	179.2	-28.2	-56.55	-99.375	205.875
2018-05-16	11:47:00	38.91	11.2	169.9537	223.805	4.825	289.5	16.3875	24.49125	26375.31	14005.67	97580	1511.375	1138.2	521.7	195.5	179.2	-7.65	-30.7	-70.2	275.625
2018-05-16	11:48:00	39.645	10.955	172.2262	222.21	4.91375	294.825	17.2875	24.54375	26907.57	14185.45	100763	1517.125	1138.2	521.9	195.5	179.2	-29.5	-58.5	-101.588	199.1875
May 16/2018																					
Test 2	Waste Flows			Flows				Air Flows				Temperatures				Pressures					
	Rich	Emulsion	Lean	Alkaline	TDU Row	TDU Flow	Leachate	PACFlow	Primary	Secondary	Stack	Primary	Secondary	Quench	Spray/Dryer	Stack	Incrinerator	SDA Inlet	SD Outlet	Baghouse	
	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PACFT	PV-236	PV-209c	FT-260c	TE-240	TE-241	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDI-622	
Max	40.7	11.3	175.5	225.8	5.9	356.6	18.3	24.6	27170.3	14314.7	102453.0	1524.4	1142.1	522.1	195.5	179.4	-2.7	-24.9	-65.0	288.7	
Min	38.3	10.6	167.9	217.7	4.3	259.7	15.6	23.1	26195.6	13854.0	95686.0	1505.1	1133.1	515.7	192.5	175.8	-32.5	-62.5	-104.6	197.2	
Average	39.5	11.0	171.9	221.0	4.9	291.1	16.7	23.8	26629.5	14032.2	97898.6	1512.4	1136.6	519.9	195.2	178.5	-12.1	-37.9	-78.1	257.6	
Variance	0.27347	0.028618	3.551093	2.711214	0.141834	507.103	0.200017	0.22712366	67117.65	9508.642	2452062	15.44835	3.28329	2.916115	0.511475	0.815301	61.64774	91.3068	109.8329	628.274	

2018-05-16	13:02:00	38.955	10.8	175.3537	221.985	4.49875	269.925	16.6125	24.465	26292.36	13780.95	98712	1516	1126.9	520.1	194	175.9	-10.35	-37.1	-77.5875	259.6875
2018-05-16	13:03:00	39	10.875	174.735	220.545	4.49375	269.625	17.6625	24.12375	26644.9	13814.66	97998	1511.875	1125.9	520.4	194	178.9	-15.05	-43.7	-83.1375	240.3125
2018-05-16	13:04:00	37.68	11.065	175.8262	222.885	4.39875	263.925	16.4625	24.07125	26112.64	13640.5	97203	1515.125	1125.9	520.1	194	178.8	-7.25	-34.15	-73.7625	255.125
2018-05-16	13:05:00	39.255	11.14	174.0712	222.165	4.56625	273.975	17.4	23.6775	26555.04	13842.75	97568	1516	1125.9	519.8	194	177.8	-11.55	-38.45	-78.9	269.375
2018-05-16	13:06:00	38.01	11.095	174.1162	222.39	4.9625	297.75	16.6875	23.2575	26105.72	13825.9	95289	1516.75	1125.9	519.7	194	177.2	-6.25	-34.2	-70.0875	280.125
2018-05-16	13:07:00	38.295	10.65	175.0725	220.185	4.65125	279.075	16.8	24.59625	26561.95	13797.81	98007	1515.5	1125.9	519.6	194	179	-11.5	-39.85	-78.6	269.0625

May 16/2018	Waste Flows				Flows				Air Flows				Temperatures				Pressures			
	Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	TDU Flow	Leachate	PACFlow	Primary	Secondary	Stack	Primary	Secondary	Quench	Spray/Dryer	Stack	Incrinator	SDA Inlet	SD Outlet
Test 3	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209C	FT-260C	TE-240	TE-241	TE-203	TE-204	TE-258	PT-249	PT-242A	PT-615	PDT-622
Max	40.3	11.4	176.4	224.3	5.0	300.6	17.7	24.6	27087.3	14196.7	102566.0	1530.5	1137.1	523.2	195.5	180.4	-2.9	-26.3	-63.8	288.0
Min	37.4	10.6	171.6	219.0	4.3	258.7	16.4	23.2	26009.0	13640.5	94804.0	1506.5	1125.9	519.6	194.0	171.1	-30.0	-60.5	-103.4	197.0
Average	38.9	11.0	174.3	221.7	4.6	273.1	17.0	23.9	26434.1	13902.1	97835.0	1516.3	1132.6	521.9	195.2	178.7	-11.7	-38.0	-78.2	256.1
Variance	0.560539	0.032575	1.588849	1.910969	0.032628	117.4605	0.12892	0.206155451	69008.63	13516.5	3015882	24.57993	15.80357	1.030169	0.404508	2.288175	50.36751	73.99507	94.94562	582.7771

2018-05-16 15:29:00	38.835	11.095	178.29	222.93	4.766	285.9	17.0625	23.205	25939.82	13713.54	96996	1512.375	1123.9	519.6	519.5	179.6	-5.2	-32.05	-70.9875	269.875
2018-05-16 15:30:00	37.26	11.025	170.5162	220.41	4.73125	283.875	17.2875	23.33625	25939.82	13736.01	96838	1518.5	1123.9	519.5	194	178.6	-4.8	-32.7	-74.8875	240.1875
2018-05-16 15:31:00	38.55	11.045	172.89	221.58	4.81125	288.675	17.325	24.59625	26389.14	13792.19	95755	1512.875	1125	519.3	194	179.6	-15.45	-43.05	-84.375	252.1875
2018-05-16 15:32:00	38.925	10.855	171	219.735	4.73875	284.325	17.7375	23.44125	26209.41	13792.19	97823	1514.125	1126.1	519	194	179.9	-21.8	-54.75	-92.025	208.5625
2018-05-16 15:33:00	39.735	10.775	172.1362	220.32	4.72625	283.575	16.875	23.23125	26465.17	13764.1	98051	1512.125	1127.1	519	194	178.9	-14.2	-42.75	-80.4	246.125
2018-05-16 15:34:00	38.28	10.91	170.6175	218.835	4.7675	286.05	17.85	24.43875	26209.41	13679.83	102284	1519.75	1127.1	519.2	194	179.3	-26.8	-56.85	-96.15	204.1875

May 16/2018	Waste Flows				Flows				Air Flows				Temperatures				Pressures					
	Rich	Emulsion	Lean	Alkaline	IDU Flow	IDU Flow	IDU Flow	Leachate	PACFlow	SC-PAC-FT	PV-236	PV-209c	FT-260c	Primary	Secondary	Quench	Spray/Dryer	Stack	Incinerator	SDA Inlet	SD Outlet	Baghouse
Test 5	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313B	FT-313	PV-211	SC-PAC-FT	PV-236	PV-209c	FT-260c	TE-240	TE-241	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PDT-622	
Max	39.7	11.3	179.2	223.8	5.0	302.4	19.1	24.6	26734.8	14067.5	102284.0	1527.6	1135.1	523.1	197.0	181.8	-1.3	-27.6	-65.0	282.7		
Min	37.3	10.7	170.5	218.8	3.9	233.8	16.0	23.0	25670.2	13601.2	94060.0	1507.0	1123.9	519.0	194.0	178.0	-28.4	-59.1	-104.2	197.2		
Average	38.5	11.0	176.4	221.4	4.7	284.3	17.2	23.8	26153.5	13773.2	97210.0	1517.7	1131.7	521.9	196.5	180.8	-10.9	-38.5	-79.1	252.7		
Variance	0.433197	0.023156	3.470719	1.448916	0.025627	92.256684	0.256153	0.260192259	64164.5	8052.695	3310828	18.80972	12.25961	1.356202	0.865574	0.920508	49.31126	72.18586	91.57962	575.7238		

2018-05-16	16:42:00	38.7	11.07	174.4537	224.505	4.74375	284.625	17.5875	24.466	25946.74	13747.25	96439	1535.125	1145.1	524.2	198.5	182.2	-9.4	-36.75	-77.2125	254.5
2018-05-16	16:43:00	38.565	11.01	174.0263	222.525	4.74	284.4	17.55	23.49375	26472.09	13814.66	100568	1534.5	1146.1	524.3	198.5	182.7	-24.7	-57.2	-98.4	198.75
2018-05-16	16:44:00	40.32	11.125	174.9713	223.605	4.72	283.2	16.9875	23.23125	28663.79	13752.66	96397	1533.375	1146.1	524.4	198.5	182.2	-7.65	-34.75	-73.4625	251
2018-05-16	16:45:00	39.285	10.65	175.4437	220.41	4.7025	282.15	17.8875	24.3075	26389.14	13898.93	100731	1535.375	1146.1	524.3	198.5	180.4	-25.75	-51.85	-96.2625	233.625
2018-05-16	16:46:00	38.79	11.1	173.4525	222.03	4.71125	282.675	17.4	23.17875	25767.01	13747.25	97886	1534.375	1146.1	524.3	198.5	182.7	-4.2	-30.25	-69.675	277.8125
2018-05-16	16:47:00	39.99	10.75	173.88	220.455	4.765	285.9	17.475	24.4125	26472.09	13758.48	100155	1536.625	1145	526.1	198.5	182.7	-17.05	-40.8	-90.8625	246.125
2018-05-16	16:48:00	38.31	10.995	177.6712	221.715	4.71875	283.125	17.475	24.255	28856.88	13685.45	95816	1535.875	1145	529.6	198.5	181.8	-2.5	-29.35	-69.225	277.75

May 16/2018	Waste Flows				Flows				Air Flows				Temperatures				Pressures					
	Rich	Emulsion	Lean	Alkaline	TDU Flow	TDU Flow	TDU Flow	Leachate	PACFlow	Primary	Secondary	Primary	Secondary	Primary	Secondary	Quench	Spray/Dryer	Stack	Incinerator	SDA Inlet	SDA Outlet	Baghouse
Test 6	FT-229	FT-219C	FT-223	PV-207	FT-313B	FT-313	PV-211	SC-PACFI	PV-236	PV-209c	FT-260c	TE-240	TE-241	TE-203	TE-204	TE-258	PT-242A	PT-249	PT-615	PT-622		
Max	40.5	11.3	178.5	224.5	4.8	290.3	18.6	24.6	26651.8	13955.1	102037.0	1541.6	1146.1	529.6	198.5	182.8	-0.7	-26.5	-65.5	-65.5	284.3	
Min	38.0	10.7	171.1	218.9	4.7	279.6	15.7	23.2	25587.3	13522.5	94703.0	1522.5	1134.1	520.6	195.5	177.3	-27.7	-57.8	-99.0	-99.0	195.4	
Average	39.2	11.0	174.3	221.7	4.7	283.9	17.3	23.9	26073.3	13721.7	97277.3	1531.8	1141.7	523.0	197.5	181.1	-10.2	-37.9	-78.1	-78.1	253.7	
Variance	0.482549	0.019238	2.056226	1.816018	0.001525	5.488777	0.174423	0.28435313	70991.43	10183.41	2908866	21.74434	10.08828	2.136388	1.191393	1.874301	46.5132	69.82786	86.08987	86.08987	595.1832	

		CO	HQ	CO2	H2O	THC	O2	Opacity	SO2
		PPM	PPM	%	%	PPM	%	%	PPM
\$Date	\$Time	AT-205CORR	AT-213A	AT-213B	AT-213C	AT-259CORR	AT-261	AT-263	AT-264
2018-05-16	9:35:00	77.1	21.8	9.03	45.46	14	10.65	0.31	114.6
2018-05-16	9:36:00	73.1	22.3	9.06	45.67	18.6	10.56	0.35	116.4
2018-05-16	9:37:00	71.9	22.1	9.04	45.53	13.6	10.5	0.66	119.3
2018-05-16	9:38:00	69.2	21.6	9.04	45.45	16.4	10.48	0.65	114.5
2018-05-16	9:39:00	67.3	21.9	8.97	45.29	14	10.51	0.68	110.3
2018-05-16	9:40:00	65.8	21.4	8.82	45.1	18	10.62	0.71	108.3
2018-05-16	9:41:00	70.9	21.6	8.94	45.32	14.6	10.66	0.77	111.9
2018-05-16	9:42:00	70.4	21.8	8.95	45.22	18.8	10.61	0.72	113.1
2018-05-16	9:43:00	67.6	22	8.97	45.17	15.4	10.56	0.4	118.5
2018-05-16	9:44:00	67.7	21.7	8.97	45.14	19.2	10.5	0.62	120.9
2018-05-16	9:45:00	72	22.3	9.08	45.51	14.1	10.5	0.75	122.8
2018-05-16	9:46:00	70.8	22.4	9.06	45.58	16.4	10.47	0.72	120.6
2018-05-16	9:47:00	67.4	22.1	9.01	45.37	14.9	10.52	0.77	114
2018-05-16	9:48:00	63.4	22.6	9.01	45.28	17.8	10.58	0.77	118.5
2018-05-16	9:49:00	62.9	22.8	9.02	45.33	15.9	10.56	0.85	121
2018-05-16	9:50:00	65	22.7	9.01	45.54	18.4	10.54	0.71	121
2018-05-16	9:51:00	66	22.9	9.09	45.75	15.2	10.57	0.37	124.6
2018-05-16	9:52:00	62.9	22.9	9.1	45.72	18.4	10.45	0.81	130.2
2018-05-16	9:53:00	61.7	22.4	9.06	45.59	14	10.38	0.75	133.5
2018-05-16	9:54:00	62.6	22.9	9.09	45.67	16.5	10.43	0.72	129.9
2018-05-16	9:55:00	63.5	23.2	9.04	45.41	16.2	10.54	0.71	125
2018-05-16	9:56:00	65	22.8	8.99	45.23	17.3	10.57	0.71	125
2018-05-16	9:57:00	65.9	22.7	9.07	45.35	17.3	10.55	0.76	130.9
2018-05-16	9:58:00	64.8	23.5	9.05	45.3	18.9	10.48	0.68	132.8
2018-05-16	9:59:00	66.6	23.7	9.06	45.46	18.2	10.43	0.4	135.4
2018-05-16	10:00:00	63.9	23	9.08	45.62	17.9	10.32	0.9	141.7
2018-05-16	10:01:00	60.7	23.1	9.09	45.65	16.9	10.28	0.77	141.7
2018-05-16	10:02:00	59.5	22.9	9.09	45.72	15.9	10.3	0.71	134.6
2018-05-16	10:03:00	60.5	23.4	9.09	45.72	17.2	10.47	0.65	131.2
2018-05-16	10:04:00	60	23.6	9.1	45.6	17.8	10.48	0.76	132.2
2018-05-16	10:05:00	61.3	23.2	9.11	45.61	17.8	10.43	0.78	135.3
2018-05-16	10:06:00	62	23.3	9.11	45.77	17.6	10.47	0.52	136.8
2018-05-16	10:07:00	62.5	23.4	9.11	45.73	18.7	10.39	0.42	140.1
2018-05-16	10:08:00	62.7	23.8	9.17	45.77	17.5	10.38	0.71	141.6
2018-05-16	10:09:00	60.8	23.6	9.21	45.93	16.2	10.34	0.68	142.2
2018-05-16	10:10:00	57.5	23.4	9.11	45.71	15.9	10.39	0.72	132.5
2018-05-16	10:11:00	59.4	23.5	9.07	45.54	19	10.42	0.72	129.6
2018-05-16	10:12:00	66.3	23.8	9.07	45.65	15.8	10.49	0.78	134.5
2018-05-16	10:13:00	66.5	24.1	9.14	45.82	18.2	10.49	0.77	134.5
2018-05-16	10:14:00	63.1	23.7	9.16	45.71	15.7	10.45	0.42	136.6
2018-05-16	10:15:00	66.5	23.9	9.25	46.01	14.3	10.4	0.43	137.3
2018-05-16	10:16:00	65.2	24	9.19	45.83	14	10.39	0.71	136.3
2018-05-16	10:17:00	69	23.5	9.08	45.52	14.1	10.39	0.76	131.9
2018-05-16	10:18:00	69.3	23.5	9.07	45.54	12.3	10.45	0.76	130.3
2018-05-16	10:19:00	73.5	23.9	9.01	45.48	17.2	10.59	0.71	128.8
2018-05-16	10:20:00	80.7	23.9	9.04	45.44	13.5	10.61	0.76	129.9
2018-05-16	10:21:00	83.4	23.9	9.05	45.42	18.6	10.52	0.77	134.2
2018-05-16	10:22:00	90.8	23.8	9.08	45.63	13.9	10.51	0.37	137.1
2018-05-16	10:23:00	94.7	24.1	9.2	45.94	18.4	10.47	0.38	138.9
2018-05-16	10:24:00	95.7	23.8	9.23	45.89	13.1	10.35	0.81	143.2
2018-05-16	10:25:00	95.9	23.3	9.19	45.73	15.9	10.29	0.81	143.2
2018-05-16	10:26:00	87.4	23.1	9.17	45.72	12.7	10.35	0.77	137.7
2018-05-16	10:27:00	85.7	23.1	9.06	45.6	17.8	10.45	0.78	137.1
2018-05-16	10:28:00	89.1	23.3	9.08	45.72	13.6	10.47	0.81	140.8
2018-05-16	10:29:00	90.6	23.3	9.16	45.79	17.4	10.45	0.8	138.7
2018-05-16	10:30:00	88.9	23.2	9.11	45.66	12.7	10.48	0.38	135
2018-05-16	10:31:00	90.1	23.1	9.09	45.72	18.1	10.49	0.46	132.8
2018-05-16	10:32:00	94.4	23.2	9.18	45.95	12.8	10.48	0.75	137.2
2018-05-16	10:33:00	92.4	23.2	9.21	45.87	14.7	10.41	0.78	135.4
2018-05-16	10:34:00	84.1	22.5	9.03	45.54	13	10.49	0.71	130
2018-05-16	10:35:00	87.1	22.7	9	45.45	17.8	10.57	0.72	133.1

May 16/2018		Analyzers							
		CO	HQ	CO2	H2O	THC	O2	Opacity	SO2
Test 1		AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264
Max		95.9	24.1	9.3	46.0	19.2	10.7	0.9	143.2
Min		57.5	21.4	8.8	45.1	12.3	10.3	0.3	108.3
Average		71.8	23.0	9.1	45.6	16.2	10.5	0.7	130.0
Variance		130.6902	0.50594	0.006093	0.045699	4.028962	0.007738	0.022783	85.90787

		CO	HQ	CO2	H2O	THC	O2	Opacity	SO2
		PPM	PPM	%	%	PPM	%	%	PPM
\$Date	\$Time	AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264
2018-05-16	10:48:00	49.3	23.7	9.38	45.99	12.5	10.25	0.76	181
2018-05-16	10:49:00	48.8	24	9.31	45.6	13.6	10.17	0.71	165.1
2018-05-16	10:50:00	48.1	24	9.27	45.49	13.4	10.25	0.71	157.1
2018-05-16	10:51:00	50.3	24.2	9.2	45.63	14	10.42	0.71	160.9
2018-05-16	10:52:00	50.5	25	9.26	45.75	13.9	10.4	0.75	165.8
2018-05-16	10:53:00	49.2	25.1	9.34	45.9	15.2	10.36	0.73	168.3
2018-05-16	10:54:00	50.8	24.8	9.34	46.02	14.5	10.38	0.4	174.5
2018-05-16	10:55:00	51.4	24.9	9.3	45.85	16	10.23	0.87	183.5
2018-05-16	10:56:00	54.2	25.8	9.42	46.07	13.4	10.15	0.72	192.4
2018-05-16	10:57:00	55.5	25.7	9.4	46	14.3	10.11	0.72	187.7
2018-05-16	10:58:00	55.1	25.4	9.24	45.63	15.5	10.15	0.75	178.6
2018-05-16	10:59:00	56.3	26.3	9.32	45.81	16.7	10.28	0.8	190.9
2018-05-16	11:00:00	59.3	26.2	9.38	46.2	16.7	10.26	0.75	196.2
2018-05-16	11:01:00	57.9	26.1	9.4	46.16	16.6	10.16	0.68	196.2
2018-05-16	11:02:00	56.1	26.2	9.46	46.19	17.2	10.13	0.4	198
2018-05-16	11:03:00	55.4	26.7	9.46	46.27	16.8	10.04	0.8	203.8
2018-05-16	11:04:00	56.6	26.8	9.45	46.23	12.5	9.97	0.77	205.4
2018-05-16	11:05:00	54.8	25.9	9.27	45.79	13.2	9.97	0.78	181.7
2018-05-16	11:06:00	58.8	26.3	9.19	45.65	15.8	10.27	0.75	165.6
2018-05-16	11:07:00	63.7	26.3	9.22	45.79	15.2	10.34	0.78	167.1
2018-05-16	11:08:00	66.4	26.3	9.28	46.14	16.2	10.32	0.81	169.3
2018-05-16	11:09:00	63.3	26.3	9.23	46.1	14.2	10.3	0.53	170.7
2018-05-16	11:10:00	58.7	26.1	9.31	46.12	16.3	10.23	0.42	176
2018-05-16	11:11:00	57.8	25.7	9.3	46.14	15.2	10.14	0.77	184.7
2018-05-16	11:12:00	58.9	25.9	9.32	46.15	14	10.1	0.81	183.5
2018-05-16	11:13:00	57	26.1	9.25	45.97	12.4	10.13	0.82	170.8
2018-05-16	11:14:00	56.1	25.9	9.2	45.82	15.8	10.19	0.77	167.9
2018-05-16	11:15:00	60.6	26.6	9.26	45.87	13.4	10.3	0.76	172.6
2018-05-16	11:16:00	62.2	26.8	9.33	46.09	16.9	10.3	0.8	176.4
2018-05-16	11:17:00	63.4	26.5	9.38	46.18	13.1	10.28	0.43	182.5
2018-05-16	11:18:00	60.6	26.7	9.36	46.14	17.6	10.15	0.46	189.1
2018-05-16	11:19:00	56.6	26.8	9.36	46.17	13	10.12	0.78	190.8
2018-05-16	11:20:00	55	27.2	9.4	46.18	15	10.08	0.78	180.9
2018-05-16	11:21:00	54.7	27.3	9.34	45.95	11.9	10.11	0.77	171.9
2018-05-16	11:22:00	54	27	9.24	45.76	16.9	10.28	0.75	167
2018-05-16	11:23:00	58.1	27.3	9.26	45.89	13.3	10.26	0.78	176.5
2018-05-16	11:24:00	60.7	27.1	9.29	45.95	18	10.19	0.81	178.5
2018-05-16	11:25:00	63.6	26.8	9.32	46.07	13.4	10.19	0.41	183.7
2018-05-16	11:26:00	64.1	26.9	9.35	46.22	17.7	10.13	0.43	188.8
2018-05-16	11:27:00	59.3	27.1	9.38	46.3	11.8	10.06	0.73	193.4
2018-05-16	11:28:00	52.6	26.8	9.37	46.31	14.1	10.06	0.75	185
2018-05-16	11:29:00	51	26.7	9.32	46.22	11.9	10.15	0.75	175.1
2018-05-16	11:30:00	55.1	26.8	9.2	45.72	17.6	10.31	0.78	166.5
2018-05-16	11:31:00	63.1	27.5	9.2	45.68	12.8	10.32	0.73	171.5
2018-05-16	11:32:00	73.6	27.8	9.25	45.95	18.1	10.26	0.8	180
2018-05-16	11:33:00	72.2	27.3	9.33	46.17	13.7	10.25	0.43	191.9
2018-05-16	11:34:00	74.3	27.3	9.39	46.28	17.3	10.19	0.46	196.2
2018-05-16	11:35:00	74.1	27.2	9.49	46.28	11	10.1	0.76	194
2018-05-16	11:36:00	67	26.7	9.38	46.12	15.4	10.06	0.77	183.5
2018-05-16	11:37:00	60.9	26.6	9.26	46	12.9	10.22	0.75	172.9
2018-05-16	11:38:00	63.6	26.6	9.28	45.99	17.9	10.3	0.75	175.7
2018-05-16	11:39:00	70.1	26.6	9.34	45.98	13.6	10.24	0.75	185
2018-05-16	11:40:00	65.1	26.6	9.33	45.99	17.2	10.16	0.78	187.2
2018-05-16	11:41:00	60.8	26.6	9.33	46.09	15.4	10.18	0.4	192.6
2018-05-16	11:42:00	61.3	26.6	9.37	46.18	17	10.12	0.55	198.3
2018-05-16	11:43:00	63.7	26.5	9.33	46.17	13.3	10.1	0.67	200.5
2018-05-16	11:44:00	61.8	26.7	9.32	46.11	14.1	10.07	0.71	194.7
2018-05-16	11:45:00	58.2	27.2	9.23	46.03	13.6	10.18	0.72	183.5
2018-05-16	11:46:00	60.3	27.4	9.24	45.83	16.3	10.28	0.75	183.5
2018-05-16	11:47:00	64.9	27.1	9.32	46.07	15.2	10.2	0.76	194.5
2018-05-16	11:48:00	63.2	27.2	9.35	46.13	14.2	10.14	0.75	198.1

May 16/2018	Analyzers								
	CO	HQ	CO2	H2O	THC	O2	Opacity	SO2	
Test 2	AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264	
Max	74.3	27.8	9.5	46.3	18.1	10.4	0.9	205.4	
Min	48.1	23.7	9.2	45.5	11.0	10.0	0.4	157.1	
Average	59.2	26.4	9.3	46.0	14.8	10.2	0.7	182.0	
Variance	39.6155	0.820525	0.005053	0.040022	3.454536	0.01028	0.017604	133.9729	

\$Date	\$Time	CO	HI	CO2	H2O	THC	O2	Opacity	SO2
		PPM	PPM	%	%	PPM	%	%	PPM
		AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264
2018-05-16	12:07:00	70.1	27.1	9.39	46.41	14.2	10.07	0.75	201.3
2018-05-16	12:08:00	64.2	27	9.33	46.33	14	10.1	0.73	194.7
2018-05-16	12:09:00	64.3	27.2	9.26	46.04	16.4	10.24	0.77	190.3
2018-05-16	12:10:00	66.5	27.4	9.23	46.02	14.6	10.25	0.83	193.8
2018-05-16	12:11:00	66.8	27.8	9.28	46.16	17.1	10.18	0.81	198.7
2018-05-16	12:12:00	67.6	27.4	9.3	46.14	14.2	10.18	0.4	198.7
2018-05-16	12:13:00	68.4	27.2	9.32	46.25	17.3	10.17	0.43	204.9
2018-05-16	12:14:00	68.2	27.3	9.38	46.31	15	10.13	0.75	208.6
2018-05-16	12:15:00	70	27.2	9.39	46.31	15.3	10.1	0.75	207.3
2018-05-16	12:16:00	65.6	26.7	9.34	46.12	11.8	10.14	0.75	199.8
2018-05-16	12:17:00	64.1	26.7	9.28	45.93	16.3	10.16	0.78	196.2
2018-05-16	12:18:00	64.4	27.6	9.32	46.05	12.5	10.19	0.77	202
2018-05-16	12:19:00	65.7	27.9	9.37	46.18	18.7	10.14	0.82	204.3
2018-05-16	12:20:00	70.4	27.7	9.36	46.18	13.3	10.12	0.38	205.5
2018-05-16	12:21:00	75	27.5	9.37	46.27	18	10.03	0.42	210
2018-05-16	12:22:00	73.7	27.5	9.42	46.43	12.7	10.04	0.75	213.2
2018-05-16	12:23:00	71.3	27.4	9.44	46.39	15	9.99	0.77	211.2
2018-05-16	12:24:00	70.9	27.1	9.34	46.09	12.1	10.07	0.75	205.4
2018-05-16	12:25:00	71.5	27.5	9.3	45.98	18	10.17	0.83	205.4
2018-05-16	12:26:00	76.5	27.8	9.32	45.95	13.4	10.17	0.81	208.3
2018-05-16	12:27:00	75.7	27.5	9.34	46.02	19.5	10.12	0.77	208.3
2018-05-16	12:28:00	80.5	27.3	9.37	46.18	14.2	10.13	0.4	212.9
2018-05-16	12:29:00	74	27.5	9.45	46.23	20.6	10.03	0.42	217
2018-05-16	12:30:00	68.1	28.2	9.51	46.49	13.4	10.01	0.71	220.8
2018-05-16	12:31:00	60.8	27.5	9.49	46.47	16.8	9.97	0.81	216.9
2018-05-16	12:32:00	57.8	27.1	9.43	46.3	14.1	10.02	0.71	212.2
2018-05-16	12:33:00	59.1	27.3	9.33	46.13	17.5	10.13	0.75	210.7
2018-05-16	12:34:00	59.5	27.3	9.37	46.29	14.1	10.14	0.8	213.8
2018-05-16	12:35:00	56.2	27.5	9.44	46.23	18	10.09	0.78	215.4
2018-05-16	12:36:00	55.3	28.1	9.39	46.21	15.4	10.11	0.36	216.8
2018-05-16	12:37:00	55	28	9.39	46.24	19.2	10.06	0.4	218.9
2018-05-16	12:38:00	59.6	28.1	9.46	46.5	14.1	10.03	0.65	223.2
2018-05-16	12:39:00	58.7	28.1	9.45	46.45	16.9	10	0.71	219.5
2018-05-16	12:40:00	58	28.2	9.35	46.15	15.1	10.11	0.68	211.3
2018-05-16	12:41:00	58.6	28.8	9.31	45.95	18.6	10.18	0.75	211.3
2018-05-16	12:42:00	59.4	29.2	9.29	46.07	15.1	10.18	0.71	210.3
2018-05-16	12:43:00	60.1	28.6	9.25	46.21	17.6	10.2	0.75	205.9
2018-05-16	12:44:00	60.8	28.4	9.33	46.3	15	10.24	0.36	207
2018-05-16	12:45:00	58.1	28.3	9.34	46.24	18.8	10.17	0.65	208.8
2018-05-16	12:46:00	56.3	28.2	9.31	46.13	15.1	10.14	0.68	210
2018-05-16	12:47:00	56.6	28.4	9.26	46.09	17.1	10.16	0.65	205
2018-05-16	12:48:00	59.1	28.9	9.2	45.96	17.4	10.31	0.71	197.2
2018-05-16	12:49:00	60.1	29	9.18	45.98	19	10.4	0.71	198.5
2018-05-16	12:50:00	65.5	29.2	9.18	45.99	18.5	10.36	0.71	204.9
2018-05-16	12:51:00	66.7	29.4	9.19	45.95	20.3	10.32	0.72	204.9
2018-05-16	12:52:00	65	29	9.23	46.04	20.8	10.29	0.38	210.3
2018-05-16	12:53:00	73.1	29.1	9.34	46.21	20.6	10.18	0.81	216.2
2018-05-16	12:54:00	74.6	28.7	9.37	46.28	17.1	10.12	0.66	216.2
2018-05-16	12:55:00	66.6	28.9	9.35	46.22	18.5	10.13	0.67	205.9
2018-05-16	12:56:00	66.8	29	9.32	46.06	19.5	10.19	0.75	203.7
2018-05-16	12:57:00	68.9	28.7	9.2	45.85	19.7	10.28	0.71	205.8
2018-05-16	12:58:00	67.7	28.6	9.25	46	20.7	10.2	0.71	209.9
2018-05-16	12:59:00	66.8	28.6	9.23	45.99	20.7	10.23	0.55	209.9
2018-05-16	13:00:00	67.1	29.2	9.32	46.02	22.8	10.18	0.33	214.3
2018-05-16	13:01:00	68.1	29.3	9.37	46.1	20	10.18	0.76	216.5
2018-05-16	13:02:00	69.4	29.2	9.3	46.37	18.9	10.2	0.62	219
2018-05-16	13:03:00	72.4	29.2	9.24	46.32	17.6	10.27	0.65	209.6
2018-05-16	13:04:00	74.1	29.3	9.21	46.03	21	10.3	0.61	207.5
2018-05-16	13:05:00	73.3	29.4	9.21	45.95	20	10.34	0.62	212.1
2018-05-16	13:06:00	74.8	29.5	9.24	45.98	20.8	10.29	0.67	213.4
2018-05-16	13:07:00	72.8	29	9.25	45.97	19.3	10.24	0.42	214.7

May 16/2018	Analyzers								
	CO	HI	CO2	H2O	THC	O2	Opacity	SO2	
Test 3	AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264	
Max	80.5	29.5	9.5	46.5	22.8	10.4	0.8	223.2	
Min	55.0	26.7	9.2	45.9	11.8	10.0	0.3	190.3	
Average	66.2	28.1	9.3	46.2	17.0	10.2	0.7	208.6	
Variance	39.73018	0.66171	0.006428	0.026604	7.294721	0.009182	0.021426	50.13755	

		CO	HCl	CO2	H2O	THC	O2	Opacity	SO2
		PPM	PPM	%	%	PPM	%	%	PPM
\$Date	\$Time	AT-205corr	AT-213A	AT-213B	AT-213C	AT-259corr	AT-261	AT-263	AT-264
2018-05-16	13:21:00	72.5	29.9	9.11	45.61	15.9	10.35	0.65	211.9
2018-05-16	13:22:00	70.2	29.6	9.2	45.72	21.3	10.3	0.67	213.9
2018-05-16	13:23:00	70.4	29.2	9.2	45.79	15	10.3	0.37	217.1
2018-05-16	13:24:00	73.1	29.7	9.3	46.04	23.8	10.26	0.36	221.7
2018-05-16	13:25:00	80.5	29.9	9.3	46.11	15.7	10.23	0.68	223.2
2018-05-16	13:26:00	78.7	29.7	9.29	46.07	19.1	10.18	0.68	220.7
2018-05-16	13:27:00	74.4	30.3	9.23	45.82	15.5	10.26	0.62	213.8
2018-05-16	13:28:00	73.5	30.1	9.14	45.69	21.7	10.33	0.68	213.8
2018-05-16	13:29:00	74.1	30.1	9.23	45.82	16.8	10.31	0.67	220
2018-05-16	13:30:00	74.7	30.2	9.24	45.94	22.7	10.27	0.67	221.9
2018-05-16	13:31:00	75.5	30.3	9.29	46.38	16.5	10.33	0.36	228
2018-05-16	13:32:00	72.8	30.6	9.35	46.48	21.9	10.2	0.33	234.6
2018-05-16	13:33:00	70.4	30.2	9.36	46.44	15.4	10.15	0.56	234.6
2018-05-16	13:34:00	67.8	29.9	9.4	46.43	19.4	10.13	0.61	226
2018-05-16	13:35:00	66.3	29.9	9.35	46.31	16.9	10.18	0.55	222.7
2018-05-16	13:36:00	67.2	30	9.22	46.03	20	10.29	0.61	223.7
2018-05-16	13:37:00	65.3	30.4	9.28	45.99	17.8	10.28	0.58	230.6
2018-05-16	13:38:00	60.7	30.2	9.27	46	22.3	10.22	0.65	232.9
2018-05-16	13:39:00	63.6	30.7	9.34	46.03	18.5	10.19	0.33	241.5
2018-05-16	13:40:00	66.2	31	9.36	46.1	24.2	10.16	0.48	244.3
2018-05-16	13:41:00	67.5	31.1	9.38	46.35	16.6	10.13	0.61	251.8
2018-05-16	13:42:00	64.1	30.8	9.35	46.22	20.3	10.07	0.58	251.8
2018-05-16	13:43:00	61.8	31.2	9.26	46.04	18.7	10.15	0.61	245.9
2018-05-16	13:44:00	62.8	31.4	9.24	45.87	22.1	10.24	0.61	250.1
2018-05-16	13:45:00	65.5	31.9	9.32	46	19.5	10.22	0.58	253.6
2018-05-16	13:46:00	66.4	32.2	9.39	46.39	22.1	10.19	0.61	255.5
2018-05-16	13:47:00	65.7	32.1	9.44	46.54	19.6	10.24	0.31	259.2
2018-05-16	13:48:00	60.3	32.6	9.47	46.5	22.7	10.15	0.58	261.6
2018-05-16	13:49:00	59.6	32.3	9.46	46.39	17.1	10.09	0.61	262.8
2018-05-16	13:50:00	59.4	32.1	9.38	46.28	18.6	10.08	0.62	259.4
2018-05-16	13:51:00	56	32	9.29	45.86	19.1	10.15	0.71	252.5
2018-05-16	13:52:00	54.7	32.4	9.27	45.67	20.6	10.19	0.67	252.5
2018-05-16	13:53:00	56.1	33.3	9.34	45.99	20.4	10.18	0.68	260.2
2018-05-16	13:54:00	58.2	32.7	9.3	46.16	20	10.13	0.55	263.3
2018-05-16	13:55:00	58.6	33	9.35	46.25	21.3	10.11	0.33	265.7
2018-05-16	13:56:00	58	32.9	9.4	46.25	21.4	10.03	0.75	269.4
2018-05-16	13:57:00	59.2	33.2	9.43	46.26	18.4	10	0.55	269.4
2018-05-16	13:58:00	57.4	33.2	9.43	46.25	18	10	0.65	260.8
2018-05-16	13:59:00	55.1	33	9.28	46.15	20.4	10.15	0.67	255.6
2018-05-16	14:00:00	54.1	32.7	9.24	45.83	20	10.18	0.65	258.3
2018-05-16	14:01:00	55	33.6	9.34	45.94	21.5	10.12	0.71	262.6
2018-05-16	14:02:00	56.5	33.9	9.37	46	21	10.11	0.46	262.6
2018-05-16	14:03:00	59.6	34.2	9.43	46.28	21.4	10.09	0.3	266.8
2018-05-16	14:04:00	59.8	34.1	9.43	46.31	20.4	10.07	0.58	269.4
2018-05-16	14:05:00	58	34.2	9.39	46.18	17.7	9.99	0.58	269.3
2018-05-16	14:06:00	54.6	34	9.28	45.99	17.7	10.05	0.62	259.8
2018-05-16	14:07:00	55.4	33.5	9.26	45.95	20.8	10.13	0.71	257.2
2018-05-16	14:08:00	55.4	34	9.33	46.02	18.3	10.2	0.65	262.6
2018-05-16	14:09:00	54.7	34.4	9.37	46.14	20.2	10.17	0.72	265.5
2018-05-16	14:10:00	54.5	33.9	9.35	46.12	19.5	10.13	0.3	267.5
2018-05-16	14:11:00	54.8	34.2	9.44	46.24	22.9	10.07	0.33	273.2
2018-05-16	14:12:00	55	34.4	9.48	46.5	17.7	10.05	0.61	275.8
2018-05-16	14:13:00	52.7	34.5	9.45	46.43	18.6	9.93	0.58	272.6
2018-05-16	14:14:00	53.1	34.5	9.36	46.28	15.7	9.96	0.61	265.8
2018-05-16	14:15:00	56.2	33.7	9.23	45.98	21.6	10.13	0.65	262.4
2018-05-16	14:16:00	56.9	33.6	9.26	45.92	16.1	10.15	0.61	265.1
2018-05-16	14:17:00	56.5	34.7	9.47	46.3	20.7	10.14	0.67	269.6
2018-05-16	14:18:00	53.8	34.9	9.46	46.48	16	10.16	0.35	273.6
2018-05-16	14:19:00	52.6	35	9.44	46.4	22.7	10.08	0.27	273.6
2018-05-16	14:20:00	55.2	34.9	9.48	46.3	16	10.02	0.56	275.8
2018-05-16	14:21:00	54.3	34.7	9.43	46.33	19.6	10	0.58	269.7

May 16/2018		Analyzers							
Test 4		CO	HCl	CO2	H2O	THC	O2	Opacity	SO2
		AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264
Max		80.5	35.0	9.5	46.5	24.2	10.4	0.8	275.8
Min		52.6	29.2	9.1	45.6	15.0	9.9	0.3	211.9
Average		62.0	32.2	9.3	46.1	19.4	10.2	0.6	250.4
Variance		57.39173	3.220508	0.0078	0.055193	5.608667	0.009466	0.016925	390.0904

		CO	HQ	CO2	H2O	THC	O2	Opacity	SO2
		PPM	PPM	%	%	PPM	%	%	PPM
\$Date	\$Time	AT-205corr	AT-213A	AT-213B	AT-213C	AT-259corr	AT-261	AT-263	AT-264
2018-05-16	14:34:00	53.6	35.7	9.45	46.36	17.4	10.06	0.36	279.2
2018-05-16	14:35:00	55.2	35.4	9.55	46.48	22.2	9.97	0.36	282.3
2018-05-16	14:36:00	57.8	35.5	9.59	46.53	16.8	9.96	0.62	284.4
2018-05-16	14:37:00	58.6	35.1	9.55	46.62	19.1	9.97	0.65	278.9
2018-05-16	14:38:00	57.6	35.3	9.47	46.51	18.3	10.03	0.65	274.1
2018-05-16	14:39:00	58.8	35.5	9.28	45.88	23.5	10.07	0.71	272.6
2018-05-16	14:40:00	63.1	35.9	9.39	46.09	19.8	10.06	0.7	280.6
2018-05-16	14:41:00	61.3	35.8	9.45	46.21	22.2	10.01	0.68	282.1
2018-05-16	14:42:00	55.7	35.6	9.56	46.73	19	10	0.33	290.9
2018-05-16	14:43:00	52.7	35.5	9.54	46.75	25.6	9.94	0.71	292.3
2018-05-16	14:44:00	54.9	35.7	9.6	46.59	17.2	9.82	0.58	293.3
2018-05-16	14:45:00	56	35.7	9.46	46.58	20.7	9.86	0.58	282
2018-05-16	14:46:00	56.2	35.4	9.32	46.33	20.3	9.95	0.61	274
2018-05-16	14:47:00	60.8	35.5	9.24	46.08	22.6	10.1	0.65	275.7
2018-05-16	14:48:00	62	35.8	9.27	46.11	21	10.07	0.65	279.6
2018-05-16	14:49:00	61.8	35.9	9.42	46.45	24.5	10.03	0.68	282.5
2018-05-16	14:50:00	61.9	35.4	9.49	46.55	21.7	9.94	0.33	287.5
2018-05-16	14:51:00	61.3	35.3	9.46	46.39	23.4	9.9	0.62	287.5
2018-05-16	14:52:00	61.3	35.7	9.53	46.61	20.2	9.91	0.61	287.5
2018-05-16	14:53:00	61.8	35.7	9.51	46.74	20.2	9.94	0.58	283.6
2018-05-16	14:54:00	63.4	35.2	9.47	46.58	21.6	10.04	0.68	277.4
2018-05-16	14:55:00	64.6	35	9.46	46.46	21.8	10.1	0.62	277.4
2018-05-16	14:56:00	65.2	35.8	9.47	46.6	21.1	10.1	0.71	281.8
2018-05-16	14:57:00	59.4	35.6	9.42	46.46	21.8	10.08	0.55	284.5
2018-05-16	14:58:00	57.9	35.7	9.44	46.46	21.6	10.04	0.33	288.6
2018-05-16	14:59:00	60	36	9.51	46.65	22.7	9.97	0.62	291.1
2018-05-16	15:00:00	61.8	36.1	9.53	46.73	20.3	9.96	0.62	291.1
2018-05-16	15:01:00	61	36	9.45	46.55	19.5	9.96	0.65	281.7
2018-05-16	15:02:00	60.3	35.5	9.33	46.08	23.5	10.05	0.62	277.2
2018-05-16	15:03:00	62	36	9.4	46.16	21.4	10.07	0.63	280.8
2018-05-16	15:04:00	67.1	36.2	9.47	46.48	24	10.02	0.65	287.2
2018-05-16	15:05:00	68.1	35.9	9.5	46.62	21.9	10.02	0.33	289
2018-05-16	15:06:00	69.5	36.1	9.56	46.83	23.6	9.95	0.33	295
2018-05-16	15:07:00	65.6	35.8	9.55	46.75	21.8	9.91	0.61	295
2018-05-16	15:08:00	65.2	35.2	9.54	46.59	21.7	9.86	0.61	292.1
2018-05-16	15:09:00	72.2	34.7	9.45	46.38	18	9.96	0.58	280.4
2018-05-16	15:10:00	74.5	34.7	9.37	46.09	23.9	10.01	0.58	276.8
2018-05-16	15:11:00	73.5	35.1	9.34	46.08	18.8	10.12	0.58	283.2
2018-05-16	15:12:00	73.5	35.3	9.35	46.22	22.9	10.1	0.62	287.4
2018-05-16	15:13:00	70.7	35.3	9.35	46.27	19	10.05	0.27	291.2
2018-05-16	15:14:00	72.5	35.4	9.43	46.26	25.9	9.91	0.27	294.8
2018-05-16	15:15:00	73.4	35.6	9.49	46.3	18.8	9.87	0.55	297.3
2018-05-16	15:16:00	73.3	35.3	9.52	46.43	21.3	9.82	0.6	292.4
2018-05-16	15:17:00	72.9	35.2	9.48	46.47	17.1	9.9	0.55	284.8
2018-05-16	15:18:00	78.9	35	9.34	46.4	24.1	10.12	0.58	277
2018-05-16	15:19:00	86.2	35.4	9.34	46.48	17.3	10.15	0.65	277
2018-05-16	15:20:00	84	35.1	9.39	46.46	24.7	10.09	0.68	274
2018-05-16	15:21:00	85.2	34.3	9.33	46.27	17.3	10.1	0.27	270.1
2018-05-16	15:22:00	87.5	34.1	9.3	46.28	25.2	10.05	0.3	271.2
2018-05-16	15:23:00	97.5	33.5	9.4	46.47	17.4	10.07	0.61	271.2
2018-05-16	15:24:00	101	33.5	9.46	46.35	23.4	10.07	0.61	263.6
2018-05-16	15:25:00	101.8	33.5	9.43	46.27	18	10.13	0.63	258.8
2018-05-16	15:26:00	106.1	33.8	9.32	46.39	25.3	10.3	0.67	260.9
2018-05-16	15:27:00	106.4	33.6	9.31	46.34	19.2	10.27	0.68	263.8
2018-05-16	15:28:00	106.2	32.8	9.34	46.08	27	10.12	0.71	265.1
2018-05-16	15:29:00	108.8	32.3	9.36	46.25	19.8	10.14	0.32	268.1
2018-05-16	15:30:00	107.7	32.2	9.43	46.65	24	10.13	0.31	274.1
2018-05-16	15:31:00	88.9	31.7	9.33	46.43	14.9	10.05	0.52	273.3
2018-05-16	15:32:00	79.7	31.3	9.27	46.15	18.3	10.03	0.55	267.6
2018-05-16	15:33:00	68.3	31	9.22	45.78	14.3	10.17	0.62	260
2018-05-16	15:34:00	65.4	31.5	9.23	45.8	21.2	10.28	0.65	262.9

May 16/2018	Analyzers								
	CO	HQ	CO2	H2O	THC	O2	Opacity	SO2	
Test 5	AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264	
Max	108.8	36.2	9.6	46.8	27.0	10.3	0.7	297.3	
Min	52.7	31.0	9.2	45.8	14.3	9.8	0.3	258.8	
Average	71.1	34.9	9.4	46.4	21.0	10.0	0.6	280.1	
Variance	245.9178	1.704989	0.00927	0.055736	7.899831	0.010724	0.018383	95.82546	

\$Date	\$Time	CO	HQ	CO2	H2O	THC	O2	Opacity	SO2
		PPM	PPM	%	%	PPM	%	%	PPM
		AT-205corr	AT-213A	AT-213B	AT-213C	AT-259corr	AT-261	AT-263	AT-264
2018-05-16	15:48:00	63.7	33.5	9.35	46.16	19.3	9.99	0.56	280.4
2018-05-16	15:49:00	63.3	33.5	9.33	46.04	19.8	10.02	0.55	276.7
2018-05-16	15:50:00	65.1	33.8	9.33	46.09	21.2	10.17	0.62	279.1
2018-05-16	15:51:00	64.5	34.1	9.35	46.1	19.7	10.15	0.61	280.9
2018-05-16	15:52:00	57	34.6	9.4	46.08	20.7	10.05	0.52	284
2018-05-16	15:53:00	54.8	34.4	9.45	46.39	19.8	10.04	0.28	293.4
2018-05-16	15:54:00	54.8	34.1	9.44	46.31	20.7	10.02	0.62	294.9
2018-05-16	15:55:00	57.4	34	9.49	46.17	18	9.92	0.58	295.4
2018-05-16	15:56:00	57.6	34.4	9.53	46.26	17.8	9.94	0.58	291.3
2018-05-16	15:57:00	54.3	34.3	9.4	46.05	19.2	10.05	0.58	283.8
2018-05-16	15:58:00	53.1	35.4	9.31	45.94	19.6	10.11	0.61	291.2
2018-05-16	15:59:00	53.9	35.7	9.38	46.08	19.1	10.1	0.61	295.4
2018-05-16	16:00:00	54	35.5	9.51	46.48	19	10.08	0.38	299.7
2018-05-16	16:01:00	54	35.8	9.5	46.6	18.9	10.06	0.17	302.9
2018-05-16	16:02:00	47.6	35.9	9.5	46.62	18	9.99	0.52	305.2
2018-05-16	16:03:00	47.4	36	9.59	46.96	16.8	10.02	0.5	306.9
2018-05-16	16:04:00	46.5	35.5	9.59	46.78	16.3	9.97	0.55	296.5
2018-05-16	16:05:00	45.3	35.7	9.33	46.04	18.9	10.05	0.52	289.6
2018-05-16	16:06:00	46.2	36.3	9.31	45.97	17.6	10.07	0.55	292.3
2018-05-16	16:07:00	50.4	36.7	9.4	46.14	20.2	9.97	0.61	298.3
2018-05-16	16:08:00	51.7	36.7	9.43	46.22	16.8	9.99	0.21	298.3
2018-05-16	16:09:00	51.9	37.1	9.49	46.54	23.3	9.99	0.25	303
2018-05-16	16:10:00	57.7	37.1	9.49	46.66	18.5	9.95	0.5	309.3
2018-05-16	16:11:00	59.2	36.7	9.51	46.63	20.3	9.91	0.52	309.3
2018-05-16	16:12:00	55.7	36.2	9.48	46.53	16.2	9.89	0.52	303.1
2018-05-16	16:13:00	56.4	36.6	9.46	46.41	21.3	9.91	0.55	300.4
2018-05-16	16:14:00	59.9	37	9.47	46.34	17.5	9.96	0.58	304.7
2018-05-16	16:15:00	61.9	37.2	9.59	46.59	22.7	9.93	0.65	309.1
2018-05-16	16:16:00	62.5	37.3	9.6	46.58	17	9.91	0.21	312.3
2018-05-16	16:17:00	61.1	37.1	9.58	46.58	24.3	9.84	0.23	316.1
2018-05-16	16:18:00	61.8	36.8	9.56	46.56	16.3	9.83	0.48	316.1
2018-05-16	16:19:00	61.5	36.6	9.59	46.48	20.4	9.78	0.51	311.2
2018-05-16	16:20:00	62	36.4	9.55	46.43	15.7	9.92	0.56	298.4
2018-05-16	16:21:00	62.3	37.1	9.47	46.39	23.1	10.03	0.58	298.4
2018-05-16	16:22:00	64.3	37.7	9.49	46.5	16.9	10.04	0.58	304.8
2018-05-16	16:23:00	64	37.5	9.52	46.67	24.2	10.02	0.58	308.1
2018-05-16	16:24:00	62.9	37.3	9.52	46.75	17.3	10.02	0.21	313.4
2018-05-16	16:25:00	61.5	37.4	9.56	46.71	25.1	9.95	0.25	312
2018-05-16	16:26:00	60	37.2	9.57	46.71	16	9.93	0.52	312
2018-05-16	16:27:00	58.5	37.2	9.48	46.48	20.9	9.87	0.55	306.4
2018-05-16	16:28:00	59.7	37.2	9.48	46.44	17.5	9.93	0.58	301.6
2018-05-16	16:29:00	63.3	36.5	9.4	46.18	22.5	10	0.58	299.6
2018-05-16	16:30:00	64.7	36.7	9.45	46.28	17.6	10	0.65	305.7
2018-05-16	16:31:00	63.8	37.3	9.57	46.59	25.3	9.96	0.67	308.7
2018-05-16	16:32:00	60.6	37.5	9.57	46.51	17.7	9.88	0.3	313.3
2018-05-16	16:33:00	59.9	36.8	9.58	46.52	23.4	9.84	0.37	315
2018-05-16	16:34:00	61	36.2	9.6	46.68	17.1	9.81	0.52	318.3
2018-05-16	16:35:00	61	36.1	9.55	46.59	20.2	9.78	0.56	313
2018-05-16	16:36:00	59.9	36.4	9.39	46.26	17.7	9.88	0.62	301
2018-05-16	16:37:00	60.4	36.9	9.37	46.29	24.6	9.99	0.58	301
2018-05-16	16:38:00	66.9	37.6	9.57	46.66	19.1	10.03	0.67	311.9
2018-05-16	16:39:00	64.8	36.8	9.55	46.5	25	9.91	0.67	311.9
2018-05-16	16:40:00	61.8	36.4	9.56	46.48	19.1	9.91	0.27	313
2018-05-16	16:41:00	59.9	37.1	9.64	46.89	23.8	9.89	0.71	319.1
2018-05-16	16:42:00	59.3	37.6	9.62	46.98	18.2	9.87	0.55	322.1
2018-05-16	16:43:00	56.5	37.8	9.52	46.53	19.8	9.77	0.55	314.5
2018-05-16	16:44:00	55.5	36.9	9.46	46.14	20.3	9.81	0.58	303.4
2018-05-16	16:45:00	58.5	36.8	9.45	46.19	22.7	9.91	0.65	305.1
2018-05-16	16:46:00	65.3	37.3	9.5	46.66	20.7	9.97	0.58	313.3
2018-05-16	16:47:00	65.6	37.1	9.5	46.71	21.9	9.94	0.55	313.3
2018-05-16	16:48:00	63.3	36.8	9.51	46.54	23.8	9.92	0.23	316.3

May 16/2018	Analyzers								
	CO	HQ	CO2	H2O	THC	O2	Opacity	SO2	
Test 6	AT-205	AT-213A	AT-213B	AT-213C	AT-259	AT-261	AT-263	AT-264	
Max	66.9	37.8	9.6	47.0	25.3	10.2	0.7	322.1	
Min	45.3	33.5	9.3	45.9	15.7	9.8	0.2	276.7	
Average	58.7	36.3	9.5	46.4	19.9	10.0	0.5	303.4	
Variance	28.2897	1.341279	0.007332	0.063702	6.967219	0.008089	0.020022	116.2439	