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REPORT ON RELATIVE ACCURACY TEST AUDIT

Performed for:
WHEELABRATOR NORTH BROWARD, INC.
UNITS 1, 2 AND 3 FF OUTLETS
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11182-2
Revision 0: May 4, 2011

To the best of our knowledge, the data presented in this report are accurate, complete, error free, legible and representative of the actual emissions during the test program. Clean Air Engineering operates in conformance with the requirements of ASTM D7036-04 Standard Practice for Competence of Air Emission Testing Bodies.

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REVISION HISTORY

REPORT ON RELATIVE ACCURACY TEST AUDIT

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PROJECT OVERVIEW

INTRODUCTION

Wheelabrator North Broward, Inc. contracted Clean Air Engineering (CleanAir) to perform the relative accuracy test audit (RATA) at the municipal waste combustor (MWC) facility, located in Pompano Beach, Florida.

All testing was conducted in accordance with the regulations set-forth by the United States Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP).

Key Project Participants

Individuals responsible for coordinating and conducting the test program were:

B. Hooper – Wheelabrator
S. Brown – CleanAir
A. Obuchowski – CleanAir

Test Program Parameters

The testing performed at the Units 1, 2 and 3 fabric filter (FF) baghouse outlets from March 22 through 24, 2011, included the following emissions measurements:

- carbon monoxide (CO)
- nitrogen oxide (NO_X)
- sulfur dioxide (SO_2)
- carbon dioxide (CO_2)
- oxygen (O_2)

TEST PROGRAM SYNOPSIS

Results Summary

Table 1-1 summarizes the results of the test program. A more detailed presentation of the test conditions and results of analysis are shown in Tables 2-1 through 2-15 on pages 2-1 through 2-30

Table 1-1:
Summary of Test Results

Monitor Constituent	CEM Serial Number	RM Avg	CEM Avg	Difference	95% CC	Relative Accuracy Result	Limit	Basis of Limit
Unit 1 FF Outlet CEMS (units of RATA)								
SO_2 (ppmdv @ 7% O_2)	280	17.4	20.0	-2.7	0.257	10.1%	20%	S[1]
NO_X (ppmdv @ 7% O_2)	280	175.9	185.7	-9.8	0.739	5.1%	10%	S[2]
CO (ppmdv @ 7% O_2)	280	24.6	20.3	4.4	0.277	4.4	5 ppm	Mean Diff.[3]
CO_2 (lb/hr)	280	66,308	64,654	1,654	1,163	4.2%	20%	RM[4]
Unit 2 FF Outlet CEMS (units of RATA)								
SO_2 (ppmdv @ 7% O_2)	281	10.7	10.5	0.2	0.927	3.9%	20%	S[1]
NO_X (ppmdv @ 7% O_2)	281	175.3	197.8	-22.5	0.846	13.3%	20%	RM[5]
CO (ppmdv @ 7% O_2)	281	16.8	16.7	0.0	0.273	0.3	5 ppm	Mean Diff.[3]
CO_2 (lb/hr)	281	63,827	65,317	-1,491	2,469	6.2%	20%	RM[4]
Unit 3 FF Outlet CEMS (units of RATA)								
SO_2 (ppmdv @ 7% O_2)	271	7.9	8.9	-0.9	0.413	4.6%	20%	S[1]
NO_X (ppmdv @ 7% O_2)	271	187.0	193.1	-6.0	0.586	3.2%	10%	S[2]
CO (ppmdv @ 7% O_2)	271	18.9	19.3	-0.4	0.493	0.7	5 ppm	Mean Diff.[3]
CO_2 (lb/hr)	271	64,554	56,490	8,063	3,430	17.8%	20%	RM[4]

[1] SO_2 FF Outlet Relative Accuracy calculated as a percentage of the 29 ppm standard as per Performance Specification 2, Section 13.2.

[2] NO_X FF Outlet Relative Accuracy calculated as a percentage of the 205 ppm standard as per Performance Specification 2. Section 13.2.

[3] CO FF Outlet Relative Accuracy calculated as the absolute mean difference per 40CFR60 Section 60.58b.

[4] Limit from 40 CFR 60 Appendix B Performance Specification 6.

[5] Limit from 40 CFR 60 Appendix B Perfromance Specification 2.

Basis of Limit: RM = Reference Method S = Standard

Discussion of Test Program

Each boiler was operated at greater than 50% (93,000 lbs/hr steam flow) during each RATA. The steam load is presented in Appendix G with the plant CEM run data.

A NO_X analyzer converter check was performed after the calibration error on Unit 1 on March 22 and after the Unit 3 calibration error on March 24. The converter efficiency data is presented along with the reference method data in Appendix H.

During this year's test program, a mass emission rate-based (lb/hr) RATA on each unit's newly-installed carbon dioxide (CO_2) continuous emission rate monitoring system (CO_2 CERMS) was also performed in conjunction with the usual sulfur dioxide (SO_2), nitrogen oxide (NO_X) and carbon monoxide (CO) RATAs. Each CO_2 CERMS consists of a new CO_2 channel configured in the Sick 100e analyzer and an optical-based stack gas flow rate monitor located in each FF outlet duct.

The CO_2 CERMS was installed on each unit to meet EPA Greenhouse Gas Monitoring and Reporting requirements in 40 CFR 98. The CO_2 CERMS RATA was performed utilizing EPA Methods 2, 3A and 4. Flow data was obtained from a distinct pitot traverse performed during each RATA run and moisture data was obtained from simultaneous wet method (26A or 13B) testing.

Oxygen, flow and ppmdv of all measured constituents are presented in Section 2 of this report for comparison purposes only.

All RATA runs were 27 minutes in duration with 10 runs being performed on each unit with the exception of the following:

- On Unit 1 after Run 3, the difference between the facility's CO concentration and the reference method concentration was greater than allowed by Performance Specification 4A. The reference method CO analyzer was recalibrated in order to make it more linear. The CO RATA was restarted at Run 5 with Runs 11 through 14 being reduced to 24 minutes in order to expedite finishing the RATA.

- On Unit 3 the CO_2 lb/hr RATA relative accuracy was slightly above the allowable 20% after 10 runs. Two (2) additional 21-minute runs were performed which brought the relative accuracy below 20%.

End of Section 1 – Project Overview

RESULTS

Table 2-1:
Relative Accuracy Unit 1 FF Outlet – Oxygen (%dv)

Run No.	Start Time	Date (2011)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference
1	7:31	Mar 22	9.84	9.60	0.24	2.46%
2	8:13	Mar 22	9.49	9.40	0.09	0.93%
3	9:39	Mar 22	9.24	9.10	0.14	1.50%
4	10:24	Mar 22	9.20	9.10	0.10	1.04%
5	11:34	Mar 22	9.18	9.10	0.08	0.87%
6	12:14	Mar 22	9.35	9.20	0.15	1.57%
7	12:53	Mar 22	9.46	9.30	0.16	1.65%
8	13:31	Mar 22	9.80	9.70	0.10	1.04%
9	14:09	Mar 22	9.64	9.50	0.14	1.50%
10	14:48	Mar 22	9.93	9.80	0.13	1.33%
11	15:46	Mar 22	10.34	10.20	0.14	1.37%
12	16:18	Mar 22	10.07	10.00	0.07	0.71%
13	16:49	Mar 22	10.26	10.20	0.06	0.54%
14	17:19	Mar 22	9.49	9.40	0.09	0.93%
Average			9.66	9.54	0.12	1.24%

Standard Deviation	0.0475
Confidence Coefficient (CC)	0.0274
Avg. Absolute Diff. + CC (%dv)	0.15

Table 2-2:
Relative Accuracy Unit 1 FF Outlet – Volumetric Flow (FPM)

Run No.	Start Time	Date (2011)	RM Data (fpm)	CEMS Data (fpm)	Difference (fpm)	Percent Difference
1	7:31	Mar 22	3,005	2,601	404	13.43%
2	8:13	Mar 22	2,867	2,594	273	9.53%
3	9:39	Mar 22	2,834	2,541	293	10.34%
4	10:24	Mar 22	2,765	2,518	247	8.94%
5	11:34	Mar 22	2,784	2,511	273	9.81%
6	12:14	Mar 22	2,811	2,487	324	11.51%
7	12:53	Mar 22	2,899	2,456	443	15.28%
8	13:31	Mar 22	2,812	2,523	289	10.29%
9	14:09	Mar 22	2,917	2,551	366	12.55%
10	14:48	Mar 22	3,157	2,624	533	16.88%
Average			2,885	2,541	345	11.94%

Standard Deviation	91.259
Confidence Coefficient (CC)	65.278
Relative Accuracy (as % of RM)	14.2%
Avg. Absolute Difference (fpm)	345

RESULTS

Table 2-3:
Relative Accuracy Unit 1 FF Outlet – Carbon Dioxide (lb/hr)

Run No.	Start Time	Date (2011)	RM Data (lb/hr)	CEMS Data (lb/hr)	Difference (lb/hr)	Percent Difference	
1	7:31	Mar 22	67,686	65,222	2,464	3.64%	
2	8:13	Mar 22	66,620	66,233	387	0.58%	
3	9:39	Mar 22	66,762	66,136	626	0.94%	
4	10:24	Mar 22	65,349	65,484	-135	-0.21%	
5	11:34	Mar 22	65,968	65,365	603	0.91%	
6	12:14	Mar 22	66,056	64,200	1,856	2.81%	
7	12:53	Mar 22	67,653	62,950	4,703	6.95%	
8	13:31	Mar 22	64,221	62,660	1,561	2.43%	
9	14:09	Mar 22	66,457	63,638	2,819	4.24%	
10	14:48	Mar 22	70,914	64,449	6,465	9.12%	*
Average			66,308	64,654	1,654	2.49%	

Standard Deviation	1513.618	
Confidence Coefficient (CC)	1163.467	
		Limit
Relative Accuracy (as % of RM)	4.2%	20.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-4:
Relative Accuracy Unit 1 FF Outlet – Carbon Dioxide (%dv)

Run No.	Start Time	Date (2011)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference	
1	7:31	Mar 22	9.69	10.60	-0.91	-9.44%	
2	8:13	Mar 22	9.98	10.80	-0.82	-8.26%	
3	9:39	Mar 22	10.18	11.00	-0.82	-8.09%	
4	10:24	Mar 22	10.20	10.90	-0.70	-6.86%	
5	11:34	Mar 22	10.16	10.90	-0.74	-7.33%	
6	12:14	Mar 22	10.00	10.80	-0.80	-7.98%	
7	12:53	Mar 22	9.93	10.70	-0.77	-7.76%	
8	13:31	Mar 22	9.71	10.40	-0.69	-7.16%	
9	14:09	Mar 22	9.71	10.40	-0.69	-7.08%	
10	14:48	Mar 22	9.60	10.30	-0.70	-7.34%	
Average			9.91	10.68	-0.77	-7.73%	

Standard Deviation	0.074
Confidence Coefficient (CC)	0.053
Avg. Absolute Difference (%dv)	0.77

RESULTS

Table 2-5:
Relative Accuracy Unit 1 FF Outlet - Sulfur Dioxide (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:31	Mar 22	15.60	18.50	-2.90	-18.58%	
2	8:13	Mar 22	18.05	20.90	-2.85	-15.78%	
3	9:39	Mar 22	19.71	22.60	-2.89	-14.64%	
4	10:24	Mar 22	20.07	22.90	-2.83	-14.07%	
5	11:34	Mar 22	16.20	18.20	-2.00	-12.36%	
6	12:14	Mar 22	18.37	21.00	-2.63	-14.33%	
7	12:53	Mar 22	16.53	19.70	-3.17	-19.20%	*
8	13:31	Mar 22	15.70	18.10	-2.40	-15.26%	
9	14:09	Mar 22	17.40	20.50	-3.10	-17.82%	
10	14:48	Mar 22	15.21	17.70	-2.49	-16.40%	
Average			17.37	20.04	-2.68	-15.41%	

Standard Deviation	0.334	
Confidence Coefficient (CC)	0.257	
		Limits
Relative Accuracy (as % of RM)	16.9%	20.0%
Relative Accuracy (as % of Applicable Std.)	10.1%	20.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-6:
Relative Accuracy Unit 1 FF Outlet - Sulfur Dioxide (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:31	Mar 22	12.41	15.00	-2.59	-20.86%
2	8:13	Mar 22	14.82	17.30	-2.48	-16.74%
3	9:39	Mar 22	16.54	19.20	-2.66	-16.09%
4	10:24	Mar 22	16.90	19.40	-2.50	-14.77%
5	11:34	Mar 22	13.66	15.40	-1.74	-12.76%
6	12:14	Mar 22	15.27	17.60	-2.33	-15.29%
7	12:53	Mar 22	13.61	16.40	-2.79	-20.53%
8	13:31	Mar 22	12.54	14.70	-2.16	-17.25%
9	14:09	Mar 22	14.09	16.70	-2.61	-18.53%
10	14:48	Mar 22	12.00	14.00	-2.00	-16.68%
Average			14.18	16.57	-2.39	-16.83%

Standard Deviation	0.328
Confidence Coefficient (CC)	0.235
Relative Accuracy (as % of RM)	18.5%
Avg. Absolute Difference (ppmdv)	2.4

Table 2-7:
Relative Accuracy Unit 1 FF Outlet - Nitrogen Oxides (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:31	Mar 22	183.44	194.50	-11.06	-6.03%	
2	8:13	Mar 22	175.60	187.30	-11.70	-6.66%	*
3	9:39	Mar 22	176.62	187.00	-10.38	-5.88%	
4	10:24	Mar 22	170.68	180.80	-10.12	-5.93%	
5	11:34	Mar 22	177.12	187.10	-9.98	-5.64%	
6	12:14	Mar 22	179.47	188.80	-9.33	-5.20%	
7	12:53	Mar 22	173.48	183.90	-10.42	-6.01%	
8	13:31	Mar 22	170.07	177.90	-7.83	-4.60%	
9	14:09	Mar 22	169.42	178.30	-8.88	-5.24%	
10	14:48	Mar 22	183.04	192.90	-9.86	-5.39%	
Average			175.93	185.69	-9.76	-5.55%	

Standard Deviation	0.962	
Confidence Coefficient (CC)	0.739	
		Limits
Relative Accuracy (as % of RM)	6.0%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 205 (ppm@7%O2)	5.1%	10.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-8:
Relative Accuracy Unit 1 FF Outlet - Nitrogen Oxides (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:31	Mar 22	145.93	157.50	-11.57	-7.93%
2	8:13	Mar 22	144.16	155.10	-10.94	-7.59%
3	9:39	Mar 22	148.17	158.40	-10.23	-6.90%
4	10:24	Mar 22	143.71	153.20	-9.49	-6.60%
5	11:34	Mar 22	149.34	158.90	-9.56	-6.40%
6	12:14	Mar 22	149.16	158.30	-9.14	-6.13%
7	12:53	Mar 22	142.82	153.10	-10.28	-7.19%
8	13:31	Mar 22	135.79	143.20	-7.41	-5.46%
9	14:09	Mar 22	137.19	145.70	-8.51	-6.20%
10	14:48	Mar 22	144.43	153.00	-8.57	-5.93%
Average			144.07	153.64	-9.57	-6.64%

Standard Deviation	1.237
Confidence Coefficient (CC)	0.885
Relative Accuracy (as % of RM)	7.3%
Avg. Absolute Difference (ppmdv)	9.6

Table 2-9:
Relative Accuracy Unit 1 FF Outlet - Carbon Monoxide (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:31	Mar 22	27.27	21.10	6.17	22.63%	*
2	8:13	Mar 22	23.99	18.50	5.49	22.90%	*
3	9:39	Mar 22	21.95	16.50	5.45	24.83%	*
4	10:24	Mar 22					*
5	11:34	Mar 22	18.05	13.80	4.25	23.56%	
6	12:14	Mar 22	15.47	11.20	4.27	27.61%	
7	12:53	Mar 22	16.56	12.40	4.16	25.11%	
8	13:31	Mar 22	27.57	22.70	4.87	17.66%	
9	14:09	Mar 22	20.26	16.00	4.26	21.01%	
10	14:48	Mar 22	26.89	22.00	4.89	18.19%	
11	15:46	Mar 22	37.09	31.80	5.29	14.25%	*
12	16:18	Mar 22	36.31	32.00	4.31	11.87%	
13	16:49	Mar 22	42.48	38.70	3.78	8.90%	
14	17:19	Mar 22	18.17	13.50	4.67	25.70%	
Average			24.64	20.26	4.38	17.79%	
Standard Deviation			0.360				
Confidence Coefficient (CC)			0.277				
				Limits			
Relative Accuracy (as % of RM)			18.9%	10.0%			
Avg. Absolute Difference (ppm@7%O2)			4.4	5			

* Indicates that the run was not included in the RATA calculations.

Table 2-10:
Relative Accuracy Unit 1 FF Outlet - Carbon Monoxide (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference	
1	7:31	Mar 22	21.70	17.10	4.60	21.19%	*
2	8:13	Mar 22	19.70	15.30	4.40	22.33%	*
3	9:39	Mar 22	18.42	13.90	4.52	24.52%	*
4	10:24	Mar 22					*
5	11:34	Mar 22	15.22	11.70	3.52	23.13%	
6	12:14	Mar 22	12.86	9.40	3.46	26.90%	
7	12:53	Mar 22	13.63	10.20	3.43	25.18%	
8	13:31	Mar 22	22.01	18.10	3.91	17.77%	
9	14:09	Mar 22	16.40	13.00	3.40	20.74%	
10	14:48	Mar 22	21.22	17.30	3.92	18.47%	
11	15:46	Mar 22	28.17	24.10	4.07	14.45%	
12	16:18	Mar 22	28.29	24.70	3.59	12.68%	
13	16:49	Mar 22	32.53	29.50	3.03	9.32%	
14	17:19	Mar 22	14.92	11.20	3.72	24.91%	
Average			20.53	16.92	3.61	17.56%	
Standard Deviation			0.307				
Confidence Coefficient (CC)			0.220				
Relative Accuracy (as % of RM)			18.6%				
Avg. Absolute Difference (ppmdv)			3.6				

RESULTS

Table 2-11:
Relative Accuracy Unit 2 FF Outlet – Oxygen (%dv)

Run No.	Start Time	Date (2011)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference
1	7:12	Mar 23	8.52	9.80	-1.28	-15.02%
2	7:48	Mar 23	8.60	9.90	-1.30	-15.09%
3	8:37	Mar 23	8.88	10.10	-1.22	-13.76%
4	9:15	Mar 23	9.19	10.40	-1.21	-13.16%
5	9:59	Mar 23	8.59	9.90	-1.31	-15.28%
6	10:35	Mar 23	8.67	9.90	-1.23	-14.19%
7	11:29	Mar 23	9.02	10.20	-1.18	-13.14%
8	12:06	Mar 23	9.09	10.30	-1.21	-13.35%
9	13:07	Mar 23	9.10	10.40	-1.30	-14.24%
10	13:44	Mar 23	8.84	10.10	-1.26	-14.27%
Average			8.85	10.10	-1.25	-14.13%

Standard Deviation	0.0443
Confidence Coefficient (CC)	0.0317
Avg. Absolute Diff. + CC (%dv)	1.3

Table 2-12:
Relative Accuracy Unit 2 FF Outlet - Volumetric Flow (FPM)

Run No.	Start Time	Date (2011)	RM Data (fpm)	CEMS Data (fpm)	Difference (%dv)	Percent Difference
1	7:12	Mar 23	2,545	2,628	-83	-3.27%
2	7:48	Mar 23	2,605	2,845	-240	-9.20%
3	8:37	Mar 23	2,557	2,689	-132	-5.17%
4	9:15	Mar 23	2,555	2,691	-136	-5.33%
5	9:59	Mar 23	2,545	3,167	-622	-24.43%
6	10:35	Mar 23	2,569	2,998	-429	-16.68%
7	11:29	Mar 23	2,625	2,967	-342	-13.02%
8	12:06	Mar 23	2,704	2,715	-11	-0.42%
9	13:07	Mar 23	2,713	2,800	-87	-3.20%
10	13:44	Mar 23	2,715	2,932	-217	-8.00%
Average			2,613	2,843	-230	-8.80%

Standard Deviation	186.758
Confidence Coefficient (CC)	133.589
Relative Accuracy (as % of RM)	13.9%
Avg. Absolute Difference (fpm)	230

RESULTS

Table 2-13:
Relative Accuracy Unit 2 FF Outlet - Carbon Dioxide (lb/hr)

Run No.	Start Time	Date (2011)	RM Data (lb/hr)	CEMS Data (lb/hr)	Difference (lb/hr)	Percent Difference	
1	7:12	Mar 23	64,755	63,713	1,042	1.61%	
2	7:48	Mar 23	65,293	68,221	-2,928	-4.48%	
3	8:37	Mar 23	63,014	62,955	59	0.09%	
4	9:15	Mar 23	61,199	61,056	143	0.23%	
5	9:59	Mar 23	63,360	75,469	-12,109	-19.11%	*
6	10:35	Mar 23	63,065	70,411	-7,346	-11.65%	
7	11:29	Mar 23	62,688	67,567	-4,879	-7.78%	
8	12:06	Mar 23	64,836	62,148	2,688	4.15%	
9	13:07	Mar 23	64,193	63,643	550	0.86%	
10	13:44	Mar 23	65,399	68,142	-2,743	-4.19%	
Average			63,827	65,317	-1,491	-2.34%	

Standard Deviation	3211.683	
Confidence Coefficient (CC)	2468.714	
		Limit
Relative Accuracy (as % of RM)	6.2%	20.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-14:
Relative Accuracy Unit 2 FF Outlet - Carbon Dioxide (%dv)

Run No.	Start Time	Date (2011)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference
1	7:12	Mar 23	10.90	10.30	0.60	5.49%
2	7:48	Mar 23	10.75	10.20	0.55	5.16%
3	8:37	Mar 23	10.50	9.90	0.60	5.69%
4	9:15	Mar 23	10.20	9.60	0.60	5.84%
5	9:59	Mar 23	10.69	10.10	0.59	5.53%
6	10:35	Mar 23	10.55	10.00	0.55	5.19%
7	11:29	Mar 23	10.22	9.70	0.52	5.05%
8	12:06	Mar 23	10.28	9.70	0.58	5.67%
9	13:07	Mar 23	10.25	9.60	0.65	6.36%
10	13:44	Mar 23	10.44	9.90	0.54	5.19%
Average			10.48	9.90	0.58	5.51%

Standard Deviation	0.039
Confidence Coefficient (CC)	0.028
Avg. Absolute Difference (%dv)	0.58

RESULTS

Table 2-15:
Relative Accuracy Unit 2 FF Outlet - Sulfur Dioxide (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:12	Mar 23	12.17	12.00	0.17	1.42%	
2	7:48	Mar 23	7.09	6.10	0.99	14.01%	
3	8:37	Mar 23	9.00	9.20	-0.20	-2.22%	
4	9:15	Mar 23	15.80	18.20	-2.40	-15.22%	
5	9:59	Mar 23	7.29	5.50	1.79	24.60%	
6	10:35	Mar 23	7.17	6.20	0.97	13.50%	
7	11:29	Mar 23	9.33	8.80	0.53	5.71%	
8	12:06	Mar 23	6.92	5.50	1.42	20.58%	*
9	13:07	Mar 23	11.93	11.30	0.63	5.31%	
10	13:44	Mar 23	16.40	17.00	-0.60	-3.65%	
Average			10.69	10.48	0.21	1.97%	

Standard Deviation	1.206	
Confidence Coefficient (CC)	0.927	
		Limits
Relative Accuracy (as % of RM)	10.6%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 29 (ppm@7%O2)	3.9%	20.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-16:
Relative Accuracy Unit 2 FF Outlet - Sulfur Dioxide (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:12	Mar 23	10.84	9.50	1.34	12.38%
2	7:48	Mar 23	6.28	4.90	1.38	21.93%
3	8:37	Mar 23	7.78	7.10	0.68	8.78%
4	9:15	Mar 23	13.31	13.70	-0.39	-2.96%
5	9:59	Mar 23	6.46	4.40	2.06	31.90%
6	10:35	Mar 23	6.31	4.90	1.41	22.30%
7	11:29	Mar 23	7.98	6.70	1.28	16.04%
8	12:06	Mar 23	5.89	4.20	1.69	28.63%
9	13:07	Mar 23	10.13	8.50	1.63	16.07%
10	13:44	Mar 23	14.23	13.30	0.93	6.54%
Average			8.92	7.72	1.20	13.45%

Standard Deviation	0.678
Confidence Coefficient (CC)	0.485
Relative Accuracy (as % of RM)	18.9%
Avg. Absolute Difference (ppmdv)	1.3

Table 2-17:
Relative Accuracy Unit 2 FF Outlet - Nitrogen Oxides (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:12	Mar 23	172.40	194.40	-22.00	-12.76%	
2	7:48	Mar 23	176.08	198.00	-21.92	-12.45%	
3	8:37	Mar 23	181.30	204.80	-23.50	-12.96%	
4	9:15	Mar 23	179.86	203.00	-23.14	-12.87%	
5	9:59	Mar 23	165.40	187.90	-22.50	-13.60%	*
6	10:35	Mar 23	172.86	195.40	-22.54	-13.04%	
7	11:29	Mar 23	172.52	196.30	-23.78	-13.78%	
8	12:06	Mar 23	171.41	194.60	-23.19	-13.53%	
9	13:07	Mar 23	174.96	195.10	-20.14	-11.51%	
10	13:44	Mar 23	175.97	198.70	-22.73	-12.92%	
Average			175.26	197.81	-22.55	-12.87%	

Standard Deviation	1.101	
Confidence Coefficient (CC)	0.846	
		Limit
Relative Accuracy (as % of RM)	13.3%	20.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-18:
Relative Accuracy Unit 2 FF Outlet - Nitrogen Oxides (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:12	Mar 23	153.54	154.80	-1.26	-0.82%
2	7:48	Mar 23	155.79	157.10	-1.31	-0.84%
3	8:37	Mar 23	156.79	158.60	-1.81	-1.15%
4	9:15	Mar 23	151.52	152.60	-1.08	-0.71%
5	9:59	Mar 23	146.51	148.90	-2.39	-1.63%
6	10:35	Mar 23	152.09	154.10	-2.01	-1.32%
7	11:29	Mar 23	147.51	150.40	-2.89	-1.96%
8	12:06	Mar 23	145.68	148.00	-2.32	-1.60%
9	13:07	Mar 23	148.47	147.90	0.57	0.39%
10	13:44	Mar 23	152.69	154.80	-2.11	-1.38%
Average			151.06	152.72	-1.66	-1.10%

Standard Deviation	0.968
Confidence Coefficient (CC)	0.692
Relative Accuracy (as % of RM)	1.6%
Avg. Absolute Difference (ppmdv)	1.8

RESULTS

Table 2-19:
Relative Accuracy Unit 2 FF Outlet - Carbon Monoxide (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:12	Mar 23	16.73	17.20	-0.47	-2.81%	
2	7:48	Mar 23	11.99	11.90	0.09	0.76%	
3	8:37	Mar 23	18.24	18.10	0.14	0.79%	
4	9:15	Mar 23	15.06	16.00	-0.94	-6.25%	*
5	9:59	Mar 23	19.06	18.40	0.66	3.46%	
6	10:35	Mar 23	14.13	14.00	0.13	0.95%	
7	11:29	Mar 23	13.62	13.50	0.12	0.90%	
8	12:06	Mar 23	19.22	19.20	0.02	0.13%	
9	13:07	Mar 23	20.86	21.40	-0.54	-2.59%	
10	13:44	Mar 23	17.09	17.00	0.09	0.54%	
Average			16.77	16.74	0.03	0.17%	

Standard Deviation	0.355	
Confidence Coefficient (CC)	0.273	
		Limits
Relative Accuracy (as % of RM)	1.8%	10.0%
Avg. Absolute Difference (ppm@7%O2)	0.3	5

* Indicates that the run was not included in the RATA calculations.

Table 2-20:
Relative Accuracy Unit 2 FF Outlet - Carbon Monoxide (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:12	Mar 23	14.90	13.70	1.20	8.06%
2	7:48	Mar 23	10.61	9.40	1.21	11.40%
3	8:37	Mar 23	15.78	14.00	1.78	11.27%
4	9:15	Mar 23	12.69	12.00	0.69	5.41%
5	9:59	Mar 23	16.88	14.70	2.18	12.92%
6	10:35	Mar 23	12.44	11.00	1.44	11.55%
7	11:29	Mar 23	11.65	10.30	1.35	11.57%
8	12:06	Mar 23	16.34	14.60	1.74	10.64%
9	13:07	Mar 23	17.70	16.10	1.60	9.05%
10	13:44	Mar 23	14.83	13.20	1.63	11.00%
Average			14.38	12.90	1.48	10.30%

Standard Deviation	0.406
Confidence Coefficient (CC)	0.291
Relative Accuracy (as % of RM)	12.3%
Avg. Absolute Difference (ppmdv)	1.5

RESULTS

Table 2-21:
Relative Accuracy Unit 3 FF Outlet – Oxygen (%dv)

Run No.	Start Time	Date (2011)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference
1	7:00	Mar 24	8.66	8.50	0.16	1.87%
2	7:39	Mar 24	8.82	8.60	0.22	2.51%
3	8:24	Mar 24	9.00	8.80	0.20	2.28%
4	9:02	Mar 24	9.29	9.10	0.19	2.00%
5	10:23	Mar 24	9.56	9.40	0.16	1.70%
6	11:02	Mar 24	9.78	9.60	0.18	1.83%
7	11:42	Mar 24	10.31	10.10	0.21	2.02%
8	12:21	Mar 24	9.92	9.80	0.12	1.20%
9	13:12	Mar 24	9.79	9.70	0.09	0.93%
10	13:51	Mar 24	9.81	9.60	0.21	2.10%
11	14:38	Mar 24	9.33	9.20	0.13	1.39%
12	15:09	Mar 24	9.10	8.90	0.20	2.21%
Average			9.45	9.28	0.17	1.83%

Standard Deviation	0.0408
Confidence Coefficient (CC)	0.0259
Avg. Absolute Diff. + CC (%dv)	0.20

Table 2-22:
Relative Accuracy Unit 3 FF Outlet – Volumetric Flow (FPM)

Run No.	Start Time	Date (2011)	RM Data (fpm)	CEMS Data (fpm)	Difference (%dv)	Percent Difference
1	7:00	Mar 24	2,873	2,285	588	20.47%
2	7:39	Mar 24	2,742	2,169	573	20.90%
3	8:24	Mar 24	2,742	2,281	461	16.82%
4	9:02	Mar 24	2,822	2,537	285	10.11%
5	10:23	Mar 24	2,842	2,491	351	12.34%
6	11:02	Mar 24	3,025	2,168	857	28.34%
7	11:42	Mar 24	2,908	2,696	212	7.28%
8	12:21	Mar 24	3,060	2,607	453	14.82%
9	13:12	Mar 24	3,043	2,383	660	21.70%
10	13:51	Mar 24	3,002	2,314	688	22.92%
11	14:38	Mar 24	2,863	2,374	489	17.07%
12	15:09	Mar 24	2,891	2,323	568	19.65%
Average			2,901	2,386	515	17.77%

Standard Deviation	180.613
Confidence Coefficient (CC)	114.757
Relative Accuracy (as % of RM)	21.7%
Avg. Absolute Difference (fpm)	515

RESULTS

Table 2-23:
Relative Accuracy Unit 3 FF Outlet - Carbon Dioxide (lb/hr)

Run No.	Start Time	Date (2011)	RM Data (lb/hr)	CEMS Data (lb/hr)	Difference (lb/hr)	Percent Difference	
1	7:00	Mar 24	69,926	57,110	12,816	18.33%	
2	7:39	Mar 24	65,757	53,422	12,335	18.76%	
3	8:24	Mar 24	65,266	55,580	9,686	14.84%	
4	9:02	Mar 24	65,779	60,623	5,156	7.84%	
5	10:23	Mar 24	64,726	57,916	6,810	10.52%	
6	11:02	Mar 24	61,042	49,454	11,588	18.98%	
7	11:42	Mar 24	58,917	58,985	-68	-0.11%	
8	12:21	Mar 24	62,449	58,894	3,555	5.69%	
9	13:12	Mar 24	69,524	54,527	14,997	21.57%	*
10	13:51	Mar 24	67,326	52,111	15,215	22.60%	*
11	14:38	Mar 24	67,122	56,430	10,692	15.93%	
12	15:09	Mar 24	68,728	55,862	12,866	18.72%	*
Average			64,554	56,490	8,063	12.49%	

Standard Deviation	4461.918	
Confidence Coefficient (CC)	3429.728	
		Limit
Relative Accuracy (as % of RM)	17.8%	20.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-24:
Relative Accuracy Unit 3 FF Outlet - Carbon Dioxide (%dv)

Run No.	Start Time	Date (2011)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference
1	7:00	Mar 24	10.56	10.60	-0.04	-0.40%
2	7:39	Mar 24	10.39	10.50	-0.11	-1.05%
3	8:24	Mar 24	10.27	10.40	-0.13	-1.28%
4	9:02	Mar 24	10.06	10.20	-0.14	-1.36%
5	10:23	Mar 24	9.77	9.90	-0.13	-1.31%
6	11:02	Mar 24	9.65	9.70	-0.05	-0.57%
7	11:42	Mar 24	9.27	9.30	-0.03	-0.33%
8	12:21	Mar 24	9.55	9.60	-0.05	-0.49%
9	13:12	Mar 24	9.73	9.70	0.03	0.28%
10	13:51	Mar 24	9.53	9.60	-0.07	-0.77%
11	14:38	Mar 24	10.08	10.10	-0.02	-0.15%
12	15:09	Mar 24	10.25	10.20	0.05	0.44%
Average			9.93	9.98	-0.06	-0.58%

Standard Deviation	0.061
Confidence Coefficient (CC)	0.038
Avg. Absolute Difference (%dv)	0.07

RESULTS

Table 2-25:
Relative Accuracy Unit 3 FF Outlet - Sulfur Dioxide (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:00	Mar 24	16.48	18.20	-1.72	-10.42%	
2	7:39	Mar 24	16.86	17.90	-1.04	-6.16%	
3	8:24	Mar 24	12.73	14.60	-1.87	-14.68%	
4	9:02	Mar 24	13.63	17.90	-4.27	-31.35%	*
5	10:23	Mar 24	5.96	6.80	-0.84	-14.08%	
6	11:02	Mar 24	5.88	6.40	-0.52	-8.91%	
7	11:42	Mar 24	6.34	7.10	-0.76	-11.94%	
8	12:21	Mar 24	3.12	3.60	-0.48	-15.50%	
9	13:12	Mar 24	1.76	2.20	-0.44	-25.23%	
10	13:51	Mar 24	2.37	2.90	-0.53	-22.58%	
Average			7.94	8.86	-0.91	-11.48%	

Standard Deviation	0.537	
Confidence Coefficient (CC)	0.413	
		Limits
Relative Accuracy (as % of RM)	16.7%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 29 (ppm@7%O2)	4.6%	20.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-26:
Relative Accuracy Unit 3 FF Outlet - Sulfur Dioxide (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:00	Mar 24	14.51	16.30	-1.79	-12.32%
2	7:39	Mar 24	14.65	15.80	-1.15	-7.83%
3	8:24	Mar 24	10.89	12.70	-1.81	-16.57%
4	9:02	Mar 24	11.39	15.20	-3.81	-33.49%
5	10:23	Mar 24	4.86	5.60	-0.74	-15.18%
6	11:02	Mar 24	4.70	5.20	-0.50	-10.60%
7	11:42	Mar 24	4.83	5.50	-0.67	-13.80%
8	12:21	Mar 24	2.46	2.90	-0.44	-17.77%
9	13:12	Mar 24	1.40	1.80	-0.40	-28.20%
10	13:51	Mar 24	1.89	2.30	-0.41	-21.80%
Average			7.16	8.33	-1.17	-16.34%

Standard Deviation	1.074
Confidence Coefficient (CC)	0.768
Relative Accuracy (as % of RM)	27.1%
Avg. Absolute Difference (ppmdv)	1.2

RESULTS

Table 2-27:
Relative Accuracy Unit 3 FF Outlet - Nitrogen Oxides (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:00	Mar 24	186.96	191.20	-4.24	-2.27%	
2	7:39	Mar 24	182.73	188.90	-6.17	-3.38%	
3	8:24	Mar 24	184.48	191.00	-6.52	-3.53%	
4	9:02	Mar 24	187.51	194.20	-6.69	-3.57%	
5	10:23	Mar 24	187.87	194.70	-6.83	-3.63%	
6	11:02	Mar 24	189.64	195.50	-5.86	-3.09%	
7	11:42	Mar 24	193.67	201.90	-8.23	-4.25%	*
8	12:21	Mar 24	184.27	190.30	-6.03	-3.27%	
9	13:12	Mar 24	188.68	194.50	-5.82	-3.08%	
10	13:51	Mar 24	191.30	197.50	-6.20	-3.24%	
Average			187.05	193.09	-6.04	-3.23%	

Standard Deviation	0.762	
Confidence Coefficient (CC)	0.586	
		Limits
Relative Accuracy (as % of RM)	3.5%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 205 (ppm@7%O2)	3.2%	10.0%

* Indicates that the run was not included in the RATA calculations.

Table 2-28:
Relative Accuracy Unit 3 FF Outlet - Nitrogen Oxides (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:00	Mar 24	164.61	170.80	-6.19	-3.76%
2	7:39	Mar 24	158.78	166.60	-7.82	-4.92%
3	8:24	Mar 24	157.87	166.10	-8.23	-5.21%
4	9:02	Mar 24	156.67	164.70	-8.03	-5.12%
5	10:23	Mar 24	153.23	161.50	-8.27	-5.40%
6	11:02	Mar 24	151.73	158.80	-7.07	-4.66%
7	11:42	Mar 24	147.58	156.70	-9.12	-6.18%
8	12:21	Mar 24	145.57	152.70	-7.13	-4.90%
9	13:12	Mar 24	150.80	157.40	-6.60	-4.38%
10	13:51	Mar 24	152.69	160.30	-7.61	-4.99%
Average			153.95	161.56	-7.61	-4.94%

Standard Deviation	0.874
Confidence Coefficient (CC)	0.625
Relative Accuracy (as % of RM)	5.3%
Avg. Absolute Difference (ppmdv)	7.6

Table 2-29:
Relative Accuracy Unit 3 FF Outlet - Carbon Monoxide (ppm @ 7% O_2)

Run No.	Start Time	Date (2011)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:00	Mar 24	12.88	13.60	-0.72	-5.60%	
2	7:39	Mar 24	13.68	14.40	-0.72	-5.29%	
3	8:24	Mar 24	13.68	14.50	-0.82	-5.97%	
4	9:02	Mar 24	17.39	17.80	-0.41	-2.39%	
5	10:23	Mar 24	16.97	17.30	-0.33	-1.93%	
6	11:02	Mar 24	16.07	17.30	-1.23	-7.68%	*
7	11:42	Mar 24	31.90	30.70	1.20	3.77%	
8	12:21	Mar 24	24.25	24.40	-0.15	-0.63%	
9	13:12	Mar 24	21.64	22.50	-0.86	-3.98%	
10	13:51	Mar 24	18.15	18.80	-0.65	-3.59%	
Average			18.95	19.33	-0.39	-2.03%	

Standard Deviation	0.642	
Confidence Coefficient (CC)	0.493	
		Limits
Relative Accuracy (as % of RM)	4.6%	10.0%
Avg. Absolute Difference (ppm@7%O2)	0.7	5

* Indicates that the run was not included in the RATA calculations.

Table 2-30:
Relative Accuracy Unit 3 FF Outlet - Carbon Monoxide (ppmdv)

Run No.	Start Time	Date (2011)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Percent Difference
1	7:00	Mar 24	11.34	12.10	-0.76	-6.71%
2	7:39	Mar 24	11.88	12.70	-0.82	-6.86%
3	8:24	Mar 24	11.71	12.60	-0.89	-7.61%
4	9:02	Mar 24	14.53	15.00	-0.47	-3.26%
5	10:23	Mar 24	13.84	14.20	-0.36	-2.58%
6	11:02	Mar 24	12.85	13.90	-1.05	-8.14%
7	11:42	Mar 24	24.31	23.60	0.71	2.93%
8	12:21	Mar 24	19.15	19.50	-0.35	-1.80%
9	13:12	Mar 24	17.29	17.90	-0.61	-3.50%
10	13:51	Mar 24	14.49	15.20	-0.71	-4.93%
Average			15.14	15.67	-0.53	-3.50%

Standard Deviation	0.492
Confidence Coefficient (CC)	0.352
Relative Accuracy (as % of RM)	5.8%
Avg. Absolute Difference (ppmdv)	0.7

End of Section 2 – Results

DESCRIPTION OF INSTALLATION

PROCESS DESCRIPTION

The North Broward Resource Recovery facility, located in Pompano Beach, Florida, operates three (3) 750 tons-per-day municipal refuse-fired, water-wall boiler trains. The trains were manufactured by Babcock and Wilcox to produce electricity for sale to a local utility company. Each boiler is equipped with a spray dryer absorber (SDA) for acid gas removal, followed by an FF baghouse for the control of particulate emissions. The control equipment is manufactured by Wheelabrator Air Pollution Control, Inc. Each FF baghouse is followed by an induced draft fan, which directs the flue gas to a dedicated flue in a common stack.

CEMS GENERAL DESCRIPTION

The CEMs was supplied by Aldora Technologies and consists of the following major components: three (3) Perkin Elmer MCS-100 /e infrared-based multi-gas measurement analyzers (one for each unit) and an Environmental System Corporation (ESC) UNIX-based data acquisition system (DAS). With the recent addition of M and C chillers, the MCS-100 /e analyzers measure pollutant and diluent concentrations on a cold-dry basis.

Each MCS-100 /e system includes the following: a SICK 100 /e analyzer with integrated zirconium oxide-based O_2 analyzer, programmable logic controller (PLC) and heated probe and sample line. The FF outlet 100 /e systems monitor O_2, CO_2, CO, SO_2 and NO_X from the respective stack ductwork.

The ESC DAS consists of three (3) Model 8816 data loggers (one for each MWC unit), a central polling (located in the CEM shelter), data archiving and reporting computer, and a remote engineering workstation (located in the control room). An environmentally-controlled shelter houses the MCS-100 /e analyzers, calibration gas systems and ESC Model 8816 data loggers. A general CEMs schematic is shown in Figure 3-1 on page 3-3.

PERKIN ELMER MCS-100 /E ANALYZER

The analyzer uses multiple infrared measurements, including Gas Filter Correlation for measuring NO_X and CO, a single beam-dual wavelength for SO_2 and an integrated heated zirconium oxide (ZrO_2) electrochemical cell for O_2, which is controlled by the 100 /e motherboard. All measurements are performed on a cold-dry basis in a single once-through sample cell with common optical bench (infrared source, filters, chopper wheel and detector). All sampling components (probe, sample line, pump) and measurement cell are maintained at 385°F to prevent condensation prior to the chillers.

The MSC-100 /e includes an integrated PLC that controls all analyzer functions, including optical bench operation, detector signal processing, dynamic gas calibrations, sample system operation and operational status alarms. The dry-based SO_2, NO_X, CO CO_2 and O_2 measurement signals and operational status outputs are sent to the ESC 8816 data logger.

ESC DAS

The DAS consists of three (3) Model 8816 data loggers, a central data polling and reporting computer and engineering workstation. The 8816 data loggers receive the measurement signals from the MCS-100 /e analyzers and transmit the data to the central computer. The 8816 data loggers also receive the necessary status inputs from the MCS-100 /e to properly record analyzer calibrations, provide appropriate status flags to data and generate alarms to alert operators of CEM problems or excess emissions events.

The data loggers store up to four (4) weeks of hourly CEM data, consequently, in the event the central computer goes down, data recording and archiving is not affected. The data logger also receives the steam flow rate and fabric filter temperature signals from the control room to provide calculation of appropriate averages and permanent recording.

The Central Polling and Reporting Computer, located in the CEMS building, receives all data from the 8816 data loggers, calculates the required emission units and averaging times, generates the daily calibration reports and provides all required Subpart Cb data recording and reporting. Data from this computer is used for the relative accuracy testing and calibration drift determinations. The computer also provides the necessary permanent data storage using data storage tapes. The engineering workstation provides a remote link to the central computer for data review and generation of reports.

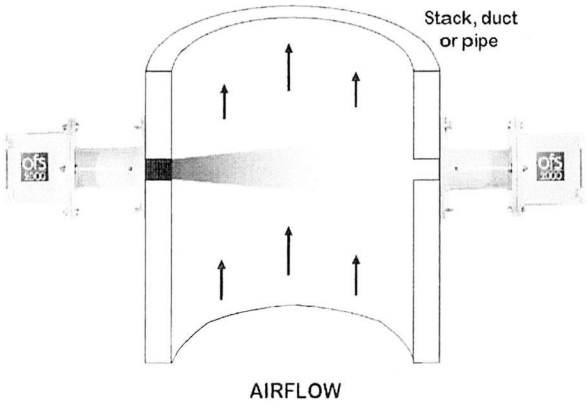
CEM CALIBRATION

The outlet CEM systems are calibrated daily using the appropriate calibration gases. Calibration gases are injected at the probes to provide a complete assessment of CEM response. The MCS-100 /e performs an automatic zero adjustment to all measurement channels after the calibration is completed and the zero and span responses recorded by the 8816 data logger. No other adjustments or corrections are performed on the data.

DESCRIPTION OF INSTALLATION

GAS FLOW MONITOR SYSTEM DESCRIPTION

The stack gas flow monitor is a primary component of the CO_2 CERM. Stack flow, along with flue gas temperature and CO_2 and H_2O data from the CEMS, is used to calculate and record mass CO_2 emissions in lbs/hr.



A stack gas flow monitor is installed on each MWC unit (see Table 3-1 below). The stack gas flow monitor is an Optical Scientific Inc. Model OFS 2000W Optical Flow Sensor. It consists of three (3) major components: the light transmitter, the receiver and control unit. The ESC Data Logger performs stack gas flow monitor data acquisition, data reduction and reporting functions.

The OFS 2000W uses an optical scintillation technique to continually measure gas velocity at the measurement location. The optical scintillation technique relies on advanced Digital Signal Processing (DSP) electronics to detect and measure the velocity of flue gas turbulence patterns in the stack gas flow stream. The technique provides a monitor path length averaged air velocity which is converted to gas volumetric flow rate using the duct cross-sectional area.

Table 3-1:
Stack Flow Monitor Information - Unit 1, 2 & 3

Channel	Range	Sampling Location	Manufacturer/ Model Number	Serial Number
Stack Flow (velocity)	0-7872 feet/minute	#1 FF Outlet	Optical Scientific Inc. Model OFS 2000W	10100572
		#2 FF Outlet		10100570
		#3 FF Outlet		10100571

CEMS SCHEMATIC

Figure 3-1 is a general schematic of each of the outlet CEM systems. Figure 3-2 on page 3-4 presents the RM and CEM outlet sampling locations, as well as a general facility process flow diagram.

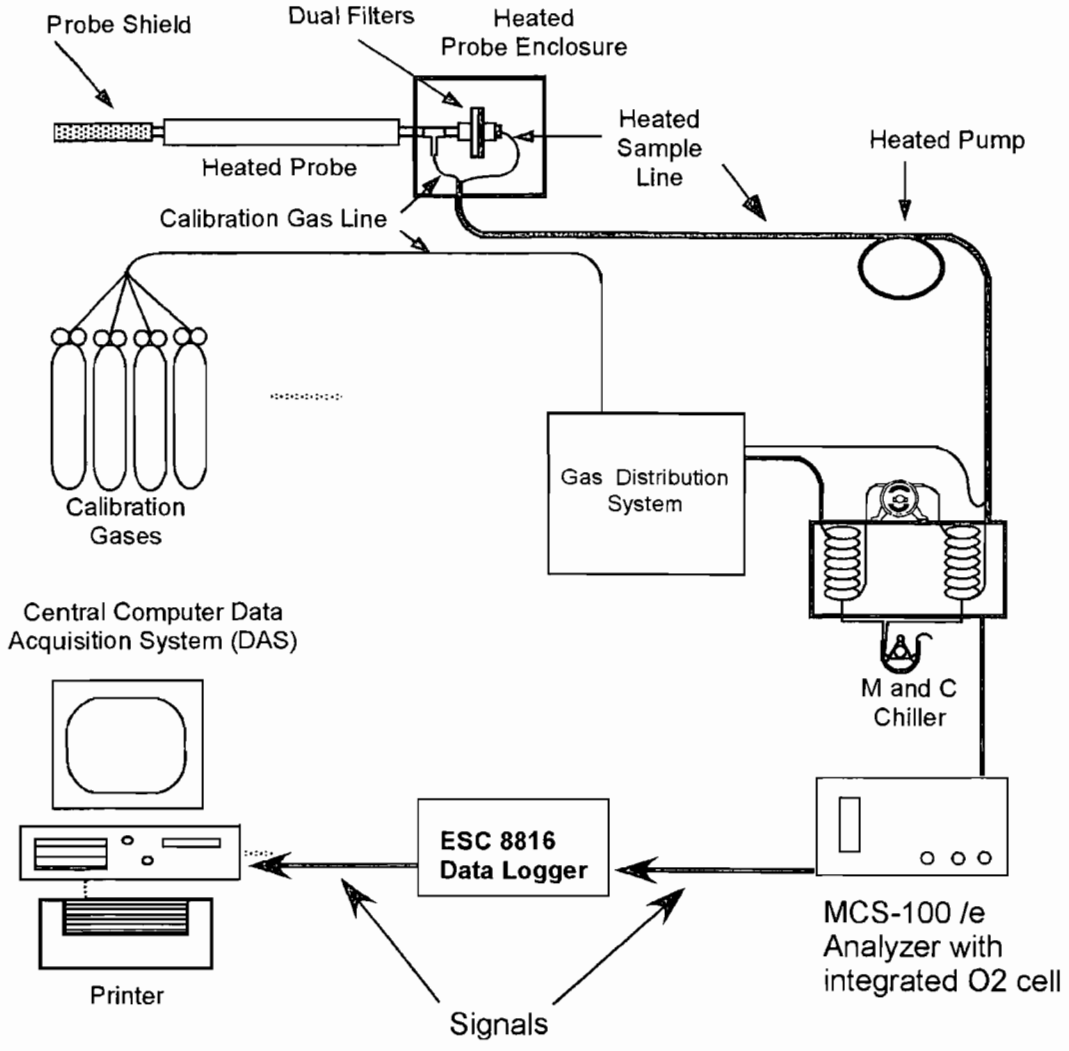


Figure 3-1: General CEMS Schematic

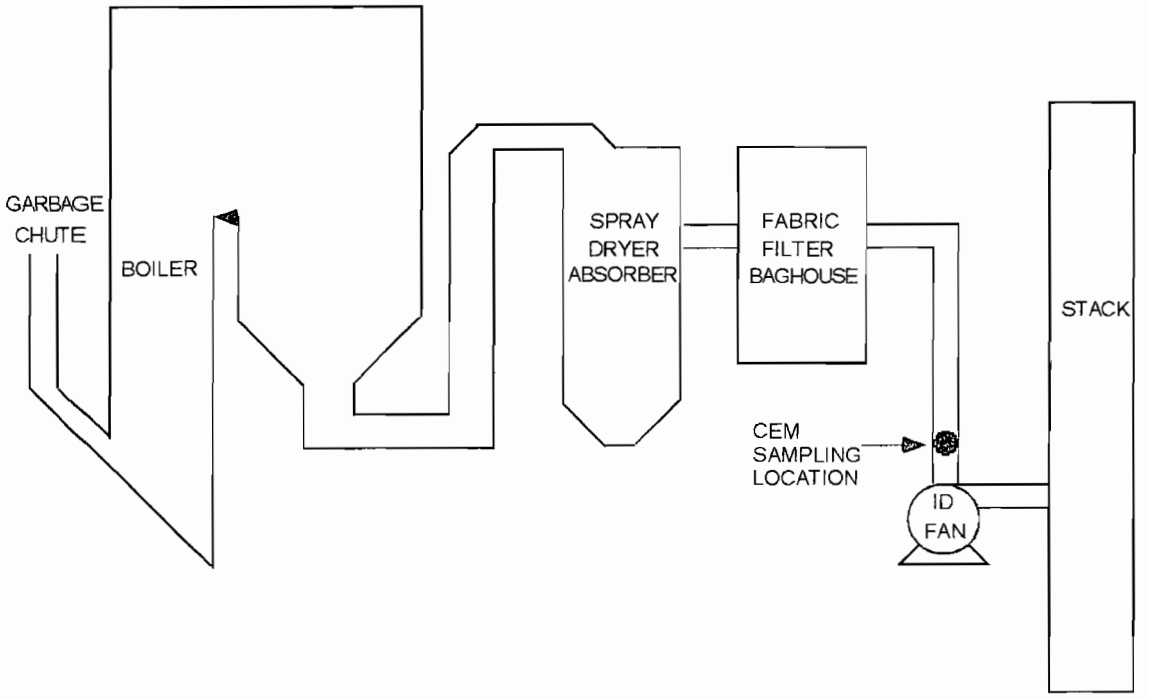


Figure 3-2: Process Flow Diagram and CEM Locations

DESCRIPTION OF SAMPLING LOCATIONS

Sampling point locations were determined according to EPA Method 1 and Performance Specification 2.

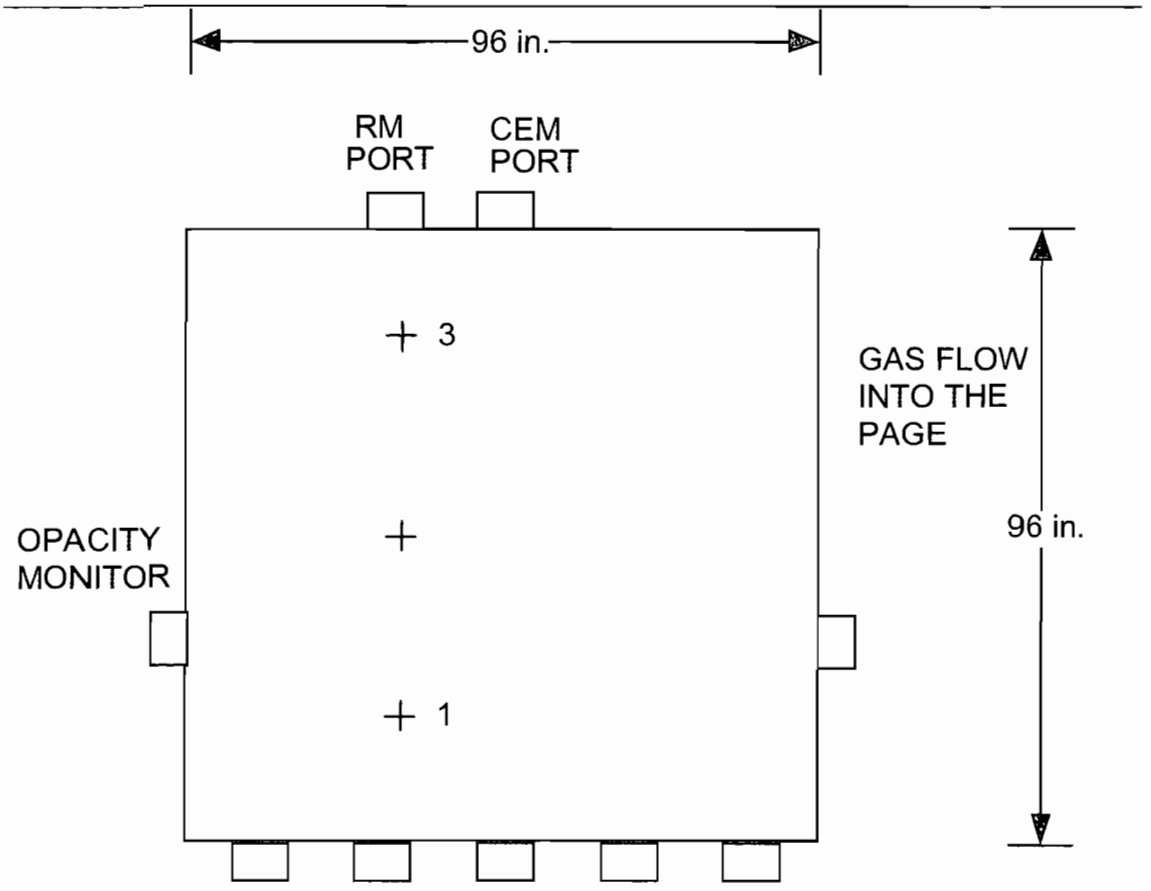
Table 3-2 outlines the sampling point configurations. Figures 3-3 and 3-4 on pages 3-6 and 3-7 illustrate the sampling points and orientation of sampling ports for each of the sources tested in the program.

Table 3-2:
Sampling Points

Location / Constituent	Methods	Run No.	Ports	Points per Port	Minutes per Point	Total Minutes	Figure
Unit 1 FF Outlet							
CEM	3A, 6C, 7E, 10	1-10/14[1]	1	3	8/9	24/27[1]	3-3
Volumetric Flow	1-4[2]	1-10	5	5	varies	varies	3-4
Unit 2 FF Outlet							
CEM	3A, 6C, 7E, 10	1-10	1	3	9	27	3-3
Volumetric Flow	1-4[2]	1-10	5	5	varies	varies	3-4
Unit 3 FF Outlet							
CEM	3A, 6C, 7E, 10	1-10/12[3]	1	3	7/9	21/27	3-3
Volumetric Flow	1-4[2]	1-12[3]	5	5	varies	varies	3-4

[1] The CO RATA had to be restarted after Run 4. The CO Runs 11-14 were 24 minutes in duration.
[2] Moistures were obtained from the concurrent Method 26 or Method 13B sample trains.
[3] Twelve CO_2 RATA test runs were performed with Runs 11 and 12 being 21-minutes in duration.

DESCRIPTION OF INSTALLATION

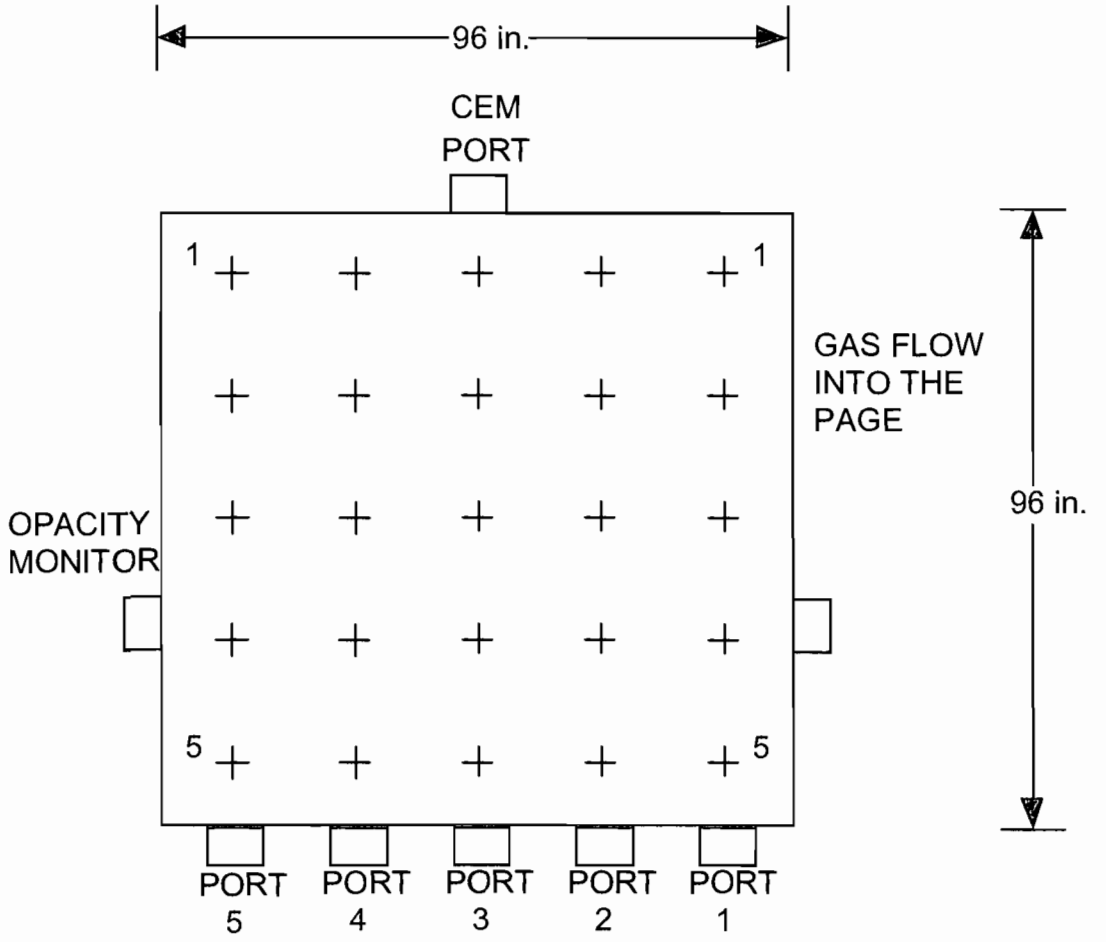


Sampling Point	Port to Point Distance (in.)
1	80
2	48
3	16

Equivalent Duct diameters upstream from flow disturbance (A):	0.92	Limit: 0.5
Equivalent Duct diameters downstream from flow disturbance (B):	2.0	Limit: 2.0

Port to point distances are 2.0 m, 1.2 m and 0.4 m, as specified in PS 2, Section 3.2.

Figure 3-3: Units 1, 2 and 3 FF Outlets – RATA Sampling Point Determination (PS 2)



Traverse Point	Port to Point Distance (in.)
1	86.4
2	67.2
3	48.0
4	28.8
5	9.6

Equivalent diameters to upstream disturbance: 2.0 Limit: 2.0
Equivalent diameters to downstream disturbance: 0.5 Limit: 0.5

Figure 3-4: FF Outlets – Velocity Traverse Point Determination (Units 1, 2 and 3 are identical)

End of Section 3 – Description of Installation

METHODOLOGY

Clean Air Engineering followed procedures as detailed in EPA Methods 1, 2, 3A, 4, 6C, 7E and 10, as well as Performance Specifications 2, 3, 4A and 6. The following table summarizes the methods and their respective sources.

Table 4-1:
Summary of Sampling Procedures

Title 40 CFR Part 60 Appendix A	
Method 1	"Sample and Velocity Traverses for Stationary Sources"
Method 2	"Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)"
Method 3A	"Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 4	"Determination of Moisture Content in Stack Gases"
Method 6C	"Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 7E	"Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 10	"Determination of Carbon Monoxide Emissions from Stationary Sources"
Title 40 CFR Part 60 Appendix B (Performance Specifications (PS))	
PS2	"Specifications and Test Procedures for SO_2 and NO_x Continuous Emission Monitoring Systems in Stationary Sources"
PS3	"Specifications and Test Procedures for O_2 and CO_2 Continuous Emission Monitoring Systems in Stationary Sources"
PS4A	"Specifications and Test Procedures for Carbon Monoxide Continuous Emission Monitoring Systems in Stationary Sources"
PS6	"Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources "

These methods appear in detail in Title 40 of the Code of Federal Regulations (CFR) and can be found on the internet at http://ecfr.gpoaccess.gov.

Diagrams of the sampling apparatus and major specifications of the sampling, recovery and analytical procedures are summarized for each method in Appendix A.

CleanAir followed specific quality assurance and quality control (QA/QC) procedures as outlined in the individual methods and as prescribed in CleanAir's internal Quality Manual. Results of all QA/QC activities performed by CleanAir are summarized in Appendix D.

End of Section 4 – Methodology

APPENDIX

TEST METHOD SPECIFICATIONS ..... A
SAMPLE CALCULATIONS ..... B
PARAMETERS C
QA/QC DATA ..... D
FIELD DATA ..... E
FIELD DATA PRINTOUTS ..... F
PLANT CEM DATA ..... G
REFERENCE METHOD DATA ..... H

TEST METHOD SPECIFICATIONS

A

I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: KRO

Date: 5/4/2011

CleanAir.

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Specification Sheet for EPA Methods 6C, 7E and 10

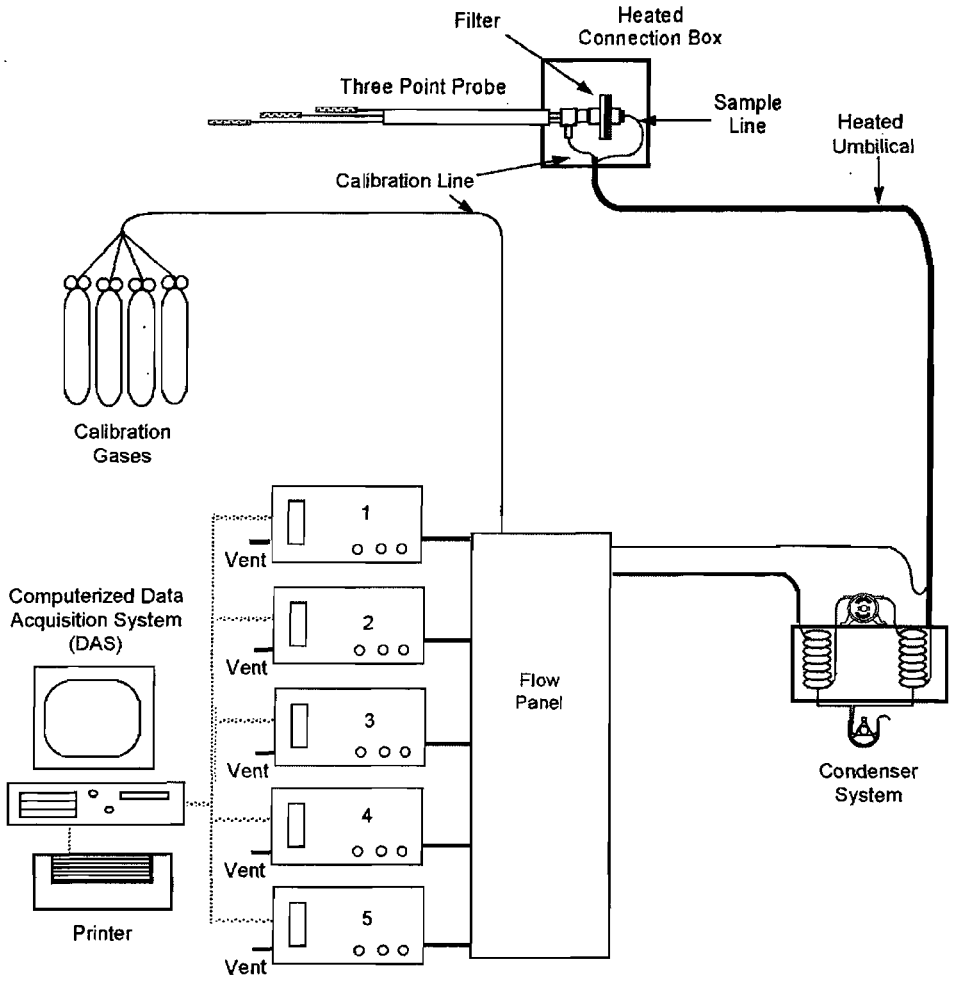
Source Location Name(s)	Units 1, 2 and 3 FF Outlets
Pollutant(s) to be Determined	Sulfur Dioxide (SO_2), Nitrogen Oxides (NO_x) and Carbon Monoxide (CO)
Other Parameters to be Determined from Train	O2 and CO2 (EPA Method 3A)

	Standard Method Specification	Actual Specification Used
Pollutant Sampling Information		
Duration of Run	N/A	27 minutes
No. of Sample Traverse Points	N/A	3
Sample Time per Point	N/A	9 minutes
Sampling Rate	Constant Rate	Constant Rate
Sampling Probe		
Nozzle Material	N/A	None
Nozzle Design	N/A	N/A
Probe Liner Material	Stainless Steel or Pyrex Glass	Stainless Steel
Effective Probe Length	Sufficient to Traverse Points	3 points (16", 48" and 80")
Probe Temperature Set-Point	Prevent Condensation	248°F±25°F
Particulate Filter		
In-Stack Filter	Yes	Yes
In-Stack Filter Material	Non-reactive to gas	Fritted Stainless Steel
External Filter	Yes	Yes
External Filter Material	Borosilicate, Quartz Glass Wool or Fiber Mat	Borosilicate Glass Fiber Mat
External Filter Set-Point	Prevent Condensation	248°F±25°F
Sample Delivery System		
Heated Sample Line Material	Stainless Steel or Teflon	Teflon
Heated Sample Line Set-Point	Prevent Condensation	248°F±25°F
Heated Sample Line Connections	Probe Exit to Moisture Removal System	Probe to Moisture Removal System
Moisture Removal System	Refrigerator-type condenser or similar	Refrigerator-type condenser
Sample Pump Type	Leak-Free, minimal response time	Diaphragm
Sample Pump Material	Non-reactive to sample gases	Teflon
Sample Flow Control	Constant Rate	Constant Rate (±10%)
Non-Heated Sample Line Material	Stainless Steel or Teflon	Teflon
Non-Heated Sample Line Connections	Moisture Removal to Sample Gas Manifold	Moisture Removal to Sample Gas Manifold
Additional Filters	Optional	No
Additional Filter Type	N/A	N/A
Additional Filter Location	Optional	N/A
Filter Material	Non-reactive to sample gases	N/A
Analyzer Description		
Oxygen (O_2)	EPA Method 3A (Paramagnetic)	EPA Method 3A (Paramagnetic)
Carbon Dioxide (CO_2)	EPA Method 3A (NDIR)	EPA Method 3A (NDIR)
Sulfur Dioxide (SO_2)	EPA Method 6C (UV, NDIR or Fluorescence)	EPA Method 6C (UV Absorption)
Nitrogen Oxides (NO_x)	EPA Method 7E (Chemiluminescent)	EPA Method 7E (Chemiluminescent)
Carbon Monoxide (CO)	EPA Method 10 (Gas Filter Correlation IR)	EPA Method 10 (Gas Filter Correlation IR)
Total Hydrocarbon (THC)	N/A	
Hydrogen Chloride (HCl)	N/A	
Ammonia (NH_3)	N/A	

Specification Sheet for EPA Methods 6C, 7E and 10

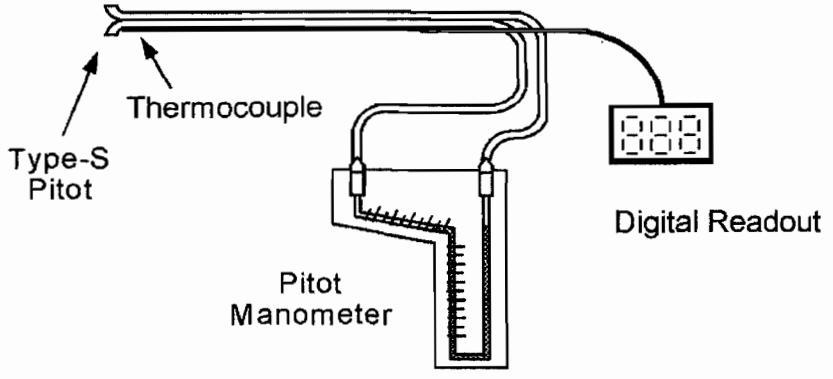
	Standard Method Specification	Actual Specification Used
Instrument Span Range		
Oxygen (O_2)	≤ 1.33 x Expected Maximum	0-14.1
Carbon Dioxide (CO_2)	≤ 1.33 x Expected Maximum	0-13.9%
Sulfur Dioxide (SO_2)	≤ 1.33 x Expected Maximum	0-89.9 ppm
Nitrogen Oxides (NO_x)	≤ 1.33 x Expected Maximum	0-453 ppm
Carbon Monoxide (CO)	≤ 1.33 x Expected Maximum	0-95.7 ppm
Total Hydrocarbon (THC)	N/A	N/A
Hydrogen Chloride (HCl)	N/A	N/A
Ammonia (NH_3)	N/A	N/A
Data Acquisition		
Data Recorder	Strip chart, Analog Computer or Digital Recorder	Digital Recorder
Recorder Resolution	0.5 Percent of Span	0.1 Percent of Span
Data Storage	Manually or Automatic	Automatic
Measurement Freq. ≤60 min. Sample Time	1-min. intervals or 30 measurements (less restrictive)	One reading per second
Recording Freq. ≤60 min. Sample Time	1-min. intervals or 30 measurements (less restrictive)	One Minute Average (60, 1 second readings)
Measurement Freq. >60 min. Sample Time	2-min. intervals or 96 measurements (less restrictive)	N/A
Recording Freq. >60 min. Sample Time	2-min. intervals or 96 measurements (less restrictive)	N/A
Calibration Gas Specifications		
Oxygen (O_2)	EPA Protocol 1	EPA Protocol 1
Carbon Dioxide (CO_2)	EPA Protocol 1	EPA Protocol 1
Sulfur Dioxide (SO_2)	EPA Protocol 1	EPA Protocol 1
Nitrogen Oxides (NO_x)	EPA Protocol 1	EPA Protocol 1
Carbon Monoxide (CO)	EPA Protocol 1	EPA Protocol 1
Total Hydrocarbon (THC)	N/A	
Hydrogen Chloride (HCl)	N/A	
Ammonia (NH_3)	N/A	

EPA Methods 3A, 6C, 7E and 10
Sampling Train Configuration



Number	Gas	Monitor	Range Used	Calibration Gas Concentrations
1	NO_X	T.E.I. 42i-HL	0-453 ppm	0, 224, 453
2	SO_2	Western Research 921H	0-89.9 ppm	0, 44.3, 89.9
3	CO	T.E.I. 48i	0-95.7 ppm	0, 47.4, 95.7
4	O_2	Servomex 1420C	0-14.1 %	0, 6.05, 14.1
5	CO_2	Servomex 1415C	0-13.9 %	0, 5.93, 13.9

EPA Method 2
Sampling Train Configuration



Specification Sheet for EPA Method 26A (modified)

Note: Modification includes the use of full-size impingers instead of midget impingers.

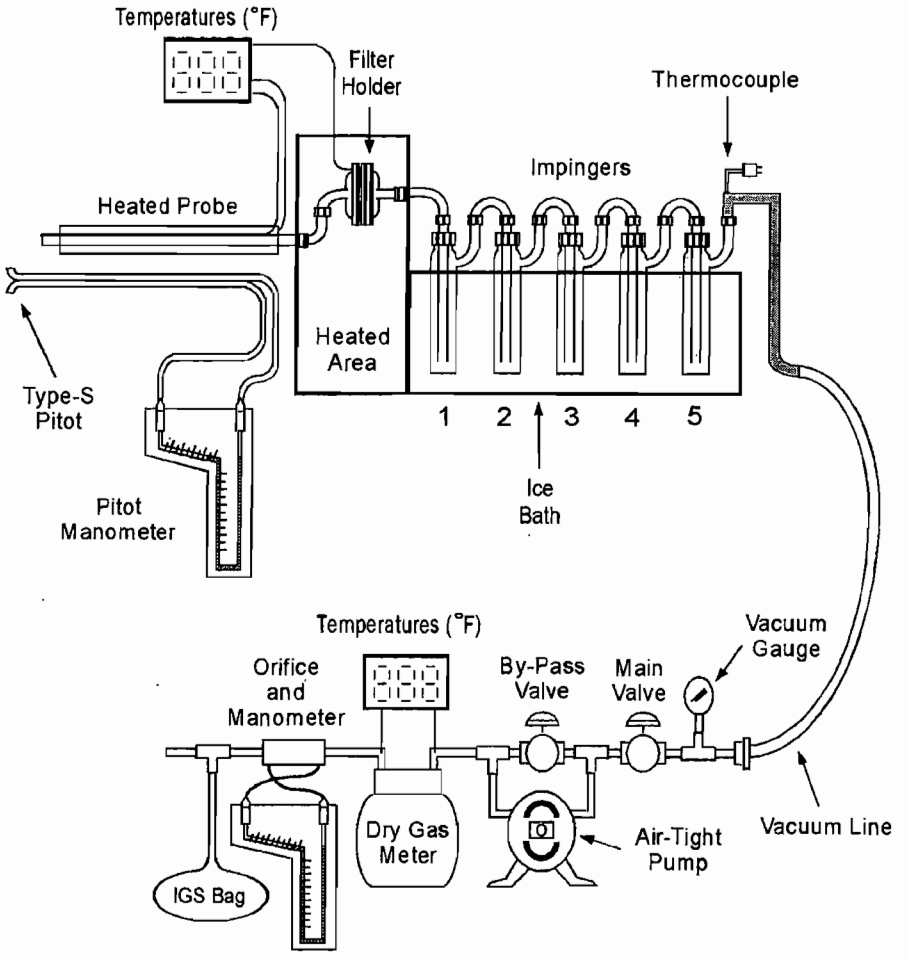
Source Location Name(s)	Units 1-3 FF Outlets
Pollutant(s) to be Determined	Hydrogen Chloride (HCl)
Other Parameters to be Determined from Train	Gas Density, Moisture

	Standard Method Specification	Actual Specification Used
Pollutant Sampling Information		
Duration of Run	N/A	60 minutes
No. of Sample Traverse Points	N/A	1
Sample Time per Point	N/A	60 minutes
Sampling Rate	Constant Rate (±10%)	Constant Rate (±10%)
Sampling Probe		
Nozzle Material	N/A	None
Nozzle Design	N/A	N/A
Probe Liner Material	Borosillcate Glass	Borosilicate Glass
Effective Probe Length	N/A	4 feet
Probe Temperature Set-Point	>248°F	350°F @ Inlet, Stack Temp @ FF Outlet
Velocity Measuring Equipment		
Pitot Tube Design	None	None
Pitot Tube Coefficient	N/A	N/A
Pitot Tube Calibration by	N/A	N/A
Pitot Tube Attachment	N/A	N/A
Metering System Console		
Meter Type	Dry Gas Meter or Critical Orifice	Dry Gas Meter
Meter Accuracy	±2%	±1%
Meter Resolution	N/A	0.01 cubic feet
Meter Size	2 liters/minute	0.1 dcf/revolution
Meter Calibrated Against	Wet Test Meter	Wet Test Meter
Pump Type	Diaphragm or equivalent	Rotary Vane
Temperature Measurements	Dial Thermometer or equivalent	Type K Thermocouple/Pyrometer
Temperature Resolution	2°F-5.4°F	1.0°F
ΔP Differential Pressure Gauge	N/A	N/A
ΔH Differential Pressure Gauge	N/A	Inclined Manometer
Barometer	Mercury, aneroid or other.	Digital Barometer calibrated w/Mercury Aneroid
Filter Description		
Filter Location	After Probe	Exit of Probe
Filter Holder Material	Teflon or Quartz	Borosilicate Glass
Filter Support Material	Teflon Frit	Teflon
Cyclone Material	N/A	None
Filter Heater Set-Point	>248°F	350°F @ Inlet, Stack Temp @ FF Outlet
Filter Material	Teflon/Glass Mat (Quartz, Optional High Temp>410F)	Quartz Fiber @ Inlet, Teflon on Glass @ Outlet
Other Components		
Description	N/A	N/A
Location	N/A	N/A
Operating Temperature	N/A	N/A

Specification Sheet for EPA Method 26A (modified)

	Standard Method Specification	Actual Specification Used
Impinger Train Description		
Type of Glassware Connections	Ground Glass or Equivalent	Screw Joint with Silicone Gasket
Connection to Probe or Filter by	Direct Glass Connection	Direct Glass Connection
Number of Impingers	5 or 6 (Midget Impingers)	5
Impinger Stem Types		
Impinger 1	Shortened Stem	Shortened Stem (open tip)
Impinger 2	Greenburg-Smith	Greenburg-Smith
Impinger 3	Greenburg-Smith	Greenburg-Smith
Impinger 4	Modified Greenburg-Smith	Modified Greenburg-Smith
Impinger 5	Modified Greenburg-Smith	Modified Greenburg-Smith
Impinger 6		
Impinger 7		
Impinger 8		
Gas Density Determination		
Sample Collection	N/A	Single Point Integrated
Sample Collection Medium	N/A	Vinyl Bag
Sample Analysis	N/A	CEM
Sample Recovery Information		
Probe Brush Material	N/A	N/A
Probe Rinse Reagent	N/A	N/A
Probe Rinse Wash Bottle Material	N/A	N/A
Probe Rinse Storage Container	N/A	N/A
Filter Recovered?	No	No
Filter Storage Container	N/A	N/A
Impinger Contents Recovered?	Yes	Yes
Impinger Rinse Reagent	Deionized Distilled Water	Deionized Distilled Water
Impinger Wash Bottle	Polyethylene or glass	Polyethylene
Impinger Storage Container	Polyethylene	Polyethylene
Analytical Information		
Method 4 H_2O Determination by	N/A	Gravimetric
Filter Preparation Conditions	N/A	N/A
Front-Half Rinse Preparation	N/A	N/A
Back-Half Analysis	Ion Chromatography	Ion Chromatography
Additional Analysis	None	None

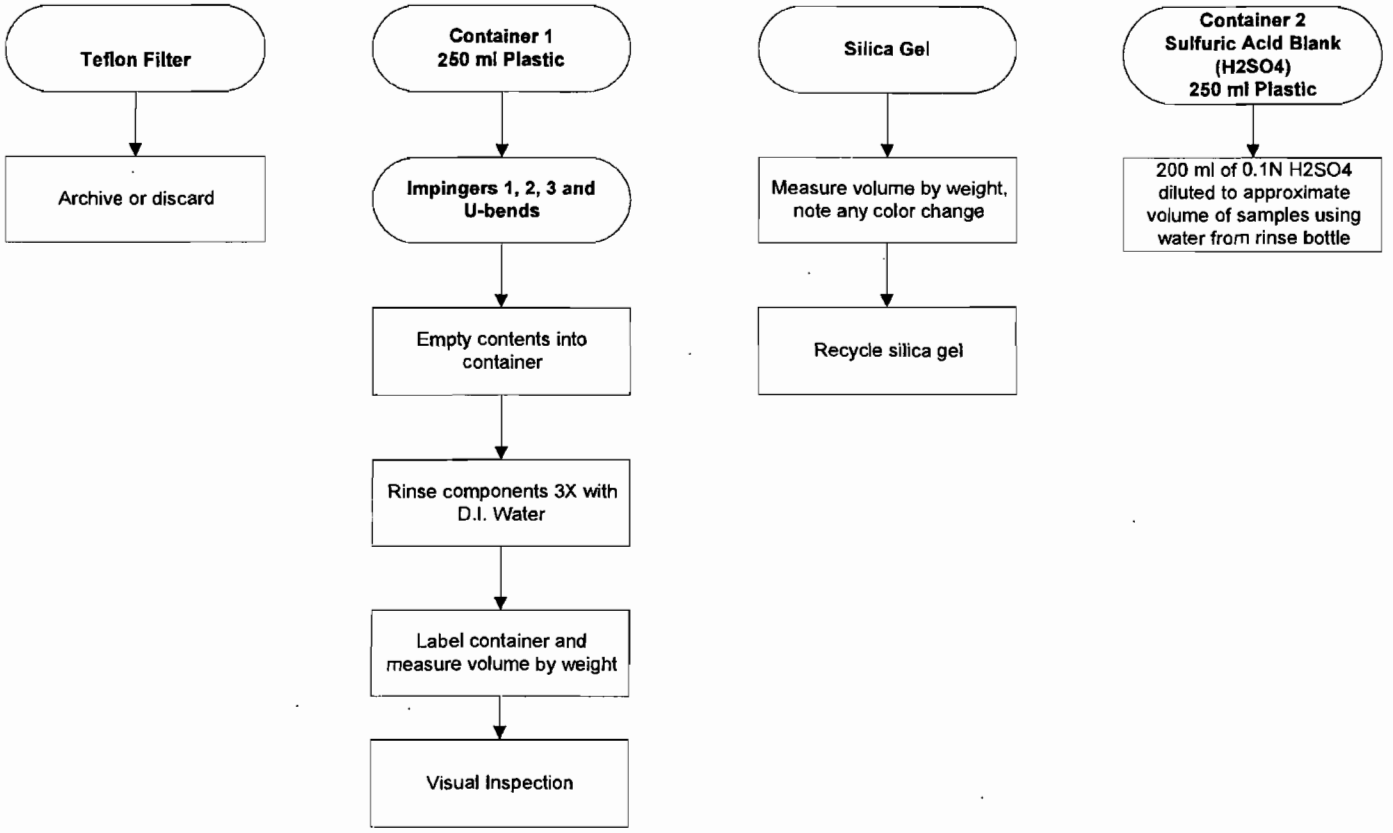
Modified EPA Method 26A
Sampling Train Configuration



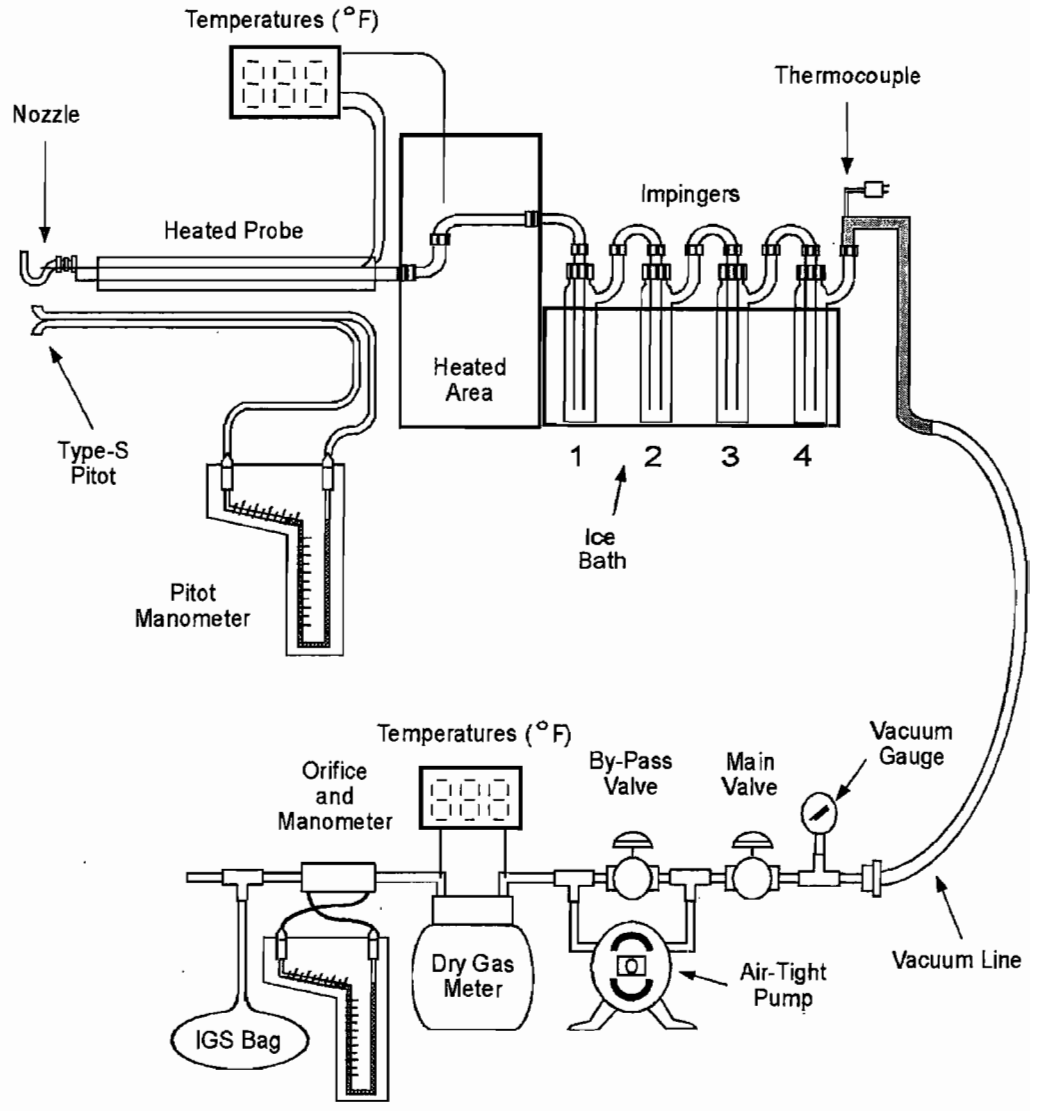
Impinger Contents	
Impinger 1	50 ml 0.1 N H_2SO_4
Impinger 2	100 ml 0.1 N H_2SO_4
Impinger 3	100 ml 0.1 N H_2SO_4
Impinger 4	Empty
Impinger 5	Silica Gel

EPA Method 26
Sample Recovery Flowchart
(without Cl2)
(Modified)

- Tare all sample containers before sample collection
- Mark all liquid levels and final weights on the outside of each sample container
- Seal all sample containers with Teflon tape
- If recycling, bake silica gel for two hours at 350 degrees F (175 degrees C)



EPA Method 13B
Sampling Train Configuration



Impinger Contents

Impinger 1	100 ml DI H_2O
Impinger 2	100 ml DI H_2O
Impinger 3	Empty
Impinger 4	Silica Gel

Specification Sheet for EPA Method 13B

Source Location Name(s)	Units 1 ,2 and 3 FF Outlets
Pollutant(s) to be Determined	Total Fluoride (F)
Other Parameters to be Determined from Trai	Gas Density, Moisture, Flow Rate

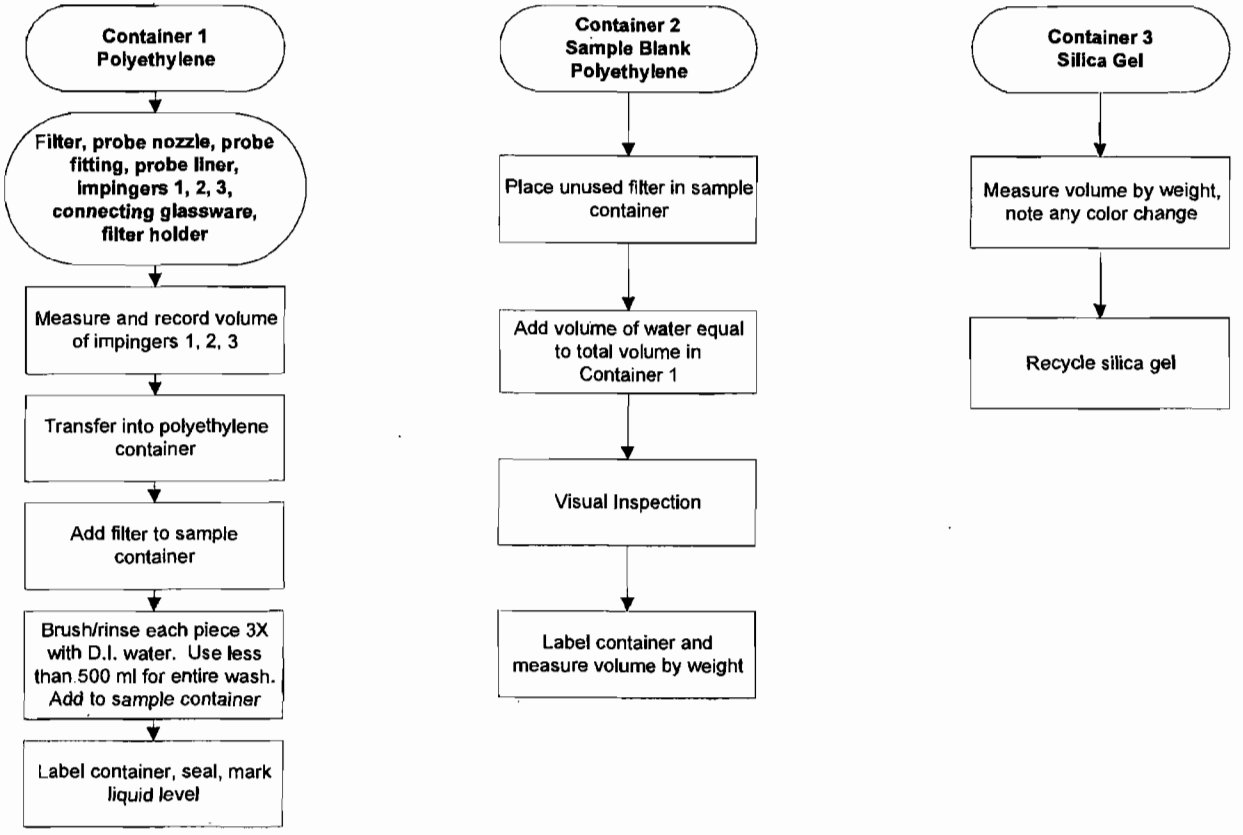
	Standard Method Specification	Actual Specification Used
Pollutant Sampling Information		
Duration of Run	N/A	62.5 minutes
No. of Sample Traverse Points	N/A	25
Sample Time per Point	N/A	2.5 minutes
Sampling Rate	Isokinetic (90-110%) 1 cfm maximum	Isokinetic (90-110%) 1 cfm maximum
Sampling Probe		
Nozzle Material	Stainless Steel or Glass	Borosilicate Glass
Nozzle Design	Button-Hook or Elbow	Button-Hook
Probe Liner Material	Stainless Steel or Glass	Borosilicate Glass
Effective Probe Length	N/A	8 feet
Probe Temperature Set-Point	248°F±25°F (optional)	248°F±25°F
Velocity Measuring Equipment		
Pitot Tube Design	Type S	Type S
Pitot Tube Coefficient	N/A	0.818
Pitot Tube Calibration by	Geometric or Wind Tunnel	Wind-Tunnel
Pitot Tube Attachment	Attached to Probe	Attached to Probe
Metering System Console		
Meter Type	Dry Gas Meter	Dry Gas Meter
Meter Accuracy	±2%	±1%
Meter Resolution	N/A	0.01 cubic feet
Meter Size	N/A	0.1 dcf/revolution
Meter Calibrated Against	Wet Test Meter or Standard DGM	Wet Test Meter
Pump Type	N/A	Rotary Vane
Temperature Measurements	N/A	Type K Thermocouple/Pyrometer
Temperature Resolution	5.4°F	1.0°F
ΔP Differential Pressure Gauge	Inclined Manometer or Equivalent	Inclined Manometer
ΔH Differential Pressure Gauge	Inclined Manometer or Equivalent	Inclined Manometer
Barometer	Mercury or Aneroid	Digital Barometer calibrated w/Mercury Aneroid
Filter Description		
Filter Location	Exit of Probe or Between 3rd and 4th impingers	Exit of Probe
Filter Holder Material	Borosilicate Glass or Stainless Steel	Borosilicate Glass
Filter Support Material	Stainless Steel if filter at probe exit; Glass Frit if filter after 3rd impinger	Teflon
Cyclone Material	N/A	None
Filter Heater Set-Point	248°F±25°F if after probe, unheated if after 3rd imp.	248°F±25°F
Filter Material	Low F filter with >95% Collection Eff. if after probe, Whatman No. 1 if after 3rd impinger	Teflon Mat
Other Components		
Description	N/A	N/A
Location	N/A	N/A
Operating Temperature	N/A	N/A

Specification Sheet for EPA Method 13B

	Standard Method Specification	Actual Specification Used
Impinger Train Description		
Type of Glassware Connections	Ground Glass or Equivalent	Screw Joint with Silicone Gasket
Connection to Probe or Filter by	Direct Glass Connection	Direct Glass Connection
Number of Impingers	4	4
Impinger Stem Types		
Impinger 1	Modified Greenburg-Smith	Modified Greenburg-Smith
Impinger 2	Greenburg-Smith	Greenburg-Smith
Impinger 3	Modified Greenburg-Smith	Modified Greenburg-Smith
Impinger 4	Modified Greenburg-Smith	Modified Greenburg-Smith
Impinger 5		
Impinger 6		
Impinger 7		
Impinger 8		
Gas Density Determination		
Sample Collection	Multi-point integrated	Multi-Point Integrated
Sample Collection Medium	Flexible Gas Bag	Vinyl Bag
Sample Analysis	Orsat or Fyrite Analyzer	CEM
Sample Recovery Information		
Probe Brush Material	Nylon Bristle	Nylon Bristle
Probe Rinse Reagent	Deionized distilled water	Deionized Distilled Water
Probe Rinse Wash Bottle Material	Glass or Polyethylene	Teflon
Probe Rinse Storage Container	Polyethylene	Polyethylene
Filter Recovered?	Yes	Yes
Filter Storage Container	Polyethylene	Polyethylene
Impinger Contents Recovered?	Yes	Yes
Impinger Rinse Reagent	Deionized Distilled Water	Deionized Distilled Water
Impinger Wash Bottle	Glass or Polyethylene	Teflon
Impinger Storage Container	Polyethylene	Polyethylene
Analytical Information		
Method 4 H_2O Determination by	Volumetric or Gravimetric	Gravimetric and Volumetric
Filter Preparation Conditions	See analytical flow chart	See Analytical Flow Chart
Front-Half Rinse Preparation	See analytical flow chart	See Analytical Flow Chart
Back-Half Analysis	Ion Specific Electrode	Ion Chromatography
Additional Analysis	N/A	None

EPA Method 13B
Sample Recovery Flowchart

- Tare all sample containers before sample collection
- Mark all liquid levels and final weights on the outside of each sample container
- Seal all sample containers with Teflon tape
- If recycling, bake silica gel for two hours at 350 degrees F (175 degrees C)



SAMPLE CALCULATIONS

B

I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: KRO

Date: 5/4/2011

CleanAir

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Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

CEM Field Sample Calculations for SO2 FF Outlet 1

Sample data taken from Run 1 and Channel 3

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 111856

1. Average of a calibration series

$$C_{mce} = \frac{(C_1 + C_2 + C_3)}{3}$$

Where:

C_1, C_2, C_3	= concentrations of 3 consecutive gas samples that are representative of the calibration gas			
C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 3	=	43.583	ppmdv

2a. Calibration Error Check for Hydrocarbons (5% of actual calibration gas value error allowed by Method 25A)

$$E_{HC} = abs\left|\frac{C_{mce} - C_{ma}}{C_{ma}}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 3	=	43.583	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	44.300	ppmdv
l_{cal}	= limit for calibration error for hydrocarbons	=	5.0%	
E_{HC}	= calibration error check value	=	NA	

2b. Calibration Error Check for non-Hydrocarbons (2% of Instrument Span)

$$E = abs\left|\frac{C_{mce} - C_{ma}}{Span}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 3	=	43.583	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	44.300	ppmdv
Span	= instrument span value	=	89.900	
l_{cal}	= limit for calibration error for non-hydrocarbons	=	2.0%	
E	= calibration error check value	=	0.80%	**Pass**

3. System Bias as Percent of Span Value (5% is allowed)

$$E_{Bias} = abs\left|\frac{C_{mf} - C_{mce}}{Span}\right| \le l_{bias}$$

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 3	=	43.583	ppmdv
C_{mf}	= calibration error response concentration for Cal01	=	42.039	ppmdv
Span	= instrument span value	=	89.900	ppmdv
l_{bias}	= limit for system bias error	=	5.0%	
E_{bias}	= calibration bias error check value	=	1.72%	**Pass**

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

4. System Drift as Percent of Span Value (3%)

$$E_{Drift} = abs\left|\frac{C_{mf} - C_{mi}}{Span}\right| \le l_{drift}$$

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	=	42.039	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	42.188	ppmdv
Span	= instrument span value	=	89.900	ppmdv
l_{drift}	= limit for system drift error	=	3.0%	
E_{drift}	= calibration drift error check value	=	0.17%	**Pass**

5. Average Concentration for an entire Run

$$C = \frac{\sum_{i=1}^{N} C_i}{N}$$

Where: i=1

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for SO2 on channel 3	=	12.510	ppmdv
N	= total number of readings in Run 1	=	27	
C	= average SO2 concentration for Run 1	=	11.983	ppmdv

6. Drift-Corrected Average Concentration for an entire Run

$$C_{DC} = \left(C - \frac{C_{oi} + C_{of}}{2}\right)\left(\frac{C_{ma}}{\frac{C_{mi} + C_{mf}}{2} - \frac{C_{oi} + C_{of}}{2}}\right)$$

C_{ma}	= concentration of actual calibration gas value	=	44.300	ppmdv
C	= average SO2 concentration for Run 1	=	11.983	ppmdv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	42.039	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	42.188	ppmdv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	0.408	ppmdv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	0.104	ppmdv
C_{DC}	= drift corrected average concentration for Run 1	=	12.411	ppmdv

CEM Emissions Sample Calculations for SO2 FF Outlet 1

Sample data taken from Run 1 and Channel 3

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041911 110858

1. SO2 concentration (ppmdv)

$$C(ppmdv) = k_1 \times C_{DC} \quad if \quad dry \quad gas$$

$$C(ppmdv) = \frac{k_1 \times C_{DC}}{\left(1 - B_W/100\right)} \quad if \quad wet \quad gas$$

Where:

C_{DC}	= drift corrected average concentration	=	12.411	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	0.000	% v/v
100	= conversion factor to change percentage to decimal	=	100	
k_1	= ppm/% to ppm conversion factor for diluent gases	=	1	
C (ppmdv)	= SO2 concentration (ppmdv)	=	12.411	ppmdv

2. SO2 concentration (lb/dscf)

$$C(lb/dscf) = \frac{C(ppmdv) \times MW(gas)}{10^6\ ppm \times 385.3}$$

Where:

C (ppmdv)	= SO2 concentration (ppmdv)	=	12.411	ppmdv
MW	= Molecular Weight of SO2 gas	=	64.0628	lb/lb-mole
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
385.3	= molar volume	=	385.3	dscf/lb-mole
C (lb/dscf)	= SO2 concentration (lb/dscf)	=	2.064E-06	lb/dscf

3. SO2 concentration (lb/scf)

$$C(lb/scf) = C(lb/dscf) \times \frac{Q_{std}}{Q_s}$$

Where:

C (lb/dscf)	= SO2 concentration (lb/dscf)	=	2.064E-06	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_s	= volumetric flow rate (standard cubic feet/min)	=	129879.0688	scf/min
C (lb/scf)	= SO2 concentration (lb/scf)	=	1.620E-06	lb/scf

4. SO2 concentration (lb/acf)

$$C\left(lb\ /\ acf\ \right) = C\left(lb\ /\ dscf\ \right) \times \frac{Q_{std}}{Q_a}$$

Where:

C (lb/dscf)	= SO2 concentration (lb/dscf)	=	2.064E-06	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_a	= volumetric flow rate (actual cubic feet/min)	=	192296.1677	acf/min
C (lb/acf)	= SO2 concentration (lb/acf)	=	1.094E-06	lb/acf

5. SO2 concentration (mg/dscm)

$$C\left(mg/dscm\right) = C\left(lb/dscf\right) \times k_2 \times 35.31$$

Where:

C (lb/dscf)	= SO2 concentration (lb/dscf)	=	2.064E-06	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
C (mg/dscm)	= SO2 concentration (mg/dscm)	=	33.045	mg/dscm

6. SO2 concentration (mg/Nm3 dry)

$$C\left(mg/Nm^3\ dry\right) = C(lb/dscf) \times k_2 \times 35.31 \times \left(\frac{68+460}{32+460}\right)$$

Where:

C (lb/dscf)	= SO2 concentration (lb/dscf)	=	2.064E-06	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C (mg/Nm3 dry)	= SO2 concentration (mg/Nm3 dry)	=	35.463	mg/Nm^3 dry

7. SO2 concentration corrected to 7% O2 (ppmdv example)

$$C(ppmdv@x\%02) = C(ppmdv) \times \left(\frac{20.9-x}{20.9-O_2}\right)$$

Where:

C (ppmdv)	= SO2 concentration (ppmdv)	=	12.411	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.842	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O2)	= SO2 concentration corrected to 7% O2 (ppmdv example)	=	15.601	ppmdv @ 7%O2

8. SO2 concentration corrected to 12% CO2 (ppmdv example)

$$C(ppmdv\ @\ y\%CO_2) = C(ppmdv) \times \left(\frac{y}{CO_2}\right)$$

Where:

C (ppmdv)	= SO2 concentration (ppmdv)	=	12.411	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.685	%
C (ppmdv -CO2)	= SO2 concentration corrected to 12% CO2 (ppmdv example)	=	15.377	ppmdv @ 12%CO2

9. SO2 emission rate (lb/hr)

$$E_{lb\ /\ hr} = C\ (lb\ /\ dscf\ ) \times Q_{std} \times 60$$

Where:

C (lb/dscf)	= SO2 concentration (lb/dscf)	=	2.064E-06	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
$E_{lb/hr}$	= SO2 emission rate (lb/hr)	=	12.626	lb/hr

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

CEM RATA Sample Calculations for SO2 FF Outlet 1

Sample data taken from Run 1
and Channel 3

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 113548

1. SO2 value difference between Plant CEM Data and CleanAir RM Data (ppm@7%O2)

$$D = C_R - C_P$$

Where:

C_P	= SO2 value from Plant CEM Data	=	18.500	ppm@7%O2
C_R	= SO2 value from CleanAir RM Data	=	15.601	ppm@7%O2
D	= SO2 value difference between 2 methods	=	-2.899	ppm@7%O2

2. Percent Value Difference (%)

$$D_{\%} = \frac{D}{C_R}$$

Where:

C_R	= SO2 value from CleanAir RM Data	=	15.601	ppm@7%O2
D	= SO2 value difference between 2 methods	=	-2.899	ppm@7%O2
$D_{\%}$	= SO2 value difference as a percentage of RM Data	=	-18.6%	

3. Average SO2 Value (Plant CEM Data example) (ppm@7%O2)

$$C_{p,avg} = \frac{\sum_{i=1}^{N} C_{p,i}}{N}$$

Where:

			i=1	
$C_{p,I}$	= SO2 value from Plant CEM Data for ith run	=	18.500	ppm@7%O2
N	= total number of runs included in the CEM data	=	9	
$C_{p,avg}$	= Average SO2 value from Plant CEM Data	=	20.044	ppm@7%O2

Wheelabrator North Broward

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FF Outlet 1

4. Standard Deviation of Plant CEM data and CleanAir RM data

$$STDEV = \sqrt{\frac{\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)^2 - \frac{\left(\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)\right)^2}{N}}{N-1}}$$

Where:

$C_{R,i}$	= SO2 value from CleanAir RM Data for ith run	=	15.601	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	18.500	ppm@7%O2
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.334	ppm@7%O2

5. Confidence Coefficient

$$CC = STDEV \times \frac{t}{\sqrt{N}}$$

Where:

STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.334	ppm@7%O2
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.257	ppm@7%O2

6. Relative Accuracy (as a percentage of the reference method)

$$RA = \frac{abs\left|\frac{\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)}{N}\right| + abs\left|CC\right|}{\frac{\sum_{i=1}^{N} C_{R,i}}{N}}$$

Where:

$C_{R,i}$	= SO2 value from CleanAir RM Data for ith run	=	15.601	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	18.500	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.257	ppm@7%O2
RA	= relative accuracy (as a percentage of the reference method)	=	16.888%	
		Limit =	20.000%	

Wheelabrator North Broward

CleanAir Project No. 11182

Ft. Lauderdale, FL

FF Outlet 1

7. Relative Accuracy (as a percentage of the applicable standard)

$$RA_{std} = \frac{abs\left|\frac{\sum_{i=1}^{N}(C_{R,i} - C_{p,i})}{N}\right| + abs|CC|}{C_{std}}$$

Where:

$C_{R,i}$	= SO2 value from CleanAir RM Data for ith run	=	15.601	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	18.500	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.257	
C_{std}	= SO2 value of applicable standard	=	29.000	ppm@7%O2
RA	= relative accuracy (as percentage of the applicable standard)	=	10.114%	
		Limit =	20.000%	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

CEM Field Sample Calculations for NOX FF Outlet 1

Sample data taken from Run 1 and Channel 4

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 111908

1. Average of a calibration series

$$C_{mce} = \frac{(C_1 + C_2 + C_3)}{3}$$

Where:

C_1, C_2, C_3 = concentrations of 3 consecutive gas samples that are representative of the calibration gas

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 4	=	225.899	ppmdv

2a. Calibration Error Check for Hydrocarbons (5% of actual calibration gas value error allowed by Method 25A)

$$E_{HC} = abs\left|\frac{C_{mce} - C_{ma}}{C_{ma}}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 4	=	225.899	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	224.000	ppmdv
l_{cal}	= limit for calibration error for hydrocarbons	=	5.0%	
E_{HC}	= calibration error check value	=	NA	

2b. Calibration Error Check for non-Hydrocarbons (2% of Instrument Span)

$$E = abs\left|\frac{C_{mce} - C_{ma}}{Span}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 4	=	225.899	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	224.000	ppmdv
Span	= instrument span value	=	453.000	
l_{cal}	= limit for calibration error for non-hydrocarbons	=	2.0%	
E	= calibration error check value	=	0.42%	**Pass**

3. System Bias as Percent of Span Value (5% is allowed)

$$E_{Bias} = abs\left|\frac{C_{mf} - C_{mce}}{Span}\right| \le l_{bias}$$

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 4	=	225.899	ppmdv
C_{mf}	= calibration error response concentration for Cal01	=	224.493	ppmdv
Span	= instrument span value	=	453.000	ppmdv
l_{bias}	= limit for system bias error	=	5.0%	
E_{bias}	= calibration bias error check value	=	0.31%	**Pass**

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SS CEM Version 06-2004g4

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

4. System Drift as Percent of Span Value (3%)

$$E_{Drift} = abs\left|\frac{C_{mf} - C_{mi}}{Span}\right| \le I_{drift}$$

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	=	224.493	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	224.539	ppmdv
Span	= instrument span value	=	453.000	ppmdv
I_{drift}	= limit for system drift error	=	3.0%	
E_{drift}	= calibration drift error check value	=	0.01%	**Pass**

5. Average Concentration for an entire Run

$$C = \frac{\sum_{i=1}^{N} C_i}{N}$$

Where: i=1

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for NOX on channel 4	=	146.451	ppmdv
N	= total number of readings in Run 1	=	27	
C	= average NOX concentration for Run 1	=	146.326	ppmdv

6. Drift-Corrected Average Concentration for an entire Run

$$C_{DC} = \left(C - \frac{C_{oi} + C_{of}}{2}\right)\left(\frac{C_{ma}}{\frac{C_{mi} + C_{mf}}{2} - \frac{C_{oi} + C_{of}}{2}}\right)$$

C_{ma}	= concentration of actual calibration gas value	=	224.000	ppmdv
C	= average NOX concentration for Run 1	=	146.326	ppmdv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	224.493	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	224.539	ppmdv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	0.187	ppmdv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	0.133	ppmdv
C_{DC}	= drift corrected average concentration for Run 1	=	145.933	ppmdv

CEM Emissions Sample Calculations for NOX FF Outlet 1

Sample data taken from Run 1 and Channel 4

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041911 111008

1. NOX concentration (ppmdv)

$$C(ppmdv) = k_1 \times C_{DC} \quad if \quad dry \quad gas$$

$$C(ppmdv) = \frac{k_1 \times C_{DC}}{\left(1 - B_W/100\right)} \quad if \quad wet \quad gas$$

Where:

C_{DC}	= drift corrected average concentration	=	145.933	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	0.000	% v/v
100	= conversion factor to change percentage to decimal	=	100	
k_1	= ppm/% to ppm conversion factor for diluent gases	=	1	
C (ppmdv)	= NOX concentration (ppmdv)	=	145.933	ppmdv

2. NOX concentration (lb/dscf)

$$C(lb/dscf) = \frac{C(ppmdv) \times MW(gas)}{10^6\ ppm \times 385.3}$$

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	145.933	ppmdv
MW	= Molecular Weight of NOX gas	=	46.0055	lb/lb-mole
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
385.3	= molar volume	=	385.3	dscf/lb-mole
C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.742E-05	lb/dscf

3. NOX concentration (lb/scf)

$$C(lb/scf) = C(lb/dscf) \times \frac{Q_{std}}{Q_s}$$

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.742E-05	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_s	= volumetric flow rate (standard cubic feet/min)	=	129879.0688	scf/min
C (lb/scf)	= NOX concentration (lb/scf)	=	1.368E-05	lb/scf

4. NOX concentration (lb/acf)

$$C\left(lb\ /\ acf\ \right) = C\left(lb\ /\ dscf\ \right) \times \frac{Q_{std}}{Q_a}$$

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.742E-05	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_a	= volumetric flow rate (actual cubic feet/min)	=	192296.1677	acf/min
C (lb/acf)	= NOX concentration (lb/acf)	=	9.240E-06	lb/acf

5. NOX concentration (mg/dscm)

$$C\left(mg/dscm\right) = C\left(lb/dscf\right) \times k_2 \times 35.31$$

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.742E-05	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
C (mg/dscm)	= NOX concentration (mg/dscm)	=	279.032	mg/dscm

6. NOX concentration (mg/Nm3 dry)

$$C\left(mg/Nm^3\ dry\right) = C\left(lb/dscf\right) \times k_2 \times 35.31 \times \left(\frac{68+460}{32+460}\right)$$

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.742E-05	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C (mg/Nm3 dry)	= NOX concentration (mg/Nm3 dry)	=	299.449	mg/Nm^3 dry

7. NOX concentration corrected to 7% O2 (ppmdv example)

$$C(ppmdv@x\%02) = C(ppmdv) \times \left(\frac{20.9-x}{20.9-O_2}\right)$$

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	145.933	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.842	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O2)	= NOX concentration corrected to 7% O2 (ppmdv example)	=	183.436	ppmdv @ 7%O2

8. NOX concentration corrected to 12% CO2 (ppmdv example)

$$C(ppmdv @ y\%C0_2) = C(ppmdv) \times \left(\frac{y}{CO_2} \right)$$

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	145.933	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.685	%
C (ppmdv -CO2)	= NOX concentration corrected to 12% CO2 (ppmdv example)	=	180.811	ppmdv @ 12%CO2

9. NOX emission rate (lb/hr)

$$E_{lb/hr} = C(lb/dscf) \times Q_{std} \times 60$$

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.742E-05	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
$E_{lb/hr}$	= NOX emission rate (lb/hr)	=	106.612	lb/hr

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FF Outlet 1

CEM RATA Sample Calculations for NOX FF Outlet 1

Sample data taken from Run 1
and Channel 4

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 113627

1. NOX value difference between Plant CEM Data and CleanAir RM Data (ppm@7%O2)

$$D = C_R - C_P$$

Where:

C_P	= NOX value from Plant CEM Data	=	194.500	ppm@7%O2
C_R	= NOX value from CleanAir RM Data	=	183.436	ppm@7%O2
D	= NOX value difference between 2 methods	=	-11.064	ppm@7%O2

2. Percent Value Difference (%)

$$D_{\%} = \frac{D}{C_R}$$

Where:

C_R	= NOX value from CleanAir RM Data	=	183.436	ppm@7%O2
D	= NOX value difference between 2 methods	=	-11.064	ppm@7%O2
$D_{\%}$	= NOX value difference as a percentage of RM Data	=	-6.0%	

3. Average NOX Value (Plant CEM Data example) (ppm@7%O2)

$$C_{p,avg} = \frac{\sum_{i=1}^{N} C_{p,i}}{N}$$

Where:

			i=1	
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	194.500	ppm@7%O2
N	= total number of runs included in the CEM data	=	9	
$C_{p,avg}$	= Average NOX value from Plant CEM Data	=	185.689	ppm@7%O2

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FF Outlet 1

4. Standard Deviation of Plant CEM data and CleanAir RM data

$$STDEV = \sqrt{\frac{\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)^2 - \frac{\left(\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)\right)^2}{N}}{N-1}}$$

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	183.436	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	194.500	ppm@7%O2
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.962	ppm@7%O2

5. Confidence Coefficient

$$CC = STDEV \times \frac{t}{\sqrt{N}}$$

Where:

STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.962	ppm@7%O2
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.739	ppm@7%O2

6. Relative Accuracy (as a percentage of the reference method)

$$RA = \frac{abs\left|\frac{\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)}{N}\right| + abs\left|CC\right|}{\frac{\sum_{i=1}^{N} C_{R,i}}{N}}$$

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	183.436	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	194.500	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.739	ppm@7%O2
RA	= relative accuracy (as a percentage of the reference method)	=	5.970%	
		Limit =	20.000%	

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7. Relative Accuracy (as a percentage of the applicable standard)

$$RA_{std} = \frac{abs\left|\frac{\sum_{i=1}^{N}(C_{R,i} - C_{p,i})}{N}\right| + abs|CC|}{C_{std}}$$

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	183.436	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	194.500	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.739	
C_{std}	= NOX value of applicable standard	=	205.000	ppm@7%O2
RA	= relative accuracy (as percentage of the applicable standard)	=	5.123%	
		Limit =	10.000%	

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FF Outlet 1

CEM Field Sample Calculations for CO FF Outlet 1

Sample data taken from Run 1 and Channel 5

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 111919

1. Average of a calibration series

$$C_{mce} = \frac{(C_1 + C_2 + C_3)}{3}$$

Where:

C_1, C_2, C_3 = concentrations of 3 consecutive gas samples that are representative of the calibration gas

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 5	=	47.236	ppmdv

2a. Calibration Error Check for Hydrocarbons (5% of actual calibration gas value error allowed by Method 25A)

$$E_{HC} = abs\left|\frac{C_{mce} - C_{ma}}{C_{ma}}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 5	=	47.236	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	47.400	ppmdv
l_{cal}	= limit for calibration error for hydrocarbons	=	5.0%	
E_{HC}	= calibration error check value	=	NA	

2b. Calibration Error Check for non-Hydrocarbons (2% of Instrument Span)

$$E = abs\left|\frac{C_{mce} - C_{ma}}{Span}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 5	=	47.236	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	47.400	ppmdv
Span	= instrument span value	=	95.700	
l_{cal}	= limit for calibration error for non-hydrocarbons	=	2.0%	
E	= calibration error check value	=	0.17%	**Pass**

3. System Bias as Percent of Span Value (5% is allowed)

$$E_{Bias} = abs\left|\frac{C_{mf} - C_{mce}}{Span}\right| \le l_{bias}$$

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 5	=	47.236	ppmdv
C_{mf}	= calibration error response concentration for Cal01	=	49.300	ppmdv
Span	= instrument span value	=	95.700	ppmdv
l_{bias}	= limit for system bias error	=	5.0%	
E_{bias}	= calibration bias error check value	=	2.16%	**Pass**

4. System Drift as Percent of Span Value (3%)

$$E_{Drift} = abs\left|\frac{C_{mf} - C_{mi}}{Span}\right| \le l_{drift}$$

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	=	49.300	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	49.297	ppmdv
Span	= instrument span value	=	95.700	ppmdv
l_{drift}	= limit for system drift error	=	3.0%	
E_{drift}	= calibration drift error check value	=	0.00%	**Pass**

5. Average Concentration for an entire Run

$$C = \frac{\sum_{i=1}^{N} C_i}{N}$$

Where: i=1

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for CO on channel 5	=	23.422	ppmdv
N	= total number of readings in Run 1	=	27	
C	= average CO concentration for Run 1	=	22.898	ppmdv

6. Drift-Corrected Average Concentration for an entire Run

$$C_{DC} = \left(C - \frac{C_{oi} + C_{of}}{2}\right)\left(\frac{C_{ma}}{\frac{C_{mi} + C_{mf}}{2} - \frac{C_{oi} + C_{of}}{2}}\right)$$

C_{ma}	= concentration of actual calibration gas value	=	47.400	ppmdv
C	= average CO concentration for Run 1	=	22.898	ppmdv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	49.300	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	49.297	ppmdv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	0.671	ppmdv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	0.551	ppmdv
C_{DC}	= drift corrected average concentration for Run 1	=	21.697	ppmdv

CEM Emissions Sample Calculations for CO FF Outlet 1

Sample data taken from Run 1 and Channel 5

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041911 111012

1. CO concentration (ppmdv)

$$C(ppmdv) = k_1 \times C_{DC} \quad if \quad dry \quad gas$$

$$C(ppmdv) = \frac{k_1 \times C_{DC}}{\left(1 - B_w/100\right)} \quad if \quad wet \quad gas$$

Where:

C_{DC}	= drift corrected average concentration	=	21.697	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	0.000	% v/v
100	= conversion factor to change percentage to decimal	=	100	
k_1	= ppm/% to ppm conversion factor for diluent gases	=	1	
C (ppmdv)	= CO concentration (ppmdv)	=	21.697	ppmdv

2. CO concentration (lb/dscf)

$$C(lb/dscf) = \frac{C(ppmdv) \times MW(gas)}{10^6 \, ppm \times 385.3}$$

Where:

C (ppmdv)	= CO concentration (ppmdv)	=	21.697	ppmdv
MW	= Molecular Weight of CO gas	=	28.0106	lb/lb-mole
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
385.3	= molar volume	=	385.3	dscf/lb-mole
C (lb/dscf)	= CO concentration (lb/dscf)	=	1.577E-06	lb/dscf

3. CO concentration (lb/scf)

$$C(lb/scf) = C(lb/dscf) \times \frac{Q_{std}}{Q_s}$$

Where:

C (lb/dscf)	= CO concentration (lb/dscf)	=	1.577E-06	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_s	= volumetric flow rate (standard cubic feet/min)	=	129879.0688	scf/min
C (lb/scf)	= CO concentration (lb/scf)	=	1.238E-06	lb/scf

4. CO concentration (lb/acf)

$$C\left(lb\ /\ acf\ \right) = C\left(lb\ /\ dscf\ \right) \times \frac{Q_{std}}{Q_a}$$

Where:

C (lb/dscf)	= CO concentration (lb/dscf)	=	1.577E-06	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_a	= volumetric flow rate (actual cubic feet/min)	=	192296.1677	acf/min
C (lb/acf)	= CO concentration (lb/acf)	=	8.365E-07	lb/acf

5. CO concentration (mg/dscm)

$$C\left(mg/dscm\right) = C\left(lb/dscf\right) \times k_2 \times 35.31$$

Where:

C (lb/dscf)	= CO concentration (lb/dscf)	=	1.577E-06	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
C (mg/dscm)	= CO concentration (mg/dscm)	=	25.259	mg/dscm

6. CO concentration (mg/Nm3 dry)

$$C\left(mg/Nm^3\ dry\right) = C\left(lb/dscf\right) \times k_2 \times 35.31 \times \left(\frac{68+460}{32+460}\right)$$

Where:

C (lb/dscf)	= CO concentration (lb/dscf)	=	1.577E-06	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C (mg/Nm3 dry)	= CO concentration (mg/Nm3 dry)	=	27.107	mg/Nm^3 dry

7. CO concentration corrected to 7% O2 (ppmdv example)

$$C(ppmdv@x\%02) = C(ppmdv) \times \left(\frac{20.9-x}{20.9-O_2}\right)$$

Where:

C (ppmdv)	= CO concentration (ppmdv)	=	21.697	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.842	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O2)	= CO concentration corrected to 7% O2 (ppmdv example)	=	27.273	ppmdv @ 7%O2

8. CO concentration corrected to 12% CO2 (ppmdv example)

$$C(ppmdv @ y\%C0_2) = C(ppmdv) \times \left(\frac{y}{CO_2} \right)$$

Where:

C (ppmdv)	= CO concentration (ppmdv)	=	21.697	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.685	%
C (ppmdv -CO2)	= CO concentration corrected to 12% CO2 (ppmdv example)	=	26.883	ppmdv @ 12%CO2

9. CO emission rate (lb/hr)

$$E_{lb/hr} = C(lb/dscf) \times Q_{std} \times 60$$

Where:

C (lb/dscf)	= CO concentration (lb/dscf)	=	1.577E-06	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
$E_{lb/hr}$	= CO emission rate (lb/hr)	=	9.651	lb/hr

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FF Outlet 1

CEM RATA Sample Calculations for CO FF Outlet 1

Sample data taken from	**Run 5**
and	**Channel 5**

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 113715

1. CO value difference between Plant CEM Data and CleanAir RM Data (ppm@7%O2)

$$D = C_R - C_P$$

Where:

C_P	= CO value from Plant CEM Data	=	13.800	ppm@7%O2
C_R	= CO value from CleanAir RM Data	=	18.053	ppm@7%O2
D	= CO value difference between 2 methods	=	4.253	ppm@7%O2

2. Percent Value Difference (%)

$$D_{\%} = \frac{D}{C_R}$$

Where:

C_R	= CO value from CleanAir RM Data	=	18.053	ppm@7%O2
D	= CO value difference between 2 methods	=	4.253	ppm@7%O2
$D_{\%}$	= CO value difference as a percentage of RM Data	=	23.6%	

3. Average CO Value (Plant CEM Data example) (ppm@7%O2)

$$C_{p,avg} = \frac{\sum_{i=1}^{N} C_{p,i}}{N}$$

Where:

			i=1	
$C_{p,I}$	= CO value from Plant CEM Data for ith run	=	13.800	ppm@7%O2
N	= total number of runs included in the CEM data	=	9	
$C_{p,avg}$	= Average CO value from Plant CEM Data	=	20.256	ppm@7%O2

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4. Standard Deviation of Plant CEM data and CleanAir RM data

$$STDEV = \sqrt{\frac{\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)^2 - \frac{\left(\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)\right)^2}{N}}{N-1}}$$

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	18.053	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	13.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.360	ppm@7%O2

5. Confidence Coefficient

$$CC = STDEV \times \frac{t}{\sqrt{N}}$$

Where:

STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.360	ppm@7%O2
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.277	ppm@7%O2

6. Relative Accuracy (as a percentage of the reference method)

$$RA = \frac{abs\left|\frac{\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)}{N}\right| + abs\left|CC\right|}{\frac{\sum_{i=1}^{N} C_{R,i}}{N}}$$

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	18.053	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	13.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.277	ppm@7%O2
RA	= relative accuracy (as a percentage of the reference method)	=	18.918%	
		Limit =	10.000%	

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7. Relative Accuracy (as a percentage of the applicable standard)

$$RA_{std} = \frac{abs\left|\frac{\sum_{i=1}^{N}(C_{R,i} - C_{p,i})}{N}\right| + abs|CC|}{C_{std}}$$

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	18.053	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	13.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.277	
C_{std}	= CO value of applicable standard	=	100.000	ppm@7%O2
RA	= relative accuracy (as percentage of the applicable standard)	=	4.661%	
		Limit =	5.000%	

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FF Outlet 1

CEM Field Sample Calculations for CO2 FF Outlet 1

Sample data taken from Run 1 and Channel 2

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 111715

1. Average of a calibration series

$$C_{mce} = \frac{(C_1 + C_2 + C_3)}{3}$$

Where:

C_1, C_2, C_3 = concentrations of 3 consecutive gas samples that are representative of the calibration gas

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 2	=	5.940	%dv

2a. Calibration Error Check for Hydrocarbons (5% of actual calibration gas value error allowed by Method 25A)

$$E_{HC} = abs\left|\frac{C_{mce} - C_{ma}}{C_{ma}}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 2	=	5.940	%dv
C_{ma}	= concentration of actual calibration gas value	=	5.930	%dv
l_{cal}	= limit for calibration error for hydrocarbons	=	5.0%	
E_{HC}	= calibration error check value	=	NA	

2b. Calibration Error Check for non-Hydrocarbons (2% of Instrument Span)

$$E = abs\left|\frac{C_{mce} - C_{ma}}{Span}\right| \le l_{cal}$$

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 2	=	5.940	%dv
C_{ma}	= concentration of actual calibration gas value	=	5.930	%dv
Span	= instrument span value	=	13.900	
l_{cal}	= limit for calibration error for non-hydrocarbons	=	2.0%	
E	= calibration error check value	=	0.07%	**Pass**

3. System Bias as Percent of Span Value (5% is allowed)

$$E_{Bias} = abs\left|\frac{C_{mf} - C_{mce}}{Span}\right| \le l_{bias}$$

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 2	=	5.940	%dv
C_{mf}	= calibration error response concentration for Cal01	=	5.956	%dv
Span	= instrument span value	=	13.900	%dv
l_{bias}	= limit for system bias error	=	5.0%	
E_{bias}	= calibration bias error check value	=	0.11%	**Pass**

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4. System Drift as Percent of Span Value (3%)

$$E_{Drift} = abs\left|\frac{C_{mf} - C_{mi}}{Span}\right| \leq I_{drift}$$

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	=	5.956	%dv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	5.942	%dv
Span	= instrument span value	=	13.900	%dv
I_{drift}	= limit for system drift error	=	3.0%	
E_{drift}	= calibration drift error check value	=	0.10%	**Pass**

5. Average Concentration for an entire Run

$$C = \frac{\sum_{i=1}^{N} C_i}{N}$$

Where: i=1

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for CO2 on channel 2	=	9.698	%dv
N	= total number of readings in Run 1	=	27	
C	= average CO2 concentration for Run 1	=	9.687	%dv

6. Drift-Corrected Average Concentration for an entire Run

$$C_{DC} = \left(C - \frac{C_{oi} + C_{of}}{2}\right)\left(\frac{C_{ma}}{\frac{C_{mi} + C_{mf}}{2} - \frac{C_{oi} + C_{of}}{2}}\right)$$

C_{ma}	= concentration of actual calibration gas value	=	5.930	%dv
C	= average CO2 concentration for Run 1	=	9.687	%dv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	5.956	%dv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	5.942	%dv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	0.066	%dv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	0.026	%dv
C_{DC}	= drift corrected average concentration for Run 1	=	9.685	%dv

CEM Emissions Sample Calculations for CO2 FF Outlet 1

Sample data taken from Run 1 and Channel 2

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041811 110957

1. CO2 concentration (ppmdv)

$$C(ppmdv) = k_1 \times C_{DC} \quad if \quad dry \quad gas$$

$$C(ppmdv) = \frac{k_1 \times C_{DC}}{\left(1 - B_w/100\right)} \quad if \quad wet \quad gas$$

Where:

C_{DC}	= drift corrected average concentration	=	9.685	%dv
B_w	= actual water vapor in gas (% v/v)	=	0.000	% v/v
100	= conversion factor to change percentage to decimal	=	100	
k_1	= ppm/% to ppm conversion factor for diluent gases	=	10000	
C (ppmdv)	= CO2 concentration (ppmdv)	=	96852.495	ppmdv

2. CO2 concentration (lb/dscf)

$$C(lb/dscf) = \frac{C(ppmdv) \times MW(gas)}{10^6\ ppm \times 385.3}$$

Where:

C (ppmdv)	= CO2 concentration (ppmdv)	=	96852.495	ppmdv
MW	= Molecular Weight of CO2 gas	=	44.01	lb/lb-mole
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
385.3	= molar volume	=	385.3	dscf/lb-mole
C (lb/dscf)	= CO2 concentration (lb/dscf)	=	1.106E-02	lb/dscf

3. CO2 concentration (lb/scf)

$$C(lb/scf) = C(lb/dscf) \times \frac{Q_{std}}{Q_s}$$

Where:

C (lb/dscf)	= CO2 concentration (lb/dscf)	=	1.106E-02	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_s	= volumetric flow rate (standard cubic feet/min)	=	129879.0688	scf/min
C (lb/scf)	= CO2 concentration (lb/scf)	=	8.686E-03	lb/scf

4. CO2 concentration (lb/acf)

$$C\,(lb\,/\,acf\,) = C\,(lb\,/\,dscf\,) \times \frac{Q_{std}}{Q_a}$$

Where:

C (lb/dscf)	= CO2 concentration (lb/dscf)	=	1.106E-02	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscf/min
Q_a	= volumetric flow rate (actual cubic feet/min)	=	192296.1677	acf/min
C (lb/acf)	= CO2 concentration (lb/acf)	=	5.867E-03	lb/acf

5. CO2 concentration (mg/dscm)

$$C\,(mg/dscm) = C\,(lb/dscf)\,\times k_2\,\times 35.31$$

Where:

C (lb/dscf)	= CO2 concentration (lb/dscf)	=	1.106E-02	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
C (mg/dscm)	= CO2 concentration (mg/dscm)	=	177154.545	mg/dscm

6. CO2 concentration (mg/Nm3 dry)

$$C\quad (mg/Nm^3\,dry) = C(lb/dscf) \times k_2 \times 35.31 \times \left(\frac{68+460}{32+460}\right)$$

Where:

C (lb/dscf)	= CO2 concentration (lb/dscf)	=	1.106E-02	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C (mg/Nm3 dry)	= CO2 concentration (mg/Nm3 dry)	=	190117.072	mg/Nm^3 dry

7. CO2 concentration corrected to 7% O2 (ppmdv example)

$$C(ppmdv@x\%02) = C(ppmdv) \times \left(\frac{20.9-x}{20.9-O_2}\right)$$

Where:

C (ppmdv)	= CO2 concentration (ppmdv)	=	96852.495	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.842	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O2)	= CO2 concentration corrected to 7% O2 (ppmdv example)	=	121742.288	ppmdv @ 7%O2

8. CO2 concentration corrected to 12% CO2 (ppmdv example)

$$C(ppmdv @ y\%C0_2) = C(ppmdv) \times \left(\frac{y}{CO_2} \right)$$

Where:

C (ppmdv)	= CO2 concentration (ppmdv)	=	96852.495	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.685	%
C (ppmdv -CO2)	= CO2 concentration corrected to 12% CO2 (ppmdv example)	=	120000.000	ppmdv @ 12%CO2

9. CO2 emission rate (lb/hr)

$$E_{lb/hr} = C\,(lb/dscf) \times Q_{std} \times 60$$

Where:

C (lb/dscf)	= CO2 concentration (lb/dscf)	=	1.106E-02	lb/dscf
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101973.5072	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
$E_{lb/hr}$	= CO2 emission rate (lb/hr)	=	67686.457	lb/hr

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Sample Calculations

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041511 104118

1. Sample gas pressure (in. Hg)

$$P_s = P_{bar} + \left(\frac{P_g}{13.6}\right)$$

Where:

P_{bar}	= barometric pressure (in. Hg)	=	30.20	in. Hg
P_g	= sample gas static pressure (in. H_2O)	=	-11.40	in. H_2O
13.6	= conversion factor (in. H_2O/in. Hg)	=	13.6	in. H_2O/in. Hg
P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg

2. Actual water vapor pressure at sample gas temperature less than 212°F (in. Hg)

$$P_v = \frac{e^{\left(18.3036 - \frac{3816.44}{\frac{5}{9}(T_s - 32) + 273.15 - 46.13}\right)}}{25.4}$$

Where:

T_s	= average sample gas temperature (°F)	=	307.16	°F
18.3036	= Antoine coefficient	=	18.3036	°K
3816.44	= Antoine coefficient	=	3816.44	°K
273.15	= temperature conversion factor	=	273.15	°K
46.13	= Antoine coefficient	=	46.13	°K
25.4	= conversion factor	=	25.4	mm Hg/in. Hg
5/9	= Fahrenheit to Celsius conversion factor	=	5/9	°C/°F
32	= temperature conversion (°F)	=	32	°F
P_v	= vapor pressure, actual (in. Hg)	=	29.36	in. Hg

3. Water vapor pressure at gas temperature greater than 212°F (in. Hg)

$$P_v = P_s$$

Where:

P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg
P_v	= water vapor pressure, actual (in. Hg)	=	29.36	in. Hg

4. Saturated moisture content (% by volume)

$$B_{ws} = \frac{P_v}{P_s}$$

Where:

P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg
P_v	= water vapor pressure, actual (in. Hg)	=	29.36	in. Hg
B_{ws}	= proportion of water vapor in the gas stream by volume at saturated conditions	=	1.0000 100.00	 %

5. Actual water vapor in gas (% by volume)

$$B_w = MINIMUM \quad [B_{wo}, B_{ws}]$$

Where:

B_{ws}	= proportion of water vapor in the gas stream by volume at saturated conditions	=	1.0000	
B_{wo}	= proportion of water measured in the gas stream by volume	=	0.2149	
B_w	= actual water vapor in gas	=	0.2149	
		=	21.49	%

6. Nitrogen (plus carbon monoxide) in gas stream (% by volume, dry)

$$N_2 + CO = 100 - CO_2 - O_2$$

Where:

CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.7	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.8	%
100	= conversion factor (%)	=	100	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	80.47	%

7. Molecular weight of dry gas stream (lb/lb·mole)

$$M_d = (M_{CO_2})\frac{(CO_2)}{(100)} + (M_{O_2})\frac{(O_2)}{(100)} + (M_{N_2+CO})\frac{(N_2+CO)}{(100)}$$

Where:

M_{CO2}	= molecular weight of carbon dioxide (lb/lb·mole)	=	44.00	lb/lb·mole
M_{O2}	= molecular weight of oxygen (lb/lb·mole)	=	32.00	lb/lb·mole
M_{N2+CO}	= molecular weight of nitrogen and carbon monoxide (lb/lb·mole)	=	28.00	lb/lb·mole
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.7	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.8	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	80.5	%
100	= conversion factor (%)	=	100	%
M_d	= dry molecular weight of sample gas (lb/lb·mole)	=	29.94	lb/lb·mole

8. Molecular weight of sample gas (lb/lb·mole)

$$M_s = (M_d)(1 - B_w) + (M_{H_2O})(B_w)$$

Where:

B_w	= proportion of water vapor in the gas stream by volume	=	0.2149	
M_d	= dry molecular weight of sample gas (lb/lb·mole)	=	29.94	lb/lb·mole
M_{H2O}	= molecular weight of water (lb/lb·mole)	=	18.00	lb/lb·mole
M_s	= molecular weight of sample gas, wet basis (lb/lb·mole)	=	27.38	lb/lb·mole

9. Velocity of sample gas (ft/sec)

$$V_s = (K_p)(C_p)(\overline{\sqrt{\Delta P}})\left(\sqrt{\frac{(\overline{T_s}+460)}{(M_s)(P_s)}}\right)$$

Where:

K_p	= velocity pressure constant	=	85.49	
C_p	= pitot tube coefficient	=	0.82	
M_s	= wet molecular weight of sample gas, wet basis (lb/lb·mole)	=	27.38	lb/lb·mole
P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg
T_s	= average sample gas temperature (°F)	=	307.16	°F
$\sqrt{\Delta P}$	= average square roots of velocity heads of sample gas (in. H_2O)	=	0.734	$\sqrt{}$in. H_2O
460	= °F to °R conversion constant	=	460	
V_s	= sample gas velocity (ft/sec)	=	50.08	ft/sec

10. Volumetric flow rate of sample gas at actual gas conditions (acfm)

$$Q_a = (60)(A_s)(V_s)$$

Where:

A_s	= cross sectional area of sampling location (ft^2)	=	64.00	ft^2
V_s	= sample gas velocity (ft/sec)	=	50.08	ft/sec
60	conversion factor (sec/min)	=	60	sec/min
Q_a	= volumetric flow rate at actual conditions (acfm)	=	192,296	acfm

11. Total flow of sample gas (scfm)

$$Q_s = (Q_a)\left(\frac{P_s}{29.92}\right)\left(\frac{68+460}{T_s+460}\right)$$

Where:

Q_a	= volumetric flow rate at actual conditions (acfm)	=	192,296	acfm
P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg
29.92	= standard pressure (in. Hg)	=	29.92	in. Hg
T_s	= average sample gas temperature (°F)	=	307.2	°F
68	= standard temperature (°F)	=	68	°F
460	= °F to °R conversion constant	=	460	
Q_s	= volumetric flow rate at standard conditions, wet basis (scfm)	=	129,879	scfm

12. Dry flow of sample gas (dscfm)

$$Q_{std} = (Q_s)(1 - B_w)$$

Where:

B_w	= proportion of water vapor in the gas stream by volume	=	0.2149	
Q_s	= volumetric flow rate at standard conditions, wet basis (scfm)	=	129,879	scfm
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101,974	dscfm

13. Dry flow of sample gas corrected to 7%O_2 (dscfm)

$$Q_{std\,7} = (Q_{std})\left(\frac{20.9 - O_2}{20.9 - 7}\right)$$

Where:

Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	101,974	dscfm
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.8	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
7	= oxygen content of corrected gas (%)	=	7.0	%
Q_{std7}	= volumetric flow rate at STP and 7%O_2, dry basis (dscfm)	=	81,125	dscfm

14. Hourly time basis conversion of volumetric flow rate (Q_{std} example)

$$Q_{std-hr} = (Q_{std-min})(60)$$

Where

$Q_{std\text{-}min}$	= volumetric flow rate, english units (ft^3/min)	=	101,974	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
$Q_{std\text{-}hr}$	= volumetric flow rate, hourly basis (dscf/hr)	=	6,118,410	dscf/hr

USEPA Method 26A (HCl)
Sampling, Velocity and Moisture Sample Calculations

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

041211 082726

1. Volume of water collected (wscf)

$$V_{wstd} = (0.04706)(V_{lc})$$

Where:

V_{lc}	= total volume of liquid collected in impingers and silica gel (ml)	=	238.2	ml
0.04706	= ideal gas conversion factor (ft^3 water vapor/ml or gm)	=	0.04706	ft^3/ml
V_{wstd}	= volume of water vapor collected at standard conditions (ft^3)	=	11.21	ft^3

2. Volume of gas metered, standard conditions (dscf)

$$V_{mstd} = \frac{(17.64)(V_m)\left(P_{bar} + \frac{\Delta H}{13.6}\right)(Y_d)}{(460 + T_m)}$$

Where:

P_{bar}	= barometric pressure (in. Hg)	=	30.20	in. Hg
T_m	= average dry gas meter temperature (°F)	=	74.88	°F
V_m	= volume of gas sample through the dry gas meter at meter conditions (dcf)	=	41.62	dcf
Y_d	= gas meter correction factor (dimensionless)	=	0.9847	
ΔH	= average pressure drop across meter box orifice (in. H_2O)	=	1.50	in. H_2O
17.64	= standard temperature to pressure ratio (°R/in. Hg)	=	17.64	°R/in. Hg
13.6	= conversion factor (in. H_2O/in. Hg)	=	13.6	in.H_2O/in. Hg
460	= °F to °R conversion constant	=	460	
V_{mstd}	= volume of gas sampled through the dry gas meter at standard conditions (dscf)	=	40.963	dscf

3. Sample gas pressure (in. Hg)

$$P_s = P_{bar} + \left(\frac{P_g}{13.6}\right)$$

Where:

P_{bar}	= barometric pressure (in. Hg)	=	30.20	in. Hg
P_g	= sample gas static pressure (in. H_2O)	=	-11.40	in. H_2O
13.6	= conversion factor (in. H_2O/in. Hg)	=	13.6	in. H_2O/in. Hg
P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg

4. Actual water vapor pressure at sample gas temperature less than 212°F (in. Hg)

$$P_v = \frac{e^{\left(18.3036 - \frac{3816.44}{\frac{5}{9}(T_s - 32) + 273.15 - 46.13}\right)}}{25.4}$$

Where:

T_s	= average sample gas temperature (°F)	=	307.67	°F
18.3036	= Antoine coefficient	=	18.3036	°K
3816.44	= Antoine coefficient	=	3816.44	°K
273.15	= temperature conversion factor	=	273.15	°K
46.13	= Antoine coefficient	=	46.13	°K
25.4	= conversion factor	=	25.4	mm Hg/in. Hg
5/9	= Fahrenheit to Celsius conversion factor	=	5/9	°C/°F
32	= temperature conversion (°F)	=	32	°F
P_v	= vapor pressure, actual (in. Hg)	=	29.36	in. Hg

5. Water vapor pressure at gas temperature greater than 212°F (in. Hg)

$$P_v = P_s$$

Where:

P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg
P_v	= water vapor pressure, actual (in. Hg)	=	29.36	in. Hg

6. Moisture measured in sample (% by volume)

$$B_{wo} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})}$$

Where:

V_{mstd}	= volume of gas sampled through the dry gas meter at standard conditions (dscf)	=	40.963	dscf
V_{wstd}	= volume of water collected at standard conditions (scf)	=	11.21	scf
B_{wo}	= proportion of water measured in the gas stream by volume	=	0.2149	
		=	21.49	%

7. Saturated moisture content (% by volume)

$$B_{ws} = \frac{P_v}{P_s}$$

Where:

P_s	= absolute sample gas pressure (in. Hg)	=	29.36	in. Hg
P_v	= water vapor pressure, actual (in. Hg)	=	29.36	in. Hg
B_{ws}	= proportion of water vapor in the gas stream by volume at saturated conditions		1.0000	
		=	100.00	%

8. Actual water vapor in gas (% by volume)

$$B_w = MINIMUM \quad [B_{wo}, B_{ws}]$$

Where:

B_{ws}	= proportion of water vapor in the gas stream by volume at saturated conditions	=	1.0000	
B_{wo}	= proportion of water measured in the gas stream by volume	=	0.2149	
B_w	= actual water vapor in gas	=	0.2149	
		=	21.49	%

9. Nitrogen (plus carbon monoxide) in gas stream (% by volume, dry)

$$N_2 + CO = 100 - CO_2 - O_2$$

Where:

CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.4	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	10.1	%
100	= conversion factor (%)	=	100	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	80.45	%

10. Molecular weight of dry gas stream (lb/lb·mole)

$$M_d = (M_{CO_2})\frac{(CO_2)}{(100)} + (M_{O_2})\frac{(O_2)}{(100)} + (M_{N_2+CO})\frac{(N_2+CO)}{(100)}$$

Where:

M_{CO2}	= molecular weight of carbon dioxide (lb/lb·mole)	=	44.00	lb/lb·mole
M_{O2}	= molecular weight of oxygen (lb/lb·mole)	=	32.00	lb/lb·mole
M_{N2+CO}	= molecular weight of nitrogen and carbon monoxide (lb/lb·mole)	=	28.00	lb/lb·mole
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.4	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	10.1	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	80.5	%
100	= conversion factor (%)	=	100	%
M_d	= dry molecular weight of sample gas (lb/lb·mole)	=	29.91	lb/lb·mole

11. Molecular weight of sample gas (lb/lb·mole)

$$M_s = (M_d)(1 - B_w) + (M_{H_2O})(B_w)$$

Where:

B_w	= proportion of water vapor in the gas stream by volume	=	0.2149	
M_d	= dry molecular weight of sample gas (lb/lb·mole)	=	29.91	lb/lb·mole
M_{H2O}	= molecular weight of water (lb/lb·mole)	=	18.00	lb/lb·mole
M_s	= molecular weight of sample gas, wet basis (lb/lb·mole)	=	27.35	lb/lb·mole

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

CEM RATA Sample Calculations for CO2 FF Outlet 1

Sample data taken from	**Run 1**
and	**Channel 2**

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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1. CO2 value difference between Plant CEM Data and CleanAir RM Data (lb/hr)

$$D = C_R - C_P$$

Where:

C_P	= CO2 value from Plant CEM Data	=	65222.000	lb/hr
C_R	= CO2 value from CleanAir RM Data	=	67686.457	lb/hr
D	= CO2 value difference between 2 methods	=	2464.457	lb/hr

2. Percent Value Difference (%)

$$D_{\%} = \frac{D}{C_R}$$

Where:

C_R	= CO2 value from CleanAir RM Data	=	67686.457	lb/hr
D	= CO2 value difference between 2 methods	=	2464.457	lb/hr
$D_{\%}$	= CO2 value difference as a percentage of RM Data	=	3.6%	

3. Average CO2 Value (Plant CEM Data example) (lb/hr)

$$C_{p,avg} = \frac{\sum_{i=1}^{N} C_{p,i}}{N}$$

Where:

			i=1	
$C_{p,i}$	= CO2 value from Plant CEM Data for ith run	=	65222.000	lb/hr
N	= total number of runs included in the CEM data	=	9	
$C_{p,avg}$	= Average CO2 value from Plant CEM Data	=	64654.222	lb/hr

Wheelabrator North Broward

CleanAir Project No. 11182

Ft. Lauderdale, FL

FF Outlet 1

4. Standard Deviation of Plant CEM data and CleanAir RM data

$$STDEV = \sqrt{\frac{\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)^2 - \frac{\left(\sum_{i=1}^{N}\left(C_{R,i} - C_{p,i}\right)\right)^2}{N}}{N-1}}$$

Where:

$C_{R,i}$	= CO2 value from CleanAir RM Data for ith run	=	67686.457	lb/hr
$C_{p,i}$	= CO2 value from Plant CEM Data for ith run	=	65222.000	lb/hr
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	1513.618	lb/hr

5. Confidence Coefficient

$$CC = STDEV \times \frac{t}{\sqrt{N}}$$

Where:

STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	1513.618	lb/hr
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	1163.467	lb/hr

6. Relative Accuracy (as a percentage of the reference method)

$$RA = \frac{abs\left|\frac{\sum_{i=1}^{N}(C_{R,i} - C_{p,i})}{N}\right| + abs\left|CC\right|}{\frac{\sum_{i=1}^{N} C_{R,i}}{N}}$$

Where:

$C_{R,i}$	= CO2 value from CleanAir RM Data for ith run	=	67686.457	lb/hr
$C_{p,i}$	= CO2 value from Plant CEM Data for ith run	=	65222.000	lb/hr
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	1163.467	lb/hr
RA	= relative accuracy (as a percentage of the reference method)	=	4.249%	
		Limit =	20.000%	

PARAMETERS

C

I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: KRO

Date: 5/4/2011

CleanAir.

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Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	1				
Date (2011)	Mar 22				
Start Time	7:31				
End Time	7:58				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.84	9.69	12.41	145.93	21.70
Concentration (ppmdv)		96852.50	12.41	145.93	21.70
Concentration (lb/dscf)		1.106E-02	2.064E-06	1.742E-05	1.577E-06
Concentration (lb/scf)		8.686E-03	1.620E-06	1.368E-05	1.238E-06
Concentration (lb/acf)		5.867E-03	1.094E-06	9.240E-06	8.365E-07
Concentration (%dv)	9.842	9.685	0.0012	0.015	0.0022
Concentration (mg/dscm)		177154.54	33.05	279.03	25.26
Concentration (mg/scm)		139091.47	25.95	219.08	19.83
Concentration (mg/acm)		93944.00	17.52	147.97	13.39
Concentration (mg/Nm3)		190117.07	35.46	299.45	27.11
Concentration @7%O2 (ppm)		121742.29	15.60	183.44	27.27
Concentration @12%CO2 (ppm)		120000.00	15.38	180.81	26.88
Concentration @7%O2 (lb/scf)		1.391E-02	2.594E-06	2.190E-05	1.983E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.557E-06	2.159E-05	1.954E-06
Concentration @7%O2 (%v)		12.174	0.002	0.018	0.003
Concentration @12%CO2 (%v)		12.000	0.002	0.018	0.003
Concentration @7%O2 (mg/scm)		222680.89	41.54	350.74	31.75
Concentration @12%CO2 (mg/scm)		219494.04	40.94	345.72	31.30
Concentration @7%O2 (mg/Nm3)		238974.61	44.58	376.40	34.07
Concentration @12%CO2 (mg/Nm3)		235554.58	43.94	371.02	33.59
Mass Rate (lb/hr)		67686.46	12.63	106.61	9.65

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	2				
Date (2011)	Mar 22				
Start Time	8:13				
End Time	8:40				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.49	9.98	14.82	144.16	19.70
Concentration (ppmdv)		99759.44	14.82	144.16	19.70
Concentration (lb/dscf)		1.139E-02	2.464E-06	1.721E-05	1.432E-06
Concentration (lb/scf)		8.947E-03	1.935E-06	1.351E-05	1.124E-06
Concentration (lb/acf)		6.051E-03	1.308E-06	9.141E-06	7.605E-07
Concentration (%dv)	9.489	9.976	0.0015	0.014	0.0020
Concentration (mg/dscm)		182471.69	39.46	275.65	22.93
Concentration (mg/scm)		143266.18	30.98	216.42	18.01
Concentration (mg/acm)		96895.00	20.95	146.37	12.18
Concentration (mg/Nm3)		195823.28	42.34	295.82	24.61
Concentration @7%O2 (ppm)		121513.96	18.05	175.60	23.99
Concentration @12%CO2 (ppm)		120000.00	17.83	173.41	23.70
Concentration @7%O2 (lb/scf)		1.388E-02	3.001E-06	2.097E-05	1.744E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.964E-06	2.071E-05	1.723E-06
Concentration @7%O2 (%v)		12.151	0.002	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.017	0.002
Concentration @7%O2 (mg/scm)		222263.24	48.06	335.76	27.93
Concentration @12%CO2 (mg/scm)		219494.04	47.46	331.57	27.59
Concentration @7%O2 (mg/Nm3)		238526.41	51.58	360.33	29.98
Concentration @12%CO2 (mg/Nm3)		235554.58	50.94	355.84	29.60
Mass Rate (lb/hr)		66619.98	14.41	100.64	8.37

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	3				
Date (2011)	Mar 22				
Start Time	9:39				
End Time	10:06				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.24	10.18	16.54	148.17	18.42
Concentration (ppmdv)		101764.80	16.54	148.17	18.42
Concentration (lb/dscf)		1.162E-02	2.750E-06	1.769E-05	1.339E-06
Concentration (lb/scf)		9.084E-03	2.149E-06	1.383E-05	1.046E-06
Concentration (lb/acf)		6.135E-03	1.451E-06	9.337E-06	7.066E-07
Concentration (%dv)	9.239	10.176	0.0017	0.015	0.0018
Concentration (mg/dscm)		186139.73	44.03	283.31	21.44
Concentration (mg/scm)		145468.05	34.41	221.41	16.75
Concentration (mg/acm)		98241.57	23.24	149.53	11.32
Concentration (mg/Nm3)		199759.71	47.26	304.04	23.01
Concentration @7%O2 (ppm)		121301.61	19.71	176.62	21.95
Concentration @12%CO2 (ppm)		120000.00	19.50	174.72	21.72
Concentration @7%O2 (lb/scf)		1.386E-02	3.278E-06	2.109E-05	1.596E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	3.243E-06	2.086E-05	1.579E-06
Concentration @7%O2 (%v)		12.130	0.002	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.017	0.002
Concentration @7%O2 (mg/scm)		221874.84	52.49	337.70	25.55
Concentration @12%CO2 (mg/scm)		219494.04	51.93	334.08	25.28
Concentration @7%O2 (mg/Nm3)		238109.59	56.33	362.41	27.42
Concentration @12%CO2 (mg/Nm3)		235554.58	55.72	358.52	27.13
Mass Rate (lb/hr)		66762.32	15.79	101.61	7.69

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	4				
Date (2011)	Mar 22				
Start Time	10:24				
End Time	10:51				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.20	10.20	16.90	143.71	34.45
Concentration (ppmdv)		101998.94	16.90	143.71	34.45
Concentration (lb/dscf)		1.165E-02	2.810E-06	1.716E-05	2.504E-06
Concentration (lb/scf)		9.105E-03	2.196E-06	1.341E-05	1.957E-06
Concentration (lb/acf)		6.154E-03	1.485E-06	9.064E-06	1.323E-06
Concentration (%dv)	9.196	10.200	0.0017	0.014	0.0034
Concentration (mg/dscm)		186568.00	45.01	274.79	40.10
Concentration (mg/scm)		145802.74	35.17	214.75	31.34
Concentration (mg/acm)		98550.85	23.77	145.15	21.18
Concentration (mg/Nm3)		200219.32	48.30	294.89	43.03
Concentration @7%O2 (ppm)		121136.30	20.07	170.68	40.91
Concentration @12%CO2 (ppm)		120000.00	19.89	169.08	40.52
Concentration @7%O2 (lb/scf)		1.384E-02	3.338E-06	2.038E-05	2.974E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	3.306E-06	2.019E-05	2.946E-06
Concentration @7%O2 (%v)		12.114	0.002	0.017	0.004
Concentration @12%CO2 (%v)		12.000	0.002	0.017	0.004
Concentration @7%O2 (mg/scm)		221572.46	53.45	326.34	47.62
Concentration @12%CO2 (mg/scm)		219494.04	52.95	323.28	47.18
Concentration @7%O2 (mg/Nm3)		237785.08	57.36	350.22	51.11
Concentration @12%CO2 (mg/Nm3)		235554.58	56.82	346.94	50.63
Mass Rate (lb/hr)		65349.12	15.76	96.25	14.05

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	5				
Date (2011)	Mar 22				
Start Time	11:34				
End Time	12:01				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.18	10.16	13.66	149.34	15.22
Concentration (ppmdv)		101557.37	13.66	149.34	15.22
Concentration (lb/dscf)		1.160E-02	2.271E-06	1.783E-05	1.107E-06
Concentration (lb/scf)		9.112E-03	1.784E-06	1.401E-05	8.692E-07
Concentration (lb/acf)		6.170E-03	1.208E-06	9.484E-06	5.886E-07
Concentration (%dv)	9.180	10.156	0.0014	0.015	0.0015
Concentration (mg/dscm)		185760.30	36.36	285.54	17.72
Concentration (mg/scm)		145914.50	28.56	224.29	13.92
Concentration (mg/acm)		98805.63	19.34	151.88	9.43
Concentration (mg/Nm3)		199352.52	39.02	306.43	19.02
Concentration @7%O2 (ppm)		120450.34	16.20	177.12	18.05
Concentration @12%CO2 (ppm)		120000.00	16.14	176.46	17.99
Concentration @7%O2 (lb/scf)		1.376E-02	2.693E-06	2.115E-05	1.312E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.683E-06	2.107E-05	1.308E-06
Concentration @7%O2 (%v)		12.045	0.002	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.018	0.002
Concentration @7%O2 (mg/scm)		220317.76	43.13	338.66	21.02
Concentration @12%CO2 (mg/scm)		219494.04	42.97	337.39	20.94
Concentration @7%O2 (mg/Nm3)		236438.57	46.28	363.44	22.55
Concentration @12%CO2 (mg/Nm3)		235554.58	46.11	362.08	22.47
Mass Rate (lb/hr)		65967.81	12.91	101.40	6.29

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	6				
Date (2011)	Mar 22				
Start Time	12:14				
End Time	12:41				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.35	10.00	15.27	149.16	12.86
Concentration (ppmdv)		100016.70	15.27	149.16	12.86
Concentration (lb/dscf)		1.142E-02	2.538E-06	1.781E-05	9.348E-07
Concentration (lb/scf)		9.009E-03	2.002E-06	1.405E-05	7.372E-07
Concentration (lb/acf)		6.121E-03	1.360E-06	9.542E-06	5.008E-07
Concentration (%dv)	9.347	10.002	0.0015	0.015	0.0013
Concentration (mg/dscm)		182942.25	40.65	285.21	14.97
Concentration (mg/scm)		144268.66	32.05	224.92	11.80
Concentration (mg/acm)		98013.61	21.78	152.80	8.02
Concentration (mg/Nm3)		196328.27	43.62	306.08	16.06
Concentration @7%O2 (ppm)		120335.99	18.37	179.47	15.47
Concentration @12%CO2 (ppm)		120000.00	18.32	178.97	15.43
Concentration @7%O2 (lb/scf)		1.375E-02	3.054E-06	2.143E-05	1.125E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	3.045E-06	2.137E-05	1.122E-06
Concentration @7%O2 (%v)		12.034	0.002	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.018	0.002
Concentration @7%O2 (mg/scm)		220108.60	48.91	343.15	18.01
Concentration @12%CO2 (mg/scm)		219494.04	48.77	342.19	17.96
Concentration @7%O2 (mg/Nm3)		236214.11	52.48	368.26	19.33
Concentration @12%CO2 (mg/Nm3)		235554.58	52.34	367.23	19.27
Mass Rate (lb/hr)		66056.26	14.68	102.98	5.41

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2011)	Mar 22				
Start Time	12:53				
End Time	13:20				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.46	9.93	13.61	142.82	13.63
Concentration (ppmdv)		99299.06	13.61	142.82	13.63
Concentration (lb/dscf)		1.134E-02	2.262E-06	1.705E-05	9.911E-07
Concentration (lb/scf)		8.944E-03	1.784E-06	1.345E-05	7.816E-07
Concentration (lb/acf)		6.077E-03	1.212E-06	9.137E-06	5.310E-07
Concentration (%dv)	9.456	9.930	0.0014	0.014	0.0014
Concentration (mg/dscm)		181629.59	36.23	273.09	15.87
Concentration (mg/scm)		143233.49	28.57	215.36	12.52
Concentration (mg/acm)		97315.44	19.41	146.32	8.50
Concentration (mg/Nm3)		194919.56	38.88	293.07	17.03
Concentration @7%O2 (ppm)		120611.39	16.53	173.48	16.56
Concentration @12%CO2 (ppm)		120000.00	16.44	172.60	16.47
Concentration @7%O2 (lb/scf)		1.378E-02	2.748E-06	2.071E-05	1.204E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.734E-06	2.061E-05	1.198E-06
Concentration @7%O2 (%v)		12.061	0.002	0.017	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.017	0.002
Concentration @7%O2 (mg/scm)		220612.35	44.00	331.70	19.28
Concentration @12%CO2 (mg/scm)		219494.04	43.78	330.02	19.18
Concentration @7%O2 (mg/Nm3)		236754.72	47.22	355.97	20.69
Concentration @12%CO2 (mg/Nm3)		235554.58	46.98	354.17	20.58
Mass Rate (lb/hr)		67653.34	13.49	101.72	5.91

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 06-2004g4

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	8				
Date (2011)	Mar 22				
Start Time	13:31				
End Time	13:58				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.80	9.71	12.54	135.79	22.01
Concentration (ppmdv)		97055.22	12.54	135.79	22.01
Concentration (lb/dscf)		1.109E-02	2.085E-06	1.621E-05	1.600E-06
Concentration (lb/scf)		8.742E-03	1.644E-06	1.279E-05	1.262E-06
Concentration (lb/acf)		5.947E-03	1.118E-06	8.697E-06	8.584E-07
Concentration (%dv)	9.802	9.706	0.0013	0.014	0.0022
Concentration (mg/dscm)		177525.35	33.38	259.63	25.63
Concentration (mg/scm)		139996.88	26.32	204.74	20.21
Concentration (mg/acm)		95226.19	17.91	139.27	13.75
Concentration (mg/Nm3)		190515.00	35.82	278.63	27.50
Concentration @7%O2 (ppm)		121559.92	15.70	170.07	27.57
Concentration @12%CO2 (ppm)		120000.00	15.50	167.89	27.22
Concentration @7%O2 (lb/scf)		1.388E-02	2.611E-06	2.031E-05	2.004E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.577E-06	2.005E-05	1.979E-06
Concentration @7%O2 (%v)		12.156	0.002	0.017	0.003
Concentration @12%CO2 (%v)		12.000	0.002	0.017	0.003
Concentration @7%O2 (mg/scm)		222347.32	41.81	325.18	32.10
Concentration @12%CO2 (mg/scm)		219494.04	41.27	321.01	31.68
Concentration @7%O2 (mg/Nm3)		238616.64	44.87	348.98	34.44
Concentration @12%CO2 (mg/Nm3)		235554.58	44.29	344.50	34.00
Mass Rate (lb/hr)		64220.64	12.08	93.92	9.27

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	9				
Date (2011)	Mar 22				
Start Time	14:09				
End Time	14:36				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.64	9.71	14.09	137.19	16.40
Concentration (ppmdv)		97119.72	14.09	137.19	16.40
Concentration (lb/dscf)		1.109E-02	2.343E-06	1.638E-05	1.192E-06
Concentration (lb/scf)		8.720E-03	1.841E-06	1.288E-05	9.373E-07
Concentration (lb/acf)		5.933E-03	1.253E-06	8.761E-06	6.377E-07
Concentration (%dv)	9.644	9.712	0.0014	0.014	0.0016
Concentration (mg/dscm)		177643.33	37.51	262.32	19.09
Concentration (mg/scm)		139640.68	29.49	206.20	15.01
Concentration (mg/acm)		95008.82	20.06	140.30	10.21
Concentration (mg/Nm3)		190641.62	40.26	281.52	20.49
Concentration @7%O2 (ppm)		119936.38	17.40	169.42	20.26
Concentration @12%CO2 (ppm)		120000.00	17.41	169.51	20.27
Concentration @7%O2 (lb/scf)		1.370E-02	2.893E-06	2.023E-05	1.473E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.894E-06	2.024E-05	1.473E-06
Concentration @7%O2 (%v)		11.994	0.002	0.017	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.017	0.002
Concentration @7%O2 (mg/scm)		219377.67	46.33	323.95	23.58
Concentration @12%CO2 (mg/scm)		219494.04	46.35	324.12	23.59
Concentration @7%O2 (mg/Nm3)		235429.70	49.72	347.65	25.31
Concentration @12%CO2 (mg/Nm3)		235554.58	49.74	347.84	25.32
Mass Rate (lb/hr)		66456.84	14.03	98.13	7.14

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	10				
Date (2011)	Mar 22				
Start Time	14:48				
End Time	15:15				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.93	9.60	12.00	144.43	21.22
Concentration (ppmdv)		95961.06	12.00	144.43	21.22
Concentration (lb/dscf)		1.096E-02	1.995E-06	1.725E-05	1.543E-06
Concentration (lb/scf)		8.616E-03	1.568E-06	1.356E-05	1.213E-06
Concentration (lb/acf)		5.850E-03	1.065E-06	9.204E-06	8.232E-07
Concentration (%dv)	9.932	9.596	0.0012	0.014	0.0021
Concentration (mg/dscm)		175524.00	31.95	276.16	24.70
Concentration (mg/scm)		137974.73	25.11	217.08	19.42
Concentration (mg/acm)		93673.82	17.05	147.38	13.18
Concentration (mg/Nm3)		188367.22	34.28	296.37	26.51
Concentration @7%O2 (ppm)		121614.55	15.21	183.04	26.89
Concentration @12%CO2 (ppm)		120000.00	15.00	180.61	26.53
Concentration @7%O2 (lb/scf)		1.389E-02	2.528E-06	2.186E-05	1.955E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.495E-06	2.157E-05	1.929E-06
Concentration @7%O2 (%v)		12.161	0.002	0.018	0.003
Concentration @12%CO2 (%v)		12.000	0.002	0.018	0.003
Concentration @7%O2 (mg/scm)		222447.24	40.49	349.99	31.31
Concentration @12%CO2 (mg/scm)		219494.04	39.95	345.34	30.89
Concentration @7%O2 (mg/Nm3)		238723.86	43.45	375.60	33.60
Concentration @12%CO2 (mg/Nm3)		235554.58	42.87	370.61	33.15
Mass Rate (lb/hr)		70914.17	12.91	111.57	9.98

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	11				
Date (2011)	Mar 22				
Start Time	15:46				
End Time	16:10				
Elapsed Time (hh:mm)	00:24				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	10.34				28.17
Concentration (ppmdv)					28.17
Concentration (lb/dscf)					2.048E-06
Concentration (%dv)	10.341				0.0028
Concentration (mg/dscm)					32.80
Concentration @7%O2 (ppm)					37.09

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	12				
Date (2011)	Mar 22				
Start Time	16:18				
End Time	16:42				
Elapsed Time (hh:mm)	00:24				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	10.07				28.29
Concentration (ppmdv)					28.29
Concentration (lb/dscf)					2.056E-06
Concentration (%dv)	10.072				0.0028
Concentration (mg/dscm)					32.93
Concentration @7%O2 (ppm)					36.31

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	13				
Date (2011)	Mar 22				
Start Time	16:49				
End Time	17:13				
Elapsed Time (hh:mm)	00:24				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	10.26				32.53
Concentration (ppmdv)					32.53
Concentration (lb/dscf)					2.365E-06
Concentration (%dv)	10.256				0.0033
Concentration (mg/dscm)					37.87
Concentration @7%O2 (ppm)					42.48

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SS CEM Version 06-2004g4

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Continuous Emissions Monitoring Parameters

Run Number	14				
Date (2011)	Mar 22				
Start Time	17:19				
End Time	17:43				
Elapsed Time (hh:mm)	00:24				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1	FF Outlet 1
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.49				14.92
Concentration (ppmdv)					14.92
Concentration (lb/dscf)					1.084E-06
Concentration (%dv)	9.489				0.0015
Concentration (mg/dscm)					17.36
Concentration @7%O2 (ppm)					18.17

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 1 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		**1**	**2**	**3**	**4**
Date (2011)		Mar 22	Mar 22	Mar 22	Mar 22
Start Time (approx.)		07:40	08:11	09:45	10:32
Stop Time (approx.)		07:49	08:20	09:58	10:55
Sampling Conditions					
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-11.4000	-11.4000	-11.5000	-11.1000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.20	30.20	30.20	30.20
O_2	Oxygen (dry volume %)	9.8418	9.4885	9.2387	9.1959
CO_2	Carbon dioxide (dry volume %)	9.6852	9.9759	10.1765	10.1999
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.4729	80.5356	80.5848	80.6042
T_s	Sample temperature (°F)	307.1600	306.1200	307.0400	307.1600
Flow Results					
P_s	Sample gas pressure, absolute (in. Hg)	29.3618	29.3618	29.3544	29.3838
P_v	Vapor pressure, actual (in. Hg)	29.3618	29.3618	29.3544	29.3838
B_{wo}	Moisture measured in sample (% by volume)	21.4858	21.4858	21.8501	21.8501
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	21.4858	21.4858	21.8501	21.8501
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.7339	0.7012	0.6922	0.6757
M_d	MW of sample gas, dry (lb/lb-mole)	29.9433	29.9757	29.9978	29.9998
M_s	MW of sample gas, wet (lb/lb-mole)	27.3772	27.4026	27.3763	27.3779
V_s	Velocity of sample (ft/sec)	50.0771	47.7870	47.2327	46.0878
V_s	Velocity of sample (ft/min)	3004.6276	2867.2199	2833.9620	2765.2684
Q_a	Volumetric flow rate, actual (acfm)	192,296	183,502	181,374	176,977
Q_s	Volumetric flow rate, standard (scfm)	129,879	124,108	122,490	119,622
Q_{std}	Volumetric flow rate, dry standard (dscfm)	101,974	97,442	95,726	93,485
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	81,125	79,997	80,308	78,716
Q_a	Volumetric flow rate, actual (acf/hr)	11,537,770	11,010,124	10,882,414	10,618,631
Q_s	Volumetric flow rate, standard (scf/hr)	7,792,744	7,446,461	7,349,418	7,177,335
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	6,118,410	5,846,529	5,743,564	5,609,081
Q_a	Volumetric flow rate, actual (m^3/hr)	326,756	311,813	308,196	300,726
Q_s	Volumetric flow rate, standard (m^3/hr)	220,695	210,888	208,140	203,266
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	173,277	165,577	162,661	158,852
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	137,851	135,934	136,463	133,757
Q_s	Volumetric flow rate, normal (Nm^3/hr)	205,648	196,509	193,948	189,407
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	161,463	154,288	151,571	148,022
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	128,452	126,666	127,159	124,637

Comments:

Average includes 4 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 1 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		5	6	7
Date (2011)		Mar 22	Mar 22	Mar 22
Start Time (approx.)		11:39	12:30	13:00
Stop Time (approx.)		11:55	12:40	13:12
Sampling Conditions				
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-11.0000	-11.0000	-11.0000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.20	30.20	30.20
O_2	Oxygen (dry volume %)	9.1803	9.3471	9.4562
CO_2	Carbon dioxide (dry volume %)	10.1557	10.0017	9.9299
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.6640	80.6513	80.6139
T_s	Sample temperature (°F)	305.9600	303.4400	303.4000
Flow Results				
P_s	Sample gas pressure, absolute (in. Hg)	29.3912	29.3912	29.3912
P_v	Vapor pressure, actual (in. Hg)	29.3912	29.3912	29.3912
B_{wo}	Moisture measured in sample (% by volume)	21.4501	21.1398	21.1398
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	21.4501	21.1398	21.1398
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.6815	0.6893	0.7110
M_d	MW of sample gas, dry (lb/lb-mole)	29.9921	29.9742	29.9670
M_s	MW of sample gas, wet (lb/lb-mole)	27.4198	27.4428	27.4372
V_s	Velocity of sample (ft/sec)	46.4042	46.8419	48.3186
V_s	Velocity of sample (ft/min)	2784.2506	2810.5123	2899.1146
Q_a	Volumetric flow rate, actual (acfm)	178,192	179,873	185,543
Q_s	Volumetric flow rate, standard (scfm)	120,662	122,202	126,062
Q_{std}	Volumetric flow rate, dry standard (dscfm)	94,780	96,369	99,412
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	79,914	80,097	81,846
Q_a	Volumetric flow rate, actual (acf/hr)	10,691,522	10,792,367	11,132,600
Q_s	Volumetric flow rate, standard (scf/hr)	7,239,737	7,332,146	7,563,691
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,686,805	5,782,146	5,964,743
Q_a	Volumetric flow rate, actual (m^3/hr)	302,790	305,646	315,282
Q_s	Volumetric flow rate, standard (m^3/hr)	205,034	207,651	214,208
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	161,054	163,754	168,925
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	135,792	136,103	139,076
Q_s	Volumetric flow rate, normal (Nm^3/hr)	191,054	193,493	199,603
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	150,073	152,589	157,407
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	126,533	126,823	129,593

Comments:

Average includes 3 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 1 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		8	9	10
Date (2011)		Mar 22	Mar 22	Mar 22
Start Time (approx.)		13:30	14:11	14:48
Stop Time (approx.)		13:43	14:26	14:56
Sampling Conditions				
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-11.0000	-11.0000	-11.0000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.20	30.20	30.20
O_2	Oxygen (dry volume %)	9.8020	9.6443	9.9321
CO_2	Carbon dioxide (dry volume %)	9.7055	9.7120	9.6852
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.4924	80.6437	80.3827
T_s	Sample temperature (°F)	302.5200	302.3200	303.9600
Flow Results				
P_s	Sample gas pressure, absolute (in. Hg)	29.3912	29.3912	29.3912
P_v	Vapor pressure, actual (in. Hg)	29.3912	29.3912	29.3912
B_{wo}	Moisture measured in sample (% by volume)	21.1398	21.3927	21.3927
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	21.1398	21.3927	21.3927
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.6899	0.7152	0.7733
M_d	MW of sample gas, dry (lb/lb-mole)	29.9450	29.9397	29.9469
M_s	MW of sample gas, wet (lb/lb-mole)	27.4198	27.3855	27.3912
V_s	Velocity of sample (ft/sec)	46.8732	48.6164	52.6164
V_s	Velocity of sample (ft/min)	2812.3938	2916.9815	3156.9862
Q_a	Volumetric flow rate, actual (acfm)	179,993	186,687	202,047
Q_s	Volumetric flow rate, standard (scfm)	122,432	127,018	137,174
Q_{std}	Volumetric flow rate, dry standard (dscfm)	96,550	99,846	107,829
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	77,087	80,851	85,083
Q_a	Volumetric flow rate, actual (acf/hr)	10,799,592	11,201,209	12,122,827
Q_s	Volumetric flow rate, standard (scf/hr)	7,345,907	7,621,086	8,230,431
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,792,998	5,990,732	6,469,722
Q_a	Volumetric flow rate, actual (m^3/hr)	305,851	317,225	343,326
Q_s	Volumetric flow rate, standard (m^3/hr)	208,040	215,834	233,091
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	164,061	169,661	183,226
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	130,989	137,385	144,576
Q_s	Volumetric flow rate, normal (Nm^3/hr)	193,856	201,118	217,198
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	152,875	158,093	170,734
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	122,058	128,018	134,719

Comments:

Average includes 3 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 1 FF Outlet

USEPA Method 26A (HCl)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2011)		Mar 22	Mar 22	Mar 22	
Start Time (approx.)		07:36	09:40	11:02	
Stop Time (approx.)		08:36	10:40	12:02	
Sampling Conditions					
Y_d	Dry gas meter correction factor	0.9847	0.9847	0.9847	
P_g	Static pressure (in. H_2O)	-11.4000	-11.5000	-11.0000	
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	
P_{bar}	Barometric pressure (in. Hg)	30.20	30.20	30.20	**30.2000**
O_2	Oxygen (dry volume %)	10.1300	9.0800	9.1600	**9.4567**
CO_2	Carbon dioxide (dry volume %)	9.4200	10.3400	10.3400	**10.0333**
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.4500	80.5800	80.5000	**80.5100**
V_{lc}	Total Liquid collected (ml)	238.20	241.30	233.00	
V_m	Volume metered, meter conditions (ft^3)	41.6150	42.2450	41.9050	
T_m	Dry gas meter temperature (°F)	74.8750	87.6250	89.4583	
T_s	Sample temperature (°F)	307.6667	307.3333	306.1667	**307.0556**
ΔH	Meter box orifice pressure drop (in. H_2O)	1.5000	1.5000	1.5000	
θ	Total sampling time (min)	60.0	60.0	60.0	
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	11.2097	11.3556	10.9650	**11.1768**
V_{mstd}	Volume metered, standard (dscf)	40.9629	40.6148	40.1535	**40.5771**
P_s	Sample gas pressure, absolute (in. Hg)	29.3618	29.3544	29.3912	**29.3691**
P_v	Vapor pressure, actual (in. Hg)	29.3618	29.3544	29.3912	**29.3691**
B_{wo}	Moisture measured in sample (% by volume)	21.4858	21.8501	21.4501	**21.5953**
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	**100.0000**
B_w	Actual water vapor in gas (% by volume)	21.4858	21.8501	21.4501	**21.5953**
M_d	MW of sample gas, dry (lb/lb-mole)	29.9124	30.0176	30.0208	**29.9836**
M_s	MW of sample gas, wet (lb/lb-mole)	27.3529	27.3917	27.4423	**27.3957**

Comments:

Average includes 3 runs.

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Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 1 FF Outlet

USEPA Method 13B (Total Fluorides)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2011)		Mar 22	Mar 22	Mar 22	
Start Time (approx.)		12:31	14:08	15:39	
Stop Time (approx.)		13:41	15:17	16:47	
Sampling Conditions					
Y_d	Dry gas meter correction factor	0.9983	0.9983	0.9983	
C_p	Pitot tube coefficient	0.8180	0.8180	0.8180	
P_g	Static pressure (in. H_2O)	-11.0000	-11.0000	-11.2000	
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	
P_{bar}	Barometric pressure (in. Hg)	30.20	30.20	30.20	**30.2000**
D_n	Nozzle diameter (in.)	0.2710	0.2710	0.2710	
O_2	Oxygen (dry volume %)	9.6100	9.7000	10.2500	**9.8533**
CO_2	Carbon dioxide (dry volume %)	10.0000	9.9300	9.6000	**9.8433**
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.3900	80.3700	80.1500	**80.3033**
V_{lc}	Total Liquid collected (ml)	213.30	229.00	225.60	
V_m	Volume metered, meter conditions (ft^3)	38.6850	41.4000	42.3950	
T_m	Dry gas meter temperature (°F)	91.0400	97.8600	99.9000	
T_s	Sample temperature (°F)	301.2400	300.6000	305.2800	**302.3733**
ΔH	Meter box orifice pressure drop (in. H_2O)	1.2068	1.3676	1.4344	
θ	Total sampling time (min)	62.5	62.5	62.5	
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	10.0379	10.7767	10.6167	**10.4771**
V_{mstd}	Volume metered, standard (dscf)	37.4456	39.5991	40.4096	**39.1514**
P_s	Sample gas pressure, absolute (in. Hg)	29.3912	29.3912	29.3765	**29.3863**
P_v	Vapor pressure, actual (in. Hg)	29.3912	29.3912	29.3765	**29.3863**
B_{wo}	Moisture measured in sample (% by volume)	21.1398	21.3927	20.8064	**21.1129**
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	**100.0000**
B_w	Actual water vapor in gas (% by volume)	21.1398	21.3927	20.8064	**21.1129**
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.7054	0.7296	0.7487	**0.7279**
M_d	MW of sample gas, dry (lb/lb-mole)	29.9844	29.9768	29.9460	**29.9691**
M_s	MW of sample gas, wet (lb/lb-mole)	27.4509	27.4146	27.4605	**27.4420**
V_s	Velocity of sample (ft/sec)	47.9127	49.5713	50.9981	**49.4941**
%I	Isokinetic sampling (%)	96.8906	99.2698	98.3891	**98.1832**
Q_a	Volumetric flow rate, actual (acfm)	183,985	190,354	195,833	**190,057**
Q_s	Volumetric flow rate, standard (scfm)	125,357	129,806	132,659	**129,274**
Q_{std}	Volumetric flow rate, dry standard (dscfm)	98,857	102,037	105,058	**101,984**
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	80,295	82,217	80,494	**81,002**
Q_a	Volumetric flow rate, actual (acf/hr)	11,039,096	11,421,226	11,749,972	**11,403,431**
Q_s	Volumetric flow rate, standard (scf/hr)	7,521,444	7,788,355	7,959,548	**7,756,449**
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,931,427	6,122,217	6,303,455	**6,119,033**
Q_a	Volumetric flow rate, actual (m^3/hr)	312,634	323,456	332,766	**322,952**
Q_s	Volumetric flow rate, standard (m^3/hr)	213,012	220,571	225,419	**219,667**
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	167,982	173,385	178,518	**173,295**
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	136,440	139,706	136,778	**137,641**
Q_s	Volumetric flow rate, normal (Nm^3/hr)	198,488	205,532	210,050	**204,690**
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	156,528	161,563	166,346	**161,479**
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	127,137	130,180	127,452	**128,256**

Comments:
Average includes 3 runs.

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Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	1				
Date (2011)	Mar 23				
Start Time	7:12				
End Time	7:39				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.52	10.90	10.84	153.54	14.90
Concentration (ppmdv)		108977.85	10.84	153.54	14.90
Concentration (lb/dscf)		1.245E-02	1.803E-06	1.833E-05	1.083E-06
Concentration (lb/scf)		9.805E-03	1.420E-06	1.444E-05	8.532E-07
Concentration (lb/acf)		6.627E-03	9.597E-07	9.760E-06	5.767E-07
Concentration (%dv)	8.520	10.898	0.0011	0.015	0.0015
Concentration (mg/dscm)		199333.23	28.87	293.59	17.35
Concentration (mg/scm)		157014.24	22.74	231.26	13.66
Concentration (mg/acm)		106119.63	15.37	156.30	9.23
Concentration (mg/Nm3)		213918.59	30.98	315.07	18.62
Concentration @7%O2 (ppm)		122361.06	12.17	172.40	16.73
Concentration @12%CO2 (ppm)		120000.00	11.94	169.07	16.41
Concentration @7%O2 (lb/scf)		1.398E-02	2.024E-06	2.058E-05	1.216E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	1.985E-06	2.019E-05	1.193E-06
Concentration @7%O2 (%v)		12.236	0.001	0.017	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.017	0.002
Concentration @7%O2 (mg/scm)		223812.69	32.41	329.64	19.48
Concentration @12%CO2 (mg/scm)		219494.04	31.79	323.28	19.10
Concentration @7%O2 (mg/Nm3)		240189.22	34.78	353.76	20.90
Concentration @12%CO2 (mg/Nm3)		235554.58	34.11	346.93	20.50
Mass Rate (lb/hr)		64754.85	9.38	95.37	5.64

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	2				
Date (2011)	Mar 23				
Start Time	7:48				
End Time	8:15				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.60	10.75	6.28	155.79	10.61
Concentration (ppmdv)		107544.95	6.28	155.79	10.61
Concentration (lb/dscf)		1.228E-02	1.044E-06	1.860E-05	7.713E-07
Concentration (lb/scf)		9.676E-03	8.220E-07	1.465E-05	6.075E-07
Concentration (lb/acf)		6.526E-03	5.544E-07	9.883E-06	4.098E-07
Concentration (%dv)	8.602	10.754	0.0006	0.016	0.0011
Concentration (mg/dscm)		196712.29	16.71	297.87	12.35
Concentration (mg/scm)		154949.73	13.16	234.63	9.73
Concentration (mg/acm)		104512.50	8.88	158.26	6.56
Concentration (mg/Nm3)		211105.87	17.93	319.67	13.25
Concentration @7%O2 (ppm)		121557.44	7.09	176.08	11.99
Concentration @12%CO2 (ppm)		120000.00	7.00	173.83	11.84
Concentration @7%O2 (lb/scf)		1.388E-02	1.179E-06	2.102E-05	8.718E-07
Concentration @12%CO2 (lb/scf)		1.371E-02	1.164E-06	2.076E-05	8.606E-07
Concentration @7%O2 (%v)		12.156	0.001	0.018	0.001
Concentration @12%CO2 (%v)		12.000	0.001	0.017	0.001
Concentration @7%O2 (mg/scm)		222342.78	18.89	336.68	13.96
Concentration @12%CO2 (mg/scm)		219494.04	18.65	332.37	13.78
Concentration @7%O2 (mg/Nm3)		238611.77	20.27	361.32	14.98
Concentration @12%CO2 (mg/Nm3)		235554.58	20.01	356.69	14.79
Mass Rate (lb/hr)		65292.83	5.55	98.87	4.10

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	3				
Date (2011)	Mar 23				
Start Time	8:37				
End Time	9:04				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.88	10.50	7.78	156.79	15.78
Concentration (ppmdv)		104972.52	7.78	156.79	15.78
Concentration (lb/dscf)		1.199E-02	1.294E-06	1.872E-05	1.147E-06
Concentration (lb/scf)		9.541E-03	1.030E-06	1.490E-05	9.128E-07
Concentration (lb/acf)		6.418E-03	6.927E-07	1.002E-05	6.140E-07
Concentration (%dv)	8.879	10.497	0.0008	0.016	0.0016
Concentration (mg/dscm)		192007.02	20.72	299.80	18.37
Concentration (mg/scm)		152792.24	16.49	238.57	14.62
Concentration (mg/acm)		102774.97	11.09	160.47	9.83
Concentration (mg/Nm3)		206056.31	22.24	321.74	19.71
Concentration @7%O2 (ppm)		121377.06	9.00	181.30	18.24
Concentration @12%CO2 (ppm)		120000.00	8.90	179.24	18.04
Concentration @7%O2 (lb/scf)		1.386E-02	1.496E-06	2.165E-05	1.326E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	1.479E-06	2.140E-05	1.311E-06
Concentration @7%O2 (%v)		12.138	0.001	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.018	0.002
Concentration @7%O2 (mg/scm)		222012.85	23.96	346.65	21.24
Concentration @12%CO2 (mg/scm)		219494.04	23.69	342.72	21.00
Concentration @7%O2 (mg/Nm3)		238257.69	25.72	372.01	22.79
Concentration @12%CO2 (mg/Nm3)		235554.58	25.42	367.79	22.53
Mass Rate (lb/hr)		63013.72	6.80	98.39	6.03

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	4				
Date (2011)	Mar 23				
Start Time	9:15				
End Time	9:42				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.19	10.20	13.31	151.52	12.69
Concentration (ppmdv)		101956.12	13.31	151.52	12.69
Concentration (lb/dscf)		1.165E-02	2.212E-06	1.809E-05	9.222E-07
Concentration (lb/scf)		9.267E-03	1.761E-06	1.440E-05	7.339E-07
Concentration (lb/acf)		6.238E-03	1.185E-06	9.690E-06	4.940E-07
Concentration (%dv)	9.190	10.196	0.0013	0.015	0.0013
Concentration (mg/dscm)		186489.66	35.43	289.71	14.77
Concentration (mg/scm)		148401.73	28.19	230.54	11.75
Concentration (mg/acm)		99889.95	18.98	155.18	7.91
Concentration (mg/Nm3)		200135.25	38.02	310.91	15.85
Concentration @7%O2 (ppm)		121025.63	15.80	179.86	15.06
Concentration @12%CO2 (ppm)		120000.00	15.66	178.33	14.93
Concentration @7%O2 (lb/scf)		1.382E-02	2.626E-06	2.148E-05	1.095E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.604E-06	2.129E-05	1.085E-06
Concentration @7%O2 (%v)		12.103	0.002	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.018	0.001
Concentration @7%O2 (mg/scm)		221370.03	42.06	343.90	17.53
Concentration @12%CO2 (mg/scm)		219494.04	41.70	340.98	17.38
Concentration @7%O2 (mg/Nm3)		237567.84	45.13	369.06	18.81
Concentration @12%CO2 (mg/Nm3)		235554.58	44.75	365.93	18.65
Mass Rate (lb/hr)		61198.56	11.63	95.07	4.85

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	5				
Date (2011)	Mar 23				
Start Time	9:59				
End Time	10:26				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.59	10.69	6.46	146.51	16.88
Concentration (ppmdv)		106915.08	6.46	146.51	16.88
Concentration (lb/dscf)		1.221E-02	1.074E-06	1.749E-05	1.227E-06
Concentration (lb/scf)		9.614E-03	8.457E-07	1.377E-05	9.661E-07
Concentration (lb/acf)		6.483E-03	5.703E-07	9.286E-06	6.515E-07
Concentration (%dv)	8.588	10.692	0.0006	0.015	0.0017
Concentration (mg/dscm)		195560.19	17.20	280.13	19.65
Concentration (mg/scm)		153948.51	13.54	220.52	15.47
Concentration (mg/acm)		103813.48	9.13	148.71	10.43
Concentration (mg/Nm3)		209869.48	18.46	300.63	21.09
Concentration @7%O2 (ppm)		120704.96	7.29	165.40	19.06
Concentration @12%CO2 (ppm)		120000.00	7.25	164.44	18.95
Concentration @7%O2 (lb/scf)		1.379E-02	1.213E-06	1.975E-05	1.386E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	1.206E-06	1.963E-05	1.377E-06
Concentration @7%O2 (%v)		12.070	0.001	0.017	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.016	0.002
Concentration @7%O2 (mg/scm)		220783.49	19.42	316.26	22.19
Concentration @12%CO2 (mg/scm)		219494.04	19.31	314.41	22.06
Concentration @7%O2 (mg/Nm3)		236938.38	20.84	339.40	23.81
Concentration @12%CO2 (mg/Nm3)		235554.58	20.72	337.42	23.67
Mass Rate (lb/hr)		63359.86	5.57	90.76	6.37

Wheelabrator North Broward
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FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	6				
Date (2011)	Mar 23				
Start Time	10:35				
End Time	11:02				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.67	10.55	6.31	152.09	12.44
Concentration (ppmdv)		105473.09	6.31	152.09	12.44
Concentration (lb/dscf)		1.205E-02	1.049E-06	1.816E-05	9.041E-07
Concentration (lb/scf)		9.484E-03	8.254E-07	1.430E-05	7.117E-07
Concentration (lb/acf)		6.392E-03	5.563E-07	9.635E-06	4.797E-07
Concentration (%dv)	8.670	10.547	0.0006	0.015	0.0012
Concentration (mg/dscm)		192922.63	16.79	290.80	14.48
Concentration (mg/scm)		151872.17	13.22	228.92	11.40
Concentration (mg/acm)		102356.67	8.91	154.29	7.68
Concentration (mg/Nm3)		207038.92	18.02	312.08	15.54
Concentration @7%O2 (ppm)		119876.76	7.17	172.86	14.13
Concentration @12%CO2 (ppm)		120000.00	7.18	173.04	14.15
Concentration @7%O2 (lb/scf)		1.369E-02	1.192E-06	2.064E-05	1.028E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	1.193E-06	2.066E-05	1.029E-06
Concentration @7%O2 (%v)		11.988	0.001	0.017	0.001
Concentration @12%CO2 (%v)		12.000	0.001	0.017	0.001
Concentration @7%O2 (mg/scm)		219268.63	19.08	330.51	16.45
Concentration @12%CO2 (mg/scm)		219494.04	19.10	330.85	16.47
Concentration @7%O2 (mg/Nm3)		235312.67	20.48	354.70	17.66
Concentration @12%CO2 (mg/Nm3)		235554.58	20.50	355.06	17.68
Mass Rate (lb/hr)		63064.69	5.49	95.06	4.73

Wheelabrator North Broward
Clean Air Project No. 11182
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FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2011)	Mar 23				
Start Time	11:29				
End Time	11:56				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.02	10.22	7.98	147.51	11.65
Concentration (ppmdv)		102158.41	7.98	147.51	11.65
Concentration (lb/dscf)		1.167E-02	1.327E-06	1.761E-05	8.468E-07
Concentration (lb/scf)		9.224E-03	1.049E-06	1.392E-05	6.694E-07
Concentration (lb/acf)		6.219E-03	7.071E-07	9.387E-06	4.513E-07
Concentration (%dv)	9.015	10.216	0.0008	0.015	0.0012
Concentration (mg/dscm)		186859.68	21.25	282.05	13.56
Concentration (mg/scm)		147713.39	16.80	222.96	10.72
Concentration (mg/acm)		99583.93	11.32	150.32	7.23
Concentration (mg/Nm3)		200532.34	22.80	302.69	14.55
Concentration @7%O2 (ppm)		119478.66	9.33	172.52	13.62
Concentration @12%CO2 (ppm)		120000.00	9.37	173.28	13.68
Concentration @7%O2 (lb/scf)		1.365E-02	1.552E-06	2.060E-05	9.903E-07
Concentration @12%CO2 (lb/scf)		1.371E-02	1.558E-06	2.069E-05	9.947E-07
Concentration @7%O2 (%v)		11.948	0.001	0.017	0.001
Concentration @12%CO2 (%v)		12.000	0.001	0.017	0.001
Concentration @7%O2 (mg/scm)		218540.45	24.85	329.87	15.86
Concentration @12%CO2 (mg/scm)		219494.04	24.96	331.31	15.93
Concentration @7%O2 (mg/Nm3)		234531.21	26.67	354.01	17.02
Concentration @12%CO2 (mg/Nm3)		235554.58	26.78	355.55	17.09
Mass Rate (lb/hr)		62687.51	7.13	94.62	4.55

Wheelabrator North Broward
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FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	8				
Date (2011)	Mar 23				
Start Time	12:06				
End Time	12:33				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.09	10.28	5.89	145.68	16.34
Concentration (ppmdv)		102833.67	5.89	145.68	16.34
Concentration (lb/dscf)		1.175E-02	9.785E-07	1.739E-05	1.188E-06
Concentration (lb/scf)		9.285E-03	7.735E-07	1.375E-05	9.389E-07
Concentration (lb/acf)		6.245E-03	5.203E-07	9.248E-06	6.315E-07
Concentration (%dv)	9.087	10.283	0.0006	0.015	0.0016
Concentration (mg/dscm)		188094.81	15.67	278.54	19.02
Concentration (mg/scm)		148689.76	12.39	220.19	15.04
Concentration (mg/acm)		100009.59	8.33	148.10	10.11
Concentration (mg/Nm3)		201857.84	16.82	298.92	20.41
Concentration @7%O2 (ppm)		121001.80	6.92	171.41	19.22
Concentration @12%CO2 (ppm)		120000.00	6.87	169.99	19.07
Concentration @7%O2 (lb/scf)		1.382E-02	1.151E-06	2.047E-05	1.398E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	1.142E-06	2.030E-05	1.386E-06
Concentration @7%O2 (%v)		12.100	0.001	0.017	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.017	0.002
Concentration @7%O2 (mg/scm)		221326.45	18.44	327.75	22.38
Concentration @12%CO2 (mg/scm)		219494.04	18.28	325.04	22.20
Concentration @7%O2 (mg/Nm3)		237521.07	19.79	351.73	24.02
Concentration @12%CO2 (mg/Nm3)		235554.58	19.62	348.82	23.82
Mass Rate (lb/hr)		64836.37	5.40	96.01	6.56

Wheelabrator North Broward
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FF Outlet 2

Continuous Emissions Monitoring Parameters

Run Number	9				
Date (2011)	Mar 23				
Start Time	13:07				
End Time	13:34				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.10	10.25	10.13	148.47	17.70
Concentration (ppmdv)		102521.21	10.13	148.47	17.70
Concentration (lb/dscf)		1.171E-02	1.684E-06	1.773E-05	1.287E-06
Concentration (lb/scf)		9.150E-03	1.316E-06	1.385E-05	1.006E-06
Concentration (lb/acf)		6.162E-03	8.860E-07	9.328E-06	6.771E-07
Concentration (%dv)	9.104	10.252	0.0010	0.015	0.0018
Concentration (mg/dscm)		187523.29	26.97	283.89	20.61
Concentration (mg/scm)		146527.67	21.07	221.83	16.10
Concentration (mg/acm)		98669.16	14.19	149.37	10.84
Concentration (mg/Nm3)		201244.50	28.94	304.66	22.12
Concentration @7%O2 (ppm)		120807.62	11.93	174.96	20.86
Concentration @12%CO2 (ppm)		120000.00	11.85	173.79	20.72
Concentration @7%O2 (lb/scf)		1.380E-02	1.984E-06	2.089E-05	1.516E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	1.971E-06	2.075E-05	1.506E-06
Concentration @7%O2 (%v)		12.081	0.001	0.017	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.017	0.002
Concentration @7%O2 (mg/scm)		220971.26	31.77	334.53	24.28
Concentration @12%CO2 (mg/scm)		219494.04	31.56	332.29	24.12
Concentration @7%O2 (mg/Nm3)		237139.89	34.10	359.00	26.06
Concentration @12%CO2 (mg/Nm3)		235554.58	33.87	356.60	25.89
Mass Rate (lb/hr)		64193.29	9.23	97.18	7.05

Wheelabrator North Broward
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Continuous Emissions Monitoring Parameters

Run Number	10				
Date (2011)	Mar 23				
Start Time	13:44				
End Time	14:11				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.84	10.44	14.23	152.69	14.83
Concentration (ppmdv)		104419.34	14.23	152.69	14.83
Concentration (lb/dscf)		1.193E-02	2.366E-06	1.823E-05	1.078E-06
Concentration (lb/scf)		9.320E-03	1.849E-06	1.425E-05	8.425E-07
Concentration (lb/acf)		6.273E-03	1.245E-06	9.589E-06	5.671E-07
Concentration (%dv)	8.839	10.442	0.0014	0.015	0.0015
Concentration (mg/dscm)		190995.20	37.89	291.95	17.27
Concentration (mg/scm)		149240.56	29.61	228.13	13.49
Concentration (mg/acm)		100459.36	19.93	153.56	9.08
Concentration (mg/Nm3)		204970.46	40.66	313.32	18.53
Concentration @7%O2 (ppm)		120339.12	16.40	175.97	17.09
Concentration @12%CO2 (ppm)		120000.00	16.35	175.47	17.04
Concentration @7%O2 (lb/scf)		1.375E-02	2.727E-06	2.101E-05	1.243E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.719E-06	2.095E-05	1.239E-06
Concentration @7%O2 (%v)		12.034	0.002	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.002	0.018	0.002
Concentration @7%O2 (mg/scm)		220114.33	43.67	336.46	19.90
Concentration @12%CO2 (mg/scm)		219494.04	43.54	335.52	19.84
Concentration @7%O2 (mg/Nm3)		236220.25	46.86	361.08	21.35
Concentration @12%CO2 (mg/Nm3)		235554.58	46.73	360.07	21.29
Mass Rate (lb/hr)		65398.87	12.97	99.97	5.91

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 2 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	4
Date (2011)		Mar 23	Mar 23	Mar 23	Mar 23
Start Time (approx.)		07:22	07:50	08:40	09:20
Stop Time (approx.)		07:35	08:00	08:50	09:28
Sampling Conditions					
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-9.9000	-10.5000	-11.8000	-11.3000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.10	30.10	30.10	30.10
O_2	Oxygen (dry volume %)	8.5203	8.6023	8.8786	9.1902
CO_2	Carbon dioxide (dry volume %)	10.8978	10.7545	10.4973	10.1956
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.5819	80.6432	80.6241	80.6142
T_s	Sample temperature (°F)	306.9200	307.3200	306.9200	307.3600
Flow Results					
P_s	Sample gas pressure, absolute (in. Hg)	29.3721	29.3279	29.2324	29.2691
P_v	Vapor pressure, actual (in. Hg)	29.3721	29.3279	29.2324	29.2691
B_{wo}	Moisture measured in sample (% by volume)	21.2303	21.2303	20.4236	20.4236
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	21.2303	21.2303	20.4236	20.4236
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.6234	0.6374	0.6255	0.6249
M_d	MW of sample gas, dry (lb/lb-mole)	30.0845	30.0648	30.0347	29.9989
M_s	MW of sample gas, wet (lb/lb-mole)	27.5189	27.5034	27.5768	27.5483
V_s	Velocity of sample (ft/sec)	42.4115	43.4214	42.6142	42.5820
V_s	Velocity of sample (ft/min)	2544.6876	2605.2845	2556.8523	2554.9202
Q_a	Volumetric flow rate, actual (acfm)	162,860	166,738	163,639	163,515
Q_s	Volumetric flow rate, standard (scfm)	110,071	112,464	110,071	110,063
Q_{std}	Volumetric flow rate, dry standard (dscfm)	86,702	88,587	87,590	87,584
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	77,219	78,375	75,752	73,784
Q_a	Volumetric flow rate, actual (acf/hr)	9,771,600	10,004,292	9,818,313	9,810,893
Q_s	Volumetric flow rate, standard (scf/hr)	6,604,233	6,747,824	6,604,241	6,603,761
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,202,136	5,315,243	5,255,416	5,255,035
Q_a	Volumetric flow rate, actual (m^3/hr)	276,737	283,327	278,060	277,850
Q_s	Volumetric flow rate, standard (m^3/hr)	187,036	191,102	187,036	187,022
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	147,328	150,531	148,836	148,826
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	131,214	133,178	128,721	125,376
Q_s	Volumetric flow rate, normal (Nm^3/hr)	174,283	178,073	174,284	174,271
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	137,282	140,267	138,689	138,678
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	122,267	124,098	119,944	116,827

Comments:
Average includes 4 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 2 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		5	6	7
Date (2011)		Mar 23	Mar 23	Mar 23
Start Time (approx.)		10:05	10:36	11:36
Stop Time (approx.)		10:15	10:47	11:45
Sampling Conditions				
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-10.3000	-10.5000	-10.4000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.10	30.10	30.10
O_2	Oxygen (dry volume %)	8.5025	8.5859	9.0150
CO_2	Carbon dioxide (dry volume %)	10.7115	10.5667	10.2158
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.7860	80.8474	80.7691
T_s	Sample temperature (°F)	307.8800	307.9200	307.8800
Flow Results				
P_s	Sample gas pressure, absolute (in. Hg)	29.3426	29.3279	29.3353
P_v	Vapor pressure, actual (in. Hg)	29.3426	29.3279	29.3353
B_{wo}	Moisture measured in sample (% by volume)	21.2782	21.2782	20.9496
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	21.2782	21.2782	20.9496
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.6225	0.6280	0.6419
M_d	MW of sample gas, dry (lb/lb-mole)	30.0539	30.0341	29.9951
M_s	MW of sample gas, wet (lb/lb-mole)	27.4891	27.4735	27.4822
V_s	Velocity of sample (ft/sec)	42.4196	42.8230	43.7521
V_s	Velocity of sample (ft/min)	2545.1789	2569.3780	2625.1230
Q_a	Volumetric flow rate, actual (acfm)	162,891	164,440	168,008
Q_s	Volumetric flow rate, standard (scfm)	109,844	110,827	113,266
Q_{std}	Volumetric flow rate, dry standard (dscfm)	86,471	87,245	89,537
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	77,124	77,291	76,557
Q_a	Volumetric flow rate, actual (acf/hr)	9,773,487	9,866,412	10,080,472
Q_s	Volumetric flow rate, standard (scf/hr)	6,590,643	6,649,625	6,795,952
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,188,273	5,234,705	5,372,230
Q_a	Volumetric flow rate, actual (m^3/hr)	276,791	279,423	285,485
Q_s	Volumetric flow rate, standard (m^3/hr)	186,651	188,321	192,465
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	146,935	148,250	152,145
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	131,052	131,335	130,089
Q_s	Volumetric flow rate, normal (Nm^3/hr)	173,925	175,481	179,343
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	136,917	138,142	141,771
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	122,116	122,380	121,219

Comments:

Average includes 3 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 2 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		8	9	10
Date (2011)		Mar 23	Mar 23	Mar 23
Start Time (approx.)		12:12	13:10	13:50
Stop Time (approx.)		12:20	13:21	14:00
Sampling Conditions				
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-10.6000	-10.7000	-10.7000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.10	30.10	30.10
O_2	Oxygen (dry volume %)	9.0871	9.1040	8.8388
CO_2	Carbon dioxide (dry volume %)	10.2834	10.2521	10.4419
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.6296	80.6439	80.7192
T_s	Sample temperature (°F)	309.2800	308.2000	308.4800
Flow Results				
P_s	Sample gas pressure, absolute (in. Hg)	29.3206	29.3132	29.3132
P_v	Vapor pressure, actual (in. Hg)	29.3206	29.3132	29.3132
B_{wo}	Moisture measured in sample (% by volume)	20.9496	21.8616	21.8616
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	20.9496	21.8616	21.8616
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.6604	0.6617	0.6622
M_d	MW of sample gas, dry (lb/lb-mole)	30.0088	30.0045	30.0243
M_s	MW of sample gas, wet (lb/lb-mole)	27.4930	27.3801	27.3956
V_s	Velocity of sample (ft/sec)	45.0592	45.2184	45.2467
V_s	Velocity of sample (ft/min)	2703.5533	2713.1021	2714.7996
Q_a	Volumetric flow rate, actual (acfm)	173,027	173,639	173,747
Q_s	Volumetric flow rate, standard (scfm)	116,379	116,925	116,956
Q_{std}	Volumetric flow rate, dry standard (dscfm)	91,998	91,363	91,387
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	78,185	77,534	79,298
Q_a	Volumetric flow rate, actual (acf/hr)	10,381,645	10,418,312	10,424,831
Q_s	Volumetric flow rate, standard (scf/hr)	6,982,754	7,015,508	7,017,340
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,519,897	5,481,805	5,483,236
Q_a	Volumetric flow rate, actual (m^3/hr)	294,014	295,053	295,237
Q_s	Volumetric flow rate, standard (m^3/hr)	197,756	198,683	198,735
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	156,327	155,248	155,288
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	132,855	131,748	134,745
Q_s	Volumetric flow rate, normal (Nm^3/hr)	184,272	185,137	185,185
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	145,668	144,663	144,701
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	123,796	122,766	125,558

Comments:

Average includes 3 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 2 FF Outlet

USEPA Method 26A (HCl)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2011)		Mar 23	Mar 23	Mar 23	
Start Time (approx.)		07:12	08:38	09:59	
Stop Time (approx.)		08:12	09:38	10:59	
Sampling Conditions					
Y_d	Dry gas meter correction factor	0.9936	0.9936	0.9936	
P_g	Static pressure (in. H_2O)	-9.9000	-11.8000	-11.3000	
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	
P_{bar}	Barometric pressure (in. Hg)	30.10	30.10	30.10	**30.1000**
O_2	Oxygen (dry volume %)	8.6000	8.9000	8.7000	**8.7333**
CO_2	Carbon dioxide (dry volume %)	10.5800	10.4300	10.5600	**10.5233**
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.8200	80.6700	80.7400	**80.7433**
V_{lc}	Total Liquid collected (ml)	237.10	221.00	231.00	
V_m	Volume metered, meter conditions (ft^3)	42.2100	41.8650	41.7850	
T_m	Dry gas meter temperature (°F)	79.8750	87.0417	90.1250	
T_s	Sample temperature (°F)	308.8333	308.0000	308.5000	**308.4444**
ΔH	Meter box orifice pressure drop (in. H_2O)	1.5000	1.5000	1.5000	
θ	Total sampling time (min)	60.0	60.0	60.0	
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	11.1579	10.4003	10.8709	**10.8097**
V_{mstd}	Volume metered, standard (dscf)	41.3988	40.5225	40.2183	**40.7132**
P_s	Sample gas pressure, absolute (in. Hg)	29.3721	29.2324	29.2691	**29.2912**
P_v	Vapor pressure, actual (in. Hg)	29.3721	29.2324	29.2691	**29.2912**
B_{wo}	Moisture measured in sample (% by volume)	21.2303	20.4236	21.2782	**20.9774**
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	**100.0000**
B_w	Actual water vapor in gas (% by volume)	21.2303	20.4236	21.2782	**20.9774**
M_d	MW of sample gas, dry (lb/lb-mole)	30.0368	30.0248	30.0376	**30.0331**
M_s	MW of sample gas, wet (lb/lb-mole)	27.4814	27.5689	27.4762	**27.5088**

Comments:

Average includes 3 runs.

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Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 2 FF Outlet

USEPA Method 13B (Total Fluorides)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2011)		Mar 23	Mar 23	Mar 23	
Start Time (approx.)		11:32	13:07	14:39	
Stop Time (approx.)		12:45	14:17	15:45	
Sampling Conditions					
Y_d	Dry gas meter correction factor	0.9837	0.9837	0.9837	
C_p	Pitot tube coefficient	0.8180	0.8180	0.8180	
P_g	Static pressure (in. H_2O)	-10.4000	-10.7000	-10.7000	
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	
P_{bar}	Barometric pressure (in. Hg)	30.10	30.10	30.10	**30.1000**
D_n	Nozzle diameter (in.)	0.2740	0.2740	0.2740	
O_2	Oxygen (dry volume %)	9.0500	9.1300	8.6000	**8.9267**
CO_2	Carbon dioxide (dry volume %)	10.4300	10.4600	11.0600	**10.6500**
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.5200	80.4100	80.3400	**80.4233**
V_{lc}	Total Liquid collected (ml)	204.90	225.10	217.90	
V_m	Volume metered, meter conditions (ft^3)	37.8900	39.3200	37.6350	
T_m	Dry gas meter temperature (°F)	85.4200	84.0400	81.8400	
T_s	Sample temperature (°F)	307.1200	307.0400	306.7200	**306.9600**
ΔH	Meter box orifice pressure drop (in. H_2O)	1.1344	1.2264	1.1192	
θ	Total sampling time (min)	62.5	62.5	62.5	
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	9.6426	10.5932	10.2544	**10.1634**
V_{mstd}	Volume metered, standard (dscf)	36.3851	37.8625	36.3776	**36.8751**
P_s	Sample gas pressure, absolute (in. Hg)	29.3353	29.3132	29.3132	**29.3206**
P_v	Vapor pressure, actual (in. Hg)	29.3353	29.3132	29.3132	**29.3206**
B_{wo}	Moisture measured in sample (% by volume)	20.9496	21.8616	21.9900	**21.6004**
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	**100.0000**
B_w	Actual water vapor in gas (% by volume)	20.9496	21.8616	21.9900	**21.6004**
$\sqrt{\Delta P}$	Velocity head ($\sqrt{in.}$ H_2O)	0.6537	0.6715	0.6417	**0.6556**
M_d	MW of sample gas, dry (lb/lb-mole)	30.0308	30.0388	30.1136	**30.0611**
M_s	MW of sample gas, wet (lb/lb-mole)	27.5104	27.4069	27.4498	**27.4557**
V_s	Velocity of sample (ft/sec)	44.5701	45.8866	43.8036	**44.7534**
%I	Isokinetic sampling (%)	99.7176	102.0320	102.8184	**101.5226**
Q_a	Volumetric flow rate, actual (acfm)	171,149	176,205	168,206	**171,853**
Q_s	Volumetric flow rate, standard (scfm)	115,498	118,833	113,485	**115,939**
Q_{std}	Volumetric flow rate, dry standard (dscfm)	91,302	92,854	88,530	**90,895**
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	77,836	78,625	78,339	**78,267**
Q_a	Volumetric flow rate, actual (acf/hr)	10,268,945	10,572,284	10,092,342	**10,311,191**
Q_s	Volumetric flow rate, standard (scf/hr)	6,929,874	7,129,957	6,809,124	**6,956,318**
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,478,095	5,571,233	5,311,798	**5,453,709**
Q_a	Volumetric flow rate, actual (m^3/hr)	290,823	299,413	285,821	**292,019**
Q_s	Volumetric flow rate, standard (m^3/hr)	196,258	201,925	192,838	**197,007**
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	155,143	157,781	150,433	**154,452**
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	132,262	133,603	133,117	**132,994**
Q_s	Volumetric flow rate, normal (Nm^3/hr)	182,877	188,157	179,690	**183,575**
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	144,565	147,023	140,176	**143,921**
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	123,244	124,493	124,041	**123,926**

Comments:
Average includes 3 runs.

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Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	1				
Date (2011)	Mar 24				
Start Time	7:00				
End Time	7:27				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.66	10.56	14.51	164.61	11.34
Concentration (ppmdv)		105576.01	14.51	164.61	11.34
Concentration (lb/dscf)		1.206E-02	2.413E-06	1.965E-05	8.243E-07
Concentration (lb/scf)		9.502E-03	1.901E-06	1.549E-05	6.496E-07
Concentration (lb/acf)		6.338E-03	1.268E-06	1.033E-05	4.333E-07
Concentration (%dv)	8.662	10.558	0.0015	0.016	0.0011
Concentration (mg/dscm)		193110.88	38.64	314.74	13.20
Concentration (mg/scm)		152167.14	30.45	248.01	10.40
Concentration (mg/acm)		101495.90	20.31	165.42	6.94
Concentration (mg/Nm3)		207240.94	41.47	337.77	14.17
Concentration @7%O2 (ppm)		119911.19	16.48	186.96	12.88
Concentration @12%CO2 (ppm)		120000.00	16.50	187.10	12.89
Concentration @7%O2 (lb/scf)		1.370E-02	2.741E-06	2.232E-05	9.363E-07
Concentration @12%CO2 (lb/scf)		1.371E-02	2.743E-06	2.234E-05	9.369E-07
Concentration @7%O2 (%v)		11.991	0.002	0.019	0.001
Concentration @12%CO2 (%v)		12.000	0.002	0.019	0.001
Concentration @7%O2 (mg/scm)		219331.60	43.89	357.48	14.99
Concentration @12%CO2 (mg/scm)		219494.04	43.92	357.74	15.00
Concentration @7%O2 (mg/Nm3)		235380.25	47.10	383.64	16.09
Concentration @12%CO2 (mg/Nm3)		235554.58	47.13	383.92	16.10
Mass Rate (lb/hr)		69925.97	13.99	113.97	4.78

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	2				
Date (2011)	Mar 24				
Start Time	7:39				
End Time	8:06				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.82	10.39	14.65	158.78	11.88
Concentration (ppmdv)		103905.04	14.65	158.78	11.88
Concentration (lb/dscf)		1.187E-02	2.436E-06	1.896E-05	8.640E-07
Concentration (lb/scf)		9.352E-03	1.920E-06	1.494E-05	6.808E-07
Concentration (lb/acf)		6.245E-03	1.282E-06	9.976E-06	4.546E-07
Concentration (%dv)	8.821	10.391	0.0015	0.016	0.0012
Concentration (mg/dscm)		190054.48	39.01	303.60	13.84
Concentration (mg/scm)		149758.76	30.74	239.23	10.90
Concentration (mg/acm)		100008.44	20.53	159.76	7.28
Concentration (mg/Nm3)		203960.91	41.87	325.81	14.85
Concentration @7%O2 (ppm)		119573.65	16.86	182.73	13.68
Concentration @12%CO2 (ppm)		120000.00	16.92	183.38	13.73
Concentration @7%O2 (lb/scf)		1.366E-02	2.804E-06	2.182E-05	9.942E-07
Concentration @12%CO2 (lb/scf)		1.371E-02	2.814E-06	2.190E-05	9.978E-07
Concentration @7%O2 (%v)		11.957	0.002	0.018	0.001
Concentration @12%CO2 (%v)		12.000	0.002	0.018	0.001
Concentration @7%O2 (mg/scm)		218714.20	44.90	349.38	15.92
Concentration @12%CO2 (mg/scm)		219494.04	45.06	350.63	15.98
Concentration @7%O2 (mg/Nm3)		234717.68	48.18	374.95	17.09
Concentration @12%CO2 (mg/Nm3)		235554.58	48.35	376.28	17.15
Mass Rate (lb/hr)		65757.19	13.50	105.04	4.79

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	3				
Date (2011)	Mar 24				
Start Time	8:24				
End Time	8:51				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.00	10.27	10.89	157.87	11.71
Concentration (ppmdv)		102682.75	10.89	157.87	11.71
Concentration (lb/dscf)		1.173E-02	1.811E-06	1.885E-05	8.512E-07
Concentration (lb/scf)		9.277E-03	1.433E-06	1.491E-05	6.733E-07
Concentration (lb/acf)		6.198E-03	9.572E-07	9.961E-06	4.498E-07
Concentration (%dv)	9.005	10.268	0.0011	0.016	0.0012
Concentration (mg/dscm)		187818.77	29.01	301.86	13.63
Concentration (mg/scm)		148563.61	22.94	238.77	10.78
Concentration (mg/acm)		99251.41	15.33	159.52	7.20
Concentration (mg/Nm3)		201561.60	31.13	323.95	14.63
Concentration @7%O2 (ppm)		119990.18	12.73	184.48	13.68
Concentration @12%CO2 (ppm)		120000.00	12.73	184.50	13.68
Concentration @7%O2 (lb/scf)		1.371E-02	2.117E-06	2.203E-05	9.947E-07
Concentration @12%CO2 (lb/scf)		1.371E-02	2.117E-06	2.203E-05	9.948E-07
Concentration @7%O2 (%v)		11.999	0.001	0.018	0.001
Concentration @12%CO2 (%v)		12.000	0.001	0.018	0.001
Concentration @7%O2 (mg/scm)		219476.08	33.90	352.74	15.93
Concentration @12%CO2 (mg/scm)		219494.04	33.90	352.77	15.93
Concentration @7%O2 (mg/Nm3)		235535.30	36.38	378.55	17.09
Concentration @12%CO2 (mg/Nm3)		235554.58	36.38	378.58	17.10
Mass Rate (lb/hr)		65265.74	10.08	104.89	4.74

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	4				
Date (2011)	Mar 24				
Start Time	9:02				
End Time	9:29				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.29	10.06	11.39	156.67	14.53
Concentration (ppmdv)		100628.73	11.39	156.67	14.53
Concentration (lb/dscf)		1.149E-02	1.893E-06	1.871E-05	1.056E-06
Concentration (lb/scf)		9.092E-03	1.498E-06	1.480E-05	8.353E-07
Concentration (lb/acf)		6.070E-03	9.997E-07	9.879E-06	5.576E-07
Concentration (%dv)	9.286	10.063	0.0011	0.016	0.0015
Concentration (mg/dscm)		184061.73	30.32	299.57	16.91
Concentration (mg/scm)		145591.81	23.98	236.96	13.38
Concentration (mg/acm)		97195.57	16.01	158.19	8.93
Concentration (mg/Nm3)		197529.66	32.54	321.49	18.15
Concentration @7%O2 (ppm)		120433.40	13.63	187.51	17.39
Concentration @12%CO2 (ppm)		120000.00	13.58	186.83	17.32
Concentration @7%O2 (lb/scf)		1.376E-02	2.266E-06	2.239E-05	1.264E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.258E-06	2.231E-05	1.259E-06
Concentration @7%O2 (%v)		12.043	0.001	0.019	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.019	0.002
Concentration @7%O2 (mg/scm)		220286.77	36.28	358.53	20.24
Concentration @12%CO2 (mg/scm)		219494.04	36.15	357.24	20.17
Concentration @7%O2 (mg/Nm3)		236405.31	38.94	384.76	21.72
Concentration @12%CO2 (mg/Nm3)		235554.58	38.80	383.38	21.64
Mass Rate (lb/hr)		65778.75	10.83	107.06	6.04

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	5				
Date (2011)	Mar 24				
Start Time	10:23				
End Time	10:50				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.56	9.77	4.86	153.23	13.84
Concentration (ppmdv)		97724.34	4.86	153.23	13.84
Concentration (lb/dscf)		1.116E-02	8.084E-07	1.830E-05	1.006E-06
Concentration (lb/scf)		8.796E-03	6.370E-07	1.442E-05	7.930E-07
Concentration (lb/acf)		5.867E-03	4.249E-07	9.616E-06	5.289E-07
Concentration (%dv)	9.563	9.772	0.0005	0.015	0.0014
Concentration (mg/dscm)		178749.25	12.94	292.99	16.11
Concentration (mg/scm)		140850.49	10.20	230.87	12.70
Concentration (mg/acm)		93947.67	6.80	153.99	8.47
Concentration (mg/Nm3)		191828.46	13.89	314.42	17.29
Concentration @7%O2 (ppm)		119816.01	5.96	187.87	16.97
Concentration @12%CO2 (ppm)		120000.00	5.97	188.16	17.00
Concentration @7%O2 (lb/scf)		1.369E-02	9.911E-07	2.243E-05	1.234E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	9.926E-07	2.247E-05	1.236E-06
Concentration @7%O2 (%v)		11.982	0.001	0.019	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.019	0.002
Concentration @7%O2 (mg/scm)		219157.49	15.87	359.22	19.76
Concentration @12%CO2 (mg/scm)		219494.04	15.90	359.77	19.79
Concentration @7%O2 (mg/Nm3)		235193.41	17.03	385.50	21.20
Concentration @12%CO2 (mg/Nm3)		235554.58	17.06	386.10	21.24
Mass Rate (lb/hr)		64725.58	4.69	106.09	5.84

Wheelabrator North Broward
Clean Air Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	6				
Date (2011)	Mar 24				
Start Time	11:02				
End Time	11:29				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.78	9.65	4.70	151.73	12.85
Concentration (ppmdv)		96454.91	4.70	151.73	12.85
Concentration (lb/dscf)		1.102E-02	7.818E-07	1.812E-05	9.345E-07
Concentration (lb/scf)		8.681E-03	6.160E-07	1.428E-05	7.363E-07
Concentration (lb/acf)		5.797E-03	4.114E-07	9.533E-06	4.917E-07
Concentration (%dv)	9.779	9.645	0.0005	0.015	0.0013
Concentration (mg/dscm)		176427.32	12.52	290.12	14.96
Concentration (mg/scm)		139020.86	9.86	228.61	11.79
Concentration (mg/acm)		92837.69	6.59	152.66	7.87
Concentration (mg/Nm3)		189336.63	13.43	311.35	16.06
Concentration @7%O2 (ppm)		120554.08	5.88	189.64	16.07
Concentration @12%CO2 (ppm)		120000.00	5.85	188.77	15.99
Concentration @7%O2 (lb/scf)		1.377E-02	9.771E-07	2.264E-05	1.168E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	9.726E-07	2.254E-05	1.163E-06
Concentration @7%O2 (%v)		12.055	0.001	0.019	0.002
Concentration @12%CO2 (%v)		12.000	0.001	0.019	0.002
Concentration @7%O2 (mg/scm)		220507.51	15.65	362.60	18.70
Concentration @12%CO2 (mg/scm)		219494.04	15.57	360.94	18.62
Concentration @7%O2 (mg/Nm3)		236642.21	16.79	389.14	20.07
Concentration @12%CO2 (mg/Nm3)		235554.58	16.71	387.35	19.98
Mass Rate (lb/hr)		61042.31	4.33	100.38	5.18

Wheelabrator North Broward
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FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2011)	Mar 24				
Start Time	11:42				
End Time	12:09				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	10.31	9.27	4.83	147.58	24.31
Concentration (ppmdv)		92694.86	4.83	147.58	24.31
Concentration (lb/dscf)		1.059E-02	8.036E-07	1.762E-05	1.767E-06
Concentration (lb/scf)		8.375E-03	6.356E-07	1.394E-05	1.398E-06
Concentration (lb/acf)		5.595E-03	4.247E-07	9.312E-06	9.340E-07
Concentration (%dv)	10.308	9.269	0.0005	0.015	0.0024
Concentration (mg/dscm)		169549.74	12.87	282.18	28.30
Concentration (mg/scm)		134112.90	10.18	223.20	22.39
Concentration (mg/acm)		89597.28	6.80	149.12	14.96
Concentration (mg/Nm3)		181955.82	13.81	302.83	30.37
Concentration @7%O2 (ppm)		121643.73	6.34	193.67	31.90
Concentration @12%CO2 (ppm)		120000.00	6.26	191.05	31.47
Concentration @7%O2 (lb/scf)		1.389E-02	1.055E-06	2.312E-05	2.319E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	1.040E-06	2.281E-05	2.288E-06
Concentration @7%O2 (%v)		12.164	0.001	0.019	0.003
Concentration @12%CO2 (%v)		12.000	0.001	0.019	0.003
Concentration @7%O2 (mg/scm)		222500.61	16.89	370.31	37.14
Concentration @12%CO2 (mg/scm)		219494.04	16.66	365.30	36.64
Concentration @7%O2 (mg/Nm3)		238781.14	18.12	397.40	39.86
Concentration @12%CO2 (mg/Nm3)		235554.58	17.88	392.03	39.32
Mass Rate (lb/hr)		58917.37	4.47	98.06	9.83

Wheelabrator North Broward
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FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	8				
Date (2011)	Mar 24				
Start Time	12:21				
End Time	12:48				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.92	9.55	2.46	145.57	19.15
Concentration (ppmdv)		95534.59	2.46	145.57	19.15
Concentration (lb/dscf)		1.091E-02	4.094E-07	1.738E-05	1.393E-06
Concentration (lb/scf)		8.632E-03	3.238E-07	1.375E-05	1.101E-06
Concentration (lb/acf)		5.762E-03	2.162E-07	9.178E-06	7.353E-07
Concentration (%dv)	9.919	9.553	0.0002	0.015	0.0019
Concentration (mg/dscm)		174743.94	6.56	278.34	22.30
Concentration (mg/scm)		138221.49	5.19	220.16	17.64
Concentration (mg/acm)		92275.22	3.46	146.98	11.78
Concentration (mg/Nm3)		187530.08	7.04	298.71	23.93
Concentration @7%O2 (ppm)		120933.73	3.12	184.27	24.25
Concentration @12%CO2 (ppm)		120000.00	3.09	182.85	24.06
Concentration @7%O2 (lb/scf)		1.381E-02	5.183E-07	2.200E-05	1.763E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	5.143E-07	2.183E-05	1.749E-06
Concentration @7%O2 (%v)		12.093	0.000	0.018	0.002
Concentration @12%CO2 (%v)		12.000	0.000	0.018	0.002
Concentration @7%O2 (mg/scm)		221201.94	8.30	352.34	28.23
Concentration @12%CO2 (mg/scm)		219494.04	8.24	349.62	28.01
Concentration @7%O2 (mg/Nm3)		237387.44	8.91	378.12	30.29
Concentration @12%CO2 (mg/Nm3)		235554.58	8.84	375.20	30.06
Mass Rate (lb/hr)		62448.82	2.34	99.47	7.97

Wheelabrator North Broward
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FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	9				
Date (2011)	Mar 24				
Start Time	13:12				
End Time	13:39				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.79	9.73	1.40	150.80	17.29
Concentration (ppmdv)		97273.19	1.40	150.80	17.29
Concentration (lb/dscf)		1.111E-02	2.334E-07	1.801E-05	1.257E-06
Concentration (lb/scf)		8.902E-03	1.870E-07	1.443E-05	1.007E-06
Concentration (lb/acf)		5.949E-03	1.250E-07	9.641E-06	6.732E-07
Concentration (%dv)	9.791	9.727	0.0001	0.015	0.0017
Concentration (mg/dscm)		177924.04	3.74	288.34	20.13
Concentration (mg/scm)		142560.59	3.00	231.03	16.13
Concentration (mg/acm)		95265.62	2.00	154.39	10.78
Concentration (mg/Nm3)		190942.88	4.01	309.44	21.61
Concentration @7%O2 (ppm)		121709.04	1.76	188.68	21.64
Concentration @12%CO2 (ppm)		120000.00	1.73	186.03	21.33
Concentration @7%O2 (lb/scf)		1.390E-02	2.921E-07	2.253E-05	1.573E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	2.880E-07	2.221E-05	1.551E-06
Concentration @7%O2 (%v)		12.171	0.000	0.019	0.002
Concentration @12%CO2 (%v)		12.000	0.000	0.019	0.002
Concentration @7%O2 (mg/scm)		222620.07	4.68	360.77	25.19
Concentration @12%CO2 (mg/scm)		219494.04	4.61	355.71	24.84
Concentration @7%O2 (mg/Nm3)		238909.35	5.02	387.17	27.03
Concentration @12%CO2 (mg/Nm3)		235554.58	4.95	381.74	26.65
Mass Rate (lb/hr)		69523.95	1.46	112.67	7.87

Wheelabrator North Broward
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FF Outlet 3

Continuous Emissions Monitoring Parameters

Run Number	10				
Date (2011)	Mar 24				
Start Time	13:51				
End Time	14:18				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.81	9.53	1.89	152.69	14.49
Concentration (ppmdv)		95266.62	1.89	152.69	14.49
Concentration (lb/dscf)		1.088E-02	3.140E-07	1.823E-05	1.053E-06
Concentration (lb/scf)		8.719E-03	2.516E-07	1.461E-05	8.437E-07
Concentration (lb/acf)		5.841E-03	1.685E-07	9.785E-06	5.652E-07
Concentration (%dv)	9.806	9.527	0.0002	0.015	0.0014
Concentration (mg/dscm)		174253.79	5.03	291.94	16.86
Concentration (mg/scm)		139619.82	4.03	233.92	13.51
Concentration (mg/acm)		93528.16	2.70	156.70	9.05
Concentration (mg/Nm3)		187004.06	5.40	313.30	18.10
Concentration @7%O2 (ppm)		119357.51	2.37	191.30	18.15
Concentration @12%CO2 (ppm)		120000.00	2.38	192.33	18.25
Concentration @7%O2 (lb/scf)		1.363E-02	3.934E-07	2.284E-05	1.319E-06
Concentration @12%CO2 (lb/scf)		1.371E-02	3.955E-07	2.296E-05	1.326E-06
Concentration @7%O2 (%v)		11.936	0.000	0.019	0.002
Concentration @12%CO2 (%v)		12.000	0.000	0.019	0.002
Concentration @7%O2 (mg/scm)		218318.85	6.30	365.77	21.13
Concentration @12%CO2 (mg/scm)		219494.04	6.33	367.74	21.24
Concentration @7%O2 (mg/Nm3)		234293.40	6.76	392.53	22.67
Concentration @12%CO2 (mg/Nm3)		235554.58	6.80	394.64	22.80
Mass Rate (lb/hr)		67326.44	1.94	112.80	6.52

Wheelabrator North Broward
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Continuous Emissions Monitoring Parameters

Run Number	11				
Date (2011)	Mar 24				
Start Time	14:38				
End Time	14:59				
Elapsed Time (hh:mm)	00:21				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.33	10.08			
Concentration (ppmdv)		100846.84			
Concentration (lb/dscf)		1.152E-02			
Concentration (lb/scf)		9.123E-03			
Concentration (lb/acf)		6.106E-03			
Concentration (%dv)	9.330	10.085			
Concentration (mg/dscm)		184460.66			
Concentration (mg/scm)		146093.23			
Concentration (mg/acm)		97783.31			
Concentration (mg/Nm3)		197957.78			
Concentration @7%O2 (ppm)		121154.70			
Concentration @12%CO2 (ppm)		120000.00			
Concentration @7%O2 (lb/scf)		1.384E-02			
Concentration @12%CO2 (lb/scf)		1.371E-02			
Concentration @7%O2 (%v)		12.115			
Concentration @12%CO2 (%v)		12.000			
Concentration @7%O2 (mg/scm)		221606.12			
Concentration @12%CO2 (mg/scm)		219494.04			
Concentration @7%O2 (mg/Nm3)		237821.20			
Concentration @12%CO2 (mg/Nm3)		235554.58			
Mass Rate (lb/hr)		67122.15			

Wheelabrator North Broward
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Continuous Emissions Monitoring Parameters

Run Number	12				
Date (2011)	Mar 24				
Start Time	15:09				
End Time	15:30				
Elapsed Time (hh:mm)	00:21				
Channel	1	2	3	4	5
Parameter	O2	CO2	SO2	NOX	CO
Location	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3	FF Outlet 3
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.10	10.25			
Concentration (ppmdv)		102454.47			
Concentration (lb/dscf)		1.170E-02			
Concentration (lb/scf)		9.269E-03			
Concentration (lb/acf)		6.191E-03			
Concentration (%dv)	9.101	10.245			
Concentration (mg/dscm)		187401.21			
Concentration (mg/scm)		148422.14			
Concentration (mg/acm)		99136.37			
Concentration (mg/Nm3)		201113.49			
Concentration @7%O2 (ppm)		120697.26			
Concentration @12%CO2 (ppm)		120000.00			
Concentration @7%O2 (lb/scf)		1.379E-02			
Concentration @12%CO2 (lb/scf)		1.371E-02			
Concentration @7%O2 (%v)		12.070			
Concentration @12%CO2 (%v)		12.000			
Concentration @7%O2 (mg/scm)		220769.41			
Concentration @12%CO2 (mg/scm)		219494.04			
Concentration @7%O2 (mg/Nm3)		236923.27			
Concentration @12%CO2 (mg/Nm3)		235554.58			
Mass Rate (lb/hr)		68727.76			

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 3 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	4
Date (2011)		Mar 24	Mar 24	Mar 24	Mar 24
Start Time (approx.)		06:59	07:45	08:26	09:02
Stop Time (approx.)		07:08	07:52	08:31	09:08
Sampling Conditions					
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-10.3000	-10.3000	-10.3000	-10.3000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.00	30.00	30.00	30.00
O_2	Oxygen (dry volume %)	8.6617	8.8214	9.0049	9.2858
CO_2	Carbon dioxide (dry volume %)	10.5576	10.3905	10.2683	10.0629
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.7807	80.7881	80.7268	80.6513
T_s	Sample temperature (°F)	313.6800	312.7600	312.4400	313.0000
Flow Results					
P_s	Sample gas pressure, absolute (in. Hg)	29.2426	29.2426	29.2426	29.2426
P_v	Vapor pressure, actual (in. Hg)	29.2426	29.2426	29.2426	29.2426
B_{wo}	Moisture measured in sample (% by volume)	21.2022	21.2022	20.9006	20.9006
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	21.2022	21.2022	20.9006	20.9006
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.6988	0.6671	0.6676	0.6866
M_d	MW of sample gas, dry (lb/lb-mole)	30.0357	30.0153	30.0031	29.9815
M_s	MW of sample gas, wet (lb/lb-mole)	27.4839	27.4678	27.4944	27.4773
V_s	Velocity of sample (ft/sec)	47.8847	45.6997	45.7041	47.0377
V_s	Velocity of sample (ft/min)	2873.0810	2741.9815	2742.2463	2822.2603
Q_a	Volumetric flow rate, actual (acfm)	183,877	175,487	175,504	180,625
Q_s	Volumetric flow rate, standard (scfm)	122,647	117,190	117,249	120,583
Q_{std}	Volumetric flow rate, dry standard (dscfm)	96,643	92,343	92,744	95,381
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	85,089	80,242	79,366	79,696
Q_a	Volumetric flow rate, actual (acf/hr)	11,032,631	10,529,209	10,530,226	10,837,479
Q_s	Volumetric flow rate, standard (scf/hr)	7,358,796	7,031,373	7,034,965	7,234,988
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,798,570	5,540,568	5,564,618	5,722,835
Q_a	Volumetric flow rate, actual (m^3/hr)	312,451	298,193	298,222	306,924
Q_s	Volumetric flow rate, standard (m^3/hr)	208,405	199,133	199,234	204,899
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	164,219	156,912	157,593	162,074
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	144,587	136,351	134,862	135,422
Q_s	Volumetric flow rate, normal (Nm^3/hr)	194,196	185,555	185,650	190,929
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	153,022	146,214	146,848	151,024
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	134,729	127,054	125,667	126,189

Comments:

Average includes 4 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 3 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		5	6	7	8
Date (2011)		Mar 24	Mar 24	Mar 24	Mar 24
Start Time (approx.)		10:25	11:15	11:48	12:20
Stop Time (approx.)		10:31	11:22	12:00	12:30
Sampling Conditions					
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-10.3000	-10.3000	-10.3000	-10.3000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.00	30.00	30.00	30.00
O_2	Oxygen (dry volume %)	9.5629	9.7787	10.3079	9.9194
CO_2	Carbon dioxide (dry volume %)	9.7724	9.6455	9.2695	9.5535
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.6647	80.5759	80.4226	80.5272
T_s	Sample temperature (°F)	313.6000	314.4000	312.6400	313.0400
Flow Results					
P_s	Sample gas pressure, absolute (in. Hg)	29.2426	29.2426	29.2426	29.2426
P_v	Vapor pressure, actual (in. Hg)	29.2426	29.2426	29.2426	29.2426
B_{wo}	Moisture measured in sample (% by volume)	20.5055	20.5055	20.6577	20.6577
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	20.5055	20.5055	20.6577	20.6577
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.6913	0.7355	0.7071	0.7443
M_d	MW of sample gas, dry (lb/lb-mole)	29.9461	29.9344	29.8954	29.9253
M_s	MW of sample gas, wet (lb/lb-mole)	27.4965	27.4872	27.4381	27.4618
V_s	Velocity of sample (ft/sec)	47.3630	50.4224	48.4626	51.0082
V_s	Velocity of sample (ft/min)	2841.7822	3025.3440	2907.7546	3060.4941
Q_a	Volumetric flow rate, actual (acfm)	181,874	193,622	186,096	195,872
Q_s	Volumetric flow rate, standard (scfm)	121,323	129,026	124,294	130,755
Q_{std}	Volumetric flow rate, dry standard (dscfm)	96,445	102,569	98,618	103,744
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	78,663	82,065	75,149	81,955
Q_a	Volumetric flow rate, actual (acf/hr)	10,912,443	11,617,321	11,165,778	11,752,297
Q_s	Volumetric flow rate, standard (scf/hr)	7,279,383	7,741,581	7,457,629	7,845,305
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	5,786,706	6,154,128	5,917,057	6,224,648
Q_a	Volumetric flow rate, actual (m^3/hr)	309,047	329,009	316,221	332,832
Q_s	Volumetric flow rate, standard (m^3/hr)	206,156	219,246	211,204	222,184
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	163,883	174,289	167,575	176,286
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	133,666	139,448	127,695	139,261
Q_s	Volumetric flow rate, normal (Nm^3/hr)	192,100	204,298	196,804	207,035
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	152,709	162,405	156,149	164,266
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	124,553	129,940	118,989	129,766

Comments:

Average includes 4 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 3 FF Outlet

USEPA Method 2 (Velocity & Flow Rate)
Sampling, Velocity and Moisture Parameters

Run No.		9	10	11	12
Date (2011)		Mar 24	Mar 24	Mar 24	Mar 24
Start Time (approx.)		13:12	13:47	14:46	15:11
Stop Time (approx.)		13:20	13:56	14:51	15:17
Sampling Conditions					
C_p	Pitot tube coefficient	0.8170	0.8170	0.8170	0.8170
P_g	Static pressure (in. H_2O)	-10.3000	-10.3000	-10.3000	-10.3000
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.00	30.00	30.00	30.00
O_2	Oxygen (dry volume %)	9.7907	9.8055	9.3299	9.1009
CO_2	Carbon dioxide (dry volume %)	9.7273	9.5267	10.0847	10.2454
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.4819	80.6678	80.5854	80.6536
T_s	Sample temperature (°F)	312.2400	310.3600	311.0000	312.6000
Flow Results					
P_s	Sample gas pressure, absolute (in. Hg)	29.2426	29.2426	29.2426	29.2426
P_v	Vapor pressure, actual (in. Hg)	29.2426	29.2426	29.2426	29.2426
B_{wo}	Moisture measured in sample (% by volume)	19.8756	19.8756	20.7998	20.7998
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	19.8756	19.8756	20.7998	20.7998
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.7421	0.7325	0.6975	0.7039
M_d	MW of sample gas, dry (lb/lb-mole)	29.9480	29.9165	29.9867	30.0033
M_s	MW of sample gas, wet (lb/lb-mole)	27.5733	27.5480	27.4935	27.5066
V_s	Velocity of sample (ft/sec)	50.7230	50.0322	47.7098	48.1843
V_s	Velocity of sample (ft/min)	3043.3796	3001.9343	2862.5892	2891.0598
Q_a	Volumetric flow rate, actual (acfm)	194,776	192,124	183,206	185,028
Q_s	Volumetric flow rate, standard (scfm)	130,159	128,699	122,623	123,587
Q_{std}	Volumetric flow rate, dry standard (dscfm)	104,289	103,120	97,118	97,881
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	83,350	82,306	80,839	83,087
Q_a	Volumetric flow rate, actual (acf/hr)	11,686,578	11,527,428	10,992,343	11,101,670
Q_s	Volumetric flow rate, standard (scf/hr)	7,809,515	7,721,963	7,357,409	7,415,196
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	6,257,328	6,187,177	5,827,083	5,872,850
Q_a	Volumetric flow rate, actual (m^3/hr)	330,971	326,464	311,310	314,406
Q_s	Volumetric flow rate, standard (m^3/hr)	221,170	218,691	208,366	210,003
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	177,211	175,225	165,026	166,323
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	141,632	139,858	137,365	141,184
Q_s	Volumetric flow rate, normal (Nm^3/hr)	206,090	203,780	194,159	195,684
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	165,129	163,277	153,775	154,982
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	131,975	130,322	127,999	131,558

Comments:

Average includes 4 runs.

Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 3 FF Outlet

USEPA Method 26A (HCl)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2011)		Mar 24	Mar 24	Mar 24	
Start Time (approx.)		06:57	08:25	10:24	
Stop Time (approx.)		07:57	09:25	11:24	
Sampling Conditions					
Y_d	Dry gas meter correction factor	0.9995	0.9995	0.9995	
P_g	Static pressure (in. H_2O)	-10.3000	-10.3000	-10.3000	
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	
P_{bar}	Barometric pressure (in. Hg)	30.00	30.00	30.00	**30.0000**
O_2	Oxygen (dry volume %)	8.5400	9.0000	9.4400	**8.9933**
CO_2	Carbon dioxide (dry volume %)	10.7700	10.4300	10.0600	**10.4200**
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.6900	80.5700	80.5000	**80.5867**
V_{lc}	Total Liquid collected (ml)	235.40	231.50	223.10	
V_m	Volume metered, meter conditions (ft^3)	41.4550	42.0650	42.2000	
T_m	Dry gas meter temperature (°F)	74.5417	81.6250	90.4167	
T_s	Sample temperature (°F)	311.1667	311.5000	311.7500	**311.4722**
ΔH	Meter box orifice pressure drop (in. H_2O)	1.5000	1.5000	1.5000	
θ	Total sampling time (min)	60.0	60.0	60.0	
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	11.0779	10.8944	10.4991	**10.8238**
V_{mstd}	Volume metered, standard (dscf)	41.1710	41.2305	40.7021	**41.0346**
P_s	Sample gas pressure, absolute (in. Hg)	29.2426	29.2426	29.2426	**29.2426**
P_v	Vapor pressure, actual (in. Hg)	29.2426	29.2426	29.2426	**29.2426**
B_{wo}	Moisture measured in sample (% by volume)	21.2022	20.9006	20.5055	**20.8694**
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	**100.0000**
B_w	Actual water vapor in gas (% by volume)	21.2022	20.9006	20.5055	**20.8694**
M_d	MW of sample gas, dry (lb/lb-mole)	30.0648	30.0288	29.9872	**30.0269**
M_s	MW of sample gas, wet (lb/lb-mole)	27.5068	27.5147	27.5292	**27.5169**

Comments:

Average includes 3 runs.

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Wheelabrator North Broward, Inc.
Clean Air Project No: 11182
Unit 3 FF Outlet

USEPA Method 13B (Total Fluorides)
Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2011)		Mar 24	Mar 24	Mar 24	
Start Time (approx.)		11:40	13:11	14:38	
Stop Time (approx.)		12:55	14:19	15:46	
Sampling Conditions					
Y_d	Dry gas meter correction factor	0.9961	0.9961	0.9961	
C_p	Pitot tube coefficient	0.8180	0.8180	0.8180	
P_g	Static pressure (in. H_2O)	-10.3000	-10.3000	-10.3000	
A_s	Sample location area (ft^2)	64.0000	64.0000	64.0000	
P_{bar}	Barometric pressure (in. Hg)	30.00	30.00	30.00	**30.0000**
D_n	Nozzle diameter (in.)	0.2740	0.2740	0.2740	
O_2	Oxygen (dry volume %)	9.7300	9.6500	8.9400	**9.4400**
CO_2	Carbon dioxide (dry volume %)	9.9400	10.0000	10.6800	**10.2067**
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.3300	80.3500	80.3800	**80.3533**
V_{lc}	Total Liquid collected (ml)	237.60	215.50	220.70	
V_m	Volume metered, meter conditions (ft^3)	44.5750	43.1100	41.5600	
T_m	Dry gas meter temperature (°F)	89.2400	97.8200	95.7800	
T_s	Sample temperature (°F)	312.8800	311.8400	312.2400	**312.3200**
ΔH	Meter box orifice pressure drop (in. H_2O)	1.5720	1.4468	1.3420	
θ	Total sampling time (min)	62.5	62.5	62.5	
Flow Results					
V_{wstd}	Volume of water collected (ft^3)	11.1815	10.1414	10.3861	**10.5697**
V_{mstd}	Volume metered, standard (dscf)	42.9459	40.8831	39.5477	**41.1256**
P_s	Sample gas pressure, absolute (in. Hg)	29.2426	29.2426	29.2426	**29.2426**
P_v	Vapor pressure, actual (in. Hg)	29.2426	29.2426	29.2426	**29.2426**
B_{wo}	Moisture measured in sample (% by volume)	20.6577	19.8756	20.7998	**20.4443**
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	**100.0000**
B_w	Actual water vapor in gas (% by volume)	20.6577	19.8756	20.7998	**20.4443**
$\sqrt{\Delta P}$	Velocity head ($\sqrt{}$in. H_2O)	0.7619	0.7297	0.7016	**0.7311**
M_d	MW of sample gas, dry (lb/lb-mole)	29.9796	29.9860	30.0664	**30.0107**
M_s	MW of sample gas, wet (lb/lb-mole)	27.5049	27.6037	27.5566	**27.5551**
V_s	Velocity of sample (ft/sec)	52.2317	49.8985	48.0283	**50.0528**
%I	Isokinetic sampling (%)	101.1350	99.6610	101.3811	**100.7257**
Q_a	Volumetric flow rate, actual (acfm)	200,570	191,610	184,429	**192,203**
Q_s	Volumetric flow rate, standard (scfm)	133,919	128,109	123,244	**128,424**
Q_{std}	Volumetric flow rate, dry standard (dscfm)	106,255	102,647	97,609	**102,170**
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dscfm)	85,386	83,077	83,986	**84,150**
Q_a	Volumetric flow rate, actual (acf/hr)	12,034,190	11,496,623	11,065,716	**11,532,176**
Q_s	Volumetric flow rate, standard (scf/hr)	8,035,147	7,686,560	7,394,626	**7,705,445**
Q_{std}	Volumetric flow rate, dry standard (dscf/hr)	6,375,273	6,158,811	5,856,559	**6,130,215**
Q_a	Volumetric flow rate, actual (m^3/hr)	340,815	325,591	313,388	**326,598**
Q_s	Volumetric flow rate, standard (m^3/hr)	227,560	217,688	209,420	**218,223**
Q_{std}	Volumetric flow rate, dry standard (dry m^3/hr)	180,551	174,421	165,861	**173,611**
Q_{std7}	Volumetric flow rate, dry std@7%O_2 (dry m^3/hr)	145,091	141,168	142,712	**142,990**
Q_s	Volumetric flow rate, normal (Nm^3/hr)	212,045	202,846	195,142	**203,344**
Q_{std}	Volumetric flow rate, dry normal (Nm^3/hr)	168,241	162,529	154,552	**161,774**
Q_{std7}	Volumetric flow rate, dry normal @7%O_2 (Nm^3/hr)	135,198	131,543	132,982	**133,241**

Comments:
Average includes 3 runs.

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QA/QC DATA

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I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: KRO

Date: 5/4/2011

CleanAir.

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AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

Shipped From:
1290 COMBERMERE STREET
TROY MI 48083
Phone: 248-589-2950 Fax: 248-589-2134

C E R T I F I C A T E O F A N A L Y S I S

CLEAN AIR ENGINEERING
DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

DOCUMENT#:39951363 -001
PO#: 58610-71-65000
ITEM #: P813-30AL
DATE: 07Dec2010

CYLINDER #: ALM013200
FILL PRESSURE: 02000 PSIG

PURE MATERIAL: NITROGEN CAS# 7727-37-9

GRADE: ZERO GAS

PURITY: 99.998%

IMPURITY	MAXIMUM CONCENTRATIONS	ACTUAL CONCENTRATIONS
THC	0.5 PPM	< 0.5 PPM

QC BATCH: NITFILL120310

ANALYST: SAJAD HYDER

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 58568-71-65000
Document # : 39624159-002

Customer

CLEAN AIR INSTRUMENT RENTAL
GARY ZAPEL
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM062872 **Certification Date:** 01Dec2010 **Exp. Date:** 30Nov2013
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
OXYGEN	14.1	%	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	5.93	%	+/- 1%	Direct NIST and VSL
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350	01Dec2011	K016398	23.20 %	OXYGEN
NTRM 2300	17Aug2016	1D002807	23.04 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	15Nov2010	PARAMAGNETIC
PIR/2000/609015	01Dec2010	NDIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis

OXYGEN
Date: 13Nov2010 Response Unit:%
Z1 = 0.00000 R1 = 23.20000 T1 = 14.09000
R2 = 23.20000 Z2 = 0.00000 T2 = 14.09000
Z3 = 0.00000 T3 = 14.09000 R3 = 23.20000
Avg. Concentration: 14.07 %

CARBON DIOXIDE
Date: 01Dec2010 Response Unit:MV
Z1 = 0.00000 R1 = 100.0000 T1 = 40.83000
R2 = 100.0000 Z2 = 0.00000 T2 = 40.84000
Z3 = 0.00000 T3 = 40.84000 R3 = 100.0000
Avg. Concentration: 5.926 %

Second Triad Analysis

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999998
Constants: A = -0.01919614
B = 1.000175394 C = 0
D = 0 E = 0

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = -0.999993
Constants: A = -0.00428797
B = 0.132701577 C = -0.0001549
D = 0.000011295 E = 0

APPROVED BY: _____
JEFF CROTEAU

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 58745-71-65000
Document # : 40716347-002

Customer

CLEAN AIR ENGINEERING

DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM017071 **Certification Date:** 28Feb2011 **Exp. Date:** 27Feb2014
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	6.05 %	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	13.9 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2350	01Dec2011	K016398	23.20 %	OXYGEN
NTRM 2300	17Aug2016	K026052	23.04 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
CAI/110P/V03018	24Feb2011	PARAMAGNETIC
PIR/2000/609015	04Feb2011	NDIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

OXYGEN

First Triad Analysis			Second Triad Analysis	Calibration Curve	
Date: 01Mar2011	Response Unit: %			Concentration = A + Bx + Cx2 + Dx3 + Ex4	
Z1 = 0.00000	R1 = 23.20000	T1 = 6.06000		r = 0.999998	
R2 = 23.20000	Z2 = 0.00000	T2 = 6.06000		Constants:	A = -0.01314124
Z3 = 0.00000	T3 = 6.06000	R3 = 23.20000		B = 1.000039653	C = 0
Avg. Concentration:	6.047 %			D = 0	E = 0

CARBON DIOXIDE

First Triad Analysis			Second Triad Analysis	Calibration Curve	
Date: 01Mar2011	Response Unit: MV			Concentration = A + Bx + Cx2 + Dx3 + Ex4	
Z1 = 0.00000	R1 = 100.0000	T1 = 75.60000		r = 0.999994	
R2 = 100.0000	Z2 = 0.00000	T2 = 75.60000		Constants:	A = -0.0032159
Z3 = 0.00000	T3 = 75.60000	R3 = 100.0000		B = 0.134654642	C = -0.0003116
Avg. Concentration:	13.87 %			D = 1.26756E-05	E = 0

APPROVED BY: _____
JEFF CROTEAU

AIR LIQUIDE Air Liquide America Specialty Gases LLC SCOTT™

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 24859-66-65000
Project No.: 05-84187-002

Customer

CLEAN AIR ENGINEERING

SCOTT BROWN
500 WEST WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC217365 **Certification Date:** 28Jan2010 **Exp. Date:** 28Jan2012
Cylinder Pressure*:** 1906 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	10.0	%	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	224	PPM	+/- 1%	Direct NIST and VSL
SULFUR DIOXIDE *	44.3	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	224.	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1675 B	02Oct2012	K000696	13.93 %	CARBON DIOXIDE
NTRM 1686	01Sep2010	KAL003496	490.0 PPM	NITRIC OXIDE
NTRM 1694 S	01Jun2012	KAL004124	100.4 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	31Dec2009	FTIR
FTIR//0928621	08Jan2010	FTIR
FTIR//0928621	14Jan2010	FTIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis | **Second Triad Analysis** | **Calibration Curve**

CARBON DIOXIDE

Date: 19Jan2010 Response Unit:%
Z1 = 0.00116 R1 = 13.91162 T1 = 9.99789
R2 = 13.91811 Z2 = 0.00130 T2 = 10.00238
Z3 = 0.01087 T3 = 10.02283 R3 = 13.91889
Avg. Concentration: 10.02 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99994E-1
Constants: A = 0.00000E+0
B = 9.29116E-1 C = 1.26900E-2
D = 0.00000E+0 E = 0.00000E+0

NITRIC OXIDE

Date: 19Jan2010 Response Unit:PPM
Z1 = -0.03529 R1 = 488.9653 T1 = 220.9371
R2 = 490.2213 Z2 = 0.37681 T2 = 223.7306
Z3 = 0.69378 T3 = 224.2127 R3 = 490.9652
Avg. Concentration: 222.7 PPM

Date: 28Jan2010 Response Unit: PPM
Z1 = 0.35355 R1 = 490.4896 T1 = 224.3642
R2 = 491.2955 Z2 = 0.72792 T2 = 226.0987
Z3 = 1.26294 T3 = 226.6155 R3 = 491.3667
Avg. Concentration: 224.8 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99995E-1
Constants: A = 0.00000E+0
B = 8.97507E-1 C = 3.40000E-5
D = 0.00000E+0 E = 0.00000E+0

SULFUR DIOXIDE *

Date: 19Jan2010 Response Unit:PPM
Z1 = -0.00177 R1 = 101.3279 T1 = 44.71628
R2 = 101.5012 Z2 = 0.03768 T2 = 44.72766
Z3 = 0.15600 T3 = 44.85062 R3 = 101.6885
Avg. Concentration: 44.24 PPM

Date: 28Jan2010 Response Unit: PPM
Z1 = -0.03477 R1 = 101.4266 T1 = 44.78306
R2 = 101.4765 Z2 = -0.02790 T2 = 44.98472
Z3 = 0.10977 T3 = 45.03605 R3 = 101.6130
Avg. Concentration: 44.44 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99999E-1
Constants: A = 0.00000E+0
B = 1.05169E+0 C = 6.00000E-6
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY: _____
Rob McCrandall

Air Liquide America Specialty Gases LLC

SCOTT™

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 24859-66-65000
Project No.: 05-84187-001

Customer

CLEAN AIR ENGINEERING

SCOTT BROWN
500 WEST WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: CC124384 **Certification Date:** 28Jan2010 **Exp. Date:** 28Jan2012
Cylinder Pressure*:** 1888 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	10.0	%	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	453	PPM	+/- 1%	Direct NIST and VSL
SULFUR DIOXIDE *	89.9	PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	453.	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1675 B	02Oct2012	K000696	13.93 %	CARBON DIOXIDE
NTRM 1686	01Sep2010	KAL003496	490.0 PPM	NITRIC OXIDE
NTRM 1694 S	01Jun2012	KAL004124	100.4 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	31Dec2009	FTIR
FTIR//0928621	08Jan2010	FTIR
FTIR//0928621	14Jan2010	FTIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

CARBON DIOXIDE

First Triad Analysis
Date: 19Jan2010 Response Unit:%
Z1=0.00116 R1=13.91162 T1=10.01153
R2=13.91811 Z2=0.00130 T2=10.01366
Z3=0.01087 T3=10.01880 R3=13.91889
Avg. Concentration: 10.02 %

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99994E-1
Constants: A=0.00000E+0
B=9.29116E-1 C=1.26900E-2
D=0.00000E+0 E=0.00000E+0

NITRIC OXIDE

First Triad Analysis
Date: 19Jan2010 Response Unit:PPM
Z1=-0.03529 R1=488.9653 T1=451.6460
R2=490.2213 Z2=0.37681 T2=454.1722
Z3=0.69378 T3=455.3191 R3=490.9652
Avg. Concentration: 453.6 PPM

Second Triad Analysis
Date: 28Jan2010 Response Unit: PPM
Z1=0.35355 R1=490.4896 T1=450.8998
R2=491.2955 Z2=0.72792 T2=453.3129
Z3=1.26294 T3=454.9297 R3=491.3667
Avg. Concentration: 452.0 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99995E-1
Constants: A=0.00000E+0
B=8.97507E-1 C=3.40000E-5
D=0.00000E+0 E=0.00000E+0

SULFUR DIOXIDE *

First Triad Analysis
Date: 19Jan2010 Response Unit:PPM
Z1=-0.00177 R1=101.3279 T1=91.01780
R2=101.5012 Z2=0.03768 T2=91.02749
Z3=0.15600 T3=91.04919 R3=101.6885
Avg. Concentration: 90.03 PPM

Second Triad Analysis
Date: 28Jan2010 Response Unit: PPM
Z1=-0.03477 R1=101.4266 T1=90.68078
R2=101.4765 Z2=-0.02790 T2=90.81634
Z3=0.10977 T3=90.94830 R3=101.6130
Avg. Concentration: 89.82 PPM

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99999E-1
Constants: A=0.00000E+0
B=1.05169E+0 C=6.00000E-6
D=0.00000E+0 E=0.00000E+0

APPROVED BY: _____
Rob McCrandall

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

P.O. No.: 57293-71-65000
AIR LIQUIDE AMERICA SPECIALTY GASES LLC Project No.: 05-74602-003
1290 COMBERMERE STREET
TROY, MI 48083

Customer

CLEAN AIR ENGINEERING
DON ALLEN
500 W. WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM026334 **Certification Date:** 13Apr2009 **Exp. Date:** 12Apr2012
Cylinder Pressure*:** 1974 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	47.4	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1679 10	01May2011	ALM030192	94.90 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	27Mar2009	FTIR

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis

CARBON MONOXIDE

Date: 06Apr2009 Response Unit:PPM
Z1 = -0.03399 R1 = 51.20202 T1 = 47.45793
R2 = 51.23936 Z2 = -0.03245 T2 = 47.54994
Z3 = -0.03100 T3 = 47.55257 R3 = 51.25024
Avg. Concentration: 47.43 PPM

Second Triad Analysis

Date: 13Apr2009 Response Unit: PPM
Z1 = -0.03262 R1 = 95.20307 T1 = 47.48209
R2 = 95.27686 Z2 = -0.01455 T2 = 47.57715
Z3 = 0.00598 T3 = 47.62027 R3 = 95.61164
Avg. Concentration: 47.33 PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99991E-1
Constants: A = 0.00000E+0
B = 9.99139E-1 C = 8.07000E-4
D = 1.00000E-6 E = 0.00000E+0

APPROVED BY: Rob McCrandall

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 58320-71-65000
Project No.: 05-90126-002

Customer

CLEAN AIR ENGINEERING
DON ALLEN
500 W. WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM016660 **Certification Date:** 09Aug2010 **Exp. Date:** 08Aug2013
Cylinder Pressure*:** 2015 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE	95.7 PPM	+/- 1%	
NITROGEN	BALANCE		

**** Do not use when cylinder pressure is below 150 psig.*
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2636	02Oct2011	KAL003744	240.8 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS II/ULTRAMAT 6E/N1-VN-0548	06Aug2010	NDIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis

CARBON MONOXIDE
Date: 02Aug2010 Response Unit:MV
Z1=0.00000 R1=241.0000 T1=95.86000
R2=241.0000 Z2=0.00000 T2=95.86000
Z3=0.00000 T3=95.86000 R3=241.0000
Avg. Concentration: 95.69 PPM

Second Triad Analysis

Date: 09Aug2010 Response Unit: MV
Z1=0.00000 R1=240.8000 T1=95.70000
R2=240.8000 Z2=0.00000 T2=95.70000
Z3=0.00000 T3=95.70000 R3=240.8000
Avg. Concentration: 95.73 PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=-0.067017
B=1.000167 C=0.000000
D=0.000000 E=0.000000

APPROVED BY: _____
ROBERT MCCRANDALL

CERTIFIED MASTER CLASS

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

Single-Certified Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Document # : 40311499-008
Item No.: MN300621-P-30AL
P.O. No.: 58682-71-65000

Cylinder Number: ALM003276
Cylinder Size: 30AL
Certification Date: 20Jan2011
Expiration Date: 19Jan2013

Customer

CLEAN AIR ENGINEERING
DON ALLEN
500 WEST WOOD STREET
PALATINE, IL 60067
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
NITROGEN DIOXIDE	50.1	PPM	2
OXYGEN	1.00	%	2
NITROGEN		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: HILARY THATCHER DATE: 1/20/11

Sample Probe Calibration

Probe Type: S-Type Pitot **I.D. Number:** 67-8P-3
Project Number: 11182

Thermocouple Calibration

Reference Type: Thermocouple Reference I.D. No: 15-078-39 Pyrometer I.D. No: 80512890 Units: °F

Point No.	Target Temp.	Reference Temp.	Indicated Temp.	Temp. Difference	% Difference*	Specification
1	Ambient	64	64	0	0.00%	
2	200°F-250°F	223	226	-3	0.44%	%Difference ≤ 1.5

* Based on Absolute Temperature (Rankine)

Does thermocouple assembly meet specifications? ⟶ **YES**

Pitot Tube Calibration (Wind Tunnel Method @ 49 ft/sec)

Reference Pitot I.D. No: Wind Tunnel Reference Pitot Cp: 0.99

Pitot Side 'A' :

Trial No.	Reference ΔP	Probe ΔP	Probe $C_{p(S)}$*	Abs. Deviation from Avg. $C_{p(A)}$**
1	0.549	0.810	0.816	0.004
2	0.559	0.812	0.822	0.003
3	0.556	0.810	0.820	0.001
		Side 'A' Average Probe $C_{p(A)}$=	0.8192	0.0024

Specification
Avg. C_p Deviations ≤ 0.01

Pitot Side 'B' :

Trial No.	Reference ΔP	Probe ΔP	Probe $C_{p(S)}$*	Abs. Deviation from Avg. $C_{p(B)}$**
1	0.550	0.811	0.815	0.000
2	0.552	0.816	0.814	0.001
3	0.556	0.816	0.817	0.002
		Side 'B' Average Probe $C_{p(B)}$=	0.8156	0.0012

Specification
Avg. C_p Deviations ≤ 0.01

'A' Average C_p		'B' Average C_p		Difference	Specification
0.819	—	0.816	=	0.003	|Difference| ≤ 0.01

Does assembly meet specifications? **YES** ⟶ **If "Yes", C_p= Average of Side 'A' and 'B' Cp values. If "No", Pitot must be replaced.**

$$^{*}C_{P(S)} = C_{P(STD)}\sqrt{\frac{\Delta p_{(STD)}}{\Delta p_{(S)}}} \qquad ^{**}Deviation = \left|C_{P(S)} - \overline{C_{P\,(\text{A or B})}}\right|$$

All specifications are from EPA-600/9-76-005, section 3.1

Probe Cp= 0.817 Calibrated by: B. Arnold Date: 03/15/2011

CleanAir ENGINEERING

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FIELD DATA

E

I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: LCRO

Date: 5/4/2011

CleanAir.

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TEST LOCATION: FF Outlet

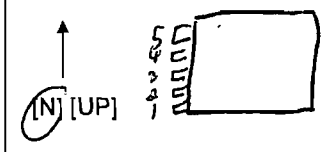
UNIT: 1

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF X5 NH

Client	Wheelabrator
Plant	N. Broward
Meter Operator	NH
Probe Operator	CS
Source of Moisture and Molecular Weight Data	M26
Project No.	11182
Date	

Cross-Section of Test Location



Amb. Temp. (°F)		Bar. Press. 30.20	[in. Hg] [mbar]
Pitot Cp	0.817	Probe I.D. No.	67-48-3
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.)	
Gas Flow [In] [Out] of page			
Duct Dimensions (in.)	96 x 96		

Run 1 7:40	Load	Run 1	Load	Run 2	Load	Run 2	Load
Start Time 8:40	Stop Time 7:49	Start Time	Stop Time	Start Time 8:11	Stop Time 8:20	Start Time	Stop Time
Static Press. (in. H_2O) −11.4		Static Press. (in. H_2O)		Static Press. (in. H_2O) −11.4		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5 X-1	304	0.42	2	X-1	306	0.56		1-1	305	0.40		4-1	306	0.43	
NH 2	307	0.45		NH 2	308	0.54		2	305	0.42		2	306	0.41	
3	307	0.54		3	308	0.60		3	305	0.35		3	307	0.52	
4	308	0.62		4	308	0.66		4	305	0.34		4	307	0.61	
NH 5	308	0.64		5	309	0.69		5	305	0.55		5	307	0.64	
4 X-1	305	0.47	1	X-1	306	0.58		2-1	303	0.48		5-1	306	0.43	
2	307	0.47		NH 2	307	0.55		2	306	0.41		2	307	0.48	
3	308	0.51		3	308	0.37		3	306	0.40		3	308	0.57	
4	309	0.63		4	308	0.46		4	306	0.50		4	308	0.65	
5	309	0.67		5	309	0.65		5	306	0.63		5	308	0.67	
3-1	304	0.42						3-1	304	0.41					
2	306	0.44						2	306	0.44					
3	306	0.47						3	307	0.49					
4	307	0.53						4	307	0.55					
5	307	0.62						5	307	0.63					
Total	7679	* 18.3478				*			7653	* 17	5288			*	
Average	307.	0.7339							306.	0.7012					
	1600	Sum of square roots.		Circle correct bracketed units on data sheet.					1200						

CleanAir ENGINEERING

QA/QC NH

Date 3.22.11

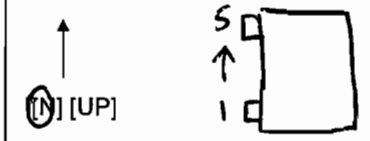
TEST LOCATION: FF out

UNIT: 1

VELOCITY DETERMINATION FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Broward	Date 3.22.11
Meter Operator NH	
Probe Operator CS	
Source of Moisture and Molecular Weight Data M26	

Cross-Section of Test Location



Amb. Temp. (°F) 80		Bar. Press. 30.20 [in. Hg] [mbar]	
Pitot Cp 0.817		Probe I.D. No. 67-8P-3	
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.) 10	
Gas Flow [In] [Out] of page			
Duct Dimensions (in.) 96 x 96			

Run 3 9:45	Load	Run 3	Load	Run 4	Load	Run 4	Load
Start Time ~~9:29~~ NH	Stop Time 9:58	Start Time	Stop Time	Start Time 10:32	Stop Time 10:55	Start Time	Stop Time
Static Press. (in. H_2O) -11.5		Static Press. (in. H_2O)		Static Press. (in. H_2O) -11.1		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5 -1	305	0.38		2 -1	306	0.42		1 -1	307	0.46		4 -1	306	0.31	
2	306	0.38		2	307	0.41		2	307	0.44		2	307	0.31	
3	307	0.45		3	307	0.48		3	307	0.41		3	307	0.43	
4	308	0.57		4	307	0.57		4	307	0.45		4	308	0.53	
5	308	0.52		5	308	0.60		5	307	0.55		5	308	0.57	
4 -1	305	0.41		1 -1	308	0.50		2 -1	307	0.46		5 -1	307	0.34	
2	306	0.41		2	307	0.43		2	307	0.43		2	307	0.42	
3	307	0.54		3	307	0.43		3	307	0.45		3	307	0.49	
4	307	0.60		4	307	0.44		4	307	0.50		4	307	0.57	
5	307	0.54		5	307	0.62		5	307	0.50		5	307	0.56	
3 -1	307	0.35						3 -1	307	0.49					
2	308	0.44						2	307	0.40					
3	308	0.45						3	308	0.41					
4	308	0.51						4	308	0.46					
5	308	0.62						5	308	0.55					
Total	7676	*17.3045				*			7679	*16.8927				*	
Average	307.	0.6922							307	0.6759					

0400 — 1200

Sum of square roots.

Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

QA/QC NH

Date 3.22.11

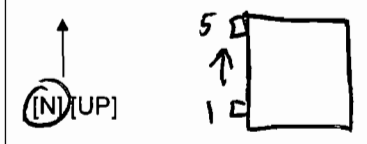
TEST LOCATION: FF outlet

UNIT: 1

VELOCITY DETERMINATION FIELD DATA SHEET

Client Wheelabrator	Project No. 1182
Plant N. Broward	Date 3.22.11
Meter Operator NH	
Probe Operator CS	
Source of Moisture and Molecular Weight Data M26 &/or M13B	

Cross-Section of Test Location



Amb. Temp. (°F) 80	Bar. Press. 30.20 [in Hg] [mbar]
Pitot Cp 0.817	Probe I.D. No. 67-80-3
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way [In] [Out]	Port Len. (in.)
Gas Flow [In] [Out] of page	
Duct Dimensions (in.) 96x96	

Run 5	Load	Run 5	Load	Run 6	Load	Run 6	Load
Start Time 11:39	Stop Time 11:55	Start Time	Stop Time	Start Time 12:30	Stop Time 12:40	Start Time	Stop Time
Static Press. (in. H_2O) -11.0		Static Press. (in. H_2O)		Static Press. (in. H_2O) -11.0		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5 -1	307	0.37		2 -1	304	0.41		1 -1	303	0.42		4 -1	303	0.41	
2	307	0.40		2	305	0.42		2	304	0.41		2	304	0.43	
3	307	0.49		3	306	0.39		3	303	0.40		3	304	0.45	
4	307	0.56		4	306	0.43		4	303	0.46		4	304	0.58	
5	307	0.55		5	306	0.59		5	304	0.53		5	304	0.59	
4 -1	305	0.37		1 -1	306	0.44		2 -1	304	0.52		5 -1	303	0.44	
2	306	0.40		2	306	0.43		2	304	0.42		2	302	0.46	
3	306	0.44		3	305	0.37		3	304	0.45		3	302	0.46	
4	306	0.53		4	305	0.38		4	304	0.48		4	302	0.55	
5	307	0.57		5	305	0.62		5	304	0.62		5	302	0.50	
3 -1	306	0.49						3 -1	304	0.33					
2	306	0.44						2	303	0.39					
3	306	0.47						3	304	0.48					
4	306	0.53						4	304	0.54					
5	306	0.60						5	304	0.62					
Total	7649	17.0372							7586	17.3938					
Average	305.9600	0.6815							303.4400	0.6958	0.6893				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

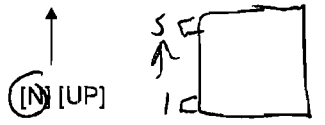
Date 3.22.11

TEST LOCATION: FF Outlet **VELOCITY DETERMINATION** **PAGE** 4 **OF** 5

UNIT: 1 **FIELD DATA SHEET**

Client	Wheelabrator	Project No.	11182
Plant	N. Broward	Date	3/22/11
Meter Operator	NA		
Probe Operator	BA		
Source of Moisture and Molecular Weight Data	M3B		

Cross-Section of Test Location



Amb. Temp. (°F)	82	Bar. Press.	30.20 [in. Hg] [mbar]
Pitot Cp	0.817	Probe I.D. No.	67-8P-3
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.)	
Gas Flow [In] [Out] of page			
Duct Dimensions (in.)	96 x 96		

Run	7	Load		Run	7	Load		Run	8	Load		Run	8	Load	
Start Time	13:00	Stop Time	13:12	Start Time		Stop Time		Start Time	13:30	Stop Time	13:43	Start Time		Stop Time	
Static Press. (in. H_2O)	-11.0			Static Press. (in. H_2O)				Static Press. (in. H_2O)	-11.0			Static Press. (in. H_2O)			
Post-Test Leak Check:	Pass ☑	Fail ☐		Post-Test Leak Check:	Pass ☐	Fail ☐		Post-Test Leak Check:	Pass ☑	Fail ☐		Post-Test Leak Check:	Pass ☐	Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
1-1	302	0.52		4-1	303	0.38		5-1	301	0.35		2-1	305	0.52	
2	302	0.48		2	303	0.44		2	302	0.38		2	305	0.53	
3	303	0.41		3	304	0.48		3	303	0.45		3	305	0.55	
4	303	0.47		4	304	0.54		4	304	0.51		4	305	0.60	
5	303	0.62		5	304	0.43		5	304	0.50		5	305	0.65	
2-1	304	0.47		5-1	304	0.37		4-1	303	0.40		1-1	298	0.29	
2	304	0.48		2	304	0.40		2	303	0.36		2	299	0.31	
3	304	0.52		3	305	0.44		3	303	0.42		3	297	0.43	
4	305	0.55		4	305	0.53		4	303	0.58		4	300	0.43	
5	304	0.64		5	305	0.54		5	304	0.63		5	300	0.63	
3-1	302	0.49						3-1	302	0.43					
2	302	0.47						2	303	0.42					
3	302	0.52						3	303	0.45					
4	302	0.59						4	303	0.55					
5	302	0.67						5	303	0.63					
Total	7585	*17.7794							7563	*17.2482					
Average	303.400	0.7110							302.520	0.6899					

Sum of square roots. Circle correct bracketed units on data sheet.

O2 9.46 CO2 9.93

O2 9.80 CO2 9.71

QA/QC SB Date

CleanAir ENGINEERING

FDS002-Ve... August 2004 ...Air Technologies, Inc.

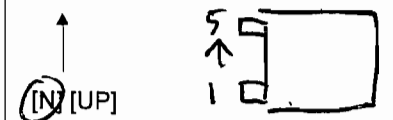
E-6

TEST LOCATION: FF Outlet **VELOCITY DETERMINATION** **PAGE** 5 **OF** 5

UNIT: 1 **FIELD DATA SHEET**

Client: Wheelabrator	Project No.: 11182
Plant: N. Broward's	Date: 3/22/11
Meter Operator: C. Shimp	
Probe Operator: B. Arnold	
Source of Moisture and Molecular Weight Data: M13B	

Cross-Section of Test Location



Amb. Temp. (°F): 84		Bar. Press.: 30.20 [in. Hg] [mbar]	
Pitot Cp: 0.817		Probe I.D. No.: 67-8P-3	
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.):	
Gas Flow [In] [Out] of page			
Duct Dimensions (in.): 96x96			

Run 9	Load	Run 9	Load	Run 10	Load	Run 10	Load
Start Time 14:11	Stop Time 14:26	Start Time	Stop Time	Start Time 14:48	Stop Time 14:56	Start Time	Stop Time
Static Press. (in. H_2O) −11.0		Static Press. (in. H_2O)		Static Press. (in. H_2O) −4.0		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
1 -1	302	0.53		4 -1	302	0.44		1 -1	304	0.60		4 -1	303	0.52	
2	302	0.49		2	303	0.43		2	305	0.55		2	304	0.55	
3	303	0.44		3	303	0.50		3	305	0.45		3	304	0.55	
4	302	0.51		4	304	0.62		4	305	0.49		4	305	0.69	
5	303	0.69		5	304	0.70		5	305	0.81		5	305	0.78	
2 -1	301	0.46		5 -1	300	0.42		2 -1	304	0.56 / 0.75 / 302		5 -1	303	0.49	
2	303	0.44		2	300	0.42		2	304	0.56 / 0.50 / 302		2	303	0.51	
3	303	0.49		3	300	0.47		3	305	0.58 / 0.54 / 302		3	304	0.54	
4	303	0.57		4	301	0.58		4	306	0.71 / 0.57 / 302		4	304	0.69	
5	303	0.63		5	301	0.60		5	306	0.82 / 0.63 / 303		5	304	0.66	
3 -1	303	0.37						3 -1	304	0.52					
2	303	0.42						2	304	0.56					
3	303	0.47						3	305	0.58					
4	303	0.55						4	306	0.71					
5	303	0.62						5	306	0.82					
Total	7558	*18.2573				*			7599	*19.3331				*	
Average	302.3200	0.7303							303.	0.7733					

Sum of square roots. .7152

Circle correct bracketed units on data sheet.

9600

QA/QC NA

Date 3.22.11

FDS002-Velocity.xls, August 2004

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET HCl **TESTING** **METHOD:** 26A **PAGE** 1 **OF** 1

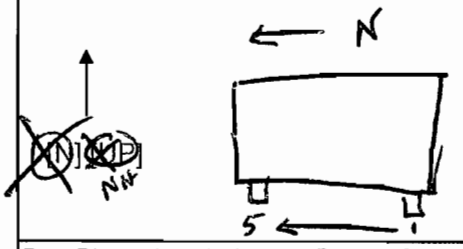
UNIT: 1 **RUN:** 1

FIELD DATA SHEET

Client: Wheelabrator	Project No. 11182
Plant North	Date 3.22.11
Meter Operator N. Hutchins	
Probe Operator	

Meter Box 66-24	Sample Box No. B-21
Meter Y_d 0.9847	Meter $\Delta H_@$ 1.7639
K Factor N/A	Pitot C_p
Leak Rate Before .003 [cfm] [Lpm] @ 15 (in. Hg)	
Leak Rate After 0.001 [cfm] [Lpm] @ 6 (in. Hg)	
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 96 x 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-11.4	10		

Amb. Temp. (°F) 68	Bar. Press. 30.20 [in. Hg] [mbar]		
Probe I.D. No. 67-4-1			
Liner Material GLASS			

Filter No. N/A			
Thimble No. N/A			
Nozzle Diameter NA	Nozzle I.D.		

Start Time: 7:36	Stop Time: 8:36

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F)	Notes
				413.155		300	300					O_2	
3-1	5	N/A	1.5	416.68	309	310	303	54	68	67	4	9.4	
	10		1.5	420.13	308	310	303	54	68	67	4	10.2	
	15		1.5	423.52	308	304	304	54	72	67	4	10.6	
	20		1.5	427.04	308	301	304	60	74	68	4	10.4	
	25		1.5	430.53	309	306	303	60	78	69	4	10.3	
	30		1.5	433.98	308	306	302	58	80	70	4	10.8	
	35		1.5	437.43	308	307	303	58	81	71	4	10.5	
	40		1.5	440.90	307	306	303	58	83	71	4	10.0	
	45		1.5	444.36	306	306	304	55	85	73	4	9.6	
	50		1.5	447.82	306	306	303	53	85	74	4	10.5	
	55		1.5	451.30	307	306	303	52	86	75	4	10.5	
	60		1.5	454.770	308	307	303	57	87	76	4	10.5	
	Total	*		41.615	3692				949	848			
	Average		1.5		307.7				74.875				

* Sum of square roots.

Circle correct bracketed units on data sheet.

6667

QA/QC NH

Date 3-22-11

CleanAir ENGINEERING

E-8

TEST LOCATION: FF OUTLET | HCl | **TESTING METHOD:** 26A **PAGE** 1 **OF** 1

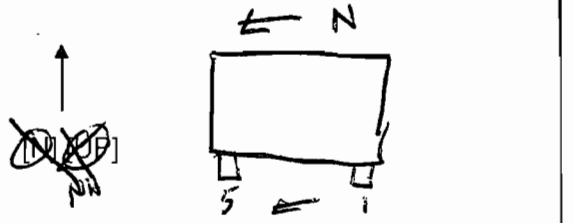
UNIT: 1 **RUN:** 2

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N Brunswick	Date 3.22.11
Meter Operator N.H.	
Probe Operator NH	

Meter Box 26-24	Sample Box No. B12
Meter Y_d 0.9847	Meter $\Delta H_@$ 1.7639
K Factor NA	Pitot C_p
Leak Rate Before 0.004 [cfm] [Lpm] @ 15 (in. Hg)	
Leak Rate After 0.001 [cfm] [Lpm] @ 7 (in. Hg)	
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 96 x 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-11.5	10		

Amb. Temp. (°F) 73	Bar. Press. 30.205 [in. Hg] [mbar]
Probe I.D. No. 67-4-1	
Liner Material GLASS	

Filter No. NA		
Thimble No. NA		
Nozzle Diameter NA	Nozzle I.D.	

Start Time: 9:40	Stop Time: 10:40

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F)	Notes
NH				456.195		300	300					07	
~~4-1~~	5	N/A	1.5	459.71	308	303	306	60	84	82	4	9.0	
	10		1.5	463.18	308	309	304	53	88	82	4	9.0	
	15		1.5	466.66	307	305	301	52	90	82	4	9.4	
	20		1.5	470.17	307	301	303	54	92	83	4	9.6	
	25		1.5	473.71	307	304	305	60	92	83	4	8.6	
	30		1.5	477.25	308	304	304	62	93	83	4	8.4	
	35		1.5	480.79	307	305	304	63	93	84	4	8.8	
	40		1.5	484.36	307	304	304	62	93	84	4	9.8	
	45		1.5	487.90	308	303	304	57	94	84	4	9.3	
	50		1.5	491.43	307	304	304	51	94	85	4	9.6	
	55		1.5	494.92	307	305	303	49	94	85	4	8.9	
	60	↓	1.5	498.440	307	304	304	48	94	85	4	9.6	
	Total	* N/A		42.2450	3688				1101	1002			
	Average		1.5		307.3333				87.6250				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.22.11

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET | HCl | **TESTING** | **METHOD:** 26.4 | **PAGE** 1 | **OF** 1

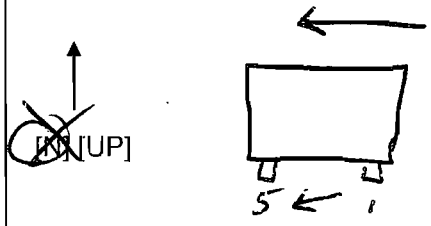
UNIT: 1 | **RUN:** 3

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Browards	Date 3.22.11
Meter Operator	NH
Probe Operator	

Meter Box 66-24	Sample Box No. B14
Meter Y_d 0.9847	Meter $\Delta H_@$ 1.7639
K Factor NA	Pitot C_p
Leak Rate Before 0.004 [cfm] [Lpm] @ 15 (in. Hg)	
Leak Rate After 0.001 [cfm] [Lpm] @ 6 (in. Hg)	
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.) 96 x 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow	First point all the way
-11.0	10	[In] [Out] of page	[In] [Out]

Amb. Temp. (°F)	Bar. Press. 30.25	[in. Hg] [mbar]	
Probe I.D. No.	67-4-1		
Liner Material	GLASS		

Filter No.	NA		
Thimble No.	NA		
Nozzle Diameter	NA	Nozzle I.D.	

Start Time: 11:02	Stop Time: 12:02

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. 499.160 [ft³] [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 300	Filter T_f (°F) Set Points 300	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F)	Notes
3-1	5	N/A	1.5	502.69	306	309	309	62	87	84	4	9.5	
	10	↓	1.5	506.19	306	309	308	62	89	84	4	9.7	
	15		1.5	509.69	307	307	303	55	92	84	4	10.3	
	20		1.5	573.12	306	303	303	54	93	85	4	10.0	
	25	↓	1.5	516.63	308	301	303	59	94	85	4	10.1	
	30		1.5	520.14	307	303	303	62	94	85	4	9.8	
	35		1.5	523.70	306	304	303	63	95	86	4	8.8	
	40		1.5	527.19	306	301	302	63	95	86	4	9.8	
	45		1.5	530.65	307	303	303	63	95	84	4	9.2	
	50		1.5	534.15	306	303	303	62	96	87	4	9.3	
	55		1.5	537.62	306	304	303	59	96	86	4	9.0	
	60		1.5	541.065	303	302	303	57	94	87	4	10.3	
	Total	*	1.5000	41.9050	3674				1123	1025			
	Average				306.1667				89.4583				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date [redacted]-11

CleanAir ENGINEERING

Impinger Weight Sheet

Client Wheelabrator		Unit Name/Location Unit 1 FF Outlet
Plant North Broward	Job No. 11182	Method Mod. 26A

CAETLOT-2 Cat# 565326A 499.5

Run No. 1	Filter Type Quartz		Sample Box No. B21
Date 3/22/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	517.4	~~465.5~~ RV 456.1	61.3	
Impinger 2	100 mL 01.N H2SO4	672.8	555.7	117.1	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	585.5	549.8	35.7	Date 3/22/11
Impinger 4	Empty	450.0	442.0	8.0	
Impinger 5	Silica Gel	739.4	723.3	16.1	Total Weight (gm)
					222.1
					238.2

Run No. 2	Filter Type Quartz		Sample Box No. B12
Date 3/22/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	509.2	451.6	57.6	
Impinger 2	100 mL 01.N H2SO4	658.6	541.6	117.0	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	590.5	549.7	40.8	Date 3/22/11
Impinger 4	Empty	434.2	~~552.5~~ RV 426.3	7.9	
Impinger 5	Silica Gel	773.3	755.3	18.0	Total Weight (gm)
					223.3
					241.3

Run No. 3	Filter Type Quartz		Sample Box No. B14
Date 3/22/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	505.6	452.7	52.9	
Impinger 2	100 mL 01.N H2SO4	615.7	522.8	92.9	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	583.5	534.4	49.1	Date 3/22/11
Impinger 4	Empty	463.6	444.6	19.0	
Impinger 5	Silica Gel	750.6	731.5	19.1	Total Weight (gm)
					213.9
					233.0

ImpFieldWtSht_200406a
NS ImpFieldWtSht

QA/QC SB
Date 3/22/11

CleanAir ENGINEERING

TEST LOCATION: AF OUTLET — FLUORINE **TESTING METHOD:** 13B **PAGE** 1 **OF** 2

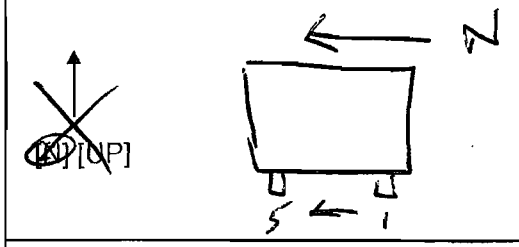
UNIT: 1 **RUN:** 1

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Brownfield	Date 3.22.11
Meter Operator NH	
Probe Operator BA	

Meter Box 66-4	Sample Box No. B1
Meter Y_d 0.9983	Meter $\Delta H_@$ 1.6879
K Factor 2.45	Pitot C_p 0.818
Leak Rate Before 0.003 (cfm) [Lpm] @ 15 (in. Hg)	
Leak Rate After 0.001 (cfm) [Lpm] @ 5 (in. Hg)	
Pitot Leak Check Before: ☑	After: Good ☑ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.)	96 × 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
−11.0	10		

Amb. Temp. (°F) 87	Bar. Press. 30.20 [in. Hg] [mbar]
Probe I.D. No. 67-8-20	
Liner Material Cu+SS	

Filter No.		
Thimble No.		
Nozzle Diameter 0.271	Nozzle I.D.	271-2

Start Time: 12:31	Stop Time:

Traverse Point Number	Min/pt 2:30 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³) [L] 803.540	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F) O_2	Notes
5 -1	2:30	0.44	1.1	805.05	303	254	255	66	83	82	3	10.2	
2	5:00	0.46	1.1	806.52	302	250	256	66	84	82	3	9.6	
3	7:30	0.46	1.1	807.96	302	255	255	65	84	82	3	9.0	
4	10:00	~~0.52~~ NH 0.51	~~NH 1.3~~ 1.3	809.53	302	256	254	64	89	82	3	9.5	
5	12:30	0.51	1.2	811.060	302	255	250	60	88	84	3	9.4	811.210 .15
4 -1	15:00	0.51	1.2	812.76	300	254	250	60	89	85	3	9.5	
2	17:30	0.45	1.1	814.28	301	257	250	63	90	85	3	9.0	
3	20:00	0.51	1.2	815.75	301	248	250	63	91	85	3	9.4	
4	22:30	0.55	1.3	817.32	302	258	250	63	92	86	3	9.1	
5	25:00	0.55	1.2	818.885	301	250	250	63	95	86	3	9.5	818.995 .11
3 -1	27:30	0.49	1.2	820.54	302	255	250	63	93	85	3	9.8	
2	30:00	0.47	1.2	822.08	302	257	250	62	NH 95	87	3	10.1	
3	32:30	0.52	1.3	~~823.67~~	302	250	250	62	98	87	3	9.7	
	Total	*17.6329	30.1700	38.6850	7531								
	Average	0.7054	1.2068		301.2400				91.0400				

*Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3 11

.665

E - 12

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET Fluoride **TESTING** **METHOD:** 13 B **PAGE** 2 **OF** 2

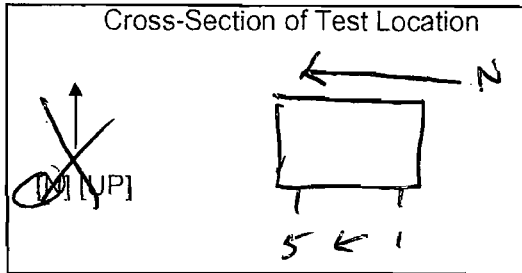
UNIT: 1 **RUN:** 1

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Brownfield	Date	3.22.11
Meter Operator	NH		
Probe Operator	BA		

Meter Box	66-4	Sample Box No.	B1
Meter Y_d	0.9983	Meter $\Delta H_@$	1.6979
K Factor	2.45	Pitot C_p	
Leak Rate Before	[cfm] [Lpm]	@	(in. Hg)
Leak Rate After	[cfm] [Lpm]	@	(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location



Duct Dimensions (in.)	96 x 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-11.0	10		

Amb. Temp. (°F)	Bar. Press.	[in. Hg] [mbar]
Probe I.D. No.	47-8-20	
Liner Material	GLASS	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time:	13:41

Traverse Point Number	Min/pt 2:30 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_x (°F)	Notes
						250	250						
3-4	35:00	0.54	1.4	825.35	302	258	250	62	99	86	3	9.9	
5	37:30	0.67	1.6	827.140	302	248	250	61	100	88	3	9.0	827.275 .135
2-1	40:00	0.53	1.3	828.92	302	258	250	62	98	89	4	9.4	
2	42:30	0.44	1.1	830.43	303	247	250	62	99	90	3	9.0	
3	45	0.53	1.3	832.04	301	259	250	63	99	89	3	10.0	
4	47:30	0.57	1.2	833.61	302	250	250	62	101	90	3	9.6	
5	50:00	0.67	1.6	835.385	303	247	249	62	101	90	4	9.6	835.655 .27
1-1	52:30	0.29	0.71	836.89	298	245	247	62	100	91	3	9.0	
2	55:00	0.31	0.76	838.14	299	259	257	61	100	91	3	9.3	
3	57:30	0.45	1.1	839.66	297	247	251	61	101	92	3	9.5	
4	60:00	0.45	1.1	841.14	300	249	248	60	101	92	3	9.9	
5	62:30	0.63	1.5	842.890	300	258	250	61	102	92	4	10.0	
	Total	*							2372	2180			
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC_____

Date_____

CleanAir ENGINEERING

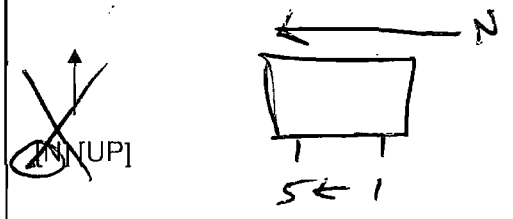
TEST LOCATION: FF OUTLET | FLUORIDE **TESTING** **METHOD:** 13 B **PAGE** 1 **OF** 2

UNIT: 1 **RUN:** 2

FIELD DATA SHEET

Client: Wheelabrator	Project No. 11182
Plant: N. Brownfield	Date: 3.22.11
Meter Operator: NH	
Probe Operator: BA	

Cross-Section of Test Location



Amb. Temp. (°F): 84	Bar. Press.: 30.20 [in. Hg] [mbar]
Probe I.D. No.: 67-8-20	
Liner Material: GLASS	

Meter Box: 66-4	Sample Box No.: B22	
Meter Y_d: 0.9983	Meter $\Delta H_@$: 1.6979	
K Factor: ~~2.45~~ 2.5	Pitot C_p: 0.818	
Leak Rate Before: 0.003 [cfm] [Lpm] @ 15 (in. Hg)		
Leak Rate After: 0.001 [cfm] [Lpm] @ 6 (in. Hg)		
Pitot Leak Check Before: ☒	After: Good ☒ Bad ☐	

Duct Dimensions (in.): 96 x 96			
Static Pres ($in. H_2O$): -11.0	Port Len. (in.): 10	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Filter No.: NA			
Thimble No.:			
Nozzle Diameter: 0.271	Nozzle I.D.: 271-2		

Start Time: 14:08	Stop Time: 15:17

Traverse Point Number	Min/pt 2:30 Elapsed Time	Velocity Head ΔP ($in. H_2O$)	Orifice Setting ΔH ($in. H_2O$) NH	Gas Sample Volume V_m Init. Vol. [ft³] [L] 843.540	Stack Temp. Ts (°F)	ProbeT$_p$ (°F) Set Points 250	Filter T$_f$ (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_x (°F) O_2	Notes	
5 - 1	2:30	0.42	~~1.0~~ 1.1	845.03	300	253	258	63	95	94	3	10.2		
2	5	0.42	1.1	846.52	300	244	255	63	95	94	3	9.2		
3	7:30	0.47	1.2	848.07	300	252	252	62	97	94	3	9.9		
4	10	0.58	1.5	849.79	301	259	252	63	98	93	3	10.5		
5	12:30	0.60	1.5	851.545	301	243	250	59	100	93	3	10.5	51.675	.13
4 - 1	15	0.57	1.4	853.42	301	251	250	55	101	93	3	10.1		
2	17:30	0.50	1.3	855.05	301	250	255	55	101	93	3	10.1		
3	20	0.55	1.4	856.78	301	254	251	55	102	93	3	9.3		
4	22:30	0.61	1.5	858.57	302	250	249	54	102	94	3	9.7		
5	25	0.68	1.7	860.355	301	248	249	57	103	94	4	10.0	60.515	.16
3 - 1	27:30	0.67	1.7	862.38	301	247	250	63	102	94	4	~~10.0~~ 9.9		
2	30	0.50	1.3	864.03	302	258	250	63	103	94	3	10.1		
3	32:30	0.50	1.3	865.65	302	250	250	63	103	94	3	9.9		
	Total	*18.2299	34.1900	41.4000	7515									
	Average	0.7296	1.3676		300.6000				97.8600					

*Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3-22-11

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET Fluoride **TESTING** **METHOD:** 13B **PAGE** 2 **OF** 2

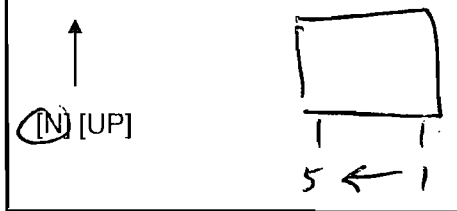
UNIT: 1 **RUN:** 2

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Broward	Date	3.22.11
Meter Operator	NH		
Probe Operator	BA		

Meter Box	66-4	Sample Box No.	B22
Meter Y_d	0.9983	Meter $\Delta H_@$	1.6979
K Factor	2.5	Pitot C_p	0.878
Leak Rate Before	[cfm] [Lpm]	@	(in. Hg)
Leak Rate After	[cfm] [Lpm]	@	(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location



Duct Dimensions (in.)	96 x 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
	10		

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	67-8-20
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 2:30 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F)	Notes
						250	250						
3-4	35	0.60	1.5	867.41	302	245	250	57	102	93	4	10.2	
5	37:30	0.75	1.9	869.330	302	256	249	58	104	94	4	10.0	69.570 · 18
2-1	40	0.75	1.9	871.47	302	245	257	58	104	93	4	10.2	
2	42:30	0.52	1.3	873.13	302	255	257	58	104	94	3	10.2	
3	45	0.54	1.4	874.80	302	245	250	59	104	94	4	10.3	
4	47:30	0.57	1.4	876.51	302	259	250	54	105	95	4	9.4	
5	50	0.63	1.6	878.300	303	258	250	54	105	95	3	8.8	78.455 · 15
1-1	52:30	0.27	0.68	879.67	299	257	250	55	104	93	3	10.2	
2	55	0.29	0.73	880.83	299	255	250	55	103	94	3	9.8	
3	57:30	0.39	0.98	882.23	285	249	250	56	104	95	3	11.2	
4	60	0.49	1.2	883.79	302	259	249	56	104	95	3	10.6	
5	62:30	0.64	1.4	885.565	302	251	251	57	102	94	3	9.9	
	Total	*							2547	2346			
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC_____

Date_____

CleanAir ENGINEERING

TEST LOCATION: FF out | Fluoride | **TESTING METHOD:** 13B **PAGE** 1 **OF** 2

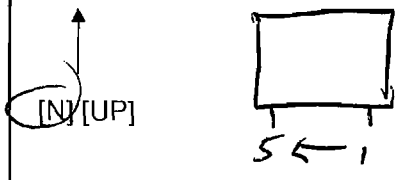
UNIT: 1 **RUN:** 3

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N Brevard	Date	3.22.11
Meter Operator	NH		
Probe Operator	BA		

Meter Box	66-4	Sample Box No.	B1
Meter Y_d	0.9983	Meter $\Delta H_@$	1.6979
K Factor	2.5	Pitot C_p	0.818
Leak Rate Before	0.002 (cfm) [Lpm]	@	15 (in. Hg)
Leak Rate After	0.001 (cfm) [Lpm]	@	7 (in. Hg)
Pitot Leak Check Before: ☑	After: Good ☑ Bad ☐		

Cross-Section of Test Location



Duct Dimensions (in.)	96 x 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-11.2	10		

Amb. Temp. (°F)	82	Bar. Press.	30.20 [in. Hg] [mbar]
Probe I.D. No.	67-8-20		
Liner Material	Glass		

Filter No.	NA		
Thimble No.			
Nozzle Diameter	0.270	Nozzle I.D.	271-2

Start Time:	15:39	Stop Time:	16:47

Traverse Point Number	Min/pt 2:30 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³)[L] 886.390	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_x (O_2) (°F)	Notes
5 -1	2:30	0.45	1.1	887.97	301	259	258	66	97	93	3	10.7	
2	5	0.45	1.1	889.46	301	247	259	63	96	93	3	10.7	
3	7:30	0.56	1.4	891.08	303	245	257	56	98	94	3	10.7	
4	10	0.67	1.7	892.91	306	259	257	55	100	94	4	10.4	
5	12:30	0.67	1.7	894.750	308	244	254	55	101	93	4	11.2	95.020 .24
4 -1	15	0.47	1.2	896.58	308	247	244	56	102	94	3	10.7	
2	17:30	0.45	1.1	898.06	308	247	257	57	103	94	3	9.0	
3	20	0.56	1.4	899.76	305	259	259	58	103	94	4	10.4	
4	22:30	0.70	1.8	901.65	308	249	256	58	105	95	4	10.4	
5	25	0.70	1.8	903.535	307	245	257	59	104	94	4	10.6	903.785 .25
3 -1	27:30	0.59	1.5	905.55	306	245	247	66	105	95	4	10.5	
2	30	0.60	1.5	907.29	307	256	257	65	106	96	4	10.3	
3	32:30	0.60	1.5	909.04	308	257	259	64	106	96	4	11.2	
	Total	*18.7184	35.8600	42.3950	7632				2607	2388			
	Average	0.74874	1.4344		305.2800				99.9000				

*Sum of square roots.

Circle correct bracketed units on data sheet

QA/QC NH

Date 3.22.11

E - 16

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET **FLUORIDE TESTING** **METHOD:** 13B **PAGE** 2 **OF** 2

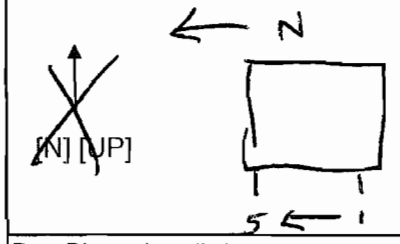
UNIT: 1 **RUN:** 3

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Broward	Date	3.22.11
Meter Operator	NH		
Probe Operator	BA		

Meter Box	66-4	Sample Box No.	B1
Meter Y_d	0.9983	Meter $\Delta H_@$	1.6979
K Factor	2.5	Pitot C_p	0.818
Leak Rate Before	(cfm) [Lpm]	@	(in. Hg)
Leak Rate After	(cfm) [Lpm]	@	(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location



Duct Dimensions (in.) 96 x 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-11.2	10		

Amb. Temp. (°F)	Bar. Press.	[in. Hg] [mbar]
Probe I.D. No.	67-8-20	
Liner Material	GLASS	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 2:30 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³) [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F) O_2	Notes	
						250	250							
3 -4	35	0.70	1.8	910.93	308	253	258	64	107	96	4	10.3		
5	37:30	0.77	1.9	912.915	307	245	248	65	107	96	5	10.5	918.145	.23
2 -1	40	0.60	1.5	914.90	304	242	244	65	106	95	4	10.5		
2	42:30	0.50	1.3	916.67	302	249	252	61	107	96	4	9.8		
3	45	0.51	1.3	918.30	302	255	255	58	108	97	4	10.1		
4	47:30	0.60	1.5	920.11	302	247	252	57	107	98	4	9.6		
5	50	0.66	1.7	921.780	303	243	245	56	106	97	4	10.4	921.945	.16
1 -1	52:30	0.27	0.68	923.14	302	247	246	52	106	98	3	9.4		
2	55	0.31	0.78	924.45	303	245	248	52	106	98	3	11.2		
3	57:30	0.50	1.3	926.06	306	255	252	53	107	97	4	10.0		
4	60	0.52	1.3	927.67	307	241	242	54	108	98	4	11.2		
5	62:30	0.80	2.0	929.670	310	251	250	55	106	97	5	11.6		
	Total	*												
	Average													

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC_____

Date_____

CleanAir ENGINEERING

Impinger Weight Sheet

Client Wheelabrator		Unit Name/Location Unit 1 FF Outlet
Plant North Broward	Job No. 11182	Method 13B

CAE TL07-2 Cal # 5653264 4995

Run No. 1	Filter Type Teflon glass mat		Sample Box No. B1
Date 3/22/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	100 mL DI H2O	707.2	631.5	75.7	
Impinger 2	100 mL DI H2O	619.9	541.8	78.1	QA/QC RV
Impinger 3	Empty	482.5	452.2	30.3	Date 3/22/11
Impinger 4	Silica Gel	752.3	723.1	29.2	
					Total Weight (gm)
					184.1
					213.3

Run No. 2	Filter Type Teflon glass mat		Sample Box No. B22
Date 3/22/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	100 mL DI H2O	691.4	543.1	148.3	
Impinger 2	100 mL DI H2O	601.2	547.3	53.9	QA/QC RV
Impinger 3	Empty	452.3	441.1	11.2	Date 3/22/11
Impinger 4	Silica Gel	751.9	736.3	15.6	
					Total Weight (gm)
					213.4
					229.0

Run No. 3	Filter Type Teflon glass mat		Sample Box No. B1
Date 3/22/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	100 mL DI H2O	737.4	633.2	104.2	
Impinger 2	100 mL DI H2O	620.3	544.7	75.6	QA/QC SB
Impinger 3	Empty	477.3	454.1	23.2	Date 3/22
Impinger 4	Silica Gel	746.5	723.9	22.6	
					Total Weight (gm)
					203.0
					225.6

QA/QC SB
Date 3/22

CleanAir ENGINEERING

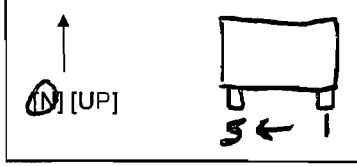
TEST LOCATION: FF OUTLET

UNIT: 2

VELOCITY DETERMINATION FIELD DATA SHEET

Client: Wheelabrator	Project No.: 1182
Plant: N. Broward	Date: 3.23.11
Meter Operator: NHITCHINS	
Probe Operator: CSLIMP	
Source of Moisture and Molecular Weight Data: M26A	

Cross-Section of Test Location



Amb. Temp. (°F): 68	Bar. Press.: 30.1 [in. Hg] [mbar]
Pitot Cp: 0.817	Probe I.D. No.: 67-80-3
Duct Diameters from Disturbance: Downstream	Upstream
First point all the way [In] [Out]	Port Len. (in.): 10
Gas Flow [In] [Out] of page	
Duct Dimensions (in.): 96 x 96	

Run: 1	Load	Start Time: 7:22	Stop Time: 7:35	Static Press. (in. H_2O): -9.9	Post-Test Leak Check: Pass ☑ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
1 -1	305	0.35	
2	305	0.37	
3	305	0.39	
4	305	0.39	
5	306	0.44	
2 -1	304	0.45	
2	305	0.49	
3	305	0.48	
4	306	0.42	
5	307	0.41	
3 -1	308	0.34	
2	308	0.37	
3	308	0.39	
4	308	0.39	
5	308	0.40	
Total	7673	*15.5845	
Average	306.9200	0.62334	

Run: 1	Load	Start Time	Stop Time	Static Press. (in. H_2O):	Post-Test Leak Check: Pass ☑ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
4 -1	306	0.40	
2	307	0.38	
3	308	0.38	
4	309	0.36	
5	309	0.35	
5 -1	308	0.32	
2	308	0.37	
3	308	0.37	
4	309	0.37	
5	308	0.36	
		*	

Run: 2	Load	Start Time: 7:50	Stop Time: 8:00	Static Press. (in. H_2O): -10.5	Post-Test Leak Check: Pass ☑ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5 -1	307	0.37	
2	307	0.41	
3	307	0.44	
4	307	0.48	
5	308	0.47	
4 -1	309	0.34	
2	309	0.38	
3	309	0.38	
4	309	0.38	
5	309	0.37	
3 -1	308	0.30	
2	308	0.36	
3	308	0.37	
4	308	0.40	
5	308	0.43	
	7683	*15.9350	
	307.3200	0.6374	

Run: 2	Load	Start Time	Stop Time	Static Press. (in. H_2O):	Post-Test Leak Check: Pass ☑ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
2 -1	306	0.43	
2	306	0.42	
3	306	0.45	
4	306	0.45	
5	306	0.46	
1 -1	306	0.39	
2	306	0.39	
3	306	0.39	
4	307	0.41	
5	307	0.48	
		*	

*Sum of square roots.

Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

QA/QC: NH

Date: 3.23.11

TEST LOCATION: FF OUT

UNIT: 2

VELOCITY DETERMINATION FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N Brunswick	Date 3.23.11
Meter Operator NH	
Probe Operator CS	
Source of Moisture and Molecular Weight Data M26A	

Cross-Section of Test Location

Amb. Temp. (°F) 75		Bar. Press. 30.1 [in. Hg] [mbar]	
Pitot Cp 0.817		Probe I.D. No. 67-81-3	
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.) 10	
Gas Flow [In] [Out] of page			
Duct Dimensions (in.) 96 × 96			

Run 3	Load	Run 3	Load	Run 4	Load	Run 4	Load
Start Time 8:40	Stop Time 8:50	Start Time	Stop Time	Start Time 9:20	Stop Time 9:28	Start Time	Stop Time
Static Press. (in. H_2O) -11.8		Static Press. (in. H_2O)		Static Press. (in. H_2O) -11.3		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes
1 ~~2~~ -1	305	~~0.44~~ NH	0.44	4 -1	309	0.35		5 -1	308	0.28		~~1~~			
NH 2	305	~~0.44~~	0.42	2	308	0.36		2	308	0.32		~~2~~ NH			
3	305	0.47	*	3	309	0.37		3	308	0.33		~~3~~			
4	305	0.48		4	308	0.38		4	308	0.32		~~4~~			
5	305	0.50		5	309	0.36		5	308	0.30		~~5~~ NH			
2 -1	306	0.41		5 -1	307	0.34		4 -1	307	0.40		~~4~~ -1	308	0.46	
2	306	0.44		2	307	0.34		2	307	0.42		2 2	308	0.48	
3	307	0.45		3	307	0.36		3	307	0.42		3	308	0.47	
4	307	0.44		4	308	0.38		4	307	0.41		4	308	0.53	
5	307	0.43		5	308	0.35		5	307	0.43		5	308	0.63	
3 -1	305	0.32						3 -1	307	0.35		1 -1	307	0.37	
2	306	0.35						2	307	0.38		2	307	0.33	
3	308	0.37						3	306	0.39		3	307	0.35	
4	308	0.35						4	307	0.39		4	307	0.34	
5	308	0.34						5	307	0.41		5	307	0.34	
Total	7673	*15.6382				*			7684	*15.6236				*	
Average	306.0 4200	0.6255							307.4 3600	0.6249					

* Sum of square roots. Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

FDS002-Velo ust 2004

QA/QC NH

Date 3.11

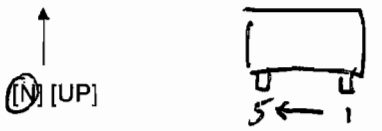
TEST LOCATION: FF OUTLET

UNIT: 2

VELOCITY DETERMINATION FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Brownfield	Date 3.23.11
Meter Operator NH	
Probe Operator CS	
Source of Moisture and Molecular Weight Data M26A	

Cross-Section of Test Location



Amb. Temp. (°F) 75	Bar. Press. 30.1 [in. Hg] [mbar]
Pitot Cp 0.817	Probe I.D. No. 67-88-3
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way [In] [Out]	Port Len. (in.) 10
Gas Flow [In] [Out] of page	
Duct Dimensions (in.) 96 x 96	

Run 5	Load	Run 5	Load	Run 6	Load	Run 6	Load
Start Time 10:05	Stop Time 10:15	Start Time	Stop Time	Start Time 10:36	Stop Time 10:47	Start Time	Stop Time
Static Press. (in. H_2O) −10.3		Static Press. (in. H_2O)		Static Press. (in. H_2O) −10.5		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
1 -1	309	0.37		4 -1	307	0.33		1 -1	308	0.46		4 -1	308	0.28	
2	309	0.41		2	307	0.34		2	308	0.44		2	308	0.32	
3	309	0.40		3	307	0.36		3	308	0.42		3	308	0.34	
4	309	0.41		4	307	0.40		4	308	0.43		4	308	0.36	
5	309	0.47		5	307	0.39		5	308	0.49		5	308	0.38	
2 -1	308	0.43		5 -1	307	0.26		2 -1	309	0.46		5 -1	308	0.36	
2	308	0.41		2	307	0.29		2	309	0.43		2	308	0.38	
3	308	0.44		3	307	0.33		3	309	0.42		3	308	0.41	
4	308	0.48		4	308	0.40		4	309	0.41		4	308	0.42	
5	308	0.53		5	308	0.41		5	309	0.38		5	308	0.39	
3 -1	308	0.28						3 -1	306	0.32		7*			
2	308	0.34						2	306	0.36		1*			
3	308	0.37						3	307	0.38					
4	308	0.41						4	307	0.40					
5	308	0.44						5	307	0.44					
Total	7697	*15.5615	15.5615			*			7698	*15.7007				*	
Average	307.	0.6225							307.92	0.6280					

8800

Sum of square roots.

Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

QA/QC CS

Date 3/17

TEST LOCATION: FF OUT

UNIT: 2

VELOCITY DETERMINATION FIELD DATA SHEET

Client: Wheelabrator	Project No.: 11182
Plant: N. Broward	Date: 3.23.11
Meter Operator: NH	
Probe Operator: BA	
Source of Moisture and Molecular Weight Data: M3B	

Cross-Section of Test Location

Amb. Temp. (°F): 85		Bar. Press.: 30.1	[in. Hg] [mbar]
Pitot Cp: 0.817		Probe I.D. No.: 67-8P-3	
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.): 10	
Gas Flow [In] [Out] of page			
Duct Dimensions (in.): 96 x 96			

Run: 7 to	Load:	Run: 7 to	Load:	Run: 8	Load:	Run:	Load:
Start Time: 11:36	Stop Time: 11:45	Start Time:	Stop Time:	Start Time: 12:12	Stop Time: 12:20	Start Time:	Stop Time:
Static Press. (in. H_2O): -10.4		Static Press. (in. H_2O):		Static Press. (in. H_2O): -10.6		Static Press. (in. H_2O):	
Post-Test Leak Check: Pass ☒ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☒ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
1-1	307	~~0.46~~	0.41	4-1	306	0.34		1-1	310	0.46		4-1	~~308~~ NH	~~0.49~~	311 0.42
2	307	~~0.47~~	0.43	2	306	0.33		2	310	0.46		2	311	~~0.51~~	-0.42
3	307	~~0.46~~	0.42	3	309	0.36		3	310	0.46		3	311	~~0.49~~	0.42
4	307	0.49		4	306	0.36		4	311	0.48		4	311	~~0.45~~	0.43
5	307	0.61		5	307	0.38		5	311	0.47		5	311	~~0.44~~	0.47
2-1	307	0.41		5-1	308	0.40		2-1	308	0.49		5-1	309	0.34	
2	308	0.41		2	307	0.37		2	308	0.57		2	310	0.39	
3	308	0.45		3	307	0.40		3	308	0.49		3	309	0.39	
4	309	0.50		4	309	0.43		4	308	0.45		4	310	0.42	
5	309	0.55		5	308	0.43		5	306	0.44 NH		5	310	0.43	
3-1	309	0.32						3-1	306	~~0.49~~ NH	0.33				
2	310	0.35						2	308	~~0.57~~ NH	0.46				
3	310	0.39						3	308	—	0.46				
4	311	0.40						4	308	~~0.54~~	0.43				
5	311	0.42						5	309	—	0.41				
Total	7697	*16.0467				*			7732	* 16.5098				*	
Average	307.8800	0.6419							309.2800	0.6604					

Sum of square roots.

Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

QA/QC CS

Date

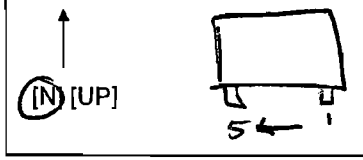
TEST LOCATION: FF OUTLET

UNIT: 2

VELOCITY DETERMINATION FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Broward's	Date	3.23.11
Meter Operator	NH		
Probe Operator	BA		
Source of Moisture and Molecular Weight Data	M3B		

Cross-Section of Test Location



Amb. Temp. (°F)	83	Bar. Press.	30.10 (in. Hg) [mbar]
Pitot Cp	0.817	Probe I.D. No.	67-8P-3
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way (In) [Out]		Port Len. (in.)	10
Gas Flow (In) [Out] of page			
Duct Dimensions (in.)	96 x 96		

Run 9	Load	Run 9	Load	Run 10	Load 1	Run 10	Load
Start Time 13:10	Stop Time 13:21	Start Time	Stop Time	Start Time 13:50	Stop Time 14:00	Start Time	Stop Time
Static Press. (in. H_2O) -10.7		Static Press. (in. H_2O)		Static Press. (in. H_2O) -10.7		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5-1	309	0.42		2-1	308	0.59		1-1	309	0.46		4-1	304	0.47	
2	309	0.43		2	308	0.59		2	309	0.42		2	308	0.47	
3	309	0.45		3	308	0.55		3	309	0.46		3	308	0.44	
4	309	0.42		4	308	0.50		4	310	0.49		4	308	0.42	
5	309	0.39		5	308	0.51		5	310	0.48		5	307	0.39	
4-1	309	0.42		1-1	302	0.20		2-1	309	0.53		5-1	308	0.35	
2	309	0.43		2	304	0.27		2	309	0.51		2	308	0.41	
3	310	0.40		3	302	0.39		3	309	0.50		3	308	0.37	
4	310	0.40		4	307	0.53		4	309	0.50		4	309	0.36	
5	310	0.38		5	308	0.58		5	309	0.49		5	309	0.36	
3-1	309	0.44						3-1	308	0.40					
2	310	0.47						2	308	0.42					
3	310	0.45						3	309	0.42					
4	310	0.43						4	309	0.41					
5	310	0.43						5	309	0.45					
Total	7709	*16.5436				*			7712	*16.5566				*	
Average	308.36	0.6617							308.480	0.6623					

Sum of square roots.

Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

QA/QC CG

Date 3/23

TEST LOCATION: FF OUTLET | ACI | **TESTING** | **METHOD:** 26A | **PAGE** 1 **OF** 1

UNIT: 2 **RUN:** 1

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N BROWARD 5	Date	3.23.11
Meter Operator	NH		
Probe Operator	NH		

Meter Box	61-5	Sample Box No.	B24
Meter Y_d	0.9936	Meter $\Delta H_@$	1.7676
K Factor	NA	Pitot C_p	NA
Leak Rate Before	0.002 [cfm]	[Lpm] @	15 (in. Hg)
Leak Rate After	0.002 [cfm]	[Lpm] @	7 (in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location

Duct Dimensions (in.)	96 x 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-9.9	10		

Amb. Temp. (°F)	68	Bar. Press.	30.1 [in. Hg] [mbar]
Probe I.D. No.	67-4-1		
Liner Material	GLASS		

Filter No.	NA		
Thimble No.	NA		
Nozzle Diameter	NA	Nozzle I.D.	NA

Start Time:	7:12	Stop Time:	8:12

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 617.490	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 300	Filter T_f (°F) Set Points 300	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F)	Notes
3-1	5	N/A	1.5	621.27	308	304	303	62	72	70	4	9.3	
	10		1.5	624.67	308	303	303	53	77	71	4	8.0	
	15		1.5	628.13	308	303	302	52	81	72	4	8.4	
	20		1.5	631.60	309	301	305	55	84	72	4	8.7	
	25		1.5	635.05	309	301	303	61	86	73	4	8.3	
	30		1.5	638.54	309	302	302	62	87	74	4	8.4	
	35		1.5	642.05	309	302	302	63	89	75	4	8.9	
	40		1.5	645.54	310	302	301	62	89	76	4	9.0	
	45		1.5	649.12	310	302	302	60	89	77	4	8.7	
	50		1.5	652.61	309	302	302	58	89	77	4	8.9	
	55		1.5	656.14	309	302	302	57	90	78	4	8.4	
	60		1.5	659.700	308	301	302	56	90	79	4	8.6	
	Total	*		42.2100	3706				1023	894			
	Average		1.5000		308.8333				79.8750				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3/23/11

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET Hg1 **TESTING** **METHOD:** 26A **PAGE** 1 **OF** 1

UNIT: 2 **RUN:** 2

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Brunswick	Date 3.23.11
Meter Operator	NH
Probe Operator	

Cross-Section of Test Location

Amb. Temp. (°F) 71	Bar. Press. 30.10 [in. Hg] [mbar]
Probe I.D. No. ~~67-80~~ 67-4-1	
Liner Material	GLASS

Meter Box 61-5	Sample Box No. B12	
Meter Y_d 0.9936	Meter $\Delta H_@$ 1.7676	
K Factor —	Pitot C_p —	
Leak Rate Before 0.003 [cfm] [Lpm]	@ 15 (in. Hg)	
Leak Rate After 0.002 [cfm] [Lpm]	@ 7 (in. Hg)	
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐	

Duct Dimensions (in.)	96 × 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-11.8	10		

Filter No.	NA	
Thimble No.	NA	
Nozzle Diameter	Nozzle I.D.	

Start Time: 8:38	Stop Time: 9:38

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 660.615	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 300	Filter T_f (°F) Set Points 300	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. ~~X~~ (°F) O_2	Notes
2-1	5	N/A	1.5	664.15	309	302	305	64	82	80	4	9.6	
	10	↓	1.5	667.61	308	307	302	60	87	80	4	8.7	
	15	↓	1.5	671.01	308	303	301	59	89	80	4	9.1	
	20		1.5	674.58	308	301	302	63	92	81	4	8.7	
	25		1.5	678.05	308	301	302	64	93	81	4	8.4	
	30		1.5	681.56	308	301	302	65	NH ~~8~~ 96	83	4	9.3	
	35		1.5	684.97	308	302	302	65	94	83	4	8.7	
	40		1.5	688.50	308	302	302	62	94	83	4	8.5	
	45		1.5	691.90	307	302	302	59	94	84	4	8.9	
	50		1.5	695.43	308	302	303	56	93	84	4	9.4	
	55		1.5	698.96	308	302	302	54	94	85	4	9.2	
	60		1.5	702.480	308	302	302	53	94	85	4	9.3	
	Total	*		41.8650	3696				1100	989			
	Average		1.5000		308.0000				87.0417				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.23.11

CleanAir ENGINEERING

TEST LOCATION: FF OUT HCl **TESTING** **METHOD:** 26A **PAGE** 1 **OF** 1

UNIT: 2 **RUN:** 3

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Browards	Date 3.23.11
Meter Operator	NH
Probe Operator	NH

Meter Box G1-5	Sample Box No. B14
Meter Y_d 0.9936	Meter $\Delta H_@$ 1.7676
K Factor NA	Pitot C_p —
Leak Rate Before 0.004 [cfm] [Lpm]	@ 16 (in. Hg)
Leak Rate After 0.002 [cfm] [Lpm]	@ 7 (in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location

Duct Dimensions (in.) 96 × 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-11.3	10		

Amb. Temp. (°F) 77	Bar. Press. 30.1	[in. Hg] [mbar]
Probe I.D. No.	67-4-1	
Liner Material	GLASS	

Filter No. —		
Thimble No. —		
Nozzle Diameter —	Nozzle I.D.	

Start Time: 9:59 Stop Time: 10:59

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 703.025	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 300	Filter T_f (°F) Set Points 300	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_x (°F) O_2	Notes
2-1	5	N/A	1.5	706.85	309	300	306	60	89	85	4	8.0	
	10		1.5	710.14	309	305	304	58	91	85	4	8.3	
	15		1.5	713.60	308	304	305	57	93	85	4	8.6	
	20		1.5	717.12	309	302	303	55	95	86	4	7.5	
	25		1.5	720.50	309	302	302	63	95	87	4	5.7	
	30		1.5	723.99	309	302	302	65	95	87	4	8.7	
	35		1.5	727.44	308	301	302	64	95	87	4	8.5	
	40		1.5	730.89	308	303	303	64	95	88	4	8.2	
	45		1.5	734.33	308	302	303	65	95	88	4	8.2	
	50		1.5	737.83	308	302	303	65	94	88	4	8.1	
	55		1.5	741.34	309	301	301	66	94	87	4	8.3	
	60		1.5	744.810	308	302	302	65	93	86	4	8.3	
	Total	*		41.7850	3702				1124	1039			
	Average		1.5000		308.500				90.1250				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.23.11

CleanAir ENGINEERING

Impinger Weight Sheet

Client Wheelabrator		Unit Name/Location Unit 2 FF Outlet
Plant North Broward	Job No. 11182	Method Mod. 26A

Run No. 1	Filter Type Quartz	Sample Box No. B21
Date 3/23/11	Lot No.	pH
Analyst R. Vicere	Filter No. NA	Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	499.3	457.2	42.1	
Impinger 2	100 mL 01.N H2SO4	658.1	547.9	110.2	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	603.4	552.9	50.5	Date 3/23/11
Impinger 4	Empty	460.3	443.6	16.7	
Impinger 5	Silica Gel	756.7	739.1	17.6	Total Weight (gm)
					219.5
					237.1

Run No. 2	Filter Type Quartz	Sample Box No. B12
Date 3/23/11	Lot No.	pH
Analyst R. Vicere	Filter No. NA	Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	507.7	454.4	53.3	
Impinger 2	100 mL 01.N H2SO4	643.7	540.2	103.5	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	589.8	553.0	36.8	Date 3/23/11
Impinger 4	Empty	438.7	428.1	10.6	
Impinger 5	Silica Gel	790.0	773.2	16.8	Total Weight (gm)
					209.2
					224.0

Run No. 3	Filter Type Quartz	Sample Box No. B14
Date 3/23/11	Lot No.	pH
Analyst R. Vicere	Filter No. NA	Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	508.5	455.5	53.0	
Impinger 2	100 mL 01.N H2SO4	624.0	525.0	99.0	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	585.6	535.9	49.7	Date 3/23/11
Impinger 4	Empty	459.4	446.7	12.7	
Impinger 5	Silica Gel	767.1	750.5	16.6	Total Weight (gm)
					214.4
					231.0

QA/QC 53
Date 3/23

CleanAir ENGINEERING

274 2.00

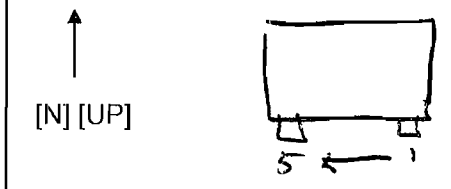
TEST LOCATION: FF OUT Fluoride **TESTING** **METHOD:** 13B **PAGE** 1 **OF** 2

UNIT: 2 **RUN:** 1

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Broward	Date	
Meter Operator	NH		
Probe Operator	BA		

Cross-Section of Test Location



Amb. Temp. (°F)	84	Bar. Press.	30.10 [in. Hg] [mbar]
Probe I.D. No.	67-8-20		
Liner Material	Glass		

Meter Box	66-21	Sample Box No.	B22
Meter Y_d	0.9837	Meter $\Delta H_@$	1.8252
K Factor	2.65	Pitot C_p	0.818
Leak Rate Before	0.004 [cfm] [Lpm]	@	15 (in. Hg)
Leak Rate After	0.002 [cfm] [Lpm]	@	6 (in. Hg)
Pitot Leak Check Before: ☑	After: Good ☑	Bad ☐	

Duct Dimensions (in.)	96 x 96	
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page
-10.4	10	First point all the way [In] [Out]

Filter No.	—		
Thimble No.	—		
Nozzle Diameter	0.274	Nozzle I.D.	274-1

Start Time:	11:32	Stop Time:	12:45

Traverse Point Number	Min/pt 2:30 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 287.420	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F) O_2	Notes
5-1	2:30	0.40	1.1	288.95	308	259	254	65	83	81	3	9.3	
2	5	0.37	0.98	290.38	307	256	254	64	83	81	3	9.3	
3	7:30	0.40	1.1	291.84	307	257	257	63	83	82	3	9.5	
4	10	0.43	1.1	293.36	309	258	252	63	85	82	3	9.3	
5	12:30	0.43	1.1	294.890	308	257	252	63	85	83	4	8.9	4.950 .06
4-1	15	0.41	1.1	296.45	306	243	252	63	86	82	3	9.9	
2	17:30	0.42	1.1	~~298.98~~ 297.88	308	245	250	62	87	82	3	9.5	
3	20	0.42	1.1	299.48	308	256	250	55	88	83	3	9.7	
4	22:30	0.42	1.1	300.98	308	255	250	53	89	83	4	9.5	
5	25	0.39	1.0	302.415	308	249	250	55	90	84	4	8.6	2.545 .13
3-1	27:30	0.33	0.87	303.90	306	245	250	59	90	84	3	9.7	
2	30	0.46	1.2	305.44	308	250	250	59	91	85	4	9.0	
3	32:30	0.46	1.2	~~306.99~~	308	249	251	59	91	85	4	9.5	
	Total	*~~16.3428~~	28.3600	37.8900	7678				2187	2084			
	Average	0.6537	1.1344		307.1200				85.4200				

*Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.3.11

CleanAir ENGINEERING

TEST LOCATION: FF OUT Fluoride **TESTING** **METHOD:** 13B **PAGE** 2 **OF** 2

UNIT: 3 **RUN:** 1

FIELD DATA SHEET

Client Wheelabrator	Project No. 11152
Plant N Brunswick	Date 3.23.11
Meter Operator	N Hitchins
Probe Operator	B Arnold

Cross-Section of Test Location

[N] [UP]

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Meter Box	6-21	Sample Box No. B22
Meter Y_d	0.9837	Meter $\Delta H_@$ 1.8252
K Factor	2.65	Pitot C_p 0.818
Leak Rate Before	[cfm] [Lpm] @	(in. Hg)
Leak Rate After	[cfm] [Lpm] @	(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐	

Duct Dimensions (in.)

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time:

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³) [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F)	Notes
3-4	35	0.43	1.1	308.50	308	253	257	60	92	85	4	9.2	
5	37:30	0.41	1.1	310.020	309	257	250	61	91	85	4	9.0	0.240 (.22)
2-1	40	0.52	1.5	312.16	307	245	250	63	87	84	4	9.2	
2	42:30	0.54	1.4	313.68	308	249	252	60	88	85	4	9.2	
3	45	0.47	1.2	315.25	308	254	250	55	89	85	4	8.8	
4	47:30	0.46	1.2	316.79	307	255	250	53	89	85	4	8.9	
5	50	0.46	1.2	318.340	307	250	250	52	88	83	4	10.5	8.515 (.175)
1-1	52:30	0.24	0.64	319.65	303	245	247	55	86	83	3	10.5	
2	55	0.27	0.72	321.12	305	246	250	53	86	83	3	10.2	
3	57:30	0.36	0.95	322.26	301	251	250	52	86	83	3	10.1	
4	60	0.62	1.6	324.04	307	252	250	52	87	83	4	9.6	
5	62:30	0.64	1.7	325.895	309	253	250	51	87	83	4	9.0	
	Total	*											
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC SB

Date 3/23

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET FLUORIDE **TESTING** **METHOD:** 13B **PAGE** 1 **OF** 2

UNIT: 2 **RUN:** 2

FIELD DATA SHEET

Client Wheelabrator	Project No. 1182
Plant N. Broward's	Date 3.23.11
Meter Operator	NH
Probe Operator	BA

Meter Box	66-21	Sample Box No.	
Meter Y_d	0.9837 2.7	Meter $\Delta H_@$	1.8252
K Factor	~~2.65~~ ~~2.65~~ NH	Pitot C_p	0.818
Leak Rate Before	0.003 [cfm] [Lpm]	@	15 (in. Hg)
Leak Rate After	0.002 [cfm] [Lpm]	@	8 (in. Hg)
Pitot Leak Check Before: ~~☐~~	After: Good ☑	Bad ☐	

Cross-Section of Test Location

Duct Dimensions (in.) 96 x 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow	First point
-10.7	10	[In] [Out] of page	all the way [In] [Out]

Amb. Temp. (°F)	82	Bar. Press. 30.10 [in. Hg] [mbar]	
Probe I.D. No.	67-8-20		
Liner Material	Glass		

Filter No.	-	
Thimble No.	-	
Nozzle Diameter .274	Nozzle I.D.	274-1

Start Time: 13:09	Stop Time: 14:17

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 326.305	Stack Temp. Ts (°F)	ProbeT$_p$ (°F) Set Points	Filter T$_f$ (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. ~~T~~ (°F) O_2	Notes	
						250	250							
1-1	2.5	0.20	0.54	327.41	302	258	259	63	83	82	3	9.6		
2	5	0.27	0.72	328.62	304	259	259	63	83	82	3	9.6		
3	7.5	0.39	1.0	330.04	302	254	254	63	83	82	3	9.6		
4	10	0.53	1.4	331.70	307	256	252	58	84	79	4	9.8		
5	12.5	0.58	1.6	333.535	308	251	251	57	85	82	4	8.6	.870	.335
2-1	15	0.57	1.5	335.63	308	245	250	52	85	82	4	9.0		
2	17.5	0.58	1.6	337.41	307	247	250	54	85	82	4	8.9		
3	20	0.49	1.3	339.03	308	250	250	54	86	82	4	8.8		
4	22.5	0.51	1.4	340.70	308	252	250	55	86	82	4	9.7	.530	
5	25	0.50	1.4	342.375	308	251	250	52	87	81	4	9.8	.530	.155
3-1	27.5	0.60	1.6	344.35	308	247	250	61	86	82	5	9.5		
2	30	0.49	1.3	346.02	308	246	250	60	87	82	5	9.2		
3	32.5	0.46	1.2	347.54	308	251	250	61	87	82	4	8.5		
	Total	*16.8055	30.6600	39.3200	7676				1107	1062				
	Average	0.6722	1.2264		307.0400				84.0400					

*Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3[illegible].11

CleanAir ENGINEERING

TEST LOCATION: FF outlet FLUORIDE TESTING METHOD: 13B PAGE 2 OF 2

UNIT: 2 RUN: 2

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Bowards	Date 3.23.11
Meter Operator NH	
Probe Operator BA	

Meter Box 66-21	Sample Box No. B1
Meter Y_d 0.9837	Meter $\Delta H_@$ 1.8252
K Factor 27	Pitot C_p 0.818
Leak Rate Before [cfm] [Lpm] @ (in. Hg)	
Leak Rate After [cfm] [Lpm] @ (in. Hg)	
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.)			
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time: 14:17

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F)	Notes
3-4	35	0.42	1.1	349.11	307	257	250	64	87	82	4	8.8	
5	37.5	0.42	1.1	350.620	308	254	250	64	87	82	4	8.4	.770 .15
4-1	40	0.47	1.3	352.35	304	245	249	65	87	82	4	9.3	
2	42.5	0.47	1.3	353.97	308	245	250	65	87	82	4	9.0	
3	45	0.46	1.2	355.53	308	252	250	64	88	82	4	9.3	
4	47.5	0.42	1.1	357.04	308	256	250	64	87	82	4	9.0	
5	50	0.39	1.1	358.550	307	252	257	64	88	83	4	8.8	.748 .195
5-1	52.5	0.44	1.2	360.29	307	245	250	64	86	82	4	9.4	
2	55	0.45	1.2	361.81	308	244	257	65	87	82	4	9.3	
3	57.5	0.47	1.3	363.41	308	255	250	65	87	82	4	9.1	
4	60	0.42	1.1	364.95	309	258	250	65	88	82	4	8.6	
5	62.5	0.42	1.1	366.520	308	252	257	64	88	83	4	9.5	
	Total	*							1047	984			
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC ☑

Date 3/23

CleanAir ENGINEERING

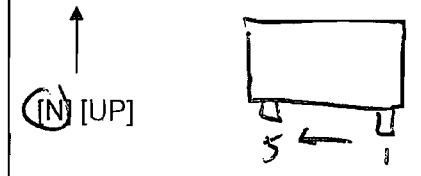
TEST LOCATION: FF OUTLET FLUORIDE **TESTING METHOD:** 13B **PAGE** 1 **OF** 2

UNIT: 2 **RUN:** 3

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Brownfield	Date	3.23.11
Meter Operator	NH		
Probe Operator	BK		

Cross-Section of Test Location



Amb. Temp. (°F)	84	Bar. Press.	30.1 (in. Hg) [mbar]
Probe I.D. No.	67-8-20		
Liner Material	GLASS		

Meter Box	66-21	Sample Box No.	B22
Meter Y_d	0.9837	Meter $\Delta H_@$	1.8252
K Factor	2.7	Pitot C_p	0.818
Leak Rate Before	0.004 (cfm) [Lpm]	@	15 (in. Hg)
Leak Rate After	0.002 [cfm] [Lpm]	@	9 (in. Hg)
Pitot Leak Check Before: ☑	After: Good ☑ Bad ☐		

Filter No.	–		
Thimble No.	–		
Nozzle Diameter	.274	Nozzle I.D.	274-1

Duct Dimensions (in.)	96 × 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow (In) [Out] of page	First point all the way (In) [Out]
-10.7	10		

Start Time:	14:39	Stop Time:	15:45

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³) [L] 367.295	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F)	Notes
						252	250					O_2	
5-1	2.5	0.45	1.2	368.90	307	246	258	64	82	81	3	10.0	
2	5	0.47	1.3	370.57	308	254	258	57	82	81	3	9.9	
3	7.5	0.45	1.2	372.04	308	255	254	47	83	81	3	8.6	
4	10	0.47	1.3	373.68	307	259	252	44	83	81	3	9.5	
5	12.5	0.42	1.1	375.225	308	252	250	42	84	81	3	7.7	.430 .20
4-1	15	0.44	1.2	377.03	308	245	250	43	83	81	3	8.2	
2	17.5	0.46	1.2	378.60	307	249	250	40	84	80	4	9.8	
3	20	0.42	1.1	380.11	307	256	251	40	85	81	4	8.9	
4	22.5	0.43	1.2	381.65	308	253	250	40	85	81	4	9.1	
5	25	0.37	1.0	383.120	302	248	251	41	84	80	4	8.8	.280 .16
3-1	27.5	0.30	0.81	384.55	305	242	249	44	83	80	3	9.5	
2	30	0.40	1.1	386.08	307	244	250	44	83	80	3	8.6	
3	32.5	0.42	1.1	387.56	307	255	251	44	84	80	3	8.8	
	Total	16.0422	27.9800	37.6350	7668				1085	1048			
	Average	0.6417	1.1192		306.7200				81.8400				

Sum of square roots. Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.23.11

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET FLUORIDE **TESTING** **METHOD:** 13B **PAGE** 2 **OF** 2

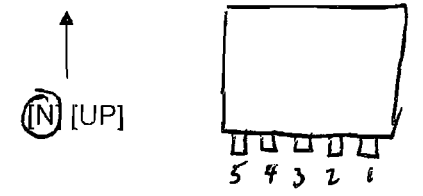
UNIT: 2 **RUN:** 3

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. BROWARD	Date 3.22.11
Meter Operator	JH
Probe Operator	BA

Meter Box	66-21	Sample Box No.	B22
Meter Y_d	0.9839	Meter $\Delta H_@$	1.9252
K Factor	2.7	Pitot C_p	0.818
Leak Rate Before	[cfm] [Lpm]	@	(in. Hg)
Leak Rate After	[cfm] [Lpm]	@	(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location



Duct Dimensions (in.)			
Static Pres ($in. H_2O$)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time: 15:45

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP ($in. H_2O$)	Orifice Setting ΔH ($in. H_2O$)	Gas Sample Volume V_m Init. Vol. (ft³) [L] 367.295	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_x (°F)	Notes
3-4	35	0.40	1.1	389.04	307	257	250	45	84	80	3	9.2	
5	37.5	0.40	1.1	390.535	308	250	250	47	84	80	3	9.5	.725 .19
2-1	40	0.57	1.5	392.43	306	242	249	51	83	79	4	9.8	
2	42.5	0.50	1.4	394.16	309	248	250	51	84	80	4	8.7	
3	45	0.48	1.3	395.79	308	254	250	51	84	80	4	8.9	
4	47.5	0.43	1.2	397.36	308	254	250	52	85	79	4	8.2	
5	50	0.37	1.0	398.785	308	250	250	53	85	80	4	7.5	.950 .165
1-1	52.5	0.37	1.0	400.35	303	245	249	56	83	79	3	9.0	
2	55	0.25	0.68	401.65	304	247	250	56	84	79	3	8.5	
3	57.5	0.33	0.89	402.73	304	251	251	55	83	79	3	9.4	
4	60	0.38	1.0	404.17	307	252	251	56	83	80	3	8.3	
5	62.5	0.38	1.0	405.650	307	250	250	56	83	79	3	8.5	
	Total	*							1005	954			
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC SB

Date 3/23

CleanAir ENGINEERING

Impinger Weight Sheet

Client Wheelabrator		Unit Name/Location Unit 2 FF Outlet
Plant North Broward	Job No. 11182	Method 13B

Run No. 1	Filter Type Teflon glass mat		Sample Box No. B22
Date 3/23/11	Lot No.		pH
Analyst D. Lukhard	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1	100 mL DI H2O	672.6	546.2	126.4
Impinger 2	100 mL DI H2O	604.6	550.7	53.9
Impinger 3	Empty	455.6	443.8	11.8
Impinger 4	Silica Gel	764.7	751.9	12.8

QA/QC DL
Date 3/23/11

Total Weight (gm)
192.1
204.9

Run No. 2	Filter Type Teflon glass mat		Sample Box No. B1
Date 3/23/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1	100 mL DI H2O	760.9	636.1	124.8
Impinger 2	100 mL DI H2O	618.7	547.1	71.6
Impinger 3	Empty	469.6	456.2	13.4
Impinger 4	Silica Gel	749.5	734.2	15.3

QA/QC RV
Date 3/23/11

Total Weight (gm)
209.9
225.1

Run No. 3	Filter Type Teflon glass mat		Sample Box No.
Date 3/23/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1	100 mL DI H2O	694.3	546.0	148.3
Impinger 2	100 mL DI H2O	599.8	549.2	50.6
Impinger 3	Empty	450.5	443.6	6.9
Impinger 4	Silica Gel	778.0	765.9	12.1

QA/QC RV
Date 3/23/11

Total Weight (gm)
205.8
217.9

QA/QC SB
Date 3/23

CleanAir. ENGINEERING

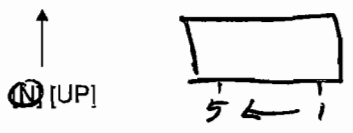
TEST LOCATION: FF OUT

UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

Client Wheelabrator	Project No. 1182
Plant N Broward	Date 3.24.11
Meter Operator NH	
Probe Operator CS	
Source of Moisture and Molecular Weight Data MRGA	

Cross-Section of Test Location



Amb. Temp. (°F)	67	Bar. Press. 30.0 [in Hg] [mbar]	
Pitot Cp	0.817	Probe I.D. No.	67-8P-3
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.)	10
Gas Flow [In] [Out] of page			
Duct Dimensions (in.)	96 x 96		

Run 1	Load	Run 1	Load	Run 2	Load	Run 2	Load
Start Time 6:59	Stop Time 7:08	Start Time	Stop Time	Start Time 7:45	Stop Time 7:52	Start Time	Stop Time
Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)		Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5-1	311	0.32		2-1	314	0.54		1-1	312	0.47		4-1	312	0.47	
2	311	0.43		2	314	0.52		2	312	0.36		2	312	0.50	
3	313	0.45		3	314	0.54		3	313	0.33		3	312	0.49	
4	314	0.46		4	314	0.49		4	313	0.34		4	312	0.47	
5	314	0.41		5	314	0.54		5	313	0.38		5	312	0.43	
4-1	313	0.57		1-1	313	0.56		2-1	311	0.53		5-1	312	0.48	
2	314	0.52		2	313	0.55		2	312	0.43		2	312	0.57	
3	314	0.49		3	313	0.48		3	312	0.42		3	312	0.53	
4	314	0.44		4	313	0.46		4	313	0.41		4	312	0.47	
5	315	0.42		5	313	0.53		5	313	0.40		5	312	0.43	
3-1	314	0.49						3-1	315	0.37					
2	315	0.57						2	315	0.48					
3	315	0.54						3	315	0.49					
4	315	0.57						4	315	0.49					
5	315	0.48						5	315	0.45					
Total	7842	17.4664							7819	16.6769					
Average	313.6800	0.6988							312.7600	0.6671					

Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NA

Date 3.24.11

FDS002-Velocity.xls, August 2004

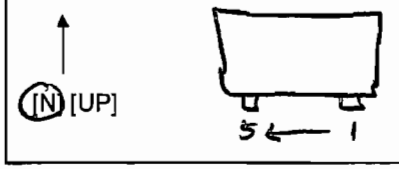
TEST LOCATION: FF OUT

UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

Client WHEELABRATOR	Project No. 11182
Plant N BROWARD	Date 3.24.11
Meter Operator NH	
Probe Operator CS	
Source of Moisture and Molecular Weight Data M26A	

Cross-Section of Test Location



Amb. Temp. (°F)	67	Bar. Press.	30.0 [in. Hg] [mbar]
Pitot Cp	0.817	Probe I.D. No.	67-SP-3
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.)	10
Gas Flow [Up] [Out] of page			
Duct Dimensions (in.)	96 x 96		

Run 3	Load	Run 3	Load	Run 4	Load	Run 4	Load
Start Time 8:26	Stop Time 8:31	Start Time	Stop Time	Start Time 9:02	Stop Time 9:08	Start Time	Stop Time
Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)		Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in. H_2O)	Notes
1 ~~5~~-1	312	~~0.47~~ NH	0.41	~~4~~ 1-1	311	0.47		5-1	313	0.43		2-1	313	0.47	
2	312	0.37		2	311	0.53		2	314	0.46		2	313	0.45	
3	312	0.36		3	311	0.49		3	314	0.45		3	313	0.47	
4	312	0.40		4	311	0.48		4	314	0.44		4	313	0.44	
5	313	0.43		5	311	0.48		5	314	0.44		5	314	0.48	
2 ~~4~~-1	311	0.46		5-1	313	0.36		4-1	312	0.45		NA 1-1	312	0.51	
2	311	0.44		2	313	0.44		2	312	0.48		2	312	0.53	
3	311	0.43		3	313	0.45		3	312	0.45		3	312	0.54	
4	311	0.43		4	313	0.46		4	312	0.44		4	312	0.49	
5	311	0.41		5	313	0.45		5	312	0.43		5	312	0.57	
3-1	315	0.47						3-1	314	0.48					
2	315	0.52						2	314	0.52					
3	315	0.50						3	314	0.52					
4	315	0.48						4	314	0.48					
5	315	0.45						5	314	0.44					
Total	7811	*16.6900				*			7825	*17.1654				*	
Average	312.4460	0.6676							313.0000	0.6866					

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NA

Date 3.24.11

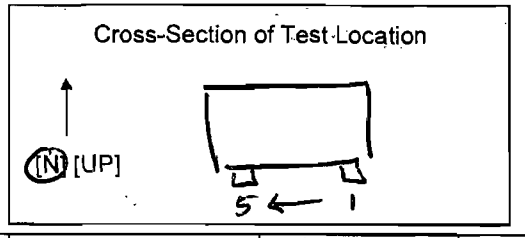
TEST LOCATION: FF OUTLET

UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N Broward	Date 3.24.11
Meter Operator NH	
Probe Operator CS	
Source of Moisture and Molecular Weight Data M26A	

Cross-Section of Test Location



Amb. Temp. (°F)	77	Bar. Press.	30.0 [in Hg] [mbar]
Pitot Cp	0.817	Probe I.D. No.	67-8P-3
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.)	10
Gas Flow [In] [Out] of page			
Duct Dimensions (in.)	96 x 96		

Run 5	Load	Run 5	Load	Run 6	Load	Run 6	Load
Start Time 10:25	Stop Time 10:31	Start Time	Stop Time	Start Time 11:15	Stop Time 11:22	Start Time	Stop Time
Static Press. (in. H_2O) −10.3		Static Press. (in. H_2O)		Static Press. (in. H_2O) −10.3		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
1-1	315	0.52		4-1	313	0.38		5-1	315	0.60		2-1	314	0.63	
2	315	0.57		2	313	0.45		2	315	0.64		2	314	0.60	
3	315	0.46		3	313	0.47		3	315	0.64		3	314	0.57	
4	315	0.44		4	313	0.45		4	315	0.60		4	314	0.54	
5	315	0.49		5	313	0.45		5	315	0.58		5	314	0.57	
2-1	313	0.52		5-1	313	0.39		4-1	314	0.56		1-1	313	0.49	
2	313	0.56		2	313	0.44		2	314	0.55		2	313	0.48	
3	313	0.58		3	313	0.46		3	314	0.53		3	313	0.41	
4	313	0.50		4	313	0.47		4	314	0.53		4	313	0.48	
5	313	0.49		5	313	0.43		5	314	0.48		5	313	0.51	
3-1	314	0.56						3-1	316	0.57					
2	314	0.52						2	316	0.55					
3	314	0.52						3	316	0.54					
4	314	0.48						4	316	0.53					
5	314	0.44						5	316	0.48					
Total	7840	*17.1836				*			7860	*18.3873				*	
Average	313	0.6913							314	0.7355 NH					

5B 6000 313.60

Sum of square roots.

Circle correct bracketed units on data sheet.

4000 0.7355

QA/QC NH

Date 3.24.11

FDS002-Velocity.xls, August 2004

CleanAir ENGINEERING

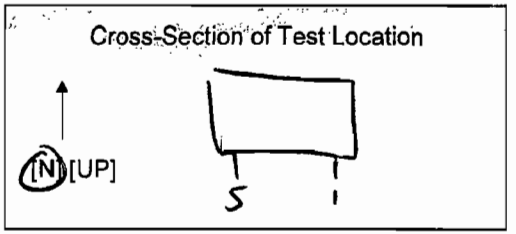
TEST LOCATION: FF OUTLET

UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

Client: Wheelabrator	Project No.: 1M82
Plant: N. Broward	Date: 3.24.11
Meter Operator: NH	
Probe Operator: CS	
Source of Moisture and Molecular Weight Data: M3B	

Cross-Section of Test Location



Amb. Temp. (°F)	Bar. Press. 30.00 [in. Hg] [mbar]
Pitot Cp 0.817	Probe I.D. No. 67-80-3
Duct Diameters from Disturbance: Downstream	Upstream
First point all the way [In] [Out]	Port Len. (in.) 10
Gas Flow [In] [Out] of page	
Duct Dimensions (in.) 96 x 96	

Run 7	Load	Start Time 11:48	Stop Time 12:00	Static Press. (in. H_2O) -10.3	Post-Test Leak Check: Pass ☒ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5-1	313	0.39	
NH 2	313	0.43	
3	313	0.46	
4	313	0.47	
NH 5	313	0.49	
4-2-1	312	0.43	
2	312	0.46	
3	312	0.47	
4	312	0.48	
5	312	0.47	
3-1	313	0.48	
2	313	0.50	
3	313	0.54	
4	313	0.52	
5	313	0.49	
Total	7817	17.6717	
Average	312.68 (312.64)	0.7069	

Run 7	Load	Start Time	Stop Time	Static Press. (in. H_2O)	Post-Test Leak Check: Pass ☐ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
2-4-1	313	0.53	
NH 2	313	0.59	
3	313	0.61	
4	313	0.58	
NH 5	313	0.65	
1-B-1	311	0.43	
2	312	0.45	
3	312	0.45	
4	314	0.53	
5	313	0.67	

Run 8	Load	Start Time 12:20	Stop Time 12:30	Static Press. (in. H_2O) -10.3	Post-Test Leak Check: Pass ☐ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
5-1	313	0.49	
2	313	0.58	
3	313	0.58	
4	313	0.55	
5	313	0.53	
4-1	315	0.70	
2	315	0.68	
3	313	0.62	
4	312	0.55	
5	311	0.55	
3-1	313	0.48	
2	313	0.57	
3	313	0.56	
4	313	0.52	
5	313	0.47	
-			
	7826	16.6057	
	313.040	0.7443	

Run 8	Load	Start Time	Stop Time	Static Press. (in. H_2O)	Post-Test Leak Check: Pass ☐ Fail ☐

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
2-1	314	0.62	
2	314	0.60	
3	314	0.56	
4	314	0.53	
5	314	0.51	
1-1	312	0.60	
2	312	0.55	
3	312	0.45	
4	312	0.49	
5	312	0.55	

Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC SG

Date

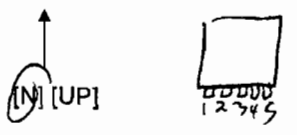
CleanAir ENGINEERING

TEST LOCATION: FF Outlet **VELOCITY DETERMINATION** **PAGE** 5 **OF** 5

UNIT: 3 **FIELD DATA SHEET**

Client: Wheelabrator	Project No. 11182
Plant: North Brunswick	Date: 3-24-11
Meter Operator: C. Sling	
Probe Operator: B. Strold	
Source of Moisture and Molecular Weight Data: M13B	

Cross-Section of Test Location



Amb. Temp. (°F)	80	Bar. Press.	30.00 [in. Hg] [mbar]
Pitot Cp	0.817	Probe I.D. No.	B7-8P-3
Duct Diameters from Disturbance			
Downstream		Upstream	
First point all the way [In] [Out]		Port Len. (in.)	
Gas Flow [In] [Out] of page			
Duct Dimensions (in.)	96 x 96		

Run 9	Load	Run	Load	Run 10	Load	Run	Load
Start Time 13:12	Stop Time 13:20	Start Time	Stop Time	Start Time 13:47	Stop Time 13:56	Start Time	Stop Time
Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)		Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
1-1	311	0.59		4-1	313	0.54		5-1	310	0.50		2-1	309	~~0.64~~	0.60
2	311	0.54		2	313	0.57		2	311	0.63		2	309	0.52	
3	311	0.49		3	313	0.55		3	311	0.58		3	310	0.52	
4	311	0.53		4	313	0.51		4	311	0.52		4	310	0.51	
5	311	0.57		5	313	0.46		5	312	0.47		5	310	0.49	
2-1	311	0.73		5-1	313	0.58		4-1	311	0.60		1-1	310	0.61	
2	311	0.65		2	313	0.61		2	311	0.58		2	310	0.65	
3	311	0.55		3	313	0.58		3	310	0.55		3	310	0.41	
4	311	0.55		4	313	0.52		4	310	0.51		4	310	0.45	
5	312	0.53		5	313	0.48		5	310	0.48		5	311	0.61	
3-1	313	0.52						3-1	310	0.59					
2	313	0.60						2	310	0.56					
3	313	0.53						3	310	0.57					
4	313	0.52						4	310	0.54					
5	313	0.50						5	310	0.50					
Total	7806	*18.5512				*			7759	*18.3130				*	
Average	312400	0.7421							310.360	0.7325					

* Sum of square roots. Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

QA/QC CS
Date 3/24

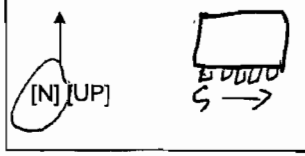
TEST LOCATION: FF Outlet

UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

Client: Wheelabrator	Project No. 11183
Plant: N Broward	Date 3/24/11
Meter Operator: C. Sliva	
Probe Operator: P. Bhan	
Source of Moisture and Molecular Weight Data: M13B	

Cross-Section of Test Location



Amb. Temp. (°F)	Bar. Press. 30.00 [in. Hg] [mbar]
Pitot Cp 0.817	Probe I.D. No. 67-SP-3
Duct Diameters from Disturbance Downstream	Upstream
First point all the way [In] [Out]	Port Len. (in.) 10
Gas Flow [In] [Out] of page	
Duct Dimensions (in.) 96 x 96	

Run 11	Load	Run	Load	Run 12	Load	Run	Load
Start Time 14:46	Stop Time 14:51	Start Time	Stop Time	Start Time 15:11	Stop Time 15:17	Start Time	Stop Time
Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)		Static Press. (in. H_2O) -10.3		Static Press. (in. H_2O)	
Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐		Post-Test Leak Check: Pass ☑ Fail ☐		Post-Test Leak Check: Pass ☐ Fail ☐	

Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes	Traverse Point Number	Stack Temp. T_s (°F)	Velocity Head ΔP (in.H_2O)	Notes
2-1	309	0.53		5-1	310	0.47		5-1	312	0.48		2-1	313	0.56	
2	309	0.52		2	310	0.49		2	312	0.51		2	313	0.52	
3	310	0.48		3	310	0.53		3	313	0.53		3	313	0.51	
4	310	0.49		4	311	0.55		4	313	0.51		4	313	0.48	
5	310	0.46		5	312	0.52		5	313	0.47		5	312	0.49	
3-1	309	0.46		1-1	1.30.47	313		4-1	313	0.52		1-1	312	0.50	
2	311	0.50		2	0.42	313		2	313	0.50		2	312	0.43	
3	311	0.49		3	0.45	313		3	313	0.49		3	312	0.42	
4	311	0.48		4	0.47	313		4	312	0.48		4	312	0.48	
5	312	0.45		5	0.56	313		5	312	0.47		5	312	0.55	
4-1	310	0.44						3-1	313	~~0.50~~	0.40				
2	310	0.53						2	313	~~0.52~~	0.58				
3	310	0.50						3	313	~~0.51~~	0.56				
4	312	0.48						4	313		0.51				
5	313	0.44						5	313		0.46				
Total	7715	*12.4384				*			7615	*17.5478				*	
Average	311.0000	0.6975							312.6000	0.7039					

* Sum of square roots. Circle correct bracketed units on data sheet.

CleanAir ENGINEERING

QA/QC CS
Date 3/24/11

TEST LOCATION: FF OUT **TESTING** HCl **METHOD:** 26A **PAGE** 1 **OF** 1

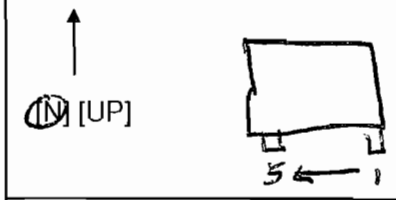
UNIT: 3 **RUN:** 1

FIELD DATA SHEET

Client: Wheelabrator	Project No. 11182
Plant: N. Browards	Date: 3.24.11
Meter Operator: NH	
Probe Operator: N/A	

Meter Box: 66-22	Sample Box No.: B21
Meter Y_d: 0.9995	Meter $\Delta H_@$: 1.6892
K Factor: —	Pitot C_p: —
Leak Rate Before: 0.002 (cfm) [Lpm] @ 12 (in. Hg)	
Leak Rate After: 0.004 (cfm) [Lpm] @ 8 (in. Hg)	
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.): 96 x 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow (N) [Out] of page	First point all the way (N) [Out]
-10.3	10		

Amb. Temp. (°F): 67	Bar. Press.: 30.00 [in. Hg] [mbar]	
Probe I.D. No.: 67-4-1		
Liner Material: GLASS		

Filter No.: —		
Thimble No.: —		
Nozzle Diameter: —	Nozzle I.D.:	

Start Time: 6:57 Stop Time: 7:57

Traverse Point Number	Min/pt 5' Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³) [L] 4.660	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 300	Filter T_f (°F) Set Points 300	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F)	Notes
3-1	5	N/A	1.5	8.26	311	304	302	52	68	67	3	8.4	
	10	↓	1.5	11.72	312	305	302	40	68	67	3	8.3	
	15		1.5	15.23	312	302	302	40	76	68	3	8.7	
	20		1.5	18.40	312	301	301	40	78	68	3	7.9	
	25		1.5	21.86	311	301	301	40	79	69	3	8.0	
	30		1.5	25.28	311	303	301	40	81	70	4	8.0	
	35		1.5	28.75	310	302	301	42	81	71	4	8.4	
	40		1.5	32.20	311	302	300	45	82	71	4	8.6	
	45		1.5	35.65	311	302	301	49	83	72	4	8.7	
	50		1.5	39.17	311	302	301	51	83	73	4	7.4	
	55		1.5	42.62	311	302	301	52	83	73	4	8.4	
	60		1.5	46.115	311	302	301	51	84	74	4	8.1	
	Total	*		41.4550	3734				946	843			
	Average		1.5000		311.1667				74.5417				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.24.11

CleanAir ENGINEERING

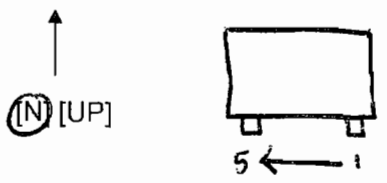
TEST LOCATION: FF OUTLET HCl **TESTING METHOD:** 26A **PAGE** 1 **OF** 1

UNIT: 3 **RUN:** 2

FIELD DATA SHEET

Client WHEELABRATOR	Project No. 11182
Plant N. BROWARD'S	Date 3.24.11
Meter Operator NH	
Probe Operator	

Cross-Section of Test Location



Amb. Temp. (°F)	Bar. Press. 30.00 (in. Hg) [mbar]
Probe I.D. No.	67-4-1
Liner Material	GLASS

Meter Box 66-22	Sample Box No. B12
Meter Y_d 0.9995	Meter $\Delta H_@$ 1.6892
K Factor –	Pitot C_p –
Leak Rate Before 0.002 (cfm) [Lpm]	@ 15 (in. Hg)
Leak Rate After 0.002 (cfm) [Lpm]	@ 5 (in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Duct Dimensions (in.)	96 × 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow (In) [Out] of page	First point all the way (In) [Out]
-10.3	10		

Filter No.	–	
Thimble No.	–	
Nozzle Diameter	–	Nozzle I.D.

Start Time: 8:25	Stop Time: 9:25

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³) [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F)	Notes
				46.575		300	300						
3-1	5	N/A	1.5	50.17 ~~46.575~~ NH	311	302	301	52	77	75	3	8.3	
	10	↓	1.5	53.64	311	305	303	52	81	75	3	8.3	
	15	↓	1.5	57.05	312	302	301	52	84	76	3	8.8	
	20		1.5	60.52	312	302	302	52	86	76	3	8.2	
	25		1.5	64.01	312	302	301	56	87	77	3	8.6	
	30		1.5	67.50	311	302	301	63	88	78	3	8.9	
	35		1.5	71.02	311	302	302	62	88	78	3	8.3	
	40		1.5	74.54	311	302	301	65	87	79	3	8.9	
	45		1.5	78.06	311	301	301	64	87	79	3	9.2	
	50		1.5	81.60	312	302	301	61	88	79	3	9.3	
	55		1.5	85.18	312	302	301	60	88	79	3	9.2	
	60		1.5	88.640	312	302	301	62	88	79	3	9.0	
	Total	*		42.0650	3738				1029	930			
	Average		1.5000		311.5000				81.6250				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.24.11

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET HCl TESTING METHOD: 26A PAGE 1 OF 1

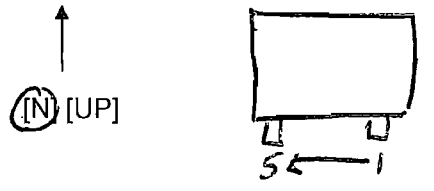
UNIT: 3 RUN: 3

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Broward's	Date 3.24.11
Meter Operator NH	
Probe Operator	

Meter Box 66-21	Sample Box No. B14
Meter Y_d 0.9995	Meter $\Delta H_@$ 1.6892
K Factor –	Pitot C_p –
Leak Rate Before 0.003 [cfm] [Lpm]	@ 13 (in. Hg)
Leak Rate After 0.001 [cfm] [Lpm]	@ 5 (in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐

Cross-Section of Test Location



Duct Dimensions (in.)	96 × 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-10.3	10		

Amb. Temp. (°F) 83	Bar. Press. 30.00 [in. Hg] [mbar]	
Probe I.D. No. 67-4-1		
Liner Material GLASS		

Filter No. –		
Thimble No. –		
Nozzle Diameter –	Nozzle I.D.	–

Start Time: 10:24	Stop Time: 11:24

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 89.135	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points	Filter T_f (°F) Set Points	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F)	Notes
						300	300						
3-1	5	N/A	1.5	92.77	312	302	301	64	83	82	3	9.3	
	10	↓	1.5	96.27	311	302	301	63	88	82	3	9.2	
	15	↓	1.5	99.73	311	302	301	61	91	83	3	9.2	
	20		1.5	103.14	312	300	301	62	93	84	3	9.7	
	25		1.5	106.59	312	301	301	65	95	85	3	9.2	
	30		1.5	110.14	313	301	302	64	96	86	3	7.7	
	35		1.5	113.65	311	301	301	63	97	87	3	8.2	
	40		1.5	117.35	312	301	301	63	97	88	3	9.2	
	45		1.5	120.66	311	301	301	63	97	89	3	9.2	
	50		1.5	124.23	311	301	301	64	98	89	3	9.1	
	55		1.5	127.77	312	301	301	64	99	90	3	9.5	
	60		1.5	131.335	313	301	301	64	100	91	3	9.0	
								64					
	Total	*		42.2000	3741				1134	1036			
	Average		1.5000		311.7500				90.4167				

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC NH

Date 3.24.11

CleanAir ENGINEERING

Impinger Weight Sheet

Client Wheelabrator		Unit Name/Location Unit 3 FF Outlet
Plant North Broward	Job No. 11182	Method Mod. 26A

Run No. 1	Filter Type Quartz		Sample Box No. B21
Date 3/24/11	Lot No.		pH
Analyst K. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	509.9	457.4	52.5	
Impinger 2	100 mL 01.N H2SO4	672.6	559.8	112.8	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	598.9	554.7	44.2	Date 3/24/11
Impinger 4	Empty	455.2	444.1	11.1	
Impinger 5	Silica Gel	752.9	738.1	14.8	Total Weight (gm)
					220.6
					235.4

Run No. 2	Filter Type Quartz		Sample Box No. B12
Date 3/24/11	Lot No.		pH
Analyst K. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	499.0	457.4	41.6	
Impinger 2	100 mL 01.N H2SO4	649.0	540.3	108.7	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	601.7	553.2	48.5	Date 3/24/11
Impinger 4	Empty	444.3	429.3	15.0	
Impinger 5	Silica Gel	771.3	753.6	17.7	Total Weight (gm)
					213.8
					231.5

Run No. 3	Filter Type Quartz		Sample Box No. B14
Date 3/24/11	Lot No.		pH
Analyst R. Vicere	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	502.6	456.3	46.3	
Impinger 2	100 mL 01.N H2SO4	637.5	524.6	112.9	QA/QC RV
Impinger 3	100 mL 01.N H2SO4	577.3	536.5	40.8	Date 3/24/11
Impinger 4	Empty	458.5	449.2	9.3	
Impinger 5	Silica Gel	737.1	723.3	13.8	Total Weight (gm)
					209.3
					223.1

QA/QC SS
Date 3/24

CleanAir ENGINEERING

TEST LOCATION: FF OUT Fluoride **TESTING METHOD:** 13B **PAGE** 1 **OF** 2

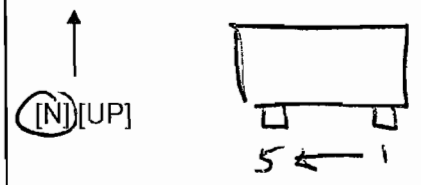
UNIT: 3 **RUN:** 1

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N Bergen	Date	3.24.11
Meter Operator	NH		
Probe Operator	CS		

Meter Box	66-7	Sample Box No.	B1
Meter Y_d	0.9961	Meter $\Delta H_@$	1.7697
K Factor	2.7	Pitot C_p	0.818
Leak Rate Before	0.004 (cfm)	[Lpm] @	15 (in. Hg)
Leak Rate After	0.004 (cfm)	[Lpm] @	7 (in. Hg)
Pitot Leak Check Before: ☑	After: Good ☒	Bad ☐	

Cross-Section of Test Location



Duct Dimensions (in.)	96 x 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow (In) [Out] of page	First point all the way (In) [Out]
-10.3	10		

Amb. Temp. (°F)	84	Bar. Press. 30.02	(in. Hg) [mbar]
Probe I.D. No.	67-8-8		
Liner Material	GLASS		

Filter No.	-	
Thimble No.	-	
Nozzle Diameter	.274	Nozzle I.D. 274-1

Start Time:	11:40	Stop Time:	12:55

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. 686.195 (ft³) [L]	Stack Temp. Ts (°F)	ProbeT$_p$ (°F) Set Points 250	Filter T$_f$ (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F)	Notes
1-1	2.5	0.43	1.2	687.79	311	253	258	63	85	84	3	11.2	
2	5	0.43	1.2	689.33	312	253	255	62	85	84	3	11.2	
3	7.5	0.45	1.2	690.88	312	250	254	59	84	83	3	10.8	
4	10	0.53	1.4	692.54	314	250	253	56	85	84	3	10.0	
5	12.5	0.67	1.8	694.180	313	245	252	49	86	83	3	10.9	.290 .11
2-1	15	0.68	1.8	696.26	313	245	251	47	86	84	4	10.5	
2	17.5	0.68	1.8	698.19	313	240	252	47	87	84	4	11.0	
3	20	0.70	1.9	700.13	315	247	251	49	87	84	4	11.0	
4	22.5	0.71	1.9	702.13	317	258	252	53	88	84	4	10.2	
5	25	0.71	1.9	703.765	316	255	252	55	93	86	4	10.1	.850 .088
3-1	27.5	0.43	1.2	705.79	314	254	250	58	91	85	4	10.4	
2	30	0.56	1.5	707.54	311	249	250	57	90	84	4	10.3	
3	32.5	0.57	1.5	709.28	311	250	252	58	91	85	4	10.0	
	Total	*19.0486	39.3000	44.5750	7822				1138	1094			
	Average	0.7619	1.5720		312.8800				89.2400				

*Sum of square roots. 20.3

Circle correct bracketed units on data sheet. 4072

QA/QC NH

Date 3.24.11

E-45

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET Fluoride **TESTING** **METHOD:** 13 B **PAGE** 2 **OF** 2

UNIT: 3 **RUN:** 1

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Broward	Date 3.24.11
Meter Operator NH	
Probe Operator CS	

Meter Box	66-7	Sample Box No.	B1
Meter Y_d	0.9961	Meter $\Delta H_@$	1.7697
K Factor	2.7	Pitot C_p	0.818
Leak Rate Before	[cfm] [Lpm]	@	(in. Hg)
Leak Rate After	[cfm] [Lpm]	@	(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.)

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time:

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L]	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. (°F)	Notes	
3 -4	35	0.57	1.5	711.04	313	251	252	63	93	86	4	10.6		
5	37.5	0.57	1.5	712.740	311	256	251	63	95	87	4	11.0	.835	0.09
4 -1	40	0.70	1.9	714.81	315	252	250	65	96	88	4	10.9		
2	42.5	0.68	1.8	716.74	315	250	252	64	97	88	4	9.8		
3	45	0.62	1.7	718.62	313	254	251	64	99	88	4	10.0		
4	47.5	0.55	1.5	720.37	312	251	251	63	97	88	4	10.6		
5	50	0.55	1.5	722.120	311	250	251	63	99	89	4	10.8	.240	0.12
5 -1	52.5	0.60	1.6	729.08	311	250	251	62	95	88	4	10.6		
2	55	0.55	1.5	725.84	312	247	251	63	98	89	4	10.2		
3	57.5	0.57	1.5	727.60	312	253	251	63	98	90	4	10.1		
4	60	0.54	1.5	729.37	313	251	251	63	100	91	4	10.6		
5	62.5	0.55	1.5	731.180	312	254	250	63	100	91	4	11.0		
	Total	*							1167	1063				
	Average													

* Sum of square roots.

19.0

Circle correct bracketed units on data sheet.

3750

QA/QC SB

Date

CleanAir ENGINEERING

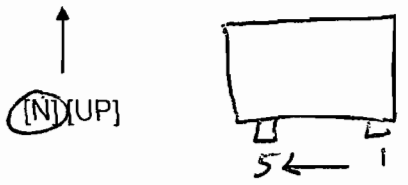
TEST LOCATION: FF OUTLET — FLUORIDE **TESTING** **METHOD:** 13 B **PAGE** 1 **OF** 2

UNIT: 3 **RUN:** 2

FIELD DATA SHEET

Client Wheelabrator	Project No. 11182
Plant N. Browards	Date 3.24.11
Meter Operator	NH
Probe Operator	CS

Cross-Section of Test Location



Amb. Temp. (°F) 84	Bar. Press. 30.00 [in. Hg] [mbar]
Probe I.D. No.	67-8-8
Liner Material	GLASS

Meter Box 46-7	Sample Box No. B22	
Meter Y_d 0.9961	Meter $\Delta H_@$ 1.7697	
K Factor 2.7	Pitot C_p 0.818	
Leak Rate Before 0.003 [cfm] [Lpm]	@ 14	(in. Hg)
Leak Rate After 0.001 [cfm] [Lpm]	@ 5	(in. Hg)
Pitot Leak Check Before: ☑	After: Good ☑ Bad ☐	

Duct Dimensions (in.)	96 × 96		
Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-10.3	10	[In]	

Filter No.	-		
Thimble No.	-		
Nozzle Diameter 0.274	Nozzle I.D.	274-1	

Start Time: 13.11	Stop Time:	14:19	

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 731.615	Stack Temp. Ts (°F)	ProbeT$_p$ (°F) Set Points 250	Filter T$_f$ (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp/ T$_x$ (°F)	Notes
5-1	2.5	0.58	1.6	733.47	314	257	258	61	95	92	3	10.1	
2	5	0.61	1.6	735.25	313	258	257	61	97	92	3	10.4	
3	7.5	0.58	1.6	737.00	313	257	254	53	99	92	3	9.8	
4	10	0.52	1.4	738.75	313	256	253	57	100	93	3	9.6	
5	12.5	0.48	1.3	740.420	312	255	252	50	101	93	3	9.6	.510 .09
4-1	15	0.58	1.6	742.33	311	248	251	51	100	93	3	10.5	
2	17.5	0.73	2.0	744.36	313	246	250	53	103	94	4	11.1	
3	20	0.71	1.9	746.34	314	253	251	54	104	94	4	11.8	
4	27.5	0.58	1.6	748.15	314	254	252	57	104	94	4	9.4	
5	30 25	0.48	1.3	749.845	310	253	251	57	103	94	3	9.7	1.045 .2
3-1	27.5	0.64	1.7	751.89	312	250	252	60	103	95	3	9.8	
2	30	0.54	1.5	753.71	312	246	251	62	106	96	3	9.5	
3	32.5	0.56	1.5	755.45	312	252	251	59	106	96	3	10.0	
	Total	*18.2426	36.1700		7796				1321	1218			
	Average	0.7297	1.4468	43.1100	311.8400					97.8200			

*Sum of square roots.

Circle correct bracketed units on data sheet.

20.6

4063 QA/QC NH

Date 3.24.11

CleanAir ENGINEERING

TEST LOCATION: FF out **Fluoride TESTING** **METHOD:** 13B **PAGE** 2 **OF** 2

UNIT: 3 **RUN:** 2

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Browards	Date	3.24.11
Meter Operator	NH		
Probe Operator	CS		

Cross-Section of Test Location

[N] [UP]

Amb. Temp. (°F)		Bar. Press.	[in. Hg] [mbar]
Probe I.D. No.			
Liner Material			

Meter Box	46-7	Sample Box No.	B22
Meter Y_d	0.9961	Meter $\Delta H_@$	1.769
K Factor	2.7	Pitot C_p	0.818
Leak Rate Before	[cfm] [Lpm] @		(in. Hg)
Leak Rate After	[cfm] [Lpm] @		(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Duct Dimensions (in.)

Static Pres ($in. H_2O$)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Start Time:	Stop Time:

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP ($in. H_2O$)	Orifice Setting ΔH ($in. H_2O$)	Gas Sample Volume V_m Init. Vol. ([ft³]/[L])	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (°F)	Notes
3-4	35	0.55	1.5	756.89	311	253	250	54	104	96	3	10.1	
5	37.5	0.46	1.2	758.830	311	253	250	54	104	96	3	10.3	Δ .485 .155
2-1	40	0.60	1.6	760.73	309	250	257	52	98	93	3	10.9	
2	42.5	0.52	1.4	762.44	309	248	257	50	99	93	3	10.1	
3	45	0.52	1.4	764.12	310	252	257	51	100	94	3	10.5	
4	47.5	0.51	1.4	765.85	312	254	251	57	101	94	3	10.0	
5	50	0.49	1.3	767.495	313	251	257	52	103	96	3	10.9	Δ .585 .09
1-2	52.5	0.57	1.0	769.01	310	252	257	54	100	94	3	10.9	
2	55	0.36	0.97	770.43	310	250	257	55	100	95	3	10.4	
3	57.5	0.34	1.0	771.85	313	251	251	57	102	95	3	10.1	
4	60	0.46	1.2	773.45	313	251	257	57	103	96	3	10.3	
5	62.5	0.60	1.6	775.260	312	252	252	58	102	94	3	10.1	
	Total	*							1216	1136			
	Average								97.8200				

* Sum of square roots. 15.57

Circle correct bracketed units on data sheet.

3733 QA/QC 3/31 Date

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET | Fluoride **TESTING** | **METHOD:** 13B | **PAGE** 1 | **OF** 2

UNIT: 3 | **RUN:** 3

FIELD DATA SHEET

Client	Wheelabrator	Project No.	11182
Plant	N. Browns	Date	3.24.11
Meter Operator	NM		
Probe Operator	CS		

Meter Box	66-7	Sample Box No.	B1
Meter Y_d	0.9961	Meter $\Delta H_@$	1.7697
K Factor	2.7	Pitot C_p	0.818
Leak Rate Before	0.003 [cfm] [Lpm]	@	15 (in. Hg)
Leak Rate After	0.001 [cfm] [Lpm]	@	6 (in. Hg)
Pitot Leak Check Before: ☑	After: Good ☒ Bad ☐		

Cross-Section of Test Location

Duct Dimensions (in.): 96 x 96

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
-10.3	10		

Amb. Temp. (°F)	85	Bar. Press. 30.02 [in. Hg] [mbar]	
Probe I.D. No.	67-8-20		
Liner Material	GLASS		

Filter No.	—		
Thimble No.	—		
Nozzle Diameter	.274	Nozzle I.D.	274-1

Start Time:	14:38	Stop Time:	15:46

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. [ft³] [L] 775.710	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 250	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_x (°F)	Notes
1-1	2.5	0.47	1.3	777.43	313	254	255	65	95	92	3	9.3	
2	5	0.42	1.1	778.93	313	255	257	65	95	92	3	9.3	
3	7.5	0.45	1.2	780.49	313	255	258	60	98	92	3	9.6	
4	10	0.47	1.3	782.12	312	259	254	55	97	92	3	10.0	
5	12.5	0.56	1.5	783.910	313	256	252	50	98	92	3	10.6	.985 .07
2-1	15	0.56	1.5	785.75	313	251	249	51	98	92	3	10.5	
2	17.5	0.55	1.5	787.52	314	251	251	49	100	95	3	8.9	
3	20	0.59	1.6	789.30	313	253	252	48	100	92	3	10.2	
4	22.5	0.56	1.5	791.05	311	257	257	48	98	90	3	10.2	
5	25	0.60	1.6	792.845	312	251	252	50	99	91	3	10.3	.945 .1
3-1	27.5	0.40	1.1	794.47	311	252	252	53	98	91	3	10.4	
2	30	0.58	1.6	795.89	312	253	252	53	98	91	3	9.5	
3	32.5	0.56	1.5	797.99	313	251	251	53	100	93	3	9.5	
	Total	17.5394	33.9500	41.8650	7806				1274	1195			
	Average	0.7016	1.3420	41.560	312.2400				95.7800				

*Sum of square roots.

Circle correct bracketed units on data sheet.

4063 QA/QC NM

3743 Date 3.24.11

18.3
15.25

CleanAir ENGINEERING

TEST LOCATION: FF OUTLET FLUORIDE **TESTING** **METHOD:** 13B **PAGE** 2 **OF** 2

UNIT: 3 **RUN:** 3

FIELD DATA SHEET

Client	WHEELABRATOR	Project No.	11182
Plant	N. BROWARD FS	Date	8.24.11
Meter Operator	NH		
Probe Operator	CS		

Meter Box	66-7	Sample Box No.	B1
Meter Y_d	0.9961	Meter $\Delta H_@$	1.7697
K Factor	2.7	Pitot C_p	0.818
Leak Rate Before	0.003 [cfm] [Lpm]	@	15 (in. Hg)
Leak Rate After	[cfm] [Lpm]	@	(in. Hg)
Pitot Leak Check Before: ☐	After: Good ☐ Bad ☐		

Cross-Section of Test Location

[N] [UP]

Duct Dimensions (in.)

Static Pres (in. H_2O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]

Amb. Temp. (°F)	Bar. Press. [in. Hg] [mbar]
Probe I.D. No.	
Liner Material	

Filter No.		
Thimble No.		
Nozzle Diameter	Nozzle I.D.	

Start Time:	Stop Time: 15:46

Traverse Point Number	Min/pt 2.5 Elapsed Time	Velocity Head ΔP (in. H_2O)	Orifice Setting ΔH (in. H_2O)	Gas Sample Volume V_m Init. Vol. (ft³) [L] 775.710	Stack Temp. Ts (°F)	Probe T_p (°F) Set Points 250	Filter T_f (°F) Set Points 252	Cond. Temp. T_c (°F)	DGM Inlet $T_{m\,in}$ (°F)	DGM Outlet $T_{m\,out}$ (°F)	Pump Vacuum (in.Hg)	XAD Trap Temp. T_t (O_2) (°F)	Notes
3-4	35	0.51	1.4	799.71	314	253	257	56	102	93	3	9.4	
5	37.5	0.46	1.2	801.290	312	251	248	54	101	92	3	10.0	1.380 .09
4-1	40	0.54	1.5	803.17	313	250	251	59	100	93	3	10.4	
2	42.5	0.50	1.4	804.84	314	252	250	60	102	94	3	9.1	
3	45	0.48	1.3	806.47	312	256	251	60	103	94	3	8.6	
4	47.5	0.43	1.2	808.05	312	252	251	58	100	92	3	9.7	
5	50	0.40	1.1	809.575	312	251	249	60	102	93	3	9.2	1.665 .09
5-1	52.5	0.50	1.4	811.35	311	253	254	60	100	92	3	9.8	
2	55	0.50	1.4	812.99	311	253	251	61	100	92	3	9.7	
3	57.5	0.46	1.2	814.63	312	254	251	60	99	92	3	9.5	
4	60	0.46	1.2	816.23	311	250	249	61	99	92	3	9.2	
5	62.5	0.35	0.95	817.625	309	252	257	62	100	93	3	9.1	
	Total	*							1208	1112			
	Average												

* Sum of square roots.

Circle correct bracketed units on data sheet.

QA/QC [redacted]

Date [redacted]

E-50

CleanAir ENGINEERING

Impinger Weight Sheet

Client Wheelabrator		Unit Name/Location Unit 3 FF Outlet
Plant North Broward	Job No. 11182	Method 13B

Run No. 1	Filter Type Teflon glass mat		Sample Box No. B1
Date 3/24/11	Lot No.		pH
Analyst R. Vivero	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1	100 mL DI H2O	757.6	636.9	120.7
Impinger 2	100 mL DI H2O	630.2	545.5	84.7
Impinger 3	Empty	471.4	455.8	15.6
Impinger 4	Silica Gel	766.1	749.5	16.6

QA/QC RV
Date 3/24/11

Total Weight (gm)
221.0
237.6

Run No. 2	Filter Type Teflon glass mat		Sample Box No. B22
Date 3/24/11	Lot No.		pH
Analyst D. Lockhard	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1	100 mL DI H2O	679.6	546.6	133.0
Impinger 2	100 mL DI H2O	606.3	550.2	56.1
Impinger 3	Empty	458.1	443.9	14.2
Impinger 4	Silica Gel	790.2	778.0	12.2

QA/QC SB
Date 3/24

Total Weight (gm)
203.3
215.5

Run No. 3	Filter Type Teflon glass mat		Sample Box No. B1
Date 3/24/11	Lot No.		pH
Analyst R. Vivero	Filter No. NA		Rinse

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)
Impinger 1	100 mL DI H2O	802.2	633.9	168.3
Impinger 2	100 mL DI H2O	582.5	544.7	37.8
Impinger 3	Empty	459.3	454.7	4.6
Impinger 4	Silica Gel	775.9	765.9	10.0

QA/QC RV
Date 3/24/11

Total Weight (gm)
210.7
220.7

QA/QC SB
Date 3/24

CleanAir ENGINEERING

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FIELD DATA PRINTOUTS

F

I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: KDO

Date: 5/4/2011

CleanAir.

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/22/11
Start Time: 07:40
Stop Time: 07:49

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.4
O_2 (dry volume %): 9.84
CO_2 (dry volume %): 9.69
N_2+CO (dry volume %): 80.47

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.49

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.42			304			0.65		
5-02		0.45			307			0.67		
5-03		0.54			307			0.73		
5-04		0.62			308			0.79		
5-05		0.64			308			0.80		
4-01		0.47			305			0.69		
4-02		0.47			307			0.69		
4-03		0.51			308			0.71		
4-04		0.63			309			0.79		
4-05		0.67			309			0.82		
3-01		0.42			304			0.65		
3-02		0.44			306			0.66		
3-03		0.47			306			0.69		
3-04		0.53			307			0.73		
3-05		0.62			307			0.79		
2-01		0.56			306			0.75		
2-02		0.54			308			0.73		
2-03		0.60			308			0.77		
2-04		0.66			308			0.81		
2-05		0.69			309			0.83		
1-01		0.58			306			0.76		
1-02		0.55			307			0.74		
1-03		0.37			308			0.61		
1-04		0.46			308			0.68		
1-05		0.65			309			0.81		
Final	0.0				307.16000			0.73391		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7339			307.1600					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

041511 103947
M

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: B. Arnold 770
Test Date: 3/22/11
Start Time: 08:11
Stop Time: 08:20
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.4
O_2 (dry volume %): 9.49
CO_2 (dry volume %): 9.98
N_2+CO (dry volume %): 80.54
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.49

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
1-01		0.40			305			0.63		
1-02		0.42			305			0.65		
1-03		0.35			305			0.59		
1-04		0.34			305			0.58		
1-05		0.55			305			0.74		
2-01		0.48			303			0.69		
2-02		0.41			306			0.64		
2-03		0.40			306			0.63		
2-04		0.50			306			0.71		
2-05		0.63			306			0.79		
3-01		0.41			304			0.64		
3-02		0.44			306			0.66		
3-03		0.49			307			0.70		
3-04		0.55			307			0.74		
3-05		0.63			307			0.79		
4-01		0.43			306			0.66		
4-02		0.41			306			0.64		
4-03		0.52			307			0.72		
4-04		0.61			307			0.78		
4-05		0.64			307			0.80		
5-01		0.43			306			0.66		
5-02		0.48			307			0.69		
5-03		0.57			308			0.75		
5-04		0.65			308			0.81		
5-05		0.67			308			0.82		
Final	0.0				306.12000			0.70115		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7012			306.1200					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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N

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: C. Slimp 558
Test Date: 3/22/11
Start Time: 09:45
Stop Time: 09:58
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.5
O_2 (dry volume %): 9.24
CO_2 (dry volume %): 10.18
N_2+CO (dry volume %): 80.58
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.85

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.38			305			0.62		
5-02		0.38			306			0.62		
5-03		0.45			307			0.67		
5-04		0.51			308			0.71		
5-05		0.52			308			0.72		
4-01		0.41			305			0.64		
4-02		0.41			306			0.64		
4-03		0.54			307			0.73		
4-04		0.60			307			0.77		
4-05		0.59			307			0.77		
3-01		0.35			307			0.59		
3-02		0.44			308			0.66		
3-03		0.45			308			0.67		
3-04		0.51			308			0.71		
3-05		0.62			308			0.79		
2-01		0.42			306			0.65		
2-02		0.41			307			0.64		
2-03		0.48			307			0.69		
2-04		0.57			307			0.75		
2-05		0.60			308			0.77		
1-01		0.50			308			0.71		
1-02		0.43			307			0.66		
1-03		0.43			307			0.66		
1-04		0.44			307			0.66		
1-05		0.62			307			0.79		
Final	0.0				307.04000			0.69218		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6922			307.0400					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 4
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: B. Arnold 770
Test Date: 3/22/11
Start Time: 10:32
Stop Time: 10:55
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.1
O_2 (dry volume %): 9.20
CO_2 (dry volume %): 10.20
N_2+CO (dry volume %): 80.60
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.85

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)		(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
1-01		0.46			307			0.68		
1-02		0.44			307			0.66		
1-03		0.41			307			0.64		
1-04		0.45			307			0.67		
1-05		0.55			307			0.74		
2-01		0.46			307			0.68		
2-02		0.43			307			0.66		
2-03		0.45			307			0.67		
2-04		0.50			307			0.71		
2-05		0.50			307			0.71		
3-01		0.49			307			0.70		
3-02		0.40			307			0.63		
3-03		0.41			308			0.64		
3-04		0.46			308			0.68		
3-05		0.55			308			0.74		
4-01		0.31			306			0.56		
4-02		0.31			307			0.56		
4-03		0.43			307			0.66		
4-04		0.53			308			0.73		
4-05		0.57			308			0.75		
5-01		0.34			307			0.58		
5-02		0.42			307			0.65		
5-03		0.49			307			0.70		
5-04		0.57			307			0.75		
5-05		0.56			307			0.75		
Final	0.0				307.16000			0.67571		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6757			307.1600					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 5
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/22/11
Start Time: 11:39
Stop Time: 11:55
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.18
CO_2 (dry volume %): 10.16
N_2+CO (dry volume %): 80.66
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.45

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P:3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.37			307			0.61		
5-02		0.40			307			0.63		
5-03		0.49			307			0.70		
5-04		0.56			307			0.75		
5-05		0.55			307			0.74		
4-01		0.37			305			0.61		
4-02		0.40			306			0.63		
4-03		0.44			306			0.66		
4-04		0.53			306			0.73		
4-05		0.57			307			0.75		
3-01		0.49			306			0.70		
3-02		0.44			306			0.66		
3-03		0.47			306			0.69		
3-04		0.53			306			0.73		
3-05		0.60			306			0.77		
2-01		0.41			304			0.64		
2-02		0.42			305			0.65		
2-03		0.39			306			0.62		
2-04		0.43			306			0.66		
2-05		0.59			306			0.77		
1-01		0.44			306			0.66		
1-02		0.43			306			0.66		
1-03		0.37			305			0.61		
1-04		0.38			305			0.62		
1-05		0.62			305			0.79		
Final	0.0				305.96000			0.68149		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6815			305.9600					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 6
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/22/11
Start Time: 12:30
Stop Time: 12:40

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.35
CO_2 (dry volume %): 10.00
N_2+CO (dry volume %): 80.65
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.14

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.42			303			0.65		
1-02		0.41			304			0.64		
1-03		0.40			303			0.63		
1-04		0.46			303			0.68		
1-05		0.53			304			0.73		
2-01		0.52			304			0.72		
2-02		0.42			304			0.65		
2-03		0.45			304			0.67		
2-04		0.48			304			0.69		
2-05		0.62			304			0.79		
3-01		0.33			304			0.57		
3-02		0.39			303			0.62		
3-03		0.48			304			0.69		
3-04		0.54			304			0.73		
3-05		0.62			304			0.79		
4-01		0.41			303			0.64		
4-02		0.43			304			0.66		
4-03		0.45			304			0.67		
4-04		0.58			304			0.76		
4-05		0.59			304			0.77		
5-01		0.44			303			0.66		
5-02		0.46			302			0.68		
5-03		0.46			302			0.68		
5-04		0.55			302			0.74		
5-05		0.51			302			0.71		
Final	0.0				303.44000			0.68934		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6893			303.4400					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 7
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/22/11
Start Time: 13:00
Stop Time: 13:12

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.46
CO_2 (dry volume %): 9.93
N_2+CO (dry volume %): 80.61

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.14

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.52			302			0.72		
1-02		0.48			302			0.69		
1-03		0.41			303			0.64		
1-04		0.47			303			0.69		
1-05		0.62			303			0.79		
2-01		0.47			304			0.69		
2-02		0.48			304			0.69		
2-03		0.52			304			0.72		
2-04		0.55			305			0.74		
2-05		0.66			304			0.81		
3-01		0.49			302			0.70		
3-02		0.47			302			0.69		
3-03		0.52			302			0.72		
3-04		0.59			302			0.77		
3-05		0.67			302			0.82		
4-01		0.38			303			0.62		
4-02		0.44			303			0.66		
4-03		0.48			304			0.69		
4-04		0.59			304			0.77		
4-05		0.63			304			0.79		
5-01		0.37			304			0.61		
5-02		0.40			304			0.63		
5-03		0.44			305			0.66		
5-04		0.53			305			0.73		
5-05		0.54			305			0.73		
Final	0.0				303.40000			0.71102		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7110			303.4000					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 8
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: C. Slimp 558
Test Date: 3/22/11
Start Time: 13:30
Stop Time: 13:43
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.80
CO_2 (dry volume %): 9.71
N_2+CO (dry volume %): 80.49
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.14

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
5-01		0.35			301			0.59		
5-02		0.38			302			0.62		
5-03		0.45			303			0.67		
5-04		0.51			304			0.71		
5-05		0.50			304			0.71		
4-01		0.40			303			0.63		
4-02		0.36			303			0.60		
4-03		0.42			303			0.65		
4-04		0.58			303			0.76		
4-05		0.63			304			0.79		
3-01		0.43			302			0.66		
3-02		0.42			303			0.65		
3-03		0.45			303			0.67		
3-04		0.55			303			0.74		
3-05		0.63			303			0.79		
2-01		0.52			305			0.72		
2-02		0.53			305			0.73		
2-03		0.55			305			0.74		
2-04		0.60			305			0.77		
2-05		0.65			305			0.81		
1-01		0.29			298			0.54		
1-02		0.31			299			0.56		
1-03		0.45			297			0.67		
1-04		0.45			300			0.67		
1-05		0.63			300			0.79		
Final	0.0				302.52000			0.68993		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6899			302.5200					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 9
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: C. Slimp 558
Probe Operator: B. Arnold 770
Test Date: 3/22/11
Start Time: 14:11
Stop Time: 14:26
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.64
CO_2 (dry volume %): 9.71
N_2+CO (dry volume %): 80.64
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.39

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.53			302			0.73		
1-02		0.49			302			0.70		
1-03		0.44			303			0.66		
1-04		0.51			302			0.71		
1-05		0.69			303			0.83		
2-01		0.46			301			0.68		
2-02		0.44			303			0.66		
2-03		0.49			303			0.70		
2-04		0.57			303			0.75		
2-05		0.63			303			0.79		
3-01		0.37			303			0.61		
3-02		0.44			303			0.66		
3-03		0.47			303			0.69		
3-04		0.55			303			0.74		
3-05		0.62			303			0.79		
4-01		0.44			302			0.66		
4-02		0.43			303			0.66		
4-03		0.50			303			0.71		
4-04		0.62			304			0.79		
4-05		0.70			304			0.84		
5-01		0.42			300			0.65		
5-02		0.42			300			0.65		
5-03		0.47			300			0.69		
5-04		0.58			301			0.76		
5-05		0.60			301			0.77		
Final	0.0				302.32000			0.71523		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7152			302.3200					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 1 FF Outlet
Test Run: 10
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	C. Slimp	558
Probe Operator:	B. Arnold	770

Test Date: 3/22/11
Start Time: 14:48
Stop Time: 14:56

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.93
CO_2 (dry volume %): 9.69
N_2+CO (dry volume %): 80.38

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.39

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
1-01		0.60			304			0.77		
1-02		0.55			305			0.74		
1-03		0.45			305			0.67		
1-04		0.49			305			0.70		
1-05		0.81			305			0.90		
2-01		0.75			302			0.87		
2-02		0.50			302			0.71		
2-03		0.54			302			0.73		
2-04		0.57			302			0.75		
2-05		0.63			303			0.79		
3-01		0.52			304			0.72		
3-02		0.56			304			0.75		
3-03		0.58			305			0.76		
3-04		0.71			306			0.84		
3-05		0.82			306			0.91		
4-01		0.52			303			0.72		
4-02		0.55			304			0.74		
4-03		0.55			304			0.74		
4-04		0.69			305			0.83		
4-05		0.78			305			0.88		
5-01		0.49			303			0.70		
5-02		0.51			303			0.71		
5-03		0.54			304			0.73		
5-04		0.69			304			0.83		
5-05		0.66			304			0.81		
Final	0.0				303.96000			0.77333		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7733			303.9600					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

041511 104141

Prepared by Clean Air Engineering Proprietary Software
SS ISOKINETIC Version 2008-13e

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 1 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator:
Test Date: 3/22/11
Start Time: 07:36
Stop Time: 08:36
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.001 cfm @ 6 "Hg

Bar. Press. (in. Hg): 30.20
Static P: -11.4
O_2 (dry volume %): 10.13
CO_2 (dry volume %): 9.42
N_2+CO (dry volume %): 80.45
H_2O (condensate, ml or gm): 222.1
H_2O (silica, g): 16.1
Actual Moisture (%): 21.49

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: 66-24
Meter ΔH@: 1.76390
Meter Y_d: 0.98470

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0		1.50	413.155						
3-01	5.0		1.50	416.680	309	68	67		3.53	
3-01	10.0		1.50	420.130	308	68	67		3.45	
3-01	15.0		1.50	423.560	308	72	67		3.43	
3-01	20.0		1.50	427.040	308	76	68		3.48	
3-01	25.0		1.50	430.530	309	78	69		3.49	
3-01	30.0		1.50	433.980	308	80	70		3.45	
3-01	35.0		1.50	437.430	308	81	71		3.45	
3-01	40.0		1.50	440.900	307	83	71		3.47	
3-01	45.0		1.50	444.360	306	85	73		3.46	
3-01	50.0		1.50	447.820	306	85	74		3.46	
3-01	55.0		1.50	451.300	307	86	75		3.48	
3-01	60.0		1.50	454.770	308	87	76		3.47	
Final	60.0		1.50000	41.61500	307.66667	74.87500		0.00000	41.61500	
3 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	41.6150	307.6667	74.8750				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Prepared by Clean Air Engineering Proprietary Software
SS ISOKINETIC Version 2006-13e

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 1 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569	
Probe Operator:	N. Hitchins	569	
Test Date:	3/22/11		
Start Time:	09:40		
Stop Time:	10:40		
Leak Rate Before:	0.004	cfm	@ 15 "Hg
Leak Rate After:	0.001	cfm	@ 7 "Hg

Bar. Press. (in. Hg): 30.20
Static P: -11.5
O_2 (dry volume %): 9.08
CO_2 (dry volume %): 10.34
N_2+CO (dry volume %): 80.58
H_2O (condensate, ml or gm): 223.3
H_2O (silica, g): 18.0
Actual Moisture (%): 21.85

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: 66-24
Meter ΔH@: 1.76390
Meter Y_d: 0.98470

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			456.195						
4-01	5.0		1.50	459.710	308	84	82		3.51	
4-01	10.0		1.50	463.180	308	88	82		3.47	
4-01	15.0		1.50	466.660	307	90	82		3.48	
4-01	20.0		1.50	470.170	307	92	83		3.51	
4-01	25.0		1.50	473.710	307	92	83		3.54	
4-01	30.0		1.50	477.250	308	93	83		3.54	
4-01	35.0		1.50	480.790	307	93	84		3.54	
4-01	40.0		1.50	484.360	307	93	84		3.57	
4-01	45.0		1.50	487.900	308	94	84		3.54	
4-01	50.0		1.50	491.430	307	94	85		3.53	
4-01	55.0		1.50	494.920	307	94	85		3.49	
4-01	60.0		1.50	498.440	307	94	85		3.52	
Final	60.0		1.50000	42.24500	307.33333	87.62500		0.00000	42.24500	
4 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	42.2450	307.3333	87.6250				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Prepared by Clean Air Engineering Proprietary Software
SS ISOKINETIC Version 2008-13e

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 1 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator:
Test Date: 3/22/11
Start Time: 11:02
Stop Time: 12:02
Leak Rate Before: 0.004 cfm @ 15 "Hg
Leak Rate After: 0.001 cfm @ 6 "Hg

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.16
CO_2 (dry volume %): 10.34
N_2+CO (dry volume %): 80.50
H_2O (condensate, ml or gm): 213.9
H_2O (silica, g): 19.1
Actual Moisture (%): 21.45

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑Pass ☐Fail
Meter Box ID. No: 66-24
Meter ΔH@: 1.76390
Meter Y_d: 0.98470

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			499.160						
3-01	5.0		1.50	502.690	306	87	84		3.53	
3-01	10.0		1.50	506.190	306	89	84		3.50	
3-01	15.0		1.50	509.690	307	92	84		3.50	
3-01	20.0		1.50	513.120	306	93	85		3.43	
3-01	25.0		1.50	516.630	308	94	85		3.51	
3-01	30.0		1.50	520.140	307	94	85		3.51	
3-01	35.0		1.50	523.700	306	95	86		3.56	
3-01	40.0		1.50	527.190	306	95	86		3.49	
3-01	45.0		1.50	530.650	307	95	86		3.46	
3-01	50.0		1.50	534.150	306	96	87		3.50	
3-01	55.0		1.50	537.620	306	96	86		3.47	
3-01	60.0		1.50	541.065	303	96	87		3.45	
Final	60.0		1.50000	41.90500	306.16667	89.45833		0.00000	41.90500	
3 points sampled		Sq.Rt:ΔP								
QC-Check: Field Averages			1.5000	41.9050	306.1667	89.4583				
		☐Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 1 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/22/11
Start Time: 12:31
Stop Time: 13:41
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.001 cfm @ 5 "Hg

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.61
CO_2 (dry volume %): 10.00
N_2+CO (dry volume %): 80.39
H_2O (condensate, ml or gm): 184.1
H_2O (silica, g): 29.2
Actual Moisture (%): 21.14

Nozzle ID No: 271-2
Nozzle Diameter (D_n): 0.271
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-4
Meter ΔH@: 1.69790
Meter Y_d: 0.99830

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	803.540	(°F)	(°F)	(°F)	($\sqrt{in.\ H_2O}$)	(ft^3)	(%)
5-01	2.5	0.44	1.10	805.050	303	83	82	0.66	1.51	102.2
5-02	5.0	0.46	1.10	806.520	302	84	82	0.68	1.47	97.2
5-03	7.5	0.46	1.10	807.960	302	84	82	0.68	1.44	95.2
5-04	10.0	0.55	1.30	809.530	302	89	82	0.74	1.57	94.5
5-05	12.5	0.51	1.20	811.060	302	88	84	0.71	1.53	95.5
LEAK CHECK	12.5			811.210						
4-01	15.0	0.51	1.20	812.760	300	89	85	0.71	1.55	96.5
4-02	17.5	0.45	1.10	814.280	301	90	85	0.67	1.52	100.7
4-03	20.0	0.51	1.20	815.750	301	91	85	0.71	1.47	91.4
4-04	22.5	0.55	1.30	817.320	302	92	86	0.74	1.57	93.9
4-05	25.0	0.55	1.20	818.885	301	95	86	0.74	1.56	93.3
LEAK CHECK	25.0			818.995						
3-01	27.5	0.49	1.20	820.540	302	93	85	0.70	1.54	97.9
3-02	30.0	0.47	1.20	822.080	302	95	87	0.69	1.54	99.3
3-03	32.5	0.52	1.30	823.670	302	98	87	0.72	1.59	97.2
3-04	35.0	0.59	1.40	825.350	302	99	88	0.77	1.68	96.3
3-05	37.5	0.67	1.60	827.140	302	100	88	0.82	1.79	96.2
LEAK CHECK	37.5			827.275						
2-01	40.0	0.53	1.30	828.920	302	98	89	0.73	1.64	99.4
2-02	42.5	0.44	1.10	830.430	303	99	90	0.66	1.51	100.0
2-03	45.0	0.53	1.30	832.040	301	99	89	0.73	1.61	97.2
2-04	47.5	0.51	1.20	833.610	302	101	90	0.71	1.57	96.4
2-05	50.0	0.67	1.60	835.385	303	101	90	0.82	1.77	95.2
LEAK CHECK	50.0			835.655						
1-01	52.5	0.29	0.71	836.890	298	100	91	0.54	1.24	100.1
1-02	55.0	0.31	0.76	838.160	299	100	91	0.56	1.27	99.7
1-03	57.5	0.45	1.10	839.660	297	101	92	0.67	1.50	97.5
1-04	60.0	0.45	1.10	841.140	300	101	92	0.67	1.48	96.4
1-05	62.5	0.63	1.50	842.890	300	102	92	0.79	1.75	96.3
Final	62.5		1.20680	38.68500	301.24000	91.04000		0.70536	38.68500	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7054	1.2068	38.6850	301.2400	91.0400				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 1 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/22/11
Start Time: 14:08
Stop Time: 15:17
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.001 cfm @ 6 "Hg

Bar. Press. (in. Hg): 30.20
Static P: -11.0
O_2 (dry volume %): 9.70
CO_2 (dry volume %): 9.93
N_2+CO (dry volume %): 80.37
H_2O (condensate, ml or gm): 213.4
H_2O (silica, g): 15.6
Actual Moisture (%): 21.39

Nozzle ID No: 271-2
Nozzle Diameter (D_n): 0.271
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑Pass ☐Fail
Meter Box ID. No: 66-4
Meter ΔH@: 1.69790
Meter Y_d: 0.99830

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			843.540						
5-01	2.5	0.42	1.10	845.030	300	95	94	0.65	1.49	101.1
5-02	5.0	0.42	1.10	846.520	300	95	94	0.65	1.49	101.1
5-03	7.5	0.47	1.20	848.070	300	97	94	0.69	1.55	99.2
5-04	10.0	0.58	1.50	849.790	301	98	93	0.76	1.72	99.3
5-05	12.5	0.60	1.50	851.545	301	100	93	0.77	1.76	99.4
LEAK CHECK	12.5			851.675						
4-01	15.0	0.57	1.40	853.420	301	101	93	0.75	1.75	101.3
4-02	17.5	0.50	1.30	855.050	301	101	93	0.71	1.63	101.0
4-03	20.0	0.55	1.40	856.780	301	102	93	0.74	1.73	102.1
4-04	22.5	0.61	1.50	858.510	302	102	94	0.78	1.73	97.0
4-05	25.0	0.68	1.70	860.355	301	103	94	0.82	1.85	97.8
LEAK CHECK	25.0			860.515						
3-01	27.5	0.67	1.70	862.380	301	102	94	0.82	1.87	99.7
3-02	30.0	0.50	1.30	864.030	302	103	94	0.71	1.65	102.0
3-03	32.5	0.50	1.30	865.650	302	103	94	0.71	1.62	100.2
3-04	35.0	0.60	1.50	867.410	302	102	93	0.77	1.76	99.6
3-05	37.5	0.75	1.90	869.330	302	104	94	0.87	1.92	97.0
LEAK CHECK	37.5			869.510						
2-01	40.0	0.75	1.90	871.470	302	104	93	0.87	1.96	99.1
2-02	42.5	0.50	1.30	873.130	302	104	94	0.71	1.66	102.5
2-03	45.0	0.54	1.40	874.800	302	104	94	0.73	1.67	99.3
2-04	47.5	0.57	1.40	876.510	302	105	95	0.75	1.71	98.8
2-05	50.0	0.63	1.60	878.300	303	105	95	0.79	1.79	98.5
LEAK CHECK	50.0			878.455						
1-01	52.5	0.27	0.68	879.670	299	104	93	0.52	1.21	101.9
1-02	55.0	0.29	0.73	880.830	299	103	94	0.54	1.16	93.9
1-03	57.5	0.39	0.98	882.230	285	104	95	0.62	1.40	96.7
1-04	60.0	0.49	1.20	883.790	302	104	95	0.70	1.56	97.2
1-05	62.5	0.64	1.60	885.565	302	102	94	0.80	1.78	97.2
Final	62.5		1.36760	41.40000	300.60000	97.86000		0.72960	41.40000	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7296	1.3676	41.4000	300.6000	97.8600				
		☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK				

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SS ISOKINETIC Version 2006-13a

Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 1 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/22/11
Start Time: 15:39
Stop Time: 16:47

Leak Rate Before:	0.002 cfm	@ 15 "Hg
Leak Rate After:	0.001 cfm	@ 7 "Hg

Bar. Press. (in. Hg): 30.20
Static P: -11.2
O_2 (dry volume %): 10.25
CO_2 (dry volume %): 9.60
N_2+CO (dry volume %): 80.15

H_2O (condensate, ml or gm): 203.0
H_2O (silica, g): 22.6
Actual Moisture (%): 20.81

Nozzle ID No: 271-2
Nozzle Diameter (D_n): 0.271
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-4
Meter ΔH@: 1.69790
Meter Y_d: 0.99830

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			886.390						
5-01	2.5	0.45	1.10	887.970	301	97	93	0.67	1.58	102.8
5-02	5.0	0.45	1.10	889.460	301	96	93	0.67	1.49	97.1
5-03	7.5	0.56	1.40	891.080	303	98	94	0.75	1.62	94.6
5-04	10.0	0.67	1.70	892.910	306	100	94	0.82	1.83	97.7
5-05	12.5	0.67	1.70	894.780	308	101	93	0.82	1.87	100.0
LEAK CHECK	12.5			895.020						
4-01	15.0	0.47	1.20	896.580	308	102	94	0.69	1.56	99.3
4-02	17.5	0.45	1.10	898.060	308	103	94	0.67	1.48	96.2
4-03	20.0	0.56	1.40	899.760	305	103	94	0.75	1.70	98.9
4-04	22.5	0.70	1.80	901.650	308	105	95	0.84	1.89	98.4
4-05	25.0	0.70	1.80	903.535	307	104	94	0.84	1.88	98.2
LEAK CHECK	25.0			903.785						
3-01	27.5	0.59	1.50	905.550	306	105	95	0.77	1.76	99.9
3-02	30.0	0.60	1.50	907.290	307	106	96	0.77	1.74	97.5
3-03	32.5	0.60	1.50	909.040	308	106	96	0.77	1.75	98.1
3-04	35.0	0.70	1.80	910.930	308	107	96	0.84	1.89	98.1
3-05	37.5	0.77	1.90	912.915	307	107	96	0.88	1.99	98.2
LEAK CHECK	37.5			913.145						
2-01	40.0	0.60	1.50	914.900	304	106	95	0.77	1.76	98.3
2-02	42.5	0.50	1.30	916.670	302	107	96	0.71	1.77	108.2
2-03	45.0	0.51	1.30	918.300	302	108	97	0.71	1.63	98.5
2-04	47.5	0.60	1.50	920.110	302	107	98	0.77	1.81	100.8
2-05	50.0	0.66	1.70	921.780	303	106	97	0.81	1.67	89.0*
LEAK CHECK	50.0			921.945						
1-01	52.5	0.27	0.68	923.140	302	106	98	0.52	1.19	99.1
1-02	55.0	0.31	0.78	924.450	303	106	98	0.56	1.31	101.5
1-03	57.5	0.50	1.30	926.060	306	107	97	0.71	1.61	98.6
1-04	60.0	0.52	1.30	927.670	307	108	98	0.72	1.61	96.5
1-05	62.5	0.80	2.00	929.670	310	106	97	0.89	2.00	97.3
Final	62.5		1.43440	42.39500	305.28000	99.90000		0.74874	42.39500	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7487	1.4344	42.3950	305.2800	99.9000				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/23/11
Start Time: 07:22
Stop Time: 07:35

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.10
Static P: -9.9
O_2 (dry volume %): 8.52
CO_2 (dry volume %): 10.90
N_2+CO (dry volume %): 80.58
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.23

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
1-01		0.35			305			0.59		
1-02		0.37			305			0.61		
1-03		0.39			305			0.62		
1-04		0.39			305			0.62		
1-05		0.44			306			0.66		
2-01		0.45			304			0.67		
2-02		0.49			305			0.70		
2-03		0.48			305			0.69		
2-04		0.42			306			0.65		
2-05		0.41			307			0.64		
3-01		0.34			308			0.58		
3-02		0.37			308			0.61		
3-03		0.39			308			0.62		
3-04		0.39			308			0.62		
3-05		0.40			308			0.63		
4-01		0.40			306			0.63		
4-02		0.38			307			0.62		
4-03		0.38			308			0.62		
4-04		0.36			309			0.60		
4-05		0.35			309			0.59		
5-01		0.32			308			0.57		
5-02		0.37			308			0.61		
5-03		0.37			308			0.61		
5-04		0.37			309			0.61		
5-05		0.36			308			0.60		
Final	0.0				306.92000			0.62338		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6234			306.9200					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/23/11
Start Time: 07:50
Stop Time: 08:00

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.10
Static P: -10.5
O_2 (dry volume %): 8.60
CO_2 (dry volume %): 10.75
N_2+CO (dry volume %): 80.64
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.23

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.37			307			0.61		
5-02		0.41			307			0.64		
5-03		0.48			307			0.69		
5-04		0.48			307			0.69		
5-05		0.47			308			0.69		
4-01		0.34			309			0.58		
4-02		0.38			309			0.62		
4-03		0.38			309			0.62		
4-04		0.38			309			0.62		
4-05		0.37			309			0.61		
3-01		0.30			308			0.55		
3-02		0.36			308			0.60		
3-03		0.37			308			0.61		
3-04		0.40			308			0.63		
3-05		0.43			308			0.66		
2-01		0.43			306			0.66		
2-02		0.42			306			0.65		
2-03		0.45			306			0.67		
2-04		0.45			306			0.67		
2-05		0.46			306			0.68		
1-01		0.39			306			0.62		
1-02		0.39			306			0.62		
1-03		0.39			306			0.62		
1-04		0.41			307			0.64		
1-05		0.48			307			0.69		
Final	0.0				307.32000			0.63740		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6374			307.3200					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/23/11
Start Time: 08:40
Stop Time: 08:50

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.10
Static P: -11.8
O_2 (dry volume %): 8.88
CO_2 (dry volume %): 10.50
N_2+CO (dry volume %): 80.62

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.42

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.44			305			0.66		
1-02		0.42			305			0.65		
1-03		0.47			305			0.69		
1-04		0.48			305			0.69		
1-05		0.50			305			0.71		
2-01		0.41			306			0.64		
2-02		0.44			306			0.66		
2-03		0.45			307			0.67		
2-04		0.44			307			0.66		
2-05		0.43			307			0.66		
3-01		0.32			305			0.57		
3-02		0.35			306			0.59		
3-03		0.37			308			0.61		
3-04		0.35			308			0.59		
3-05		0.36			308			0.60		
4-01		0.35			309			0.59		
4-02		0.36			308			0.60		
4-03		0.37			309			0.61		
4-04		0.38			308			0.62		
4-05		0.36			309			0.60		
5-01		0.34			307			0.58		
5-02		0.34			307			0.58		
5-03		0.36			307			0.60		
5-04		0.38			308			0.62		
5-05		0.35			308			0.59		
Final	0.0				306.92000			0.62553		
25 points sampled		Sq:Rt:ΔP								
QC-Check: Field Averages		0.6255			306.9200					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: *Unit 2 FF Outlet*
Test Run: 4
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/23/11
Start Time: 09:20
Stop Time: 09:28

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.10
Static P: -11.3
O_2 (dry volume %): 9.19
CO_2 (dry volume %): 10.20
N_2+CO (dry volume %): 80.61
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.42

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.28			308			0.53		
5-02		0.32			308			0.57		
5-03		0.33			308			0.57		
5-04		0.32			308			0.57		
5-05		0.30			308			0.55		
4-01		0.40			307			0.63		
4-02		0.42			307			0.65		
4-03		0.42			307			0.65		
4-04		0.41			307			0.64		
4-05		0.43			307			0.66		
3-01		0.35			307			0.59		
3-02		0.38			307			0.62		
3-03		0.39			306			0.62		
3-04		0.39			307			0.62		
3-05		0.41			307			0.64		
2-01		0.46			308			0.68		
2-02		0.48			308			0.69		
2-03		0.47			308			0.69		
2-04		0.53			308			0.73		
2-05		0.63			308			0.79		
1-01		0.37			307			0.61		
1-02		0.33			307			0.57		
1-03		0.35			307			0.59		
1-04		0.34			307			0.58		
1-05		0.34			307			0.58		
Final	0.0				307.36000			0.62494		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6249			307.3600					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 5
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/23/11
Start Time: 10:05
Stop Time: 10:15
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.10
Static P: -10.3
O_2 (dry volume %): 8.50
CO_2 (dry volume %): 10.71
N_2+CO (dry volume %): 80.79
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.28

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.37			309			0.61		
1-02		0.41			309			0.64		
1-03		0.40			309			0.63		
1-04		0.41			309			0.64		
1-05		0.47			309			0.69		
2-01		0.43			308			0.66		
2-02		0.41			308			0.64		
2-03		0.44			308			0.66		
2-04		0.48			308			0.69		
2-05		0.59			308			0.77		
3-01		0.28			308			0.53		
3-02		0.34			308			0.58		
3-03		0.37			308			0.61		
3-04		0.41			308			0.64		
3-05		0.44			308			0.66		
4-01		0.33			307			0.57		
4-02		0.34			307			0.58		
4-03		0.36			307			0.60		
4-04		0.40			307			0.63		
4-05		0.39			307			0.62		
5-01		0.26			307			0.51		
5-02		0.29			307			0.54		
5-03		0.33			307			0.57		
5-04		0.40			308			0.63		
5-05		0.41			308			0.64		
Final	0.0				307.88000			0.62246		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6225			307.8800					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 6
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/23/11
Start Time: 10:36
Stop Time: 10:47

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.10
Static P: -10.5
O_2 (dry volume %): 8.59
CO_2 (dry volume %): 10.57
N_2+CO (dry volume %): 80.85
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.28

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
1-01		0.46			308			0.68		
1-02		0.46			308			0.68		
1-03		0.42			308			0.65		
1-04		0.43			308			0.66		
1-05		0.49			308			0.70		
2-01		0.46			309			0.68		
2-02		0.43			309			0.66		
2-03		0.42			309			0.65		
2-04		0.41			309			0.64		
2-05		0.38			309			0.62		
3-01		0.32			306			0.57		
3-02		0.36			306			0.60		
3-03		0.38			307			0.62		
3-04		0.40			307			0.63		
3-05		0.44			307			0.66		
4-01		0.28			308			0.53		
4-02		0.32			308			0.57		
4-03		0.34			308			0.58		
4-04		0.36			308			0.60		
4-05		0.38			308			0.62		
5-01		0.36			308			0.60		
5-02		0.38			308			0.62		
5-03		0.41			308			0.64		
5-04		0.42			308			0.65		
5-05		0.39			308			0.62		
Final	0.0				307.92000			0.62803		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6280			307.9200					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 7
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: B. Arnold 770
Test Date: 3/23/11
Start Time: 11:36
Stop Time: 11:45
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.10
Static P: -10.4
O_2 (dry volume %): 9.02
CO_2 (dry volume %): 10.22
N_2+CO (dry volume %): 80.77
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.95

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.41			307			0.64		
1-02		0.43			307			0.66		
1-03		0.42			307			0.65		
1-04		0.49			307			0.70		
1-05		0.61			307			0.78		
2-01		0.41			307			0.64		
2-02		0.41			308			0.64		
2-03		0.45			308			0.67		
2-04		0.50			309			0.71		
2-05		0.55			309			0.74		
3-01		0.32			309			0.57		
3-02		0.35			310			0.59		
3-03		0.39			310			0.62		
3-04		0.40			311			0.63		
3-05		0.42			311			0.65		
4-01		0.34			306			0.58		
4-02		0.33			306			0.57		
4-03		0.36			306			0.60		
4-04		0.36			306			0.60		
4-05		0.38			307			0.62		
5-01		0.40			308			0.63		
5-02		0.37			307			0.61		
5-03		0.40			307			0.63		
5-04		0.43			309			0.66		
5-05		0.43			308			0.66		
Final	0.0				307.88000			0.64185		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6419			307.8800					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

041911 084853
K

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 8
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: B. Arnold 770
Test Date: 3/23/11
Start Time: 12:12
Stop Time: 12:20
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.10
Static P: -10.6
O_2 (dry volume %): 9.09
CO_2 (dry volume %): 10.28
N_2+CO (dry volume %): 80.63
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.95

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
1-01		0.46			310			0.68		
1-02		0.46			310			0.68		
1-03		0.46			310			0.68		
1-04		0.48			311			0.69		
1-05		0.47			311			0.69		
2-01		0.49			308			0.70		
2-02		0.51			308			0.71		
2-03		0.49			308			0.70		
2-04		0.45			308			0.67		
2-05		0.44			306			0.66		
3-01		0.33			306			0.57		
3-02		0.46			308			0.68		
3-03		0.46			308			0.68		
3-04		0.43			308			0.66		
3-05		0.41			309			0.64		
4-01		0.42			311			0.65		
4-02		0.42			311			0.65		
4-03		0.42			311			0.65		
4-04		0.43			311			0.66		
4-05		0.47			311			0.69		
5-01		0.34			309			0.58		
5-02		0.39			310			0.62		
5-03		0.39			309			0.62		
5-04		0.42			310			0.65		
5-05		0.43			310			0.66		
Final	0.0				309.28000			0.66039		
25 points sampled		Sq.Rt.ΔP:								
QC-Check: Field Averages		0.6604			309.2800					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

041511 105815
K

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SS ISOKINETIC Version 2006-13e

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 9
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/23/11
Start Time: 13:10
Stop Time: 13:21

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.10
Static P: -10.7
O_2 (dry volume %): 9.10
CO_2 (dry volume %): 10.25
N_2+CO (dry volume %): 80.64

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.86

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.42			309			0.65		
5-02		0.43			309			0.66		
5-03		0.45			309			0.67		
5-04		0.42			309			0.65		
5-05		0.39			309			0.62		
4-01		0.42			309			0.65		
4-02		0.43			309			0.66		
4-03		0.40			310			0.63		
4-04		0.40			310			0.63		
4-05		0.38			310			0.62		
3-01		0.44			309			0.66		
3-02		0.47			310			0.69		
3-03		0.45			310			0.67		
3-04		0.43			310			0.66		
3-05		0.43			310			0.66		
2-01		0.59			308			0.77		
2-02		0.59			308			0.77		
2-03		0.55			308			0.74		
2-04		0.50			308			0.71		
2-05		0.51			308			0.71		
1-01		0.20			302			0.45		
1-02		0.27			304			0.52		
1-03		0.39			302			0.62		
1-04		0.53			307			0.73		
1-05		0.58			308			0.76		
Final	0.0				308.20000			0.66174		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6617			308.2000					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

041511 105615

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SS ISOKINETIC Version 2006-13e

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 2 FF Outlet
Test Run: 10
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/23/11
Start Time: 13:50
Stop Time: 14:00

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.10
Static P: -10.7
O_2 (dry volume %): 8.84
CO_2 (dry volume %): 10.44
N_2+CO (dry volume %): 80.72

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.86

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered	Stack	Dry Gas Meter		$\sqrt{\Delta P_s}$	Volume	Isokinetics
				(dcf)	T_s	$T_{m\text{-}in}$	$T_{m\text{-}out}$	(calculated)	(calculated)	(calculated)
	0.0	(in. H_2O)	(in. H_2O)		(°F)	(°F)	(°F)	($\sqrt{}$in. H_2O)	(ft^3)	(%)
1-01		0.46			309			0.68		
1-02		0.42			309			0.65		
1-03		0.46			309			0.68		
1-04		0.49			310			0.70		
1-05		0.48			310			0.69		
2-01		0.53			309			0.73		
2-02		0.51			309			0.71		
2-03		0.50			309			0.71		
2-04		0.50			309			0.71		
2-05		0.49			309			0.70		
3-01		0.40			308			0.63		
3-02		0.42			308			0.65		
3-03		0.42			309			0.65		
3-04		0.41			309			0.64		
3-05		0.45			309			0.67		
4-01		0.47			304			0.69		
4-02		0.47			308			0.69		
4-03		0.46			308			0.68		
4-04		0.42			308			0.65		
4-05		0.39			307			0.62		
5-01		0.35			308			0.59		
5-02		0.41			308			0.64		
5-03		0.37			308			0.61		
5-04		0.36			309			0.60		
5-05		0.36			309			0.60		
Final	0.0				308.48000			0.66222		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6622			308.4800					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

041511 105815
Q

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 2 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: N. Hitchins 569
Test Date: 3/23/11
Start Time: 07:12
Stop Time: 08:12
Leak Rate Before: 0.002 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 7 "Hg

Bar. Press. (in. Hg): 30.10
Static P: -9.9
O_2 (dry volume %): 8.60
CO_2 (dry volume %): 10.58
N_2+CO (dry volume %): 80.82

H_2O (condensate, ml or gm): 219.5
H_2O (silica, g): 17.6
Actual Moisture (%): 21.23

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 61-5
Meter ΔH@: 1.76760
Meter Y_d: 0.99360

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			617.490						
3-01	5.0		1.50	621.270	308	72	70		3.78	
3-01	10.0		1.50	624.670	308	77	71		3.40	
3-01	15.0		1.50	628.130	308	81	72		3.46	
3-01	20.0		1.50	631.600	309	84	72		3.47	
3-01	25.0		1.50	635.050	309	86	73		3.45	
3-01	30.0		1.50	638.540	309	87	74		3.49	
3-01	35.0		1.50	642.050	309	89	75		3.51	
3-01	40.0		1.50	645.540	310	89	76		3.49	
3-01	45.0		1.50	649.120	310	89	77		3.58	
3-01	50.0		1.50	652.610	309	89	77		3.49	
3-01	55.0		1.50	656.140	309	90	78		3.53	
3-01	60.0		1.50	659.700	308	90	79		3.56	
Final	60.0		1.50000	42.21000	308.83333	79.87500		0.00000	42.21000	
3 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	42.2100	308.8333	79.8750				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

041511 105633
K

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 2 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator:
Test Date: 3/23/11
Start Time: 08:38
Stop Time: 09:38
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 7 "Hg

Bar. Press. (in. Hg): 30.10
Static P: -11.8
O_2 (dry volume %): 8.90
CO_2 (dry volume %): 10.43
N_2+CO (dry volume %): 80.67
H_2O (condensate, ml or gm): 204.2
H_2O (silica, g): 16.8
Actual Moisture (%): 20.42

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: 61-5
Meter $\Delta H@$: 1.76760
Meter Y_d: 0.99360

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			660.615						
2-01	5.0		1.50	664.150	309	82	80		3.53	
2-01	10.0		1.50	667.610	308	87	80		3.46	
2-01	15.0		1.50	671.010	308	89	80		3.40	
2-01	20.0		1.50	674.580	308	92	81		3.57	
2-01	25.0		1.50	678.050	308	93	81		3.47	
2-01	30.0		1.50	681.560	308	94	83		3.51	
2-01	35.0		1.50	684.970	308	94	83		3.41	
2-01	40.0		1.50	688.500	308	94	83		3.53	
2-01	45.0		1.50	691.900	307	94	84		3.40	
2-01	50.0		1.50	695.430	308	93	84		3.53	
2-01	55.0		1.50	698.960	308	94	85		3.53	
2-01	60.0		1.50	702.480	308	94	85		3.52	
Final	60.0		1.50000	41.86500	308.00000	87.04167		0.00000	41.86500	
2 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	41.8650	308.0000	87.0417				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

041511 105833
K

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 2 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: N. Hitchins 569
Test Date: 3/23/11
Start Time: 09:59
Stop Time: 10:59
Leak Rate Before: 0.004 cfm @ 16 "Hg
Leak Rate After: 0.002 cfm @ 7 "Hg

Bar. Press. (in. Hg): 30.10
Static P: -11.3
O_2 (dry volume %): 8.70
CO_2 (dry volume %): 10.56
N_2+CO (dry volume %): 80.74
H_2O (condensate, ml or gm): 214.4
H_2O (silica, g): 16.6
Actual Moisture (%): 21.28

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: 61-5
Meter ΔH@: 1.76760
Meter Y_d: 0.99360

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			703.025						
2-01	5.0		1.50	706.850	309	89	85		3.83	
2-01	10.0		1.50	710.140	309	91	85		3.29	
2-01	15.0		1.50	713.600	308	93	85		3.46	
2-01	20.0		1.50	717.120	309	95	86		3.52	
2-01	25.0		1.50	720.500	309	95	87		3.38	
2-01	30.0		1.50	723.990	309	95	87		3.49	
2-01	35.0		1.50	727.440	308	95	87		3.45	
2-01	40.0		1.50	730.890	308	95	88		3.45	
2-01	45.0		1.50	734.330	308	95	88		3.44	
2-01	50.0		1.50	737.830	308	94	88		3.50	
2-01	55.0		1.50	741.340	309	94	87		3.51	
2-01	60.0		1.50	744.810	308	93	86		3.47	
Final	60.0		1.50000	41.78500	308.50000	90.12500		0.00000	41.78500	
2 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	41.7850	308.5000	90.1250				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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M

Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 2 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator: N. Hitchins 569
Probe Operator: B. Arnold 770
Test Date: 3/23/11
Start Time: 11:32
Stop Time: 12:45
Leak Rate Before: 0.004 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 6 "Hg

Bar. Press. (in. Hg): 30.10
Static P: -10.4
O_2 (dry volume %): 9.05
CO_2 (dry volume %): 10.43
N_2+CO (dry volume %): 80.52

H_2O (condensate, ml or gm): 192.1
H_2O (silica, g): 12.8
Actual Moisture (%): 20.95

Nozzle ID No: 274-1
Nozzle Diameter (D_n): 0.274
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-21
Meter ΔH@: 1.82520
Meter Y_d: 0.98370

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			287.420						
5-01	2.5	0.40	1.10	288.960	308	83	81	0.63	1.54	105.4
5-02	5.0	0.37	0.98	290.380	307	83	81	0.61	1.42	101.0
5-03	7.5	0.40	1.10	291.840	307	83	82	0.63	1.46	99.8
5-04	10.0	0.43	1.10	293.360	309	85	82	0.66	1.52	100.2
5-05	12.5	0.43	1.10	294.890	308	85	83	0.66	1.53	100.7
LEAK CHECK	12.5			294.950						
4-01	15.0	0.41	1.10	296.450	306	86	82	0.64	1.50	100.9
4-02	17.5	0.42	1.10	297.980	308	87	82	0.65	1.53	101.8
4-03	20.0	0.42	1.10	299.480	308	88	83	0.65	1.50	99.6
4-04	22.5	0.42	1.10	300.980	308	89	83	0.65	1.50	99.5
4-05	25.0	0.39	1.00	302.415	308	90	84	0.62	1.44	98.6
LEAK CHECK	25.0			302.545						
3-01	27.5	0.33	0.87	303.900	306	90	84	0.57	1.35	101.0
3-02	30.0	0.46	1.20	305.440	308	91	85	0.68	1.54	97.3
3-03	32.5	0.46	1.20	306.990	308	91	85	0.68	1.55	97.9
3-04	35.0	0.43	1.10	308.500	308	92	85	0.66	1.51	98.5
3-05	37.5	0.41	1.10	310.020	309	91	85	0.64	1.52	101.7
LEAK CHECK	37.5			310.240						
2-01	40.0	0.56	1.50	312.100	307	87	84	0.75	1.86	107.0
2-02	42.5	0.54	1.40	313.680	308	88	85	0.73	1.58	92.4
2-03	45.0	0.47	1.20	315.250	308	89	85	0.69	1.57	98.3
2-04	47.5	0.46	1.20	316.790	307	89	85	0.68	1.54	97.4
2-05	50.0	0.46	1.20	318.340	307	88	83	0.68	1.55	98.3
LEAK CHECK	50.0			318.515						
1-01	52.5	0.24	0.64	319.515	303	86	83	0.49	1.00	87.6*
1-02	55.0	0.27	0.72	321.120	305	86	83	0.52	1.61	132.8*
1-03	57.5	0.36	0.95	322.260	301	86	83	0.60	1.14	81.5*
1-04	60.0	0.62	1.60	324.040	307	87	83	0.79	1.78	97.4
1-05	62.5	0.64	1.70	325.895	309	87	83	0.80	1.85	100.1
Final	62.5		1.13440	37.89000	307.12000	85.42000		0.65371	37.89000	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6537	1.1344	37.8900	307.1200	85.4200				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 2 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/23/11
Start Time: 13:07
Stop Time: 14:17

Leak Rate Before:	0.003 cfm	@ 15 "Hg
Leak Rate After:	0.002 cfm	@ 8 "Hg

Bar. Press. (in. Hg): 30.10
Static P: -10.7
O_2 (dry volume %): 9.13
CO_2 (dry volume %): 10.46
N_2+CO (dry volume %): 80.41

H_2O (condensate, ml or gm): 209.8
H_2O (silica, g): 15.3
Actual Moisture (%): 21.86

Nozzle ID No: 274-1
Nozzle Diameter (D_n): 0.274
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-21
Meter ΔH@: 1.82520
Meter Y_d: 0.98370

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			326.365						
1-01	2.5	0.20	0.54	327.410	302	83	82	0.45	1.05	101.6
1-02	5.0	0.27	0.72	328.620	304	83	82	0.52	1.21	101.4
1-03	7.5	0.37	1.00	330.040	302	83	82	0.61	1.42	101.7
1-04	10.0	0.53	1.40	331.700	307	84	79	0.73	1.66	99.8
1-05	12.5	0.58	1.60	333.535	308	85	82	0.76	1.84	105.2
LEAK CHECK	12.5			333.870						
2-01	15.0	0.57	1.50	335.630	308	85	82	0.75	1.76	101.8
2-02	17.5	0.58	1.60	337.410	307	85	82	0.76	1.78	102.0
2-03	20.0	0.49	1.30	339.030	308	86	82	0.70	1.62	100.9
2-04	22.5	0.51	1.40	340.700	308	86	82	0.71	1.67	102.0
2-05	25.0	0.50	1.40	342.375	308	87	81	0.71	1.68	103.3
LEAK CHECK	25.0			342.530						
3-01	27.5	0.60	1.60	344.350	308	86	82	0.77	1.82	102.5
3-02	30.0	0.49	1.30	346.020	308	87	82	0.70	1.67	103.9
3-03	32.5	0.46	1.20	347.560	308	87	82	0.68	1.54	98.9
3-04	35.0	0.42	1.10	349.110	307	87	82	0.65	1.55	104.1
3-05	37.5	0.42	1.10	350.620	308	87	82	0.65	1.51	101.5
LEAK CHECK	37.5			350.770						
4-01	40.0	0.47	1.30	352.350	304	87	82	0.69	1.58	100.1
4-02	42.5	0.47	1.30	353.970	308	87	82	0.69	1.62	102.9
4-03	45.0	0.46	1.20	355.530	308	88	82	0.68	1.56	100.1
4-04	47.5	0.42	1.10	357.040	308	87	82	0.65	1.51	101.5
4-05	50.0	0.39	1.10	358.550	307	88	83	0.62	1.51	105.0
LEAK CHECK	50.0			358.745						
5-01	52.5	0.44	1.20	360.290	307	86	82	0.66	1.55	101.5
5-02	55.0	0.45	1.20	361.810	308	87	82	0.67	1.52	98.7
5-03	57.5	0.47	1.30	363.410	308	87	82	0.69	1.60	101.7
5-04	60.0	0.42	1.10	364.950	309	88	82	0.65	1.54	103.4
5-05	62.5	0.42	1.10	366.520	308	88	83	0.65	1.57	105.3
Final	62.5		1.22640	39.32000	307.04000	84.04000		0.67154	39.32000	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6722	1.2264	39.3200	307.0400	84.0400				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 2 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator: N. Hitchins 569
Probe Operator: B. Arnold 770

Test Date: 3/23/11
Start Time: 14:39
Stop Time: 15:45
Leak Rate Before: 0.004 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 9 "Hg

Bar. Press. (in. Hg): 30.10
Static P: -10.7
O_2 (dry volume %): 8.60
CO_2 (dry volume %): 11.06
N_2+CO (dry volume %): 80.34

H_2O (condensate, ml or gm): 205.8
H_2O (silica, g): 12.1
Actual Moisture (%): 21.99

Nozzle ID No: 274-1
Nozzle Diameter (D_n): 0.274
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-21
Meter ΔH@: 1.82520
Meter Y_d: 0.98370

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			367.295						
5-01	2.5	0.45	1.20	368.900	307	82	81	0.67	1.60	105.0
5-02	5.0	0.47	1.30	370.510	308	82	81	0.69	1.61	103.1
5-03	7.5	0.45	1.20	372.060	308	83	81	0.67	1.55	101.3
5-04	10.0	0.47	1.30	373.680	307	83	81	0.69	1.62	103.6
5-05	12.5	0.42	1.10	375.225	308	84	81	0.65	1.55	104.4
LEAK CHECK	12.5			375.430						
4-01	15.0	0.44	1.20	377.030	308	83	81	0.66	1.60	105.8
4-02	17.5	0.46	1.20	378.600	307	84	80	0.68	1.57	101.5
4-03	20.0	0.42	1.10	380.110	307	85	81	0.65	1.51	101.9
4-04	22.5	0.43	1.20	381.650	308	85	81	0.66	1.54	102.8
4-05	25.0	0.37	1.00	383.120	302	84	80	0.61	1.47	105.5
LEAK CHECK	25.0			383.280						
3-01	27.5	0.30	0.81	384.550	305	83	80	0.55	1.27	101.5
3-02	30.0	0.40	1.10	386.080	307	83	80	0.63	1.53	106.1
3-03	32.5	0.42	1.10	387.560	307	84	80	0.65	1.48	100.1
3-04	35.0	0.40	1.10	389.040	307	84	80	0.63	1.48	102.5
3-05	37.5	0.40	1.10	390.535	308	84	80	0.63	1.50	103.6
LEAK CHECK	37.5			390.725						
2-01	40.0	0.57	1.50	392.430	306	83	79	0.75	1.70	99.2
2-02	42.5	0.50	1.40	394.160	309	84	80	0.71	1.73	107.4
2-03	45.0	0.48	1.30	395.790	308	84	80	0.69	1.63	103.2
2-04	47.5	0.43	1.20	397.360	308	85	79	0.66	1.57	105.0
2-05	50.0	0.37	1.00	398.785	308	85	80	0.61	1.43	102.6
LEAK CHECK	50.0			398.950						
1-01	52.5	0.37	1.00	400.350	303	83	79	0.61	1.40	100.8
1-02	55.0	0.25	0.68	401.650	304	84	79	0.50	1.30	113.7*
1-03	57.5	0.33	0.89	402.730	304	83	79	0.57	1.08	82.3*
1-04	60.0	0.38	1.00	404.170	307	83	80	0.62	1.44	102.4
1-05	62.5	0.38	1.00	405.650	307	83	79	0.62	1.48	105.4
Final	62.5		1.11920	37.63500	306.72000	81.84000		0.64169	37.63500	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6417	1.1192	37.6350	306.7200	81.8400				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/24/11
Start Time: 06:59
Stop Time: 07:08
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 8.66
CO_2 (dry volume %): 10.56
N_2+CO (dry volume %): 80.78
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.20

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.32			311			0.57		
5-02		0.43			311			0.66		
5-03		0.45			313			0.67		
5-04		0.46			314			0.68		
5-05		0.41			314			0.64		
4-01		0.51			313			0.71		
4-02		0.52			314			0.72		
4-03		0.49			314			0.70		
4-04		0.44			314			0.66		
4-05		0.42			315			0.65		
3-01		0.49			314			0.70		
3-02		0.57			315			0.75		
3-03		0.54			315			0.73		
3-04		0.51			315			0.71		
3-05		0.48			315			0.69		
2-01		0.54			314			0.73		
2-02		0.52			314			0.72		
2-03		0.54			314			0.73		
2-04		0.49			314			0.70		
2-05		0.54			314			0.73		
1-01		0.56			313			0.75		
1-02		0.55			313			0.74		
1-03		0.48			313			0.69		
1-04		0.46			313			0.68		
1-05		0.53			313			0.73		
Final	0.0				313.68000			0.69876		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6988			313.6800					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	B. Arnold	770

Test Date: 3/24/11
Start Time: 07:45
Stop Time: 07:52

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 8.82
CO_2 (dry volume %): 10.39
N_2+CO (dry volume %): 80.79
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 21.20

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.47			312			0.69		
1-02		0.36			312			0.60		
1-03		0.33			313			0.57		
1-04		0.36			313			0.60		
1-05		0.38			313			0.62		
2-01		0.53			311			0.73		
2-02		0.43			312			0.66		
2-03		0.42			312			0.65		
2-04		0.41			313			0.64		
2-05		0.40			313			0.63		
3-01		0.37			315			0.61		
3-02		0.48			315			0.69		
3-03		0.49			315			0.70		
3-04		0.49			315			0.70		
3-05		0.45			315			0.67		
4-01		0.47			312			0.69		
4-02		0.50			312			0.71		
4-03		0.49			312			0.70		
4-04		0.47			312			0.69		
4-05		0.43			312			0.66		
5-01		0.48			312			0.69		
5-02		0.51			312			0.71		
5-03		0.55			312			0.74		
5-04		0.47			312			0.69		
5-05		0.43			312			0.66		
Final	0.0				312.76000			0.66707		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6671			312.7600					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/24/11
Start Time: 08:26
Stop Time: 08:31

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.00
CO_2 (dry volume %): 10.27
N_2+CO (dry volume %): 80.73
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.90

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.41			312			0.64		
1-02		0.37			312			0.61		
1-03		0.36			312			0.60		
1-04		0.40			312			0.63		
1-05		0.43			313			0.66		
2-01		0.46			311			0.68		
2-02		0.44			311			0.66		
2-03		0.43			311			0.66		
2-04		0.43			311			0.66		
2-05		0.41			311			0.64		
3-01		0.47			315			0.69		
3-02		0.52			315			0.72		
3-03		0.50			315			0.71		
3-04		0.48			315			0.69		
3-05		0.45			315			0.67		
4-01		0.47			311			0.69		
4-02		0.53			311			0.73		
4-03		0.49			311			0.70		
4-04		0.48			311			0.69		
4-05		0.48			311			0.69		
5-01		0.36			313			0.60		
5-02		0.44			313			0.66		
5-03		0.45			313			0.67		
5-04		0.46			313			0.68		
5-05		0.45			313			0.67		
Final	0.0				312.44000			0.66760		
25 points sampled		Sq.Rt:ΔP								
QC-Check: Field Averages		0.6676			312.4400					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 4
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: C. Slimp 558
Test Date: 3/24/11
Start Time: 09:02
Stop Time: 09:08
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.29
CO_2 (dry volume %): 10.06
N_2+CO (dry volume %): 80.65
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.90

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
5-01		0.43			313			0.66		
5-02		0.46			314			0.68		
5-03		0.45			314			0.67		
5-04		0.44			314			0.66		
5-05		0.44			314			0.66		
4-01		0.45			312			0.67		
4-02		0.48			312			0.69		
4-03		0.45			312			0.67		
4-04		0.44			312			0.66		
4-05		0.43			312			0.66		
3-01		0.48			314			0.69		
3-02		0.52			314			0.72		
3-03		0.52			314			0.72		
3-04		0.48			314			0.69		
3-05		0.44			314			0.66		
2-01		0.47			313			0.69		
2-02		0.45			313			0.67		
2-03		0.47			313			0.69		
2-04		0.44			313			0.66		
2-05		0.48			314			0.69		
1-01		0.51			312			0.71		
1-02		0.53			312			0.73		
1-03		0.54			312			0.73		
1-04		0.49			312			0.70		
1-05		0.51			312			0.71		
Final	0.0				313.00000			0.68662		
25 points sampled		Sq.Rt:ΔP								
QC-Check: Field Averages		0.6866			313.0000					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

041511 105814
M

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 5
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: C. Slimp 558
Test Date: 3/24/11
Start Time: 10:25
Stop Time: 10:31
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.56
CO_2 (dry volume %): 9.77
N_2+CO (dry volume %): 80.66
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.51

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.52			315			0.72		
1-02		0.51			315			0.71		
1-03		0.46			315			0.68		
1-04		0.44			315			0.66		
1-05		0.49			315			0.70		
2-01		0.52			313			0.72		
2-02		0.56			313			0.75		
2-03		0.58			313			0.76		
2-04		0.50			313			0.71		
2-05		0.49			313			0.70		
3-01		0.56			314			0.75		
3-02		0.52			314			0.72		
3-03		0.52			314			0.72		
3-04		0.48			314			0.69		
3-05		0.44			314			0.66		
4-01		0.38			313			0.62		
4-02		0.45			313			0.67		
4-03		0.47			313			0.69		
4-04		0.45			313			0.67		
4-05		0.45			313			0.67		
5-01		0.39			313			0.62		
5-02		0.44			313			0.66		
5-03		0.46			313			0.68		
5-04		0.47			313			0.69		
5-05		0.43			313			0.66		
Final	0.0				313.60000			0.69134		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6913			313.6000					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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N

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 6
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/24/11
Start Time: 11:15
Stop Time: 11:22

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.78
CO_2 (dry volume %): 9.65
N_2+CO (dry volume %): 80.58

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.51

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
5-01		0.60			315			0.77		
5-02		0.64			315			0.80		
5-03		0.64			315			0.80		
5-04		0.60			315			0.77		
5-05		0.58			315			0.76		
4-01		0.56			314			0.75		
4-02		0.55			314			0.74		
4-03		0.53			314			0.73		
4-04		0.53			314			0.73		
4-05		0.48			314			0.69		
3-01		0.53			316			0.73		
3-02		0.55			316			0.74		
3-03		0.54			316			0.73		
3-04		0.53			316			0.73		
3-05		0.48			316			0.69		
2-01		0.63			314			0.79		
2-02		0.60			314			0.77		
2-03		0.57			314			0.75		
2-04		0.54			314			0.73		
2-05		0.51			314			0.71		
1-01		0.49			313			0.70		
1-02		0.48			313			0.69		
1-03		0.41			313			0.64		
1-04		0.48			313			0.69		
1-05		0.51			313			0.71		
Final	0.0				314.40000			0.73549		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7355			314.4000					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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P

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Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 7
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/24/11
Start Time: 11:48
Stop Time: 12:00

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 10.31
CO_2 (dry volume %): 9.27
N_2+CO (dry volume %): 80.42

H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.66

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
5-01		0.39			313			0.62		
5-02		0.43			313			0.66		
5-03		0.46			313			0.68		
5-04		0.47			313			0.69		
5-05		0.49			313			0.70		
4-01		0.43			312			0.66		
4-02		0.46			312			0.68		
4-03		0.47			312			0.69		
4-04		0.48			312			0.69		
4-05		0.47			312			0.69		
3-01		0.48			312			0.69		
3-02		0.50			313			0.71		
3-03		0.54			313			0.73		
3-04		0.52			313			0.72		
3-05		0.49			313			0.70		
2-01		0.53			313			0.73		
2-02		0.59			313			0.77		
2-03		0.61			313			0.78		
2-04		0.59			313			0.77		
2-05		0.65			313			0.81		
1-01		0.43			311			0.66		
1-02		0.43			312			0.66		
1-03		0.45			312			0.67		
1-04		0.53			314			0.73		
1-05		0.67			313			0.82		
Final	0.0				312.64000			0.70708		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7069			312.6400					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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M

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 8
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/24/11
Start Time: 12:20
Stop Time: 12:30

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.92
CO_2 (dry volume %): 9.55
N_2+CO (dry volume %): 80.53
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.66

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
5-01		0.49			313			0.70		
5-02		0.58			313			0.76		
5-03		0.58			313			0.76		
5-04		0.55			313			0.74		
5-05		0.53			313			0.73		
4-01		0.70			315			0.84		
4-02		0.68			315			0.82		
4-03		0.62			313			0.79		
4-04		0.55			312			0.74		
4-05		0.55			311			0.74		
3-01		0.48			313			0.69		
3-02		0.57			313			0.75		
3-03		0.56			313			0.75		
3-04		0.52			313			0.72		
3-05		0.47			313			0.69		
2-01		0.62			314			0.79		
2-02		0.60			314			0.77		
2-03		0.56			314			0.75		
2-04		0.53			314			0.73		
2-05		0.51			314			0.71		
1-01		0.60			312			0.77		
1-02		0.55			312			0.74		
1-03		0.45			312			0.67		
1-04		0.49			312			0.70		
1-05		0.55			312			0.74		
Final	0.0				313.04000			0.74435		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7443			313.0400					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK		☐ Avg. OK			

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K

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 9
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:		C. Slimp	558
Probe Operator:		B. Arnold	770

Test Date: 3/24/11
Start Time: 13:12
Stop Time: 13:20

Leak Rate Before:	NA	cfm	
Leak Rate After:	NA	cfm	

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.79
CO_2 (dry volume %): 9.73
N_2+CO (dry volume %): 80.48
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 19.88

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
1-01		0.59			311			0.77		
1-02		0.54			311			0.73		
1-03		0.49			311			0.70		
1-04		0.53			311			0.73		
1-05		0.57			311			0.75		
2-01		0.73			311			0.85		
2-02		0.65			311			0.81		
2-03		0.55			311			0.74		
2-04		0.55			311			0.74		
2-05		0.53			312			0.73		
3-01		0.52			313			0.72		
3-02		0.60			313			0.77		
3-03		0.53			313			0.73		
3-04		0.52			313			0.72		
3-05		0.50			313			0.71		
4-01		0.54			313			0.73		
4-02		0.57			313			0.75		
4-03		0.55			313			0.74		
4-04		0.51			313			0.71		
4-05		0.46			313			0.68		
5-01		0.58			313			0.76		
5-02		0.61			313			0.78		
5-03		0.58			313			0.76		
5-04		0.52			313			0.72		
5-05		0.48			313			0.69		
Final	0.0				312.24000			0.74207		

25 points sampled

QC-Check: Field Averages	Sq.Rt.ΔP				
	0.7421			312.2400	
	☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK

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L

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 10
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: C. Slimp 558
Probe Operator: B. Arnold 770
Test Date: 3/24/11
Start Time: 13:47
Stop Time: 13:56
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.81
CO_2 (dry volume %): 9.53
N_2+CO (dry volume %): 80.67
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 19.88

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
5-01		0.50			310			0.71		
5-02		0.63			311			0.79		
5-03		0.58			311			0.76		
5-04		0.52			311			0.72		
5-05		0.47			312			0.69		
4-01		0.60			311			0.77		
4-02		0.58			311			0.76		
4-03		0.55			310			0.74		
4-04		0.51			310			0.71		
4-05		0.48			310			0.69		
3-01		0.59			310			0.77		
3-02		0.56			310			0.75		
3-03		0.57			310			0.75		
3-04		0.54			310			0.73		
3-05		0.50			310			0.71		
2-01		0.60			309			0.77		
2-02		0.52			309			0.72		
2-03		0.52			310			0.72		
2-04		0.51			310			0.71		
2-05		0.49			313			0.70		
1-01		0.61			310			0.78		
1-02		0.55			310			0.74		
1-03		0.41			310			0.64		
1-04		0.45			310			0.67		
1-05		0.61			311			0.78		
Final	0.0				310.36000			0.73252		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7329			310.3600					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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0

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 11
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	C. Slimp	558
Probe Operator:	B. Arnold	770

Test Date: 3/24/11
Start Time: 14:46
Stop Time: 14:51

Leak Rate Before:	NA	cfm
Leak Rate After:	NA	cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.33
CO_2 (dry volume %): 10.08
N_2+CO (dry volume %): 80.59
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.80

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
2-01		0.53			309			0.73		
2-02		0.52			309			0.72		
2-03		0.48			310			0.69		
2-04		0.49			310			0.70		
2-05		0.46			310			0.68		
3-01		0.46			309			0.68		
3-02		0.50			311			0.71		
3-03		0.49			311			0.70		
3-04		0.48			311			0.69		
3-05		0.45			312			0.67		
4-01		0.44			310			0.66		
4-02		0.53			310			0.73		
4-03		0.50			310			0.71		
4-04		0.48			312			0.69		
4-05		0.44			313			0.66		
5-01		0.47			310			0.69		
5-02		0.49			310			0.70		
5-03		0.53			310			0.73		
5-04		0.55			311			0.74		
5-05		0.52			312			0.72		
1-01		0.47			313			0.69		
1-02		0.42			313			0.65		
1-03		0.45			313			0.67		
1-04		0.47			313			0.69		
1-05		0.56			313			0.75		
Final	0.0				311.00000			0.69754		
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.6975			311.0000					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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P

Field Data Printout

Test Method: **USEPA Method 2**
Analyte: **Velocity & Flow Rate**

Location: Unit 3 FF Outlet
Test Run: 12
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	C. Slimp	558
Probe Operator:	B. Arnold	770

Test Date: 3/24/11
Start Time: 15:11
Stop Time: 15:17
Leak Rate Before: NA cfm
Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.10
CO_2 (dry volume %): 10.25
N_2+CO (dry volume %): 80.65
H_2O (condensate, ml or gm):
H_2O (silica, g):
Actual Moisture (%): 20.80

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-8P-3
Pitot C_p: 0.817
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: NA
Meter ΔH@: NA
Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0									
5-01		0.48			312			0.69		
5-02		0.51			312			0.71		
5-03		0.53			313			0.73		
5-04		0.51			313			0.71		
5-05		0.47			313			0.69		
4-01		0.52			313			0.72		
4-02		0.50			313			0.71		
4-03		0.49			313			0.70		
4-04		0.48			312			0.69		
4-05		0.47			312			0.69		
3-01		0.40			313			0.63		
3-02		0.58			313			0.76		
3-03		0.56			313			0.75		
3-04		0.51			313			0.71		
3-05		0.46			313			0.68		
2-01		0.56			313			0.75		
2-02		0.52			313			0.72		
2-03		0.51			313			0.71		
2-04		0.48			313			0.69		
2-05		0.49			312			0.70		
1-01		0.50			312			0.71		
1-02		0.43			312			0.66		
1-03		0.42			312			0.65		
1-04		0.48			312			0.69		
1-05		0.55			312			0.74		
Final	0.0				312.60000			0.70391		
25 points sampled		Sq.Rt:ΔP								
QC-Check: Field Averages		0.7039			312.6000					
		☑ Avg. OK	☐ Avg. OK	☐ Avg. OK	☑ Avg. OK	☐ Avg. OK				

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D

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 3 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: N. Hitchins 569
Test Date: 3/24/11
Start Time: 06:57
Stop Time: 07:57
Leak Rate Before: 0.003 cfm @ 12 "Hg
Leak Rate After: 0.004 cfm @ 8 "Hg

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 8.54
CO_2 (dry volume %): 10.77
N_2+CO (dry volume %): 80.69
H_2O (condensate, ml or gm): 220.6
H_2O (silica, g): 14.8
Actual Moisture (%): 21.20

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: 66-22
Meter ΔH@: 1.68920
Meter Y_d: 0.99950

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			4.660						
3-01	5.0		1.50	8.260	311	68	67		3.60	
3-01	10.0		1.50	11.720	312	68	67		3.46	
3-01	15.0		1.50	15.230	312	76	68		3.51	
3-01	20.0		1.50	18.400	312	78	68		3.17	
3-01	25.0		1.50	21.860	311	79	69		3.46	
3-01	30.0		1.50	25.280	311	81	70		3.42	
3-01	35.0		1.50	28.750	310	81	71		3.47	
3-01	40.0		1.50	32.200	311	82	71		3.45	
3-01	45.0		1.50	35.650	311	83	72		3.45	
3-01	50.0		1.50	39.170	311	83	73		3.52	
3-01	55.0		1.50	42.650	311	83	73		3.48	
3-01	60.0		1.50	46.115	311	84	74		3.47	
Final	60.0		1.50000	41.45500	311.16667	74.54167		0.00000	41.45500	
3 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	41.4550	311.1667	74.5417				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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N

Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 3 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator: N. Hitchins 569
Probe Operator: N. Hitchins 569
Test Date: 3/24/11
Start Time: 08:25
Stop Time: 09:25
Leak Rate Before: 0.002 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 5 "Hg

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.00
CO_2 (dry volume %): 10.43
N_2+CO (dry volume %): 80.57

H_2O (condensate, ml or gm): 213.8
H_2O (silica, g): 17.7
Actual Moisture (%): 20.90

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-22
Meter ΔH@: 1.68920
Meter Y_d: 0.99950

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			46.575						
3-01	5.0		1.50	50.170	311	77	75		3.60	
3-01	10.0		1.50	53.640	311	81	75		3.47	
3-01	15.0		1.50	57.050	312	84	76		3.41	
3-01	20.0		1.50	60.520	312	86	76		3.47	
3-01	25.0		1.50	64.010	312	87	77		3.49	
3-01	30.0		1.50	67.500	311	88	78		3.49	
3-01	35.0		1.50	71.020	311	88	78		3.52	
3-01	40.0		1.50	74.540	311	87	79		3.52	
3-01	45.0		1.50	78.060	311	87	79		3.52	
3-01	50.0		1.50	81.600	312	88	79		3.54	
3-01	55.0		1.50	85.180	312	88	79		3.58	
3-01	60.0		1.50	88.640	312	88	79		3.46	
Final	60.0		1.50000	42.06500	311.50000	81.62500		0.00000	42.06500	
3 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	42.0650	311.5000	81.6250				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 26A**
Analyte: **HCl**

Location: Unit 3 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: N. Hitchins 569
Test Date: 3/24/11
Start Time: 10:24
Stop Time: 11:24
Leak Rate Before: 0.003 cfm @ 13 "Hg
Leak Rate After: 0.001 cfm @ 5 "Hg

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.44
CO_2 (dry volume %): 10.06
N_2+CO (dry volume %): 80.50
H_2O (condensate, ml or gm): 209.3
H_2O (silica, g): 13.8
Actual Moisture (%): 20.51

Nozzle ID No: NA
Nozzle Diameter (D_n): NA
Probe ID No: 67-4-1
Pitot C_p: NA
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: 66-22
Meter ΔH@: 1.68920
Meter Y_d: 0.99950

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{}$in. H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			89.135						
3-01	5.0		1.50	92.770	312	83	82		3.63	
3-01	10.0		1.50	96.270	311	88	82		3.50	
3-01	15.0		1.50	99.730	311	91	83		3.46	
3-01	20.0		1.50	103.140	312	93	84		3.41	
3-01	25.0		1.50	106.590	312	95	85		3.45	
3-01	30.0		1.50	110.140	313	96	86		3.55	
3-01	35.0		1.50	113.650	311	97	87		3.51	
3-01	40.0		1.50	117.350	312	97	88		3.70	
3-01	45.0		1.50	120.660	311	97	89		3.31	
3-01	50.0		1.50	124.230	311	98	89		3.57	
3-01	55.0		1.50	127.770	312	99	90		3.54	
3-01	60.0		1.50	131.335	313	100	91		3.57	
Final	60.0		1.50000	42.20000	311.75000	90.41667		0.00000	42.20000	
3 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages			1.5000	42.2000	311.7500	90.4167				
		☐ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 3 FF Outlet
Test Run: 1
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000
Meter Operator: N. Hitchins 569
Probe Operator: C. Slimp 558
Test Date: 3/24/11
Start Time: 11:40
Stop Time: 12:55
Leak Rate Before: 0.004 cfm @ 15 "Hg
Leak Rate After: 0.004 cfm @ 7 "Hg

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.73
CO_2 (dry volume %): 9.94
N_2+CO (dry volume %): 80.33
H_2O (condensate, ml or gm): 221.0
H_2O (silica, g): 16.6
Actual Moisture (%): 20.66

Nozzle ID No: 274-1
Nozzle Diameter (D_n): 0.274
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail
Meter Box ID. No: 66-7
Meter ΔH@: 1.76970
Meter Y_d: 0.99610

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.}$ H_2O)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			686.195						
1-01	2.5	0.43	1.20	687.790	311	85	84	0.66	1.59	105.8
1-02	5.0	0.43	1.20	689.330	312	85	84	0.66	1.54	102.2
1-03	7.5	0.45	1.20	690.880	312	84	83	0.67	1.55	100.8
1-04	10.0	0.53	1.40	692.540	314	85	84	0.73	1.66	99.4
1-05	12.5	0.67	1.80	694.180	313	86	83	0.82	1.64	87.4*
LEAK CHECK	12.5			694.290						
2-01	15.0	0.68	1.80	696.260	313	86	84	0.82	1.97	104.1
2-02	17.5	0.68	1.80	698.190	313	87	84	0.82	1.93	101.9
2-03	20.0	0.70	1.90	700.100	315	87	84	0.84	1.91	99.6
2-04	22.5	0.71	1.90	702.130	317	88	84	0.84	2.03	105.1
2-05	25.0	0.71	1.90	703.765	316	93	86	0.84	1.63	84.1*
LEAK CHECK	25.0			703.850						
3-01	27.5	0.43	1.20	705.790	314	91	85	0.66	1.94	128.1*
3-02	30.0	0.56	1.50	707.540	311	90	84	0.75	1.75	101.3
3-03	32.5	0.57	1.50	709.280	311	91	85	0.75	1.74	99.7
3-04	35.0	0.57	1.50	711.040	313	93	86	0.75	1.76	100.7
3-05	37.5	0.57	1.50	712.740	311	95	87	0.75	1.70	96.9
LEAK CHECK	37.5			712.835						
4-01	40.0	0.70	1.90	714.810	315	96	88	0.84	1.97	101.7
4-02	42.5	0.68	1.80	716.740	315	97	88	0.82	1.93	100.7
4-03	45.0	0.62	1.70	718.620	313	99	88	0.79	1.88	102.4
4-04	47.5	0.55	1.50	720.370	312	97	88	0.74	1.75	101.3
4-05	50.0	0.55	1.50	722.120	311	99	89	0.74	1.75	101.0
LEAK CHECK	50.0			722.240						
5-01	52.5	0.60	1.60	724.080	311	95	88	0.77	1.84	102.1
5-02	55.0	0.55	1.50	725.840	312	98	89	0.74	1.76	101.7
5-03	57.5	0.57	1.50	727.600	312	98	90	0.75	1.76	99.8
5-04	60.0	0.54	1.50	729.370	313	100	91	0.73	1.77	102.9
5-05	62.5	0.55	1.50	731.180	312	100	91	0.74	1.81	104.2
Final	62.5		1.57200	44.57500	312.88000	89.24000		0.76194	44.57500	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7619	1.5720	44.5750	312.8800	89.2400				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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SS ISOKINETIC Version 2008-13e

Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 3 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator:	N. Hitchins	569
Probe Operator:	C. Slimp	558

Test Date: 3/24/11
Start Time: 13:11
Stop Time: 14:19
Leak Rate Before: 0.003 cfm @ 14 "Hg
Leak Rate After: 0.001 cfm @ 5 "Hg

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 9.65
CO_2 (dry volume %): 10.00
N_2+CO (dry volume %): 80.35

H_2O (condensate, ml or gm): 203.3
H_2O (silica, g): 12.2
Actual Moisture (%): 19.88

Nozzle ID No: 274-1
Nozzle Diameter (D_n): 0.274
Probe ID No: 67-8-8
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-7
Meter ΔH@: 1.76970
Meter Y_d: 0.99610

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			731.615						
5-01	2.5	0.58	1.60	733.470	314	95	92	0.76	1.86	103.7
5-02	5.0	0.61	1.60	735.250	313	97	92	0.78	1.78	96.8
5-03	7.5	0.58	1.60	737.000	313	99	92	0.76	1.75	97.4
5-04	10.0	0.52	1.40	738.750	313	100	93	0.72	1.75	102.7
5-05	12.5	0.48	1.30	740.420	312	101	93	0.69	1.67	101.8
LEAK CHECK	12.5			740.510						
4-01	15.0	0.58	1.60	742.330	311	100	93	0.76	1.82	101.0
4-02	17.5	0.73	2.00	744.360	313	103	94	0.85	2.03	100.3
4-03	20.0	0.71	1.90	746.340	314	104	94	0.84	1.98	99.1
4-04	22.5	0.58	1.60	748.150	314	104	94	0.76	1.81	100.2
4-05	25.0	0.48	1.30	749.845	310	103	94	0.69	1.70	102.9
LEAK CHECK	25.0			750.045						
3-01	27.5	0.64	1.70	751.890	312	103	95	0.80	1.85	97.1
3-02	30.0	0.54	1.50	753.710	312	106	96	0.73	1.82	103.9
3-03	32.5	0.56	1.50	755.450	312	106	96	0.75	1.74	97.5
3-04	35.0	0.55	1.50	756.890	311	104	96	0.74	1.44	81.5*
3-05	37.5	0.46	1.20	758.830	311	104	96	0.68	1.94	120.0*
LEAK CHECK	37.5			758.985						
2-01	40.0	0.60	1.60	760.730	309	98	93	0.77	1.75	95.3
2-02	42.5	0.52	1.40	762.440	309	99	93	0.72	1.71	100.1
2-03	45.0	0.52	1.40	764.120	310	100	94	0.72	1.68	98.3
2-04	47.5	0.51	1.40	765.850	312	101	94	0.71	1.73	102.2
2-05	50.0	0.49	1.30	767.495	313	103	96	0.70	1.64	98.8
LEAK CHECK	50.0			767.585						
1-01	52.5	0.37	1.00	769.010	310	100	94	0.61	1.42	98.7
1-02	55.0	0.36	0.97	770.430	310	100	95	0.60	1.42	99.6
1-03	57.5	0.38	1.00	771.850	313	102	95	0.62	1.42	97.0
1-04	60.0	0.46	1.20	773.450	313	103	96	0.68	1.60	99.2
1-05	62.5	0.60	1.60	775.260	312	102	94	0.77	1.81	98.6
Final	62.5		1.44680	43.11000	311.84000	97.82000		0.72971	43.11000	
25 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7297	1.4468	43.1100	311.8400	97.8200				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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Field Data Printout

Test Method: **USEPA Method 13B**
Analyte: **Total Fluorides**

Location: Unit 3 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11182
Source Area (ft^2): 64.00000

Meter Operator: N. Hitchins 569
Probe Operator: C. Slimp 558

Test Date: 3/24/11
Start Time: 14:38
Stop Time: 15:46
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.001 cfm @ 6 "Hg

Bar. Press. (in. Hg): 30.00
Static P: -10.3
O_2 (dry volume %): 8.94
CO_2 (dry volume %): 10.68
N_2+CO (dry volume %): 80.38

H_2O (condensate, ml or gm): 210.7
H_2O (silica, g): 10.0
Actual Moisture (%): 20.80

Nozzle ID No: 274-1
Nozzle Diameter (D_n): 0.274
Probe ID No: 67-8-20
Pitot C_p: 0.818
Pitot Leak Check: ☑ Pass ☐ Fail

Meter Box ID. No: 66-7
Meter ΔH@: 1.76970
Meter Y_d: 0.99610

Traverse Point	Run Time 2.5 min/read	Pitot ΔP_s (in. H_2O)	Sample ΔH (in. H_2O)	Metered (dcf)	Stack T_s (°F)	Dry Gas Meter $T_{m\text{-}in}$ (°F)	Dry Gas Meter $T_{m\text{-}out}$ (°F)	$\sqrt{\Delta P_s}$ (calculated) ($\sqrt{in.\ H_2O}$)	Volume (calculated) (ft^3)	Isokinetics (calculated) (%)
	0.0			775.710						
1-01	2.5	0.47	1.30	777.430	313	95	92	0.69	1.72	107.8
1-02	5.0	0.42	1.10	778.930	313	95	92	0.65	1.50	99.4
1-03	7.5	0.45	1.20	780.490	313	98	92	0.67	1.56	99.7
1-04	10.0	0.47	1.30	782.120	312	97	92	0.69	1.63	101.9
1-05	12.5	0.56	1.50	783.910	313	98	92	0.75	1.79	102.6
LEAK CHECK	12.5			783.985						
2-01	15.0	0.56	1.50	785.750	313	98	92	0.75	1.76	101.1
2-02	17.5	0.55	1.50	787.520	314	100	95	0.74	1.77	102.0
2-03	20.0	0.59	1.60	789.300	313	100	92	0.77	1.78	99.2
2-04	22.5	0.56	1.50	791.050	311	98	90	0.75	1.75	100.3
2-05	25.0	0.60	1.60	792.845	312	99	91	0.77	1.80	99.3
LEAK CHECK	25.0			792.945						
3-01	27.5	0.40	1.10	794.470	311	98	91	0.63	1.52	103.3
3-02	30.0	0.58	1.60	795.890	312	98	91	0.76	1.42	80.0*
3-03	32.5	0.56	1.50	797.990	313	100	93	0.75	2.10	120.0*
3-04	35.0	0.51	1.40	799.710	314	102	93	0.71	1.72	102.9
3-05	37.5	0.46	1.20	801.290	312	101	92	0.68	1.58	99.5
LEAK CHECK	37.5			801.380						
4-01	40.0	0.54	1.50	803.170	313	100	93	0.73	1.79	104.2
4-02	42.5	0.50	1.40	804.840	314	102	94	0.71	1.67	100.8
4-03	45.0	0.48	1.30	806.470	312	103	94	0.69	1.63	100.1
4-04	47.5	0.43	1.20	808.050	312	100	92	0.66	1.58	103.0
4-05	50.0	0.40	1.10	809.575	312	102	93	0.63	1.53	102.8
LEAK CHECK	50.0			809.665						
5-01	52.5	0.50	1.40	811.350	311	100	92	0.71	1.69	101.8
5-02	55.0	0.50	1.40	812.990	311	100	92	0.71	1.64	99.1
5-03	57.5	0.46	1.20	814.630	312	99	92	0.68	1.64	103.5
5-04	60.0	0.46	1.20	816.230	311	99	92	0.68	1.60	100.9
5-05	62.5	0.35	0.95	817.625	309	100	93	0.59	1.39	100.4
Final	62.5		1.34200	41.56000	312.24000	95.78000		0.70157	41.56000	
25 points sampled		Sq.Rt.ΔP:								
QC-Check: Field Averages		0.7016	1.3420	41.5600	312.2400	95.7800				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

041511 105915
M

Prepared by Clean Air Engineering Proprietary Software
SS ISOKINETIC Version 2006-13e

PLANT CEM DATA

G

I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: KRO

Date: 5/4/2021

CleanAir.

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RUN 1

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

te Name: UNIT1

Time of Report: 03/22/11 13:31

ata Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	07:32	10.5	13.8	193.3	64362	19.1	9.7	11.1	156.0	15.5
	07:33	10.4	12.9	204.9	63748	20.8	10.0	10.1	161.1	16.4
	07:34	10.8	14.9	199.6	66353	26.0	9.5	12.2	163.1	21.3
	07:35	10.7	20.9	198.0	65387	26.6	9.5	17.2	162.9	21.9
	07:36	10.3	26.9	203.9	63169	28.7	9.9	21.2	160.8	22.7
	07:37	11.0	28.8	216.7	67693	29.3	9.7	23.2	175.1	23.7
	07:38	11.5	19.4	188.4	70673	21.3	8.6	17.1	166.4	18.9
	07:39	10.8	12.7	179.7	66539	21.1	9.1	10.7	152.1	17.8
	07:40	10.1	12.2	182.0	62217	19.5	9.8	9.7	144.7	15.5
	07:41	10.1	13.9	192.0	62268	21.9	10.2	10.7	147.8	16.9
	07:42	10.8	19.1	198.0	66727	25.3	9.7	15.4	159.0	20.3
	07:43	11.4	23.1	173.1	70338	17.5	8.8	20.1	150.7	15.2
	07:44	10.9	26.7	170.5	66837	15.9	9.0	22.8	145.7	13.6
	07:45	10.2	28.1	174.0	62078	19.7	9.8	22.4	138.4	15.7
	07:46	10.3	24.6	187.9	62927	23.4	10.0	19.2	146.8	18.2
	07:47	11.0	19.5	181.8	67444	19.7	9.4	16.2	151.0	16.4
	07:48	10.9	16.0	177.8	67076	19.5	9.1	13.6	151.5	16.6
	07:49	10.6	15.0	188.9	65101	21.8	9.5	12.2	154.5	17.9
	07:50	10.4	15.1	194.8	64247	22.7	9.9	12.0	154.7	18.0
	07:51	10.1	15.7	196.3	62781	23.4	10.1	12.2	152.7	18.2
	07:52	10.1	17.1	209.9	62601	24.2	10.2	13.1	160.9	18.5
	07:53	10.6	15.9	212.9	65688	22.5	9.8	12.7	170.4	18.0
	07:54	10.6	14.4	207.3	65888	17.0	9.5	11.8	169.8	13.9
	07:55	10.3	16.0	211.2	63879	16.4	9.9	12.7	167.3	13.0
	07:56	10.2	18.0	211.8	63345	14.8	10.0	14.1	166.0	11.6
	07:57	10.4	19.0	206.6	64549	14.6	9.9	15.1	164.0	11.6
	07:58	10.8	20.1	191.5	67080	16.1	9.4	16.7	158.9	13.4
Average =		10.6	18.5	194.5	65222	21.1	9.6	15.0	157.5	17.1
Geometric Avg. =		10.6	17.9	194.1	65182	20.7	9.6	14.5	157.2	16.8
Maximum =		11.5	28.8	216.7	70673	29.3	10.2	23.2	175.1	23.7
Minimum =		10.1	12.2	170.5	62078	14.6	8.6	9.7	138.4	11.6
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		285.7	499.8	5252.6	1760993	568.9	260.1	405.7	4252.1	460.5

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1

Time of Report: 03/22/11 13:31

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	07:32	181.4
	07:33	182.2
	07:34	182.7
	07:35	181.5
	07:36	182.7
	07:37	186.4
	07:38	185.5
	07:39	184.2
	07:40	181.6
	07:41	181.7
	07:42	185.4
	07:43	185.2
	07:44	181.8
	07:45	179.4
	07:46	181.8
	07:47	183.0
	07:48	182.6
	07:49	181.4
	07:50	181.3
	07:51	180.3
	07:52	182.1
	07:53	184.2
	07:54	184.2
	07:55	183.4
	07:56	182.6
	07:57	184.1
	07:58	184.5

Average =	182.9
Geometric Avg. =	182.9
Maximum =	186.4
Minimum =	179.4
Possible Values =	27
Included Values =	27
Total =	4937.4

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 2

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

te Name: UNIT1

Time of Report: 03/22/11 11:49

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	08:14	10.8	32.9	174.8	66415	16.3	9.3	27.5	146.4	13.7
	08:15	11.3	28.1	175.2	69444	17.0	8.9	24.2	151.1	14.7
	08:16	12.0	21.2	177.3	73466	15.7	8.2	19.3	161.6	14.3
	08:17	11.2	16.1	167.6	68449	13.0	8.4	14.5	151.0	11.7
	08:18	10.8	17.6	173.8	65547	18.7	9.3	14.7	145.2	15.6
	08:19	10.8	25.1	176.2	65552	20.2	9.3	20.8	146.6	16.8
	08:20	11.0	33.1	175.7	67158	20.2	9.1	28.2	149.8	17.2
	08:21	10.7	33.7	180.4	65246	22.8	9.3	28.0	149.9	18.9
	08:22	10.5	27.1	190.7	64176	25.4	9.6	22.0	154.7	20.6
	08:23	10.6	20.4	204.2	64397	23.4	9.7	16.5	165.2	18.9
	08:24	10.7	17.0	206.4	65078	21.7	9.5	13.9	169.0	17.8
	08:25	10.8	16.2	200.5	65270	21.2	9.4	13.4	165.6	17.5
	08:26	10.6	17.6	193.0	64376	20.9	9.5	14.5	158.2	17.2
	08:27	10.2	20.4	197.9	62649	20.0	9.9	16.1	156.3	15.8
	08:28	10.2	23.0	200.8	62902	20.0	10.0	18.0	157.3	15.6
	08:29	10.6	21.6	191.7	65522	19.2	9.6	17.5	155.2	15.6
	08:30	10.7	18.5	186.1	66434	15.7	9.5	15.2	153.0	12.9
	08:31	10.7	16.7	183.3	66377	15.6	9.5	13.7	150.7	12.8
	08:32	10.4	16.3	185.5	64277	16.8	9.7	13.1	149.5	13.5
	08:33	10.5	18.7	189.8	64782	19.6	9.9	14.9	150.8	15.6
	08:34	10.7	19.0	183.9	66579	18.0	9.5	15.5	150.6	14.7
	08:35	10.6	18.2	179.9	65850	19.8	9.5	14.9	147.0	16.1
	08:36	10.2	17.3	181.3	63840	21.8	9.9	13.7	143.5	17.2
	08:37	10.4	17.7	197.9	65006	17.6	10.0	13.9	155.4	13.8
	08:38	11.3	18.2	203.6	70682	15.0	9.1	15.4	172.3	12.7
	08:39	11.6	16.5	194.8	72712	11.3	8.4	14.8	175.4	10.2
	08:40	10.6	15.9	185.3	66094	12.8	9.2	13.4	156.4	10.8
Average =		10.8	20.9	187.3	66233	18.5	9.4	17.3	155.1	15.3
Geometric Avg. =		10.8	20.3	187.0	66183	18.2	9.4	16.8	154.9	15.1
Maximum =		12.0	33.7	206.4	73466	25.4	10.0	28.2	175.4	20.6
Minimum =		10.2	15.9	167.6	62649	11.3	8.2	13.1	143.5	10.2
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		290.5	564.2	5057.6	1788278	499.5	253.2	467.9	4187.8	412.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 11:49
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	08:14	185.5
	08:15	189.1
	08:16	187.7
	08:17	185.7
	08:18	184.2
	08:19	185.3
	08:20	184.0
	08:21	183.0
	08:22	183.0
	08:23	183.0
	08:24	183.2
	08:25	184.8
	08:26	183.8
	08:27	183.1
	08:28	183.5
	08:29	184.0
	08:30	183.9
	08:31	182.7
	08:32	182.1
	08:33	183.7
	08:34	183.9
	08:35	182.8
	08:36	181.4
	08:37	184.4
	08:38	188.9
	08:39	186.6
	08:40	185.0

Average =	184.4
Geometric Avg. =	184.4
Maximum =	189.1
Minimum =	181.4
Possible Values =	27
Included Values =	27
Total =	4978.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 3

Plant Name: NBWD

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 11:48

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	09:40	10.6	21.5	183.0	64881	15.2	9.4	17.8	151.7	12.6
	09:41	10.5	19.6	192.9	64040	14.3	9.7	15.8	155.3	11.5
	09:42	10.9	16.8	197.1	66468	14.1	9.5	13.8	161.6	11.6
	09:43	11.8	13.8	193.5	71437	11.0	8.5	12.3	172.1	9.8
	09:44	11.4	11.7	177.6	69310	8.9	8.3	10.6	161.4	8.1
	09:45	10.4	12.9	184.2	63397	14.5	9.4	10.6	151.7	11.9
	09:46	10.8	18.7	205.2	65841	17.7	9.6	15.2	166.5	14.4
	09:47	11.5	22.8	191.7	70682	13.3	8.6	20.2	169.3	11.7
	09:48	11.0	23.9	186.2	67057	13.2	8.9	20.6	160.2	11.3
	09:49	11.0	21.6	194.6	66941	13.6	9.0	18.4	166.0	11.6
	09:50	11.0	20.8	198.5	66410	13.5	9.1	17.6	168.0	11.4
	09:51	11.1	23.3	196.8	66969	12.5	8.9	20.0	169.5	10.8
	09:52	11.3	26.6	187.2	67594	15.0	8.8	23.2	163.1	13.1
	09:53	10.7	28.6	181.8	64589	18.8	9.1	24.2	153.9	15.9
	09:54	10.6	28.1	188.0	64074	22.9	9.5	23.1	154.4	18.8
	09:55	11.0	26.0	189.0	66251	23.1	9.2	21.9	158.9	19.4
	09:56	11.2	23.0	173.6	67282	21.7	8.8	20.0	151.3	18.9
	09:57	10.8	23.1	167.1	64648	27.5	9.1	19.7	142.0	23.4
	09:58	10.5	25.5	182.8	62939	26.0	9.6	20.8	149.3	21.2
	09:59	11.2	29.0	193.9	67137	20.5	9.2	24.3	162.7	17.2
	10:00	11.4	25.5	180.5	67903	12.2	8.5	22.7	160.5	10.8
	10:01	10.6	24.2	170.1	63280	16.2	9.2	20.3	143.0	13.6
	10:02	10.1	25.5	181.4	60073	21.1	10.0	19.9	142.0	16.5
	10:03	11.1	27.7	199.3	66386	21.0	9.5	22.8	164.1	17.3
	10:04	11.5	26.8	184.0	68567	12.2	8.6	23.7	163.0	10.8
	10:05	11.2	24.8	185.3	67140	14.6	8.9	21.4	159.8	12.6
	10:06	10.7	19.0	183.7	64380	9.7	9.0	16.3	157.0	8.3
Average =		11.0	22.6	187.0	66136	16.5	9.1	19.2	158.4	13.9
Geometric Avg. =		11.0	22.1	186.8	66092	15.8	9.1	18.7	158.2	13.4
Maximum =		11.8	29.0	205.2	71437	27.5	10.0	24.3	172.1	23.4
Minimum =		10.1	11.7	167.1	60073	8.9	8.3	10.6	142.0	8.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		296.0	610.7	5048.9	1785676	444.3	246.2	517.1	4278.1	374.6

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I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 11:48
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	09:40	183.1
	09:41	182.4
	09:42	186.2
	09:43	187.5
	09:44	184.1
	09:45	183.8
	09:46	187.4
	09:47	185.2
	09:48	185.4
	09:49	184.7
	09:50	184.9
	09:51	185.7
	09:52	184.4
	09:53	183.3
	09:54	184.1
	09:55	186.5
	09:56	184.9
	09:57	183.0
	09:58	184.1
	09:59	186.2
	10:00	184.8
	10:01	180.7
	10:02	183.3
	10:03	186.3
	10:04	186.7
	10:05	184.9
	10:06	181.3

Average =	184.6
Geometric Avg. =	184.6
Maximum =	187.5
Minimum =	180.7
Possible Values =	27
Included Values =	27
Total =	4985.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 4

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 12:03

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	10:25	10.8	29.5	180.9	65186	15.7	9.4	24.5	150.0	13.1
	10:26	10.9	28.7	181.5	65960	11.5	9.0	24.4	154.7	9.8
	10:27	11.1	27.4	189.9	66824	12.5	9.1	23.2	160.9	10.6
	10:28	11.0	24.5	181.1	66667	11.0	9.0	21.0	155.4	9.5
	10:29	11.1	23.0	178.7	66953	11.6	8.9	19.8	153.9	10.0
	10:30	10.6	20.6	179.9	64149	13.5	9.4	17.0	148.3	11.2
	10:31	10.9	18.7	176.9	66199	13.0	9.3	15.7	148.2	10.9
	10:32	11.4	20.0	170.1	68556	15.6	8.9	17.3	146.7	13.5
	10:33	11.4	18.5	172.5	68137	10.8	8.5	16.5	154.2	9.6
	10:34	10.7	20.8	184.2	64214	12.7	9.3	17.4	153.6	10.6
	10:35	11.0	24.0	183.3	66248	12.6	9.1	20.4	156.1	10.8
	10:36	11.6	29.1	187.0	69659	25.5	8.8	25.2	162.3	22.1
	10:37	11.7	25.2	174.9	70408	11.9	8.1	23.2	161.0	11.0
	10:38	10.5	20.8	174.7	63021	11.1	9.2	17.5	146.9	9.3
	10:39	10.8	21.1	180.9	64446	13.4	9.4	17.4	149.1	11.1
	10:40	11.3	23.5	182.1	67286	16.3	9.0	20.2	156.6	14.0
	10:41	11.3	24.1	174.0	67036	12.0	8.6	21.2	153.6	10.6
	10:42	10.7	25.2	179.8	63406	15.2	9.3	21.0	149.9	12.7
	10:43	10.9	22.9	178.6	64746	12.6	9.1	19.4	151.3	10.7
	10:44	10.9	21.2	175.0	64127	16.4	9.3	17.7	146.4	13.7
	10:45	10.7	21.5	178.5	62949	14.0	9.4	17.8	147.9	11.6
	10:46	11.1	21.3	185.9	65637	12.4	9.2	18.0	157.1	10.5
	10:47	10.6	23.0	187.9	62531	16.4	9.4	19.1	155.4	13.6
	10:48	10.7	25.2	197.4	63174	18.5	9.7	20.2	158.4	14.8
	10:49	11.7	24.0	185.1	69179	12.9	8.7	21.1	162.4	11.3
	10:50	10.8	18.6	171.4	63887	8.7	8.8	16.3	149.8	7.6
	10:51	9.7	16.0	189.8	57480	14.8	10.3	12.2	145.1	11.3
Average =		10.9	22.9	180.8	65484	13.8	9.1	19.4	153.2	11.7
Geometric Avg. =		10.9	22.7	180.7	65429	13.5	9.1	19.2	153.1	11.4
Maximum =		11.7	29.5	197.4	70408	25.5	10.3	25.2	162.4	22.1
Minimum =		9.7	16.0	170.1	57480	8.7	8.1	12.2	145.1	7.6
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		295.6	618.5	4882.2	1768062	372.7	246.2	524.8	4135.2	315.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 12:03
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	10:25	184.8
	10:26	184.8
	10:27	184.7
	10:28	185.8
	10:29	184.2
	10:30	184.5
	10:31	186.9
	10:32	188.6
	10:33	184.5
	10:34	185.0
	10:35	187.1
	10:36	188.9
	10:37	184.3
	10:38	183.7
	10:39	185.3
	10:40	186.5
	10:41	184.4
	10:42	184.4
	10:43	184.7
	10:44	183.7
	10:45	184.7
	10:46	183.5
	10:47	183.1
	10:48	188.8
	10:49	187.6
	10:50	181.3
	10:51	183.1

Average =	185.1
Geometric Avg. =	185.1
Maximum =	188.9
Minimum =	181.3
Possible Values =	27
Included Values =	27
Total =	4999.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 5

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 12:02

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	11:35	10.6	16.3	174.9	62845	11.9	9.4	13.5	144.6	9.8
	11:36	10.4	15.1	182.2	62034	14.6	9.8	12.1	146.0	11.7
	11:37	11.1	16.3	190.6	66676	15.1	9.2	13.7	159.8	12.7
	11:38	11.1	16.3	190.2	66421	11.6	8.8	14.2	165.4	10.1
	11:39	10.9	21.5	211.9	65123	14.1	9.2	18.2	178.9	11.9
	11:40	10.8	22.9	218.0	64327	12.2	9.2	19.3	184.1	10.3
	11:41	11.2	20.8	215.6	66562	8.5	8.8	18.1	187.8	7.4
	11:42	11.0	17.3	204.7	65686	8.7	9.0	14.9	175.6	7.5
	11:43	11.2	15.8	198.4	66786	7.1	8.7	13.8	173.6	6.2
	11:44	10.9	16.3	195.5	64942	10.9	9.2	13.8	165.1	9.2
	11:45	11.4	15.5	183.2	67911	11.3	8.7	13.6	160.7	9.9
	11:46	11.0	16.9	173.2	65923	10.4	8.7	14.8	151.4	9.1
	11:47	11.2	23.3	175.3	67015	18.0	8.9	20.1	151.1	15.5
	11:48	11.0	25.0	165.1	65702	14.1	8.7	21.9	144.4	12.3
	11:49	10.9	25.3	172.9	65486	20.0	9.2	21.2	145.1	16.8
	11:50	11.4	21.2	161.6	68791	16.7	8.6	18.7	142.8	14.8
	11:51	11.0	17.4	158.0	66093	15.4	8.9	15.1	136.6	13.3
	11:52	11.3	15.1	160.3	67721	16.6	8.7	13.2	140.5	14.5
	11:53	10.8	14.1	166.6	64103	15.7	9.0	12.1	142.3	13.4
	11:54	10.9	14.3	180.3	64961	16.2	9.2	12.0	151.2	13.6
	11:55	11.4	14.0	182.4	67731	14.6	8.8	12.2	158.4	12.7
	11:56	10.9	14.0	177.4	65005	11.2	8.8	12.2	154.5	9.7
	11:57	10.0	19.9	196.8	59983	16.9	10.0	15.7	154.8	13.3
	11:58	10.2	25.0	209.1	61351	17.9	10.0	19.6	163.6	14.0
	11:59	10.8	20.0	209.7	64748	16.2	9.4	16.5	173.3	13.3
	12:00	11.0	14.2	204.7	65737	15.2	9.1	12.1	174.3	13.0
	12:01	10.9	16.7	192.1	65185	12.5	9.1	14.2	163.0	10.6
Average =		10.9	18.2	187.1	65365	13.8	9.1	15.4	158.9	11.7
Geometric Avg. =		10.9	17.8	186.2	65334	13.4	9.1	15.2	158.2	11.4
Maximum =		11.4	25.3	218.0	68791	20.0	10.0	21.9	187.8	16.8
Minimum =		10.0	14.0	158.0	59983	7.1	8.6	12.0	136.6	6.2
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		295.2	490.9	5050.6	1764846	373.5	245.2	416.7	4289.1	316.6

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 12:02
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	11:35	183.2
	11:36	185.7
	11:37	184.6
	11:38	184.4
	11:39	183.3
	11:40	185.2
	11:41	185.4
	11:42	186.5
	11:43	184.6
	11:44	186.8
	11:45	185.4
	11:46	186.9
	11:47	185.9
	11:48	184.9
	11:49	185.7
	11:50	184.9
	11:51	186.2
	11:52	183.5
	11:53	183.1
	11:54	186.4
	11:55	185.6
	11:56	181.8
	11:57	180.0
	11:58	181.0
	11:59	182.6
	12:00	184.9
	12:01	184.5

Average =	184.5
Geometric Avg. =	184.5
Maximum =	186.9
Minimum =	180.0
Possible Values =	27
Included Values =	27
Total =	4982.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 6

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

te Name: UNIT1

Time of Report: 03/22/11 12:43

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	12:15	10.9	20.9	183.3	65089	12.6	9.1	17.8	155.7	10.7
	12:16	10.7	28.8	188.3	64082	15.5	9.4	23.9	155.9	12.8
	12:17	10.5	30.4	188.9	62834	12.6	9.5	25.0	155.3	10.4
	12:18	10.4	24.8	192.5	62439	12.6	9.7	20.0	155.3	10.1
	12:19	10.3	17.8	194.2	61977	16.8	9.8	14.3	155.5	13.4
	12:20	10.7	15.8	199.8	64570	21.9	9.6	12.8	162.4	17.8
	12:21	11.1	16.8	194.1	66643	15.4	8.9	14.5	167.8	13.3
	12:22	10.5	21.1	187.1	62471	16.3	9.4	17.5	154.9	13.5
	12:23	10.4	25.3	195.8	61434	16.1	9.7	20.4	158.2	13.0
	12:24	10.4	25.7	206.9	61727	15.1	9.7	20.6	166.1	12.1
	12:25	10.8	20.8	200.8	63965	9.7	9.3	17.4	167.7	8.1
	12:26	11.2	17.7	190.2	66002	7.1	8.9	15.3	163.9	6.1
	12:27	10.6	16.3	187.5	62964	6.2	9.1	13.8	158.6	5.3
	12:28	10.8	19.3	192.9	63693	8.3	9.3	16.1	161.0	6.9
	12:29	11.0	23.7	198.5	65221	8.8	9.1	20.2	168.8	7.5
	12:30	11.0	25.5	190.8	65359	5.5	8.9	22.1	165.1	4.8
	12:31	10.9	25.5	187.1	64561	7.4	9.2	21.4	157.1	6.2
	12:32	10.6	19.1	181.4	62728	8.6	9.4	15.9	150.4	7.1
	12:33	10.6	15.7	192.2	62767	9.9	9.5	12.9	157.2	8.1
	12:34	11.0	14.0	189.0	65226	8.1	9.1	11.9	160.2	6.9
	12:35	11.0	16.1	182.6	64802	8.5	9.0	13.8	156.3	7.2
	12:36	11.1	18.4	189.2	65687	8.2	9.0	15.8	162.5	7.0
	12:37	10.7	20.5	180.1	63502	9.8	9.2	17.3	152.2	8.3
	12:38	11.0	26.0	182.1	65363	13.8	9.2	21.9	153.7	11.7
	12:39	11.0	24.2	169.8	64918	9.3	8.8	21.0	147.3	8.1
	12:40	10.9	21.1	177.7	64221	11.2	9.2	17.7	149.4	9.4
	12:41	11.7	15.5	173.9	69141	8.0	8.4	13.9	156.3	7.2
Average =		10.8	21.0	188.8	64200	11.2	9.2	17.6	158.3	9.4
Geometric Avg. =		10.8	20.5	188.6	64178	10.6	9.2	17.2	158.2	8.9
Maximum =		11.7	30.4	206.9	69141	21.9	9.8	25.0	168.8	17.8
Minimum =		10.3	14.0	169.8	61434	5.5	8.4	11.9	147.3	4.8
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		291.8	566.8	5096.7	1733387	303.1	249.3	475.0	4275.0	253.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 12:43
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	12:15	184.4
	12:16	184.0
	12:17	183.8
	12:18	181.8
	12:19	182.3
	12:20	185.4
	12:21	184.7
	12:22	184.4
	12:23	183.9
	12:24	184.5
	12:25	186.2
	12:26	184.1
	12:27	183.9
	12:28	184.2
	12:29	184.8
	12:30	185.0
	12:31	183.8
	12:32	183.5
	12:33	184.1
	12:34	184.3
	12:35	185.7
	12:36	185.2
	12:37	186.1
	12:38	186.1
	12:39	184.7
	12:40	187.5
	12:41	187.2

Average =	184.6
Geometric Avg. =	184.6
Maximum =	187.5
Minimum =	181.8
Possible Values =	27
Included Values =	27
Total =	4985.5

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 7

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 13:21

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	12:54	10.9	24.5	172.1	63757	11.1	9.2	20.7	145.3	9.4
	12:55	10.6	25.6	171.3	62234	11.3	9.3	21.4	142.9	9.4
	12:56	10.5	25.0	183.3	61774	11.4	9.6	20.4	149.3	9.3
	12:57	10.3	22.4	193.8	60665	13.6	9.8	17.8	154.1	10.8
	12:58	10.5	21.6	192.3	62007	12.4	9.6	17.5	155.7	10.0
	12:59	10.6	21.6	199.1	62558	12.4	9.5	17.7	163.7	10.2
	13:00	10.4	19.8	195.6	60898	12.5	9.6	16.1	159.1	10.1
	13:01	10.5	18.7	187.9	61359	12.4	9.6	15.2	153.0	10.1
	13:02	10.6	16.5	189.5	61653	14.0	9.4	13.6	156.3	11.5
	13:03	10.2	16.9	198.6	59758	16.0	9.8	13.5	158.8	12.8
	13:04	10.4	18.2	196.5	61006	16.3	9.7	14.6	157.9	13.1
	13:05	10.7	17.9	191.9	62987	17.5	9.4	14.9	159.0	14.5
	13:06	10.4	15.8	194.9	60911	16.9	9.6	12.9	158.8	13.8
	13:07	10.2	15.7	197.2	60236	17.7	9.9	12.4	155.9	14.0
	13:08	10.8	17.5	196.1	63187	16.4	9.5	14.3	160.1	13.4
	13:09	11.2	18.3	187.9	65344	12.5	8.9	15.7	161.8	10.8
	13:10	11.5	19.6	180.6	67508	10.5	8.6	17.3	159.4	9.3
	13:11	11.6	19.2	170.3	67603	8.4	8.3	17.5	154.7	7.6
	13:12	10.3	17.3	187.6	60515	11.8	9.1	14.7	159.6	10.0
	13:13	10.4	12.9	180.6	61346	13.5	9.8	10.3	144.5	10.8
	13:14	11.2	12.6	172.2	66337	10.8	9.0	10.8	147.8	9.3
	13:15	11.7	14.6	166.5	68634	6.9	8.3	13.2	150.7	6.2
	13:16	10.9	16.3	160.4	63662	5.3	8.8	14.3	140.1	4.7
	13:17	10.2	17.7	173.9	59652	10.3	9.8	14.1	139.2	8.2
	13:18	10.8	25.0	183.1	62839	14.1	9.7	20.2	147.8	11.4
	13:19	11.5	28.9	173.9	66794	8.5	8.7	25.4	153.1	7.5
	13:20	11.0	30.7	168.4	64434	9.1	8.9	26.6	145.8	7.9
Average =		10.7	19.7	183.9	62950	12.4	9.3	16.4	153.1	10.2
Geometric Avg. =		10.7	19.2	183.6	62901	11.9	9.3	16.0	153.0	9.9
Maximum =		11.7	30.7	199.1	68634	17.7	9.9	26.6	163.7	14.5
Minimum =		10.2	12.6	160.4	59652	5.3	8.3	10.3	139.2	4.7
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		289.8	530.9	4965.5	1699656	333.6	251.3	443.2	4134.4	276.1

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Time of Report: 03/22/11 13:21

Data Averaging Type: 1m
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	12:54	184.5
	12:55	184.1
	12:56	182.6
	12:57	183.4
	12:58	184.5
	12:59	182.6
	13:00	182.5
	13:01	183.3
	13:02	182.2
	13:03	183.0
	13:04	185.0
	13:05	182.9
	13:06	180.4
	13:07	181.3
	13:08	183.4
	13:09	186.3
	13:10	185.6
	13:11	182.3
	13:12	180.8
	13:13	183.5
	13:14	187.4
	13:15	186.3
	13:16	182.3
	13:17	182.5
	13:18	186.2
	13:19	185.3
	13:20	186.5

Average =	183.7
Geometric Avg. =	183.7
Maximum =	187.4
Minimum =	180.4
Possible Values =	27
Included Values =	27
Total =	4960.5

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 8

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 14:00

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	13:32	11.1	30.7	165.9	66342	13.0	8.9	26.5	143.1	11.2
	13:33	10.6	24.6	165.2	63093	13.9	9.3	20.4	137.5	11.6
	13:34	10.6	17.4	170.2	63163	13.7	9.6	14.2	138.9	11.1
	13:35	10.8	13.3	170.2	63753	15.9	9.4	11.0	140.9	13.2
	13:36	11.5	12.4	161.4	67542	15.9	8.7	10.8	141.3	13.9
	13:37	10.4	13.3	160.0	61226	14.6	9.4	11.0	132.1	12.0
	13:38	10.3	19.9	172.1	60086	24.1	10.0	15.6	135.3	18.9
	13:39	10.9	28.3	176.2	63808	22.4	9.4	23.5	146.0	18.5
	13:40	11.2	29.3	172.4	65666	19.9	8.9	25.3	148.4	17.1
	13:41	10.6	25.7	176.5	62408	22.2	9.4	21.3	145.9	18.4
	13:42	10.2	19.4	191.6	60131	26.0	9.9	15.3	151.2	20.5
	13:43	10.3	15.7	195.2	60406	29.4	10.0	12.3	152.6	23.0
	13:44	10.9	13.4	190.1	64462	20.5	9.3	11.2	158.5	17.1
	13:45	10.4	11.4	183.8	61537	21.0	9.6	9.3	149.7	17.1
	13:46	9.9	12.3	185.2	58993	29.2	10.2	9.4	142.5	22.5
	13:47	10.0	12.1	184.6	59986	28.9	10.2	9.3	141.7	22.2
	13:48	10.1	14.8	187.4	61742	25.5	10.1	11.6	146.1	19.9
	13:49	10.1	19.0	187.7	62696	28.3	10.0	14.9	146.8	22.1
	13:50	10.1	19.9	191.1	62678	31.3	10.0	15.5	149.2	24.4
	13:51	9.9	15.7	188.8	61361	31.9	10.2	12.1	145.8	24.6
	13:52	9.7	14.3	189.3	60373	35.5	10.4	10.8	143.0	26.8
	13:53	9.9	16.4	187.9	61346	36.5	10.3	12.4	142.9	27.8
	13:54	10.7	18.4	181.6	65615	25.0	9.6	14.9	147.4	20.3
	13:55	10.8	20.4	167.5	66140	18.3	9.2	17.2	141.0	15.4
	13:56	10.5	20.2	167.5	64658	18.0	9.5	16.6	138.0	14.8
	13:57	10.0	16.7	167.3	61044	15.1	9.9	13.2	131.9	11.9
	13:58	10.0	14.6	165.6	61574	15.8	10.1	11.4	128.9	12.3
Average =		10.4	18.1	177.9	62660	22.7	9.7	14.7	143.2	18.1
Geometric Avg. =		10.4	17.4	177.6	62621	21.6	9.7	14.0	143.1	17.4
Maximum =		11.5	30.7	195.2	67542	36.5	10.4	26.5	158.5	27.8
Minimum =		9.7	11.4	160.0	58993	13.0	8.7	9.3	128.9	11.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		281.4	489.6	4802.5	1691829	611.7	261.7	397.0	3866.5	488.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 14:00
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	13:32	185.3
	13:33	184.8
	13:34	184.1
	13:35	187.8
	13:36	183.2
	13:37	180.7
	13:38	182.2
	13:39	183.7
	13:40	183.3
	13:41	181.5
	13:42	180.3
	13:43	183.4
	13:44	182.7
	13:45	181.4
	13:46	181.5
	13:47	182.0
	13:48	182.3
	13:49	183.0
	13:50	182.7
	13:51	180.8
	13:52	180.4
	13:53	182.8
	13:54	184.0
	13:55	185.4
	13:56	183.1
	13:57	182.1
	13:58	183.6

Average =	182.9
Geometric Avg. =	182.9
Maximum =	187.8
Minimum =	180.3
Possible Values =	27
Included Values =	27
Total =	4938.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 9

Plant Name: NBWD

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 14:38

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	14:10	10.5	33.3	168.7	64062	16.4	9.7	26.7	135.4	13.1
	14:11	10.8	38.7	169.9	65510	11.1	9.1	32.8	144.1	9.4
	14:12	10.4	28.3	175.1	62811	14.5	9.6	23.1	142.8	11.8
	14:13	10.1	18.7	173.9	61136	17.2	9.8	14.9	138.8	13.7
	14:14	10.1	15.3	178.5	61327	23.4	10.0	12.0	140.0	18.4
	14:15	10.7	14.6	170.5	64993	19.9	9.5	12.0	140.1	16.3
	14:16	10.8	14.4	164.5	65547	16.8	9.2	12.1	138.4	14.1
	14:17	10.2	16.1	167.6	62294	18.5	9.6	13.1	136.5	15.0
	14:18	10.0	24.6	175.7	61079	22.0	10.1	19.2	136.9	17.2
	14:19	10.4	30.9	183.7	63299	18.0	9.8	24.7	146.6	14.4
	14:20	10.7	26.2	183.9	65046	18.5	9.3	21.9	153.3	15.4
	14:21	10.7	19.8	186.7	64645	17.9	9.3	16.5	155.9	14.9
	14:22	10.8	15.1	195.2	65526	15.3	9.2	12.7	164.3	12.9
	14:23	10.6	11.7	192.2	64578	14.5	9.2	9.8	161.3	12.2
	14:24	10.3	10.0	180.2	63027	13.7	9.5	8.3	148.2	11.2
	14:25	10.3	11.5	189.2	63296	15.2	9.8	9.2	151.4	12.2
	14:26	10.8	15.4	188.7	66025	12.7	9.3	12.9	157.3	10.6
	14:27	10.9	16.0	174.5	66505	12.9	9.0	13.7	149.3	11.1
	14:28	10.6	15.7	171.3	64886	13.9	9.3	13.1	143.5	11.6
	14:29	10.6	20.4	174.3	64723	12.2	9.3	17.0	144.9	10.1
	14:30	10.7	22.8	168.9	65182	11.1	9.3	19.1	141.4	9.3
	14:31	10.1	19.1	178.1	61775	11.7	9.7	15.4	143.8	9.4
	14:32	10.2	24.3	194.2	62425	15.2	9.9	19.1	153.2	12.0
	14:33	10.8	27.3	176.0	65983	11.7	9.2	23.0	148.1	9.9
	14:34	10.7	22.8	168.8	65014	12.2	9.2	19.3	142.6	10.3
	14:35	9.7	20.7	176.3	59234	18.0	10.1	16.1	137.0	14.0
	14:36	9.5	19.1	188.7	58291	28.4	10.6	14.1	139.2	20.9
Average =		10.4	20.5	178.3	63638	16.0	9.5	16.7	145.7	13.0
Geometric Avg. =		10.4	19.4	178.1	63603	15.6	9.5	15.8	145.5	12.7
Maximum =		10.9	38.7	195.2	66505	28.4	10.6	32.8	164.3	20.9
Minimum =		9.5	10.0	164.5	58291	11.1	9.0	8.3	135.4	9.3
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		282.0	552.9	4815.4	1718218	432.6	257.6	451.7	3934.2	351.4

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 14:38
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	14:10	185.3
	14:11	184.2
	14:12	182.6
	14:13	180.6
	14:14	183.4
	14:15	184.3
	14:16	182.7
	14:17	180.9
	14:18	181.0
	14:19	182.9
	14:20	183.8
	14:21	184.2
	14:22	183.7
	14:23	182.8
	14:24	180.8
	14:25	183.1
	14:26	183.4
	14:27	183.2
	14:28	183.6
	14:29	185.0
	14:30	182.7
	14:31	181.5
	14:32	184.4
	14:33	185.7
	14:34	182.7
	14:35	179.3
	14:36	182.1

Average =	183.0
Geometric Avg. =	183.0
Maximum =	185.7
Minimum =	179.3
Possible Values =	27
Included Values =	27
Total =	4940.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 10

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

e Name: UNIT1

Time of Report: 03/22/11 15:16

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	14:49	9.6	30.2	214.2	59511	23.9	10.4	22.7	161.1	17.9
	14:50	9.5	28.0	220.1	58857	28.1	10.8	20.4	160.7	20.5
	14:51	10.0	17.8	220.9	61584	26.4	10.4	13.5	167.1	19.9
	14:52	10.6	10.8	216.3	65489	20.3	9.6	8.8	175.8	16.5
	14:53	10.3	8.5	213.6	64147	22.1	9.7	6.8	171.7	17.7
	14:54	10.2	8.2	213.8	63659	23.4	9.9	6.5	169.4	18.5
	14:55	10.0	8.7	212.7	62210	20.1	10.1	6.7	165.7	15.6
	14:56	10.0	8.7	205.7	62782	19.9	10.1	6.7	159.2	15.4
	14:57	10.6	9.7	189.2	66785	15.8	9.6	7.8	153.6	12.8
	14:58	11.1	11.1	175.9	69776	13.0	8.9	9.6	151.2	11.2
	14:59	11.4	11.7	170.0	71735	12.7	8.7	10.3	149.4	11.1
	15:00	10.7	10.9	158.8	66986	9.2	9.0	9.4	136.2	7.9
	15:01	10.3	14.0	160.7	64916	16.7	9.9	11.1	127.5	13.3
	15:02	11.0	18.3	148.8	69138	21.8	9.3	15.2	124.1	18.2
	15:03	10.8	22.4	148.2	67824	15.2	9.1	19.1	125.9	12.9
	15:04	10.6	26.7	153.0	66556	16.1	9.3	22.2	127.2	13.4
	15:05	10.2	26.2	158.2	63607	17.2	9.8	20.9	126.0	13.7
	15:06	10.1	21.8	181.2	63232	22.9	10.0	17.0	141.5	17.9
	15:07	10.9	17.9	189.9	67822	18.8	9.5	14.7	156.4	15.5
	15:08	10.2	15.3	183.4	63973	16.8	9.6	12.5	149.8	13.7
	15:09	9.7	14.7	201.5	60819	27.4	10.4	11.2	152.9	20.8
	15:10	9.5	18.5	211.9	59777	33.4	10.7	13.6	155.1	24.4
	15:11	9.9	26.3	221.2	62499	33.0	10.4	19.8	166.7	24.8
	15:12	10.1	29.1	217.6	63722	29.8	10.0	22.7	169.9	23.2
	15:13	10.1	27.0	210.9	63779	34.8	10.0	21.1	164.9	27.2
	15:14	10.2	19.4	211.9	64775	27.8	9.9	15.3	167.6	22.0
	15:15	10.1	15.5	199.3	64175	28.0	10.1	12.1	155.5	21.9
Average =		10.3	17.7	192.9	64449	22.0	9.8	14.0	153.0	17.3
Geometric Avg. =		10.3	16.2	191.2	64376	21.0	9.8	12.9	152.2	16.7
Maximum =		11.4	30.2	221.2	71735	34.8	10.8	22.7	175.8	27.2
Minimum =		9.5	8.2	148.2	58857	9.2	8.7	6.5	124.1	7.9
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		277.9	477.4	5208.8	1740136	594.5	265.3	377.8	4132.0	468.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 15:16
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	14:49	179.1
	14:50	179.4
	14:51	182.8
	14:52	182.8
	14:53	184.1
	14:54	183.4
	14:55	182.4
	14:56	184.0
	14:57	185.8
	14:58	188.1
	14:59	186.4
	15:00	182.7
	15:01	185.4
	15:02	185.4
	15:03	185.9
	15:04	183.4
	15:05	181.0
	15:06	183.9
	15:07	184.4
	15:08	181.1
	15:09	178.4
	15:10	178.6
	15:11	179.8
	15:12	182.9
	15:13	185.1
	15:14	185.3
	15:15	185.3

Average =	183.2
Geometric Avg. =	183.2
Maximum =	188.1
Minimum =	178.4
Possible Values =	27
Included Values =	27
Total =	4947.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 11

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 16:12

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	15:47	10.0	21.7	196.7	61582	33.0	10.1	16.9	153.4	25.7
	15:48	9.7	24.0	193.8	59241	34.1	10.3	18.3	148.0	26.0
	15:49	9.2	18.7	197.3	56775	43.5	10.9	13.5	142.0	31.3
	15:50	9.7	22.4	200.6	60149	39.7	10.6	16.6	149.3	29.5
	15:51	10.6	31.3	198.6	65198	26.8	9.6	25.5	161.7	21.8
	15:52	10.3	27.0	196.6	63337	22.4	9.5	22.1	161.3	18.3
	15:53	9.6	25.7	204.2	58929	29.0	10.4	19.5	154.7	22.0
	15:54	9.6	18.3	212.7	59465	30.4	10.6	13.6	157.8	22.6
	15:55	10.7	11.4	195.2	66281	26.3	9.7	9.2	157.5	21.2
	15:56	10.9	7.1	165.1	68364	16.5	9.0	6.1	141.7	14.2
	15:57	10.1	6.8	171.2	63831	22.3	9.9	5.4	136.1	17.7
	15:58	9.9	6.7	179.4	63155	26.0	10.1	5.2	139.0	20.2
	15:59	10.1	8.4	187.4	64529	25.8	10.0	6.5	146.4	20.2
	16:00	10.4	11.0	187.2	66183	24.9	9.8	8.7	149.0	19.8
	16:01	10.2	13.8	182.6	64782	25.8	9.8	11.0	145.4	20.5
	16:02	9.8	17.6	191.0	61737	27.6	10.3	13.4	145.4	21.0
	16:03	9.8	16.6	197.6	61618	28.9	10.4	12.5	148.6	21.8
	16:04	9.6	14.4	202.0	60729	35.2	10.5	10.7	150.8	26.3
	16:05	9.4	13.6	214.1	58826	40.2	10.8	9.9	155.3	29.1
	16:06	9.1	12.3	227.6	57424	44.8	11.1	8.6	160.1	31.5
	16:07	9.1	11.8	236.1	58114	52.5	11.3	8.1	163.3	36.3
	16:08	9.6	12.3	229.3	61302	41.0	10.8	8.9	166.0	29.7
	16:09	10.1	10.3	224.1	64725	34.2	10.3	7.9	171.1	26.1
	16:10	10.2	8.9	206.4	67076	31.2	10.0	6.9	161.8	24.4
Average =		9.9	15.5	199.9	62223	31.8	10.2	11.9	152.7	24.1
Geometric Avg. =		9.9	14.1	199.1	62142	30.7	10.2	10.8	152.5	23.5
Maximum =		10.9	31.3	236.1	68364	52.5	11.3	25.5	171.1	36.3
Minimum =		9.1	6.7	165.1	56775	16.5	9.0	5.2	136.1	14.2
Possible Values =		24	24	24	24	24	24	24	24	24
Included Values =		24	24	24	24	24	24	24	24	24
Total =		237.9	371.9	4796.9	1493352	762.1	245.8	285.2	3665.7	577.4

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 16:12
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	15:47	182.7
	15:48	179.6
	15:49	180.7
	15:50	185.3
	15:51	186.6
	15:52	182.8
	15:53	180.4
	15:54	183.8
	15:55	186.6
	15:56	184.1
	15:57	181.9
	15:58	181.7
	15:59	183.0
	16:00	182.6
	16:01	182.0
	16:02	181.1
	16:03	180.1
	16:04	178.1
	16:05	176.4
	16:06	174.8
	16:07	177.3
	16:08	181.2
	16:09	184.0
	16:10	184.9

Average =	181.7
Geometric Avg. =	181.7
Maximum =	186.6
Minimum =	174.8
Possible Values =	24
Included Values =	24
Total =	4361.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 12

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

[redacted]e Name: UNIT1

Time of Report: 03/22/11 16:50

[redacted]ata Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	16:19	10.0	5.9	166.9	68177	20.8	10.1	4.6	129.7	16.1
	16:20	9.8	6.4	177.8	66969	26.6	10.4	4.8	134.2	20.1
	16:21	10.5	5.5	168.6	70852	25.7	9.9	4.4	133.3	20.3
	16:22	10.5	5.0	161.0	70873	19.1	9.6	4.0	130.7	15.5
	16:23	10.4	5.9	173.0	69819	21.9	9.9	4.7	137.3	17.4
	16:24	10.7	6.7	179.1	71535	22.0	9.6	5.4	145.8	17.9
	16:25	10.9	8.8	169.6	71928	21.2	9.2	7.4	142.2	17.7
	16:26	10.3	13.5	161.6	67035	23.7	9.5	11.0	132.1	19.4
	16:27	10.3	18.9	166.8	65868	27.8	9.9	15.0	132.1	22.0
	16:28	10.7	25.4	158.8	66877	25.8	9.5	20.8	130.3	21.2
	16:29	10.5	29.3	165.1	65536	27.3	9.5	24.1	135.6	22.4
	16:30	10.2	30.9	181.8	63131	30.5	9.9	24.4	144.0	24.2
	16:31	10.1	25.9	181.5	62333	31.7	10.1	20.2	141.6	24.7
	16:32	9.7	21.8	187.6	59877	41.5	10.5	16.3	140.3	31.0
	16:33	9.5	21.4	201.9	58778	50.5	10.8	15.6	147.2	36.8
	16:34	9.6	22.3	219.3	59685	52.8	10.8	16.2	159.3	38.4
	16:35	11.0	24.1	206.4	68201	39.6	9.7	19.4	166.0	31.8
	16:36	11.8	26.8	181.6	72874	18.7	8.2	24.4	165.3	17.1
	16:37	9.5	20.5	175.1	59031	23.1	9.7	16.5	141.4	18.6
	16:38	8.4	20.0	207.5	52224	46.6	11.6	13.3	138.6	31.1
	16:39	9.3	24.7	218.5	57468	54.9	11.4	16.9	149.7	37.6
	16:40	10.3	32.2	214.8	64851	52.2	10.3	24.5	163.8	39.8
	16:41	10.8	29.1	203.7	69021	32.8	9.4	24.0	167.9	27.0
	16:42	10.3	17.5	192.8	65845	31.8	9.6	14.2	156.2	25.8
Average =		10.2	18.7	184.2	65366	32.0	10.0	14.7	144.3	24.7
Geometric Avg. =		10.2	15.8	183.3	65150	30.2	9.9	12.4	143.9	23.7
Maximum =		11.8	32.2	219.3	72874	54.9	11.6	24.5	167.9	39.8
Minimum =		8.4	5.0	158.8	52224	18.7	8.2	4.0	129.7	15.5
Possible Values =		24	24	24	24	24	24	24	24	24
Included Values =		24	24	24	24	24	24	24	24	24
Total =		245.0	448.6	4420.8	1568786	768.6	239.2	352.4	3464.3	594.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 16:50
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	16:19	182.2
	16:20	184.6
	16:21	185.7
	16:22	183.9
	16:23	186.3
	16:24	188.5
	16:25	185.8
	16:26	184.8
	16:27	185.9
	16:28	185.3
	16:29	182.9
	16:30	182.7
	16:31	180.5
	16:32	178.5
	16:33	177.5
	16:34	182.6
	16:35	192.6
	16:36	186.7
	16:37	179.2
	16:38	176.0
	16:39	178.9
	16:40	186.5
	16:41	187.3
	16:42	183.7

Average =	183.7
Geometric Avg. =	183.7
Maximum =	192.6
Minimum =	176.0
Possible Values =	24
Included Values =	24
Total =	4408.6

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 13

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Source Name: UNIT1

Time of Report: 03/22/11 17:21

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	16:50	8.7	11.6	190.7	57625	30.9	11.5	7.8	128.6	20.8
	16:51	9.9	14.6	195.5	65180	35.9	10.7	10.7	143.1	26.2
	16:52	11.7	16.9	183.7	76707	23.6	8.7	14.8	161.1	20.7
	16:53	11.4	17.6	174.6	74546	16.3	8.5	15.7	155.8	14.6
	16:54	10.5	17.1	184.3	68559	18.4	9.5	14.1	151.6	15.1
	16:55	9.9	18.5	196.3	64354	25.4	10.3	14.2	150.1	19.4
	16:56	9.8	18.7	210.6	64187	29.9	10.5	14.1	158.0	22.5
	16:57	10.1	18.0	216.0	66395	28.6	10.2	13.9	166.7	22.1
	16:58	10.3	17.4	217.2	68266	27.4	10.0	13.6	169.8	21.4
	16:59	10.8	18.1	202.8	71865	27.1	9.5	14.8	165.9	22.1
	17:00	10.5	19.7	194.2	69976	29.1	9.5	16.1	158.6	23.8
	17:01	9.8	22.0	209.3	64892	35.1	10.3	16.8	160.2	26.9
	17:02	9.5	18.3	213.0	62625	47.7	10.8	13.3	154.7	34.6
	17:03	10.0	16.0	202.0	65610	51.8	10.5	12.0	151.6	38.9
	17:04	10.6	16.5	190.1	69766	42.8	9.8	13.1	151.2	34.1
	17:05	10.3	18.1	185.7	68013	38.1	9.8	14.4	148.2	30.4
	17:06	9.4	19.6	196.5	62581	59.0	10.8	14.2	142.8	42.9
	17:07	9.2	19.3	211.4	61431	67.0	11.3	13.4	146.7	46.5
	17:08	9.7	18.2	212.9	65120	57.8	10.8	13.2	154.3	41.9
	17:09	10.2	15.7	194.4	68154	54.0	10.2	12.1	150.1	41.7
	17:10	10.2	13.5	190.0	68257	49.1	10.0	10.6	148.4	38.4
	17:11	10.3	12.5	185.5	68966	42.0	10.0	9.8	146.1	33.1
	17:12	10.0	12.5	183.5	66976	43.9	10.1	9.7	142.2	34.0
	17:13	9.8	13.0	185.3	65912	47.9	10.3	9.9	140.7	36.3
Average =		10.1	16.8	196.9	66915	38.7	10.2	13.0	151.9	29.5
Geometric Avg. =		10.1	16.6	196.5	66794	36.3	10.1	12.8	151.6	28.0
Maximum =		11.7	22.0	217.2	76707	67.0	11.5	16.8	169.8	46.5
Minimum =		8.7	11.6	174.6	57625	16.3	8.5	7.8	128.6	14.6
Possible Values =		24	24	24	24	24	24	24	24	24
Included Values =		24	24	24	24	24	24	24	24	24
Total =		242.7	403.5	4725.5	1605963	928.6	243.7	312.3	3646.1	708.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 17:21
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	16:50	174.3
	16:51	182.2
	16:52	184.9
	16:53	183.1
	16:54	179.9
	16:55	178.5
	16:56	179.4
	16:57	179.6
	16:58	182.9
	16:59	184.1
	17:00	180.8
	17:01	178.3
	17:02	178.9
	17:03	182.1
	17:04	183.1
	17:05	179.5
	17:06	176.5
	17:07	177.7
	17:08	180.9
	17:09	182.2
	17:10	183.4
	17:11	182.5
	17:12	182.4
	17:13	180.6
Average =		180.7
Geometric Avg. =		180.7
Maximum =		184.9
Minimum =		174.3
Possible Values =		24
Included Values =		24
Total =		4337.8

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 14

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Unit Name: UNIT1

Time of Report: 03/22/11 17:50

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)
03/22/11	17:20	10.3	33.2	183.4	67642	15.7	9.9	26.3	145.1	12.4
	17:21	10.9	36.9	188.6	71387	15.5	9.3	30.8	157.2	12.9
	17:22	10.9	33.6	180.9	71116	12.9	9.1	28.6	153.9	11.0
	17:23	10.4	19.8	176.0	67654	14.2	9.5	16.2	143.8	11.6
	17:24	10.5	12.3	182.3	67713	17.7	9.7	9.8	146.2	14.2
	17:25	11.1	8.1	182.2	71669	15.3	9.1	6.9	154.7	13.0
	17:26	11.0	6.4	179.1	69916	11.7	8.9	5.5	154.4	10.1
	17:27	10.5	6.0	191.3	66382	12.2	9.4	4.9	157.8	10.0
	17:28	10.9	6.3	193.1	68737	12.0	9.3	5.3	160.5	10.0
	17:29	10.8	7.1	181.2	68418	8.7	9.0	6.1	155.0	7.4
	17:30	10.1	9.8	194.9	63381	11.4	9.9	7.8	154.7	9.0
	17:31	10.2	14.4	204.6	63819	15.2	10.1	11.2	159.4	11.9
	17:32	10.8	19.2	199.6	67746	14.7	9.5	15.8	164.0	12.1
	17:33	10.8	21.7	195.3	67324	13.2	9.2	18.2	164.2	11.1
	17:34	10.5	19.3	198.2	65836	15.7	9.5	15.9	162.7	12.9
	17:35	10.5	19.0	195.3	66044	14.5	9.6	15.5	158.6	11.8
	17:36	10.8	21.3	181.2	68004	14.4	9.3	17.9	151.7	12.1
	17:37	10.7	21.9	173.3	66936	14.7	9.2	18.4	145.5	12.4
	17:38	10.3	23.3	180.9	64356	14.5	9.7	18.8	146.1	11.7
	17:39	10.4	24.9	184.4	64539	14.8	9.8	19.9	147.7	11.9
	17:40	10.9	25.8	176.1	67387	14.7	9.3	21.5	147.0	12.3
	17:41	11.1	23.8	169.2	68784	10.9	8.7	20.8	148.2	9.5
	17:42	10.7	20.3	178.6	65916	10.5	9.3	16.9	149.2	8.8
	17:43	11.1	19.7	182.7	68448	9.3	9.1	16.8	155.6	8.0
Average =		10.7	18.9	185.5	67465	13.5	9.4	15.7	153.5	11.2
Geometric Avg. =		10.7	16.6	185.3	67429	13.3	9.4	13.8	153.3	11.0
Maximum =		11.1	36.9	204.6	71669	17.7	10.1	30.8	164.2	14.2
Minimum =		10.1	6.0	169.2	63381	8.7	8.7	4.9	143.8	7.4
Possible Values =		24	24	24	24	24	24	24	24	24
Included Values =		24	24	24	24	24	24	24	24	24
Total =		255.9	454.2	4452.1	1619156	324.4	225.4	375.8	3683.2	267.9

* - excluded values (missing, OOC, invalid, suspect)
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S - suspect
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F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/22/11 17:50
Rolling Average Interval: 1

Date	Time	STMRPT_1 (KLB/HR)
03/22/11	17:20	183.8
	17:21	186.0
	17:22	184.7
	17:23	182.8
	17:24	184.9
	17:25	185.7
	17:26	184.2
	17:27	185.0
	17:28	186.8
	17:29	183.6
	17:30	182.1
	17:31	184.0
	17:32	185.5
	17:33	184.7
	17:34	184.8
	17:35	186.1
	17:36	186.3
	17:37	185.5
	17:38	184.4
	17:39	185.6
	17:40	188.1
	17:41	185.6
	17:42	186.4
	17:43	190.3

Average =	185.3
Geometric Avg. =	185.3
Maximum =	190.3
Minimum =	182.1
Possible Values =	24
Included Values =	24
Total =	4446.9

* - excluded values (missing, OOC, invalid, suspect)
< - missing
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S - suspect
H - exceedance
F - stack not operating
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U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:49
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	07:32	2579
	07:33	2579
	07:34	2583
	07:35	2585
	07:36	2590
	07:37	2591
	07:38	2594
	07:39	2594
	07:40	2593
	07:41	2601
	07:42	2597
	07:43	2587
	07:44	2575
	07:45	2574
	07:46	2587
	07:47	2596
	07:48	2601
	07:49	2607
	07:50	2620
	07:51	2629
	07:52	2624
	07:53	2625
	07:54	2631
	07:55	2626
	07:56	2624
	07:57	2618
	07:58	2614

Average =	2601
Geometric Avg. =	2601
Maximum =	2631
Minimum =	2574
Possible Values =	27
Included Values =	27
Total =	70226

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:51
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	08:14	2577
	08:15	2570
	08:16	2567
	08:17	2559
	08:18	2554
	08:19	2560
	08:20	2566
	08:21	2568
	08:22	2567
	08:23	2564
	08:24	2560
	08:25	2563
	08:26	2574
	08:27	2587
	08:28	2595
	08:29	2606
	08:30	2618
	08:31	2616
	08:32	2612
	08:33	2612
	08:34	2614
	08:35	2623
	08:36	2631
	08:37	2640
	08:38	2645
	08:39	2643
	08:40	2635

Average =	2594
Geometric Avg. =	2593
Maximum =	2645
Minimum =	2554
Possible Values =	27
Included Values =	27
Total =	70027

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:52
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	09:40	2578
	09:41	2577
	09:42	2574
	09:43	2564
	09:44	2562
	09:45	2564
	09:46	2570
	09:47	2574
	09:48	2570
	09:49	2558
	09:50	2548
	09:51	2533
	09:52	2529
	09:53	2532
	09:54	2533
	09:55	2531
	09:56	2528
	09:57	2525
	09:58	2518
	09:59	2512
	10:00	2507
	10:01	2509
	10:02	2514
	10:03	2520
	10:04	2525
	10:05	2529
	10:06	2532

Average =	2541
Geometric Avg. =	2541
Maximum =	2578
Minimum =	2507
Possible Values =	27
Included Values =	27
Total =	68616

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:53
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	10:25	2535
	10:26	2539
	10:27	2543
	10:28	2543
	10:29	2548
	10:30	2549
	10:31	2550
	10:32	2542
	10:33	2526
	10:34	2524
	10:35	2527
	10:36	2534
	10:37	2529
	10:38	2523
	10:39	2515
	10:40	2509
	10:41	2502
	10:42	2494
	10:43	2494
	10:44	2488
	10:45	2485
	10:46	2488
	10:47	2495
	10:48	2502
	10:49	2498
	10:50	2491
	10:51	2498

Average =	2518
Geometric Avg. =	2517
Maximum =	2550
Minimum =	2485
Possible Values =	27
Included Values =	27
Total =	67974

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NEWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:53
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	11:35	2506
	11:36	2511
	11:37	2517
	11:38	2518
	11:39	2512
	11:40	2504
	11:41	2507
	11:42	2510
	11:43	2518
	11:44	2517
	11:45	2516
	11:46	2514
	11:47	2511
	11:48	2512
	11:49	2525
	11:50	2530
	11:51	2525
	11:52	2517
	11:53	2501
	11:54	2500
	11:55	2501
	11:56	2505
	11:57	2508
	11:58	2502
	11:59	2498
	12:00	2507
	12:01	2515

Average =	2511
Geometric Avg. =	2511
Maximum =	2530
Minimum =	2498
Possible Values =	27
Included Values =	27
Total =	67807

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NEWD

Page: 1

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1

Time of Report: 05/04/11 07:54

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	12:15	2511
	12:16	2511
	12:17	2509
	12:18	2511
	12:19	2522
	12:20	2531
	12:21	2525
	12:22	2503
	12:23	2483
	12:24	2478
	12:25	2479
	12:26	2476
	12:27	2476
	12:28	2475
	12:29	2478
	12:30	2481
	12:31	2482
	12:32	2475
	12:33	2473
	12:34	2474
	12:35	2473
	12:36	2472
	12:37	2472
	12:38	2475
	12:39	2475
	12:40	2472
	12:41	2464

Average =	2487
Geometric Avg. =	2487
Maximum =	2531
Minimum =	2464
Possible Values =	27
Included Values =	27
Total =	67155

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:54
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	12:54	2442
	12:55	2454
	12:56	2468
	12:57	2475
	12:58	2479
	12:59	2473
	13:00	2455
	13:01	2443
	13:02	2442
	13:03	2446
	13:04	2456
	13:05	2461
	13:06	2461
	13:07	2463
	13:08	2458
	13:09	2455
	13:10	2452
	13:11	2456
	13:12	2463
	13:13	2472
	13:14	2471
	13:15	2461
	13:16	2455
	13:17	2447
	13:18	2438
	13:19	2435
	13:20	2442

Average =	2456
Geometric Avg. =	2456
Maximum =	2479
Minimum =	2435
Possible Values =	27
Included Values =	27
Total =	66322

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:54
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	13:32	2493
	13:33	2493
	13:34	2488
	13:35	2478
	13:36	2465
	13:37	2455
	13:38	2445
	13:39	2448
	13:40	2463
	13:41	2472
	13:42	2474
	13:43	2477
	13:44	2482
	13:45	2489
	13:46	2505
	13:47	2526
	13:48	2580
	13:49	2617
	13:50	2615
	13:51	2609
	13:52	2602
	13:53	2593
	13:54	2575
	13:55	2569
	13:56	2569
	13:57	2569
	13:58	2569

Average =	2523
Geometric Avg. =	2522
Maximum =	2617
Minimum =	2445
Possible Values =	27
Included Values =	27
Total =	68120

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
E - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 05/04/11 07:55
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	14:10	2542
	14:11	2538
	14:12	2538
	14:13	2538
	14:14	2542
	14:15	2546
	14:16	2551
	14:17	2557
	14:18	2560
	14:19	2549
	14:20	2548
	14:21	2547
	14:22	2546
	14:23	2550
	14:24	2557
	14:25	2562
	14:26	2560
	14:27	2559
	14:28	2558
	14:29	2551
	14:30	2556
	14:31	2562
	14:32	2560
	14:33	2550
	14:34	2547
	14:35	2551
	14:36	2558

Average =	2551
Geometric Avg. =	2551
Maximum =	2562
Minimum =	2538
Possible Values =	27
Included Values =	27
Total =	68883

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
E - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

General Average Report

Reporting Period: 03/22/2011 to 03/22/2011

Site Name: UNIT1
Time of Report: 05/04/11 07:55

Data Averaging Type: 1m
Rolling Average Interval: 1

Date	Time	VELOCTY1 (FPM)
03/22/11	14:49	2600
	14:50	2605
	14:51	2608
	14:52	2607
	14:53	2610
	14:54	2615
	14:55	2619
	14:56	2621
	14:57	2624
	14:58	2624
	14:59	2623
	15:00	2620
	15:01	2618
	15:02	2625
	15:03	2619
	15:04	2613
	15:05	2611
	15:06	2610
	15:07	2611
	15:08	2618
	15:09	2625
	15:10	2632
	15:11	2641
	15:12	2650
	15:13	2659
	15:14	2669
	15:15	2677

Average =	2624
Geometric Avg. =	2624
Maximum =	2677
Minimum =	2600
Possible Values =	27
Included Values =	27
Total =	70856

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 1

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

te Name: UNIT2

Time of Report: 03/23/11 08:14

ta Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	07:13	15.2	177.4	10.1	63173	18.7	10.0	11.8	138.6	14.6
	07:14	15.4	189.6	10.2	63409	19.7	9.9	12.1	149.4	15.5
	07:15	16.2	188.2	10.5	65340	18.5	9.5	13.3	153.8	15.1
	07:16	15.8	183.8	10.6	65351	19.3	9.6	12.9	150.0	15.8
	07:17	15.8	185.1	10.3	63494	19.9	9.9	12.5	146.4	15.7
	07:18	14.7	193.3	10.2	62706	20.3	10.0	11.5	152.1	16.0
	07:19	14.4	189.4	10.5	64769	16.6	9.5	11.8	154.9	13.6
	07:20	13.7	187.0	10.2	63179	16.4	9.9	10.8	147.6	13.0
	07:21	12.6	198.5	10.2	63164	16.5	9.9	10.0	157.1	13.0
	07:22	11.4	202.7	10.4	64338	14.9	9.6	9.2	164.1	12.1
	07:23	10.9	201.9	10.4	63926	14.1	9.8	8.8	161.7	11.3
	07:24	11.1	202.7	10.4	64395	13.8	9.7	8.9	163.2	11.1
	07:25	11.2	204.6	10.4	64127	13.2	9.7	9.0	165.0	10.6
	07:26	14.8	202.0	10.1	62595	15.5	10.0	11.6	158.4	12.2
	07:27	15.6	205.1	9.8	60824	18.1	10.4	11.8	155.3	13.7
	07:28	13.6	211.1	10.0	62560	18.3	10.1	10.5	163.9	14.2
	07:29	11.3	207.7	10.3	64175	17.0	9.8	9.0	165.7	13.6
	07:30	9.4	205.3	10.3	64033	16.6	9.8	7.5	163.4	13.2
	07:31	9.1	201.5	10.3	64148	16.7	9.8	7.3	160.7	13.3
	07:32	9.7	195.8	10.3	63833	16.5	9.8	7.7	155.8	13.1
	07:33	10.0	193.8	10.4	64396	16.3	9.7	8.1	156.1	13.1
	07:34	9.5	191.8	10.3	63744	16.8	9.8	7.6	153.3	13.5
	07:35	9.2	189.6	10.2	62681	20.6	10.0	7.2	149.2	16.2
	07:36	9.0	195.2	10.1	62598	20.8	10.0	7.1	153.2	16.4
	07:37	9.4	191.6	10.5	64667	17.7	9.6	7.6	155.6	14.3
	07:38	7.8	179.4	10.6	65275	15.1	9.5	6.4	147.2	12.4
	07:39	6.8	173.8	10.3	63356	15.3	9.8	5.5	139.3	12.2
Average =		12.0	194.4	10.3	63713	17.2	9.8	9.5	154.8	13.7
Geometric Avg. =		11.6	194.1	10.3	63705	17.0	9.8	9.3	154.7	13.6
Maximum =		16.2	211.1	10.6	65351	20.8	10.4	13.3	165.7	16.4
Minimum =		6.8	173.8	9.8	60824	13.2	9.5	5.5	138.6	10.6
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		323.4	5247.9	277.9	1720256	463.2	265.2	257.4	4180.9	368.8

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 08:14
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	07:13	181.9
	07:14	183.6
	07:15	184.7
	07:16	183.4
	07:17	182.7
	07:18	185.1
	07:19	183.5
	07:20	183.3
	07:21	183.6
	07:22	182.5
	07:23	182.4
	07:24	181.8
	07:25	181.5
	07:26	181.1
	07:27	181.3
	07:28	182.4
	07:29	181.9
	07:30	182.6
	07:31	182.1
	07:32	183.5
	07:33	183.0
	07:34	181.6
	07:35	181.5
	07:36	183.8
	07:37	184.4
	07:38	184.0
	07:39	182.1

Average =	182.8
Geometric Avg. =	182.8
Maximum =	185.1
Minimum =	181.1
Possible Values =	27
Included Values =	27
Total =	4935.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 2

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

te Name: UNIT2

Time of Report: 03/23/11 08:16

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	07:49	4.5	205.1	10.0	62132	13.7	10.1	3.5	159.2	10.7
	07:50	4.2	205.4	10.1	62937	13.4	9.9	3.3	162.6	10.6
	07:51	5.7	210.7	10.1	63728	12.5	9.9	4.5	166.1	9.9
	07:52	6.3	211.1	10.1	65913	12.0	9.9	5.0	166.9	9.5
	07:53	5.4	201.2	10.3	69089	12.9	9.6	4.4	163.4	10.5
	07:54	3.9	196.0	10.4	70355	12.2	9.6	3.2	158.7	9.9
	07:55	4.8	193.6	10.1	68635	13.4	9.9	3.8	152.5	10.6
	07:56	5.3	196.8	9.8	66574	15.3	10.2	4.0	150.8	11.7
	07:57	6.3	193.8	10.0	67485	15.7	10.0	4.9	151.7	12.3
	07:58	6.9	190.2	10.2	68667	14.9	9.8	5.5	151.4	11.8
	07:59	6.6	194.0	10.4	69972	14.3	9.6	5.3	157.5	11.6
	08:00	6.1	195.3	10.3	69510	12.0	9.7	4.9	157.5	9.7
	08:01	6.0	192.0	10.2	68757	11.6	9.8	4.8	153.1	9.3
	08:02	6.0	193.0	10.2	68986	12.3	9.8	4.8	153.6	9.8
	08:03	5.7	194.7	10.3	69495	10.5	9.8	4.6	156.1	8.4
	08:04	5.9	192.7	10.3	69839	9.3	9.6	4.8	156.2	7.5
	08:05	6.4	202.7	10.4	70611	8.9	9.5	5.2	165.8	7.3
	08:06	6.4	207.8	10.2	69412	9.1	9.8	5.1	165.5	7.2
	08:07	6.8	208.2	10.1	68529	9.7	9.9	5.4	165.2	7.7
	08:08	6.7	207.1	9.9	67454	10.6	10.2	5.2	158.9	8.1
	08:09	7.1	206.2	10.0	67931	12.1	10.1	5.5	159.7	9.4
	08:10	7.5	197.0	10.3	69964	11.2	9.8	6.0	157.6	9.0
	08:11	7.4	188.4	10.5	71190	9.6	9.5	6.0	154.3	7.9
	08:12	7.2	190.8	10.2	69034	11.7	9.9	5.7	150.7	9.2
	08:13	6.7	193.5	10.0	68062	11.1	10.2	5.2	149.3	8.6
	08:14	6.4	189.9	10.0	68340	10.6	10.0	5.0	149.0	8.3
	08:15	7.0	187.9	10.2	69359	10.3	10.0	5.5	147.8	8.1
Average =		6.1	198.0	10.2	68221	11.9	9.9	4.9	157.1	9.4
Geometric Avg. =		6.0	197.8	10.2	68184	11.7	9.9	4.8	157.0	9.3
Maximum =		7.5	211.1	10.5	71190	15.7	10.2	6.0	166.9	12.3
Minimum =		3.9	187.9	9.8	62132	8.9	9.5	3.2	147.8	7.2
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		165.0	5345.2	274.7	1841958	321.1	266.5	131.0	4241.2	254.6

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 08:16
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	07:49	182.6
	07:50	183.3
	07:51	183.1
	07:52	184.9
	07:53	184.9
	07:54	184.1
	07:55	182.7
	07:56	181.9
	07:57	182.9
	07:58	183.9
	07:59	184.6
	08:00	183.7
	08:01	184.3
	08:02	184.5
	08:03	184.5
	08:04	185.8
	08:05	184.6
	08:06	184.4
	08:07	182.3
	08:08	182.8
	08:09	184.4
	08:10	186.3
	08:11	185.2
	08:12	184.2
	08:13	184.5
	08:14	184.3
	08:15	184.0

Average =	184.0
Geometric Avg. =	184.0
Maximum =	186.3
Minimum =	181.9
Possible Values =	27
Included Values =	27
Total =	4968.8

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 3

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

Unit Name: UNIT2

Time of Report: 03/23/11 09:06

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	08:38	8.4	195.0	9.6	61013	47.0	10.6	6.3	144.7	34.9
	08:39	9.4	192.1	10.1	64540	54.4	9.9	7.4	152.1	43.1
	08:40	9.4	195.8	10.1	64016	25.4	10.0	7.4	153.6	20.0
	08:41	8.7	197.2	9.7	61819	18.7	10.4	6.6	149.4	14.1
	08:42	8.7	202.9	9.3	59272	17.0	10.8	6.3	147.0	12.3
	08:43	9.7	203.4	9.5	60624	21.3	10.7	7.2	149.5	15.6
	08:44	10.5	193.7	10.0	64299	22.6	10.0	8.2	151.7	17.7
	08:45	9.5	190.6	10.1	64492	17.8	9.9	7.5	150.3	14.0
	08:46	8.5	198.7	10.0	63546	15.0	10.0	6.7	155.1	11.7
	08:47	7.7	207.5	9.7	61470	15.3	10.4	5.8	156.8	11.6
	08:48	7.2	211.0	9.6	60846	18.4	10.5	5.4	158.5	13.8
	08:49	6.5	208.7	9.9	62660	16.6	10.1	5.0	161.7	12.9
	08:50	6.7	205.6	10.1	64102	15.0	9.9	5.3	163.1	11.9
	08:51	6.5	196.5	10.6	66528	13.2	9.4	5.4	163.0	10.9
	08:52	6.5	201.3	10.2	64325	10.7	9.9	5.1	158.7	8.5
	08:53	6.8	210.5	9.9	62666	12.9	10.1	5.3	163.5	10.0
	08:54	7.9	215.4	10.1	63861	13.3	9.9	6.2	169.9	10.5
	08:55	9.1	212.9	10.2	64901	13.4	9.9	7.3	169.0	10.6
	08:56	9.3	212.5	10.1	64455	13.5	9.9	7.4	167.8	10.7
	08:57	9.9	206.7	10.2	64712	14.0	9.8	7.9	165.2	11.2
	08:58	10.4	200.7	10.1	64158	12.4	9.9	8.2	158.9	9.8
	08:59	11.1	208.7	9.8	61926	13.4	10.3	8.5	159.3	10.3
	09:00	11.9	212.8	9.8	61386	14.9	10.3	9.1	161.8	11.4
	09:01	12.4	214.2	9.9	62374	14.4	10.1	9.6	166.1	11.2
	09:02	12.4	213.0	10.1	63493	13.3	10.0	9.8	167.6	10.5
	09:03	11.7	208.5	9.9	62034	12.3	10.3	9.0	159.7	9.5
	09:04	11.2	214.7	9.6	60272	13.6	10.6	8.3	159.5	10.1
Average =		9.2	204.8	9.9	62955	18.1	10.1	7.1	158.6	14.0
Geometric Avg. =		9.0	204.7	9.9	62932	16.6	10.1	7.0	158.5	12.9
Maximum =		12.4	215.4	10.6	66528	54.4	10.8	9.8	169.9	43.1
Minimum =		6.5	190.6	9.3	59272	10.7	9.4	5.0	144.7	8.5
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		248.0	5530.6	268.2	1699790	490.0	273.6	192.0	4283.5	378.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 09:06
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	08:38	184.2
	08:39	184.6
	08:40	183.4
	08:41	179.2
	08:42	179.3
	08:43	182.4
	08:44	183.8
	08:45	183.6
	08:46	182.6
	08:47	182.0
	08:48	183.0
	08:49	184.2
	08:50	187.3
	08:51	186.4
	08:52	184.4
	08:53	184.5
	08:54	183.8
	08:55	184.0
	08:56	184.5
	08:57	185.5
	08:58	183.7
	08:59	182.6
	09:00	182.9
	09:01	184.5
	09:02	184.4
	09:03	182.2
	09:04	182.5

Average =	183.5
Geometric Avg. =	183.5
Maximum =	187.3
Minimum =	179.2
Possible Values =	27
Included Values =	27
Total =	4955.5

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN4

Plant Name: NBWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Unit Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 09:43
Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	09:16	16.6	199.8	10.0	63715	11.1	10.0	13.0	155.9	8.6
	09:17	16.0	201.5	9.8	62384	11.9	10.2	12.4	155.7	9.2
	09:18	17.4	206.3	9.7	62053	10.7	10.3	13.3	156.9	8.2
	09:19	19.2	203.4	9.7	62407	10.9	10.3	14.6	154.6	8.3
	09:20	20.9	193.6	10.1	65010	10.3	9.9	16.6	153.7	8.2
	09:21	21.4	189.9	10.1	65307	8.5	9.9	17.0	150.9	6.7
	09:22	20.3	190.0	10.0	64406	8.4	9.9	16.0	150.0	6.7
	09:23	21.0	208.4	9.4	60678	10.0	10.6	15.5	154.0	7.4
	09:24	22.3	215.7	9.3	59985	11.5	10.8	16.3	157.5	8.4
	09:25	21.4	205.9	9.7	61739	11.2	10.4	16.2	155.4	8.5
	09:26	19.4	201.1	9.9	62588	10.9	10.2	15.0	155.3	8.4
	09:27	17.0	197.7	9.7	61437	12.9	10.3	13.0	150.9	9.9
	09:28	16.7	199.8	9.4	59278	15.5	10.7	12.3	146.9	11.4
	09:29	17.3	200.4	9.4	59344	16.9	10.7	12.7	147.6	12.5
	09:30	18.7	201.9	9.4	59351	18.5	10.7	13.7	148.6	13.6
	09:31	18.1	204.1	9.3	58615	20.5	10.8	13.1	147.6	14.8
	09:32	18.3	208.1	9.4	59065	21.0	10.8	13.3	151.2	15.2
	09:33	17.8	207.4	9.6	60726	20.3	10.5	13.3	155.3	15.2
	09:34	17.2	201.8	9.8	61789	19.8	10.3	13.1	153.9	15.1
	09:35	17.2	198.0	9.7	60947	18.9	10.4	13.0	149.6	14.3
	09:36	17.5	202.6	9.4	59016	17.8	10.8	12.8	147.7	12.9
	09:37	17.0	211.3	9.3	58530	20.5	10.8	12.3	153.0	14.8
	09:38	16.5	211.5	9.5	59604	22.4	10.6	12.2	155.9	16.5
	09:39	17.0	204.5	9.8	61586	21.2	10.3	13.0	156.4	16.2
	09:40	16.5	207.2	9.7	60782	21.4	10.4	12.5	156.7	16.2
	09:41	16.1	203.0	9.5	59486	24.1	10.6	11.9	149.9	17.8
	09:42	15.4	207.0	9.4	58692	26.0	10.8	11.1	149.9	18.8
Average =		18.2	203.0	9.6	61056	16.0	10.4	13.7	152.6	12.0
Geometric Avg. =		18.1	202.9	9.6	61026	15.2	10.4	13.6	152.6	11.4
Maximum =		22.3	215.7	10.1	65307	26.0	10.8	17.0	157.5	18.8
Minimum =		15.4	189.9	9.3	58530	8.4	9.9	11.1	146.9	6.7
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		490.1	5481.8	259.9	1648518	433.0	282.0	369.0	4121.0	323.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 09:43
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	09:16	184.2
	09:17	183.4
	09:18	182.4
	09:19	185.2
	09:20	185.8
	09:21	185.4
	09:22	183.5
	09:23	182.2
	09:24	182.7
	09:25	184.2
	09:26	183.6
	09:27	182.4
	09:28	181.4
	09:29	181.1
	09:30	180.3
	09:31	180.9
	09:32	182.6
	09:33	184.2
	09:34	184.5
	09:35	181.6
	09:36	180.4
	09:37	179.7
	09:38	181.7
	09:39	182.1
	09:40	181.7
	09:41	180.0
	09:42	178.8

Average =	182.4
Geometric Avg. =	182.4
Maximum =	185.8
Minimum =	178.8
Possible Values =	27
Included Values =	27
Total =	4925.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 5

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

e Name: UNIT2

Time of Report: 03/23/11 10:27

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	10:00	10.9	184.7	9.7	70420	23.8	10.3	8.3	140.3	18.1
	10:01	10.8	194.8	9.9	71530	20.5	10.1	8.4	150.7	15.9
	10:02	9.5	194.4	10.3	74461	17.1	9.7	7.7	157.1	13.8
	10:03	7.5	196.1	10.5	75968	14.9	9.5	6.1	160.7	12.2
	10:04	6.1	195.5	10.5	76409	14.2	9.4	5.0	161.6	11.8
	10:05	5.7	191.4	10.2	74207	14.7	9.9	4.5	151.3	11.6
	10:06	6.0	187.9	9.6	70325	17.9	10.4	4.5	141.9	13.5
	10:07	6.3	188.8	9.5	69653	19.2	10.6	4.7	140.5	14.3
	10:08	6.4	196.6	9.8	72907	19.4	10.2	4.9	150.8	14.9
	10:09	5.7	194.8	10.2	77023	16.1	9.7	4.6	156.7	13.0
	10:10	5.1	186.6	10.3	77490	15.6	9.7	4.1	150.1	12.6
	10:11	4.7	183.8	9.8	73825	17.7	10.2	3.6	141.2	13.6
	10:12	4.8	186.6	9.8	73450	18.5	10.2	3.7	143.1	14.2
	10:13	5.2	193.2	10.3	77493	16.2	9.6	4.3	157.3	13.1
	10:14	4.2	189.8	10.4	78791	16.0	9.5	3.5	156.0	13.2
	10:15	4.5	183.8	10.4	79113	16.2	9.3	3.8	153.1	13.5
	10:16	4.9	187.3	10.0	76084	13.4	10.0	3.8	147.2	10.5
	10:17	5.2	184.7	9.6	73250	16.1	10.3	3.9	140.6	12.2
	10:18	5.2	184.2	9.7	73584	17.2	10.3	3.9	140.3	13.1
	10:19	5.2	182.4	9.3	70465	18.2	10.9	3.7	131.4	13.1
	10:20	6.6	183.8	9.5	71720	23.9	10.6	4.9	136.6	17.8
	10:21	6.7	183.8	10.8	81920	35.5	9.1	5.7	155.4	30.0
	10:22	3.5	167.1	12.1	91693	40.3	7.5	3.3	160.9	38.8
	10:23	0.9	176.2	11.6	87519	11.8	8.3	0.9	160.4	10.7
	10:24	0.9	185.0	10.2	77248	12.5	9.8	0.8	147.8	10.0
	10:25	2.9	197.4	9.1	68299	16.2	11.1	2.1	139.6	11.5
	10:26	3.7	193.5	9.7	72815	14.6	10.2	2.8	149.0	11.2
Average =		5.5	187.9	10.1	75469	18.4	9.9	4.4	148.9	14.7
Geometric Avg. =		4.9	187.8	10.1	75304	17.7	9.8	3.9	148.7	14.0
Maximum =		10.9	197.4	12.1	91693	40.3	11.1	8.4	161.6	38.8
Minimum =		0.9	167.1	9.1	68299	11.8	7.5	0.8	131.4	10.0
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		149.3	5074.3	272.8	2037661	497.7	266.5	117.6	4021.6	398.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 10:27
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	10:00	180.7
	10:01	182.5
	10:02	185.7
	10:03	187.9
	10:04	186.9
	10:05	184.3
	10:06	181.7
	10:07	181.8
	10:08	183.6
	10:09	185.3
	10:10	183.3
	10:11	182.7
	10:12	184.9
	10:13	186.1
	10:14	189.0
	10:15	187.0
	10:16	183.2
	10:17	181.5
	10:18	177.1
	10:19	178.3
	10:20	186.8
	10:21	197.5
	10:22	196.4
	10:23	191.3
	10:24	186.1
	10:25	181.4
	10:26	179.7

Average =	184.9
Geometric Avg. =	184.8
Maximum =	197.5
Minimum =	177.1
Possible Values =	27
Included Values =	27
Total =	4992.5

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 6

Plant Name: NBWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Source Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 11:04
Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	10:36	4.6	191.3	10.0	75004	17.2	9.9	3.6	151.0	13.6
	10:37	4.9	181.2	10.2	75945	16.8	9.7	3.9	145.5	13.5
	10:38	4.7	175.3	9.9	73686	16.0	10.0	3.7	137.1	12.5
	10:39	5.4	177.8	9.6	71641	17.4	10.3	4.1	135.0	13.2
	10:40	6.2	190.0	9.8	73206	16.6	10.1	4.8	147.1	12.9
	10:41	6.6	198.7	10.1	74781	14.5	9.9	5.2	157.9	11.5
	10:42	6.4	197.5	10.1	75210	12.6	9.8	5.1	158.2	10.1
	10:43	5.9	196.8	10.1	75280	11.1	9.8	4.7	157.8	8.9
	10:44	5.8	197.9	9.9	73622	11.7	10.1	4.6	154.4	9.1
	10:45	5.3	203.0	10.0	74041	13.7	10.0	4.2	159.5	10.7
	10:46	6.0	198.4	10.2	75682	14.3	9.7	4.8	160.2	11.5
	10:47	7.0	186.8	10.1	73587	14.8	9.8	5.6	148.8	11.8
	10:48	6.7	194.2	9.7	69073	12.8	10.2	5.1	149.3	9.8
	10:49	5.9	200.5	9.7	68349	12.1	10.2	4.6	154.7	9.3
	10:50	6.3	202.7	10.0	68620	12.0	9.9	5.0	160.4	9.5
	10:51	6.1	202.3	10.2	69063	11.5	9.7	4.9	162.7	9.2
	10:52	6.7	201.2	10.2	69039	11.6	9.7	5.5	162.8	9.4
	10:53	7.6	200.5	10.0	67321	12.5	10.0	6.0	157.9	9.8
	10:54	7.5	199.3	9.8	65740	13.2	10.1	5.8	154.4	10.2
	10:55	7.5	201.0	9.7	65269	14.0	10.2	5.8	154.5	10.8
	10:56	7.4	203.0	9.6	64456	15.0	10.3	5.6	154.1	11.4
	10:57	8.5	197.8	9.8	65645	17.2	10.1	6.5	153.0	13.3
	10:58	7.9	187.9	10.0	67369	14.6	9.8	6.3	149.6	11.6
	10:59	6.7	192.9	10.1	67372	14.1	9.8	5.4	154.3	11.3
	11:00	5.1	195.1	10.0	66567	13.8	9.9	4.1	154.4	10.9
	11:01	4.3	205.2	10.0	66865	13.3	9.8	3.4	163.4	10.6
	11:02	3.6	197.5	10.3	68660	13.0	9.5	2.9	162.2	10.7
Average =		6.2	195.4	10.0	70411	14.0	9.9	4.9	154.1	11.0
Geometric Avg. =		6.1	195.2	10.0	70312	13.9	9.9	4.8	153.9	10.9
Maximum =		8.5	205.2	10.3	75945	17.4	10.3	6.5	163.4	13.6
Minimum =		3.6	175.3	9.6	64456	11.1	9.5	2.9	135.0	8.9
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		166.8	5275.8	269.1	1901092	377.3	268.4	131.3	4160.1	297.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 11:04
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	10:36	184.9
	10:37	184.8
	10:38	182.9
	10:39	182.7
	10:40	182.9
	10:41	183.7
	10:42	184.0
	10:43	182.2
	10:44	182.3
	10:45	184.2
	10:46	186.3
	10:47	184.1
	10:48	182.7
	10:49	182.9
	10:50	183.6
	10:51	183.9
	10:52	182.6
	10:53	182.8
	10:54	180.9
	10:55	180.0
	10:56	181.1
	10:57	183.0
	10:58	184.1
	10:59	184.2
	11:00	183.1
	11:01	184.6
	11:02	184.7

Average =	183.3
Geometric Avg. =	183.3
Maximum =	186.3
Minimum =	180.0
Possible Values =	27
Included Values =	27
Total =	4949.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 7

Plant Name: NBWD

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

Unit Name: UNIT2

Time of Report: 03/23/11 11:58

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	11:30	9.9	190.0	9.8	61144	14.5	10.2	7.6	146.5	11.2
	11:31	10.7	192.4	9.8	61265	15.0	10.2	8.3	148.6	11.6
	11:32	10.2	199.9	9.7	61490	14.7	10.2	7.8	153.6	11.3
	11:33	10.8	205.7	9.8	62482	16.3	10.2	8.4	158.9	12.6
	11:34	10.2	194.2	10.1	66536	12.7	9.8	8.2	155.7	10.2
	11:35	9.3	196.4	9.5	64950	13.3	10.6	6.9	146.0	9.9
	11:36	9.1	198.0	9.5	65837	13.8	10.4	6.9	149.3	10.4
	11:37	10.0	196.4	9.3	65265	15.8	10.6	7.4	145.3	11.7
	11:38	10.6	198.2	9.4	67294	17.3	10.6	7.8	147.1	12.9
	11:39	10.4	201.1	9.6	68664	18.1	10.4	7.9	151.9	13.7
	11:40	9.4	198.9	9.7	70259	18.1	10.2	7.2	153.7	14.0
	11:41	8.7	196.1	10.0	72167	15.4	9.9	6.9	155.0	12.2
	11:42	7.6	192.9	9.9	71693	13.2	10.0	6.0	151.7	10.4
	11:43	7.2	196.7	9.7	69943	12.7	10.2	5.5	150.7	9.7
	11:44	7.0	196.2	9.7	69817	10.7	10.2	5.4	150.5	8.2
	11:45	7.7	199.1	9.7	69918	11.5	10.1	5.9	154.0	8.9
	11:46	7.0	202.5	9.9	71102	10.1	10.0	5.5	159.3	7.9
	11:47	6.5	195.4	9.5	68032	9.0	10.5	4.9	146.7	6.7
	11:48	6.8	210.3	9.0	64719	12.8	11.0	4.9	150.4	9.2
	11:49	8.8	207.2	9.5	68282	13.0	10.4	6.7	156.9	9.9
	11:50	8.7	196.1	9.9	70673	12.1	9.9	6.8	154.9	9.6
	11:51	8.2	184.1	9.7	69157	12.9	10.2	6.3	142.1	9.9
	11:52	7.7	182.0	9.4	66736	14.1	10.5	5.8	136.1	10.5
	11:53	8.6	187.0	9.2	65642	13.2	10.7	6.3	136.6	9.6
	11:54	9.5	193.9	9.4	66779	11.9	10.6	7.1	144.2	8.9
	11:55	9.3	200.2	10.0	70834	12.6	10.0	7.4	157.5	9.9
	11:56	6.9	188.6	10.4	73621	9.0	9.3	5.7	156.8	7.5
Average =		8.8	196.3	9.7	67567	13.5	10.2	6.7	150.4	10.3
Geometric Avg. =		8.7	196.2	9.7	67481	13.3	10.2	6.6	150.2	10.2
Maximum =		10.8	210.3	10.4	73621	18.1	11.0	8.4	159.3	14.0
Minimum =		6.5	182.0	9.0	61144	9.0	9.3	4.9	136.1	6.7
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		237.0	5299.3	261.1	1824303	363.8	276.7	181.6	4059.8	278.4

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 11:58
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	11:30	182.7
	11:31	182.3
	11:32	183.3
	11:33	187.6
	11:34	185.1
	11:35	184.6
	11:36	182.5
	11:37	181.6
	11:38	181.5
	11:39	182.2
	11:40	184.6
	11:41	186.8
	11:42	186.5
	11:43	185.0
	11:44	184.7
	11:45	185.6
	11:46	182.1
	11:47	178.8
	11:48	181.1
	11:49	184.8
	11:50	185.5
	11:51	185.0
	11:52	183.5
	11:53	182.9
	11:54	185.3
	11:55	189.2
	11:56	185.7

Average =	184.1
Geometric Avg. =	184.1
Maximum =	189.2
Minimum =	178.8
Possible Values =	27
Included Values =	27
Total =	4970.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 8

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2

Time of Report: 03/23/11 12:35

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	12:07	6.9	196.1	9.7	65499	14.2	10.3	5.3	149.3	10.8
	12:08	6.8	199.0	9.6	64157	15.2	10.4	5.2	150.7	11.5
	12:09	7.2	200.8	9.6	63448	17.3	10.5	5.4	150.9	13.0
	12:10	7.4	198.9	9.8	63223	18.7	10.2	5.7	153.4	14.4
	12:11	7.2	195.2	9.9	63413	19.2	10.1	5.5	151.4	14.9
	12:12	6.3	193.8	9.7	62265	21.0	10.4	4.8	147.0	16.0
	12:13	6.1	192.4	9.4	60768	20.5	10.6	4.5	142.2	15.2
	12:14	5.8	193.7	9.5	61501	18.5	10.5	4.4	145.2	13.9
	12:15	5.6	197.1	9.5	61594	17.6	10.5	4.2	147.2	13.1
	12:16	5.3	199.6	9.6	61810	17.8	10.5	4.0	149.2	13.3
	12:17	4.6	189.4	9.9	63865	18.4	10.2	3.6	146.1	14.2
	12:18	3.6	184.1	10.0	64978	18.3	10.0	2.9	144.3	14.4
	12:19	3.5	185.7	10.0	64692	17.7	10.0	2.7	146.1	13.9
	12:20	3.9	186.2	9.7	62718	21.6	10.3	3.0	142.5	16.6
	12:21	5.0	194.0	9.7	62477	25.1	10.3	3.8	147.6	19.1
	12:22	3.9	193.6	10.1	64261	21.2	10.0	3.0	152.3	16.6
	12:23	3.9	197.1	10.1	64041	20.2	9.9	3.1	155.8	16.0
	12:24	4.3	192.7	10.2	64364	18.8	9.9	3.4	152.9	14.9
	12:25	4.2	191.8	10.1	62685	18.3	10.0	3.3	151.1	14.4
	12:26	4.5	192.7	9.8	60337	17.0	10.2	3.5	148.9	13.1
	12:27	5.4	201.3	9.2	56738	18.9	10.9	3.9	144.7	13.6
	12:28	5.4	207.6	8.9	54912	20.9	11.3	3.8	143.6	14.5
	12:29	6.8	203.9	9.4	58205	26.3	10.8	4.9	147.6	19.0
	12:30	5.7	190.0	10.1	62853	20.1	10.0	4.5	149.4	15.8
	12:31	5.7	184.2	10.0	63016	18.7	9.9	4.5	145.2	14.7
	12:32	6.0	194.2	9.5	60118	19.0	10.7	4.4	143.1	14.0
	12:33	7.1	200.3	9.5	60053	18.9	10.5	5.3	149.3	14.1
Average =		5.5	194.6	9.7	62148	19.2	10.3	4.2	148.0	14.6
Geometric Avg. =		5.3	194.6	9.7	62097	19.1	10.3	4.1	148.0	14.5
Maximum =		7.4	207.6	10.2	65499	26.3	11.3	5.7	155.8	19.1
Minimum =		3.5	184.1	8.9	54912	14.2	9.9	2.7	142.2	10.8
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		148.1	5255.4	262.4	1677990	519.4	278.7	112.4	3997.2	395.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 12:35
Rolling Average Interval: 1

Date	Time	STMRPT_2 (XLB/HR)
03/23/11	12:07	181.1
	12:08	180.6
	12:09	182.6
	12:10	183.9
	12:11	183.5
	12:12	183.2
	12:13	182.8
	12:14	181.7
	12:15	180.2
	12:16	181.9
	12:17	183.7
	12:18	185.2
	12:19	184.4
	12:20	184.6
	12:21	184.7
	12:22	185.3
	12:23	185.5
	12:24	185.1
	12:25	184.7
	12:26	180.3
	12:27	176.4
	12:28	179.5
	12:29	184.9
	12:30	187.3
	12:31	185.6
	12:32	185.9
	12:33	182.0

Average =	183.2
Geometric Avg. =	183.2
Maximum =	187.3
Minimum =	176.4
Possible Values =	27
Included Values =	27
Total =	4946.6

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 9

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

te Name: UNIT2

Time of Report: 03/23/11 13:36

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	13:08	9.0	205.1	10.5	69422	14.9	9.5	7.4	168.8	12.3
	13:09	10.8	200.1	10.4	68637	17.3	9.6	8.8	162.8	14.1
	13:10	11.2	200.6	10.0	66092	16.5	10.1	8.7	156.4	12.9
	13:11	11.0	209.3	9.6	63679	18.8	10.4	8.3	157.3	14.1
	13:12	11.2	210.2	9.6	63870	21.1	10.4	8.5	158.7	15.9
	13:13	12.6	204.8	9.9	65202	22.3	10.2	9.7	157.8	17.2
	13:14	13.0	199.8	9.7	63908	21.6	10.4	9.8	150.7	16.3
	13:15	13.4	198.2	9.5	62731	23.2	10.6	9.9	146.7	17.1
	13:16	12.9	165.3	9.3	61785	26.4	10.7	9.4	121.3	19.4
	13:17	11.1	153.5	9.2	61049	30.5	10.7	8.2	112.9	22.5
	13:18	12.5	179.0	10.2	67284	23.3	9.7	10.0	143.6	18.7
	13:19	11.0	182.8	9.6	63610	21.1	10.4	8.3	137.5	15.8
	13:20	12.4	195.7	8.9	59112	27.3	11.3	8.6	135.2	18.9
	13:21	12.2	201.0	9.3	61844	27.2	10.8	8.8	145.6	19.7
	13:22	11.3	194.2	9.8	65223	21.6	10.2	8.7	149.2	16.6
	13:23	9.6	192.0	10.0	66101	20.1	10.1	7.5	149.9	15.7
	13:24	8.3	187.0	10.2	67533	16.0	9.7	6.7	150.4	12.9
	13:25	8.6	189.9	10.0	66285	15.2	9.9	6.8	150.7	12.1
	13:26	9.8	198.1	9.5	62469	16.7	10.5	7.3	147.9	12.5
	13:27	11.8	195.9	9.8	64272	17.0	10.1	9.2	151.9	13.2
	13:28	11.8	190.6	9.9	65045	16.2	9.9	9.3	150.2	12.8
	13:29	10.8	199.1	9.5	61867	20.3	10.5	8.1	149.0	15.2
	13:30	11.1	206.4	9.3	60605	23.0	10.7	8.1	151.2	16.9
	13:31	11.2	202.3	9.3	60610	23.3	10.7	8.2	148.4	17.1
	13:32	11.8	200.9	9.1	59677	24.5	10.9	8.4	144.0	17.6
	13:33	11.8	203.4	9.1	59751	26.1	10.9	8.5	146.7	18.8
	13:34	12.0	203.7	9.3	60708	26.6	10.7	8.8	149.1	19.5
Average =		11.3	195.1	9.6	63643	21.4	10.4	8.5	147.9	16.1
Geometric Avg. =		11.2	194.7	9.6	63583	21.0	10.4	8.5	147.5	15.9
Maximum =		13.4	210.2	10.5	69422	30.5	11.3	10.0	168.8	22.5
Minimum =		8.3	153.5	8.9	59112	14.9	9.5	6.7	112.9	12.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		304.1	5268.9	260.3	1718372	578.3	279.8	230.0	3993.9	435.6

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 13:36
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	13:08	187.0
	13:09	185.7
	13:10	183.2
	13:11	181.3
	13:12	181.6
	13:13	180.2
	13:14	179.6
	13:15	180.9
	13:16	183.1
	13:17	186.7
	13:18	184.8
	13:19	180.9
	13:20	180.7
	13:21	182.1
	13:22	183.5
	13:23	185.3
	13:24	184.4
	13:25	181.3
	13:26	181.7
	13:27	183.8
	13:28	181.0
	13:29	180.5
	13:30	179.9
	13:31	179.1
	13:32	179.8
	13:33	180.0
	13:34	181.8

Average =	182.2
Geometric Avg. =	182.2
Maximum =	187.0
Minimum =	179.1
Possible Values =	27
Included Values =	27
Total =	4919.8

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 10

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

Unit Name: UNIT2

Time of Report: 03/23/11 14:13

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)
03/23/11	13:45	16.0	206.9	9.8	64461	13.6	10.1	12.4	160.6	10.5
	13:46	19.6	202.4	10.3	67950	13.6	9.5	16.0	165.3	11.1
	13:47	21.6	201.8	10.3	68194	14.0	9.6	17.5	163.5	11.3
	13:48	21.0	204.2	9.9	66256	15.3	10.1	16.3	159.0	11.9
	13:49	19.5	213.5	9.8	65949	15.3	10.2	15.0	164.4	11.7
	13:50	18.2	212.6	9.8	66410	16.4	10.1	14.1	164.7	12.7
	13:51	17.8	213.3	9.8	67783	19.0	10.2	13.7	164.2	14.6
	13:52	16.4	211.3	9.9	68765	19.2	10.0	12.8	165.1	15.0
	13:53	13.2	206.6	10.0	69189	17.1	9.9	10.4	163.0	13.5
	13:54	12.1	202.5	9.6	66660	19.2	10.4	9.2	153.4	14.5
	13:55	13.8	198.5	9.6	66810	19.6	10.3	10.6	151.5	15.0
	13:56	15.0	193.5	9.7	67181	18.5	10.3	11.5	148.2	14.2
	13:57	16.5	194.9	9.7	67629	19.2	10.2	12.7	150.6	14.8
	13:58	16.4	192.0	10.1	70112	19.1	9.8	13.1	153.4	15.3
	13:59	15.4	188.0	10.3	72054	16.4	9.5	12.6	154.4	13.5
	14:00	17.7	191.9	10.0	70063	17.4	9.9	14.0	151.9	13.7
	14:01	20.2	193.6	9.9	69239	16.6	10.1	15.7	151.0	12.9
	14:02	20.6	196.5	10.2	71137	14.5	9.7	16.6	158.4	11.7
	14:03	19.2	196.2	9.6	67390	14.6	10.3	14.7	150.0	11.2
	14:04	17.9	204.5	9.3	64630	18.8	10.8	13.0	149.0	13.7
	14:05	18.2	210.2	9.6	66855	19.6	10.4	13.7	158.7	14.8
	14:06	17.3	199.7	9.7	67688	17.4	10.3	13.2	152.9	13.3
	14:07	15.3	187.3	10.0	69733	17.5	10.0	12.1	147.5	13.8
	14:08	14.4	178.2	10.1	70481	17.6	9.9	11.4	141.1	13.9
	14:09	13.3	176.1	9.9	69537	19.3	10.0	10.5	138.4	15.2
	14:10	16.0	186.0	9.6	67252	15.9	10.4	12.1	140.0	11.9
	14:11	17.6	202.1	10.0	70429	14.5	10.0	13.8	158.7	11.4
Average =		17.0	198.7	9.9	68142	17.0	10.1	13.3	154.8	13.2
Geometric Avg. =		16.9	198.4	9.9	68116	16.9	10.1	13.1	154.6	13.1
Maximum =		21.6	213.5	10.3	72054	19.6	10.8	17.5	165.3	15.3
Minimum =		12.1	176.1	9.3	64461	13.6	9.5	9.2	138.4	10.5
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		460.1	5364.2	266.2	1839839	458.9	271.8	358.8	4178.7	357.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/23/11 14:13
Rolling Average Interval: 1

Date	Time	STMRPT_2 (KLB/HR)
03/23/11	13:45	184.0
	13:46	183.8
	13:47	183.2
	13:48	182.0
	13:49	181.2
	13:50	181.9
	13:51	183.5
	13:52	185.1
	13:53	184.2
	13:54	184.3
	13:55	184.1
	13:56	183.6
	13:57	185.5
	13:58	187.1
	13:59	185.3
	14:00	184.7
	14:01	184.6
	14:02	181.4
	14:03	178.0
	14:04	178.5
	14:05	180.1
	14:06	182.7
	14:07	185.8
	14:08	186.6
	14:09	184.4
	14:10	184.8
	14:11	185.8

Average =	183.6
Geometric Avg. =	183.6
Maximum =	187.1
Minimum =	178.0
Possible Values =	27
Included Values =	27
Total =	4956.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 05/04/11 07:58
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	07:13	2641
	07:14	2634
	07:15	2631
	07:16	2626
	07:17	2622
	07:18	2615
	07:19	2612
	07:20	2617
	07:21	2623
	07:22	2624
	07:23	2620
	07:24	2619
	07:25	2620
	07:26	2628
	07:27	2640
	07:28	2653
	07:29	2653
	07:30	2647
	07:31	2645
	07:32	2638
	07:33	2629
	07:34	2622
	07:35	2620
	07:36	2621
	07:37	2618
	07:38	2615
	07:39	2615

Average =	2628
Geometric Avg. =	2628
Maximum =	2653
Minimum =	2612
Possible Values =	27
Included Values =	27
Total =	70949

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 05/04/11 07:58
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	07:49	2636
	07:50	2648
	07:51	2681
	07:52	2773
	07:53	2840
	07:54	2877
	07:55	2876
	07:56	2875
	07:57	2873
	07:58	2865
	07:59	2861
	08:00	2861
	08:01	2867
	08:02	2874
	08:03	2873
	08:04	2872
	08:05	2872
	08:06	2875
	08:07	2879
	08:08	2882
	08:09	2883
	08:10	2877
	08:11	2876
	08:12	2879
	08:13	2877
	08:14	2883
	08:15	2892

Average =	2845
Geometric Avg. =	2845
Maximum =	2892
Minimum =	2636
Possible Values =	27
Included Values =	27
Total =	76828

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 05/04/11 07:59
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	08:38	2712
	08:39	2710
	08:40	2706
	08:41	2705
	08:42	2709
	08:43	2716
	08:44	2716
	08:45	2706
	08:46	2695
	08:47	2689
	08:48	2684
	08:49	2682
	08:50	2679
	08:51	2674
	08:52	2676
	08:53	2678
	08:54	2681
	08:55	2689
	08:56	2695
	08:57	2692
	08:58	2685
	08:59	2675
	09:00	2667
	09:01	2665
	09:02	2669
	09:03	2671
	09:04	2673

Average =	2689
Geometric Avg. =	2689
Maximum =	2716
Minimum =	2665
Possible Values =	27
Included Values =	27
Total =	72600

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 05/04/11 07:59
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	09:16	2707
	09:17	2705
	09:18	2718
	09:19	2726
	09:20	2728
	09:21	2732
	09:22	2735
	09:23	2736
	09:24	2727
	09:25	2716
	09:26	2699
	09:27	2686
	09:28	2673
	09:29	2673
	09:30	2677
	09:31	2683
	09:32	2682
	09:33	2681
	09:34	2680
	09:35	2676
	09:36	2669
	09:37	2662
	09:38	2658
	09:39	2662
	09:40	2657
	09:41	2655
	09:42	2663

Average =	2691
Geometric Avg. =	2691
Maximum =	2736
Minimum =	2655
Possible Values =	27
Included Values =	27
Total =	72666

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NSWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 05/04/11 08:00
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	10:00	3061
	10:01	3070
	10:02	3071
	10:03	3075
	10:04	3078
	10:05	3090
	10:06	3101
	10:07	3106
	10:08	3156
	10:09	3198
	10:10	3205
	10:11	3201
	10:12	3196
	10:13	3200
	10:14	3205
	10:15	3213
	10:16	3216
	10:17	3213
	10:18	3213
	10:19	3215
	10:20	3220
	10:21	3224
	10:22	3221
	10:23	3211
	10:24	3201
	10:25	3185
	10:26	3172

Average =	3167
Geometric Avg. =	3167
Maximum =	3224
Minimum =	3061
Possible Values =	27
Included Values =	27
Total =	85516

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2
Time of Report: 05/04/11 08:00

Data Averaging Type: 1m
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	10:36	3174
	10:37	3169
	10:38	3157
	10:39	3157
	10:40	3156
	10:41	3153
	10:42	3156
	10:43	3157
	10:44	3157
	10:45	3155
	10:46	3141
	10:47	3109
	10:48	3020
	10:49	2979
	10:50	2908
	10:51	2877
	10:52	2871
	10:53	2864
	10:54	2851
	10:55	2847
	10:56	2842
	10:57	2848
	10:58	2851
	10:59	2846
	11:00	2836
	11:01	2831
	11:02	2827

Average =	2998
Geometric Avg. =	2994
Maximum =	3174
Minimum =	2827
Possible Values =	27
Included Values =	27
Total =	80943

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 05/04/11 08:00
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	11:30	2657
	11:31	2660
	11:32	2677
	11:33	2713
	11:34	2799
	11:35	2905
	11:36	2943
	11:37	2961
	11:38	3040
	11:39	3052
	11:40	3066
	11:41	3070
	11:42	3070
	11:43	3070
	11:44	3068
	11:45	3061
	11:46	3050
	11:47	3042
	11:48	3040
	11:49	3037
	11:50	3024
	11:51	3018
	11:52	3016
	11:53	3021
	11:54	3022
	11:55	3019
	11:56	3010

Average =	2967
Geometric Avg. =	2964
Maximum =	3070
Minimum =	2657
Possible Values =	27
Included Values =	27
Total =	80112

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2

Time of Report: 05/04/11 08:01

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	12:07	2876
	12:08	2835
	12:09	2818
	12:10	2738
	12:11	2734
	12:12	2736
	12:13	2736
	12:14	2739
	12:15	2744
	12:16	2749
	12:17	2754
	12:18	2754
	12:19	2743
	12:20	2733
	12:21	2720
	12:22	2708
	12:23	2695
	12:24	2687
	12:25	2633
	12:26	2603
	12:27	2609
	12:28	2626
	12:29	2640
	12:30	2656
	12:31	2668
	12:32	2682
	12:33	2689

Average =	2715
Geometric Avg. =	2714
Maximum =	2876
Minimum =	2603
Possible Values =	27
Included Values =	27
Total =	73307

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD

General Average Report

Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2

Data Averaging Type: 1m

Time of Report: 05/04/11 08:01

Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	13:08	2807
	13:09	2801
	13:10	2798
	13:11	2806
	13:12	2807
	13:13	2804
	13:14	2807
	13:15	2815
	13:16	2814
	13:17	2806
	13:18	2809
	13:19	2819
	13:20	2829
	13:21	2828
	13:22	2824
	13:23	2819
	13:24	2809
	13:25	2795
	13:26	2783
	13:27	2777
	13:28	2773
	13:29	2769
	13:30	2768
	13:31	2771
	13:32	2781
	13:33	2786
	13:34	2790

Average =	2800
Geometric Avg. =	2800
Maximum =	2829
Minimum =	2768
Possible Values =	27
Included Values =	27
Total =	75596

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/23/2011 to 03/23/2011

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 05/04/11 08:01
Rolling Average Interval: 1

Date	Time	VELOCTY2 (FPM)
03/23/11	13:45	2785
	13:46	2800
	13:47	2811
	13:48	2827
	13:49	2852
	13:50	2869
	13:51	2938
	13:52	2954
	13:53	2948
	13:54	2948
	13:55	2950
	13:56	2950
	13:57	2952
	13:58	2955
	13:59	2956
	14:00	2962
	14:01	2963
	14:02	2965
	14:03	2963
	14:04	2963
	14:05	2965
	14:06	2968
	14:07	2971
	14:08	2978
	14:09	2983
	14:10	2990
	14:11	3008

Average =	2932
Geometric Avg. =	2932
Maximum =	3008
Minimum =	2785
Possible Values =	27
Included Values =	27
Total =	79174

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 1

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

te Name: UNIT3

Time of Report: 03/24/11 08:22

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	07:01	15.2	201.8	10.3	52252	18.6	8.9	13.2	174.8	16.1
	07:02	15.5	200.2	10.7	55102	16.9	8.5	13.8	178.6	15.1
	07:03	15.7	192.2	10.4	55254	16.8	8.7	13.8	168.6	14.8
	07:04	16.3	203.3	10.8	58095	15.1	8.5	14.5	181.8	13.5
	07:05	16.7	193.2	10.3	55632	14.3	8.6	14.8	171.0	12.7
	07:06	16.6	202.5	10.4	55998	17.0	8.9	14.3	175.3	14.7
	07:07	16.5	197.4	10.4	56138	16.4	8.7	14.5	173.3	14.4
	07:08	17.6	204.5	10.9	58563	16.7	8.5	15.7	182.4	14.9
	07:09	18.1	194.1	10.8	58287	13.4	8.0	16.7	179.6	12.4
	07:10	18.3	173.9	10.2	55141	15.2	8.8	15.9	150.8	13.2
	07:11	18.6	185.7	10.6	57703	14.1	8.8	16.2	161.9	12.3
	07:12	19.9	180.6	10.6	57788	12.5	8.5	17.7	160.7	11.1
	07:13	21.0	184.4	10.9	59711	13.0	8.3	19.1	167.7	11.9
	07:14	21.2	172.5	10.7	58023	10.3	8.2	19.3	157.2	9.4
	07:15	20.2	178.2	10.3	55733	12.3	8.9	17.4	153.7	10.6
	07:16	18.8	196.5	10.9	59125	11.4	8.4	16.9	177.1	10.2
	07:17	18.0	195.7	11.0	59329	10.9	8.1	16.6	180.5	10.1
	07:18	17.7	188.9	10.6	57328	11.1	8.3	16.0	170.9	10.0
	07:19	17.7	192.0	10.2	55007	11.8	8.9	15.3	166.1	10.2
	07:20	18.4	206.3	11.0	59203	11.6	8.3	16.6	186.4	10.5
	07:21	18.7	194.1	10.9	58528	10.4	7.9	17.4	180.9	9.7
	07:22	18.9	188.3	10.4	55848	11.7	8.6	16.7	166.5	10.3
	07:23	19.4	198.0	10.9	58431	11.7	8.3	17.7	179.9	10.6
	07:24	19.4	181.9	10.5	55875	11.8	8.4	17.5	163.4	10.6
	07:25	19.4	187.1	10.6	56517	15.1	8.7	17.0	163.8	13.3
	07:26	19.4	192.0	11.2	60125	12.4	8.0	18.1	178.6	11.5
	07:27	18.8	176.9	10.6	57243	13.8	8.4	17.0	159.8	12.5
Average =		18.2	191.2	10.6	57110	13.6	8.5	16.3	170.8	12.1
Geometric Avg. =		18.2	191.0	10.6	57082	13.4	8.5	16.2	170.5	12.0
Maximum =		21.2	206.3	11.2	60125	18.6	8.9	19.3	186.4	16.1
Minimum =		15.2	172.5	10.2	52252	10.3	7.9	13.2	150.8	9.4
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		492.3	5162.5	287.0	1541982	366.5	229.1	440.0	4611.3	326.6

* - excluded values (missing, OOC, invalid, suspect)

< - missing

T - out-of-control

I - invalid

S - suspect

H - exceedance

F - stack not operating

B - invalid (PADER)

U - missing data substituted

-999 - missing value

-888 - value could not be calculated

2285

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 08:22
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	07:01	184.0
	07:02	183.5
	07:03	185.4
	07:04	183.4
	07:05	183.4
	07:06	182.7
	07:07	185.4
	07:08	185.5
	07:09	182.9
	07:10	183.8
	07:11	183.5
	07:12	186.3
	07:13	185.2
	07:14	182.8
	07:15	184.5
	07:16	185.6
	07:17	185.1
	07:18	183.8
	07:19	187.0
	07:20	185.0
	07:21	183.7
	07:22	186.2
	07:23	183.4
	07:24	184.8
	07:25	186.2
	07:26	183.1
	07:27	184.6

Average =	184.5
Geometric Avg. =	184.5
Maximum =	187.0
Minimum =	182.7
Possible Values =	27
Included Values =	27
Total =	4980.8

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN 2

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

te Name: UNIT3

Time of Report: 03/24/11 08:21

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	07:40	16.1	201.0	10.8	54755	13.0	8.6	14.2	177.3	11.5
	07:41	16.1	196.4	11.4	58150	8.1	7.6	15.5	188.4	7.7
	07:42	15.7	179.7	10.6	53849	7.1	8.1	14.4	165.8	6.6
	07:43	15.0	186.0	10.5	53153	10.5	8.7	13.2	163.3	9.2
	07:44	15.2	191.1	10.8	54546	11.0	8.2	13.9	174.1	10.1
	07:45	15.6	177.9	10.4	52374	12.6	8.5	13.9	158.3	11.2
	07:46	16.3	178.9	10.5	52804	14.5	8.8	14.1	155.6	12.6
	07:47	17.1	177.2	10.8	54272	11.7	8.3	15.5	161.1	10.6
	07:48	17.2	162.9	10.1	51057	13.4	8.8	14.9	141.5	11.6
	07:49	16.9	172.7	10.3	52060	14.7	8.9	14.6	148.9	12.7
	07:50	17.4	179.0	10.7	53670	15.1	8.6	15.3	157.9	13.3
	07:51	18.4	184.7	11.2	56507	13.2	7.8	17.3	174.0	12.4
	07:52	18.1	171.1	10.3	51812	12.7	8.3	16.3	154.6	11.5
	07:53	16.8	182.0	10.3	52043	14.3	9.0	14.4	156.2	12.3
	07:54	17.3	189.1	10.5	52871	12.9	8.6	15.3	167.7	11.4
	07:55	19.8	188.4	10.3	51700	15.6	8.9	17.2	163.1	13.5
	07:56	21.1	194.8	10.9	54883	14.0	8.3	19.1	176.3	12.7
	07:57	20.5	185.0	10.2	51876	13.3	8.7	18.0	162.1	11.7
	07:58	19.3	191.7	10.1	52044	15.4	9.2	16.3	161.6	13.0
	07:59	19.5	194.0	10.4	53688	16.6	9.0	16.7	166.3	14.3
	08:00	19.6	190.9	10.7	55700	14.9	8.4	17.7	171.9	13.5
	08:01	19.9	185.8	10.1	52712	16.9	8.9	17.2	160.6	14.6
	08:02	19.8	198.5	10.1	52804	20.2	9.1	16.7	168.1	17.1
	08:03	19.4	204.3	10.2	53014	21.1	9.1	16.5	173.8	17.9
	08:04	19.0	201.5	10.2	52791	19.4	8.9	16.4	173.6	16.7
	08:05	18.3	215.3	10.3	53263	19.3	9.0	15.6	184.2	16.5
	08:06	17.4	220.9	10.4	53987	18.5	8.9	15.1	191.4	16.1
Average =		17.9	188.9	10.5	53422	14.4	8.6	15.8	166.6	12.7
Geometric Avg. =		17.8	188.5	10.5	53399	14.0	8.6	15.7	166.2	12.4
Maximum =		21.1	220.9	11.4	58150	21.1	9.2	19.1	191.4	17.9
Minimum =		15.0	162.9	10.1	51057	7.1	7.6	13.2	141.5	6.6
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		482.6	5101.0	283.1	1442386	390.1	233.2	425.3	4497.7	342.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

2169

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 08:21
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	07:40	188.3
	07:41	184.0
	07:42	183.7
	07:43	184.4
	07:44	183.6
	07:45	184.7
	07:46	185.6
	07:47	182.1
	07:48	182.0
	07:49	184.5
	07:50	187.5
	07:51	183.1
	07:52	182.9
	07:53	183.1
	07:54	183.5
	07:55	186.1
	07:56	181.4
	07:57	181.0
	07:58	181.9
	07:59	184.8
	08:00	181.6
	08:01	181.8
	08:02	182.4
	08:03	181.9
	08:04	181.9
	08:05	182.3
	08:06	182.8

Average =	183.4
Geometric Avg. =	183.4
Maximum =	188.3
Minimum =	181.0
Possible Values =	27
Included Values =	27
Total =	4952.8

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 3

Plant Name: NBWD

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

te Name: UNIT3

Data Averaging Type: 1m

Time of Report: 03/24/11 08:52

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	08:25	14.6	181.8	10.3	50447	14.9	8.8	12.6	157.7	12.9
	08:26	15.7	186.9	10.5	51488	14.2	8.6	13.8	165.2	12.5
	08:27	16.1	176.5	10.2	49997	15.9	9.1	13.7	150.5	13.5
	08:28	15.8	185.6	10.5	51738	15.1	8.8	13.8	162.0	13.2
	08:29	15.4	188.2	10.7	52700	14.7	8.6	13.7	167.2	13.0
	08:30	15.6	180.4	10.3	50920	13.9	8.7	13.7	158.6	12.2
	08:31	16.1	183.5	10.0	49654	15.7	9.3	13.4	152.6	13.1
	08:32	15.6	187.6	10.1	50892	14.6	9.2	13.1	158.2	12.3
	08:33	15.2	188.7	10.4	54311	14.0	8.9	13.1	162.6	12.1
	08:34	14.7	178.1	10.2	55189	12.7	8.9	12.7	154.2	11.0
	08:35	14.2	184.4	10.4	56284	14.1	9.0	12.1	158.1	12.1
	08:36	14.0	181.1	10.2	57170	12.1	8.9	12.1	156.4	10.5
	08:37	14.3	182.8	10.4	58109	11.5	8.8	12.4	158.7	10.0
	08:38	14.0	179.3	10.2	57180	12.2	9.0	12.0	153.8	10.5
	08:39	13.4	184.8	10.7	59591	13.9	8.6	11.9	163.7	12.4
	08:40	13.2	182.6	10.4	58102	14.7	8.7	11.6	160.3	12.9
	08:41	12.8	187.7	10.8	59998	15.5	8.5	11.4	167.8	13.9
	08:42	12.8	180.1	10.2	56820	15.0	8.7	11.2	157.8	13.2
	08:43	12.8	198.9	10.4	57976	15.8	8.9	11.0	171.2	13.6
	08:44	13.4	200.4	10.4	57814	15.1	8.8	11.7	174.8	13.2
	08:45	14.1	207.6	10.8	59936	15.7	8.5	12.6	185.8	14.0
	08:46	14.2	197.8	10.3	57247	13.0	8.5	12.6	175.8	11.5
	08:47	13.7	212.9	10.3	56871	16.4	9.1	11.6	180.3	13.9
	08:48	13.6	219.4	10.6	59006	13.3	8.5	12.1	195.8	11.9
	08:49	14.6	208.0	10.3	57362	17.4	8.9	12.6	179.9	15.1
	08:50	16.8	208.2	10.4	57784	14.9	8.7	14.7	182.1	13.0
	08:51	18.0	204.5	10.1	56068	14.4	9.1	15.2	173.3	12.2
Average =		14.6	191.0	10.4	55580	14.5	8.8	12.7	166.1	12.6
Geometric Avg. =		14.6	190.7	10.4	55482	14.4	8.8	12.6	165.7	12.5
Maximum =		18.0	219.4	10.8	59998	17.4	9.3	15.2	195.8	15.1
Minimum =		12.8	176.5	10.0	49654	11.5	8.5	11.0	150.5	10.0
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		394.4	5158.0	280.0	1500656	390.7	238.1	342.6	4484.4	339.5

* - excluded values (missing, OOC, invalid, suspect)

< - missing

T - out-of-control

I - invalid

S - suspect

H - exceedance

F - stack not operating

B - invalid (PADER)

U - missing data substituted

-999 - missing value

-888 - value could not be calculated

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Time of Report: 03/24/11 08:52

Data Averaging Type: 1m
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	08:25	183.7
	08:26	182.3
	08:27	182.2
	08:28	183.9
	08:29	183.1
	08:30	182.6
	08:31	181.5
	08:32	184.0
	08:33	182.5
	08:34	184.0
	08:35	182.0
	08:36	183.3
	08:37	182.0
	08:38	184.6
	08:39	183.3
	08:40	185.7
	08:41	182.2
	08:42	183.0
	08:43	183.0
	08:44	186.2
	08:45	183.2
	08:46	183.1
	08:47	183.6
	08:48	183.0
	08:49	183.9
	08:50	182.1
	08:51	182.1

Average =	183.2
Geometric Avg. =	183.2
Maximum =	186.2
Minimum =	181.5
Possible Values =	27
Included Values =	27
Total =	4946.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 4

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

te Name: UNIT3

Time of Report: 03/24/11 09:31

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	09:03	20.2	190.0	10.5	57090	13.1	8.5	18.0	168.9	11.6
	09:04	18.8	189.9	10.1	54884	15.1	9.2	15.8	159.4	12.7
	09:05	18.6	196.5	10.2	55670	14.3	9.1	15.7	166.5	12.1
	09:06	18.8	203.3	10.7	57987	14.4	8.7	16.5	178.2	12.6
	09:07	20.1	192.6	10.2	55902	16.1	8.9	17.4	166.8	13.9
	09:08	20.8	195.5	10.1	55994	18.4	9.3	17.3	163.0	15.4
	09:09	20.6	188.8	9.8	56194	19.1	9.4	17.0	155.6	15.8
	09:10	20.3	192.0	9.8	57860	22.9	9.6	16.4	155.8	18.6
	09:11	19.9	194.5	10.3	61838	22.1	9.2	16.8	163.9	18.6
	09:12	19.2	183.2	10.2	61901	18.7	9.1	16.4	155.7	15.9
	09:13	17.8	176.8	10.1	61225	19.2	9.2	15.0	149.1	16.2
	09:14	16.0	183.8	10.2	61877	19.2	9.2	13.5	155.3	16.2
	09:15	14.9	180.6	10.0	61524	17.9	9.3	12.5	151.0	14.9
	09:16	14.7	183.9	10.0	62871	16.8	9.3	12.2	152.9	14.0
	09:17	15.5	190.9	10.6	66736	15.1	8.8	13.5	165.8	13.1
	09:18	16.8	181.9	10.2	64440	16.0	8.9	14.5	157.4	13.8
	09:19	17.3	187.8	10.0	63329	18.4	9.3	14.5	157.4	15.4
	09:20	17.4	189.1	9.9	62225	19.1	9.5	14.3	155.2	15.7
	09:21	17.4	196.4	10.2	64710	19.2	9.2	14.7	165.1	16.2
	09:22	17.8	202.5	10.7	67664	17.4	8.6	15.7	179.3	15.4
	09:23	18.1	198.9	10.1	63246	17.8	8.9	15.6	171.6	15.4
	09:24	17.8	205.1	10.2	63440	19.6	9.1	15.0	173.5	16.6
	09:25	17.4	203.1	10.0	61691	18.9	9.3	14.6	169.8	15.8
	09:26	16.9	208.7	10.2	61773	19.0	9.1	14.4	177.7	16.2
	09:27	16.8	209.9	10.0	58481	20.0	9.3	14.1	175.4	16.7
	09:28	16.9	209.4	10.2	57939	14.9	9.0	14.4	178.8	12.7
	09:29	16.6	208.5	10.3	58331	17.4	9.1	14.1	177.2	14.8
Average =		17.9	194.2	10.2	60623	17.8	9.1	15.2	164.7	15.0
Geometric Avg. =		17.8	194.0	10.2	60525	17.6	9.1	15.1	164.4	14.9
Maximum =		20.8	209.9	10.7	67664	22.9	9.6	18.0	179.3	18.6
Minimum =		14.7	176.8	9.8	54884	13.1	8.5	12.2	149.1	11.6
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		483.4	5243.5	274.8	1636822	480.2	246.1	409.8	4446.2	406.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 09:31
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	09:03	182.0
	09:04	181.9
	09:05	183.8
	09:06	183.2
	09:07	182.9
	09:08	180.5
	09:09	179.5
	09:10	182.1
	09:11	183.0
	09:12	182.4
	09:13	183.0
	09:14	182.2
	09:15	181.1
	09:16	184.5
	09:17	183.1
	09:18	183.1
	09:19	181.0
	09:20	182.0
	09:21	184.7
	09:22	183.2
	09:23	183.7
	09:24	182.6
	09:25	183.1
	09:26	182.4
	09:27	183.0
	09:28	184.1
	09:29	183.6

Average =	182.7
Geometric Avg. =	182.7
Maximum =	184.7
Minimum =	179.5
Possible Values =	27
Included Values =	27
Total =	4931.9

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 5

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

te Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 10:52
Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	10:24	8.4	179.8	9.9	59488	23.0	9.4	7.0	149.3	19.1
	10:25	7.9	181.0	10.1	60619	20.8	9.3	6.6	151.2	17.4
	10:26	7.4	185.3	10.4	62382	16.0	8.8	6.4	161.7	14.0
	10:27	7.3	181.4	9.9	58973	13.5	9.2	6.1	152.3	11.3
	10:28	7.0	198.4	10.1	60144	11.5	9.2	5.9	166.4	9.6
	10:29	6.9	202.6	9.8	58393	12.9	9.5	5.6	165.8	10.6
	10:30	6.3	210.4	10.2	60880	13.3	9.1	5.4	178.0	11.3
	10:31	6.4	206.5	10.1	60164	13.0	9.2	5.4	173.9	11.0
	10:32	6.3	198.8	10.2	60298	12.5	9.0	5.4	170.3	10.7
	10:33	6.3	192.8	10.0	59038	14.0	9.2	5.3	162.1	11.8
	10:34	6.1	190.8	9.8	57637	14.1	9.4	5.1	158.3	11.7
	10:35	5.9	194.2	9.8	57351	16.2	9.5	4.9	158.9	13.3
	10:36	5.8	192.1	10.1	59545	15.8	9.3	4.8	160.8	13.2
	10:37	6.1	179.1	9.8	58349	15.2	9.3	5.1	150.0	12.7
	10:38	6.6	179.9	9.4	55842	20.4	9.8	5.3	143.7	16.3
	10:39	7.3	182.7	9.4	55403	24.6	10.1	5.7	142.2	19.1
	10:40	7.6	178.8	9.4	55227	24.7	9.9	6.0	141.2	19.5
	10:41	7.4	178.0	9.3	54305	27.3	10.1	5.8	138.8	21.3
	10:42	7.0	180.2	9.1	53375	28.6	10.2	5.4	138.4	22.0
	10:43	6.5	197.3	9.6	56370	28.3	10.0	5.1	154.1	22.1
	10:44	6.0	210.8	10.1	59047	18.3	9.2	5.1	177.6	15.4
	10:45	6.2	207.6	9.7	56556	18.0	9.4	5.1	171.9	14.9
	10:46	6.2	212.8	9.7	55699	18.8	9.7	5.0	172.1	15.2
	10:47	6.9	219.0	10.2	57643	15.2	9.2	5.8	184.2	12.8
	10:48	7.3	216.6	10.8	60088	11.5	8.3	6.6	195.7	10.4
	10:49	7.4	198.0	10.0	55939	9.6	8.7	6.5	173.4	8.4
	10:50	6.7	202.3	9.9	54984	11.1	9.4	5.6	167.3	9.2
Average =		6.8	194.7	9.9	57916	17.3	9.4	5.6	161.5	14.2
Geometric Avg. =		6.8	194.3	9.9	57872	16.6	9.4	5.6	160.8	13.7
Maximum =		8.4	219.0	10.8	62382	28.6	10.2	7.0	195.7	22.1
Minimum =		5.8	178.0	9.1	53375	9.6	8.3	4.8	138.4	8.4
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		183.3	5257.0	266.9	1563740	468.3	253.4	151.8	4359.7	384.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
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I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 10:52
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	10:24	183.5
	10:25	186.2
	10:26	182.9
	10:27	184.8
	10:28	184.0
	10:29	184.6
	10:30	183.6
	10:31	184.3
	10:32	185.2
	10:33	183.1
	10:34	182.2
	10:35	184.7
	10:36	182.7
	10:37	180.5
	10:38	180.7
	10:39	180.5
	10:40	179.4
	10:41	178.2
	10:42	180.5
	10:43	183.5
	10:44	182.3
	10:45	182.2
	10:46	184.6
	10:47	189.3
	10:48	184.2
	10:49	182.6
	10:50	185.8

Average =	183.2
Geometric Avg. =	183.2
Maximum =	189.3
Minimum =	178.2
Possible Values =	27
Included Values =	27
Total =	4946.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 6

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

[redacted]te Name: UNIT3

Time of Report: 03/24/11 11:30

Data Averaging Type: lm

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	11:03	6.6	185.4	10.0	50831	10.7	9.1	5.7	158.0	9.1
	11:04	6.3	185.3	9.8	49820	11.6	9.4	5.2	153.9	9.6
	11:05	6.2	191.0	9.9	49224	13.1	9.4	5.1	157.4	10.8
	11:06	6.3	192.6	10.1	49294	13.9	9.2	5.3	161.9	11.7
	11:07	6.5	191.6	10.2	49154	11.9	9.0	5.6	164.2	10.2
	11:08	6.6	192.9	10.0	48165	12.4	9.3	5.5	160.9	10.3
	11:09	6.5	190.8	9.9	47961	13.5	9.4	5.4	158.2	11.2
	11:10	6.8	189.5	9.9	48548	15.2	9.4	5.6	157.0	12.6
	11:11	7.2	191.4	10.0	48988	14.8	9.3	6.0	160.3	12.4
	11:12	7.5	189.8	9.6	47108	16.5	9.6	6.1	154.3	13.4
	11:13	7.5	192.3	9.3	46147	21.7	10.0	5.9	150.5	17.0
	11:14	7.6	197.0	9.5	47374	22.2	9.9	6.0	155.6	17.6
	11:15	8.0	192.3	9.3	46560	19.5	10.0	6.2	151.1	15.3
	11:16	7.8	191.7	9.3	47214	21.2	10.2	6.0	147.9	16.4
	11:17	7.4	191.4	9.2	47781	24.3	10.2	5.7	147.4	18.7
	11:18	6.9	200.1	9.6	49998	26.4	10.0	5.5	157.3	20.7
	11:19	6.5	206.4	10.0	52022	18.2	9.4	5.4	171.5	15.1
	11:20	6.5	202.9	9.5	49618	15.9	9.7	5.2	162.9	12.7
	11:21	5.9	204.6	9.6	50188	18.0	9.8	4.7	163.1	14.4
	11:22	5.5	199.8	9.7	51160	16.8	9.6	4.4	162.0	13.6
	11:23	5.2	199.5	9.8	51360	17.2	9.6	4.3	162.6	14.0
	11:24	5.2	205.3	9.7	50867	17.3	9.7	4.2	165.6	14.0
	11:25	5.1	208.2	9.9	52018	15.9	9.5	4.2	170.1	13.0
	11:26	5.0	203.2	10.0	52363	15.9	9.3	4.2	169.1	13.2
	11:27	5.0	197.8	9.8	51283	16.5	9.5	4.1	162.6	13.5
	11:28	5.1	189.6	9.3	48750	21.8	10.1	4.0	147.2	16.9
	11:29	5.1	196.6	9.7	51472	24.0	9.9	4.0	154.8	18.9
Average =		6.4	195.5	9.7	49454	17.3	9.6	5.2	158.8	13.9
Geometric Avg. =		6.3	195.4	9.7	49423	16.8	9.6	5.1	158.7	13.6
Maximum =		8.0	208.2	10.2	52363	26.4	10.2	6.2	171.5	20.7
Minimum =		5.0	185.3	9.2	46147	10.7	9.0	4.0	147.2	9.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		172.0	5278.8	262.6	1335267	466.4	259.4	139.6	4287.5	376.5

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Time of Report: 03/24/11 11:30

Data Averaging Type: 1m
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	11:03	182.8
	11:04	183.5
	11:05	184.0
	11:06	183.9
	11:07	183.8
	11:08	182.6
	11:09	182.6
	11:10	182.7
	11:11	180.9
	11:12	179.8
	11:13	181.4
	11:14	180.2
	11:15	179.7
	11:16	178.8
	11:17	181.1
	11:18	184.2
	11:19	181.7
	11:20	180.7
	11:21	181.8
	11:22	182.2
	11:23	181.9
	11:24	183.0
	11:25	183.5
	11:26	182.3
	11:27	179.0
	11:28	181.2
	11:29	184.3

Average =	182.0
Geometric Avg. =	182.0
Maximum =	184.3
Minimum =	178.8
Possible Values =	27
Included Values =	27
Total =	4913.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
E - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 7

Plant Name: NBWD

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

[redacted]te Name: UNIT3

Time of Report: 03/24/11 12:11

[redacted]ata Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	11:43	6.7	190.8	9.4	52237	38.2	10.3	5.1	145.4	29.1
	11:44	6.5	195.9	9.3	51927	35.0	10.1	5.1	152.0	27.2
	11:45	6.5	214.4	9.4	52753	33.6	10.2	5.0	165.6	26.0
	11:46	6.3	216.9	9.7	55733	26.1	9.8	5.0	172.9	20.8
	11:47	7.0	213.9	9.7	56302	19.8	9.6	5.7	174.4	16.1
	11:48	8.0	216.6	9.5	55075	18.7	9.9	6.3	171.9	14.8
	11:49	8.1	216.3	9.5	55040	18.5	9.9	6.4	171.4	14.7
	11:50	8.1	213.3	9.4	55244	23.6	10.0	6.3	166.9	18.5
	11:51	8.4	208.4	9.5	57421	24.8	9.9	6.6	164.4	19.6
	11:52	9.4	201.2	9.4	59184	28.5	10.0	7.4	158.0	22.4
	11:53	10.4	201.6	9.7	61263	31.5	9.8	8.3	161.3	25.2
	11:54	11.0	198.5	9.7	61399	28.5	9.7	8.8	159.7	23.0
	11:55	10.4	196.3	9.5	60420	27.0	9.8	8.3	156.7	21.6
	11:56	9.7	190.2	9.2	58639	30.9	10.2	7.5	146.7	23.8
	11:57	8.6	187.1	9.4	61117	34.8	10.1	6.7	144.8	26.9
	11:58	8.0	181.6	9.2	60511	37.3	10.2	6.2	140.4	28.8
	11:59	7.4	184.5	9.0	59491	37.2	10.4	5.6	139.2	28.0
	12:00	6.9	192.8	8.8	59882	44.4	10.7	5.1	141.5	32.6
	12:01	6.5	201.7	8.8	59828	47.0	10.7	4.7	148.2	34.6
	12:02	6.2	201.4	8.6	57777	43.6	10.9	4.5	145.3	31.4
	12:03	5.8	206.3	8.9	59624	38.7	10.8	4.2	149.3	28.0
	12:04	5.0	208.5	9.6	64161	33.5	10.0	3.9	163.4	26.3
	12:05	4.7	201.7	9.4	62972	25.9	9.9	3.7	159.1	20.4
	12:06	4.4	199.0	9.1	61353	24.7	10.3	3.4	152.4	18.9
	12:07	3.9	201.3	9.2	62348	28.1	10.4	2.9	152.5	21.3
	12:08	3.3	205.7	9.6	65460	24.7	9.8	2.6	163.6	19.6
	12:09	3.1	204.3	9.6	65429	23.3	9.8	2.5	163.4	18.6
Average =		7.1	201.9	9.3	58985	30.7	10.1	5.5	156.7	23.6
Geometric Avg. =		6.7	201.6	9.3	58868	29.7	10.1	5.2	156.3	23.0
Maximum =		11.0	216.9	9.7	65460	47.0	10.9	8.8	174.4	34.6
Minimum =		3.1	181.6	8.6	51927	18.5	9.6	2.5	139.2	14.7
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		190.4	5450.7	252.2	1592591	828.0	273.2	148.1	4230.5	638.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 12:11
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	11:43	179.7
	11:44	180.4
	11:45	182.9
	11:46	184.4
	11:47	183.0
	11:48	182.5
	11:49	181.9
	11:50	181.9
	11:51	181.6
	11:52	183.5
	11:53	182.5
	11:54	182.2
	11:55	180.4
	11:56	181.0
	11:57	179.8
	11:58	178.0
	11:59	177.0
	12:00	177.5
	12:01	176.4
	12:02	177.2
	12:03	183.1
	12:04	183.7
	12:05	180.9
	12:06	180.3
	12:07	182.5
	12:08	182.5
	12:09	184.5

Average =	181.2
Geometric Avg. =	181.1
Maximum =	184.5
Minimum =	176.4
Possible Values =	27
Included Values =	27
Total =	4891.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

RUN E

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

te Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 13:26
Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	12:22	3.0	177.6	9.1	61626	21.9	10.2	2.3	137.2	16.9
	12:23	3.0	179.8	9.0	61586	29.1	10.5	2.2	134.6	21.8
	12:24	3.0	182.5	9.2	63444	31.9	10.3	2.3	139.5	24.4
	12:25	3.1	189.2	9.5	65042	31.2	10.1	2.4	147.2	24.3
	12:26	3.2	188.2	9.9	67698	29.3	9.5	2.6	154.5	24.1
	12:27	3.4	183.5	9.7	65190	26.0	9.6	2.7	149.5	21.2
	12:28	3.3	182.7	9.4	62856	22.6	9.9	2.6	144.6	17.9
	12:29	3.0	187.6	9.6	63553	26.4	9.9	2.4	147.9	20.8
	12:30	2.8	192.7	9.9	63563	24.0	9.5	2.3	158.5	19.7
	12:31	3.1	192.9	9.6	60983	24.8	9.6	2.6	157.1	20.2
	12:32	3.6	193.0	9.4	57888	23.1	9.9	2.8	152.5	18.2
	12:33	3.8	195.4	9.4	57904	23.4	10.0	3.0	153.5	18.4
	12:34	4.1	193.6	9.6	58567	24.9	9.8	3.3	155.1	19.9
	12:35	4.3	189.4	9.4	55721	26.1	9.9	3.4	150.4	20.7
	12:36	4.2	200.9	9.9	56917	22.7	9.7	3.4	162.2	18.3
	12:37	4.2	194.6	10.0	56912	18.8	9.2	3.5	163.1	15.8
	12:38	4.2	191.4	9.7	54753	21.9	9.6	3.4	156.2	17.9
	12:39	4.1	195.8	9.8	55391	23.0	9.7	3.3	158.3	18.6
	12:40	3.8	196.4	10.3	58472	19.4	9.1	3.2	166.8	16.5
	12:41	3.8	189.0	10.0	56630	17.6	9.2	3.2	159.6	14.9
	12:42	3.8	188.6	9.7	55132	21.6	9.6	3.0	153.1	17.5
	12:43	3.6	192.8	9.9	56246	22.1	9.5	3.0	158.3	18.1
	12:44	3.8	189.0	9.6	54441	20.9	9.7	3.1	153.0	16.9
	12:45	3.9	191.5	9.5	54104	24.9	10.0	3.1	150.6	19.6
	12:46	3.7	191.6	9.6	55000	25.3	9.8	3.0	152.6	20.2
	12:47	3.6	191.3	9.5	55136	26.8	9.9	2.8	151.0	21.2
	12:48	3.5	196.0	9.5	55391	27.9	9.9	2.8	155.2	22.1
Average =		3.6	190.3	9.6	58894	24.4	9.8	2.9	152.7	19.5
Geometric Avg. =		3.6	190.2	9.6	58767	24.1	9.7	2.9	152.5	19.3
Maximum =		4.3	200.9	10.3	67698	31.9	10.5	3.5	166.8	24.4
Minimum =		2.8	177.6	9.0	54104	17.6	9.1	2.2	134.6	14.9
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		96.8	5137.2	259.8	1590146	657.8	263.3	77.8	4122.0	526.2

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3

Time of Report: 03/24/11 13:26

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	12:22	178.7
	12:23	178.9
	12:24	181.4
	12:25	185.6
	12:26	185.5
	12:27	182.5
	12:28	182.7
	12:29	184.9
	12:30	184.6
	12:31	182.8
	12:32	182.6
	12:33	183.5
	12:34	183.2
	12:35	185.1
	12:36	186.2
	12:37	183.7
	12:38	183.7
	12:39	187.1
	12:40	184.7
	12:41	183.1
	12:42	184.8
	12:43	183.8
	12:44	182.7
	12:45	183.1
	12:46	182.2
	12:47	181.8
	12:48	180.8

Average =	183.3
Geometric Avg. =	183.3
Maximum =	187.1
Minimum =	178.7
Possible Values =	27
Included Values =	27
Total =	4949.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 9

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

Name: UNIT3

Time of Report: 03/24/11 13:40

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	13:13	2.2	198.2	9.8	54472	15.2	9.6	1.7	160.7	12.3
	13:14	2.0	192.8	9.7	53760	14.4	9.6	1.7	156.5	11.7
	13:15	2.1	195.9	9.5	52776	17.3	9.9	1.6	154.8	13.7
	13:16	2.1	206.5	9.8	54384	18.8	9.7	1.7	165.8	15.1
	13:17	1.9	213.2	10.2	56380	15.5	9.2	1.6	179.6	13.1
	13:18	1.9	216.0	10.2	56471	14.6	9.1	1.6	183.3	12.4
	13:19	1.9	208.3	10.2	56068	16.7	9.1	1.6	176.1	14.1
	13:20	1.9	200.0	10.3	56453	15.4	9.0	1.6	171.6	13.2
	13:21	2.1	193.3	9.9	54389	14.2	9.3	1.8	161.6	11.9
	13:22	2.2	189.2	9.4	51463	17.2	9.5	1.8	154.6	14.1
	13:23	1.9	189.6	8.9	48482	20.8	10.5	1.5	141.3	15.5
	13:24	1.9	186.6	9.6	52567	20.9	9.9	1.5	147.0	16.5
	13:25	2.1	179.7	9.9	54096	18.8	9.5	1.7	146.9	15.4
	13:26	2.2	176.6	9.9	54293	18.7	9.4	1.8	146.5	15.5
	13:27	2.6	169.4	9.2	50509	25.4	10.0	2.1	132.6	19.9
	13:28	3.0	179.7	9.1	50415	32.7	10.4	2.3	135.4	24.7
	13:29	3.2	181.0	8.9	50106	37.1	10.5	2.4	135.5	27.8
	13:30	3.2	186.8	8.7	49928	51.8	10.9	2.3	134.4	37.3
	13:31	3.0	200.0	9.4	54615	50.3	10.5	2.2	149.2	37.5
	13:32	2.6	207.3	10.2	59466	32.7	9.5	2.1	170.4	26.9
	13:33	2.5	194.6	9.7	56418	25.2	9.3	2.0	162.0	21.0
	13:34	2.5	199.6	9.6	55760	25.8	10.0	2.0	157.0	20.3
	13:35	2.0	206.9	10.3	59326	17.3	9.2	1.7	174.6	14.6
	13:36	2.0	197.8	10.1	57710	15.9	9.2	1.7	166.9	13.4
	13:37	1.9	195.7	9.8	56127	16.5	9.4	1.6	161.8	13.6
	13:38	1.7	193.7	10.1	57148	18.8	9.4	1.4	160.0	15.5
	13:39	1.6	191.7	10.4	58655	18.3	9.1	1.4	163.3	15.6
Average =		2.2	194.5	9.7	54527	22.5	9.7	1.8	157.4	17.9
Geometric Avg. =		2.2	194.1	9.7	54448	20.9	9.7	1.8	156.8	16.8
Maximum =		3.2	216.0	10.4	59466	51.8	10.9	2.4	183.3	37.5
Minimum =		1.6	169.4	8.7	48482	14.2	9.0	1.4	132.6	11.7
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		60.0	5250.2	262.7	1472235	606.7	260.9	48.2	4249.3	482.6

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m
Time of Report: 03/24/11 13:40
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	13:13	183.2
	13:14	182.4
	13:15	183.5
	13:16	186.4
	13:17	186.5
	13:18	187.2
	13:19	186.6
	13:20	185.5
	13:21	184.9
	13:22	184.0
	13:23	184.3
	13:24	184.0
	13:25	183.9
	13:26	181.2
	13:27	180.0
	13:28	178.7
	13:29	176.3
	13:30	179.0
	13:31	185.2
	13:32	185.2
	13:33	184.0
	13:34	187.4
	13:35	186.5
	13:36	185.5
	13:37	185.8
	13:38	187.7
	13:39	186.0

Average =	184.1
Geometric Avg. =	184.1
Maximum =	187.7
Minimum =	176.3
Possible Values =	27
Included Values =	27
Total =	4970.9

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 10

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

te Name: UNIT3

Time of Report: 03/24/11 14:19

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	13:52	3.0	170.5	9.4	50550	11.8	9.5	2.5	139.3	9.7
	13:53	3.0	173.2	9.4	50741	14.0	9.8	2.4	138.5	11.2
	13:54	2.9	176.4	9.5	51209	16.6	9.7	2.3	142.0	13.4
	13:55	3.0	177.0	9.7	52201	16.6	9.5	2.4	145.8	13.7
	13:56	3.4	179.5	9.5	51103	16.5	9.5	2.8	146.8	13.5
	13:57	3.6	185.8	9.3	49626	18.1	9.8	2.9	148.5	14.5
	13:58	3.7	191.3	9.2	49297	21.4	10.0	2.9	150.6	16.8
	13:59	3.7	197.1	9.5	50465	20.2	9.8	2.9	157.4	16.1
	14:00	3.6	196.5	9.5	50370	18.7	9.6	2.9	159.7	15.2
	14:01	3.7	203.3	9.2	49023	21.7	10.0	2.9	159.1	17.0
	14:02	3.5	216.8	9.4	50536	23.3	10.0	2.7	170.0	18.3
	14:03	3.3	215.7	9.8	53064	18.7	9.4	2.8	178.4	15.5
	14:04	3.4	209.7	9.7	52246	16.1	9.4	2.8	173.0	13.2
	14:05	3.1	213.5	9.5	51581	16.1	9.5	2.5	174.7	13.2
	14:06	2.8	222.0	9.7	52462	15.3	9.5	2.3	181.4	12.5
	14:07	2.6	218.9	9.7	52626	16.8	9.4	2.2	180.6	13.9
	14:08	2.5	213.4	9.7	52768	20.8	9.4	2.1	176.5	17.2
	14:09	2.4	212.8	9.7	52815	21.7	9.5	2.0	174.8	17.8
	14:10	2.3	207.4	9.9	53507	18.4	9.3	1.9	172.4	15.3
	14:11	2.4	198.1	9.6	52192	18.8	9.5	1.9	161.9	15.4
	14:12	2.4	194.4	9.6	51883	20.6	9.8	1.9	155.7	16.5
	14:13	2.2	191.7	9.7	52946	22.9	9.6	1.8	155.5	18.5
	14:14	2.2	192.7	9.7	53311	23.8	9.6	1.8	157.3	19.4
	14:15	2.2	194.0	9.8	53573	22.8	9.5	1.8	158.5	18.6
	14:16	2.1	192.0	9.7	53607	21.0	9.6	1.7	156.1	17.0
	14:17	2.1	191.3	9.6	55425	17.2	9.6	1.7	155.0	13.9
	14:18	2.1	198.6	9.6	57878	17.0	9.7	1.7	160.0	13.7
Average =		2.9	197.5	9.6	52111	18.8	9.6	2.3	160.3	15.2
Geometric Avg. =		2.8	197.0	9.6	52079	18.5	9.6	2.3	159.9	15.0
Maximum =		3.7	222.0	9.9	57878	23.8	10.0	2.9	181.4	19.4
Minimum =		2.1	170.5	9.2	49023	11.8	9.3	1.7	138.5	9.7
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		77.1	5333.5	258.7	1407002	506.8	259.7	62.5	4329.3	410.9

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 14:19
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	13:52	183.5
	13:53	184.3
	13:54	185.3
	13:55	184.9
	13:56	183.6
	13:57	183.0
	13:58	183.9
	13:59	184.0
	14:00	182.7
	14:01	183.4
	14:02	186.6
	14:03	186.3
	14:04	185.3
	14:05	185.3
	14:06	184.5
	14:07	184.6
	14:08	184.1
	14:09	185.1
	14:10	183.6
	14:11	183.2
	14:12	182.9
	14:13	183.4
	14:14	185.0
	14:15	185.0
	14:16	183.4
	14:17	183.5
	14:18	183.9

Average =	184.2
Geometric Avg. =	184.2
Maximum =	186.6
Minimum =	182.7
Possible Values =	27
Included Values =	27
Total =	4974.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 11

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

Unit Name: UNIT3

Time of Report: 03/24/11 15:00

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	14:39	2.9	197.5	10.2	54448	18.2	9.3	2.4	164.9	15.2
	14:40	3.1	196.7	10.6	56280	14.4	8.6	2.8	174.2	12.7
	14:41	3.9	190.3	10.0	53389	14.5	9.1	3.3	161.2	12.3
	14:42	4.2	190.3	9.9	52517	17.2	9.4	3.5	158.0	14.3
	14:43	4.4	191.2	10.1	53452	20.3	9.3	3.6	159.2	16.9
	14:44	4.7	188.6	10.4	54857	21.5	9.0	4.0	161.5	18.4
	14:45	5.2	181.8	10.2	54152	18.0	8.9	4.5	157.1	15.5
	14:46	5.5	184.7	10.0	53133	22.1	9.3	4.6	154.4	18.5
	14:47	5.3	189.6	10.3	54758	22.4	9.0	4.5	162.2	19.2
	14:48	5.1	186.0	10.1	53370	21.6	9.1	4.3	157.4	18.3
	14:49	4.7	191.4	10.0	53485	24.3	9.3	3.9	159.5	20.3
	14:50	4.2	196.9	10.3	55245	21.0	9.0	3.6	168.1	17.9
	14:51	4.0	191.7	10.1	54967	18.8	9.0	3.4	163.5	16.0
	14:52	3.9	190.7	9.6	53724	22.2	9.5	3.2	156.1	18.1
	14:53	3.5	206.5	9.9	57240	23.0	9.6	2.9	168.1	18.7
	14:54	3.2	206.8	10.3	61675	21.5	9.1	2.8	175.8	18.3
	14:55	3.1	200.0	10.4	63323	18.1	8.7	2.8	175.4	15.9
	14:56	3.1	197.2	9.9	60472	18.9	9.2	2.6	165.5	15.8
	14:57	2.9	207.1	9.7	59420	21.5	9.6	2.4	168.8	17.5
	14:58	2.7	214.7	10.0	61740	23.4	9.5	2.2	176.7	19.2
	14:59	2.4	210.3	10.3	63383	16.5	8.9	2.0	181.3	14.2
Average =		3.9	195.7	10.1	56430	20.0	9.2	3.3	165.2	16.8
Geometric Avg. =		3.8	195.5	10.1	56322	19.8	9.2	3.2	165.0	16.7
Maximum =		5.5	214.7	10.6	63383	24.3	9.6	4.6	181.3	20.3
Minimum =		2.4	181.8	9.6	52517	14.4	8.6	2.0	154.4	12.3
Possible Values =		21	21	21	21	21	21	21	21	21
Included Values =		21	21	21	21	21	21	21	21	21
Total =		82.1	4110.2	212.3	1185031	419.3	192.5	69.3	3468.8	353.3

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 15:00
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	14:39	187.8
	14:40	185.3
	14:41	184.2
	14:42	184.5
	14:43	185.8
	14:44	184.4
	14:45	182.9
	14:46	185.7
	14:47	184.3
	14:48	183.5
	14:49	184.8
	14:50	185.6
	14:51	183.8
	14:52	183.5
	14:53	185.3
	14:54	186.1
	14:55	185.0
	14:56	182.4
	14:57	183.7
	14:58	185.5
	14:59	185.0

Average =	184.7
ometric Avg. =	184.7
Maximum =	187.8
Minimum =	182.4
Possible Values =	21
Included Values =	21
Total =	3879.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Run 12

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

[redacted]te Name: UNIT3

Time of Report: 03/24/11 15:38

[redacted]ta Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)
03/24/11	15:10	2.1	197.0	10.4	65264	19.1	8.7	1.8	172.3	16.7
	15:11	2.3	192.0	9.5	58655	20.7	9.6	1.9	156.7	16.9
	15:12	2.2	200.8	9.8	58580	24.7	9.8	1.7	160.7	19.7
	15:13	1.8	211.1	10.5	61712	19.6	9.0	1.6	180.8	16.8
	15:14	1.8	202.8	10.7	61557	16.0	8.3	1.7	183.6	14.5
	15:15	2.1	196.8	9.9	56729	18.2	9.0	1.8	167.9	15.5
	15:16	2.0	206.9	10.1	56664	20.6	9.1	1.7	175.1	17.4
	15:17	2.1	202.1	10.0	55140	21.2	9.2	1.7	169.9	17.9
	15:18	2.1	192.2	10.0	54510	22.5	9.2	1.7	162.2	18.9
	15:19	2.1	191.0	10.0	53113	25.3	9.1	1.8	161.5	21.4
	15:20	2.1	196.2	10.3	54234	26.6	9.0	1.8	167.3	22.6
	15:21	2.0	203.8	11.0	57893	20.3	8.3	1.8	184.8	18.4
	15:22	2.2	185.0	10.3	54219	15.4	8.3	2.0	168.1	14.0
	15:23	2.3	180.2	9.7	50936	20.5	9.4	1.9	148.8	16.9
	15:24	2.0	203.2	10.4	54738	23.0	9.1	1.7	173.0	19.6
	15:25	1.9	199.3	10.6	55624	16.0	8.3	1.7	180.4	14.5
	15:26	2.1	193.8	10.5	54671	15.5	8.7	1.9	170.1	13.6
	15:27	2.2	188.5	10.1	51482	13.5	8.8	1.9	164.6	11.8
	15:28	2.2	187.1	9.9	50003	19.4	9.4	1.8	154.6	16.0
	15:29	2.1	202.1	10.6	53178	19.6	8.9	1.8	174.0	16.9
	15:30	2.1	200.4	10.7	54200	15.2	8.4	1.9	180.8	13.7
Average =		2.1	196.8	10.2	55862	19.7	8.9	1.8	169.4	16.8
[redacted]metric Avg. =		2.1	196.6	10.2	55745	19.3	8.9	1.8	169.1	16.6
Maximum =		2.3	211.1	11.0	65264	26.6	9.8	2.0	184.8	22.6
Minimum =		1.8	180.2	9.5	50003	13.5	8.3	1.6	148.8	11.8
Possible Values =		21	21	21	21	21	21	21	21	21
Included Values =		21	21	21	21	21	21	21	21	21
Total =		43.6	4132.3	215.0	1173102	412.7	187.7	37.5	3557.0	353.7

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/24/11 15:38
Rolling Average Interval: 1

Date	Time	STMRPT_3 (KLB/HR)
03/24/11	15:10	183.3
	15:11	182.0
	15:12	185.3
	15:13	187.8
	15:14	185.2
	15:15	184.0
	15:16	183.7
	15:17	184.0
	15:18	183.3
	15:19	184.3
	15:20	189.6
	15:21	186.5
	15:22	181.6
	15:23	184.7
	15:24	185.9
	15:25	187.1
	15:26	184.1
	15:27	182.1
	15:28	184.7
	15:29	185.9
	15:30	186.9

Average =	184.9
ometric Avg. =	184.9
Maximum =	189.6
Minimum =	181.6
Possible Values =	21
Included Values =	21
Total =	3882.1

* - excluded values (missing, OOC, invalid, suspect)
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I - invalid
S - suspect
H - exceedance
F - stack not operating
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U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:02
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	07:01	2163
	07:02	2197
	07:03	2267
	07:04	2293
	07:05	2291
	07:06	2291
	07:07	2293
	07:08	2291
	07:09	2292
	07:10	2304
	07:11	2318
	07:12	2324
	07:13	2321
	07:14	2314
	07:15	2308
	07:16	2305
	07:17	2302
	07:18	2292
	07:19	2285
	07:20	2281
	07:21	2280
	07:22	2280
	07:23	2268
	07:24	2262
	07:25	2268
	07:26	2290
	07:27	2304

Average =	2285
Geometric Avg. =	2284
Maximum =	2324
Minimum =	2163
Possible Values =	27
Included Values =	27
Total =	61684

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:03
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	07:40	2165
	07:41	2163
	07:42	2158
	07:43	2152
	07:44	2141
	07:45	2139
	07:46	2143
	07:47	2143
	07:48	2143
	07:49	2145
	07:50	2143
	07:51	2139
	07:52	2135
	07:53	2139
	07:54	2136
	07:55	2138
	07:56	2154
	07:57	2175
	07:58	2197
	07:59	2209
	08:00	2214
	08:01	2218
	08:02	2217
	08:03	2213
	08:04	2208
	08:05	2211
	08:06	2223

Average =	2169
Geometric Avg. =	2169
Maximum =	2223
Minimum =	2135
Possible Values =	27
Included Values =	27
Total =	58562

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:04
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	08:25	2080
	08:26	2091
	08:27	2095
	08:28	2094
	08:29	2097
	08:30	2106
	08:31	2124
	08:32	2151
	08:33	2223
	08:34	2300
	08:35	2317
	08:36	2380
	08:37	2383
	08:38	2383
	08:39	2378
	08:40	2376
	08:41	2375
	08:42	2373
	08:43	2371
	08:44	2368
	08:45	2363
	08:46	2359
	08:47	2360
	08:48	2363
	08:49	2364
	08:50	2362
	08:51	2363

Average =	2281
Geometric Avg. =	2278
Maximum =	2383
Minimum =	2080
Possible Values =	27
Included Values =	27
Total =	61599

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3

Time of Report: 05/04/11 08:04

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	09:03	2323
	09:04	2320
	09:05	2313
	09:06	2315
	09:07	2337
	09:08	2369
	09:09	2446
	09:10	2512
	09:11	2566
	09:12	2580
	09:13	2589
	09:14	2591
	09:15	2622
	09:16	2676
	09:17	2684
	09:18	2683
	09:19	2682
	09:20	2687
	09:21	2689
	09:22	2689
	09:23	2673
	09:24	2652
	09:25	2627
	09:26	2571
	09:27	2488
	09:28	2418
	09:29	2405

Average =	2537
Geometric Avg. =	2534
Maximum =	2689
Minimum =	2313
Possible Values =	27
Included Values =	27
Total =	68509

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (FADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:04
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	10:25	2553
	10:26	2546
	10:27	2544
	10:28	2542
	10:29	2534
	10:30	2526
	10:31	2522
	10:32	2516
	10:33	2506
	10:34	2499
	10:35	2495
	10:36	2503
	10:37	2518
	10:38	2525
	10:39	2511
	10:40	2493
	10:41	2486
	10:42	2492
	10:43	2498
	10:44	2497
	10:45	2479
	10:46	2459
	10:47	2414
	10:48	2374
	10:49	2368
	10:50	2364

Average =	2491
Geometric Avg. =	2490
Maximum =	2553
Minimum =	2364
Possible Values =	26
Included Values =	26
Total =	64764

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:05
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	11:03	2165
	11:04	2155
	11:05	2110
	11:06	2072
	11:07	2060
	11:08	2057
	11:09	2065
	11:10	2076
	11:11	2081
	11:12	2088
	11:13	2104
	11:14	2119
	11:15	2136
	11:16	2177
	11:17	2213
	11:18	2223
	11:19	2229
	11:20	2232
	11:21	2237
	11:22	2241
	11:23	2246
	11:24	2242
	11:25	2237
	11:26	2234
	11:27	2233
	11:28	2241
	11:29	2252

Average =	2168
Geometric Avg. =	2166
Maximum =	2252
Minimum =	2057
Possible Values =	27
Included Values =	27
Total =	58524

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:05
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	11:43	2377
	11:44	2378
	11:45	2392
	11:46	2453
	11:47	2468
	11:48	2466
	11:49	2474
	11:50	2502
	11:51	2579
	11:52	2669
	11:53	2692
	11:54	2700
	11:55	2702
	11:56	2706
	11:57	2772
	11:58	2794
	11:59	2811
	12:00	2891
	12:01	2891
	12:02	2878
	12:03	2869
	12:04	2870
	12:05	2876
	12:06	2886
	12:07	2897
	12:08	2903
	12:09	2907

Average =	2696
Geometric Avg. =	2690
Maximum =	2907
Minimum =	2377
Possible Values =	27
Included Values =	27
Total =	72802

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD

Page: 1

General Average Report

Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3

Time of Report: 05/04/11 08:05

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	12:22	2876
	12:23	2901
	12:24	2921
	12:25	2929
	12:26	2914
	12:27	2882
	12:28	2850
	12:29	2827
	12:30	2741
	12:31	2688
	12:32	2620
	12:33	2609
	12:34	2589
	12:35	2509
	12:36	2450
	12:37	2414
	12:38	2411
	12:39	2413
	12:40	2409
	12:41	2411
	12:42	2410
	12:43	2408
	12:44	2410
	12:45	2422
	12:46	2438
	12:47	2457
	12:48	2472

Average =	2607
Geometric Avg. =	2599
Maximum =	2929
Minimum =	2408
Possible Values =	27
Included Values =	27
Total =	70380

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:06
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	13:13	2367
	13:14	2359
	13:15	2354
	13:16	2353
	13:17	2350
	13:18	2345
	13:19	2340
	13:20	2332
	13:21	2329
	13:22	2326
	13:23	2319
	13:24	2315
	13:25	2316
	13:26	2318
	13:27	2332
	13:28	2355
	13:29	2388
	13:30	2456
	13:31	2499
	13:32	2500
	13:33	2490
	13:34	2476
	13:35	2462
	13:36	2442
	13:37	2422
	13:38	2409
	13:39	2402

Average =	2383
Geometric Avg. =	2383
Maximum =	2500
Minimum =	2315
Possible Values =	27
Included Values =	27
Total =	64354

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:06
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	13:52	2286
	13:53	2284
	13:54	2286
	13:55	2284
	13:56	2277
	13:57	2270
	13:58	2267
	13:59	2263
	14:00	2264
	14:01	2277
	14:02	2296
	14:03	2306
	14:04	2303
	14:05	2300
	14:06	2298
	14:07	2300
	14:08	2304
	14:09	2309
	14:10	2310
	14:11	2311
	14:12	2312
	14:13	2319
	14:14	2332
	14:15	2342
	14:16	2362
	14:17	2452
	14:18	2557

Average =	2314
Geometric Avg. =	2313
Maximum =	2557
Minimum =	2263
Possible Values =	27
Included Values =	27
Total =	62468

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:07
Rolling Average Interval: 1

Date	Time	VELOCTY3 (FPM)
03/24/11	14:39	2268
	14:40	2260
	14:41	2257
	14:42	2255
	14:43	2250
	14:44	2245
	14:45	2247
	14:46	2250
	14:47	2252
	14:48	2256
	14:49	2271
	14:50	2286
	14:51	2307
	14:52	2370
	14:53	2466
	14:54	2559
	14:55	2593
	14:56	2605
	14:57	2612
	14:58	2615
	14:59	2619

Average =	2374
Geometric Avg. =	2369
Maximum =	2619
Minimum =	2245
Possible Values =	21
Included Values =	21
Total =	49844

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/24/2011 to 03/24/2011

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 05/04/11 08:07
Rolling Average Interval: 1

Date	Time	VELOCITY3 (FPM)
03/24/11	15:10	2676
	15:11	2640
	15:12	2552
	15:13	2509
	15:14	2443
	15:15	2429
	15:16	2394
	15:17	2344
	15:18	2310
	15:19	2255
	15:20	2251
	15:21	2239
	15:22	2233
	15:23	2233
	15:24	2229
	15:25	2224
	15:26	2217
	15:27	2159
	15:28	2147
	15:29	2144
	15:30	2149

Average =	2323
Geometric Avg. =	2318
Maximum =	2676
Minimum =	2144
Possible Values =	21
Included Values =	21
Total =	48779

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

REFERENCE METHOD DATA

H

I herby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified accurate.

QA/QC Initials: KRo

Date: 5/4/2011

CleanAir.

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Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Date: **March 22, 2011**
Start Time 6:14
Stop Time 15:44
CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	**CO2**	**SO2**	**NOX**	**CO**	
	FF Outlet 1 %dv	**FF Outlet 1 %dv**	**FF Outlet 1 ppmdv**	**FF Outlet 1 ppmdv**	**FF Outlet 1 ppmdv**	
Instrument Information						
Manufacturer:	Servomex	Servomex	Wstrn Rsrch	Thermo	Thermo	
Model:	1420C	1415C	921H UV	42i-HL	48i	
Detection:	Paramagn.	NDIR	Photo.	Chemilumi.	GFC/NDIR	
Asset or Serial No:	207491	207492	204654	205177	204433	
Calibration Span Value (CS)						
	14.100	13.900	89.900	453.000	95.700	
System Response Time (seconds)						
	75	75	75	75	75	
Manufacturer Certified Cylinder Value (C_V)						
Zero	0.000	0.000	0.000	0.000	0.000	
Low	6.050	5.930	44.300	224.000	47.400	
Mid						
High	14.100	13.900	89.900	453.000	95.700	
Actual gas to be used for bias checks						
	14.100	5.930	44.300	224.000	47.400	
Cylinder ID						
Zero	ALM013200	ALM013200	ALM013200	ALM013200	ALM013200	
Low	ALM017071	ALM062872	CC217365	CC217365	ALM026334	
Mid						
High	ALM062872	ALM017071	CC124384	CC124384	ALM016660	
Analyzer Calibration Response (C_{Dir})						
Zero	-0.079	-0.012	-0.225	-0.062	0.017	
Low	6.016	5.940	43.583	225.899	47.236	
Mid						
High	14.090	13.866	90.349	453.838	95.947	
Analyzer Calibration Error (ACE) (Limit = 2%, Method 25A limit = 5% of gas value)						
Zero	-0.6%	-0.1%	-0.3%	0.0%	0.0%	
Low	-0.2%	0.1%	-0.8%	0.4%	-0.2%	
Mid	N/A	N/A	N/A	N/A	N/A	
High	-0.1%	-0.2%	0.5%	0.2%	0.3%	
Calibration Error Status						
Zero	OK	OK	OK	OK	OK	
Low	OK	OK	OK	OK	OK	
Mid	N/A	N/A	N/A	N/A	N/A	
High	OK	OK	OK	OK	OK	

041911 111222

06:14:18	-0.067	-0.012	-1.400	-0.016	0.138
06:14:33	-0.071	-0.012	-1.395	-0.008	-0.018
06:14:48	-0.073	-0.012	-1.419	-0.008	-0.024
06:15:03	-0.074	-0.012	-1.423	-0.041	-0.024

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Date: **March 22, 2011**
Start Time 6:14
Stop Time 15:44
CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
06:15:18	-0.077	-0.012	-1.382	-0.033	-0.024	
06:15:33	-0.079	-0.012	-0.376	-0.057	-0.024	
06:15:48	-0.079	-0.012	-0.153	-0.049	-0.024	
06:16:03	-0.080	-0.012	-0.147	-0.081	-0.032	
06:16:18	-0.076	-0.012	-0.169	-0.041	-0.039	
06:16:33	-0.012	-0.012	-0.040	-0.008	0.071	
06:16:48	9.410	2.418	-0.006	0.106	0.423	
06:17:03	13.696	5.575	0.041	0.179	0.726	
06:17:18	13.944	5.877	0.078	0.244	0.757	
06:17:33	13.994	5.915	0.089	0.244	0.757	
06:17:48	14.056	5.929	0.099	0.171	0.757	
06:18:03	14.096	5.936	0.090	0.138	0.757	
06:18:18	14.086	5.940	0.068	0.155	0.757	
06:18:33	14.089	5.945	0.083	0.130	0.755	
06:18:48	14.104	5.950	0.037	0.138	0.757	
06:19:03	8.904	7.868	-0.013	0.130	0.757	
06:19:18	6.140	13.299	0.044	0.228	0.755	
06:19:33	6.046	13.644	0.065	0.260	0.757	
06:19:48	6.030	13.699	0.049	0.195	0.755	
06:20:03	6.025	13.856	0.071	0.236	0.754	
06:20:18	6.019	13.852	0.080	0.244	0.770	
06:20:33	6.016	13.860	0.099	0.260	0.765	
06:20:48	6.013	13.867	0.119	0.252	0.781	
06:21:03	6.009	13.870	0.088	0.268	0.886	
06:21:18	4.772	12.640	0.983	0.260	0.912	
06:21:33	0.434	10.044	32.534	12.088	0.630	
06:21:48	-0.054	9.958	68.949	130.297	0.182	
06:22:03	-0.082	9.957	80.223	290.924	-0.149	
06:22:18	-0.085	9.959	84.011	425.714	-0.278	
06:22:33	-0.089	9.960	85.600	439.797	-0.314	
06:22:48	-0.092	9.961	86.408	444.363	-0.317	
06:23:03	-0.092	9.960	86.906	446.235	-0.317	
06:23:18	-0.092	9.961	87.277	447.505	-0.304	
06:23:33	-0.092	9.963	87.507	451.038	-0.314	
06:23:48	-0.092	9.963	87.702	455.352	-0.337	
06:24:03	-0.092	9.963	87.857	454.001	-0.320	
06:24:18	-0.094	9.963	87.997	454.416	-0.317	
06:24:33	-0.094	9.963	88.073	455.238	-0.317	
06:24:48	-0.093	9.963	89.776	455.865	-0.340	
06:25:03	0.243	9.671	77.768	456.752	-0.348	
06:25:18	0.036	9.688	29.626	422.483	-0.267	
06:25:33	-0.092	9.949	54.546	318.209	-0.157	
06:25:48	-0.095	9.960	81.198	243.264	-0.188	
06:26:03	-0.092	9.962	88.348	325.942	-0.272	
06:26:18	-0.095	9.963	90.339	450.558	-0.317	
06:26:33	-0.097	9.963	91.202	457.175	-0.322	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Date: **March 22, 2011**
Start Time 6:14
Stop Time 15:44
CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
06:26:48	-0.096	9.963	91.448	459.186	-0.353	
06:27:03	-0.096	9.963	91.466	459.430	-0.355	
06:27:18	-0.098	9.963	91.461	459.219	-0.330	
06:27:33	-0.098	9.963	91.479	453.529	-0.342	
06:27:48	-0.097	9.963	91.536	452.674	-0.317	
06:28:03	-0.096	9.963	91.499	453.838	-0.355	
06:28:18	-0.098	9.963	90.097	453.968	-0.356	
06:28:33	-0.096	9.963	90.043	453.879	-0.322	
06:28:48	-0.095	9.963	90.049	453.968	-0.317	
06:29:03	-0.096	9.963	90.159	454.025	-0.347	
06:29:18	-0.097	9.963	90.208	453.992	-0.333	
06:29:33	-0.097	9.963	90.336	453.626	-0.343	
06:29:48	-0.095	9.963	90.335	454.058	-0.317	
06:30:03	-0.093	9.967	90.375	453.870	-0.327	
06:30:18	-0.083	9.915	60.243	453.586	-0.332	
06:30:33	-0.101	9.980	43.446	439.064	-0.283	
06:30:48	-0.104	9.988	43.000	291.575	-0.203	
06:31:03	-0.104	9.989	43.228	230.077	-0.190	
06:31:18	-0.104	9.988	43.318	226.594	-0.189	
06:31:33	-0.105	9.988	43.409	226.097	-0.194	
06:31:48	-0.107	9.988	43.537	225.974	-0.189	
06:32:03	-0.104	9.988	43.596	225.950	-0.190	
06:32:18	-0.104	9.989	43.588	225.926	-0.192	
06:32:33	-0.104	9.990	43.556	225.787	-0.171	
06:32:48	-0.114	9.986	43.528	225.796	-0.221	
06:33:03	-0.112	9.989	43.609	225.877	-0.189	
06:33:18	-0.107	9.990	43.613	225.804	-0.174	
06:33:33	0.015	9.616	40.890	226.015	0.199	
06:33:48	0.025	2.468	14.571	225.755	9.909	
06:34:03	-0.081	0.192	2.664	134.318	45.049	
06:34:18	-0.090	0.044	0.741	23.761	77.135	
06:34:33	-0.091	0.022	0.316	4.803	91.958	
06:34:48	-0.089	0.018	0.212	1.327	95.288	
06:35:03	-0.091	0.012	0.145	0.920	95.536	
06:35:18	-0.088	0.007	0.139	0.782	95.530	
06:35:33	-0.090	0.006	0.054	0.676	95.666	
06:35:48	-0.090	0.006	0.029	0.652	95.766	
06:36:03	-0.089	0.000	0.081	0.537	95.790	
06:36:18	-0.090	0.003	0.080	0.488	95.759	
06:36:33	0.003	0.030	0.142	0.488	95.640	
06:36:48	0.046	0.090	0.389	0.472	90.867	
06:37:03	-0.079	0.008	0.291	0.773	72.505	
06:37:18	-0.087	0.000	0.194	1.018	56.109	
06:37:33	-0.088	0.000	0.192	0.391	50.237	
06:37:48	-0.089	0.000	0.186	0.260	49.363	
06:38:03	-0.090	-0.004	0.132	0.244	49.328	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Date: **March 22, 2011**
Start Time 6:14
Stop Time 15:44
CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
06:38:18	-0.089	-0.001	0.171	0.244	49.291	
06:38:33	-0.090	0.000	0.184	0.244	49.288	
06:38:48	-0.092	-0.006	0.195	0.244	49.461	
06:39:03	-0.092	-0.004	0.163	0.244	49.451	
06:39:18	-0.092	-0.002	0.192	0.244	49.464	
06:39:33	-0.092	-0.006	0.190	0.179	49.425	
06:39:48	-0.092	-0.004	0.197	0.220	49.591	
06:40:03	-0.091	-0.004	0.202	0.220	50.367	
06:40:18	-0.092	-0.006	0.187	0.220	49.239	
06:40:33	-0.092	-0.006	0.140	0.220	49.180	
06:40:48	-0.092	-0.006	0.171	0.155	49.148	
06:41:03	-0.092	-0.006	0.185	0.211	49.155	
06:41:18	-0.090	-0.006	0.190	0.220	49.160	
06:41:33	4.614	-0.001	0.223	0.203	48.876	
11:20:06	10.537	9.064	16.571	144.094	0.725	
11:20:21	10.322	9.186	15.355	143.012	0.089	
11:20:36	9.949	9.490	14.527	142.393	0.000	
11:20:51	10.082	9.448	13.980	143.354	0.019	
11:21:06	10.394	9.186	13.291	145.014	0.010	
11:21:21	10.372	9.174	12.436	144.021	0.024	
11:21:36	10.227	9.279	11.842	143.321	0.018	
11:21:51	10.111	9.390	11.427	143.541	0.324	
11:22:06	10.216	9.309	11.059	145.185	14.046	
11:22:21	10.180	9.323	10.737	147.090	32.396	
11:22:36	10.050	9.413	10.470	147.993	45.055	
11:22:51	9.786	9.604	10.439	148.954	47.058	
11:23:06	9.495	9.838	10.571	151.331	47.246	
11:23:21	9.267	10.059	10.709	155.157	47.295	
11:23:36	9.100	10.210	10.761	158.991	47.300	
11:23:51	8.960	10.347	10.701	160.668	47.243	
11:24:06	9.040	10.271	10.789	160.253	47.165	
11:24:21	9.177	10.140	10.862	158.885	46.888	
11:24:36	9.392	9.936	10.974	159.023	59.822	
11:24:51	9.523	9.793	10.989	160.505	76.977	
11:25:06	9.426	9.863	10.893	162.515	91.919	
11:25:21	9.305	9.996	10.841	161.612	95.341	
11:25:36	9.617	9.772	10.659	161.335	95.811	
11:25:51	10.011	9.447	10.136	159.210	95.999	
11:26:06	10.299	9.211	9.885	153.268	96.031	
11:26:21	10.379	9.131	9.818	147.595	96.093	
11:26:36	10.203	9.236	9.871	143.948	96.041	
15:26	9.250	9.919	14.958	109.430	16.589	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

Date: **March 22, 2011**
Start Time 6:14
Stop Time 15:44
CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
15:27	9.785	9.471	14.897	114.660	14.716	
15:28	10.270	9.114	12.908	114.941	15.285	
15:29	10.208	9.167	14.408	46.528	19.040	
15:30	9.368	9.841	21.210	35.364	21.070	
15:31	9.691	9.604	19.620	44.023	17.550	
15:32	10.048	9.306	15.521	47.816	21.730	
15:33	10.391	9.008	12.475	48.203	20.836	
15:34	9.816	9.428	12.053	71.742	22.078	

Converter Efficiency 95.8%
NO2 gas = 50.100

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 6:49
Stop Time 7:03
CALIBRATION BIAS 00

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.039	0.026	0.104	0.133	0.551	
C_{uf}	Upscale gas	14.021	5.942	42.188	224.539	49.297	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.3%	0.4%	0.0%	0.6%	
	Upscale gas	-0.5%	0.0%	-1.6%	-0.3%	2.2%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{ol}	Zero gas	N/A	N/A	N/A	N/A	N/A	
C_{ui}	Upscale gas	N/A	N/A	N/A	N/A	N/A	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	N/A	N/A	N/A	N/A	N/A	
	Upscale gas	N/A	N/A	N/A	N/A	N/A	
Drift Assessment Status							
	Zero gas	N/A	N/A	N/A	N/A	N/A	
	Upscale gas	N/A	N/A	N/A	N/A	N/A	

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06:49:47	20.875	0.045	0.041	0.138	0.918
06:50:02	20.873	0.043	0.052	0.187	0.910
06:50:17	18.731	0.222	0.189	0.187	2.813
06:50:32	12.278	3.063	1.913	0.814	27.204
06:50:47	13.883	5.574	1.809	13.691	36.147
06:51:02	14.028	5.853	1.035	12.357	18.046
06:51:17	14.029	5.892	0.575	1.465	3.875
06:51:32	14.028	5.909	0.373	0.659	1.014
06:51:47	14.026	5.919	0.234	0.285	0.717
06:52:02	14.023	5.924	0.223	0.236	0.625
06:52:17	14.022	5.930	0.169	0.211	0.575
06:52:32	14.021	5.934	0.111	0.171	0.573
06:52:47	14.021	5.940	0.086	0.146	0.578
06:53:02	14.021	5.942	0.101	0.106	0.550
06:53:17	14.020	5.945	0.101	0.146	0.562
06:53:32	14.019	5.946	0.109	0.146	0.542
06:53:47	14.020	5.949	0.091	0.106	0.557
06:54:02	10.845	6.426	0.726	-0.073	0.553
06:54:17	1.404	9.186	15.285	21.099	0.542
06:54:32	0.105	9.728	30.284	94.920	0.430

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 6:49
Stop Time 7:03
CALIBRATION BIAS 00

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
06:54:47	0.008	9.785	36.280	183.468	0.238	
06:55:02	-0.010	9.805	38.571	218.820	0.129	
06:55:17	-0.022	9.815	39.717	221.367	0.096	
06:55:32	-0.031	9.821	40.451	222.124	0.096	
06:55:47	-0.039	9.826	40.987	222.629	0.098	
06:56:02	-0.042	9.831	41.405	223.085	0.116	
06:56:17	-0.038	9.833	41.582	223.663	0.095	
06:56:32	-0.040	9.837	41.696	223.696	0.098	
06:56:47	-0.045	9.840	41.773	224.200	0.098	
06:57:02	-0.044	9.841	41.944	224.265	0.095	
06:57:17	-0.049	9.844	42.094	224.306	0.096	
06:57:32	-0.049	9.846	42.207	224.453	0.114	
06:57:47	-0.053	9.847	42.264	224.493	0.095	
06:58:02	-0.053	9.851	42.300	224.672	0.098	
06:58:17	-0.055	9.118	39.490	224.827	0.124	
06:58:32	-0.055	2.120	15.131	218.958	6.660	
06:58:47	-0.040	0.329	5.586	103.386	26.909	
06:59:02	-0.040	0.153	3.388	32.324	42.362	
06:59:17	-0.040	0.110	2.411	2.466	48.278	
06:59:32	-0.039	0.087	1.897	1.555	49.172	
06:59:47	-0.038	0.070	1.595	1.123	49.159	
07:00:02	-0.040	0.060	1.412	0.896	49.177	
07:00:17	-0.039	0.051	1.254	0.717	49.198	
07:00:32	-0.040	0.043	1.143	0.668	49.180	
07:00:47	-0.038	0.040	1.065	0.570	49.247	
07:01:02	-0.038	0.033	0.970	0.472	49.284	
07:01:17	-0.039	0.031	0.910	0.480	49.319	
07:01:32	-0.039	0.027	0.863	0.342	49.260	
07:01:47	-0.037	0.021	0.810	0.301	49.304	
07:02:02	-0.038	0.018	0.752	0.277	49.328	
07:02:17	2.950	0.020	0.853	0.309	49.322	
07:02:32	17.668	0.051	5.164	0.293	44.606	
07:02:47	20.574	0.061	6.362	0.578	28.002	
07:03:02	20.774	0.061	4.254	0.537	11.875	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 7:31
Stop time 7:58
REFERENCE METHOD RUN 1

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.039	0.026	0.104	0.133	0.551	
C_{ui}	Initial upscale	14.021	5.942	42.188	224.539	49.297	
C_{of}	Final zero	-0.046	0.066	0.408	0.187	0.671	
C_{uf}	Final upscale	13.970	5.956	42.039	224.493	49.300	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.756	9.687	11.983	146.326	22.898	
C_{Gas}	**Bias adjusted**	**9.842**	**9.685**	**12.411**	**145.933**	**21.697**	

Clock Time (at end of sample period)

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07:32	9.729	9.698	12.510	146.451	23.422
07:33	9.811	9.682	9.959	145.356	22.614
07:34	9.833	9.619	8.762	147.161	19.916
07:35	9.376	10.051	10.250	151.286	25.420
07:36	9.682	9.810	13.642	154.422	29.371
07:37	10.057	9.469	16.168	150.832	27.960
07:38	9.069	10.266	19.107	155.293	30.282
07:39	8.723	10.681	15.907	159.792	28.630
07:40	9.431	9.974	10.584	145.704	24.158
07:41	10.412	9.145	8.583	138.154	22.042
07:42	10.436	9.026	8.456	132.281	20.379
07:43	10.336	9.073	8.562	134.687	20.656
07:44	9.622	9.702	10.619	135.297	22.344
07:45	9.301	10.109	17.542	138.246	20.632
07:46	10.247	9.300	17.602	132.405	19.410
07:47	9.911	9.536	15.225	134.542	23.281
07:48	9.172	10.181	13.783	136.341	22.888
07:49	9.360	10.048	12.218	144.394	21.952
07:50	9.693	9.754	11.107	145.706	23.003
07:51	9.908	9.589	10.411	146.607	23.590
07:52	10.221	9.346	9.922	143.744	24.166
07:53	10.260	9.272	9.696	146.634	23.698
07:54	9.578	9.800	10.032	156.457	24.354
07:55	9.656	9.786	9.861	160.621	21.627
07:56	9.876	9.534	10.041	157.941	18.740
07:57	10.011	9.428	11.002	156.152	16.966
07:58	9.697	9.658	11.980	154.282	16.742

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 8:02
Stop Time 8:11
CALIBRATION BIAS 01

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.046	0.066	0.408	0.187	0.671	
C_{uf}	Upscale gas	13.970	5.956	42.039	224.493	49.300	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.6%	0.7%	0.1%	0.7%	
	Upscale gas	-0.9%	0.1%	-1.7%	-0.3%	2.2%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.039	0.026	0.104	0.133	0.551	
C_{ui}	Upscale gas	14.021	5.942	42.188	224.539	49.297	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.3%	0.3%	0.0%	0.1%	
	Upscale gas	-0.4%	0.1%	-0.2%	0.0%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

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08:02:23	-0.056	9.866	41.299	224.005	0.122
08:02:38	-0.059	9.867	41.467	224.404	0.134
08:02:53	-0.059	9.869	41.579	224.249	0.144
08:03:08	-0.061	9.871	41.730	224.094	0.122
08:03:23	-0.061	9.870	41.867	224.412	0.119
08:03:38	-0.061	9.872	41.957	224.396	0.109
08:03:53	-0.062	9.872	42.045	224.412	0.122
08:04:08	-0.063	9.872	42.115	224.672	0.122
08:04:23	1.182	9.879	45.905	224.632	0.202
08:04:38	7.791	9.959	53.071	224.322	2.724
08:04:53	9.410	9.774	32.042	190.761	9.848
08:05:08	9.497	9.745	21.926	137.892	15.458
08:05:23	9.479	9.775	17.805	127.180	16.946
08:05:38	9.387	9.838	15.788	124.534	17.858
08:05:53	9.159	10.054	14.577	124.901	19.857
08:06:08	7.919	9.917	13.862	126.463	21.796
08:06:23	1.340	3.543	11.800	127.017	24.075
08:06:38	0.060	0.437	5.441	88.710	32.990
08:06:53	-0.020	0.179	2.725	43.582	42.320
08:07:08	-0.033	0.133	1.861	2.744	47.740

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 8:02
Stop Time 8:11
CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
08:07:23	-0.039	0.109	1.431	1.408	49.014	
08:07:38	-0.043	0.093	1.221	1.018	49.227	
08:07:53	-0.044	0.083	1.102	0.928	49.249	
08:08:08	-0.045	0.072	0.986	0.782	49.259	
08:08:23	-0.049	0.066	0.923	0.692	49.252	
08:08:38	-0.044	0.060	0.862	0.660	49.312	
08:08:53	-0.043	0.054	0.821	0.537	49.337	
08:09:08	2.071	0.459	0.788	0.488	49.245	
08:09:23	11.922	4.605	0.672	0.553	43.881	
08:09:38	13.803	5.800	0.659	1.123	26.717	
08:09:53	13.931	5.915	0.641	1.018	11.175	
08:10:08	13.954	5.937	0.555	0.277	3.130	
08:10:23	13.962	5.948	0.488	0.309	1.032	
08:10:38	13.970	5.957	0.423	0.236	0.703	
08:10:53	13.976	5.961	0.415	0.163	0.687	
08:11:08	13.982	5.966	0.384	0.163	0.624	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 8:13
Stop time 8:40
REFERENCE METHOD RUN 2

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{ol}	Initial zero	-0.046	0.066	0.408	0.187	0.671	
C_{ul}	Initial upscale	13.970	5.956	42.039	224.493	49.300	
C_{of}	Final zero	-0.046	0.082	0.738	0.388	0.820	
C_{uf}	Final upscale	13.961	5.959	42.995	223.633	49.219	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.383	9.971	14.604	144.306	20.908	
C_{Gas}	**Bias adjusted**	**9.489**	**9.976**	**14.819**	**144.163**	**19.699**	

Clock Time (at end of sample period)

041511 101738

08:14	9.424	9.845	19.459	139.475	14.728	
08:15	8.898	10.345	20.692	134.658	19.867	
08:16	8.137	11.017	17.624	141.626	20.490	
08:17	8.415	10.853	14.523	151.064	20.370	
08:18	9.436	9.885	12.252	139.347	17.239	
08:19	9.375	9.963	14.112	135.832	21.258	
08:20	8.956	10.305	20.052	137.546	23.134	
08:21	9.453	9.871	23.610	141.952	22.375	
08:22	9.657	9.751	20.409	139.461	25.545	
08:23	9.542	9.810	15.474	145.326	27.667	
08:24	9.612	9.742	12.753	151.661	24.056	
08:25	9.385	9.979	11.783	155.855	23.630	
08:26	9.415	9.948	12.007	150.448	23.344	
08:27	9.935	9.502	12.716	148.056	23.013	
08:28	10.078	9.395	13.981	147.257	20.883	
08:29	9.599	9.766	14.509	146.581	21.249	
08:30	9.389	9.973	13.991	144.851	20.546	
08:31	9.435	9.929	12.493	143.059	18.129	
08:32	9.707	9.707	11.969	139.564	18.267	
08:33	9.881	9.550	11.597	139.870	19.671	
08:34	9.471	9.902	12.320	139.910	21.203	
08:35	9.571	9.842	12.879	140.057	20.184	
08:36	9.917	9.574	12.229	137.452	22.209	
08:37	10.044	9.425	11.446	135.360	22.256	
08:38	9.083	10.222	12.625	147.098	19.004	
08:39	8.263	10.980	13.720	161.140	18.564	
08:40	9.257	10.139	13.080	161.760	15.628	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 8:49
Stop Time 8:56
CALIBRATION BIAS 02

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.046	0.082	0.738	0.388	0.820	
C_{uf}	Upscale gas	13.961	5.959	42.995	223.633	49.219	
Analyzer Calibration Error Reponses (C_{Dlr})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.7%	1.1%	0.1%	0.8%	
	Upscale gas	-0.9%	0.1%	-0.7%	-0.5%	2.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.046	0.066	0.408	0.187	0.671	
C_{ui}	Upscale gas	13.970	5.956	42.039	224.493	49.300	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.1%	0.4%	0.0%	0.2%	
	Upscale gas	-0.1%	0.0%	1.1%	-0.2%	-0.1%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 101738

08:49:22	-0.063	9.884	42.826	223.419	0.116
08:49:37	-0.061	9.884	42.857	223.533	0.114
08:49:52	-0.063	9.884	42.903	223.329	0.101
08:50:07	-0.063	9.884	42.946	223.020	0.122
08:50:22	-0.064	9.884	42.963	223.305	0.120
08:50:37	-0.065	9.884	43.001	223.256	0.098
08:50:52	-0.065	9.884	42.973	223.280	0.098
08:51:07	-0.063	9.884	42.975	223.842	0.108
08:51:22	-0.064	9.884	43.006	223.516	0.122
08:51:37	-0.067	9.884	43.004	223.541	0.112
08:51:52	-0.065	9.885	43.059	223.834	0.098
08:52:07	-0.050	7.882	40.353	223.777	0.500
08:52:22	-0.047	1.269	18.911	223.541	8.628
08:52:37	-0.047	0.292	7.500	94.660	28.716
08:52:52	-0.047	0.179	4.358	21.734	42.009
08:53:07	-0.047	0.141	3.083	2.979	47.956
08:53:22	-0.045	0.121	2.462	1.970	49.003
08:53:37	-0.047	0.103	2.066	1.457	49.105

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 8:49
Stop Time 8:56
CALIBRATION BIAS 02

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
08:53:52	-0.046	0.091	1.877	1.310	49.228	
08:54:07	-0.046	0.082	1.723	0.993	49.188	
08:54:22	-0.045	0.073	1.563	0.896	49.268	
08:54:37	-0.059	0.061	1.412	0.782	49.201	
08:54:52	1.133	0.221	1.343	0.766	49.169	
08:55:07	11.096	4.154	1.171	0.766	45.252	
08:55:22	13.735	5.767	1.068	1.148	30.460	
08:55:37	13.920	5.919	0.975	0.831	12.458	
08:55:52	13.950	5.948	0.866	0.570	4.262	
08:56:07	13.961	5.961	0.804	0.521	1.101	
08:56:22	13.971	5.968	0.712	0.358	0.730	
08:56:37	13.977	5.972	0.697	0.285	0.629	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 9:39
Stop time 10:06
REFERENCE METHOD RUN 3

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{ol}	Initial zero	-0.046	0.082	0.738	0.388	0.820	
C_{ul}	Initial upscale	13.961	5.959	42.995	223.633	49.219	
C_{of}	Final zero	-0.049	0.067	0.552	0.353	0.674	
C_{uf}	Final upscale	13.977	5.972	42.003	220.833	49.323	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.136	10.184	16.270	147.127	19.600	
C_{Gas}	**Bias adjusted**	**9.239**	**10.176**	**16.539**	**148.171**	**18.416**	

Clock Time (at end of sample period)

041511 101738

09:40	9.106	10.278	13.980	144.078	19.907
09:41	9.690	9.717	14.544	141.136	16.739
09:42	9.822	9.591	13.652	144.023	17.532
09:43	8.953	10.315	12.237	149.113	16.267
09:44	8.004	11.175	12.172	158.130	15.814
09:45	9.111	10.240	10.686	156.009	13.453
09:46	9.834	9.544	9.880	141.492	16.774
09:47	8.997	10.242	12.901	151.408	19.123
09:48	8.652	10.630	17.642	158.264	19.168
09:49	9.178	10.108	17.375	151.980	15.896
09:50	9.209	10.123	15.904	153.191	17.845
09:51	8.992	10.296	15.243	155.171	17.347
09:52	9.019	10.286	16.713	158.486	15.102
09:53	8.775	10.545	19.945	152.240	18.436
09:54	9.568	9.794	19.930	145.250	19.302
09:55	9.513	9.820	18.710	142.981	24.525
09:56	8.904	10.367	18.589	146.573	25.809
09:57	8.815	10.463	17.358	143.163	24.647
09:58	9.560	9.791	16.313	132.320	27.582
09:59	9.712	9.650	16.038	137.676	27.874
10:00	8.423	10.801	20.514	145.159	24.854
10:01	8.935	10.400	19.047	154.294	16.685
10:02	9.743	9.691	16.464	136.774	19.041
10:03	10.035	9.391	15.535	129.825	20.320
10:04	8.553	10.689	19.201	144.678	22.894
10:05	8.906	10.431	20.347	153.571	17.498
10:06	8.672	10.590	18.380	145.456	18.757

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 10:09
Stop Time 10:20
CALIBRATION BIAS 03

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.049	0.067	0.552	0.353	0.674	
C_{uf}	Upscale gas	13.977	5.972	42.003	220.833	49.323	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.6%	0.9%	0.1%	0.7%	
	Upscale gas	-0.8%	0.2%	-1.8%	-1.1%	2.2%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.046	0.082	0.738	0.388	0.820	
C_{ui}	Upscale gas	13.961	5.959	42.995	223.633	49.219	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	-0.1%	-0.2%	0.0%	-0.2%	
	Upscale gas	0.1%	0.1%	-1.1%	-0.6%	0.1%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

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10:09:45	-0.049	9.878	41.252	219.992	0.150
10:10:00	-0.049	9.880	41.434	220.383	0.150
10:10:15	-0.049	9.880	41.626	220.497	0.142
10:10:30	-0.049	9.882	41.727	220.529	0.139
10:10:45	-0.050	9.884	41.823	220.814	0.147
10:11:00	-0.051	9.885	41.919	220.822	0.150
10:11:15	-0.051	9.885	42.014	220.814	0.142
10:11:30	-0.051	9.846	42.076	220.863	0.122
10:11:45	-0.037	4.179	32.327	216.312	2.958
10:12:00	-0.043	0.495	12.982	185.511	17.244
10:12:15	-0.045	0.218	5.897	86.024	36.850
10:12:30	-0.046	0.158	3.588	6.797	45.906
10:12:45	-0.047	0.130	2.582	2.304	48.896
10:13:00	-0.048	0.114	2.043	1.424	49.172
10:13:15	-0.049	0.097	1.770	1.229	49.175
10:13:30	-0.048	0.088	1.537	1.091	49.273
10:13:45	-0.049	0.080	1.372	0.904	49.293
10:14:00	-0.049	0.072	1.206	0.782	49.317
10:14:15	-0.048	0.067	1.125	0.757	49.293
10:14:30	-0.049	0.063	1.034	0.660	49.322

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 10:09
Stop Time 10:20
CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
10:14:45	-0.049	0.055	0.978	0.644	49.335	
10:15:00	-0.049	0.055	0.951	0.586	49.366	
10:15:15	1.472	0.296	0.938	0.504	49.270	
10:15:30	11.547	4.393	0.842	0.651	45.284	
10:15:45	13.785	5.798	0.793	0.863	27.709	
10:16:00	13.922	5.917	0.718	0.651	12.016	
10:16:15	13.944	5.941	0.615	0.350	3.308	
10:16:30	13.954	5.955	0.573	0.301	1.074	
10:16:45	13.965	5.961	0.480	0.301	0.710	
10:17:00	13.973	5.969	0.397	0.220	0.684	
10:17:15	13.981	5.975	0.386	0.163	1.410	
10:17:30	13.976	5.972	0.420	0.163	7.898	
10:17:45	12.358	6.985	2.979	0.195	12.480	
10:18:00	9.504	9.658	15.611	0.415	11.404	
10:18:15	9.567	10.126	19.520	75.189	13.584	
10:18:30	12.409	6.665	13.765	137.753	15.971	
10:18:45	13.805	5.997	5.527	119.137	11.269	
10:19:00	13.963	5.999	2.411	35.825	5.044	
10:19:15	13.977	5.995	1.286	3.533	1.454	
10:19:30	13.980	5.993	0.847	0.709	0.742	
10:19:45	13.981	5.992	0.640	0.480	0.676	
10:20:00	13.984	5.993	0.549	0.301	0.677	
10:20:15	13.984	5.989	0.469	0.277	0.669	
10:20:30	13.987	5.991	0.392	0.163	0.635	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 10:24
Stop time 10:51
REFERENCE METHOD RUN 4

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.049	0.067	0.552	0.353	0.674	
C_{ui}	Initial upscale	13.977	5.972	42.003	220.833	49.323	
C_{of}	Final zero	-0.055	0.087	0.495	0.312	0.659	
C_{uf}	Final upscale	13.945	5.962	42.262	220.443	47.316	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.087	10.208	16.400	141.675	35.296	
C_{Gas}	**Bias adjusted**	**9.196**	**10.200**	**16.903**	**143.713**	**34.446**	

Clock Time (at end of sample period)

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10:25	9.329	10.000	17.448	133.720	26.225	
10:26	9.153	10.105	19.663	133.435	5.487	
10:27	9.344	9.997	20.849	146.429	-0.013	
10:28	8.919	10.325	19.421	145.627	-0.007	
10:29	9.135	10.136	17.117	145.419	1.832	
10:30	8.988	10.318	16.793	140.584	18.187	
10:31	9.553	9.776	14.386	137.623	15.308	
10:32	9.069	10.220	13.608	141.465	62.923	
10:33	8.595	10.604	14.038	133.295	95.701	
10:34	8.746	10.559	15.147	144.564	95.888	
10:35	9.459	9.846	14.207	141.477	67.168	
10:36	9.060	10.228	16.253	142.365	49.466	
10:37	8.267	10.856	19.808	141.868	46.720	
10:38	8.388	10.857	20.473	154.261	27.986	
10:39	9.740	9.616	15.046	142.033	25.773	
10:40	9.183	10.097	13.843	137.084	21.882	
10:41	8.623	10.569	15.466	140.761	15.988	
10:42	8.873	10.442	18.179	147.401	0.321	
10:43	9.408	9.914	16.796	137.395	0.002	
10:44	9.194	10.138	16.176	142.005	0.000	
10:45	9.161	10.135	14.462	134.029	0.000	
10:46	9.596	9.765	14.199	135.090	0.000	
10:47	8.844	10.472	14.685	142.668	7.216	
10:48	9.764	9.662	15.802	146.893	83.203	
10:49	9.519	9.809	15.809	142.593	95.207	
10:50	8.033	11.184	18.133	148.179	95.256	
10:51	9.415	9.995	14.996	146.958	95.285	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 11:06
Stop Time 11:32
CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.055	0.087	0.495	0.312	0.659	
C_{uf} Upscale gas	13.945	5.962	42.262	220.443	47.316	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce} Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.7%	0.8%	0.1%	0.7%	
Upscale gas	-1.0%	0.2%	-1.5%	-1.2%	0.1%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{oi} Zero gas	-0.049	0.067	0.552	0.353	0.674	
C_{ui} Upscale gas	13.977	5.972	42.003	220.833	49.323	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.1%	-0.1%	0.0%	0.0%	
Upscale gas	-0.2%	-0.1%	0.3%	-0.1%	-2.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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11:06:07	9.227	10.220	13.851	144.265	18.813
11:06:22	10.444	9.367	13.234	139.789	17.783
11:06:37	6.835	7.990	10.608	130.093	17.555
11:06:52	0.619	9.580	19.489	118.364	13.467
11:07:07	0.026	9.826	32.241	122.002	6.107
11:07:22	-0.026	9.858	37.113	195.572	1.859
11:07:37	-0.041	9.865	39.093	217.159	0.386
11:07:52	-0.046	9.868	40.052	218.787	0.225
11:08:07	-0.054	9.872	40.531	219.243	0.205
11:08:22	-0.052	9.872	40.961	219.552	0.181
11:08:37	-0.051	9.872	41.208	219.788	0.181
11:08:52	-0.052	9.872	41.387	219.886	0.179
11:09:07	-0.055	9.873	41.503	220.065	0.168
11:09:22	-0.056	9.878	41.649	220.065	0.166
11:09:37	-0.058	9.876	41.750	220.204	0.161
11:09:52	-0.061	9.877	41.872	220.196	0.179
11:10:07	-0.059	9.877	42.002	220.236	0.179

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 11:06
Stop Time 11:32
CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
11:10:22	-0.059	9.878	42.077	220.204	0.157	
11:10:37	-0.060	9.878	42.172	220.358	0.181	
11:10:52	-0.061	9.878	42.281	220.464	0.179	
11:11:07	-0.058	9.756	42.333	220.505	0.184	
11:11:22	-0.049	3.692	31.744	220.602	2.978	
11:11:37	-0.049	0.514	12.848	133.350	18.642	
11:11:52	-0.049	0.230	5.788	61.547	34.292	
11:12:07	-0.049	0.171	3.487	4.444	44.077	
11:12:22	-0.049	0.140	2.510	2.638	46.639	
11:12:37	-0.049	0.122	2.058	1.563	47.127	
11:12:52	-0.049	0.110	1.796	1.148	47.217	
11:13:07	-0.063	0.094	1.540	0.953	47.294	
11:13:22	-0.054	0.085	1.395	0.765	47.310	
11:13:37	-0.049	0.081	1.263	0.863	47.297	
11:13:52	0.238	0.088	1.156	0.774	47.266	
11:14:07	9.171	3.165	0.967	0.782	44.842	
11:14:22	13.536	5.637	0.883	0.855	32.537	
11:14:37	13.884	5.902	0.832	0.741	14.841	
11:14:52	13.921	5.940	0.752	0.562	5.561	
11:15:07	13.938	5.955	0.648	0.447	1.466	
11:15:22	13.945	5.962	0.555	0.309	0.762	
11:15:37	13.953	5.970	0.509	0.309	0.684	
11:15:52	13.958	5.971	0.420	0.317	0.684	
11:27:45	13.069	6.972	9.276	143.915	17.070	
11:28:00	13.874	6.102	4.047	87.684	10.086	
11:28:15	13.946	6.028	1.793	30.631	3.344	
11:28:30	13.958	6.016	0.988	2.971	1.148	
11:28:45	13.963	6.009	0.666	1.067	0.682	
11:29:00	13.967	6.005	0.534	0.831	0.677	
11:29:15	13.970	6.001	0.430	0.733	0.677	
11:29:30	13.969	5.999	0.337	0.660	0.671	
11:29:45	13.972	5.999	0.271	0.513	0.609	
11:30:00	13.972	5.997	0.215	0.488	0.648	
11:30:15	12.313	5.671	0.195	0.447	0.720	
11:30:30	2.318	1.585	0.078	0.301	5.515	
11:30:45	0.184	0.278	0.119	0.285	24.941	
11:31:00	0.031	0.142	0.218	0.407	38.851	
11:31:15	0.003	0.113	0.282	0.431	46.034	
11:31:30	-0.010	0.093	0.342	0.301	47.106	
11:31:45	-0.017	0.081	0.376	0.293	47.256	
11:32:00	-0.022	0.074	0.391	0.309	47.302	
11:32:15	-0.026	0.066	0.397	0.342	47.323	
11:32:30	-0.030	0.061	0.413	0.317	47.324	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 11:34
Stop time 12:01
REFERENCE METHOD RUN 5

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.055	0.087	0.495	0.312	0.659	
C_{ui}	Initial upscale	13.945	5.962	42.262	220.443	47.316	
C_{of}	Final zero	-0.055	0.081	0.324	0.293	0.683	
C_{uf}	Final upscale	13.955	5.966	41.750	220.022	47.399	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.064	10.154	13.234	146.926	15.663	
C_{Gas}	**Bias adjusted**	**9.180**	**10.156**	**13.658**	**149.337**	**15.221**	

Clock Time (at end of sample period)

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11:35	8.850	10.349	14.795	145.153	11.797	
11:36	9.728	9.575	11.781	137.084	13.150	
11:37	9.728	9.578	10.561	134.064	15.021	
11:38	8.571	10.574	11.558	139.420	16.650	
11:39	9.254	10.020	12.802	155.956	14.915	
11:40	8.953	10.263	14.751	159.914	16.304	
11:41	9.221	10.002	15.721	170.041	14.168	
11:42	8.751	10.461	15.678	175.732	12.471	
11:43	8.961	10.203	13.370	165.405	10.146	
11:44	8.846	10.352	12.615	162.648	11.271	
11:45	9.132	10.030	11.904	154.613	11.212	
11:46	8.548	10.602	12.365	150.360	15.185	
11:47	9.115	10.089	12.718	146.231	12.248	
11:48	8.545	10.578	16.280	136.907	18.629	
11:49	9.057	10.178	18.517	137.983	17.534	
11:50	9.002	10.158	16.933	131.449	18.180	
11:51	8.522	10.636	15.907	135.442	22.454	
11:52	9.026	10.155	12.926	127.755	16.556	
11:53	8.481	10.701	11.869	128.985	20.733	
11:54	9.435	9.825	10.869	132.098	16.974	
11:55	9.020	10.178	10.328	137.180	18.604	
11:56	8.442	10.692	10.758	144.994	17.166	
11:57	9.462	9.876	11.074	149.739	14.547	
11:58	10.125	9.277	11.544	143.122	16.022	
11:59	9.749	9.542	14.948	147.163	16.983	
12:00	9.080	10.139	13.918	154.347	17.817	
12:01	9.113	10.135	10.814	163.213	16.175	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 12:04
Stop Time 12:11
CALIBRATION BIAS 05

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.055	0.081	0.324	0.293	0.683	
C_{uf}	Upscale gas	13.955	5.966	41.750	220.022	47.399	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.7%	0.6%	0.1%	0.7%	
	Upscale gas	-1.0%	0.2%	-2.0%	-1.3%	0.2%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.055	0.087	0.495	0.312	0.659	
C_{ui}	Upscale gas	13.945	5.962	42.262	220.443	47.316	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.0%	-0.2%	0.0%	0.0%	
	Upscale gas	0.1%	0.0%	-0.6%	-0.1%	0.1%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

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12:04:05	-0.053	9.854	40.816	219.292	0.222
12:04:20	-0.053	9.858	41.096	219.447	0.195
12:04:35	-0.058	9.860	41.345	219.487	0.182
12:04:50	-0.062	9.861	41.416	219.707	0.205
12:05:05	-0.061	9.862	41.506	219.772	0.209
12:05:20	-0.062	9.866	41.600	219.845	0.210
12:05:35	-0.062	9.866	41.729	219.926	0.187
12:05:50	-0.063	9.867	41.921	219.951	0.184
12:06:05	-0.057	8.329	40.877	220.188	0.580
12:06:20	-0.054	1.531	23.839	220.196	7.557
12:06:35	-0.053	0.316	9.271	111.828	27.157
12:06:50	-0.053	0.183	4.597	20.358	40.484
12:07:05	-0.053	0.143	2.948	3.557	46.403
12:07:20	-0.055	0.118	2.230	2.019	47.150
12:07:35	-0.055	0.102	1.819	1.294	47.349
12:07:50	-0.054	0.090	1.529	1.010	47.347
12:08:05	-0.055	0.079	1.345	0.904	47.368
12:08:20	-0.055	0.073	1.179	0.814	47.389
12:08:35	-0.052	0.065	1.117	0.766	47.440
12:08:50	2.932	0.740	0.991	0.709	47.386

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 12:04
Stop Time 12:11
CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
12:09:05	12.304	4.859	0.822	0.652	40.277	
12:09:20	13.799	5.824	0.796	0.652	23.565	
12:09:35	13.907	5.918	0.715	0.521	8.246	
12:09:50	13.927	5.940	0.589	0.399	2.447	
12:10:05	13.938	5.950	0.518	0.309	0.861	
12:10:20	13.945	5.957	0.459	0.301	0.687	
12:10:35	13.952	5.963	0.378	0.309	0.682	
12:10:50	13.955	5.965	0.301	0.309	0.684	
12:11:05	13.959	5.970	0.293	0.260	0.684	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 12:14
Stop time 12:41
REFERENCE METHOD RUN 6

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.055	0.081	0.324	0.293	0.683	
C_{ui}	Initial upscale	13.955	5.966	41.750	220.022	47.399	
C_{of}	Final zero	-0.049	0.096	0.317	0.314	0.683	
C_{uf}	Final upscale	13.944	5.967	41.831	219.428	47.318	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.230	10.003	14.612	146.418	13.345	
C_{Gas}	**Bias adjusted**	**9.347**	**10.002**	**15.266**	**149.164**	**12.859**	

Clock Time (at end of sample period)

041511 101738

12:15	9.023	10.196	11.562	151.532	12.443
12:16	9.461	9.826	15.639	145.159	15.395
12:17	9.300	9.945	20.145	144.750	17.151
12:18	9.590	9.569	19.005	142.582	13.822
12:19	9.734	9.598	14.549	143.720	14.018
12:20	9.644	9.625	11.186	142.365	17.808
12:21	8.829	10.325	11.116	147.086	22.438
12:22	9.331	9.942	12.913	154.115	17.885
12:23	9.612	9.646	15.147	144.013	17.800
12:24	9.925	9.402	16.933	147.717	16.627
12:25	9.170	10.013	16.419	151.838	16.199
12:26	8.982	10.163	14.269	154.111	12.135
12:27	9.023	10.212	12.981	152.308	10.363
12:28	9.334	9.889	12.237	148.470	9.355
12:29	9.289	9.920	13.845	149.253	10.582
12:30	8.628	10.546	17.672	155.938	10.885
12:31	9.337	9.906	18.536	152.971	7.750
12:32	9.162	10.120	16.496	143.681	9.738
12:33	9.573	9.722	12.424	138.964	10.677
12:34	9.296	9.955	10.839	145.818	11.370
12:35	8.855	10.405	10.608	146.673	10.349
12:36	9.100	10.127	12.636	144.674	11.052
12:37	9.003	10.256	13.847	152.068	10.944
12:38	9.443	9.795	15.137	141.374	11.880
12:39	8.651	10.540	18.353	139.953	15.937
12:40	9.391	9.844	16.177	137.015	12.001
12:41	8.526	10.586	13.840	135.141	13.721

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 12:42
Stop Time 12:50
CALIBRATION BIAS 06

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.049	0.096	0.317	0.314	0.683	
C_{uf}	Upscale gas	13.944	5.967	41.831	219.428	47.318	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.8%	0.6%	0.1%	0.7%	
	Upscale gas	-1.0%	0.2%	-1.9%	-1.4%	0.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.055	0.081	0.324	0.293	0.683	
C_{ui}	Upscale gas	13.955	5.966	41.750	220.022	47.399	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.1%	0.0%	0.0%	0.0%	
	Upscale gas	-0.1%	0.0%	0.1%	-0.1%	-0.1%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 101738

12:42:26	8.183	10.989	11.344	145.177	11.901
12:42:41	9.598	8.957	10.416	145.144	11.160
12:42:56	2.084	9.062	15.059	124.957	8.920
12:43:11	0.112	9.772	30.310	136.883	5.176
12:43:26	-0.016	9.841	36.886	195.100	1.469
12:43:41	-0.037	9.851	39.228	212.463	0.423
12:43:56	-0.046	9.854	40.275	217.786	0.220
12:44:11	-0.052	9.859	40.760	218.510	0.189
12:44:26	-0.055	9.860	41.109	218.852	0.177
12:44:41	-0.049	9.860	41.354	218.942	0.177
12:44:56	-0.051	9.866	41.498	219.032	0.174
12:45:11	-0.054	9.866	41.610	219.259	0.179
12:45:26	-0.054	9.866	41.716	219.333	0.182
12:45:41	-0.056	9.866	41.824	219.455	0.179
12:45:56	-0.057	9.866	41.954	219.495	0.181
12:46:11	-0.045	6.743	38.471	219.601	0.531
12:46:26	-0.045	0.941	18.475	195.539	12.661
12:46:41	-0.045	0.270	7.259	75.434	29.605
12:46:56	-0.048	0.180	3.800	17.884	42.992
12:47:11	-0.047	0.145	2.493	2.898	46.458

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 06-2004g4

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 12:42
Stop Time 12:50
CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
12:47:26	-0.049	0.122	1.884	1.587	47.220	
12:47:41	-0.049	0.109	1.537	1.123	47.292	
12:47:56	-0.049	0.096	1.293	1.001	47.314	
12:48:11	-0.049	0.084	1.166	0.912	47.305	
12:48:26	0.258	0.097	1.039	0.774	47.334	
12:48:41	9.412	3.276	0.842	0.782	45.713	
12:48:56	13.571	5.666	0.728	0.766	30.245	
12:49:11	13.877	5.905	0.669	0.709	14.396	
12:49:26	13.911	5.938	0.560	0.521	3.886	
12:49:41	13.924	5.952	0.461	0.374	1.249	
12:49:56	13.933	5.958	0.399	0.301	0.700	
12:50:11	13.938	5.963	0.356	0.333	0.684	
12:50:26	13.944	5.968	0.317	0.285	0.684	
12:50:41	13.951	5.971	0.277	0.325	0.682	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 12:53
Stop time 13:20
REFERENCE METHOD RUN 7

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.049	0.096	0.317	0.314	0.683	
C_{ui}	Initial upscale	13.944	5.967	41.831	219.428	47.318	
C_{of}	Final zero	-0.052	0.071	0.161	0.138	0.645	
C_{uf}	Final upscale	13.924	5.957	41.813	218.918	47.323	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.328	9.927	13.011	139.828	14.083	
C_{Gas}	**Bias adjusted**	**9.456**	**9.930**	**13.606**	**142.824**	**13.633**	

Clock Time (at end of sample period)

041511 101738

12:54	9.536	9.724	12.988	136.248	10.299
12:55	8.908	10.272	15.754	133.911	14.141
12:56	9.504	9.741	16.710	134.245	12.472
12:57	9.486	9.760	16.376	137.060	14.337
12:58	9.811	9.488	14.118	141.286	13.040
12:59	9.609	9.655	14.064	143.883	14.777
13:00	9.253	9.945	13.882	146.889	14.507
13:01	9.656	9.607	13.103	147.983	12.851
13:02	9.559	9.693	12.278	141.496	13.600
13:03	9.355	9.913	11.533	142.517	15.018
13:04	9.847	9.491	11.289	146.937	15.247
13:05	9.710	9.600	11.765	143.698	16.993
13:06	9.089	10.143	12.608	143.582	18.791
13:07	9.802	9.530	11.388	146.966	16.964
13:08	9.868	9.466	9.997	145.582	17.716
13:09	9.231	9.976	11.150	142.692	17.796
13:10	8.873	10.351	13.580	151.138	16.812
13:11	8.305	10.828	14.705	145.431	14.222
13:12	9.285	10.005	13.681	142.641	10.880
13:13	9.800	9.506	10.127	128.187	11.068
13:14	9.529	9.739	8.891	126.573	12.888
13:15	8.721	10.445	9.710	132.625	14.627
13:16	8.167	10.979	11.361	140.621	12.073
13:17	9.318	9.992	13.308	137.639	9.204
13:18	9.924	9.441	11.532	126.612	10.434
13:19	9.248	9.988	14.505	129.798	14.125
13:20	8.471	10.752	20.885	139.117	15.367

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 13:21
Stop Time 13:30
CALIBRATION BIAS 07

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.052	0.071	0.161	0.138	0.645	
C_{uf}	Upscale gas	13.924	5.957	41.813	218.918	47.323	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.6%	0.4%	0.0%	0.7%	
	Upscale gas	-1.2%	0.1%	-2.0%	-1.5%	0.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.049	0.096	0.317	0.314	0.683	
C_{ui}	Upscale gas	13.944	5.967	41.831	219.428	47.318	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	-0.2%	-0.2%	0.0%	0.0%	
	Upscale gas	-0.1%	-0.1%	0.0%	-0.1%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 101738

13:21:00	10.297	9.400	20.767	136.141	9.734
13:21:15	5.132	8.259	17.112	134.644	10.427
13:21:30	0.323	9.673	26.307	143.175	7.445
13:21:45	0.003	9.819	35.352	171.217	2.854
13:22:00	-0.029	9.838	38.654	204.974	0.724
13:22:15	-0.040	9.844	40.085	216.785	0.222
13:22:30	-0.046	9.847	40.646	217.949	0.176
13:22:45	-0.053	9.852	41.021	218.486	0.168
13:23:00	-0.053	9.853	41.307	218.567	0.169
13:23:15	-0.050	9.854	41.525	218.705	0.177
13:23:30	-0.050	9.854	41.703	218.852	0.161
13:23:45	-0.052	9.857	41.843	218.893	0.149
13:24:00	-0.053	9.858	41.892	219.007	0.147
13:24:15	-0.045	8.178	40.759	219.137	0.558
13:24:30	-0.043	1.416	23.557	197.965	7.428
13:24:45	-0.043	0.304	9.057	131.502	26.968
13:25:00	-0.045	0.185	4.404	37.786	40.339
13:25:15	-0.048	0.147	2.688	4.233	46.177
13:25:30	-0.047	0.122	1.945	1.929	47.020
13:25:45	-0.048	0.108	1.551	1.221	47.251

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 13:21
Stop Time 13:30
CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
13:26:00	-0.050	0.095	1.312	1.066	47.290	
13:26:15	-0.051	0.082	1.157	0.944	47.297	
13:26:30	-0.051	0.078	1.012	0.839	47.310	
13:26:45	-0.053	0.071	0.899	0.749	47.310	
13:27:00	-0.053	0.065	0.825	0.652	47.332	
13:27:15	-0.053	0.063	0.817	0.644	47.320	
13:27:30	-0.053	0.057	0.799	0.586	47.318	
13:27:45	4.384	1.250	0.708	0.513	46.867	
13:28:00	12.876	5.186	0.591	0.504	39.486	
13:28:15	13.830	5.848	0.532	0.447	20.550	
13:28:30	13.901	5.915	0.466	0.309	7.816	
13:28:45	13.915	5.932	0.373	0.301	1.966	
13:29:00	13.925	5.942	0.304	0.301	0.788	
13:29:15	13.932	5.951	0.264	0.171	0.684	
13:29:30	13.940	5.954	0.221	0.171	0.677	
13:29:45	13.890	5.956	0.121	0.073	0.583	
13:30:00	13.943	5.960	0.140	0.171	0.676	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 13:31
Stop time 13:58
REFERENCE METHOD RUN 8

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.052	0.071	0.161	0.138	0.645	
C_{ui}	Initial upscale	13.924	5.957	41.813	218.918	47.323	
C_{of}	Final zero	-0.050	0.094	0.256	0.296	0.638	
C_{uf}	Final upscale	13.927	5.958	41.677	218.562	47.228	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.665	9.697	11.964	132.682	22.298	
C_{Gas}	**Bias adjusted**	**9.802**	**9.706**	**12.538**	**135.786**	**22.012**	

Clock Time (at end of sample period)						
041511 101738						
	13:32	8.776	10.421	22.521	130.720	15.165
	13:33	9.320	9.964	20.199	133.392	14.724
	13:34	9.551	9.751	12.857	126.713	14.990
	13:35	9.465	9.835	9.946	129.754	14.285
	13:36	8.482	10.692	8.938	129.448	18.424
	13:37	9.437	9.955	8.957	131.172	17.046
	13:38	10.024	9.406	9.461	121.964	17.485
	13:39	9.279	10.035	15.277	125.674	23.762
	13:40	8.896	10.411	19.627	137.595	21.628
	13:41	9.394	10.002	18.884	136.726	21.551
	13:42	9.795	9.616	13.910	135.604	23.483
	13:43	10.072	9.391	10.760	140.796	25.619
	13:44	9.218	10.092	9.864	139.003	27.698
	13:45	9.603	9.799	8.959	145.606	19.892
	13:46	10.248	9.255	7.564	136.988	21.934
	13:47	10.186	9.281	7.149	131.217	27.866
	13:48	10.040	9.380	7.273	131.695	26.264
	13:49	10.015	9.393	10.127	135.061	23.770
	13:50	10.042	9.371	12.265	134.583	27.386
	13:51	10.190	9.257	11.467	138.049	28.265
	13:52	10.418	9.070	9.209	135.159	28.839
	13:53	10.296	9.156	8.686	130.332	33.370
	13:54	9.545	9.751	10.248	133.535	32.100
	13:55	9.129	10.124	13.353	133.755	22.606
	13:56	9.437	9.798	13.311	130.147	19.603
	13:57	10.008	9.373	12.777	125.837	18.178
	13:58	10.102	9.253	9.434	121.903	16.114

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 13:59
Stop Time 14:07
CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.050	0.094	0.256	0.296	0.638	
C_{uf} Upscale gas	13.927	5.958	41.677	218.562	47.228	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce} Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.8%	0.5%	0.1%	0.6%	
Upscale gas	-1.2%	0.1%	-2.1%	-1.6%	0.0%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{oi} Zero gas	-0.052	0.071	0.161	0.138	0.645	
C_{ui} Upscale gas	13.924	5.957	41.813	218.918	47.323	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.2%	0.1%	0.0%	0.0%	
Upscale gas	0.0%	0.0%	-0.2%	-0.1%	-0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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13:59:40	9.757	9.776	9.587	117.200	17.410
13:59:55	6.760	8.042	9.866	117.151	17.242
14:00:10	0.504	9.593	21.110	123.256	11.722
14:00:25	-0.020	9.784	33.032	145.039	4.288
14:00:40	-0.030	9.824	37.630	197.151	1.055
14:00:55	-0.037	9.831	39.337	215.963	0.279
14:01:10	-0.044	9.836	40.272	217.346	0.192
14:01:25	-0.050	9.841	40.754	217.811	0.150
14:01:40	-0.054	9.841	41.105	218.071	0.147
14:01:55	-0.056	9.843	41.304	218.437	0.124
14:02:10	-0.057	9.847	41.403	218.559	0.137
14:02:25	-0.056	9.847	41.548	218.551	0.140
14:02:40	-0.056	9.847	41.683	218.559	0.122
14:02:55	-0.056	9.845	41.799	218.575	0.129
14:03:10	-0.043	5.255	36.300	218.567	1.260
14:03:25	-0.045	0.625	16.645	199.121	15.207
14:03:40	-0.047	0.234	6.917	63.313	32.515
14:03:55	-0.057	0.165	3.634	11.388	43.766
14:04:10	-0.049	0.137	2.385	2.426	46.774
14:04:25	-0.048	0.119	1.792	1.669	47.111

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 13:59
Stop Time 14:07
CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
14:04:40	-0.049	0.102	1.447	1.123	47.121	
14:04:55	-0.050	0.094	1.265	0.953	47.211	
14:05:10	-0.051	0.084	1.125	0.798	47.238	
14:05:25	-0.024	0.076	1.008	0.757	47.237	
14:05:40	7.571	2.469	0.856	0.668	46.517	
14:05:55	13.419	5.555	0.744	0.652	33.900	
14:06:10	13.856	5.889	0.667	0.554	17.090	
14:06:25	13.896	5.928	0.581	0.455	5.171	
14:06:40	13.911	5.941	0.495	0.309	1.467	
14:06:55	13.919	5.950	0.376	0.333	0.680	
14:07:10	13.925	5.956	0.303	0.350	0.659	
14:07:25	13.925	5.957	0.259	0.260	0.617	
14:07:40	13.932	5.959	0.207	0.277	0.638	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 14:09
Stop time 14:36
REFERENCE METHOD RUN 9

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.050	0.094	0.256	0.296	0.638	
C_{ui}	Initial upscale	13.927	5.958	41.677	218.562	47.228	
C_{of}	Final zero	-0.020	0.092	0.247	0.328	0.634	
C_{uf}	Final upscale	13.920	5.955	41.501	218.291	47.244	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.513	9.696	13.399	133.900	16.762	
C_{Gas}	**Bias adjusted**	**9.644**	**9.712**	**14.089**	**137.193**	**16.402**	

Clock Time (at end of sample period)

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14:10	9.651	9.546	16.903	114.813	18.671
14:11	8.924	10.194	25.022	127.117	15.660
14:12	9.710	9.530	21.958	135.786	12.104
14:13	9.748	9.529	14.322	129.272	16.839
14:14	10.059	9.258	10.275	129.111	18.440
14:15	9.231	9.907	9.313	126.500	22.317
14:16	9.185	9.956	9.856	128.014	20.061
14:17	9.646	9.641	9.873	127.497	17.686
14:18	10.088	9.246	11.397	126.848	20.023
14:19	9.689	9.532	17.321	125.293	20.742
14:20	9.283	9.882	18.828	137.281	18.212
14:21	9.258	9.920	14.928	140.629	20.259
14:22	9.104	10.018	11.488	146.538	18.288
14:23	9.344	9.816	9.869	153.059	16.545
14:24	9.448	9.740	7.985	143.822	16.059
14:25	9.758	9.454	6.978	137.475	15.196
14:26	9.183	9.931	8.914	141.302	15.883
14:27	8.958	10.154	11.435	142.796	14.489
14:28	9.298	9.861	11.006	135.584	15.542
14:29	9.282	9.862	11.949	131.709	15.242
14:30	9.234	9.893	14.788	129.909	13.192
14:31	9.804	9.475	14.806	132.108	13.095
14:32	10.003	9.278	12.085	136.815	14.019
14:33	9.005	10.127	18.518	138.856	16.527
14:34	9.099	10.047	16.799	136.663	13.910
14:35	10.236	9.154	14.039	132.586	15.064
14:36	10.616	8.834	11.109	127.926	18.498

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 14:37
Stop Time 14:45
CALIBRATION BIAS 09

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.020	0.092	0.247	0.328	0.634	
C_{uf}	Upscale gas	13.920	5.955	41.501	218.291	47.244	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.4%	0.7%	0.5%	0.1%	0.6%	
	Upscale gas	-1.2%	0.1%	-2.3%	-1.7%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.050	0.094	0.256	0.296	0.638	
C_{ui}	Upscale gas	13.927	5.958	41.677	218.562	47.228	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.2%	0.0%	0.0%	0.0%	0.0%	
	Upscale gas	0.0%	0.0%	-0.2%	-0.1%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

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14:37:39	9.844	9.483	11.652	130.786	28.643
14:37:54	8.569	8.027	11.282	131.608	28.920
14:38:09	0.907	9.438	18.221	126.797	20.838
14:38:24	0.038	9.774	31.271	124.607	8.591
14:38:39	-0.021	9.811	36.773	189.646	1.972
14:38:54	-0.036	9.820	38.948	215.165	0.382
14:39:09	-0.042	9.825	40.034	217.143	0.181
14:39:24	-0.049	9.829	40.568	217.493	0.147
14:39:39	-0.054	9.831	40.913	217.851	0.134
14:39:54	-0.057	9.833	41.232	218.095	0.122
14:40:09	-0.057	9.835	41.399	218.234	0.122
14:40:24	-0.056	9.835	41.516	218.258	0.122
14:40:39	-0.056	9.836	41.589	218.380	0.124
14:40:54	-0.043	5.849	37.610	218.413	1.457
14:41:09	-0.044	0.709	18.530	180.049	12.938
14:41:24	-0.046	0.242	7.790	67.106	31.769
14:41:39	-0.048	0.166	4.164	15.857	42.971
14:41:54	-0.049	0.136	2.662	2.776	46.676

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 14:37
Stop Time 14:45
CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
14:42:09	-0.049	0.116	1.963	1.677	47.134	
14:42:24	-0.049	0.100	1.581	1.270	47.237	
14:42:39	-0.050	0.092	1.260	0.920	47.240	
14:42:54	0.038	0.083	1.084	0.822	47.256	
14:43:09	8.418	2.821	0.866	0.717	45.919	
14:43:24	13.496	5.615	0.746	0.635	32.956	
14:43:39	13.851	5.890	0.682	0.554	15.666	
14:43:54	13.887	5.925	0.609	0.488	4.972	
14:44:09	13.902	5.940	0.552	0.415	1.306	
14:44:24	13.910	5.945	0.440	0.350	0.685	
14:44:39	13.916	5.952	0.303	0.342	0.637	
14:44:54	13.921	5.955	0.248	0.325	0.637	
14:45:09	13.924	5.958	0.190	0.317	0.630	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 14:48
Stop time 15:15
REFERENCE METHOD RUN 10

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.020	0.092	0.247	0.328	0.634	
C_{ui}	Initial upscale	13.920	5.955	41.501	218.291	47.244	
C_{of}	Final zero	-0.050	0.083	0.214	0.293	0.659	
C_{uf}	Final upscale	13.913	5.940	41.645	216.527	47.291	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.792	9.570	11.428	140.292	21.516	
C_{Gas}	**Bias adjusted**	**9.932**	**9.596**	**11.999**	**144.432**	**21.218**	

Clock Time (at end of sample period)

041511 101738

14:49	10.126	9.298	15.714	144.910	20.033	
14:50	10.595	8.928	16.585	147.096	20.201	
14:51	10.638	8.888	15.991	147.780	25.545	
14:52	9.917	9.427	11.536	148.459	25.589	
14:53	9.457	9.839	8.494	160.008	21.571	
14:54	9.774	9.561	6.667	160.749	21.434	
14:55	9.866	9.484	5.778	155.788	24.371	
14:56	10.227	9.201	5.632	154.921	20.041	
14:57	9.985	9.364	5.545	147.625	21.211	
14:58	9.263	9.952	6.387	138.942	19.068	
14:59	8.925	10.302	8.071	141.022	15.306	
15:00	8.389	10.787	9.695	136.968	16.929	
15:01	9.803	9.581	8.814	132.621	12.219	
15:02	9.720	9.582	8.682	118.472	14.879	
15:03	8.837	10.383	11.621	112.943	23.508	
15:04	9.351	9.915	13.934	115.763	17.014	
15:05	9.427	9.900	16.845	116.309	19.072	
15:06	9.904	9.464	15.887	114.723	16.454	
15:07	9.974	9.395	13.094	122.348	20.300	
15:08	9.011	10.246	12.127	141.602	22.217	
15:09	10.114	9.330	10.528	140.428	16.433	
15:10	10.457	9.055	9.162	138.610	22.430	
15:11	10.611	8.925	9.882	141.205	27.706	
15:12	10.128	9.307	14.335	148.356	30.092	
15:13	10.040	9.384	17.318	156.532	26.948	
15:14	10.071	9.348	16.813	150.232	30.875	
15:15	9.789	9.556	13.429	153.474	29.496	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 15:16
Stop Time 15:24
CALIBRATION BIAS 10

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.050	0.083	0.214	0.293	0.659	
C_{uf}	Upscale gas	13.913	5.940	41.645	216.527	47.291	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	-0.012	-0.225	-0.062	0.017	
C_{mce}	Upscale gas	14.090	5.940	43.583	225.899	47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.7%	0.5%	0.1%	0.7%	
	Upscale gas	-1.3%	0.0%	-2.2%	-2.1%	0.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.020	0.092	0.247	0.328	0.634	
C_{ui}	Upscale gas	13.920	5.955	41.501	218.291	47.244	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	-0.2%	-0.1%	0.0%	0.0%	0.0%	
	Upscale gas	-0.1%	-0.1%	0.2%	-0.4%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

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15:16:01	10.373	9.207	9.524	140.025	25.848
15:16:16	4.751	8.333	10.037	139.666	24.887
15:16:31	0.282	9.664	23.774	145.836	15.152
15:16:46	0.000	9.793	34.149	167.081	4.555
15:17:01	-0.029	9.811	38.068	204.005	1.004
15:17:16	-0.041	9.818	39.590	214.815	0.238
15:17:31	-0.054	9.821	40.353	215.580	0.153
15:17:46	-0.053	9.823	40.811	215.962	0.147
15:18:01	-0.055	9.828	41.195	216.280	0.129
15:18:16	-0.055	9.829	41.410	216.394	0.132
15:18:31	-0.055	9.829	41.538	216.459	0.129
15:18:46	-0.055	9.833	41.631	216.606	0.122
15:19:01	-0.055	9.834	41.767	216.517	0.122
15:19:16	-0.042	6.613	38.686	216.663	1.138
15:19:31	-0.044	0.853	19.562	179.764	11.571
15:19:46	-0.045	0.253	8.173	89.385	31.402
15:20:01	-0.045	0.171	4.335	22.206	42.341
15:20:16	-0.049	0.140	2.668	3.045	46.883
15:20:31	-0.048	0.117	1.931	1.799	47.077
15:20:46	-0.051	0.103	1.535	1.188	47.241

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 15:16
Stop Time 15:24
CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
15:21:01	-0.051	0.094	1.280	1.034	47.225	
15:21:16	-0.050	0.080	1.071	0.831	47.217	
15:21:31	-0.051	0.074	0.990	0.757	47.231	
15:21:46	-0.052	0.071	0.912	0.692	47.268	
15:22:01	-0.053	0.061	0.820	0.627	47.318	
15:22:16	-0.055	0.061	0.819	0.611	47.269	
15:22:31	0.200	0.070	0.752	0.619	47.287	
15:22:46	9.392	3.242	0.542	0.504	44.698	
15:23:01	13.576	5.657	0.483	0.504	31.468	
15:23:16	13.854	5.880	0.464	0.439	13.076	
15:23:31	13.887	5.914	0.426	0.333	4.384	
15:23:46	13.899	5.927	0.365	0.350	1.078	
15:24:01	13.907	5.934	0.270	0.325	0.677	
15:24:16	13.914	5.941	0.205	0.325	0.657	
15:24:31	13.917	5.945	0.166	0.228	0.641	
15:24:46	13.504	6.092	0.133	0.155	0.645	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 15:46
Stop time 16:10
REFERENCE METHOD RUN 11

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{ol}	Initial zero	-0.050				0.659	
C_{ui}	Initial upscale	13.913				47.291	
C_{of}	Final zero	-0.014				0.613	
C_{uf}	Final upscale	13.931				47.214	
C_{ma}	Actual gas value	14.100				47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	10.202				28.341	
C_{Gas}	**Bias adjusted**	**10.341**				**28.171**	

Clock Time (at end of sample period)

041511 101738

15:47	10.003	9.319	13.540	138.724	31.235
15:48	10.354	9.085	16.047	140.132	28.355
15:49	10.956	8.594	12.432	131.709	31.386
15:50	10.483	8.918	10.859	131.463	35.416
15:51	9.419	9.737	17.004	137.735	31.993
15:52	9.454	9.789	20.068	149.150	23.636
15:53	10.384	9.063	15.301	143.797	23.156
15:54	10.588	8.876	13.709	140.383	26.536
15:55	9.622	9.614	9.136	141.121	26.395
15:56	8.823	10.408	7.503	135.891	24.765
15:57	9.889	9.472	5.571	126.941	19.229
15:58	10.236	9.212	4.641	124.847	22.727
15:59	10.024	9.367	4.177	130.562	24.776
16:00	9.700	9.619	6.071	134.046	24.350
16:01	9.773	9.611	8.153	133.150	24.517
16:02	10.371	9.156	9.695	132.696	26.199
16:03	10.367	9.134	10.156	131.744	25.295
16:04	10.431	9.098	9.326	136.245	26.801
16:05	10.829	8.824	8.218	137.493	31.456
16:06	11.048	8.627	7.626	145.071	33.196
16:07	11.221	8.446	6.670	147.078	35.975
16:08	10.677	8.878	6.780	147.574	39.479
16:09	10.180	9.258	6.731	146.496	32.873
16:10	10.012	9.386	6.305	152.927	30.449

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 16:11
Stop Time 16:17
CALIBRATION BIAS 11

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.014				0.613	
C_{uf}	Upscale gas	13.931				47.214	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079				0.017	
C_{mce}	Upscale gas	14.090				47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100				47.400	
Calibration Span Value (CS)							
		14.100				95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.5%				0.6%	
	Upscale gas	-1.1%				0.0%	
System Bias Status							
	Zero gas	OK				OK	
	Upscale gas	OK				OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.050				0.659	
C_{ui}	Upscale gas	13.913				47.291	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.3%				0.0%	
	Upscale gas	0.1%				-0.1%	
Drift Assessment Status							
	Zero gas	OK				OK	
	Upscale gas	OK				OK	

041511 101738

	16:11:45	10.631	27.547
	16:12:00	11.534	26.385
	16:12:15	12.831	24.368
	16:12:30	13.799	15.119
	16:12:45	13.902	5.232
	16:13:00	13.912	1.303
	16:13:15	13.919	0.685
	16:13:30	13.922	0.659
	16:13:45	13.925	0.646
	16:14:00	13.926	0.601
	16:14:15	13.929	0.630
	16:14:30	13.930	0.646
	16:14:45	13.931	0.635
	16:15:00	13.931	0.558
	16:15:15	13.560	0.640
	16:15:30	3.978	2.807
	16:15:45	0.250	18.136
	16:16:00	0.042	35.884
	16:16:15	0.011	44.895
	16:16:30	0.000	46.992

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 16:11
Stop Time 16:17
CALIBRATION BIAS 11

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
16:16:45	-0.008				47.163	
16:17:00	-0.014				47.238	
16:17:15	-0.020				47.242	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 16:18
Stop time 16:42
REFERENCE METHOD RUN 12

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{ol}	Initial zero	-0.014				0.613	
C_{ul}	Initial upscale	13.931				47.214	
C_{of}	Final zero	-0.020				0.625	
C_{uf}	Final upscale	13.916				47.117	
C_{ma}	Actual gas value	14.100				47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.941				28.395	
C_{Gas}	**Bias adjusted**	**10.072**				**28.286**	

Clock Time (at end of sample period)

041511 101738

16:19	10.116	9.258	0.457	111.302	23.901	
16:20	9.999	9.393	1.695	115.065	21.714	
16:21	10.473	9.033	2.741	117.924	20.520	
16:22	9.715	9.651	3.216	120.604	26.391	
16:23	9.526	9.822	3.285	117.676	24.153	
16:24	9.862	9.532	3.292	120.466	20.126	
16:25	9.468	9.834	3.286	129.023	22.110	
16:26	9.117	10.136	3.410	132.994	21.488	
16:27	9.785	9.597	3.995	125.307	21.450	
16:28	9.904	9.477	5.154	117.768	24.433	
16:29	9.328	9.964	7.241	116.860	26.698	
16:30	9.456	9.904	10.002	117.444	26.077	
16:31	9.991	9.428	13.379	127.060	27.388	
16:32	10.034	9.406	16.413	128.252	28.283	
16:33	10.454	9.101	17.268	125.928	29.704	
16:34	10.740	8.870	15.486	125.427	36.498	
16:35	10.742	8.851	13.428	134.082	40.391	
16:36	9.339	9.951	12.575	140.295	41.995	
16:37	7.915	11.238	12.547	147.428	32.542	
16:38	10.422	9.175	14.938	147.340	19.011	
16:39	11.810	7.933	16.796	127.242	26.743	
16:40	11.110	8.499	14.778	124.868	36.703	
16:41	9.998	9.407	12.742	139.467	42.059	
16:42	9.278	10.060	13.478	147.715	41.113	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 16:43
Stop Time 16:47
CALIBRATION BIAS 12

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.020				0.625	
C_{uf}	Upscale gas	13.916				47.117	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079				0.017	
C_{mce}	Upscale gas	14.090				47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100				47.400	
Calibration Span Value (CS)							
		14.100				95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.4%				0.6%	
	Upscale gas	-1.2%				-0.1%	
System Bias Status							
	Zero gas	OK				OK	
	Upscale gas	OK				OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.014				0.613	
C_{ui}	Upscale gas	13.931				47.214	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%				0.0%	
	Upscale gas	-0.1%				-0.1%	
Drift Assessment Status							
	Zero gas	OK				OK	
	Upscale gas	OK				OK	

041511 101738

16:43:53	13.888		7.474
16:44:08	13.898		1.806
16:44:23	13.905		0.791
16:44:38	13.909		0.684
16:44:53	13.913		0.676
16:45:08	13.917		0.604
16:45:23	13.917		0.596
16:45:38	8.589		1.081
16:45:53	0.714		9.278
16:46:08	0.067		28.198
16:46:23	0.013		40.682
16:46:38	-0.004		46.234
16:46:53	-0.012		47.021
16:47:08	-0.021		47.171
16:47:23	-0.028		47.158

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 16:49
Stop time 17:13
REFERENCE METHOD RUN 13

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.020				0.625	
C_{ui}	Initial upscale	13.916				47.117	
C_{of}	Final zero	-0.018				0.652	
C_{uf}	Final upscale	13.918				47.116	
C_{ma}	Actual gas value	14.100				47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	10.117				32.539	
C_{Gas}	**Bias adjusted**	**10.256**				**32.533**	

Clock Time (at end of sample period)							
041511 101738							
	16:50	11.010				18.069	
	16:51	11.409				22.469	
	16:52	9.675				29.233	
	16:53	8.053				28.395	
	16:54	8.980				20.500	
	16:55	9.948				18.099	
	16:56	10.487				22.578	
	16:57	10.311				26.155	
	16:58	10.048				27.582	
	16:59	9.822				26.067	
	17:00	9.289				27.725	
	17:01	9.842				27.620	
	17:02	10.646				30.481	
	17:03	10.706				34.073	
	17:04	10.105				42.418	
	17:05	9.485				40.708	
	17:06	10.248				34.438	
	17:07	11.109				40.800	
	17:08	11.062				51.535	
	17:09	10.356				46.840	
	17:10	10.022				45.678	
	17:11	9.998				43.904	
	17:12	9.895				38.605	
	17:13	10.303				36.952	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 17:14
Stop Time 17:18
CALIBRATION BIAS 13

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.018				0.652	
C_{uf}	Upscale gas	13.918				47.116	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079				0.017	
C_{mce}	Upscale gas	14.090				47.236	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100				47.400	
Calibration Span Value (CS)							
		14.100				95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.4%				0.7%	
	Upscale gas	-1.2%				-0.1%	
System Bias Status							
	Zero gas	OK				OK	
	Upscale gas	OK				OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.020				0.625	
C_{ui}	Upscale gas	13.916				47.117	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%				0.0%	
	Upscale gas	0.0%				0.0%	
Drift Assessment Status							
	Zero gas	OK				OK	
	Upscale gas	OK				OK	

041511 111406

17:14:57	13.860		17.467
17:15:12	13.893		6.166
17:15:27	13.901		1.361
17:15:42	13.909		0.741
17:15:57	13.911		0.674
17:16:12	13.916		0.666
17:16:27	13.917		0.648
17:16:42	13.920		0.641
17:16:57	10.048		0.879
17:17:12	1.021		6.953
17:17:27	0.084		26.613
17:17:42	0.017		39.621
17:17:57	0.000		46.050
17:18:12	-0.010		47.008
17:18:27	-0.020		47.150
17:18:42	-0.024		47.189
17:18:57	1.133		47.126

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 17:19
Stop time 17:43
REFERENCE METHOD RUN 14

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.018				0.652	
C_{ui}	Initial upscale	13.918				47.116	
C_{of}	Final zero	-0.029				0.634	
C_{uf}	Final upscale	13.913				47.166	
C_{ma}	Actual gas value	14.100				47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.357				15.275	
C_{Gas}	**Bias adjusted**	**9.489**				**14.916**	

Clock Time (at end of sample period)							
041511 101738							
	17:20	9.887				15.624	
	17:21	9.348				16.021	
	17:22	8.976				16.745	
	17:23	9.395				14.441	
	17:24	9.705				15.175	
	17:25	9.191				17.477	
	17:26	8.861				17.577	
	17:27	9.277				14.839	
	17:28	9.474				13.957	
	17:29	8.854				14.620	
	17:30	9.805				11.172	
	17:31	10.133				12.859	
	17:32	9.526				15.377	
	17:33	9.044				16.234	
	17:34	9.469				15.276	
	17:35	9.615				17.383	
	17:36	9.259				15.857	
	17:37	9.093				16.031	
	17:38	9.527				16.197	
	17:39	9.750				15.870	
	17:40	9.310				15.969	
	17:41	8.701				15.650	
	17:42	9.352				13.475	
	17:43	9.002				12.778	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 1

March 22, 2011
Start Time 17:45
Stop Time 17:49
CALIBRATION BIAS 14

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 1 %dv	FF Outlet 1 %dv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	FF Outlet 1 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.029				0.634	
C_{uf} Upscale gas	13.913				47.166	
Analyzer Calibration Error Reponses (C_{Dlr})						
C_{oce} Zero gas	-0.079				0.017	
C_{mce} Upscale gas	14.090				47.236	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100				47.400	
Calibration Span Value (CS)						
	14.100				95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.4%				0.6%	
Upscale gas	-1.3%				-0.1%	
System Bias Status						
Zero gas	OK				OK	
Upscale gas	OK				OK	
Previous System Response to Calibration Gases (C_S)						
C_{oi} Zero gas	-0.018				0.652	
C_{ui} Upscale gas	13.918				47.116	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%				0.0%	
Upscale gas	0.0%				0.1%	
Drift Assessment Status						
Zero gas	OK				OK	
Upscale gas	OK				OK	

041511 111415

17:45:05	13.772		15.970
17:45:20	13.880		7.902
17:45:35	13.897		2.097
17:45:50	13.902		0.801
17:46:05	13.909		0.658
17:46:20	13.913		0.633
17:46:35	13.916		0.612
17:46:50	12.895		0.555
17:47:05	2.716		4.239
17:47:20	0.167		18.821
17:47:35	0.026		36.482
17:47:50	0.002		44.464
17:48:05	-0.011		46.847
17:48:20	-0.018		47.070
17:48:35	-0.024		47.176
17:48:50	-0.030		47.155
17:49:05	-0.033		47.166
17:49:20	2.439		47.124

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Date: **March 23, 2011**
Start Time 6:38
Stop Time 6:52
CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	**CO2**	**SO2**	**NOX**	**CO**	
	FF Outlet 2 %dv	**FF Outlet 2 %dv**	**FF Outlet 2 ppmdv**	**FF Outlet 2 ppmdv**	**FF Outlet 2 ppmdv**	
Instrument Information						
Manufacturer:	Servomex	Servomex	Wstrn Rsrch	Thermo	Thermo	
Model:	1420C	1415C	921H UV	42i-HL	48i	
Detection:	Paramagn.	NDIR	Photo.	Chemilumi.	GFC/NDIR	
Asset or Serial No:	207491	207492	204654	205177	204433	
Calibration Span Value (CS)						
	14.100	13.900	89.900	453.000	95.700	
System Response Time (seconds)						
	75	75	75	75	75	
Manufacturer Certified Cylinder Value (C_V)						
Zero	0.000	0.000	0.000	0.000	0.000	
Low	6.050	5.930	44.300	224.000	47.400	
Mid						
High	14.100	13.900	89.900	453.000	95.700	
Actual gas to be used for bias checks						
	14.100	5.930	44.300	224.000	47.400	
Cylinder ID						
Zero	ALM013200	ALM013200	ALM013200	ALM013200	ALM013200	
Low	ALM017071	ALM062872	CC217365	CC217365	ALM026334	
Mid						
High	ALM062872	ALM017071	CC124384	CC124384	ALM016660	
Analyzer Calibration Response (C_{Dir})						
Zero	-0.091	0.011	-0.064	0.111	0.026	
Low	6.001	6.013	43.916	226.214	46.988	
Mid						
High	14.053	13.878	91.387	453.865	95.527	
Analyzer Calibration Error (ACE) (Limit = 2%, Method 25A limit = 5% of gas value)						
Zero	-0.6%	0.1%	-0.1%	0.0%	0.0%	
Low	-0.4%	0.6%	-0.4%	0.5%	-0.4%	
Mid	N/A	N/A	N/A	N/A	N/A	
High	-0.3%	-0.2%	1.7%	0.2%	-0.2%	
Calibration Error Status						
Zero	OK	OK	OK	OK	OK	
Low	OK	OK	OK	OK	OK	
Mid	N/A	N/A	N/A	N/A	N/A	
High	OK	OK	OK	OK	OK	

041511_111043

06:38:48	-0.086	0.013	0.140	0.635	82.855
06:39:03	-0.089	0.014	-0.016	0.448	44.059
06:39:18	-0.090	0.012	-0.049	0.228	9.421
06:39:33	-0.091	0.012	-0.049	0.163	1.228

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Date: March 23, 2011
Start Time 6:38
Stop Time 6:52
CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	CO2	SO2	NOX	CO	
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
06:39:48	-0.090	0.012	-0.049	0.146	0.067	
06:40:03	-0.093	0.010	-0.072	0.098	0.021	
06:40:18	-0.091	0.010	-0.070	0.089	-0.010	
06:40:33	-0.098	0.009	-0.086	0.098	-0.010	
06:40:48	7.692	2.608	0.181	0.089	0.083	
06:41:03	13.622	5.729	0.147	0.146	0.344	
06:41:18	14.016	5.986	0.000	0.505	0.415	
06:41:33	14.044	6.005	-0.049	0.366	0.311	
06:41:48	14.051	6.012	-0.051	0.041	0.269	
06:42:03	14.054	6.013	-0.054	-0.008	0.251	
06:42:18	14.055	6.014	-0.067	-0.024	0.244	
06:42:33	11.855	7.372	-0.111	-0.041	0.244	
06:42:48	6.491	13.127	-0.182	-0.033	0.220	
06:43:03	6.028	13.829	-0.090	0.041	0.117	
06:43:18	6.003	13.868	-0.093	-0.033	0.044	
06:43:33	5.999	13.875	-0.091	-0.057	0.024	
06:43:48	5.998	13.879	-0.059	-0.016	0.024	
06:44:03	6.004	13.879	0.099	-0.065	0.022	
06:44:18	2.278	11.591	42.427	-0.049	-0.010	
06:44:33	0.032	10.031	80.868	131.184	-0.130	
06:44:48	-0.077	9.939	88.568	320.537	-0.233	
06:45:03	-0.089	9.933	90.512	432.609	-0.283	
06:45:18	-0.092	9.932	91.194	452.446	-0.293	
06:45:33	-0.092	9.931	91.386	453.813	-0.293	
06:45:48	-0.093	9.929	91.380	453.879	-0.293	
06:46:03	-0.094	9.930	91.396	454.033	-0.265	
06:46:18	0.245	9.566	59.800	453.683	-0.264	
06:46:33	-0.069	9.898	36.070	409.158	-0.194	
06:46:48	-0.098	9.969	42.037	326.756	-0.143	
06:47:03	-0.098	9.969	43.197	236.801	-0.156	
06:47:18	-0.098	9.971	43.560	225.625	-0.166	
06:47:33	-0.098	9.970	43.811	226.146	-0.168	
06:47:48	-0.098	9.970	43.897	226.186	-0.165	
06:48:03	-0.100	9.972	44.041	226.309	-0.161	
06:48:18	-0.095	7.654	33.237	226.301	0.814	
06:48:33	-0.092	0.946	7.344	209.272	18.813	
06:48:48	-0.092	0.127	1.478	146.683	58.927	
06:49:03	-0.092	0.047	0.485	25.014	83.972	
06:49:18	-0.092	0.035	0.262	2.800	94.154	
06:49:33	-0.092	0.028	0.163	0.953	95.308	
06:49:48	-0.092	0.024	0.106	0.692	95.640	
06:50:03	-0.092	0.022	0.068	0.496	95.637	
06:50:18	0.008	0.121	0.164	0.472	95.305	
06:50:33	-0.062	0.059	0.254	1.408	85.846	
06:50:48	-0.091	0.020	0.177	1.970	63.632	
06:51:03	-0.092	0.012	0.168	0.618	50.929	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

Date: **March 23, 2011**
Start Time 6:38
Stop Time 6:52
CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	CO2	SO2	NOX	CO	
	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	FF Outlet 2	
	%dv	%dv	ppmdv	ppmdv	ppmdv	
06:51:18	-0.092	0.012	0.145	0.211	47.264	
06:51:33	-0.092	0.012	0.088	0.130	46.995	
06:51:48	-0.092	0.011	0.073	0.130	46.984	
06:52:03	-0.092	0.012	0.111	0.106	46.986	
06:52:18	1.710	1.330	2.655	0.081	46.984	

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 06-2004g4

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 6:53
Stop Time 7:04
CALIBRATION BIAS 00

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.046	0.085	0.605	0.138	0.510	
C_{uf}	Upscale gas	13.930	5.981	43.217	225.253	47.010	
Analyzer Calibration Error Reponses (C_{Dlr})							
C_{oce}	Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce}	Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.5%	0.7%	0.0%	0.5%	
	Upscale gas	-0.9%	-0.2%	-0.8%	-0.2%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{of}	Zero gas	N/A	N/A	N/A	N/A	N/A	
C_{ui}	Upscale gas	N/A	N/A	N/A	N/A	N/A	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	N/A	N/A	N/A	N/A	N/A	
	Upscale gas	N/A	N/A	N/A	N/A	N/A	
Drift Assessment Status							
	Zero gas	N/A	N/A	N/A	N/A	N/A	
	Upscale gas	N/A	N/A	N/A	N/A	N/A	

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06:53:38	5.605	3.822	17.068	173.814	20.759
06:53:53	0.400	0.462	8.212	112.373	42.097
06:54:08	0.010	0.197	4.098	27.570	50.099
06:54:23	-0.022	0.145	2.431	5.128	48.195
06:54:38	-0.033	0.123	1.735	1.229	47.009
06:54:53	-0.037	0.108	1.340	0.774	46.984
06:55:08	-0.041	0.095	1.117	0.619	46.976
06:55:23	-0.043	0.089	1.032	0.488	46.984
06:55:38	-0.043	0.081	0.978	0.447	47.002
06:55:53	-0.044	0.073	0.901	0.317	46.991
06:56:08	-0.044	0.073	0.853	0.301	47.000
06:56:23	-0.049	0.109	0.794	0.268	47.039
06:56:38	-0.053	5.946	6.170	0.252	43.992
06:56:53	-0.066	9.450	28.275	76.003	29.032
06:57:08	-0.068	9.705	37.136	176.679	10.201
06:57:23	-0.068	9.745	39.862	216.557	2.729
06:57:38	-0.068	9.769	41.063	224.461	0.405
06:57:53	-0.071	9.782	41.813	225.251	0.203
06:58:08	-0.070	9.795	42.274	225.226	0.190
06:58:23	-0.074	9.801	42.595	225.226	0.134

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 6:53
Stop Time 7:04
CALIBRATION BIAS 00

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
06:58:38	-0.082	9.808	42.818	225.177	0.104	
06:58:53	-0.071	9.814	42.994	225.210	0.124	
06:59:08	-0.073	9.817	43.108	225.275	0.137	
06:59:23	-0.073	9.819	43.230	225.242	0.122	
06:59:38	-0.072	9.822	43.314	225.242	0.122	
06:59:53	2.924	9.339	42.400	225.275	0.142	
07:00:08	12.415	6.613	23.832	203.842	0.539	
07:00:23	13.764	6.074	9.968	133.960	0.718	
07:00:38	13.859	6.020	5.742	39.959	0.650	
07:00:53	13.882	6.009	3.704	4.029	0.540	
07:01:08	13.894	5.998	2.621	1.473	0.544	
07:01:23	13.901	5.995	2.037	1.099	0.542	
07:01:38	13.907	5.995	1.680	0.855	0.531	
07:01:53	13.872	5.996	1.412	0.603	0.513	
07:02:08	13.647	6.191	2.292	0.822	0.591	
07:02:23	13.874	5.998	3.518	1.840	0.816	
07:02:38	13.917	5.984	2.637	2.003	0.790	
07:02:53	13.919	5.984	1.745	1.164	0.591	
07:03:08	13.921	5.983	1.250	0.285	0.495	
07:03:23	13.922	5.983	0.977	0.171	0.522	
07:03:38	13.925	5.983	0.819	0.138	0.510	
07:03:53	13.928	5.981	0.689	0.155	0.506	
07:04:08	13.930	5.981	0.575	0.163	0.510	
07:04:23	13.930	5.981	0.550	0.098	0.513	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 7:12
Stop time 7:39
REFERENCE METHOD RUN 1

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.046	0.085	0.605	0.138	0.510	
C_{ui}	Initial upscale	13.930	5.981	43.217	225.253	47.010	
C_{of}	Final zero	-0.044	0.113	0.837	0.201	0.647	
C_{uf}	Final upscale	13.914	5.963	42.712	225.126	46.992	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.395	10.892	11.059	154.413	15.171	
C_{Gas}	**Bias adjusted**	**8.520**	**10.898**	**10.842**	**153.545**	**14.900**	

Clock Time (at end of sample period)

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07:13	8.523	10.772	13.543	140.592	13.834	
07:14	8.694	10.638	12.416	137.295	15.476	
07:15	8.474	10.823	12.747	145.175	16.775	
07:16	7.966	11.279	14.147	152.316	16.856	
07:17	8.060	11.195	13.794	147.444	16.816	
07:18	8.630	10.694	13.640	146.549	16.582	
07:19	8.546	10.754	12.763	150.458	17.745	
07:20	7.899	11.333	12.874	152.418	16.238	
07:21	8.604	10.708	12.086	145.159	13.897	
07:22	8.544	10.764	11.273	154.538	14.359	
07:23	8.095	11.155	10.926	162.037	13.404	
07:24	8.255	11.004	10.347	162.670	12.874	
07:25	8.240	11.026	10.495	161.915	12.529	
07:26	8.348	10.952	10.619	169.253	12.209	
07:27	8.712	10.642	11.843	162.216	13.121	
07:28	9.049	10.309	12.328	153.358	15.053	
07:29	8.569	10.720	11.536	161.486	16.215	
07:30	8.353	10.923	10.599	166.610	15.567	
07:31	8.395	10.881	9.326	165.999	14.969	
07:32	8.406	10.879	8.983	162.849	14.949	
07:33	8.406	10.874	8.949	157.037	15.079	
07:34	8.166	11.076	9.675	156.298	14.281	
07:35	8.432	10.855	9.009	154.495	14.377	
07:36	8.656	10.683	8.732	149.186	17.089	
07:37	8.497	10.801	8.368	149.941	18.432	
07:38	7.988	11.220	8.645	151.756	16.838	
07:39	8.155	11.114	8.942	150.110	14.065	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 7:40
Stop Time 7:46
CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.044	0.113	0.837	0.201	0.647	
C_{uf} Upscale gas	13.914	5.963	42.712	225.126	46.992	
Analyzer Calibration Error Reponses (C_{DIr})						
C_{oce} Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce} Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.7%	1.0%	0.0%	0.6%	
Upscale gas	-1.0%	-0.4%	-1.3%	-0.2%	0.0%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{oi} Zero gas	-0.046	0.085	0.605	0.138	0.510	
C_{ui} Upscale gas	13.930	5.981	43.217	225.253	47.010	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.2%	0.3%	0.0%	0.1%	
Upscale gas	-0.1%	-0.1%	-0.6%	0.0%	0.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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07:40:31	0.068	9.781	27.095	139.626	5.244
07:40:46	-0.027	9.834	35.726	207.839	1.122
07:41:01	-0.043	9.842	39.245	219.984	0.230
07:41:16	-0.045	9.847	40.838	223.989	0.117
07:41:31	-0.046	9.848	41.698	224.786	0.112
07:41:46	-0.051	9.851	42.196	225.063	0.100
07:42:01	-0.054	9.852	42.512	225.145	0.101
07:42:16	-0.057	9.853	42.725	225.112	0.114
07:42:31	-0.057	9.853	42.898	225.120	0.098
07:42:46	-0.054	9.671	43.041	225.202	0.111
07:43:01	-0.041	3.124	33.263	225.161	3.209
07:43:16	-0.043	0.424	14.702	131.111	21.584
07:43:31	-0.043	0.213	6.940	57.696	38.010
07:43:46	-0.043	0.171	4.057	3.646	45.701
07:44:01	-0.043	0.142	2.859	1.962	47.009
07:44:16	-0.044	0.124	2.302	1.262	47.002
07:44:31	-0.044	0.114	1.947	0.953	46.996
07:44:46	-0.044	0.102	1.736	0.855	46.996
07:45:01	0.406	0.126	1.574	0.660	46.984
07:45:16	10.076	3.615	1.347	0.619	44.311

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 7:40
Stop Time 7:46
CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
07:45:31	13.652	5.739	1.263	0.611	29.423	
07:45:46	13.867	5.917	1.164	0.668	10.860	
07:46:01	13.894	5.944	1.086	0.333	3.026	
07:46:16	13.906	5.955	0.938	0.293	0.790	
07:46:31	13.915	5.965	0.845	0.187	0.611	
07:46:46	13.920	5.969	0.728	0.122	0.542	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 7:48
Stop time 8:15
REFERENCE METHOD RUN 2

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.044	0.113	0.837	0.201	0.647	
C_{ui}	Initial upscale	13.914	5.963	42.712	225.126	46.992	
C_{of}	Final zero	-0.046	0.119	0.692	0.149	0.531	
C_{uf}	Final upscale	13.926	5.974	42.725	225.052	46.984	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.475	10.730	6.708	156.597	10.974	
C_{Gas}	**Bias adjusted**	**8.602**	**10.754**	**6.276**	**155.786**	**10.609**	

Clock Time (at end of sample period)

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07:49	8.357	10.814	7.612	145.161	11.683	
07:50	8.696	10.503	6.730	159.965	11.593	
07:51	8.468	10.715	6.172	162.216	12.145	
07:52	8.589	10.605	6.792	167.519	11.275	
07:53	8.493	10.700	6.975	167.924	11.503	
07:54	8.044	11.080	6.723	160.834	12.216	
07:55	8.280	10.893	6.151	161.071	11.178	
07:56	8.805	10.460	5.980	155.549	12.647	
07:57	8.886	10.352	5.798	149.444	13.241	
07:58	8.598	10.598	6.221	151.323	13.309	
07:59	8.379	10.801	6.636	151.595	12.937	
08:00	8.147	11.020	6.626	156.463	13.515	
08:01	8.358	10.803	6.614	157.753	11.508	
08:02	8.397	10.774	6.352	151.663	11.014	
08:03	8.456	10.729	6.405	152.570	11.214	
08:04	8.426	10.760	6.350	153.171	10.057	
08:05	8.227	10.943	6.464	153.944	9.448	
08:06	8.016	11.101	6.689	162.314	8.557	
08:07	8.679	10.551	6.973	167.169	8.027	
08:08	8.467	10.760	6.940	165.474	9.292	
08:09	8.887	10.388	6.939	159.469	9.330	
08:10	8.652	10.598	7.126	156.184	10.892	
08:11	8.252	10.964	7.317	155.613	10.326	
08:12	8.212	11.050	7.520	155.598	9.949	
08:13	8.522	10.726	6.932	149.935	10.069	
08:14	8.953	10.345	7.062	150.763	9.606	
08:15	8.579	10.686	7.020	147.426	9.774	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 8:16
Stop Time 8:23
CALIBRATION BIAS 02

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.046	0.119	0.692	0.149	0.531	
C_{uf}	Upscale gas	13.926	5.974	42.725	225.052	46.984	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce}	Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.8%	0.8%	0.0%	0.5%	
	Upscale gas	-0.9%	-0.3%	-1.3%	-0.3%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.044	0.113	0.837	0.201	0.647	
C_{ui}	Upscale gas	13.914	5.963	42.712	225.126	46.992	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.0%	-0.2%	0.0%	-0.1%	
	Upscale gas	0.1%	0.1%	0.0%	0.0%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

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08:16:39	0.048	9.797	30.255	154.904	3.648
08:16:54	-0.029	9.837	36.982	191.404	0.934
08:17:09	-0.043	9.843	39.656	221.660	0.164
08:17:24	-0.047	9.847	41.094	223.582	0.098
08:17:39	-0.047	9.850	41.753	224.705	0.096
08:17:54	-0.051	9.852	42.186	224.998	0.098
08:18:09	-0.054	9.852	42.523	225.047	0.100
08:18:24	-0.057	9.853	42.766	225.006	0.096
08:18:39	-0.058	9.853	42.885	225.104	0.098
08:18:54	-0.045	5.559	38.120	225.153	1.402
08:19:09	-0.049	0.661	18.794	178.926	14.732
08:19:24	-0.049	0.245	8.075	59.764	33.613
08:19:39	-0.047	0.181	4.506	14.986	44.239
08:19:54	-0.048	0.152	3.046	2.206	46.768
08:20:09	-0.047	0.130	2.344	1.343	46.984
08:20:24	-0.044	0.119	2.012	1.010	46.984
08:20:39	-0.046	0.108	1.812	0.839	46.984
08:20:54	1.171	0.264	1.581	0.741	46.984
08:21:09	11.280	4.280	1.366	0.660	43.166
08:21:24	13.730	5.803	1.247	0.578	26.303

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 8:16
Stop Time 8:23
CALIBRATION BIAS 02

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
08:21:39	13.875	5.928	1.143	0.439	9.311	
08:21:54	13.899	5.952	1.006	0.309	2.458	
08:22:09	13.909	5.961	0.879	0.285	0.734	
08:22:24	13.914	5.969	0.825	0.187	0.588	
08:22:39	13.922	5.972	0.765	0.155	0.545	
08:22:54	13.926	5.974	0.682	0.155	0.535	
08:23:09	13.930	5.977	0.628	0.138	0.513	

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 06-2004g4

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 8:37
Stop time 9:04
REFERENCE METHOD RUN 3

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.046	0.119	0.692	0.149	0.531	
C_{ui}	Initial upscale	13.926	5.974	42.725	225.052	46.984	
C_{of}	Final zero	-0.049	0.120	0.759	0.203	0.558	
C_{uf}	Final upscale	13.915	5.970	42.703	224.977	46.982	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.748	10.480	8.103	157.557	16.002	
C_{Gas}	**Bias adjusted**	**8.879**	**10.497**	**7.784**	**156.794**	**15.778**	

Clock Time (at end of sample period)

041511 103441

08:38	9.289	9.979	6.069	140.883	20.943	
08:39	8.487	10.703	7.354	142.373	55.695	
08:40	8.605	10.612	8.193	152.212	32.162	
08:41	9.015	10.247	7.928	151.241	20.111	
08:42	9.480	9.840	7.681	145.820	14.423	
08:43	9.404	9.844	7.418	148.020	14.650	
08:44	8.597	10.619	8.624	149.056	19.041	
08:45	8.534	10.679	9.175	149.446	17.887	
08:46	8.655	10.564	8.259	151.512	14.394	
08:47	8.957	10.291	7.654	156.292	12.754	
08:48	9.201	10.034	6.904	156.231	13.688	
08:49	8.706	10.506	6.738	160.120	15.204	
08:50	8.482	10.698	6.642	162.623	13.624	
08:51	7.934	11.171	7.050	164.831	13.187	
08:52	8.408	10.807	6.954	160.250	11.510	
08:53	8.709	10.493	6.711	160.010	11.026	
08:54	8.614	10.579	6.898	166.498	11.645	
08:55	8.461	10.755	7.807	169.497	11.972	
08:56	8.505	10.726	8.390	168.396	13.012	
08:57	8.354	10.835	8.671	167.306	12.648	
08:58	8.455	10.741	9.131	161.903	12.002	
08:59	8.946	10.314	9.113	158.242	11.136	
09:00	9.000	10.278	9.077	161.089	12.553	
09:01	8.778	10.475	9.998	162.853	12.888	
09:02	8.544	10.688	10.636	167.383	12.055	
09:03	8.841	10.435	10.204	163.500	10.929	
09:04	9.235	10.058	9.494	156.461	10.927	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 9:05
Stop Time 9:12
CALIBRATION BIAS 03

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.049	0.120	0.759	0.203	0.558	
C_{uf}	Upscale gas	13.915	5.970	42.703	224.977	46.982	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce}	Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.8%	0.9%	0.0%	0.6%	
	Upscale gas	-1.0%	-0.3%	-1.3%	-0.3%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{ol}	Zero gas	-0.046	0.119	0.692	0.149	0.531	
C_{ui}	Upscale gas	13.926	5.974	42.725	225.052	46.984	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.0%	0.1%	0.0%	0.0%	
	Upscale gas	-0.1%	0.0%	0.0%	0.0%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103441

09:05:38	9.369	10.244	9.237	160.440	12.208
09:05:53	6.764	8.149	9.205	159.219	12.109
09:06:08	0.495	9.610	18.489	160.578	7.870
09:06:23	0.005	9.814	30.984	172.185	3.152
09:06:38	-0.034	9.836	36.884	207.318	0.537
09:06:53	-0.047	9.843	39.668	222.043	0.147
09:07:08	-0.049	9.847	40.887	223.964	0.098
09:07:23	-0.057	9.848	41.478	224.143	0.098
09:07:38	-0.052	9.849	41.960	224.624	0.098
09:07:53	-0.057	9.853	42.326	224.860	0.098
09:08:08	-0.064	9.853	42.554	224.901	0.096
09:08:23	-0.062	9.855	42.737	225.006	0.098
09:08:38	-0.063	9.856	42.818	225.023	0.098
09:08:53	-0.047	7.113	41.073	224.998	0.575
09:09:08	-0.049	0.972	23.621	189.825	11.610
09:09:23	-0.049	0.277	10.237	85.527	30.346
09:09:38	-0.049	0.186	5.281	22.906	43.297
09:09:53	-0.049	0.154	3.445	2.963	46.601

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 9:05
Stop Time 9:12
CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
09:10:08	-0.049	0.134	2.564	1.522	46.984	
09:10:23	-0.049	0.117	2.059	1.083	46.984	
09:10:38	-0.049	0.108	1.830	0.896	46.979	
09:10:53	0.002	0.103	1.623	0.790	46.960	
09:11:08	8.144	2.716	1.392	0.644	45.278	
09:11:23	13.492	5.628	1.164	0.611	32.752	
09:11:38	13.852	5.911	1.118	0.455	13.142	
09:11:53	13.888	5.945	1.027	0.464	4.051	
09:12:08	13.902	5.959	0.920	0.285	0.928	
09:12:23	13.911	5.966	0.833	0.277	0.615	
09:12:38	13.916	5.970	0.757	0.171	0.540	
09:12:53	13.919	5.975	0.686	0.163	0.519	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 9:15
Stop time 9:42
REFERENCE METHOD RUN 4

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.049	0.120	0.759	0.203	0.558	
C_{ui}	Initial upscale	13.915	5.970	42.703	224.977	46.982	
C_{of}	Final zero	-0.049	0.133	0.678	0.176	0.536	
C_{uf}	Final upscale	13.911	5.974	42.381	224.404	46.980	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.051	10.177	13.281	152.046	12.974	
C_{Gas}	**Bias adjusted**	**9.190**	**10.196**	**13.306**	**151.517**	**12.686**	

Clock Time (at end of sample period)

041511 103441

09:16	8.135	10.918	14.196	158.665	12.403	
09:17	8.697	10.496	14.238	163.624	10.481	
09:18	8.789	10.354	12.445	153.258	9.936	
09:19	8.992	10.177	12.545	155.613	10.042	
09:20	9.021	10.155	13.517	154.186	9.611	
09:21	8.422	10.680	14.919	152.578	9.792	
09:22	8.453	10.687	16.057	150.448	8.697	
09:23	8.473	10.659	15.364	149.554	8.494	
09:24	9.339	9.864	14.481	152.316	7.994	
09:25	9.504	9.724	14.727	156.528	8.761	
09:26	9.052	10.144	15.258	154.925	9.736	
09:27	8.784	10.410	14.679	153.555	9.766	
09:28	8.923	10.279	13.602	153.608	10.620	
09:29	9.385	9.870	12.137	146.878	11.847	
09:30	9.332	9.924	11.902	144.599	13.462	
09:31	9.343	9.924	12.947	147.652	14.281	
09:32	9.566	9.748	12.669	145.466	15.705	
09:33	9.516	9.788	12.783	145.804	17.102	
09:34	9.131	10.127	12.390	152.326	16.438	
09:35	8.902	10.356	12.883	151.880	16.682	
09:36	9.069	10.194	12.902	151.496	16.026	
09:37	9.501	9.827	12.146	147.232	14.833	
09:38	9.507	9.794	11.565	148.549	15.142	
09:39	9.322	9.973	11.860	151.878	17.221	
09:40	8.870	10.412	12.381	153.124	18.915	
09:41	9.044	10.263	12.305	158.162	17.416	
09:42	9.313	10.026	11.692	151.325	18.909	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 9:42
Stop Time 9:49
CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.049	0.133	0.678	0.176	0.536	
C_{uf} Upscale gas	13.911	5.974	42.381	224.404	46.980	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce} Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.9%	0.8%	0.0%	0.5%	
Upscale gas	-1.0%	-0.3%	-1.7%	-0.4%	0.0%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{of} Zero gas	-0.049	0.120	0.759	0.203	0.558	
C_{uf} Upscale gas	13.915	5.970	42.703	224.977	46.982	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.1%	-0.1%	0.0%	0.0%	
Upscale gas	0.0%	0.0%	-0.4%	-0.1%	0.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041511 103441

09:42:49	10.480	9.191	11.228	146.585	19.976
09:43:04	4.209	8.498	11.092	136.141	16.987
09:43:19	0.224	9.711	23.705	83.883	9.159
09:43:34	-0.010	9.819	33.921	156.199	2.546
09:43:49	-0.037	9.835	38.444	217.159	0.446
09:44:04	-0.047	9.841	40.397	222.214	0.150
09:44:19	-0.049	9.844	41.306	223.077	0.117
09:44:34	-0.049	9.846	41.846	223.606	0.117
09:44:49	-0.052	9.847	42.146	224.038	0.108
09:45:04	-0.053	9.848	42.396	224.501	0.101
09:45:19	-0.058	9.853	42.602	224.672	0.098
09:45:34	-0.061	9.852	42.789	224.892	0.100
09:45:49	-0.043	5.733	38.818	224.949	1.299
09:46:04	-0.049	0.687	19.813	198.226	15.230
09:46:19	-0.049	0.250	8.752	65.600	33.942
09:46:34	-0.049	0.181	4.845	12.055	44.220
09:46:49	-0.049	0.149	3.272	2.174	46.984
09:47:04	-0.049	0.132	2.427	1.392	46.984
09:47:19	-0.049	0.118	1.971	1.123	46.982
09:47:34	-0.042	0.107	1.705	0.896	46.973

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 9:42
Stop Time 9:49
CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
09:47:49	6.954	2.254	1.387	0.766	46.020	
09:48:04	13.361	5.540	1.192	0.652	33.512	
09:48:19	13.839	5.906	1.144	0.529	15.114	
09:48:34	13.882	5.946	1.039	0.415	4.332	
09:48:49	13.895	5.958	0.930	0.293	1.050	
09:49:04	13.903	5.968	0.871	0.285	0.648	
09:49:19	13.910	5.972	0.789	0.203	0.567	
09:49:34	13.912	5.972	0.662	0.146	0.534	
09:49:49	13.911	5.977	0.583	0.179	0.508	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 9:59
Stop time 10:26
REFERENCE METHOD RUN 5

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.049	0.133	0.678	0.176	0.536	
C_{ui}	Initial upscale	13.911	5.974	42.381	224.404	46.980	
C_{of}	Final zero	-0.053	0.114	0.702	0.174	0.558	
C_{uf}	Final upscale	13.906	5.966	42.083	224.596	46.922	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.452	10.664	6.749	146.895	17.074	
C_{Gas}	**Bias adjusted**	**8.588**	**10.692**	**6.461**	**146.508**	**16.881**	

Clock Time (at end of sample period)

041911 084435

10:00	8.667	10.504	9.021	134.992	21.525	
10:01	9.027	10.208	9.107	137.607	20.063	
10:02	8.671	10.514	9.189	142.904	18.918	
10:03	8.194	10.976	9.195	153.732	16.030	
10:04	8.038	11.105	8.777	161.357	14.416	
10:05	7.847	11.213	7.626	159.243	14.070	
10:06	8.754	10.427	7.333	157.938	13.658	
10:07	9.021	10.163	6.877	141.492	15.038	
10:08	9.216	9.986	6.429	138.779	15.474	
10:09	8.765	10.390	6.235	145.405	16.354	
10:10	8.156	10.947	6.412	153.000	15.160	
10:11	8.408	10.741	6.543	151.532	13.778	
10:12	8.897	10.262	5.934	140.008	15.078	
10:13	8.783	10.343	5.642	139.670	16.226	
10:14	8.001	11.022	6.003	151.970	15.348	
10:15	8.145	10.918	6.397	157.525	14.698	
10:16	7.766	11.222	6.569	150.564	15.776	
10:17	8.822	10.327	6.212	149.166	13.072	
10:18	8.885	10.240	5.680	136.233	13.475	
10:19	8.954	10.234	5.840	139.809	14.241	
10:20	9.679	9.600	5.655	132.416	14.313	
10:21	9.007	10.156	5.798	128.376	17.863	
10:22	7.151	11.745	6.587	144.841	21.669	
10:23	5.779	12.976	7.428	155.277	54.343	
10:24	6.930	11.956	6.164	166.087	16.500	
10:25	8.775	10.370	5.149	156.838	11.478	
10:26	9.851	9.388	4.417	139.412	12.425	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 10:27
Stop Time 10:34
CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.053	0.114	0.702	0.174	0.558	
C_{uf} Upscale gas	13.906	5.966	42.083	224.596	46.922	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce} Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)						
	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.7%	0.9%	0.0%	0.6%	
Upscale gas	-1.0%	-0.3%	-2.0%	-0.4%	-0.1%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{oi} Zero gas	-0.049	0.133	0.678	0.176	0.536	
C_{ui} Upscale gas	13.911	5.974	42.381	224.404	46.980	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	-0.1%	0.0%	0.0%	0.0%	
Upscale gas	0.0%	-0.1%	-0.3%	0.0%	-0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041911 084435

10:27:01	9.725	9.873	4.873	144.249	12.983
10:27:16	5.039	8.352	5.888	143.736	10.702
10:27:31	0.289	9.684	19.793	150.272	6.545
10:27:46	-0.009	9.818	31.899	174.367	2.027
10:28:01	-0.038	9.833	36.796	211.266	0.425
10:28:16	-0.047	9.839	38.956	222.312	0.124
10:28:31	-0.049	9.841	40.233	223.687	0.098
10:28:46	-0.050	9.844	40.993	224.127	0.098
10:29:01	-0.051	9.847	41.457	224.322	0.098
10:29:16	-0.058	9.847	41.851	224.558	0.090
10:29:31	-0.057	9.850	42.086	224.583	0.088
10:29:46	-0.056	9.730	42.312	224.648	0.111
10:30:01	-0.045	3.415	34.090	224.688	3.048
10:30:16	-0.051	0.452	15.533	133.374	20.987
10:30:31	-0.051	0.220	7.253	60.375	37.478
10:30:46	-0.053	0.168	4.293	3.769	45.455
10:31:01	-0.053	0.145	2.970	2.075	46.935
10:31:16	-0.055	0.125	2.326	1.270	46.935

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 10:27
Stop Time 10:34
CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
10:31:31	-0.055	0.112	1.975	1.075	46.935	
10:31:46	-0.050	0.104	1.734	0.855	46.914	
10:32:01	1.224	0.271	1.533	0.692	46.916	
10:32:16	11.321	4.302	1.241	0.652	42.199	
10:32:31	13.717	5.800	1.144	0.521	25.869	
10:32:46	13.859	5.922	1.076	0.488	8.746	
10:33:01	13.882	5.945	0.944	0.350	2.317	
10:33:16	13.894	5.956	0.858	0.293	0.739	
10:33:31	13.903	5.961	0.752	0.195	0.620	
10:33:46	13.907	5.967	0.705	0.171	0.541	
10:34:01	13.910	5.970	0.649	0.155	0.513	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 10:35
Stop time 11:02
REFERENCE METHOD RUN 6

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{ci}	Initial zero	-0.053	0.114	0.702	0.174	0.558	
C_{ui}	Initial upscale	13.906	5.966	42.083	224.596	46.922	
C_{of}	Final zero	-0.052	0.126	0.556	0.174	0.520	
C_{uf}	Final upscale	13.903	5.969	41.923	224.602	46.948	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.530	10.521	6.519	152.551	12.711	
C_{Gas}	**Bias adjusted**	**8.670**	**10.547**	**6.306**	**152.089**	**12.436**	

Clock Time (at end of sample period)

041911 084435

10:36	8.552	10.485	6.214	150.138	13.481	
10:37	8.320	10.746	5.810	148.848	14.878	
10:38	8.562	10.553	5.786	140.920	14.577	
10:39	8.976	10.141	5.769	134.137	14.396	
10:40	8.844	10.253	6.041	133.897	15.123	
10:41	8.397	10.670	6.504	150.049	14.364	
10:42	8.396	10.663	6.505	157.660	13.389	
10:43	8.333	10.706	6.484	157.271	11.870	
10:44	8.590	10.494	6.232	155.012	10.648	
10:45	8.633	10.430	5.994	153.311	11.135	
10:46	8.254	10.766	6.033	160.104	12.176	
10:47	8.275	10.776	6.682	157.609	13.198	
10:48	8.908	10.173	6.861	147.157	13.227	
10:49	8.795	10.264	6.333	149.078	11.632	
10:50	8.583	10.435	6.075	155.354	11.055	
10:51	8.260	10.766	6.570	159.894	11.279	
10:52	8.180	10.831	6.816	162.766	10.922	
10:53	8.453	10.603	6.998	160.557	10.927	
10:54	8.731	10.336	6.983	155.696	11.234	
10:55	8.779	10.280	6.732	152.086	11.935	
10:56	8.926	10.171	6.745	154.630	12.549	
10:57	8.911	10.162	7.013	151.636	13.120	
10:58	8.366	10.661	7.573	148.462	14.759	
10:59	8.374	10.639	7.417	147.796	13.624	
11:00	8.404	10.617	7.070	153.930	13.008	
11:01	8.460	10.545	6.513	155.798	12.395	
11:02	8.043	10.897	6.258	165.081	12.310	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 11:03
Stop Time 11:10
CALIBRATION BIAS 06

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.052	0.126	0.556	0.174	0.520	
C_{uf}	Upscale gas	13.903	5.969	41.923	224.602	46.948	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce}	Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.8%	0.7%	0.0%	0.5%	
	Upscale gas	-1.1%	-0.3%	-2.2%	-0.4%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.053	0.114	0.702	0.174	0.558	
C_{ui}	Upscale gas	13.906	5.966	42.083	224.596	46.922	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.1%	-0.2%	0.0%	0.0%	
	Upscale gas	0.0%	0.0%	-0.2%	0.0%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041911 084435

11:03:34	9.823	9.570	6.053	154.636	11.787
11:03:49	3.588	8.670	7.710	134.139	10.159
11:04:04	0.178	9.729	22.619	108.376	5.473
11:04:19	-0.017	9.819	33.066	184.436	1.678
11:04:34	-0.041	9.832	37.319	216.207	0.298
11:04:49	-0.051	9.836	39.350	222.255	0.109
11:05:04	-0.060	9.838	40.420	223.223	0.093
11:05:19	-0.055	9.840	41.057	223.842	0.095
11:05:34	-0.055	9.841	41.459	224.184	0.098
11:05:49	-0.061	9.841	41.696	224.428	0.077
11:06:04	-0.061	9.844	41.941	224.664	0.086
11:06:19	-0.062	9.847	42.133	224.713	0.086
11:06:34	-0.051	8.100	41.319	224.713	0.590
11:06:49	-0.049	1.328	25.428	200.561	8.757
11:07:04	-0.055	0.305	10.909	129.003	28.754
11:07:19	-0.055	0.197	5.605	33.667	41.985
11:07:34	-0.054	0.163	3.585	3.378	46.618

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 11:03
Stop Time 11:10
CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
11:07:49	-0.053	0.140	2.645	1.563	46.943	
11:08:04	-0.052	0.123	2.053	1.205	46.947	
11:08:19	-0.051	0.114	1.783	0.961	46.947	
11:08:34	0.529	0.154	1.547	0.790	46.950	
11:08:49	10.337	3.762	1.247	0.692	43.829	
11:09:04	13.646	5.754	1.138	0.652	27.358	
11:09:19	13.846	5.919	1.084	0.537	10.641	
11:09:34	13.872	5.945	0.967	0.423	2.784	
11:09:49	13.884	5.956	0.848	0.277	0.822	
11:10:04	13.894	5.961	0.737	0.293	0.599	
11:10:19	13.898	5.966	0.632	0.195	0.523	
11:10:34	13.904	5.971	0.557	0.163	0.511	
11:10:49	13.906	5.971	0.479	0.163	0.526	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 11:29
Stop time 11:56
REFERENCE METHOD RUN 7

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.052	0.126	0.556	0.174	0.520	
C_{ui}	Initial upscale	13.903	5.969	41.923	224.602	46.948	
C_{of}	Final zero	-0.054	0.113	0.532	0.184	0.544	
C_{uf}	Final upscale	13.888	5.957	42.000	224.358	46.935	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.865	10.187	8.005	147.890	11.937	
C_{Gas}	**Bias adjusted**	**9.015**	**10.216**	**7.980**	**147.513**	**11.648**	

Clock Time (at end of sample period)

041911 084435

11:30	8.784	10.286	8.283	141.522	11.690	
11:31	8.793	10.287	8.820	143.594	12.886	
11:32	8.812	10.273	8.493	146.534	12.594	
11:33	8.858	10.230	8.596	154.056	13.089	
11:34	8.234	10.767	9.470	154.819	14.326	
11:35	9.160	9.954	8.737	151.358	10.592	
11:36	8.947	10.096	8.121	144.180	11.822	
11:37	9.248	9.841	8.290	145.641	11.401	
11:38	9.296	9.812	8.469	143.584	13.513	
11:39	9.043	10.047	8.741	146.935	14.674	
11:40	8.898	10.174	8.713	150.863	15.850	
11:41	8.502	10.543	8.432	151.384	15.701	
11:42	8.475	10.557	8.099	152.485	13.216	
11:43	8.904	10.130	7.177	149.361	11.301	
11:44	8.728	10.289	7.320	149.851	10.982	
11:45	8.826	10.167	7.080	149.255	9.379	
11:46	8.725	10.274	7.551	155.944	10.085	
11:47	8.704	10.367	7.667	156.215	9.345	
11:48	9.792	9.381	6.548	144.856	8.322	
11:49	9.097	9.937	6.883	149.880	11.514	
11:50	8.568	10.429	7.949	152.953	11.734	
11:51	8.681	10.367	7.899	148.964	11.594	
11:52	9.055	10.017	7.398	137.371	11.935	
11:53	9.451	9.658	7.363	131.742	11.728	
11:54	9.282	9.796	7.597	136.714	10.861	
11:55	8.807	10.180	8.000	144.131	10.694	
11:56	7.689	11.184	8.430	158.838	11.459	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 11:57
Stop Time 12:04
CALIBRATION BIAS 07

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.054	0.113	0.532	0.184	0.544	
C_{uf}	Upscale gas	13.888	5.957	42.000	224.358	46.935	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce}	Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.7%	0.7%	0.0%	0.5%	
	Upscale gas	-1.2%	-0.4%	-2.1%	-0.4%	-0.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.052	0.126	0.556	0.174	0.520	
C_{ui}	Upscale gas	13.903	5.969	41.923	224.602	46.948	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	-0.1%	0.0%	0.0%	0.0%	
	Upscale gas	-0.1%	-0.1%	0.1%	-0.1%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103441

11:57:35	9.486	9.907	7.451	151.095	8.384
11:57:50	6.765	8.055	7.349	145.560	8.083
11:58:05	0.486	9.588	19.315	144.217	5.893
11:58:20	0.006	9.790	31.899	181.457	2.494
11:58:35	-0.037	9.813	37.140	209.719	0.555
11:58:50	-0.046	9.818	39.359	221.628	0.145
11:59:05	-0.054	9.820	40.505	223.166	0.101
11:59:20	-0.055	9.823	41.063	223.704	0.098
11:59:35	-0.054	9.823	41.514	224.200	0.080
11:59:50	-0.057	9.827	41.874	224.298	0.098
12:00:05	-0.057	9.829	42.035	224.493	0.098
12:00:20	-0.059	9.829	42.090	224.282	0.080
12:00:35	-0.051	8.631	41.618	224.664	0.373
12:00:50	-0.047	1.654	27.276	208.693	7.051
12:01:05	-0.051	0.328	11.726	152.096	26.706
12:01:20	-0.050	0.201	5.867	40.220	40.882
12:01:35	-0.052	0.164	3.674	3.940	46.094

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 11:57
Stop Time 12:04
CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
12:01:50	-0.053	0.137	2.585	1.522	46.935	
12:02:05	-0.054	0.123	2.027	1.197	46.935	
12:02:20	-0.055	0.113	1.691	0.961	46.935	
12:02:35	-0.054	0.102	1.438	0.790	46.935	
12:02:50	6.068	1.911	1.193	0.692	46.318	
12:03:05	13.199	5.441	1.017	0.652	34.714	
12:03:20	13.801	5.882	0.936	0.545	16.420	
12:03:35	13.851	5.927	0.863	0.423	4.840	
12:03:50	13.866	5.942	0.788	0.277	1.154	
12:04:05	13.876	5.949	0.726	0.301	0.606	
12:04:20	13.884	5.956	0.627	0.220	0.554	
12:04:35	13.888	5.957	0.511	0.163	0.547	
12:04:50	13.892	5.958	0.459	0.171	0.532	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 12:06
Stop time 12:33
REFERENCE METHOD RUN 8

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.054	0.113	0.532	0.184	0.544	
C_{ui}	Initial upscale	13.888	5.957	42.000	224.358	46.935	
C_{of}	Final zero	-0.055	0.115	0.447	0.163	0.544	
C_{uf}	Final upscale	13.874	5.950	42.113	224.347	46.911	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.926	10.240	6.012	145.965	16.530	
C_{Gas}	**Bias adjusted**	**9.087**	**10.283**	**5.885**	**145.675**	**16.338**	

Clock Time (at end of sample period)

041511 103441

12:07	8.945	10.133	7.781	149.984	13.653	
12:08	8.978	10.124	6.815	148.044	12.533	
12:09	9.131	9.991	6.692	150.380	13.177	
12:10	8.838	10.254	6.755	148.405	14.948	
12:11	8.682	10.434	7.103	149.835	16.560	
12:12	8.926	10.225	6.641	146.919	17.312	
12:13	9.267	9.918	6.334	143.148	17.987	
12:14	9.157	9.992	6.212	140.930	17.179	
12:15	9.122	10.057	6.090	143.433	16.006	
12:16	9.173	10.012	5.947	146.701	15.247	
12:17	8.857	10.301	5.930	146.803	15.264	
12:18	8.616	10.528	5.958	144.044	16.409	
12:19	8.454	10.667	5.871	144.615	16.850	
12:20	8.804	10.363	5.523	143.791	16.081	
12:21	9.089	10.096	5.381	140.755	19.734	
12:22	8.478	10.706	5.717	147.096	21.790	
12:23	8.486	10.646	5.442	152.534	17.737	
12:24	8.500	10.632	5.130	150.867	17.571	
12:25	8.478	10.687	5.194	150.737	16.416	
12:26	8.601	10.560	5.335	147.761	16.256	
12:27	9.481	9.777	5.284	146.278	14.788	
12:28	10.035	9.340	5.338	142.875	15.097	
12:29	9.711	9.568	5.357	140.615	16.970	
12:30	8.424	10.730	6.130	143.981	21.383	
12:31	8.531	10.611	6.092	147.403	15.969	
12:32	9.175	10.057	5.953	142.367	16.602	
12:33	9.076	10.082	6.311	140.747	16.804	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 12:34
Stop Time 12:42
CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.055	0.115	0.447	0.163	0.544	
C_{uf} Upscale gas	13.874	5.950	42.113	224.347	46.911	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce} Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)						
	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.8%	0.6%	0.0%	0.5%	
Upscale gas	-1.3%	-0.5%	-2.0%	-0.4%	-0.1%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{ol} Zero gas	-0.054	0.113	0.532	0.184	0.544	
C_{ui} Upscale gas	13.888	5.957	42.000	224.358	46.935	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	-0.1%	0.0%	0.0%	
Upscale gas	-0.1%	-0.1%	0.1%	0.0%	0.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041511 103441

12:34:40	10.423	8.285	6.580	154.514	12.754
12:34:55	2.204	8.969	11.109	135.588	10.445
12:35:10	0.102	9.725	26.891	146.569	5.425
12:35:25	-0.019	9.786	35.178	201.750	1.457
12:35:40	-0.039	9.799	38.584	217.672	0.261
12:35:55	-0.049	9.805	40.101	222.474	0.116
12:36:10	-0.055	9.807	40.671	223.313	0.085
12:36:25	-0.055	9.811	41.151	223.883	0.085
12:36:40	-0.057	9.811	41.550	224.363	0.083
12:36:55	-0.059	9.811	41.805	224.314	0.081
12:37:10	-0.057	9.813	42.004	224.257	0.083
12:37:25	-0.061	9.815	42.097	224.461	0.080
12:37:40	-0.059	9.723	42.238	224.322	0.075
12:37:55	-0.048	3.596	33.809	224.493	3.396
12:38:10	-0.050	0.464	14.996	166.390	19.595
12:38:25	-0.053	0.224	6.792	35.694	37.229
12:38:40	-0.054	0.174	3.896	8.881	44.991
12:38:55	-0.054	0.144	2.681	2.092	46.821

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 12:34
Stop Time 12:42
CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
12:39:10	-0.055	0.128	2.095	1.262	46.911	
12:39:25	-0.055	0.114	1.752	1.034	46.911	
12:39:40	-0.055	0.103	1.480	0.822	46.911	
12:39:55	0.144	0.105	1.306	0.741	46.911	
12:40:10	9.168	3.189	1.024	0.652	44.843	
12:40:25	13.529	5.665	0.926	0.496	29.996	
12:40:40	13.810	5.893	0.874	0.472	12.469	
12:40:55	13.841	5.922	0.755	0.293	3.363	
12:41:10	13.854	5.935	0.637	0.293	0.901	
12:41:25	13.862	5.943	0.529	0.171	0.651	
12:41:40	13.871	5.946	0.496	0.163	0.536	
12:41:55	13.875	5.951	0.436	0.155	0.552	
12:42:10	13.876	5.952	0.409	0.171	0.545	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 13:07
Stop time 13:34
REFERENCE METHOD RUN 9

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.055	0.115	0.447	0.163	0.544	
C_{ui}	Initial upscale	13.874	5.950	42.113	224.347	46.911	
C_{of}	Final zero	-0.044	0.104	0.380	0.195	0.518	
C_{uf}	Final upscale	13.863	5.942	42.059	222.513	46.911	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.937	10.200	9.941	148.156	17.852	
C_{Gas}	**Bias adjusted**	**9.104**	**10.252**	**10.128**	**148.473**	**17.702**	

Clock Time (at end of sample period)

041511 103441

13:08	7.940	11.094	8.441	167.460	14.841	
13:09	8.216	10.875	9.908	166.772	14.213	
13:10	8.313	10.836	10.728	159.744	16.502	
13:11	9.032	10.157	10.060	153.166	14.280	
13:12	9.089	10.098	10.094	156.956	15.478	
13:13	8.816	10.351	10.663	157.428	18.451	
13:14	8.956	10.239	11.283	153.964	18.880	
13:15	9.266	9.930	11.301	147.064	17.993	
13:16	9.195	9.970	11.416	143.803	19.494	
13:17	8.977	10.168	11.337	139.178	20.645	
13:18	8.213	10.864	10.910	139.915	23.430	
13:19	8.928	10.246	10.484	139.563	20.057	
13:20	9.899	9.434	9.719	136.079	18.652	
13:21	9.655	9.570	9.525	133.335	21.844	
13:22	8.813	10.324	9.984	142.477	21.041	
13:23	8.704	10.406	9.609	145.728	18.602	
13:24	8.265	10.790	8.759	148.840	17.138	
13:25	8.411	10.638	8.501	149.497	13.798	
13:26	8.981	10.177	9.058	150.368	13.882	
13:27	8.910	10.154	8.862	144.683	14.422	
13:28	8.494	10.559	10.279	148.561	14.722	
13:29	8.983	10.118	9.961	147.804	15.130	
13:30	9.365	9.737	9.010	147.068	17.802	
13:31	9.329	9.769	9.208	149.001	19.000	
13:32	9.546	9.614	9.760	143.716	19.383	
13:33	9.553	9.599	9.536	142.188	20.755	
13:34	9.448	9.675	10.001	145.844	21.570	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 13:35
Stop Time 13:42
CALIBRATION BIAS 09

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.044	0.104	0.380	0.195	0.518	
C_{uf}	Upscale gas	13.863	5.942	42.059	222.513	46.911	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce}	Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.7%	0.5%	0.0%	0.5%	
	Upscale gas	-1.3%	-0.5%	-2.1%	-0.8%	-0.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.055	0.115	0.447	0.163	0.544	
C_{ui}	Upscale gas	13.874	5.950	42.113	224.347	46.911	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.1%	-0.1%	-0.1%	0.0%	0.0%	
	Upscale gas	-0.1%	-0.1%	-0.1%	-0.4%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103441

13:35:39	9.676	8.406	9.016	149.117	21.390
13:35:54	1.621	9.142	14.551	121.726	16.018
13:36:09	0.067	9.729	29.242	133.659	7.393
13:36:24	-0.025	9.776	36.098	203.573	1.690
13:36:39	-0.042	9.786	38.865	217.314	0.259
13:36:54	-0.051	9.792	40.168	221.034	0.083
13:37:09	-0.055	9.797	40.916	221.514	0.073
13:37:24	-0.055	9.799	41.351	222.067	0.075
13:37:39	-0.056	9.799	41.651	222.043	0.073
13:37:54	-0.056	9.800	41.934	222.271	0.075
13:38:09	-0.059	9.802	42.035	222.556	0.073
13:38:24	-0.061	9.805	42.208	222.711	0.073
13:38:39	-0.044	6.396	38.798	223.061	0.799
13:38:54	-0.050	0.803	19.639	194.074	13.315
13:39:09	-0.053	0.258	8.221	124.681	32.340
13:39:24	-0.054	0.179	4.402	12.178	43.439
13:39:39	-0.055	0.149	2.927	3.028	46.610

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 13:35
Stop Time 13:42
CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
13:39:54	-0.054	0.128	2.221	1.359	46.911	
13:40:09	-0.055	0.114	1.836	1.026	46.911	
13:40:24	-0.055	0.104	1.520	0.904	46.911	
13:40:39	-0.023	0.095	1.311	0.814	46.911	
13:40:54	7.755	2.564	1.086	0.749	45.431	
13:41:09	13.394	5.570	0.947	0.652	32.508	
13:41:24	13.790	5.877	0.887	0.635	13.843	
13:41:39	13.830	5.913	0.768	0.358	3.885	
13:41:54	13.843	5.928	0.682	0.285	0.988	
13:42:09	13.852	5.934	0.601	0.285	0.635	
13:42:24	13.858	5.939	0.454	0.260	0.526	
13:42:39	13.863	5.942	0.373	0.163	0.513	
13:42:54	13.869	5.946	0.314	0.163	0.515	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 13:44
Stop time 14:11
REFERENCE METHOD RUN 10

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.044	0.104	0.380	0.195	0.518	
C_{ui}	Initial upscale	13.863	5.942	42.059	222.513	46.911	
C_{of}	Final zero	-0.054	0.108	0.429	0.190	0.529	
C_{uf}	Final upscale	13.857	5.939	41.949	222.374	46.911	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.670	10.379	13.768	151.691	15.038	
C_{Gas}	**Bias adjusted**	**8.839**	**10.442**	**14.231**	**152.691**	**14.831**	

Clock Time (at end of sample period)

041511 103441

13:45	8.723	10.281	14.143	159.504	12.147	
13:46	8.118	10.828	14.839	159.017	12.094	
13:47	8.141	10.875	16.720	165.830	12.436	
13:48	8.648	10.458	15.936	158.946	13.707	
13:49	8.803	10.307	14.933	158.742	13.881	
13:50	8.737	10.337	13.764	163.252	13.845	
13:51	8.772	10.328	13.742	164.410	15.445	
13:52	8.736	10.340	13.042	160.472	16.508	
13:53	8.436	10.610	12.468	161.422	15.810	
13:54	8.977	10.090	10.985	155.383	15.512	
13:55	8.984	10.051	10.614	144.896	16.908	
13:56	8.838	10.198	12.228	145.486	17.055	
13:57	8.858	10.156	12.468	146.418	16.287	
13:58	8.421	10.554	13.042	148.699	16.919	
13:59	7.992	10.945	13.181	149.532	17.224	
14:00	8.479	10.549	13.715	155.309	15.187	
14:01	8.685	10.363	14.856	147.965	15.765	
14:02	8.243	10.748	16.018	149.202	14.405	
14:03	8.735	10.362	16.439	154.369	12.322	
14:04	9.553	9.602	13.562	143.441	13.194	
14:05	9.081	10.010	13.930	150.525	16.092	
14:06	8.872	10.215	14.122	153.626	16.164	
14:07	8.661	10.383	13.755	143.346	14.731	
14:08	8.369	10.698	13.670	140.177	16.383	
14:09	8.471	10.575	13.004	136.919	16.238	
14:10	9.070	10.036	12.668	134.583	16.105	
14:11	8.691	10.338	13.903	144.184	13.651	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 14:12
Stop Time 14:19
CALIBRATION BIAS 10

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.054	0.108	0.429	0.190	0.529	
C_{uf}	Upscale gas	13.857	5.939	41.949	222.374	46.911	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.091	0.011	-0.064	0.111	0.026	
C_{mce}	Upscale gas	14.053	6.013	43.916	226.214	46.988	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.7%	0.5%	0.0%	0.5%	
	Upscale gas	-1.4%	-0.5%	-2.2%	-0.8%	-0.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.044	0.104	0.380	0.195	0.518	
C_{ui}	Upscale gas	13.863	5.942	42.059	222.513	46.911	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	-0.1%	0.0%	0.1%	0.0%	0.0%	
	Upscale gas	0.0%	0.0%	-0.1%	0.0%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103441

14:12:40	9.705	9.726	14.872	162.556	11.168
14:12:55	3.770	8.598	13.421	157.371	9.573
14:13:10	0.188	9.683	25.732	163.549	5.605
14:13:25	-0.015	9.772	34.742	188.938	1.742
14:13:40	-0.040	9.783	38.134	212.772	0.301
14:13:55	-0.048	9.786	39.665	220.472	0.083
14:14:10	-0.055	9.791	40.611	221.156	0.075
14:14:25	-0.055	9.792	41.170	221.498	0.071
14:14:40	-0.055	9.792	41.525	221.970	0.073
14:14:55	-0.056	9.798	41.810	222.149	0.070
14:15:10	-0.057	9.799	41.999	222.401	0.044
14:15:25	-0.061	9.799	42.038	222.572	0.055
14:15:40	-0.062	6.903	39.759	222.589	0.488
14:15:55	-0.049	0.915	21.636	205.983	11.658
14:16:10	-0.049	0.268	9.070	139.316	30.803
14:16:25	-0.053	0.187	4.707	14.302	42.873
14:16:40	-0.055	0.152	3.004	3.484	46.476

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 2

March 23, 2011
Start Time 14:12
Stop Time 14:19
CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 2 %dv	FF Outlet 2 %dv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	FF Outlet 2 ppmdv	
14:16:55	-0.054	0.133	2.271	1.595	46.911	
14:17:10	-0.054	0.119	1.872	1.001	46.911	
14:17:25	-0.055	0.106	1.571	0.879	46.911	
14:17:40	-0.054	0.101	1.346	0.814	46.911	
14:17:55	5.753	1.791	1.130	0.749	46.048	
14:18:10	13.138	5.395	0.922	0.644	36.080	
14:18:25	13.772	5.862	0.843	0.611	16.827	
14:18:40	13.820	5.909	0.744	0.374	5.135	
14:18:55	13.837	5.923	0.632	0.309	1.226	
14:19:10	13.845	5.932	0.596	0.301	0.655	
14:19:25	13.854	5.934	0.503	0.244	0.560	
14:19:40	13.858	5.939	0.417	0.163	0.513	
14:19:55	13.860	5.943	0.366	0.163	0.515	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Date: **March 24, 2011**
Start Time 6:32
Stop Time 14:59
CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	CO2	SO2	NOX	CO	
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Instrument Information						
Manufacturer:	Servomex	Servomex	Wstrn Rsrch	Thermo	Thermo	
Model:	1420C	1415C	921H UV	42i-HL	48i	
Detection:	Paramagn.	NDIR	Photo.	Chemilumi.	GFC/NDIR	
Asset or Serial No:	207491	207492	204654	205177	204433	
Calibration Span Value (CS)						
	14.100	13.900	89.900	453.000	95.700	
System Response Time (seconds)						
Manufacturer Certified Cylinder Value (C_V)						
Zero	0.000	0.000	0.000	0.000	0.000	
Low	6.050	5.930	44.300	224.000	47.400	
Mid						
High	14.100	13.900	89.900	453.000	95.700	
Actual gas to be used for bias checks						
	14.100	5.930	44.300	224.000	47.400	
Cylinder ID						
Zero	ALM013200	ALM013200	ALM013200	ALM013200	ALM013200	
Low	ALM017071	ALM062872	CC217365	CC217365	ALM026334	
Mid						
High	ALM062872	ALM017071	CC124384	CC124384	ALM016660	
Analyzer Calibration Response (C_{Dir})						
Zero	-0.079	0.019	-0.363	-0.024	-0.010	
Low	5.994	6.011	42.929	226.637	46.994	
Mid						
High	14.046	13.844	90.459	455.789	95.829	
Analyzer Calibration Error (ACE) (Limit = 2%, Method 25A limit = 5% of gas value)						
Zero	-0.6%	0.1%	-0.4%	0.0%	0.0%	
Low	-0.4%	0.6%	-1.5%	0.6%	-0.4%	
Mid	N/A	N/A	N/A	N/A	N/A	
High	-0.4%	-0.4%	0.6%	0.6%	0.1%	
Calibration Error Status						
Zero	OK	OK	OK	OK	OK	
Low	OK	OK	OK	OK	OK	
Mid	N/A	N/A	N/A	N/A	N/A	
High	OK	OK	OK	OK	OK	

041511 111009

06:32:59	-0.080	0.022	-0.202	0.106	38.304
06:33:14	-0.081	0.022	-0.301	0.089	9.656
06:33:29	-0.080	0.018	-0.334	0.114	1.205
06:33:44	-0.079	0.020	-0.358	-0.033	0.102

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 05-2004g4

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Date: **March 24, 2011**
Start Time 6:32
Stop Time 14:59
CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
06:33:59	-0.080	0.020	-0.358	-0.049	0.011	
06:34:14	-0.079	0.018	-0.366	0.000	-0.005	
06:34:29	-0.079	0.018	-0.366	-0.024	-0.037	
06:34:44	-0.077	1.875	10.206	0.016	-0.011	
06:34:59	-0.091	9.070	60.827	-0.024	0.145	
06:35:14	-0.092	9.828	82.686	266.073	0.111	
06:35:29	-0.092	9.884	88.568	417.086	-0.091	
06:35:44	-0.093	9.895	90.515	453.366	-0.254	
06:35:59	-0.092	9.900	91.365	455.091	-0.293	
06:36:14	-0.092	9.903	91.407	455.401	-0.293	
06:36:29	-0.093	9.907	91.389	455.523	-0.307	
06:36:44	-0.092	9.908	90.795	455.906	-0.303	
06:36:59	-0.092	9.908	90.224	455.539	-0.320	
06:37:14	-0.092	9.908	90.359	455.922	-0.314	
06:37:29	0.165	9.459	76.229	456.125	-0.293	
06:37:44	-0.021	9.696	34.717	423.345	-0.163	
06:37:59	-0.074	9.853	39.736	293.390	-0.036	
06:38:14	-0.102	9.914	41.810	237.713	-0.099	
06:38:29	-0.103	9.921	42.492	226.032	-0.171	
06:38:44	-0.104	9.921	42.805	226.667	-0.171	
06:38:59	-0.103	9.921	42.930	226.773	-0.177	
06:39:14	-0.104	9.923	43.053	226.472	-0.171	
06:39:29	-0.102	9.927	43.136	226.480	-0.171	
06:39:44	-0.082	5.510	27.813	226.472	2.033	
06:39:59	-0.083	0.381	5.283	226.276	24.713	
06:40:14	-0.092	0.073	1.146	85.291	63.648	
06:40:29	-0.081	0.045	0.334	10.729	87.336	
06:40:44	-0.082	0.040	0.067	1.286	94.666	
06:40:59	-0.083	0.034	-0.042	0.871	95.751	
06:41:14	-0.083	0.031	-0.047	0.635	95.945	
06:41:29	-0.082	0.031	-0.047	0.521	95.848	
06:41:44	0.072	0.093	-0.008	0.407	95.694	
06:41:59	-0.007	0.075	0.160	0.277	89.887	
06:42:14	-0.081	0.030	0.053	0.928	71.069	
06:42:29	-0.085	0.024	-0.011	0.928	54.712	
06:42:44	-0.119	0.023	-0.064	0.106	48.147	
06:42:59	-0.085	0.024	-0.049	0.163	47.066	
06:43:14	-0.085	0.022	-0.049	0.106	46.999	
06:43:29	-0.085	0.024	-0.051	0.089	47.005	
06:43:44	2.429	0.596	0.054	0.106	46.976	
06:43:59	12.560	5.116	0.169	0.106	42.230	
06:44:14	13.940	5.946	-0.072	1.425	25.656	
06:44:29	14.017	6.001	-0.301	1.408	10.567	
06:44:44	14.025	6.009	-0.353	-0.033	2.930	
06:44:59	14.049	6.013	-0.364	0.000	0.604	
06:45:14	14.065	6.013	-0.414	-0.008	0.277	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

Date: **March 24, 2011**
Start Time 6:32
Stop Time 14:59
CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
06:45:29	11.679	6.930	-0.313	-0.041	0.225	
06:45:44	6.556	12.718	-0.428	0.342	0.313	
06:45:59	6.037	13.742	-0.451	1.840	0.282	
06:46:14	6.000	13.816	-0.461	0.692	0.145	
06:46:29	5.995	13.836	-0.430	-0.008	0.029	
06:46:44	5.994	13.851	-0.382	-0.057	0.000	
06:46:59	5.993	13.846	-0.374	-0.024	-0.011	
14:39	9.424	9.753	2.308	146.134	13.413	
14:40	8.426	10.650	0.185	153.401	15.397	
14:41	9.126	10.067	0.476	164.756	11.631	
14:42	9.207	9.926	2.726	79.410	11.811	
14:43	9.480	9.682	3.453	45.391	12.636	
14:44	9.143	9.990	4.016	46.896	16.438	
14:45	8.563	10.524	4.448	47.074	18.816	
14:46	9.275	9.882	4.361	47.241	14.785	
14:47	9.109	10.013	4.206	58.008	17.472	
14:48	9.074	10.113	4.054	152.894	18.655	
14:49	9.284	9.859	3.503	144.931	18.191	
14:50	8.979	10.093	3.122	147.888	19.779	
14:51	8.991	10.071	2.999	157.409	17.411	
14:52	9.546	9.633	2.674	151.485	15.318	
14:53	9.669	9.492	2.366	144.589	17.515	
14:54	8.979	10.087	2.411	159.235	18.150	
14:55	8.550	10.457	2.445	163.521	17.633	
14:56	9.320	9.814	2.425	163.280	14.947	
14:57	9.500	9.654	2.060	154.038	15.659	
14:58	9.578	9.574	1.869	158.020	16.911	
14:59	8.723	10.320	1.929	168.608	19.011	

Converter Efficiency 94.1%
NO2 gas = 50.1

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 6:49
Stop Time 6:57
CALIBRATION BIAS 00

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.044	0.113	0.402	0.160	0.508	
C_{uf}	Upscale gas	13.929	5.971	42.312	223.842	46.995	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce}	Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.7%	0.9%	0.0%	0.5%	
	Upscale gas	-0.8%	-0.3%	-0.7%	-0.6%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	N/A	N/A	N/A	N/A	N/A	
C_{ui}	Upscale gas	N/A	N/A	N/A	N/A	N/A	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	N/A	N/A	N/A	N/A	N/A	
	Upscale gas	N/A	N/A	N/A	N/A	N/A	
Drift Assessment Status							
	Zero gas	N/A	N/A	N/A	N/A	N/A	
	Upscale gas	N/A	N/A	N/A	N/A	N/A	

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06:50:57	-0.050	9.837	41.680	222.686	0.055
06:51:12	-0.050	9.838	41.962	223.191	0.059
06:51:27	-0.073	9.840	42.159	223.394	0.014
06:51:42	-0.055	9.841	42.266	223.508	0.035
06:51:57	-0.057	9.841	42.257	223.631	0.039
06:52:12	-0.058	9.843	42.344	224.086	0.059
06:52:27	-0.060	9.843	42.334	223.810	0.036
06:52:42	-0.053	9.024	41.879	223.818	0.176
06:52:57	-0.043	1.935	28.142	224.046	6.097
06:53:12	-0.043	0.355	12.011	135.336	23.434
06:53:27	-0.043	0.211	5.806	27.579	39.811
06:53:42	-0.044	0.172	3.499	5.967	45.512
06:53:57	-0.045	0.150	2.457	1.913	47.009
06:54:12	-0.044	0.131	1.929	1.262	47.009
06:54:27	-0.043	0.122	1.618	0.969	47.007
06:54:42	-0.045	0.112	1.351	0.798	46.994
06:54:57	-0.043	0.104	1.167	0.700	46.984
06:55:12	3.259	0.919	1.001	0.619	46.797
06:55:27	12.606	5.056	0.804	0.537	39.676
06:55:42	13.811	5.862	0.770	0.822	22.588

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 06-2004g4

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 6:49
Stop Time 6:57
CALIBRATION BIAS 00

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
06:55:57	13.891	5.934	0.702	0.472	7.298	
06:56:12	13.907	5.950	0.617	0.277	2.072	
06:56:27	13.918	5.962	0.537	0.138	0.640	
06:56:42	13.924	5.967	0.474	0.171	0.523	
06:56:57	13.929	5.971	0.407	0.155	0.500	
06:57:12	13.933	5.976	0.326	0.155	0.501	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 7:00
Stop time 7:27
REFERENCE METHOD RUN 1

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.044	0.113	0.402	0.160	0.508	
C_{ui}	Initial upscale	13.929	5.971	42.312	223.842	46.995	
C_{of}	Final zero	-0.048	0.119	0.482	0.149	0.506	
C_{uf}	Final upscale	13.930	5.976	42.084	222.817	46.822	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.539	10.545	14.121	164.158	11.607	
C_{Gas}	**Bias adjusted**	**8.662**	**10.558**	**14.512**	**164.610**	**11.339**	

Clock Time (at end of sample period)

041511 103521

07:01	8.694	10.441	11.786	191.402	14.104
07:02	8.778	10.287	11.096	163.537	14.750
07:03	8.672	10.445	11.816	172.409	15.217
07:04	8.934	10.175	11.507	159.803	14.022
07:05	8.810	10.295	12.247	166.976	13.309
07:06	9.128	10.010	12.300	166.319	11.473
07:07	8.553	10.525	12.400	165.104	14.256
07:08	8.960	10.163	12.762	168.740	13.738
07:09	7.845	11.134	14.332	169.919	15.176
07:10	8.548	10.576	14.205	178.512	11.743
07:11	9.224	9.911	13.132	142.941	11.809
07:12	8.418	10.665	14.925	153.220	12.546
07:13	8.595	10.493	15.639	152.806	9.957
07:14	7.928	11.091	17.315	159.717	12.038
07:15	8.829	10.325	16.174	154.642	9.180
07:16	8.748	10.321	14.377	137.112	9.628
07:17	8.105	10.948	15.216	169.420	10.338
07:18	8.144	10.925	14.345	173.244	9.289
07:19	8.706	10.430	13.638	164.125	9.319
07:20	9.030	10.076	13.336	155.946	8.777
07:21	7.636	11.332	16.205	175.391	10.336
07:22	8.381	10.669	15.543	177.183	9.386
07:23	8.696	10.347	14.519	156.512	8.962
07:24	8.060	10.995	16.331	173.966	10.531
07:25	8.990	10.186	14.614	160.375	9.592
07:26	8.144	10.872	15.284	147.692	12.179
07:27	8.000	11.074	16.224	175.265	11.738

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 7:27
Stop Time 7:35
CALIBRATION BIAS 01

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.048	0.119	0.482	0.149	0.506	
C_{uf}	Upscale gas	13.930	5.976	42.084	222.817	46.822	
Analyzer Calibration Error Reponses (C_{DIr})							
C_{oce}	Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce}	Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.7%	0.9%	0.0%	0.5%	
	Upscale gas	-0.8%	-0.3%	-0.9%	-0.8%	-0.2%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.044	0.113	0.402	0.160	0.508	
C_{ui}	Upscale gas	13.929	5.971	42.312	223.842	46.995	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.0%	0.1%	0.0%	0.0%	
	Upscale gas	0.0%	0.0%	-0.3%	-0.2%	-0.2%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103521

07:29:09	-0.036	9.833	38.514	218.974	0.203
07:29:24	-0.044	9.837	39.977	221.115	0.073
07:29:39	-0.049	9.841	40.661	221.677	0.062
07:29:54	-0.049	9.841	41.118	221.978	0.070
07:30:09	-0.049	9.845	41.454	222.271	0.081
07:30:24	-0.048	9.847	41.727	222.654	0.062
07:30:39	-0.051	9.847	41.989	222.613	0.057
07:30:54	-0.053	9.848	42.107	222.694	0.060
07:31:09	-0.053	9.847	42.157	223.142	0.067
07:31:24	-0.045	7.813	40.991	223.183	0.586
07:31:39	-0.047	1.172	24.822	223.053	8.759
07:31:54	-0.049	0.293	10.693	106.300	28.334
07:32:09	-0.049	0.201	5.418	21.221	41.576
07:32:24	-0.049	0.164	3.407	3.272	46.523
07:32:39	-0.049	0.143	2.492	1.636	46.996
07:32:54	-0.049	0.131	1.963	1.164	46.986
07:33:09	-0.048	0.118	1.608	0.912	46.989
07:33:24	-0.048	0.110	1.385	0.741	46.994
07:33:39	6.321	2.033	1.148	0.627	46.483
07:33:54	13.329	5.504	1.028	0.635	35.188

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 7:27
Stop Time 7:35
CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
07:34:09	13.852	5.904	0.996	0.554	17.102	
07:34:24	13.895	5.946	0.910	0.301	5.265	
07:34:39	13.910	5.960	0.772	0.285	1.263	
07:34:54	13.919	5.969	0.662	0.179	0.599	
07:35:09	13.925	5.973	0.578	0.155	0.513	
07:35:24	13.931	5.976	0.464	0.163	0.508	
07:35:39	13.933	5.979	0.404	0.130	0.497	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 7:39
Stop time 8:06
REFERENCE METHOD RUN 2

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.048	0.119	0.482	0.149	0.506	
C_{ui}	Initial upscale	13.930	5.976	42.084	222.817	46.822	
C_{of}	Final zero	-0.043	0.121	0.607	0.163	0.567	
C_{uf}	Final upscale	13.928	5.975	41.944	224.078	47.024	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.697	10.380	14.261	158.436	12.167	
C_{Gas}	**Bias adjusted**	**8.821**	**10.391**	**14.653**	**158.782**	**11.884**	

Clock Time (at end of sample period)

041511 103521

07:40	8.707	10.306	11.864	156.805	9.542
07:41	7.319	11.549	13.501	182.890	10.646
07:42	8.314	10.719	12.304	173.995	6.503
07:43	8.826	10.198	10.912	149.153	6.567
07:44	8.449	10.598	12.054	165.737	9.507
07:45	8.743	10.376	12.032	156.563	9.698
07:46	9.029	10.031	12.368	142.462	10.865
07:47	8.072	10.935	14.350	154.913	11.791
07:48	9.151	9.999	13.084	145.279	9.839
07:49	8.784	10.290	12.811	133.195	12.183
07:50	8.750	10.310	13.300	144.678	11.657
07:51	7.532	11.388	15.919	161.661	13.624
07:52	8.685	10.428	14.842	164.654	11.486
07:53	9.036	10.040	12.187	138.816	11.536
07:54	8.520	10.555	13.753	158.150	11.657
07:55	9.102	10.040	16.207	158.307	11.319
07:56	8.005	10.978	18.903	159.239	14.164
07:57	9.008	10.147	16.656	169.178	11.307
07:58	9.157	9.953	14.451	148.915	11.999
07:59	9.114	10.008	15.594	156.296	12.170
08:00	8.193	10.873	16.893	163.051	14.693
08:01	9.219	9.993	16.411	160.696	12.470
08:02	9.052	10.076	15.661	152.619	15.765
08:03	9.148	9.970	15.536	162.877	17.334
08:04	8.953	10.196	15.237	169.408	18.361
08:05	8.974	10.138	14.162	164.719	16.444
08:06	8.982	10.167	14.056	183.510	15.367

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 8:07
Stop Time 8:14
CALIBRATION BIAS 02

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.043	0.121	0.607	0.163	0.567	
C_{uf}	Upscale gas	13.928	5.975	41.944	224.078	47.024	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce}	Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.3%	0.7%	1.1%	0.0%	0.6%	
	Upscale gas	-0.8%	-0.3%	-1.1%	-0.6%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.048	0.119	0.482	0.149	0.506	
C_{ui}	Upscale gas	13.930	5.976	42.084	222.817	46.822	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.0%	0.1%	0.0%	0.1%	
	Upscale gas	0.0%	0.0%	-0.2%	0.3%	0.2%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

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08:08:28	-0.020	9.829	36.062	202.963	0.923
08:08:43	-0.035	9.838	38.730	219.520	0.194
08:08:58	-0.045	9.843	39.995	222.230	0.080
08:09:13	-0.046	9.846	40.697	223.093	0.055
08:09:28	-0.043	9.847	41.260	223.370	0.072
08:09:43	-0.044	9.848	41.571	223.492	0.069
08:09:58	-0.051	9.851	41.763	223.826	0.078
08:10:13	-0.051	9.853	41.962	224.135	0.055
08:10:28	-0.054	9.853	42.107	224.274	0.055
08:10:43	-0.047	8.162	41.475	224.282	0.426
08:10:58	-0.045	1.341	27.951	224.583	8.189
08:11:13	-0.045	0.311	12.503	118.926	27.049
08:11:28	-0.046	0.204	6.203	20.912	41.393
08:11:43	-0.045	0.168	3.766	3.981	46.439
08:11:58	-0.043	0.148	2.633	1.677	47.014
08:12:13	-0.043	0.131	2.045	1.180	46.999
08:12:28	-0.044	0.120	1.766	0.920	47.044
08:12:43	-0.043	0.113	1.517	0.757	47.028
08:12:58	5.060	1.551	1.262	0.611	46.764
08:13:13	13.119	5.371	1.019	0.619	37.336

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 8:07
Stop Time 8:14
CALIBRATION BIAS 02

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
08:13:28	13.842	5.896	0.944	0.554	18.623	
08:13:43	13.894	5.946	0.888	0.309	6.249	
08:13:58	13.910	5.962	0.771	0.211	1.431	
08:14:13	13.921	5.970	0.682	0.171	0.661	
08:14:28	13.930	5.975	0.611	0.146	0.527	
08:14:43	13.932	5.981	0.529	0.171	0.513	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 8:24
Stop time 8:51
REFERENCE METHOD RUN 3

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.043	0.121	0.607	0.163	0.567	
C_{ui}	Initial upscale	13.928	5.975	41.944	224.078	47.024	
C_{of}	Final zero	-0.057	0.110	0.417	0.125	0.515	
C_{uf}	Final upscale	13.932	5.979	41.803	223.907	47.032	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.878	10.266	10.684	157.910	12.025	
C_{Gas}	**Bias adjusted**	**9.005**	**10.268**	**10.894**	**157.873**	**11.709**	

Clock Time (at end of sample period)

041511 103521

08:25	8.975	10.170	11.562	154.390	10.313
08:26	8.474	10.601	12.501	149.935	12.949
08:27	9.244	9.947	12.675	156.679	11.663
08:28	9.151	10.060	12.581	142.049	13.278
08:29	8.805	10.338	11.986	150.594	12.082
08:30	8.703	10.437	11.990	158.572	12.394
08:31	9.539	9.690	11.914	144.166	11.691
08:32	9.107	10.053	11.838	146.569	13.387
08:33	9.019	10.111	11.118	147.992	11.542
08:34	8.785	10.368	11.667	159.858	11.385
08:35	9.109	10.035	10.376	143.577	10.112
08:36	8.835	10.318	10.438	154.507	11.493
08:37	8.867	10.241	10.137	145.305	9.789
08:38	9.119	10.068	10.431	152.688	9.330
08:39	8.565	10.504	9.664	144.805	10.361
08:40	8.712	10.436	9.758	159.143	11.788
08:41	8.490	10.560	9.048	148.651	12.754
08:42	8.689	10.471	9.485	164.025	13.259
08:43	9.089	10.036	8.129	145.546	12.785
08:44	8.735	10.398	9.162	170.613	12.947
08:45	8.564	10.492	9.854	164.970	12.611
08:46	8.449	10.688	10.595	183.193	13.492
08:47	9.453	9.754	8.831	162.654	10.710
08:48	8.302	10.793	9.880	180.633	13.860
08:49	9.019	10.165	9.692	186.032	11.514
08:50	8.612	10.515	10.972	170.598	15.526
08:51	9.303	9.924	12.182	175.832	11.651

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 8:52
Stop Time 9:00
CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.057	0.110	0.417	0.125	0.515	
C_{uf} Upscale gas	13.932	5.979	41.803	223.907	47.032	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce} Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.7%	0.9%	0.0%	0.5%	
Upscale gas	-0.8%	-0.2%	-1.3%	-0.6%	0.0%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{oi} Zero gas	-0.043	0.121	0.607	0.163	0.567	
C_{ui} Upscale gas	13.928	5.975	41.944	224.078	47.024	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	-0.1%	-0.2%	0.0%	-0.1%	
Upscale gas	0.0%	0.0%	-0.2%	0.0%	0.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041511 103521

08:53:47	-0.045	9.847	40.049	222.108	0.081
08:54:02	-0.049	9.850	40.585	222.760	0.077
08:54:17	-0.049	9.852	40.923	223.183	0.085
08:54:32	-0.049	9.853	41.224	223.557	0.060
08:54:47	-0.050	9.853	41.421	223.451	0.067
08:55:02	-0.050	9.853	41.532	223.655	0.065
08:55:17	-0.054	9.855	41.692	223.948	0.083
08:55:32	-0.068	9.857	41.828	223.736	0.047
08:55:47	-0.064	9.608	41.890	224.038	0.057
08:56:02	-0.054	2.859	34.722	215.604	3.145
08:56:17	-0.049	0.406	17.056	157.778	20.606
08:56:32	-0.049	0.219	8.134	67.424	36.868
08:56:47	-0.049	0.177	4.622	4.933	45.501
08:57:02	-0.047	0.150	3.030	2.027	47.011
08:57:17	-0.064	0.130	2.248	1.164	46.996
08:57:32	-0.065	0.118	1.827	0.831	46.999
08:57:47	-0.064	0.108	1.517	0.602	47.011
08:58:02	-0.041	0.104	1.320	0.749	47.087
08:58:17	6.820	2.207	1.065	0.644	46.266
08:58:32	13.398	5.551	0.865	0.611	36.373

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 8:52
Stop Time 9:00
CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
08:58:47	13.861	5.910	0.825	0.464	16.516	
08:59:02	13.900	5.949	0.785	0.309	5.618	
08:59:17	13.915	5.962	0.676	0.211	1.205	
08:59:32	13.924	5.971	0.598	0.163	0.619	
08:59:47	13.924	5.976	0.472	0.073	0.534	
09:00:02	13.934	5.979	0.407	0.171	0.518	
09:00:17	13.939	5.983	0.371	0.130	0.495	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 9:02
Stop time 9:29
REFERENCE METHOD RUN 4

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.057	0.110	0.417	0.125	0.515	
C_{ui}	Initial upscale	13.932	5.979	41.803	223.907	47.032	
C_{of}	Final zero	-0.047	0.116	0.580	0.033	0.512	
C_{uf}	Final upscale	13.936	5.985	41.831	224.762	47.033	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.159	10.073	11.119	156.932	14.770	
C_{Gas}	**Bias adjusted**	**9.286**	**10.063**	**11.387**	**156.675**	**14.526**	

Clock Time (at end of sample period)

041511 103521

09:03	8.385	10.767	15.475	164.589	15.456	
09:04	9.919	9.493	12.749	163.140	11.262	
09:05	9.085	10.109	10.622	142.788	12.114	
09:06	8.991	10.182	11.700	158.095	11.349	
09:07	8.508	10.692	12.827	173.667	12.581	
09:08	9.508	9.771	13.058	159.640	13.572	
09:09	9.191	10.076	13.254	157.456	15.957	
09:10	9.700	9.618	12.396	145.891	15.339	
09:11	9.389	9.859	12.105	147.796	17.881	
09:12	9.059	10.223	12.936	159.280	18.804	
09:13	9.057	10.176	11.665	148.612	15.814	
09:14	9.192	9.884	10.185	140.088	15.007	
09:15	9.208	10.072	9.414	149.263	16.617	
09:16	9.320	9.924	8.659	141.862	14.905	
09:17	9.171	10.033	8.818	143.246	13.641	
09:18	8.551	10.644	10.713	161.579	13.323	
09:19	9.390	9.859	10.432	149.900	12.436	
09:20	9.420	9.878	10.361	150.751	15.496	
09:21	9.371	9.863	9.648	144.860	15.011	
09:22	8.779	10.370	10.732	156.223	15.151	
09:23	8.627	10.577	11.771	175.647	15.620	
09:24	9.403	9.834	10.347	162.326	14.230	
09:25	9.201	10.046	10.551	169.467	16.849	
09:26	9.190	10.008	9.719	159.296	14.671	
09:27	9.296	9.972	10.434	173.093	16.212	
09:28	9.059	10.116	9.552	164.609	17.072	
09:29	9.318	9.914	10.084	174.005	12.416	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 9:30
Stop Time 9:43
CALIBRATION BIAS 04

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.047	0.116	0.580	0.033	0.512	
C_{uf}	Upscale gas	13.936	5.985	41.831	224.762	47.033	
Analyzer Calibration Error Reponses (C_{Dlr})							
C_{oce}	Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce}	Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.7%	1.0%	0.0%	0.5%	
	Upscale gas	-0.8%	-0.2%	-1.2%	-0.4%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{ol}	Zero gas	-0.057	0.110	0.417	0.125	0.515	
C_{ui}	Upscale gas	13.932	5.979	41.803	223.907	47.032	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.1%	0.0%	0.2%	0.0%	0.0%	
	Upscale gas	0.0%	0.0%	0.0%	0.2%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103521

09:36:20	-0.066	9.862	41.509	224.265	0.073
09:36:35	-0.067	9.862	41.631	224.257	0.060
09:36:50	-0.068	9.863	41.714	224.379	0.078
09:37:05	-0.067	9.864	41.708	224.615	0.075
09:37:20	-0.067	9.864	41.714	224.623	0.075
09:37:35	-0.067	9.866	41.726	224.713	0.060
09:37:50	-0.068	9.863	41.770	224.795	0.063
09:38:05	-0.067	9.864	41.830	224.819	0.085
09:38:20	-0.064	9.855	41.893	224.672	0.063
09:38:35	-0.048	4.695	38.144	224.892	2.123
09:38:50	-0.049	0.558	22.426	162.971	14.959
09:39:05	-0.047	0.243	11.245	57.541	34.495
09:39:20	-0.047	0.184	6.424	12.666	43.784
09:39:35	-0.048	0.159	4.326	2.312	46.877
09:39:50	-0.047	0.138	3.205	1.392	47.012
09:40:05	-0.047	0.125	2.597	1.001	47.000
09:40:20	-0.047	0.117	2.178	0.806	47.075
09:40:35	-0.049	0.107	1.889	0.725	47.023
09:40:50	0.291	0.125	1.641	0.603	47.071
09:41:05	9.880	3.533	1.323	0.554	44.834

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 9:30
Stop Time 9:43
CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
09:41:20	13.648	5.741	1.192	0.455	31.398	
09:41:35	13.871	5.928	1.140	0.374	12.698	
09:41:50	13.899	5.954	1.040	0.293	3.964	
09:42:05	13.911	5.965	0.944	0.244	0.998	
09:42:20	13.920	5.974	0.883	0.163	0.628	
09:42:35	13.925	5.977	0.806	0.163	0.542	
09:42:50	13.931	5.980	0.707	0.171	0.526	
09:43:05	13.934	5.984	0.598	0.098	0.513	
09:43:20	13.936	5.983	0.609	0.000	0.513	
09:43:35	13.939	5.988	0.532	0.000	0.511	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 10:23
Stop time 10:50
REFERENCE METHOD RUN 5

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.047	0.116	0.580	0.033	0.512	
C_{ui}	Initial upscale	13.936	5.985	41.831	224.762	47.033	
C_{of}	Final zero	-0.052	0.138	0.467	0.165	0.531	
C_{uf}	Final upscale	13.914	5.972	41.605	224.504	47.015	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.428	9.770	5.044	153.696	14.102	
C_{Gas}	**Bias adjusted**	**9.563**	**9.772**	**4.862**	**153.231**	**13.842**	

Clock Time (at end of sample period)

041511 103521

10:24	9.461	9.736	6.562	147.751	21.199	
10:25	9.371	9.819	5.996	140.543	17.790	
10:26	8.523	10.571	5.752	148.769	17.025	
10:27	9.621	9.616	5.673	149.265	11.201	
10:28	9.082	10.065	5.220	149.135	10.914	
10:29	9.772	9.501	5.183	160.008	7.916	
10:30	8.880	10.278	5.115	163.222	10.994	
10:31	9.355	9.844	4.969	169.923	9.551	
10:32	8.920	10.249	5.152	167.973	10.487	
10:33	9.436	9.757	4.975	157.027	9.921	
10:34	9.636	9.564	3.799	152.721	11.216	
10:35	9.490	9.676	3.921	150.016	12.242	
10:36	9.166	9.947	4.190	150.397	13.037	
10:37	9.453	9.760	4.632	153.765	11.109	
10:38	9.921	9.391	4.725	138.447	13.447	
10:39	10.158	9.208	5.250	132.745	18.002	
10:40	9.953	9.398	5.421	135.609	18.594	
10:41	10.118	9.252	4.961	132.196	20.040	
10:42	10.335	9.082	4.567	130.674	21.669	
10:43	9.972	9.320	4.229	132.755	22.278	
10:44	8.953	10.179	4.704	160.916	21.118	
10:45	9.504	9.652	4.385	170.932	13.758	
10:46	9.790	9.420	4.423	160.619	14.844	
10:47	9.158	9.919	5.835	170.002	14.800	
10:48	8.026	10.902	6.318	182.629	11.190	
10:49	9.094	10.026	5.704	183.758	8.634	
10:50	9.419	9.665	4.538	157.981	7.775	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 10:51
Stop Time 11:00
CALIBRATION BIAS 05

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.052	0.138	0.467	0.165	0.531	
C_{uf}	Upscale gas	13.914	5.972	41.605	224.504	47.015	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce}	Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.9%	0.9%	0.0%	0.6%	
	Upscale gas	-0.9%	-0.3%	-1.5%	-0.5%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{ol}	Zero gas	-0.047	0.116	0.580	0.033	0.512	
C_{ul}	Upscale gas	13.936	5.985	41.831	224.762	47.033	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.2%	-0.1%	0.0%	0.0%	
	Upscale gas	-0.2%	-0.1%	-0.3%	-0.1%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103521

10:53:01	-0.051	9.843	39.033	222.442	0.118
10:53:16	-0.055	9.846	39.793	223.223	0.085
10:53:31	-0.052	9.847	40.313	223.443	0.073
10:53:46	-0.053	9.845	40.694	223.655	0.098
10:54:01	-0.056	9.847	41.004	223.793	0.096
10:54:16	-0.057	9.847	41.237	224.347	0.068
10:54:31	-0.057	9.847	41.358	224.379	0.071
10:54:46	-0.059	9.847	41.428	224.241	0.073
10:55:01	-0.062	9.847	41.480	224.542	0.070
10:55:16	-0.062	9.848	41.602	224.396	0.068
10:55:31	-0.062	9.850	41.734	224.575	0.071
10:55:46	-0.052	8.955	40.856	224.672	0.187
10:56:01	-0.049	1.941	23.137	214.261	5.215
10:56:16	-0.053	0.362	9.327	110.704	25.848
10:56:31	-0.055	0.219	5.031	39.243	39.831
10:56:46	-0.055	0.175	3.388	3.581	46.180
10:57:01	-0.054	0.154	2.574	1.742	46.911
10:57:16	-0.049	0.137	2.046	1.278	47.000
10:57:31	-0.051	0.123	1.802	1.075	47.026
10:57:46	-0.051	0.116	1.587	0.847	46.984

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 10:51
Stop Time 11:00
CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
10:58:01	-0.046	0.106	1.395	0.749	47.033	
10:58:16	6.783	2.197	1.180	0.660	45.895	
10:58:31	13.317	5.513	0.959	0.644	35.839	
10:58:46	13.831	5.895	0.883	0.594	15.072	
10:59:01	13.879	5.939	0.754	0.333	5.076	
10:59:16	13.894	5.956	0.653	0.293	1.061	
10:59:31	13.901	5.961	0.581	0.236	0.630	
10:59:46	13.910	5.969	0.519	0.171	0.554	
11:00:01	13.915	5.973	0.470	0.155	0.526	
11:00:16	13.919	5.975	0.410	0.171	0.513	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 11:02
Stop time 11:29
REFERENCE METHOD RUN 6

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{ol}	Initial zero	-0.052	0.138	0.467	0.165	0.531	
C_{ul}	Initial upscale	13.914	5.972	41.605	224.504	47.015	
C_{of}	Final zero	-0.053	0.115	0.397	0.160	0.548	
C_{uf}	Final upscale	13.903	5.963	41.614	224.631	46.940	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.630	9.627	4.802	152.169	13.133	
C_{Gas}	**Bias adjusted**	**9.779**	**9.645**	**4.702**	**151.732**	**12.854**	
Clock Time (at end of sample period)							
041511 103521							
	11:03	8.744	10.333	6.124	171.866	7.704	
	11:04	9.356	9.765	5.047	149.392	7.678	
	11:05	9.683	9.529	4.753	147.658	9.287	
	11:06	9.179	9.946	4.939	149.504	10.829	
	11:07	8.948	10.141	5.198	152.473	11.414	
	11:08	9.431	9.779	5.258	161.054	10.098	
	11:09	9.187	9.971	5.094	153.338	10.293	
	11:10	9.475	9.724	5.092	150.489	10.200	
	11:11	9.358	9.831	5.352	148.374	12.042	
	11:12	9.482	9.784	5.707	153.644	12.196	
	11:13	9.917	9.428	5.264	146.628	12.525	
	11:14	10.147	9.241	5.181	141.909	15.852	
	11:15	9.805	9.515	5.905	147.544	17.863	
	11:16	10.255	9.142	5.399	144.170	15.022	
	11:17	10.134	9.233	5.015	140.625	15.886	
	11:18	10.279	9.122	4.924	139.349	17.836	
	11:19	9.456	9.754	4.787	144.585	21.220	
	11:20	9.514	9.745	4.972	168.455	16.344	
	11:21	9.955	9.344	4.204	153.087	11.998	
	11:22	9.705	9.535	4.063	155.763	13.691	
	11:23	9.577	9.644	4.059	154.640	13.462	
	11:24	9.653	9.603	4.071	154.117	13.535	
	11:25	9.737	9.543	4.009	158.075	13.910	
	11:26	9.317	9.911	3.924	161.341	13.018	
	11:27	9.459	9.796	3.988	162.796	12.473	
	11:28	9.948	9.446	3.773	157.713	13.258	
	11:29	10.308	9.131	3.563	139.969	14.950	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 11:29
Stop Time 11:38
CALIBRATION BIAS 06

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.053	0.115	0.397	0.160	0.548	
C_{uf}	Upscale gas	13.903	5.963	41.614	224.631	46.940	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce}	Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.7%	0.8%	0.0%	0.6%	
	Upscale gas	-1.0%	-0.4%	-1.5%	-0.4%	-0.1%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.052	0.138	0.467	0.165	0.531	
C_{ui}	Upscale gas	13.914	5.972	41.605	224.504	47.015	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	-0.2%	-0.1%	0.0%	0.0%	
	Upscale gas	-0.1%	-0.1%	0.0%	0.0%	-0.1%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103521

11:32:13	-0.055	9.827	40.658	224.029	0.095
11:32:28	-0.055	9.828	40.876	224.192	0.071
11:32:43	-0.055	9.829	41.068	224.111	0.073
11:32:58	-0.055	9.829	41.161	224.396	0.070
11:33:13	-0.055	9.829	41.270	224.518	0.071
11:33:28	-0.056	9.829	41.366	224.737	0.070
11:33:43	-0.057	9.832	41.493	224.509	0.073
11:33:58	-0.055	9.832	41.657	224.737	0.068
11:34:13	-0.054	9.680	41.693	224.648	0.116
11:34:28	-0.046	3.297	28.153	223.126	3.461
11:34:43	-0.049	0.457	11.166	192.812	19.707
11:34:58	-0.050	0.232	5.532	56.793	37.630
11:35:13	-0.050	0.179	3.590	7.920	45.050
11:35:28	-0.050	0.155	2.579	2.043	46.927
11:35:43	-0.051	0.137	2.085	1.294	46.913
11:35:58	-0.052	0.123	1.781	1.107	46.932
11:36:13	-0.052	0.114	1.509	0.863	46.953
11:36:28	-0.054	0.106	1.350	0.782	46.934
11:36:43	2.899	0.792	1.154	0.594	46.724
11:36:58	12.390	4.941	0.956	0.529	40.423

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 11:29
Stop Time 11:38
CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
11:37:13	13.764	5.839	0.824	0.464	22.462	
11:37:28	13.860	5.922	0.716	0.496	7.507	
11:37:43	13.880	5.943	0.586	0.293	1.963	
11:37:58	13.890	5.952	0.496	0.220	0.668	
11:38:13	13.899	5.958	0.450	0.155	0.553	
11:38:28	13.903	5.965	0.397	0.171	0.545	
11:38:43	13.907	5.965	0.345	0.155	0.545	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 11:42
Stop time 12:09
REFERENCE METHOD RUN 7

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.053	0.115	0.397	0.160	0.548	
C_{ui}	Initial upscale	13.903	5.963	41.614	224.631	46.940	
C_{of}	Final zero	-0.052	0.122	0.355	0.160	0.552	
C_{uf}	Final upscale	13.891	5.955	41.313	224.434	46.955	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	10.146	9.248	4.859	147.986	24.347	
C_{Gas}	**Bias adjusted**	**10.308**	**9.269**	**4.833**	**147.581**	**24.312**	

Clock Time (at end of sample period)

041511 103521

11:43	10.536	9.001	4.828	122.928	30.131
11:44	9.997	9.427	4.779	137.772	30.302
11:45	10.282	9.180	4.652	142.747	27.352
11:46	9.894	9.446	4.537	158.197	26.937
11:47	9.598	9.678	5.182	164.882	20.901
11:48	9.989	9.387	5.988	168.818	16.316
11:49	9.794	9.502	5.998	164.121	14.952
11:50	10.038	9.318	5.908	164.225	13.909
11:51	9.945	9.381	6.000	158.187	17.724
11:52	10.032	9.335	6.716	157.697	19.466
11:53	9.935	9.399	7.300	150.405	21.964
11:54	9.707	9.601	8.070	155.372	25.919
11:55	9.730	9.579	7.278	151.838	24.168
11:56	10.114	9.304	6.561	150.712	21.602
11:57	10.293	9.133	5.650	137.821	23.291
11:58	10.041	9.346	5.374	137.882	26.849
11:59	10.329	9.125	4.813	132.914	29.417
12:00	10.695	8.841	4.378	131.852	28.264
12:01	10.679	8.837	4.054	133.378	32.342
12:02	10.837	8.723	3.903	141.793	35.913
12:03	11.099	8.490	3.478	136.848	31.728
12:04	10.254	9.121	3.200	141.899	28.785
12:05	9.739	9.556	3.158	157.670	27.731
12:06	10.206	9.175	2.735	151.329	21.332
12:07	10.469	8.963	2.378	143.989	18.515
12:08	9.967	9.320	2.159	143.494	21.417
12:09	9.731	9.537	2.109	156.862	20.158

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 12:10
Stop Time 12:18
CALIBRATION BIAS 07

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.052	0.122	0.355	0.160	0.552	
C_{uf}	Upscale gas	13.891	5.955	41.313	224.434	46.955	
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce}	Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)							
		14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.2%	0.7%	0.8%	0.0%	0.6%	
	Upscale gas	-1.1%	-0.4%	-1.8%	-0.5%	0.0%	
System Bias Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.053	0.115	0.397	0.160	0.548	
C_{ui}	Upscale gas	13.903	5.963	41.614	224.631	46.940	
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.1%	0.0%	0.0%	0.0%	
	Upscale gas	-0.1%	-0.1%	-0.3%	0.0%	0.0%	
Drift Assessment Status							
	Zero gas	OK	OK	OK	OK	OK	
	Upscale gas	OK	OK	OK	OK	OK	

041511 103521

12:12:27	-0.055	9.812	40.593	223.915	0.095
12:12:42	-0.055	9.815	40.775	224.168	0.078
12:12:57	-0.055	9.817	40.967	224.217	0.078
12:13:12	-0.055	9.817	41.104	224.160	0.071
12:13:27	-0.057	9.817	41.270	224.265	0.085
12:13:42	-0.057	9.817	41.403	224.339	0.075
12:13:57	-0.057	9.817	41.520	224.485	0.075
12:14:12	-0.052	9.091	41.016	224.477	0.257
12:14:27	-0.047	2.098	24.495	214.082	6.245
12:14:42	-0.049	0.375	9.819	171.176	23.181
12:14:57	-0.051	0.219	5.123	50.297	39.958
12:15:12	-0.051	0.175	3.359	5.316	45.770
12:15:27	-0.052	0.150	2.442	1.766	46.906
12:15:42	-0.051	0.134	1.920	1.221	46.924
12:15:57	-0.053	0.121	1.600	0.944	46.947
12:16:12	-0.054	0.112	1.356	0.798	46.996
12:16:27	1.902	0.485	1.144	0.692	46.935
12:16:42	11.863	4.631	0.933	0.619	42.328
12:16:57	13.728	5.812	0.838	0.488	23.963
12:17:12	13.848	5.916	0.770	0.472	8.417

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 12:10
Stop Time 12:18
CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
12:17:27	13.868	5.935	0.630	0.277	1.945	
12:17:42	13.821	5.944	0.435	0.138	0.726	
12:17:57	13.885	5.952	0.433	0.155	0.585	
12:18:12	13.893	5.956	0.363	0.171	0.528	
12:18:27	13.897	5.958	0.269	0.155	0.544	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 12:21
Stop time 12:48
REFERENCE METHOD RUN 8

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.052	0.122	0.355	0.160	0.552	
C_{ui}	Initial upscale	13.891	5.955	41.313	224.434	46.955	
C_{of}	Final zero	-0.053	0.124	0.391	0.293	0.557	
C_{uf}	Final upscale	13.874	5.950	41.565	220.589	46.927	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.751	9.515	2.655	144.682	19.300	
C_{Gas}	**Bias adjusted**	**9.919**	**9.553**	**2.462**	**145.571**	**19.155**	

Clock Time (at end of sample period)

041511 103521

12:22	9.819	9.477	2.403	151.207	15.904
12:23	10.488	8.955	2.181	132.344	16.019
12:24	10.452	8.966	2.123	126.349	19.852
12:25	10.186	9.191	2.225	131.380	25.848
12:26	9.938	9.366	2.349	135.822	24.904
12:27	9.193	9.967	2.687	147.259	25.415
12:28	9.836	9.425	2.472	143.612	21.848
12:29	10.058	9.261	2.192	140.248	18.762
12:30	9.676	9.530	2.010	134.925	19.563
12:31	9.489	9.704	2.350	152.357	20.477
12:32	9.753	9.501	2.651	149.896	20.698
12:33	10.008	9.281	2.678	144.760	18.739
12:34	9.937	9.319	2.981	144.099	18.065
12:35	9.685	9.539	3.142	148.500	19.716
12:36	10.054	9.274	3.237	142.536	21.444
12:37	9.261	9.896	3.208	149.064	20.083
12:38	9.245	9.926	3.210	157.147	16.045
12:39	9.785	9.465	2.971	149.691	16.379
12:40	9.478	9.695	2.767	146.610	18.556
12:41	8.764	10.340	3.003	156.701	17.547
12:42	9.544	9.667	2.830	154.626	14.035
12:43	9.740	9.514	2.519	144.854	15.750
12:44	9.372	9.867	2.797	149.782	19.911
12:45	9.850	9.477	2.860	145.261	16.852
12:46	9.883	9.418	2.734	140.020	18.217
12:47	9.862	9.456	2.590	145.289	19.785
12:48	9.917	9.425	2.526	142.088	20.682

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 12:50
Stop Time 12:58
CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.053	0.124	0.391	0.293	0.557	
C_{uf} Upscale gas	13.874	5.950	41.565	220.589	46.927	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce} Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.8%	0.8%	0.1%	0.6%	
Upscale gas	-1.2%	-0.4%	-1.5%	-1.3%	-0.1%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{ol} Zero gas	-0.052	0.122	0.355	0.160	0.552	
C_{ui} Upscale gas	13.891	5.955	41.313	224.434	46.955	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	0.0%	0.0%	0.0%	
Upscale gas	-0.1%	0.0%	0.3%	-0.8%	0.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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12:51:30	-0.055	9.800	40.536	220.432	0.075
12:51:45	-0.055	9.801	40.731	220.700	0.073
12:52:00	-0.056	9.802	40.879	220.375	0.073
12:52:15	-0.056	9.804	41.065	220.570	0.075
12:52:30	-0.057	9.804	41.258	220.554	0.073
12:52:45	-0.057	9.805	41.403	220.399	0.070
12:53:00	-0.059	9.805	41.504	220.684	0.073
12:53:15	-0.057	9.806	41.563	220.594	0.073
12:53:30	-0.061	9.806	41.628	220.489	0.075
12:53:45	-0.050	6.724	37.379	220.635	1.102
12:54:00	-0.051	0.929	17.643	220.643	11.359
12:54:15	-0.050	0.289	7.720	89.654	31.840
12:54:30	-0.052	0.202	4.508	17.265	42.769
12:54:45	-0.053	0.169	3.090	2.597	46.758
12:55:00	-0.051	0.148	2.406	1.604	46.906
12:55:15	-0.052	0.134	1.978	1.262	46.930
12:55:30	-0.053	0.124	1.649	1.107	46.948
12:55:45	-0.053	0.114	1.395	0.912	46.902
12:56:00	3.345	0.957	1.144	0.814	46.898
12:56:15	12.514	5.022	0.886	0.733	38.821

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 12:50
Stop Time 12:58
CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
12:56:30	13.747	5.834	0.809	0.644	21.621	
12:56:45	13.833	5.915	0.702	0.611	6.961	
12:57:00	13.850	5.930	0.603	0.480	1.846	
12:57:15	13.861	5.942	0.524	0.277	0.692	
12:57:30	13.867	5.946	0.462	0.301	0.567	
12:57:45	13.875	5.950	0.402	0.285	0.555	
12:58:00	13.879	5.954	0.308	0.293	0.549	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 13:12
Stop time 13:39
REFERENCE METHOD RUN 9

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.053	0.124	0.391	0.293	0.557	
C_{ui}	Initial upscale	13.874	5.950	41.565	220.589	46.927	
C_{of}	Final zero	-0.053	0.123	0.340	0.434	0.546	
C_{uf}	Final upscale	13.862	5.942	41.090	218.098	46.929	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.613	9.675	1.664	147.785	17.472	
C_{Gas}	**Bias adjusted**	**9.791**	**9.727**	**1.404**	**150.801**	**17.294**	

Clock Time (at end of sample period)

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13:13	9.686	9.596	1.657	149.821	13.127
13:14	9.536	9.685	1.590	149.524	12.711
13:15	9.889	9.437	1.553	146.486	11.444
13:16	9.867	9.456	1.542	142.619	13.048
13:17	9.298	9.906	1.666	151.689	14.827
13:18	9.164	10.028	1.730	170.307	12.746
13:19	8.998	10.187	1.765	172.161	12.172
13:20	9.049	10.128	1.575	163.690	13.339
13:21	9.174	10.052	1.568	165.256	13.242
13:22	9.428	9.841	1.483	158.378	12.525
13:23	9.423	9.811	1.395	147.821	12.293
13:24	9.614	9.661	1.544	143.797	13.952
13:25	9.462	9.784	1.658	141.284	16.210
13:26	9.324	9.908	1.742	135.277	15.136
13:27	9.716	9.617	1.863	140.289	14.644
13:28	10.528	8.961	2.047	123.614	18.292
13:29	10.371	9.090	2.271	123.934	24.422
13:30	10.772	8.795	2.231	126.839	26.191
13:31	10.883	8.664	1.953	122.751	36.353
13:32	9.790	9.522	1.867	137.045	38.621
13:33	8.907	10.300	1.882	158.352	29.562
13:34	10.159	9.242	1.678	154.713	20.060
13:35	9.453	9.752	1.389	142.287	20.864
13:36	8.948	10.255	1.476	164.601	16.162
13:37	9.247	9.945	1.330	155.246	12.396
13:38	9.709	9.557	1.261	152.475	12.462
13:39	9.166	10.035	1.201	149.943	14.943

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 13:42
Stop Time 13:49
CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.053	0.123	0.340	0.434	0.546	
C_{uf} Upscale gas	13.862	5.942	41.090	218.098	46.929	
Analyzer Calibration Error Reponses (C_{DIr})						
C_{oce} Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce} Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)						
	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.8%	0.8%	0.1%	0.6%	
Upscale gas	-1.3%	-0.5%	-2.0%	-1.9%	-0.1%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{ol} Zero gas	-0.053	0.124	0.391	0.293	0.557	
C_{ul} Upscale gas	13.874	5.950	41.565	220.589	46.927	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	-0.1%	0.0%	0.0%	
Upscale gas	-0.1%	-0.1%	-0.5%	-0.5%	0.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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13:43:15	-0.056	9.791	40.807	218.364	0.073
13:43:30	-0.057	9.791	40.926	218.372	0.071
13:43:45	-0.057	9.790	41.045	218.518	0.073
13:44:00	-0.056	9.792	41.172	218.453	0.070
13:44:15	-0.107	9.791	41.063	218.242	0.021
13:44:30	-0.156	9.791	40.757	217.558	-0.113
13:44:45	-0.059	9.792	41.451	218.494	0.070
13:45:00	-0.049	7.187	38.670	218.624	0.363
13:45:15	-0.050	1.042	19.510	212.454	11.591
13:45:30	-0.050	0.300	8.384	144.086	29.844
13:45:45	-0.051	0.203	4.713	11.648	42.813
13:46:00	-0.051	0.169	3.144	4.282	46.453
13:46:15	-0.052	0.150	2.343	1.937	46.876
13:46:30	-0.051	0.132	1.918	1.229	46.894
13:46:45	-0.054	0.124	1.628	1.034	46.942
13:47:00	-0.055	0.114	1.408	1.001	46.950
13:47:15	4.814	1.479	1.182	0.879	46.235
13:47:30	12.935	5.271	1.014	0.822	37.600
13:47:45	13.761	5.850	0.845	0.725	17.884
13:48:00	13.823	5.908	0.700	0.644	5.991

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 13:42
Stop Time 13:49
CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
13:48:15	13.839	5.924	0.583	0.594	1.347	
13:48:30	13.849	5.934	0.453	0.504	0.682	
13:48:45	13.856	5.939	0.386	0.496	0.562	
13:49:00	13.861	5.942	0.332	0.504	0.555	
13:49:15	13.868	5.945	0.303	0.301	0.519	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 13:51
Stop time 14:18
REFERENCE METHOD RUN 10

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.053	0.123	0.340	0.434	0.546	
C_{ui}	Initial upscale	13.862	5.942	41.090	218.098	46.929	
C_{of}	Final zero	-0.056	0.117	0.472	0.480	0.545	
C_{uf}	Final upscale	13.848	5.933	41.339	217.645	46.874	
C_{ma}	Actual gas value	14.100	5.930	44.300	224.000	47.400	
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.619	9.466	2.146	148.653	14.712	
C_{Gas}	**Bias adjusted**	**9.806**	**9.527**	**1.888**	**152.685**	**14.485**	

Clock Time (at end of sample period)

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13:52	9.722	9.356	2.782	134.955	9.640
13:53	9.701	9.330	2.258	126.571	9.439
13:54	9.737	9.325	2.272	127.603	11.126
13:55	9.401	9.574	2.484	131.946	13.258
13:56	9.562	9.461	2.888	135.588	12.390
13:57	9.814	9.271	2.883	135.755	12.747
13:58	9.988	9.107	2.795	137.611	14.574
13:59	9.832	9.247	2.840	140.700	16.285
14:00	9.459	9.579	2.828	148.922	16.095
14:01	10.097	9.089	2.540	146.080	14.843
14:02	10.040	9.118	2.423	149.151	17.650
14:03	9.219	9.730	2.538	164.080	18.325
14:04	9.542	9.471	2.490	165.525	13.546
14:05	9.455	9.540	2.150	162.556	13.186
14:06	9.519	9.488	1.938	162.928	12.190
14:07	9.507	9.541	1.910	172.002	11.602
14:08	9.402	9.639	1.954	169.367	14.129
14:09	9.509	9.578	1.892	163.982	17.427
14:10	9.199	9.835	1.838	163.769	17.548
14:11	9.556	9.568	1.790	156.960	14.598
14:12	9.827	9.371	1.565	148.167	15.245
14:13	9.570	9.567	1.539	144.017	16.335
14:14	9.526	9.624	1.498	144.723	18.624
14:15	9.534	9.629	1.516	147.296	19.301
14:16	9.642	9.539	1.522	146.414	18.068
14:17	9.619	9.546	1.418	144.856	16.377
14:18	9.724	9.463	1.384	142.110	12.667

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 14:21
Stop Time 14:28
CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.056	0.117	0.472	0.480	0.545	
C_{uf} Upscale gas	13.848	5.933	41.339	217.645	46.874	
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.079	0.019	-0.363	-0.024	-0.010	
C_{mce} Upscale gas	14.046	6.011	42.929	226.637	46.994	
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930	44.300	224.000	47.400	
Calibration Span Value (CS)	14.100	13.900	89.900	453.000	95.700	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.7%	0.9%	0.1%	0.6%	
Upscale gas	-1.4%	-0.6%	-1.8%	-2.0%	-0.1%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (C_S)						
C_{ol} Zero gas	-0.053	0.123	0.340	0.434	0.546	
C_{ul} Upscale gas	13.862	5.942	41.090	218.098	46.929	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	0.1%	0.0%	0.0%	
Upscale gas	-0.1%	-0.1%	0.3%	-0.1%	-0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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14:22:22	-0.057	9.774	40.457	217.118	0.059
14:22:37	-0.055	9.774	40.607	217.192	0.057
14:22:52	-0.057	9.777	40.781	217.265	0.082
14:23:07	-0.057	9.778	40.917	217.192	0.075
14:23:22	-0.059	9.779	41.042	217.427	0.059
14:23:37	-0.057	9.780	41.169	217.582	0.057
14:23:52	-0.059	9.780	41.265	217.615	0.055
14:24:07	-0.060	9.780	41.330	217.598	0.072
14:24:22	-0.057	9.780	41.421	217.721	0.055
14:24:37	-0.051	6.022	37.680	217.656	1.399
14:24:52	-0.053	0.765	19.448	179.894	13.154
14:25:07	-0.053	0.270	9.205	106.162	33.441
14:25:22	-0.055	0.192	5.392	19.186	43.417
14:25:37	-0.052	0.161	3.673	3.289	46.844
14:25:52	-0.055	0.142	2.761	1.921	46.841
14:26:07	-0.055	0.126	2.242	1.563	46.883
14:26:22	-0.056	0.117	1.872	1.156	46.857
14:26:37	-0.056	0.108	1.623	0.953	46.882
14:26:52	3.960	1.160	1.345	0.839	46.585
14:27:07	12.702	5.131	1.110	0.757	37.939

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 14:21
Stop Time 14:28
CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
14:27:22	13.738	5.830	1.047	0.709	20.296	
14:27:37	13.811	5.898	0.904	0.676	6.099	
14:27:52	13.829	5.916	0.789	0.619	1.654	
14:28:07	13.839	5.923	0.697	0.570	0.654	
14:28:22	13.843	5.929	0.563	0.480	0.580	
14:28:37	13.850	5.934	0.462	0.480	0.539	
14:28:52	13.853	5.936	0.391	0.480	0.518	

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 14:38
Stop time 14:59
REFERENCE METHOD RUN 11

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.056	0.117				
C_{ui}	Initial upscale	13.848	5.933				
C_{of}	Final zero	-0.036	0.120				
C_{uf}	Final upscale	13.825	5.906				
C_{ma}	Actual gas value	14.100	5.930				
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	9.140	9.984				
C_{Gas}	**Bias adjusted**	**9.330**	**10.085**				

Clock Time (at end of sample period)

041511 103707

	14:39	9.424	9.753			
	14:40	8.426	10.650			
	14:41	9.126	10.067			
	14:42	9.207	9.926			
	14:43	9.480	9.682			
	14:44	9.143	9.990			
	14:45	8.563	10.524			
	14:46	9.275	9.882			
	14:47	9.109	10.013			
	14:48	9.074	10.113			
	14:49	9.284	9.859			
	14:50	8.979	10.093			
	14:51	8.991	10.071			
	14:52	9.546	9.633			
	14:53	9.669	9.492			
	14:54	8.979	10.087			
	14:55	8.550	10.457			
	14:56	9.320	9.814			
	14:57	9.500	9.654			
	14:58	9.578	9.574			
	14:59	8.723	10.320			

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 15:02
Stop Time 15:06
CALIBRATION BIAS 11

	Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
	FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)						
C_{of} Zero gas	-0.036	0.120				
C_{uf} Upscale gas	13.825	5.906				
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce} Zero gas	-0.079	0.019				
C_{mce} Upscale gas	14.046	6.011				
Actual Upscale Gas Value (C_{MA})						
C_{ma} Upscale gas	14.100	5.930				
Calibration Span Value (CS)	14.100	13.900				
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.7%				
Upscale gas	-1.6%	-0.8%				
System Bias Status						
Zero gas	OK	OK				
Upscale gas	OK	OK				
Previous System Response to Calibration Gases (C_S)						
C_{oi} Zero gas	-0.056	0.117				
C_{ui} Upscale gas	13.848	5.933				
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	0.0%				
Upscale gas	-0.2%	-0.2%				
Drift Assessment Status						
Zero gas	OK	OK				
Upscale gas	OK	OK				

041511 103707

15:03:48	5.246	6.008
15:04:03	0.913	1.453
15:04:18	0.048	0.287
15:04:33	-0.018	0.160
15:04:48	-0.032	0.134
15:05:03	-0.037	0.117
15:05:18	-0.040	0.109
15:05:33	4.331	1.297
15:05:48	12.749	5.146
15:06:03	13.735	5.820
15:06:18	13.808	5.890
15:06:33	13.829	5.908
15:06:48	13.838	5.918

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 15:09
Stop time 15:30
REFERENCE METHOD RUN 12

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
Calibration Checks							
C_{oi}	Initial zero	-0.036	0.120				
C_{ui}	Initial upscale	13.825	5.906				
C_{of}	Final zero	-0.029	0.129				
C_{uf}	Final upscale	13.831	5.918				
C_{ma}	Actual gas value	14.100	5.930				
Analyzer Averages (concentrations)							
C_{Avg}	Average conc.	8.914	10.124				
C_{Gas}	**Bias adjusted**	**9.101**	**10.245**				

Clock Time (at end of sample period)		
041511 103707		
15:10	8.818	10.184
15:11	9.182	9.997
15:12	9.983	9.273
15:13	9.143	9.941
15:14	8.351	10.616
15:15	8.686	10.362
15:16	9.202	9.829
15:17	9.284	9.782
15:18	9.120	9.919
15:19	8.971	10.027
15:20	9.141	9.887
15:21	8.732	10.213
15:22	7.670	11.195
15:23	9.376	9.730
15:24	9.474	9.597
15:25	8.017	10.878
15:26	8.835	10.198
15:27	8.330	10.627
15:28	9.565	9.586
15:29	9.156	9.911
15:30	8.151	10.848

Wheelabrator North Broward
CleanAir Project No. 11182
Ft. Lauderdale, FL
FF Outlet 3

March 24, 2011
Start Time 15:31
Stop Time 15:34
CALIBRATION BIAS 12

		Channel 1 O2	Channel 2 CO2	Channel 3 SO2	Channel 4 NOX	Channel 5 CO	Channel 6
		FF Outlet 3 %dv	FF Outlet 3 %dv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	FF Outlet 3 ppmdv	
System Response to Calibration Gasses (C_S)							
C_{of}	Zero gas	-0.029	0.129				
C_{uf}	Upscale gas	13.831	5.918				
Analyzer Calibration Error Reponses (C_{Dir})							
C_{oce}	Zero gas	-0.079	0.019				
C_{mce}	Upscale gas	14.046	6.011				
Actual Upscale Gas Value (C_{MA})							
C_{ma}	Upscale gas	14.100	5.930				
Calibration Span Value (CS)							
		14.100	13.900				
System Bias as Percent of Calibration Span Value (SB) (5%)							
	Zero gas	0.4%	0.8%				
	Upscale gas	-1.5%	-0.7%				
System Bias Status							
	Zero gas	OK	OK				
	Upscale gas	OK	OK				
Previous System Response to Calibration Gases (C_S)							
C_{oi}	Zero gas	-0.036	0.120				
C_{ui}	Upscale gas	13.825	5.906				
Drift Assessment as Percent of Calibration Span Value (D) (3%)							
	Zero gas	0.0%	0.1%				
	Upscale gas	0.0%	0.1%				
Drift Assessment Status							
	Zero gas	OK	OK				
	Upscale gas	OK	OK				

041511 103707

15:31:10	9.537	7.197
15:31:25	1.416	1.329
15:31:40	0.089	0.306
15:31:55	0.001	0.195
15:32:10	-0.015	0.163
15:32:25	-0.025	0.142
15:32:40	-0.032	0.126
15:32:55	-0.031	0.119
15:33:10	6.396	2.063
15:33:25	13.179	5.425
15:33:40	13.758	5.848
15:33:55	13.808	5.897
15:34:10	13.823	5.912
15:34:25	13.833	5.920
15:34:40	13.836	5.923