



Wheelabrator North Broward Inc.

A Waste Management Company

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MAY 11 2012

DIVISION OF AIR
RESOURCE MANAGEMENT

May 10, 2012

UPS# **1Z26X1501391909839**

Mr. Lennon Anderson
Air Program Administrator
Florida Department of Environmental Protection
Southeast District
400 North Congress Ave., Suite 200
West Palm Beach, FL 33401

Re: Wheelabrator North Broward
2012 Annual Compliance Stack Test and RATA Reports, including Units 1 and 2 mercury retest results

Dear Mr. Anderson:

Please find enclosed a copy of the final compliance stack test report and the continuous emissions monitoring system certification RATA report for testing conducted on March 26-28 of this year by Clean Air Engineering, Inc. In addition, the mercury retest results on Units 1 and 2, which were retested on May 1 and 2, are included in this final report. The quarterly mercury results on Unit 3, which was tested on May 3, will be submitted under separate cover.

I, the undersigned, am a responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this submittal. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements and information in this document are true, accurate and complete.

If there are any questions, please contact this office at (954) 971-8701.

Sincerely,

Jim Epsilantis
Plant Manager

cc: USEPA, Region IV, Pesticides and Toxics Management Division, Air & EPCRA Enforcement Branch, Air Enforcement Section (with) UPS# **1Z26X1501391257249**

FDEP, Tallahassee, Bureau of Air Regulation, New Source Review Section,
(with) UPS# **1Z26X1500394906266**

Broward County Department of Planning and Environmental Protection, Air Quality Division
(with) UPS# **1Z26X1500393724053**

Chuck Faller (with)
Ram Tewari – BCWRS (without)
Tim Porter (without)
Rob French – MPI (with)



REPORT ON RELATIVE ACCURACY TEST AUDIT

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

**CLEANAIR PROJECT NO: 11414-4
REVISION 0: MAY 9, 2012**



Wheelabrator North Broward, Inc.
2600 Wiles Road
Pompano Beach, FL 33073

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MAY 11 2012

DIVISION OF AIR
RESOURCE MANAGEMENT

REPORT ON A 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: 11414-4
Revision 0: May 9, 2012

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.

Submitted by,



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Reviewed by,



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REVISION HISTORY

REPORT ON A RELATIVE ACCURACY TEST AUDIT

DRAFT REPORT REVISION HISTORY

Revision:	Date	Pages	Comments
D0a	04/30/12	All	Draft version of original document.

FINAL REPORT REVISION HISTORY

Revision:	Date	Pages	Comments
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PROJECT OVERVIEW

1-1

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 (DEP).

Key Project Participants

Individuals responsible for coordinating and conducting the test program were:

Chuck Faller – Wheelabrator North Broward, Inc.
Lee Hoeffert – DEP
Scott Brown – CleanAir
Nic Hitchins – CleanAir

Test Program Parameters

The testing performed at the Units 1, 2 and 3 fabric filter (FF) baghouse outlets from March 26 through 28, 2012, included the following emissions measurements:

- carbon monoxide (CO)
- nitrogen oxide (NO_x)
- sulfur dioxide (SO₂)
- carbon dioxide (CO₂)
- oxygen (O₂)

PROJECT OVERVIEW

Results Summary

Tables 1-1 and 1-2 summarize 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 2-30 on pages 2-1 through 2-30.

**Table 1-1:
Summary of Test Results**

Monitor	CEM Serial Number	RM Avg	CEM Avg	Difference	95% CC	Relative Accuracy Result	Limit	Basis of Limit
<u>Unit 1 FF Outlet CEMS (units of RATA)</u>								
SO ₂ (ppmdv @ 7% O ₂)	280	17.0	17.1	-0.1	0.596	2.5%	20%	S ¹
NO _x (ppmdv @ 7% O ₂)	280	179.4	189.6	-10.2	0.295	5.1%	10%	S ²
CO (ppmdv @ 7% O ₂)	280	20.2	20.7	-0.5	0.181	0.6	5 ppm	Mean Diff. ³
CO ₂ (lb/hr)	280	67,282	65,520	1,762	1,101	4.3%	20%	RM ⁴
<u>Unit 2 FF Outlet CEMS (units of RATA)</u>								
SO ₂ (ppmdv @ 7% O ₂)	281	7.8	10.7	-2.9	0.919	13.3%	20%	S ¹
NO _x (ppmdv @ 7% O ₂)	281	186.4	196.7	-10.3	0.537	5.3%	10%	S ²
CO (ppmdv @ 7% O ₂)	281	5.4	6.9	-1.4	0.142	1.6	5 ppm	Mean Diff. ³
CO ₂ (lb/hr)	281	62,644	65,640	-2,996	3,032	9.6%	20%	RM ⁴
<u>Unit 3 FF Outlet CEMS (units of RATA)</u>								
SO ₂ (ppmdv @ 7% O ₂)	271	8.5	8.5	-0.1	0.333	1.5%	20%	S ¹
NO _x (ppmdv @ 7% O ₂)	271	185.4	193.2	-7.8	0.301	4.0%	10%	S ²
CO (ppmdv @ 7% O ₂)	271	12.1	12.8	-0.7	0.101	0.8	5 ppm	Mean Diff. ³
CO ₂ (lb/hr)	271	63,912	59,858	4,054	3,993	12.6%	20%	RM ⁴

¹ SO₂ 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.

Basis of Limit: RM = Reference Method S = Standard

**Table 1-2:
Summary of GHG Test Results**

North Broward	Unit 1	Unit 2	Unit 3
GHG_SCFM	130,188	107,297	116,012
GHG_CO2 %	9.7	11.0	10.4
GHG_H2O %	22.3	21.8	22.5

PROJECT OVERVIEW

1-3

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 of this report with the plant CEM run data.

A nitrogen oxides (NO_x) analyzer converter check was performed after the final bias check each day and is presented along with each respective calibration error check in Appendix H of this report.

During this year's test program, a mass emission rate-based (lb/hr) RATA on each unit's newly-installed carbon dioxide (CO₂) continuous emission rate monitoring system (CO₂ CERMS) was also performed in conjunction with the usual sulfur dioxide (SO₂), NO_x and carbon monoxide (CO) RATAs. Each CO₂ CERMS consists of a new CO₂ channel configured in the Sick 100e analyzer and an optical-based stack gas flow rate monitor located in each FF outlet duct.

The CO₂ CERMS was installed on each unit to meet EPA Greenhouse Gas Monitoring and Reporting requirements in 40 CFR 98. The CO₂ CERMS RATA was performed utilizing EPA Methods 2, 3A and 4. Flow data was obtained from a single distinct pitot traverse performed during each RATA run and moisture data was obtained from simultaneous Method 26A or Method 4 testing. The O₂ and CO₂ utilized for volumetric flow calculations are obtained from each respective RATA test run.

Oxygen (O₂), flow and ppmdv of all measured constituents are presented in Section 2 of this report for comparison purposes only.

The Unit 2 CO₂ lb/hr RATA was delayed one run while the CEM technician tightened down all of the facilities' CEMS fittings due to elevated O₂ and depressed CO₂ observed during the first RATA run. An eleventh RATA run on Unit 2 was performed for all constituents.

All RATA runs were 27 minutes in duration with ten (10) runs being performed on Units 1 and 3 and eleven (11) runs being performed on Unit 2.

End of Section 1 – Project Overview

RESULTS

2-1

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

Run No.	Start Time	Date (2012)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Difference Percent
1	06:56	Mar 28	9.18	9.40	-0.22	-2.4%
2	07:37	Mar 28	9.53	9.70	-0.17	-1.8%
3	08:17	Mar 28	9.78	9.90	-0.12	-1.3%
4	08:56	Mar 28	9.82	10.00	-0.18	-1.8%
5 *	09:35	Mar 28	9.61	9.80	-0.19	-2.0%
6	10:12	Mar 28	9.43	9.60	-0.17	-1.8%
7	10:51	Mar 28	9.62	9.80	-0.18	-1.8%
8	11:30	Mar 28	9.49	9.60	-0.11	-1.1%
9	12:08	Mar 28	9.10	9.30	-0.20	-2.3%
10	12:48	Mar 28	9.21	9.50	-0.29	-3.2%
Average			9.46	9.64	-0.18	-1.9%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.0541	
Confidence Coefficient (CC)	0.0416	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	2.4%	Limit NA
Avg. Abs. Diff. + CC (%dv)	0.2	NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-2

**Table 2-2:
Relative Accuracy, Unit 1 FF Outlet – Volumetric Flow (SCFM)**

Run No.	Start Time	Date (2012)	RM Data (scfm)	CEMS Data (scfm)	Difference	Difference Percent
1 *	06:56	Mar 28	130,258.3	117,015.2	13,243.1	10.2%
2	07:37	Mar 28	127,520.8	117,584.7	9,936.1	7.8%
3	08:17	Mar 28	127,189.9	123,349.7	3,840.2	3.0%
4	08:56	Mar 28	129,902.9	127,174.2	2,728.7	2.1%
5	09:35	Mar 28	135,279.5	123,615.8	11,663.7	8.6%
6	10:12	Mar 28	131,862.3	123,235.0	8,627.3	6.5%
7	10:51	Mar 28	132,180.2	124,855.7	7,324.5	5.5%
8	11:30	Mar 28	132,367.6	126,720.7	5,646.9	4.3%
9	12:08	Mar 28	129,786.1	122,622.0	7,164.1	5.5%
10	12:48	Mar 28	125,600.1	117,301.0	8,299.1	6.6%
Average			130,187.7	122,939.9	7,247.9	5.6%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	2,836.05	
Confidence Coefficient (CC)	2,179.98	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	7.2%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-3

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

Run No.	Start Time	Date (2012)	CEMS Data		Difference (lb/hr)	Difference Percent
			RM Data (lb/hr)	(lb/hr)		
1 *	06:56	Mar 28	68,798.86	63,858.20	4,940.66	7.2%
2	07:37	Mar 28	64,736.01	62,520.60	2,215.41	3.4%
3	08:17	Mar 28	65,246.18	64,475.90	770.28	1.2%
4	08:56	Mar 28	66,307.53	66,265.50	42.03	0.1%
5	09:35	Mar 28	69,063.87	65,480.30	3,583.57	5.2%
6	10:12	Mar 28	68,246.59	65,928.00	2,318.59	3.4%
7	10:51	Mar 28	67,178.11	66,064.60	1,113.51	1.7%
8	11:30	Mar 28	67,820.25	67,663.90	156.35	0.2%
9	12:08	Mar 28	69,242.13	67,705.80	1,536.33	2.2%
10	12:48	Mar 28	67,698.82	63,573.60	4,125.22	6.1%
Average			67,282.17	65,519.80	1,762.37	2.6%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	1,432.20	
Confidence Coefficient (CC)	1,100.89	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	4.3%	Limit 20.0%

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Difference Percent
1	06:56	Mar 28	9.95	10.20	-0.25	-2.5%
2	07:37	Mar 28	9.69	9.90	-0.21	-2.2%
3	08:17	Mar 28	9.52	9.80	-0.28	-2.9%
4	08:56	Mar 28	9.48	9.70	-0.22	-2.3%
5	09:35	Mar 28	9.61	9.90	-0.29	-3.0%
6	10:12	Mar 28	9.74	10.00	-0.26	-2.6%
7	10:51	Mar 28	9.62	9.90	-0.28	-2.9%
8 *	11:30	Mar 28	9.70	10.00	-0.30	-3.1%
9	12:08	Mar 28	10.03	10.30	-0.27	-2.7%
10	12:48	Mar 28	9.90	10.10	-0.20	-2.0%
Average			9.73	9.98	-0.25	-2.6%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.0333	
Confidence Coefficient (CC)	0.0256	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	2.8%	NA
Avg. Abs. Diff. + CC (%dv)	0.3	NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-5

**Table 2-5:
Relative Accuracy, Unit 1 FF Outlet – Sulfur Dioxide (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O ₂)	CEMS Data (ppm@7%O ₂)	Difference (ppm@7%O ₂)	Difference Percent
1	06:56	Mar 28	20.53	22.50	-1.97	-9.6%
2	07:37	Mar 28	15.95	16.20	-0.25	-1.6%
3	08:17	Mar 28	20.57	20.90	-0.33	-1.6%
4	08:56	Mar 28	16.48	16.40	0.08	0.5%
5	09:35	Mar 28	18.37	18.10	0.27	1.4%
6	10:12	Mar 28	20.70	21.00	-0.30	-1.5%
7	10:51	Mar 28	13.67	13.60	0.07	0.5%
8	11:30	Mar 28	13.68	13.10	0.58	4.2%
9	12:08	Mar 28	12.74	12.10	0.64	5.0%
10 *	12:48	Mar 28	28.61	34.20	-5.59	-19.5%
Average			16.96	17.10	-0.14	-0.8%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.7750	
Confidence Coefficient (CC)	0.5957	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	4.3%	20.0%
Relative Accuracy (as % of Appl. Std.)	2.5%	20.0%
Appl. Std. = 29 ppm@7%O ₂		

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	06:56	Mar 28	17.30	18.60	-1.30	-7.5%
2	07:37	Mar 28	13.05	13.00	0.05	0.4%
3	08:17	Mar 28	16.46	16.50	-0.04	-0.2%
4	08:56	Mar 28	13.13	12.90	0.23	1.8%
5	09:35	Mar 28	14.91	14.50	0.41	2.8%
6	10:12	Mar 28	17.07	17.00	0.07	0.4%
7	10:51	Mar 28	11.10	11.00	0.10	0.9%
8	11:30	Mar 28	11.22	10.60	0.62	5.5%
9	12:08	Mar 28	10.82	10.10	0.72	6.7%
10 *	12:48	Mar 28	24.07	27.90	-3.83	-15.9%
Average			13.90	13.80	0.10	0.7%

Relative Accuracy Test Audit Results

Standard Deviation of Differences 0.5858
 Confidence Coefficient (CC) 0.4503
 t-Value for 9 Data Sets 2.306

Relative Accuracy (as % of RM) **3.9%** Limit **NA**

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-7

**Table 2-7:
Relative Accuracy, Unit 1 FF Outlet – Nitrogen Oxides (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Difference Percent
1	06:56	Mar 28	182.37	192.90	-10.53	-5.8%
2	07:37	Mar 28	170.77	180.70	-9.93	-5.8%
3	08:17	Mar 28	165.72	176.10	-10.38	-6.3%
4	08:56	Mar 28	186.00	196.10	-10.10	-5.4%
5	09:35	Mar 28	176.48	186.60	-10.12	-5.7%
6	10:12	Mar 28	179.37	190.00	-10.63	-5.9%
7	10:51	Mar 28	181.69	192.10	-10.41	-5.7%
8	11:30	Mar 28	190.20	199.60	-9.40	-4.9%
9	12:08	Mar 28	181.91	192.40	-10.49	-5.8%
10 *	12:48	Mar 28	177.49	190.10	-12.61	-7.1%
Average			179.39	189.61	-10.22	-5.7%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.3834	
Confidence Coefficient (CC)	0.2947	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	5.9%	20.0%
Relative Accuracy (as % of Appl. Std.)	5.1%	10.0%
Appl. Std. = 205 ppm@7%O ₂		

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	06:56	Mar 28	153.72	160.10	-6.38	-4.2%
2	07:37	Mar 28	139.73	145.70	-5.97	-4.3%
3 *	08:17	Mar 28	132.60	139.10	-6.50	-4.9%
4	08:56	Mar 28	148.27	154.20	-5.93	-4.0%
5	09:35	Mar 28	143.31	149.30	-5.99	-4.2%
6	10:12	Mar 28	147.97	154.30	-6.33	-4.3%
7	10:51	Mar 28	147.42	153.90	-6.48	-4.4%
8	11:30	Mar 28	156.07	161.80	-5.73	-3.7%
9	12:08	Mar 28	154.49	160.40	-5.91	-3.8%
10	12:48	Mar 28	149.29	155.70	-6.41	-4.3%
Average			148.92	155.04	-6.13	-4.1%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.2735
Confidence Coefficient (CC)	0.2102
t-Value for 9 Data Sets	2.306

Relative Accuracy (as % of RM)	4.3%	Limit	NA
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RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-9

Table 2-9:

Relative Accuracy, Unit 1 FF Outlet – Carbon Monoxide (ppm @ 7% O₂)

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O ₂)	CEMS Data (ppm@7%O ₂)	Difference (ppm@7%O ₂)	Difference Percent
1 *	06:56	Mar 28	18.08	19.00	-0.92	-5.1%
2	07:37	Mar 28	19.04	19.50	-0.46	-2.4%
3	08:17	Mar 28	18.38	19.20	-0.82	-4.5%
4	08:56	Mar 28	27.35	28.10	-0.75	-2.8%
5	09:35	Mar 28	27.97	28.10	-0.13	-0.5%
6	10:12	Mar 28	17.45	18.00	-0.55	-3.2%
7	10:51	Mar 28	20.12	20.40	-0.28	-1.4%
8	11:30	Mar 28	18.45	19.00	-0.55	-3.0%
9	12:08	Mar 28	17.00	17.20	-0.20	-1.2%
10	12:48	Mar 28	16.02	16.50	-0.48	-3.0%
Average			20.20	20.67	-0.47	-2.3%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.2350	
Confidence Coefficient (CC)	0.1807	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	3.2%	Limit 10.0%
Avg. Abs. Diff. + CC (ppm@7%O ₂)	0.6	5.0

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1 *	06:56	Mar 28	15.24	15.80	-0.56	-3.7%
2	07:37	Mar 28	15.58	15.70	-0.12	-0.8%
3	08:17	Mar 28	14.71	15.10	-0.39	-2.7%
4	08:56	Mar 28	21.80	22.10	-0.30	-1.4%
5	09:35	Mar 28	22.71	22.40	0.31	1.4%
6	10:12	Mar 28	14.39	14.60	-0.21	-1.4%
7	10:51	Mar 28	16.33	16.30	0.03	0.2%
8	11:30	Mar 28	15.14	15.40	-0.26	-1.7%
9	12:08	Mar 28	14.44	14.20	0.24	1.7%
10	12:48	Mar 28	13.48	13.50	-0.02	-0.2%
Average			16.51	16.59	-0.08	-0.5%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.2419	
Confidence Coefficient (CC)	0.1860	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	1.6%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-11

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

Run No.	Start Time	Date (2012)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Difference Percent
1 *	07:00	Mar 26	8.48	10.50	-2.02	-23.9%
2 *	07:44	Mar 26	8.82	10.90	-2.08	-23.5%
3	08:53	Mar 26	7.86	9.30	-1.44	-18.3%
4	09:36	Mar 26	7.99	9.40	-1.41	-17.7%
5	10:16	Mar 26	7.91	9.40	-1.49	-18.9%
6	10:57	Mar 26	8.22	9.70	-1.48	-17.9%
7	11:37	Mar 26	8.20	9.70	-1.50	-18.3%
8	12:18	Mar 26	7.92	9.40	-1.48	-18.7%
9	12:59	Mar 26	8.13	9.70	-1.57	-19.2%
10	13:38	Mar 26	7.93	9.40	-1.47	-18.6%
11	14:17	Mar 26	7.90	9.40	-1.50	-19.0%
Average			8.01	9.49	-1.48	-18.5%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.0426	
Confidence Coefficient (CC)	0.0328	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	18.9%	Limit NA
Avg. Abs. Diff. + CC (%dv)	1.5	NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

**Table 2-12:
Relative Accuracy, Unit 2 FF Outlet – Volumetric Flow (SCFM)**

Run No.	Start Time	Date (2012)	RM Data (scfm)	CEMS Data (scfm)	Difference	Difference Percent
1 *	07:00	Mar 26		150,926.0		
2	07:44	Mar 26	114,075.9	124,206.7	-10,130.8	-8.9%
3	08:53	Mar 26	101,451.0	125,732.5	-24,281.5	-23.9%
4	09:36	Mar 26	105,069.8	124,082.4	-19,012.6	-18.1%
5	10:16	Mar 26	109,237.7	127,837.2	-18,599.5	-17.0%
6	10:57	Mar 26	111,392.3	122,068.2	-10,675.9	-9.6%
7	11:37	Mar 26	106,914.6	119,631.5	-12,716.9	-11.9%
8	12:18	Mar 26	104,144.9	121,512.7	-17,367.8	-16.7%
9	12:59	Mar 26	107,983.9	128,634.7	-20,650.8	-19.1%
10 *	13:38	Mar 26	105,585.6	131,495.9	-25,910.3	-24.5%
11	14:17	Mar 26	105,401.9	121,666.2	-16,264.3	-15.4%
Average			107,296.9	123,930.2	-16,633.4	-15.5%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	4,716.3	
Confidence Coefficient (CC)	3,625.3	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	18.9%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

2-13

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

Run No.	Start Time	Date (2012)	RM Data (lb/hr)	CEMS Data (lb/hr)	Difference (lb/hr)	Difference Percent
1 *	07:00	Mar 26		73,651.80		
2	07:44	Mar 26	63,226.89	58,925.10	4,301.79	6.8%
3	08:53	Mar 26	59,812.57	68,447.70	-8,635.13	-14.4%
4	09:36	Mar 26	61,437.38	66,956.70	-5,519.32	-9.0%
5	10:16	Mar 26	66,810.70	69,369.20	-2,558.50	-3.8%
6	10:57	Mar 26	66,138.57	64,516.40	1,622.17	2.5%
7	11:37	Mar 26	61,315.81	63,206.60	-1,890.79	-3.1%
8	12:18	Mar 26	61,026.78	65,598.90	-4,572.12	-7.5%
9	12:59	Mar 26	61,970.28	67,485.40	-5,515.12	-8.9%
10 *	13:38	Mar 26	61,877.23	70,993.30	-9,116.07	-14.7%
11	14:17	Mar 26	62,059.26	66,257.50	-4,198.24	-6.8%
Average			62,644.25	65,640.39	-2,996.14	-4.8%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	3,943.99	
Confidence Coefficient (CC)	3,031.61	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	9.6%	Limit 20.0%

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Difference Percent
1 *	07:00	Mar 26	10.63	9.10	1.53	14.4%
2 *	07:44	Mar 26	10.28	8.90	1.38	13.4%
3	08:53	Mar 26	11.09	10.20	0.89	8.1%
4	09:36	Mar 26	11.00	10.10	0.90	8.2%
5	10:16	Mar 26	11.13	10.10	1.03	9.2%
6	10:57	Mar 26	10.81	9.90	0.91	8.4%
7	11:37	Mar 26	10.79	9.90	0.89	8.3%
8	12:18	Mar 26	11.02	10.10	0.92	8.4%
9	12:59	Mar 26	10.82	9.80	1.02	9.4%
10	13:38	Mar 26	11.05	10.10	0.95	8.6%
11	14:17	Mar 26	11.10	10.20	0.90	8.1%
Average			10.98	10.04	0.94	8.5%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.0532	
Confidence Coefficient (CC)	0.0409	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	8.9%	NA
Avg. Abs. Diff. + CC (%dv)	1.0	NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

2-15

**Table 2-15:
Relative Accuracy, Unit 2 FF Outlet – Sulfur Dioxide (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O ₂)	CEMS Data (ppm@7%O ₂)	Difference (ppm@7%O ₂)	Difference Percent
1	07:00	Mar 26	0.84	1.90	-1.06	-126.2%
2	07:44	Mar 26	1.69	3.00	-1.31	-77.1%
3	08:53	Mar 26	4.61	6.50	-1.89	-41.1%
4	09:36	Mar 26	10.10	14.20	-4.10	-40.6%
5	10:16	Mar 26	9.54	12.60	-3.06	-32.1%
6 *	10:57	Mar 26	12.27	16.40	-4.13	-33.6%
7	11:37	Mar 26	12.08	15.80	-3.72	-30.8%
8	12:18	Mar 26	9.78	13.40	-3.62	-37.0%
9	12:59	Mar 26	10.72	14.40	-3.68	-34.3%
10 *	13:38	Mar 26	11.50	15.60	-4.10	-35.7%
11	14:17	Mar 26	10.89	14.90	-4.01	-36.9%
Average			7.81	10.74	-2.94	-37.7%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	1.1952	
Confidence Coefficient (CC)	0.9187	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	49.4%	20.0%
Relative Accuracy (as % of Appl. Std.)	13.3%	20.0%

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	07:00	Mar 26	0.75	1.40	-0.65	-86.5%
2	07:44	Mar 26	1.47	2.20	-0.73	-49.5%
3	08:53	Mar 26	4.32	5.40	-1.08	-24.9%
4 *	09:36	Mar 26	9.38	11.70	-2.32	-24.7%
5	10:16	Mar 26	8.92	10.40	-1.48	-16.6%
6	10:57	Mar 26	11.19	13.20	-2.01	-18.0%
7	11:37	Mar 26	11.04	12.80	-1.76	-16.0%
8	12:18	Mar 26	9.13	11.10	-1.97	-21.5%
9	12:59	Mar 26	9.85	11.60	-1.75	-17.8%
10	13:38	Mar 26	10.73	12.80	-2.07	-19.3%
11 *	14:17	Mar 26	10.18	12.40	-2.22	-21.8%
Average			7.49	8.99	-1.50	-20.0%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.5514	
Confidence Coefficient (CC)	0.4238	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	25.7%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

2-17

**Table 2-17:
Relative Accuracy, Unit 2 FF Outlet – Nitrogen Oxides (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O ₂)	CEMS Data (ppm@7%O ₂)	Difference (ppm@7%O ₂)	Difference Percent
1 *	07:00	Mar 26	179.09	193.50	-14.41	-8.0%
2 *	07:44	Mar 26	185.99	200.20	-14.21	-7.6%
3	08:53	Mar 26	185.29	196.80	-11.51	-6.2%
4	09:36	Mar 26	189.96	200.70	-10.74	-5.7%
5	10:16	Mar 26	180.33	190.30	-9.97	-5.5%
6	10:57	Mar 26	188.44	198.30	-9.86	-5.2%
7	11:37	Mar 26	179.43	189.70	-10.27	-5.7%
8	12:18	Mar 26	187.36	196.60	-9.24	-4.9%
9	12:59	Mar 26	193.75	204.30	-10.55	-5.4%
10	13:38	Mar 26	184.19	195.10	-10.91	-5.9%
11	14:17	Mar 26	188.91	198.60	-9.69	-5.1%
Average			186.41	196.71	-10.31	-5.5%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.6981	
Confidence Coefficient (CC)	0.5366	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	5.8%	20.0%
Relative Accuracy (as % of Appl. Std.)	5.3%	10.0%
Appl. Std. = 205 ppm@7%O ₂		

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1 *	07:00	Mar 26	160.07	144.30	15.77	9.9%
2 *	07:44	Mar 26	161.59	144.10	17.49	10.8%
3	08:53	Mar 26	173.81	163.50	10.31	5.9%
4	09:36	Mar 26	176.46	165.30	11.16	6.3%
5	10:16	Mar 26	168.55	157.10	11.45	6.8%
6	10:57	Mar 26	171.84	160.10	11.74	6.8%
7	11:37	Mar 26	163.93	153.40	10.53	6.4%
8	12:18	Mar 26	174.95	162.60	12.35	7.1%
9	12:59	Mar 26	177.93	163.60	14.33	8.1%
10	13:38	Mar 26	171.92	160.90	11.02	6.4%
11	14:17	Mar 26	176.70	164.90	11.80	6.7%
Average			172.90	161.27	11.63	6.7%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	1.1945	
Confidence Coefficient (CC)	0.9182	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	7.3%	Limit NA

RM = Reference Method (CleanAir Data)
 CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)
 RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

2-19

**Table 2-19:
Relative Accuracy, Unit 2 FF Outlet – Carbon Monoxide (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O ₂)	CEMS Data (ppm@7%O ₂)	Difference (ppm@7%O ₂)	Difference Percent
1 *	07:00	Mar 26	7.47	9.50	-2.03	-27.1%
2 *	07:44	Mar 26	8.97	11.10	-2.13	-23.7%
3	08:53	Mar 26	5.28	6.70	-1.42	-26.8%
4	09:36	Mar 26	7.87	9.70	-1.83	-23.2%
5	10:16	Mar 26	4.93	6.30	-1.37	-27.8%
6	10:57	Mar 26	5.89	7.40	-1.51	-25.5%
7	11:37	Mar 26	4.33	5.50	-1.17	-27.0%
8	12:18	Mar 26	4.69	6.00	-1.31	-27.9%
9	12:59	Mar 26	4.54	6.00	-1.46	-32.2%
10	13:38	Mar 26	5.78	7.20	-1.42	-24.6%
11	14:17	Mar 26	5.63	6.90	-1.27	-22.6%
Average			5.44	6.86	-1.42	-26.1%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.1846	
Confidence Coefficient (CC)	0.1419	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	28.7%	10.0%
Avg. Abs. Diff. + CC (ppm@7%O ₂)	1.6	5.0

RM = Reference Method (CleanAir Data)
CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)
RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	07:00	Mar 26	6.68	7.00	-0.32	-4.8%
2	07:44	Mar 26	7.79	8.00	-0.21	-2.6%
3 *	08:53	Mar 26	4.96	5.60	-0.64	-13.0%
4 *	09:36	Mar 26	7.32	8.00	-0.68	-9.4%
5	10:16	Mar 26	4.61	5.20	-0.59	-12.8%
6	10:57	Mar 26	5.37	6.00	-0.63	-11.6%
7	11:37	Mar 26	3.96	4.50	-0.54	-13.7%
8	12:18	Mar 26	4.38	4.90	-0.52	-11.9%
9	12:59	Mar 26	4.17	4.80	-0.63	-15.2%
10	13:38	Mar 26	5.39	5.90	-0.51	-9.4%
11	14:17	Mar 26	5.26	5.70	-0.44	-8.3%
Average			5.29	5.78	-0.49	-9.2%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.1436	
Confidence Coefficient (CC)	0.1104	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	11.3%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 11 runs. * indicates the excluded runs.

RESULTS

2-21

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

Run No.	Start Time	Date (2012)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Difference Percent
1	07:12	Mar 27	8.77	8.90	-0.13	-1.5%
2	07:52	Mar 27	8.62	8.70	-0.08	-0.9%
3	08:33	Mar 27	8.91	9.00	-0.09	-1.0%
4 *	09:16	Mar 27	8.84	9.00	-0.16	-1.8%
5	09:58	Mar 27	8.46	8.60	-0.14	-1.7%
6	10:39	Mar 27	8.47	8.60	-0.13	-1.5%
7	11:23	Mar 27	8.20	8.30	-0.10	-1.3%
8	12:03	Mar 27	8.95	9.10	-0.15	-1.6%
9	12:45	Mar 27	8.85	9.00	-0.15	-1.7%
10	13:26	Mar 27	8.96	9.10	-0.14	-1.5%
Average			8.69	8.81	-0.12	-1.4%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.0255	
Confidence Coefficient (CC)	0.0196	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	1.6%	Limit NA
Avg. Abs. Diff. + CC (%dv)	0.1	NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (scfm)	CEMS Data (scfm)	Difference	Difference Percent
1	07:12	Mar 27	117,971.0	115,174.5	2,796.5	2.4%
2 *	07:52	Mar 27	116,422.0	91,231.1	25,190.9	21.6%
3	08:33	Mar 27	115,704.0	122,522.3	-6,818.3	-5.9%
4	09:16	Mar 27	114,261.0	99,018.9	15,242.1	13.3%
5	09:58	Mar 27	118,066.0	115,474.4	2,591.6	2.2%
6	10:39	Mar 27	113,829.0	103,874.7	9,954.3	8.7%
7	11:23	Mar 27	110,729.0	91,904.2	18,824.8	17.0%
8	12:03	Mar 27	116,085.0	108,303.8	7,781.2	6.7%
9	12:45	Mar 27	117,140.0	94,352.8	22,787.2	19.5%
10	13:26	Mar 27	120,327.0	103,952.9	16,374.1	13.6%
Average			116,012.4	106,064.3	9,948.2	8.6%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	9,381.03	
Confidence Coefficient (CC)	7,210.88	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	14.8%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-23

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

Run No.	Start Time	Date (2012)	RM Data (lb/hr)	CEMS Data (lb/hr)	Difference (lb/hr)	Difference Percent
1	07:12	Mar 27	64,424.68	64,422.00	2.68	0.0%
2 *	07:52	Mar 27	64,093.73	51,745.70	12,348.03	19.3%
3	08:33	Mar 27	62,892.54	68,069.00	-5,176.46	-8.2%
4	09:16	Mar 27	62,484.17	55,131.60	7,352.57	11.8%
5	09:58	Mar 27	65,984.10	66,219.90	-235.80	-0.4%
6	10:39	Mar 27	63,678.26	59,813.00	3,865.26	6.1%
7	11:23	Mar 27	64,790.10	54,014.80	10,775.30	16.6%
8	12:03	Mar 27	64,128.59	60,404.10	3,724.49	5.8%
9	12:45	Mar 27	62,950.71	52,974.90	9,975.81	15.8%
10	13:26	Mar 27	63,875.68	57,669.60	6,206.08	9.7%
Average			63,912.09	59,857.66	4,054.44	6.3%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	5,195.15	
Confidence Coefficient (CC)	3,993.34	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	12.6%	Limit 20.0%

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Difference Percent
1	07:12	Mar 27	10.3386	10.5000	-0.1614	-1.6%
2	07:52	Mar 27	10.4222	10.6000	-0.1778	-1.7%
3 *	08:33	Mar 27	10.1807	10.4000	-0.2193	-2.2%
4	09:16	Mar 27	10.2423	10.4000	-0.1577	-1.5%
5	09:58	Mar 27	10.5594	10.7000	-0.1406	-1.3%
6 *	10:39	Mar 27	10.5697	10.8000	-0.2303	-2.2%
7	11:23	Mar 27	10.8162	11.0000	-0.1838	-1.7%
8	12:03	Mar 27	10.2118	10.4000	-0.1882	-1.8%
9	12:45	Mar 27	10.2609	10.5000	-0.2391	-2.3%
10	13:26	Mar 27	10.1359	10.4000	-0.2641	-2.6%
Average			10.3734	10.5625	-0.1891	-1.8%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.0421	
Confidence Coefficient (CC)	0.0352	
t-Value for 8 Data Sets	2.365	
		Limit
Relative Accuracy (as % of RM)	2.2%	NA
Avg. Abs. Diff. + CC (%dv)	0.2	NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 8 of 10 runs. * indicates the excluded runs.

RESULTS

2-25

**Table 2-25:
Relative Accuracy, Unit 3 FF Outlet – Sulfur Dioxide (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O ₂)	CEMS Data (ppm@7%O ₂)	Difference (ppm@7%O ₂)	Difference Percent
1	07:12	Mar 27	6.54	6.40	0.14	2.1%
2	07:52	Mar 27	5.42	5.20	0.22	4.1%
3	08:33	Mar 27	18.14	18.90	-0.76	-4.2%
4 *	09:16	Mar 27	15.29	16.50	-1.21	-7.9%
5	09:58	Mar 27	10.33	11.10	-0.77	-7.4%
6	10:39	Mar 27	8.58	8.90	-0.32	-3.8%
7	11:23	Mar 27	8.48	8.40	0.08	1.0%
8	12:03	Mar 27	8.73	8.80	-0.07	-0.8%
9	12:45	Mar 27	5.56	5.20	0.36	6.4%
10	13:26	Mar 27	4.31	4.00	0.31	7.2%
Average			8.45	8.54	-0.09	-1.1%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.4327	
Confidence Coefficient (CC)	0.3326	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	5.0%	20.0%
Relative Accuracy (as % of Appl. Std.)	1.5%	20.0%
Appl. Std. = 29 ppm@7%O ₂		

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	07:12	Mar 27	5.71	5.50	0.21	3.6%
2	07:52	Mar 27	4.79	4.60	0.19	4.0%
3	08:33	Mar 27	15.65	16.10	-0.45	-2.9%
4 *	09:16	Mar 27	13.26	14.20	-0.94	-7.1%
5	09:58	Mar 27	9.25	9.90	-0.65	-7.1%
6	10:39	Mar 27	7.67	7.90	-0.23	-3.1%
7	11:23	Mar 27	7.75	7.60	0.15	2.0%
8	12:03	Mar 27	7.50	7.50	0.00	0.0%
9	12:45	Mar 27	4.82	4.50	0.32	6.6%
10	13:26	Mar 27	3.70	3.40	0.30	8.1%
Average			7.43	7.44	-0.02	-0.3%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.3489	
Confidence Coefficient (CC)	0.2682	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	3.9%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-27

**Table 2-27:
Relative Accuracy, Unit 3 FF Outlet – Nitrogen Oxides (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Difference Percent
1	07:12	Mar 27	186.57	194.10	-7.53	-4.0%
2	07:52	Mar 27	185.16	193.00	-7.84	-4.2%
3	08:33	Mar 27	179.01	187.40	-8.39	-4.7%
4	09:16	Mar 27	187.76	194.90	-7.14	-3.8%
5	09:58	Mar 27	184.64	192.20	-7.56	-4.1%
6	10:39	Mar 27	187.53	195.30	-7.77	-4.1%
7	11:23	Mar 27	182.12	189.90	-7.78	-4.3%
8	12:03	Mar 27	186.02	194.30	-8.28	-4.5%
9	12:45	Mar 27	190.01	198.10	-8.09	-4.3%
10 *	13:26	Mar 27	195.67	204.90	-9.23	-4.7%
Average			185.42	193.24	-7.82	-4.2%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.3918	
Confidence Coefficient (CC)	0.3012	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	4.4%	20.0%
Relative Accuracy (as % of Appl. Std.)	4.0%	10.0%
Appl. Std. = 205 ppm@7%O ₂		

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	07:12	Mar 27	162.87	167.80	-4.93	-3.0%
2	07:52	Mar 27	163.56	168.90	-5.34	-3.3%
3	08:33	Mar 27	154.41	160.30	-5.89	-3.8%
4	09:16	Mar 27	162.85	167.40	-4.55	-2.8%
5	09:58	Mar 27	165.25	170.60	-5.35	-3.2%
6	10:39	Mar 27	167.63	173.30	-5.67	-3.4%
7	11:23	Mar 27	166.45	172.30	-5.85	-3.5%
8	12:03	Mar 27	159.88	165.60	-5.72	-3.6%
9	12:45	Mar 27	164.67	170.10	-5.43	-3.3%
10 *	13:26	Mar 27	168.05	174.50	-6.45	-3.8%
Average			163.06	168.48	-5.41	-3.3%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.4435	
Confidence Coefficient (CC)	0.3409	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	3.5%	Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

RESULTS

2-29

**Table 2-29:
Relative Accuracy, Unit 3 FF Outlet – Carbon Monoxide (ppm @ 7% O₂)**

Run No.	Start Time	Date (2012)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Difference Percent
1	07:12	Mar 27	12.22	13.10	-0.88	-7.2%
2	07:52	Mar 27	11.04	11.90	-0.86	-7.8%
3	08:33	Mar 27	17.20	17.90	-0.70	-4.0%
4 *	09:16	Mar 27	14.55	15.60	-1.05	-7.2%
5	09:58	Mar 27	11.98	12.50	-0.52	-4.3%
6	10:39	Mar 27	13.10	14.00	-0.90	-6.9%
7	11:23	Mar 27	9.70	10.30	-0.60	-6.2%
8	12:03	Mar 27	11.29	12.00	-0.71	-6.3%
9	12:45	Mar 27	10.18	11.00	-0.82	-8.1%
10	13:26	Mar 27	11.98	12.70	-0.72	-6.1%
Average			12.08	12.82	-0.74	-6.2%

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.1313	
Confidence Coefficient (CC)	0.1010	
t-Value for 9 Data Sets	2.306	
Relative Accuracy (as % of RM)	7.0%	Limit 10.0%
Avg. Abs. Diff. + CC (ppm@7%O2)	0.8	5.0

RM = Reference Method (CleanAir Data)

RESULTS

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

Run No.	Start Time	Date (2012)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	07:12	Mar 27	10.67	11.30	-0.63	-5.9%
2	07:52	Mar 27	9.75	10.40	-0.65	-6.7%
3	08:33	Mar 27	14.84	15.30	-0.46	-3.1%
4 *	09:16	Mar 27	12.62	13.40	-0.78	-6.2%
5	09:58	Mar 27	10.72	11.00	-0.28	-2.6%
6	10:39	Mar 27	11.71	12.40	-0.69	-5.9%
7	11:23	Mar 27	8.87	9.30	-0.43	-4.9%
8	12:03	Mar 27	9.71	10.20	-0.49	-5.1%
9	12:45	Mar 27	8.82	9.50	-0.68	-7.7%
10	13:26	Mar 27	10.28	10.80	-0.52	-5.0%
Average			10.60	11.13	-0.54	-5.1%

Relative Accuracy Test Audit Results

Standard Deviation of Differences 0.1373
Confidence Coefficient (CC) 0.1056
t-Value for 9 Data Sets 2.306

Relative Accuracy (as % of RM) 6.1% Limit NA

RM = Reference Method (CleanAir Data)

CEMS = Continuous Emissions Monitoring System (Wheelabrator Data)

RATA calculations are based on 9 of 10 runs. * indicates the excluded run.

End of Section 2 – Results

DESCRIPTION OF INSTALLATION**3-1****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 O₂ analyzer, programmable logic controller (PLC) and heated probe and sample line. The FF outlet 100 /e systems monitor O₂, CO₂, CO, SO₂ 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 3-4.

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 SO₂ and an integrated heated zirconium oxide (ZrO₂) electrochemical cell for O₂, 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 SO₂, NO_x, CO, CO₂ and O₂ measurement signals and operational status outputs are sent to the ESC 8816 data logger.

DESCRIPTION OF INSTALLATION

3-2

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.

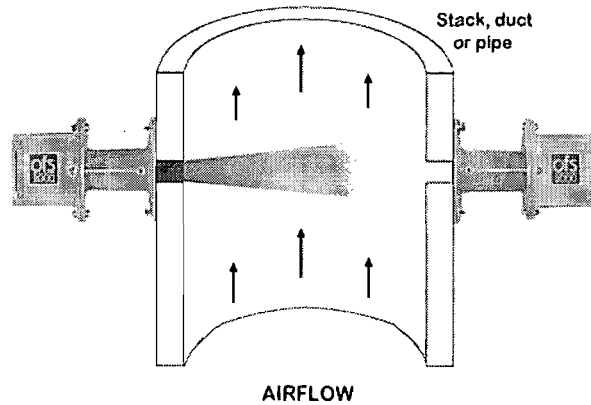
DESCRIPTION OF INSTALLATION

3-3

GAS FLOW MONITOR SYSTEM DESCRIPTION

The stack gas flow monitor is a primary component of the CO₂ CERM. Stack flow, along with flue gas temperature and CO₂ and H₂O data from the CEMS, is used to calculate and record mass CO₂ 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 – Units 1, 2 & 3**

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

DESCRIPTION OF INSTALLATION

CEMS SCHEMATIC

Figure 3-1 is a general schematic of each of the outlet CEM systems. Figure 3-2 on page 3-5 presents the RM and CEM outlet sampling locations, as well as a general facility process flow diagram.

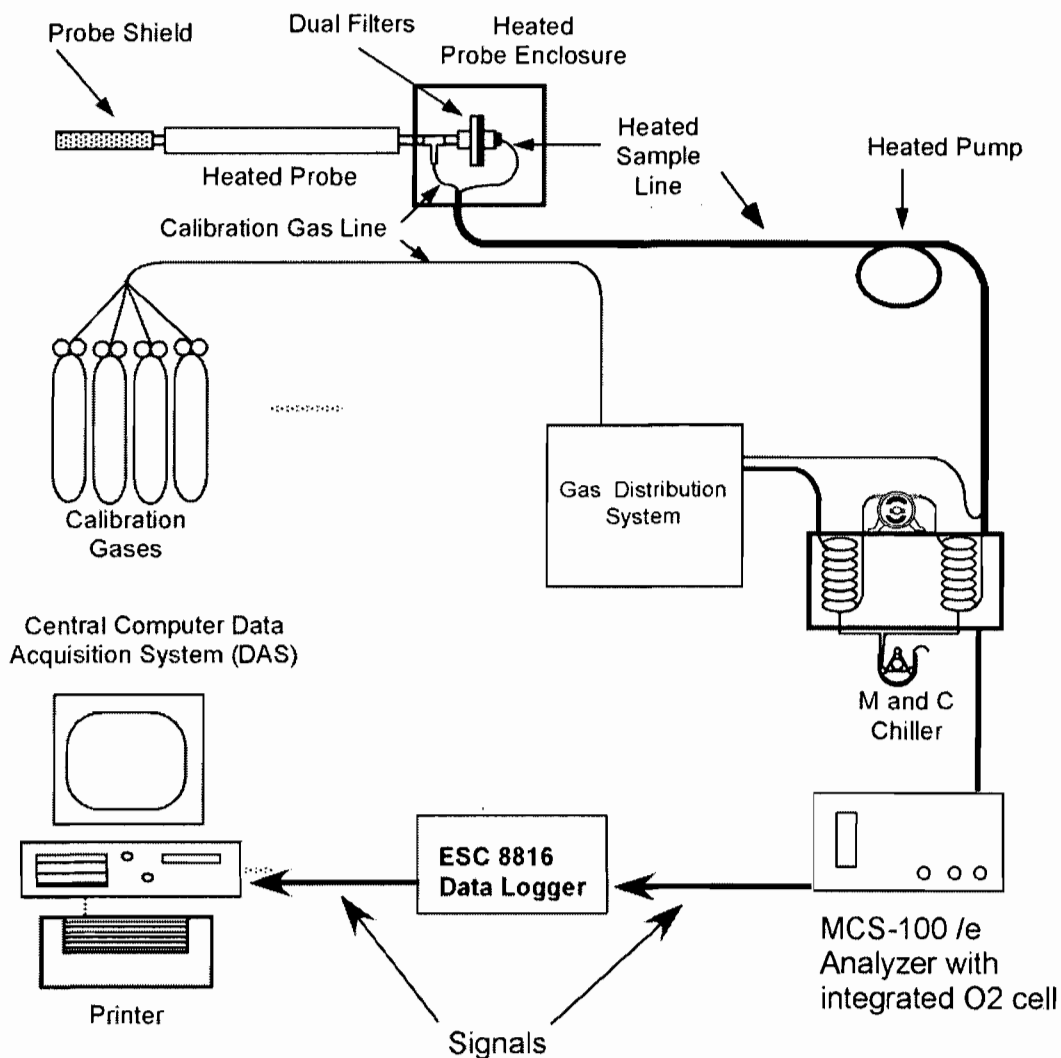


Figure 3-1: General CEMS Schematic

DESCRIPTION OF INSTALLATION

3-5

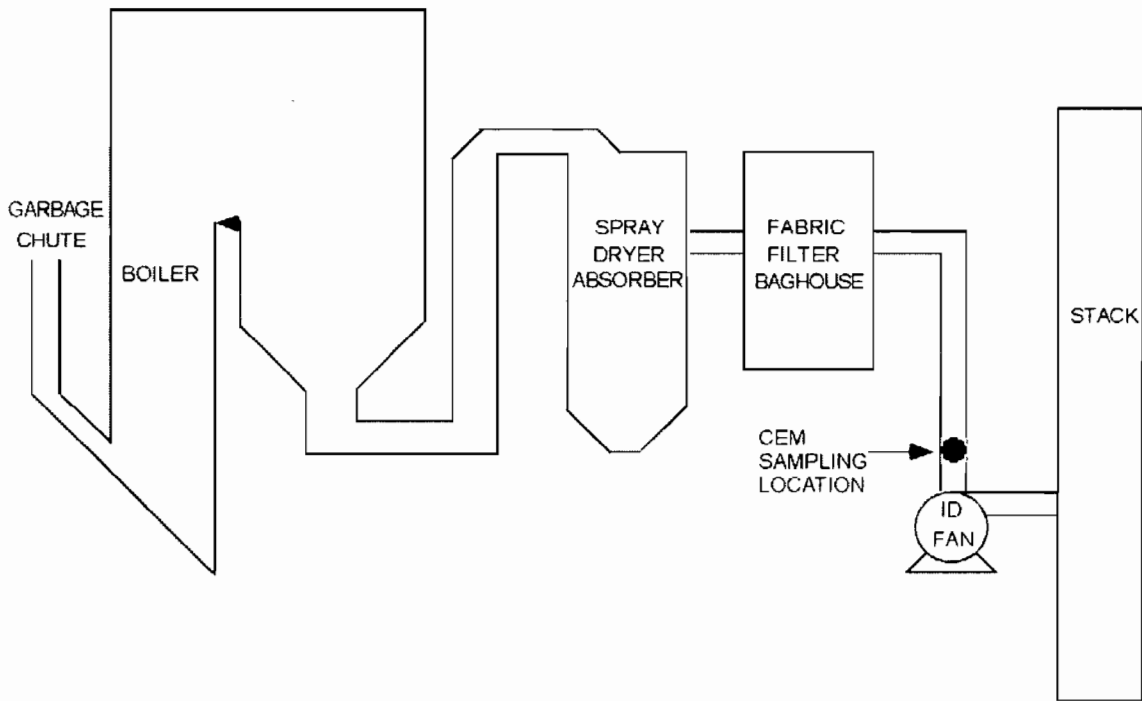


Figure 3-2: Process Flow Diagram and CEM Locations

DESCRIPTION OF INSTALLATION

DESCRIPTION OF SAMPLING LOCATIONS

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

Table 3-2 outlines the sampling point configurations. Figures 3-3 and 3-4, on pages 3-7 and 3-8, illustrate the sampling points and orientation of sampling ports for each of the sources tested in the program.

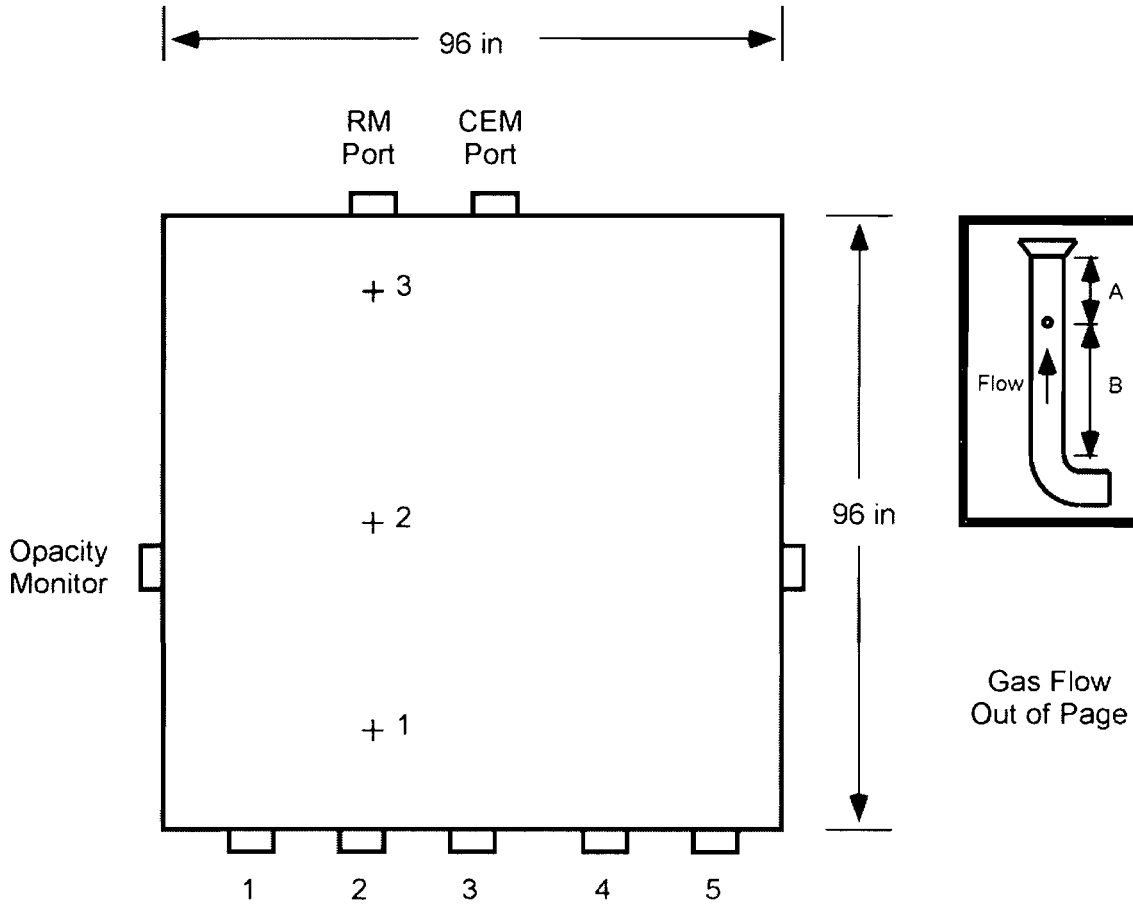
**Table 3-2:
 Sampling Points**

Location Constituent	Methods	Run No.	Ports	Points per Port	Minutes per Point	Total Minutes	Figure
<u>Unit 1 FF Outlet</u>							
CEM	3A, 6C, 7E, 10	1-10	1	3	9	27 ¹	3-3
Volumetric Flow	1-4 ¹	1-10	5	5	varies	varies	3-4
<u>Unit 2 FF Outlet</u>							
CEM	3A, 6C, 7E, 10	1-11	1	3	9	27	3-3
Volumetric Flow	1-4 ¹	1-10	5	5	varies	varies	3-4
<u>Unit 3 FF Outlet</u>							
CEM	3A, 6C, 7E, 10	1-10	1	3	9	27	3-3
Volumetric Flow	1-4 ¹	1-10	5	5	varies	varies	3-4

¹ Moistures were obtained from the concurrent Method 26A or Method 4 sample trains.

DESCRIPTION OF INSTALLATION

3-7



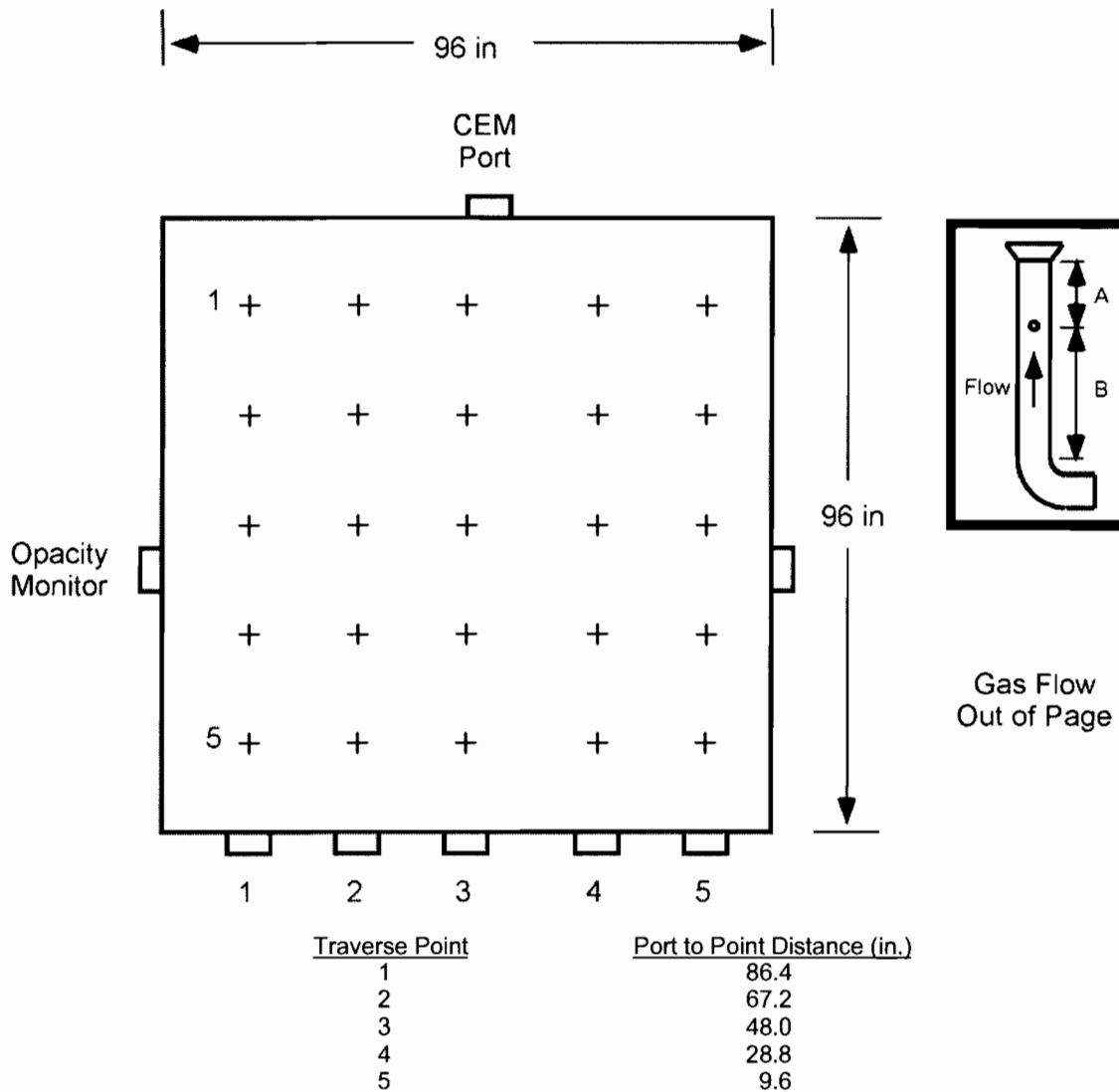
Sampling Point	Port to Point Distance (in.)
1	80
2	48
3	16

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)

DESCRIPTION OF INSTALLATION



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)**

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

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

APPENDIX

5-1

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

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

TEST METHOD SPECIFICATIONS

A

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

QA/QC Initials: NK

Date: 5/7/12



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Specification Sheet for

EPA Methods 6C, 7E and 10

Source Location Name(s) Units 1-3 FF Outlets
 Pollutant(s) to be Determined Sulfur Dioxide (SO₂), 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	7 feet
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	Yes
Additional Filter Type	N/A	Particulate Removal
Additional Filter Location	Optional	Entrance to Sample Manifold
Filter Material	Non-reactive to sample gases	Glass Fiber
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

Approximate Specification to be Used

Instrument Span Range

Oxygen (O ₂)	≤ 1.33 x Expected Maximum	0-15%
Carbon Dioxide (CO ₂)	≤ 1.33 x Expected Maximum	0-15%
Sulfur Dioxide (SO ₂)	≤ 1.33 x Expected Maximum	0-100 ppm
Nitrogen Oxides (NO _x)	≤ 1.33 x Expected Maximum	0-500 ppm
Carbon Monoxide (CO)	≤ 1.33 x Expected Maximum	0-100 ppm
Total Hydrocarbon (THC)	N/A	N/A
Hydrogen Chloride (HCl)	N/A	N/A
Ammonia (NH ₃)	N/A	N/A

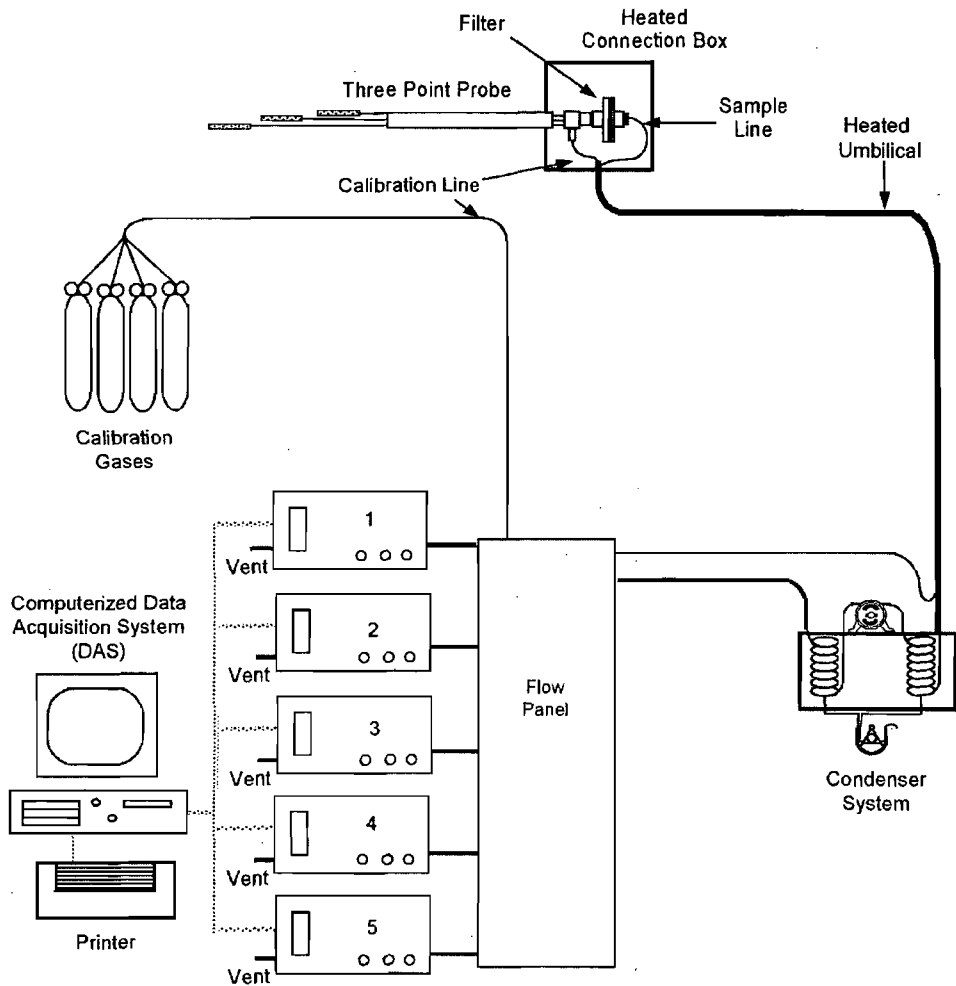
Data Acquisition

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

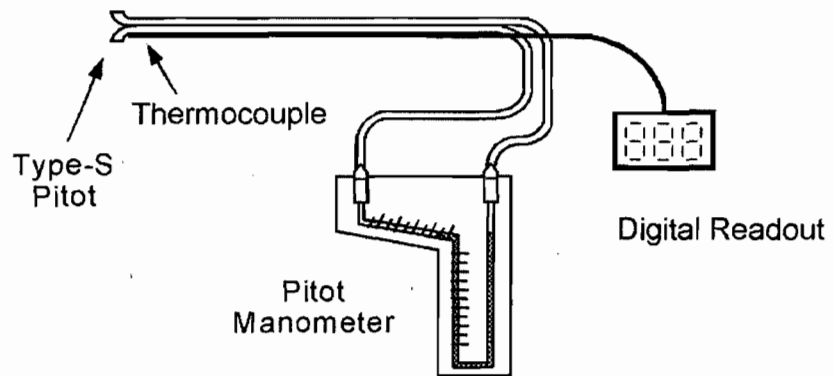
Oxygen (O ₂)	EPA Protocol 1	EPA Protocol 1
Carbon Dioxide (CO ₂)	EPA Protocol 1	EPA Protocol 1
Sulfur Dioxide (SO ₂)	EPA Protocol 1	EPA Protocol 1
Nitrogen Oxides (NO _x)	EPA Protocol 1	EPA Protocol 1
Carbon Monoxide (CO)	EPA Protocol 1	EPA Protocol 1
Total Hydrocarbon (THC)	N/A	
Hydrogen Chloride (HCl)	N/A	
Ammonia (NH ₃)	N/A	

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



Number	Gas	Monitor	~Range	Calibration Gas Concentrations
1	O ₂	Servomex 1440C	0-14.0	0, 6.0, 14.0
2	CO ₂	Servomex 1440B	0-13.9	0, 5.99, 13.9
3	SO ₂	W.R. 921L	0-90.8	0, 45.1, 45.2, 90.8
4	NO _x	T.E.I. 42 ILS	0-448	0, 223, 225, 448
5	CO	T.E.I. 48i	0-96.3	0, 48.6, 96.3

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

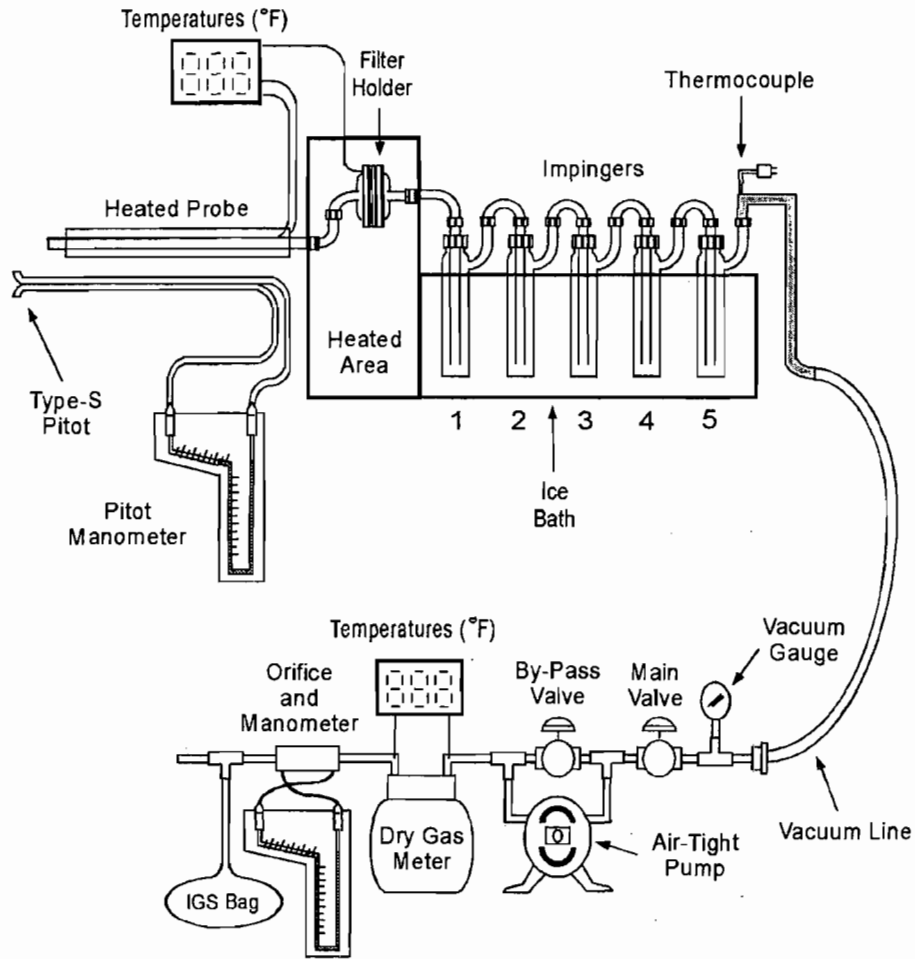
	<u>Standard Method Specification</u>	<u>Actual Specification Used</u>
Pollutant Sampling Information		
Duration of Run	N/A	60 minutes
No. of Sample Traverse Points	N/A	1
Sample Time per Point	N/A	60 minutes
Sampling Rate	Constant Rate ($\pm 10\%$)	Constant Rate ($\pm 10\%$)
Sampling Probe		
Nozzle Material	N/A	None
Nozzle Design	N/A	N/A
Probe Liner Material	Borosilicate 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	$\pm 2\%$	$\pm 1\%$
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)

	<u>Standard Method Specification</u>	<u>Actual Specification Used</u>
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 ₂ O 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

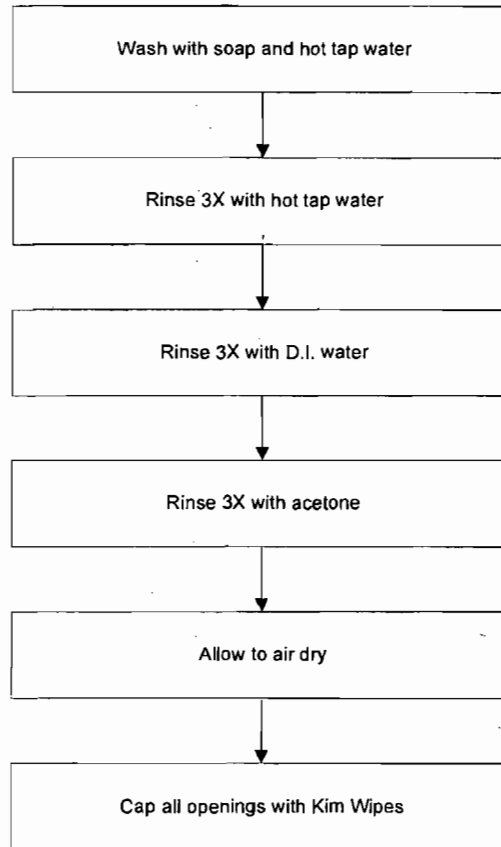
Modified EPA Method 26A Sampling Train Configuration



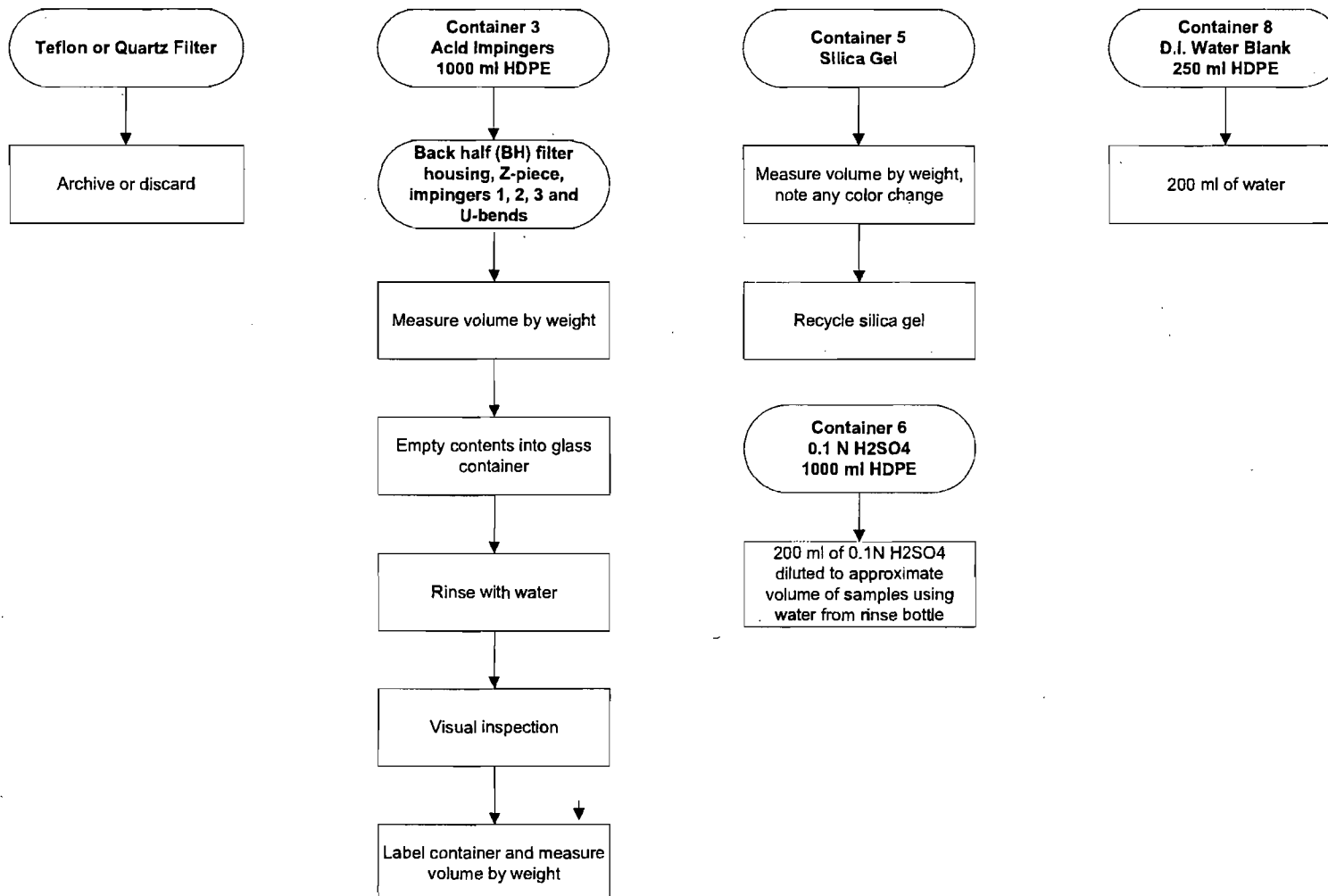
Impinger Contents

Impinger 1	50 ml 0.1 N H ₂ SO ₄
Impinger 2	100 ml 0.1 N H ₂ SO ₄
Impinger 3	100 ml 0.1 N H ₂ SO ₄
Impinger 4	Empty
Impinger 5	Silica Gel

EPA Method 26A Glassware Preparation Procedures



Modified EPA Method 26A Sample Recovery Flowchart (without Halogens)



Specification Sheet for EPA Method 4

Source Location Name(s) Units 1, 2 and 3 FF Outlets
 Pollutant(s) to be Determined None
 Other Parameters to be Determined from Train Moisture, Flow Rate

	Standard Method Specification	Actual Specification Used
Pollutant Sampling Information		
Duration of Run	N/A	30 to 60
No. of Sample Traverse Points	N/A	1
Sample Time per Point	N/A	30 to 60
Sampling Rate	Within 10% of Constant Rate	Constant Rate (±10%)
Sampling Probe		
Nozzle Material	N/A	None
Nozzle Design	N/A	N/A
Probe Liner Material	Stainless Steel, Glass, Other Metals, Plastic Tubing	Stainless Steel
Effective Probe Length	N/A	4 feet
Probe Temperature Set-Point	Prevent water condensation	None
Velocity Measuring Equipment		
Pitot Tube Design	N/A	Type S
Pitot Tube Coefficient	N/A	0.827
Pitot Tube Calibration by	N/A	Wind-Tunnel
Pitot Tube Attachment	N/A	Separate 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	In Stack or Exit of Probe	None
Filter Holder Material	Borosilicate Glass (for probe exit location)	N/A
Filter Support Material	Glass Frit	N/A
Cyclone Material	N/A	None
Filter Heater Set-Point	Prevent condensation	N/A
Filter Material	Glass Wool (in-stack) or Fiberglass Mat (out of stack)	Glass Fiber
Other Components		
Description	N/A	N/A
Location	N/A	N/A
Operating Temperature	N/A	N/A

Specification Sheet for

EPA Method 4

Impinger Train Description

Type of Glassware Connections
 Connection to Probe or Filter by
 Number of Impingers
 Impinger Stem Types

- Impinger 1
- Impinger 2
- Impinger 3
- Impinger 4
- Impinger 5
- Impinger 6
- Impinger 7
- Impinger 8

Gas Density Determination

Sample Collection
 Sample Collection Medium
 Sample Analysis

Sample Recovery Information

Probe Brush Material
 Probe Rinse Reagent
 Probe Rinse Wash Bottle Material
 Probe Rinse Storage Container
 Filter Recovered?
 Filter Storage Container
 Impinger Contents Recovered?
 Impinger Rinse Reagent
 Impinger Wash Bottle
 Impinger Storage Container

Analytical Information

Method 4 H₂O Determination by
 Filter Preparation Conditions
 Front-Half Rinse Preparation
 Back-Half Analysis
 Additional Analysis

Standard Method Specification

Ground Glass or Equivalent
 Flexible Line
 4

 Modified-Greenburg Smith
 Greenburg-Smith
 Modified Greenburg-Smith
 Modified Greenburg-Smith

Actual Specification Used

Screw Joint with Silicone Gasket
 Flexible Rubber Line
 4

 Modified Greenburg-Smith
 Greenburg-Smith
 Modified Greenburg-Smith
 Modified Greenburg-Smith

N/A
 N/A
 N/A

N/A
 N/A
 N/A

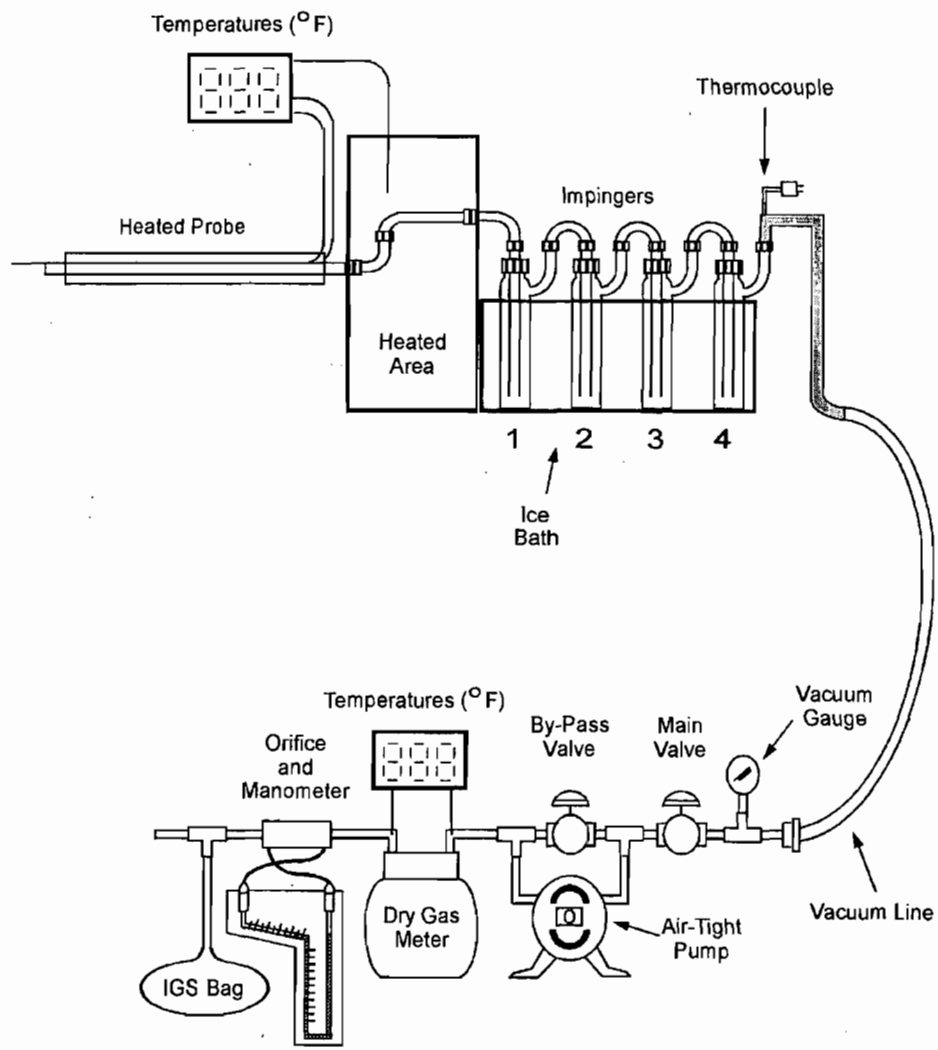
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N/A
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 No
 N/A
 No
 N/A
 N/A
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Volumetric or Gravimetric
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 N/A
 N/A
 N/A

Gravimetric and Volumetric
 N/A
 N/A
 N/A
 None

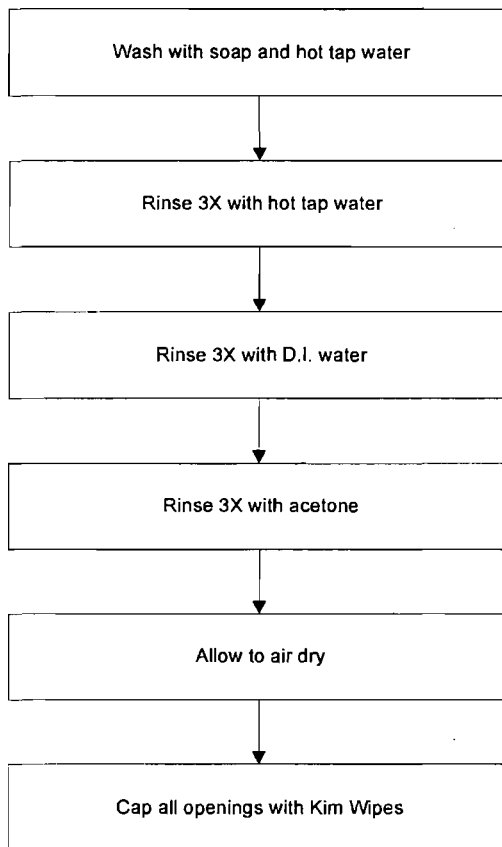
EPA Method 4 Sampling Train Configuration



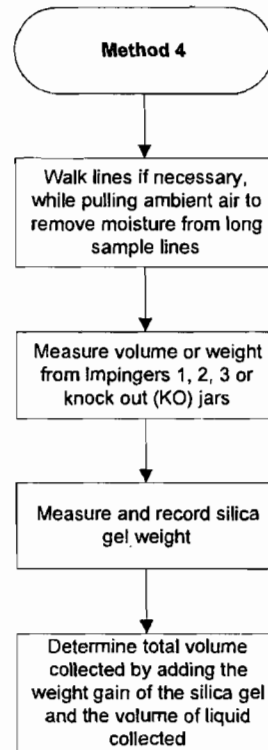
Knock Out Jar Contents

Knock Out Jar 1	100 ml H ₂ O
Knock Out Jar 2	100 ml H ₂ O
Knock Out Jar 3	Empty
Knock Out Jar 4	Silica gel

EPA Method 4 Glassware Preparation Procedures



EPA Method 4 Analytical Recovery Flowchart



WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

SAMPLE CALCULATIONS

B

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

QA/QC Initials: *NK*

Date: *5/7/12*



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Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

**CEM Field Sample Calculations
 for NOX FF Outlet**

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.

041812 094333

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 = 222.738 ppmdv
 In this case the low cal series for channel 3

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

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

Where:

C_{mce} = average concentration of a calibration series = 222.738 ppmdv
 In this case the low cal series for channel 3

C_{ma} = concentration of actual calibration gas value = 223.000 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)

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

Where:

C_{mce} = average concentration of a calibration series = 222.738 ppmdv
 In this case the low cal series for channel 3

C_{ma} = concentration of actual calibration gas value = 223.000 ppmdv

Span = instrument span value = 448.000

l_{cal} = limit for calibration error for non-hydrocarbons = 2.0%

E = calibration error check value = 0.06% **Pass**

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 1

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

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

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 3	= 222.738	ppmdv
C_{mf}	= calibration error response concentration for Cal01	= 222.545	ppmdv
Span	= instrument span value	= 448.000	ppmdv
l_{bias}	= limit for system bias error	= 5.0%	
E_{bias}	= calibration bias error check value	= 0.04%	Pass

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

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

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	= 222.545	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	= 222.095	ppmdv
Span	= instrument span value	= 448.000	ppmdv
l_{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:

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for NOX on channel 3	= 150.034	ppmdv
N	= total number of readings in Run 1	= 27	
C	= average NOX concentration for Run 1	= 153.394	ppmdv

Wheelabrator

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North Broward

Unit 1

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	=	223.000	ppmdv
C	= average NOX concentration for Run 1	=	153.394	ppmdv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	222.545	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	222.095	ppmdv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	0.594	ppmdv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	0.334	ppmdv
C_{DC}	= drift corrected average concentration for Run 1	=	153.719	ppmdv

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

**CEM Emissions Sample Calculations
 for NOX FF Outlet**

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.

041812 094333

1. NOX concentration (ppmdv)

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

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

Where:

C_{DC}	= drift corrected average concentration	=	153.719	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	
$C(\text{ppmdv})$	= NOX concentration (ppmdv)	=	153.719	ppmdv

2. NOX concentration (ppmwv)

$$C(\text{ppmwv}) = k_1 \times C_{DC} \quad \text{if wet gas}$$

$$C(\text{ppmwv}) = k_1 \times C_{DC} \times \left(1 - \frac{B_w}{100}\right) \quad \text{if dry gas}$$

Where:

C_{DC}	= drift corrected average concentration	=	153.719	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	
$C(\text{ppmwv})$	= NOX concentration (ppmwv)	=	153.719	ppmwv

3. NOX concentration (lb/dscf)

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

Where:

$C(\text{ppmdv})$	= NOX concentration (ppmdv)	=	153.719	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
$C(\text{lb/dscf})$	= NOX concentration (lb/dscf)	=	1.835E-05	lb/dscf

Wheelabrator

CleanAir Project No. 11414

North Broward

Unit 1

4. NOX concentration (%dv)

$$C(\%dv) = C(ppmdv) \times \frac{100}{10^6}$$

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	153.719	ppmdv
100	= conversion factor from decimal to percentage	=	1.00E+02	
10 ⁶	= conversion factor from decimal to ppm	=	1.00E+06	
C (%dv)	= NOX concentration (%dv)	=	0.0154%	%dv

5. NOX concentration (mg/dscm)

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

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.835E-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)	=	293.918	mg/dscm

6. NOX concentration (mg/Nm³ dry)

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

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.835E-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/Nm ³ dr)	= NOX concentration (mg/Nm ³ dry)	=	315.425	mg/Nm ³ dry

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

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

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	153.719	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O ₂	= proportion of oxygen in the gas stream by volume (%)	=	9.184	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O ₂)	= NOX concentration corrected to 7% O ₂ (ppmdv example)	=	182.373	ppmdv @ 7%O ₂

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 1

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

$$C(\text{ppmdv @ } y\% \text{CO}_2) = C(\text{ppmdv}) \times \left(\frac{y}{\text{CO}_2} \right)$$

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	153.719	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO ₂	= proportion of carbon dioxide in the gas stream by volume (%)	=	9.955	%

C (ppmdv -CC = NOX concentration corrected to 12% CO2 (ppmdv example)	=	185.299	ppmdv @ 12%CO ₂
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9. NOX emission rate (lb/hr)

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

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.835E-05	lb/dscf
Q _{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	100895.9722	dscfm
60	= conversion factor (min/hr)	=	60	min/hr

E _{lb/hr}	= NOX emission rate (lb/hr)	=	111.112	lb/hr
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10. NOX emission rate (kg/hr)

$$E_{\text{kg/hr}} = C(\text{lb/dscf}) \times Q_{\text{std}} \times 60 \times 0.454$$

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.835E-05	lb/dscf
Q _{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	100895.9722	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
0.454	= conversion factor (kg/lb)	=	0.454	kg/lb

E _{kg/hr}	= NOX emission rate (kg/hr)	=	50.391	kg/hr
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11. NOX emission rate (gm/sec)

$$E_{\text{gm/sec}} = C(\text{lb/dscf}) \times Q_{\text{std}} \times \frac{454}{60}$$

Where:

C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.835E-05	lb/dscf
Q _{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	100895.9722	dscfm
60	= conversion factor (sec/min)	=	60	sec/min
454	= conversion factor (g/lb)	=	453.515	kg/lb

E _{gm/sec}	= NOX emission rate (gm/sec)	=	13.998	gm/sec
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**CEM RATA Sample Calculations
 for NOX Unit 1 FF Outlet**

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.

041812 094705

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	=	192.9000	ppm@7%O2
C_R	= NOX value from CleanAir RM Data	=	182.3732	ppm@7%O2
D	= NOX value difference between 2 methods	=	-10.5268	ppm@7%O2

2. Percent Value Difference (%)

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

Where:

C_R	= NOX value from CleanAir RM Data	=	182.3732	ppm@7%O2
D	= NOX value difference between 2 methods	=	-10.5268	ppm@7%O2
$D\%$	= NOX value difference as a percentage of RM Data	=	-5.8%	

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

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

Where:

$C_{P,i}$	= NOX value from Plant CEM Data for ith run	=	$\overset{i=1}{192.9000}$	ppm@7%O2
N	= total number of runs included in the CEM data	=	9	
$C_{P,avg}$	= Average NOX value from Plant CEM Data	=	189.6111	ppm@7%O2

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

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

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	182.3732	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	192.9000	ppm@7%O2
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.3834	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	=	0.3834	ppm@7%O2
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.2947	ppm@7%O2

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

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

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	182.3732	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	192.9000	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.2947	ppm@7%O2
RA	= relative accuracy (as a percentage of the reference method)	=	5.86%	
	Limit =		20.00%	

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	=	182.3732	ppm@7%O2
$C_{P,i}$	= NOX value from Plant CEM Data for ith run	=	192.9000	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.2947	
C_{std}	= NOX value of applicable standard	=	205.000	ppm@7%O2
RA	= relative accuracy (as percentage of the applicable standard)	=	5.13%	
	Limit	=	10.00%	

8. Average Absolute Difference

$$AAD = \frac{\sum_{i=1}^N abs|C_{R,i} - C_{P,i}|}{N}$$

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	182.3732	ppm@7%O2
$C_{P,i}$	= NOX value from Plant CEM Data for ith run	=	192.9000	ppm@7%O2
N	= total Number of RATA Runs	=	9	
AAD	= average absolute difference	=	10.2206	ppm@7%O2
	Limit	=	NA	ppm@7%O2

9. Average Absolute Difference, including Confidence Coefficient

$$AAD_{CC} = \frac{\sum_{i=1}^N abs|C_{R,i} - C_{P,i}|}{N} + CC$$

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	182.3732	ppm@7%O2
$C_{P,i}$	= NOX value from Plant CEM Data for ith run	=	192.9000	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.2947	ppm@7%O2
AAD_{CC}	= average absolute difference plus confidence coefficient	=	10.5153	ppm@7%O2
	Limit	=	NA	ppm@7%O2

**USEPA Method 2 (Velocity & Flow Rate)
 Velocity 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.

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1. Sample gas pressure (in. Hg)

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

Where:

P_{bar}	= barometric pressure (in. Hg)	=	30.15	in. Hg
P_g	= sample gas static pressure (in. H ₂ O)	=	-11.50	in. H ₂ O
13.6	= conversion factor (in. H ₂ O/in. Hg)	=	13.6	in. H ₂ O/in. Hg
P_s	= absolute sample gas pressure (in. Hg)	=	29.30	in. Hg

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

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

Where:

T_s	= average sample gas temperature (°F)	=	304.36	°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)	=	29.30	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)	=	29.30	in. Hg
P_v	= water vapor pressure, actual (in. Hg)	=	29.30	in. Hg

4. 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 (%)	=	10.0	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.2	%
100	= conversion factor (%)	=	100	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	80.86	%

5. 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_{CO_2}	= molecular weight of carbon dioxide (lb/lb-mole)	=	44.00	lb/lb-mole
M_{O_2}	= molecular weight of oxygen (lb/lb-mole)	=	32.00	lb/lb-mole
M_{N_2+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 (%)	=	10.0	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	9.2	%
N_2+CO	= proportion of nitrogen and CO in the gas stream by volume (%)	=	80.9	%
100	= conversion factor (%)	=	100	%
M_d	= dry molecular weight of sample gas (lb/lb-mole)	=	29.96	lb/lb-mole

6. 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	=	0.2254	
M_d	= dry molecular weight of sample gas (lb/lb-mole)	=	29.96	lb/lb-mole
M_{H_2O}	= molecular weight of water (lb/lb-mole)	=	18.00	lb/lb-mole
M_s	= molecular weight of sample gas, wet basis (lb/lb-mole)	=	27.26	lb/lb-mole

7. Velocity of sample gas (ft/sec)

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

Where:

K_p	= velocity pressure constant	=	85.49	
C_p	= pitot tube coefficient	=	0.83	
M_s	= wet molecular weight of sample gas, wet basis (lb/lb-mole)	=	27.26	lb/lb-mole
P_s	= absolute sample gas pressure (in. Hg)	=	29.30	in. Hg
T_s	= average sample gas temperature (°F)	=	304.36	°F
$\sqrt{\Delta P}$	= average square roots of velocity heads of sample gas (in. H ₂ O)	=	0.725	in. H ₂ O
460	= °F to °R conversion constant	=	460	
V_s	= sample gas velocity (ft/sec)	=	50.14	ft/sec

8. 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)	=	50.14	ft/sec
60	conversion factor (sec/min)	=	60	sec/min
Q_a	= volumetric flow rate at actual conditions (acfm)	=	192,530	acfm

9. 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)	=	192,530	acfm
P_s	= absolute sample gas pressure (in. Hg)	=	29.30	in. Hg
29.92	= standard pressure (in. Hg)	=	29.92	in. Hg
T_s	= average sample gas temperature (°F)	=	304.4	°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)	=	130,258	scfm

10. 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	=	0.2254	
Q_s	= volumetric flow rate at standard conditions, wet basis (scfm)	=	130,258	scfm
Q_{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	100,896	dscfm

11. Dry flow of sample gas corrected to 7%O₂ (dscfm)

$$Q_{std7} = (Q_{std}) \left(\frac{20.9 - O_2}{20.9 - 7} \right)$$

Where:

Q _{std}	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	100,896	dscfm
O ₂	= proportion of oxygen in the gas stream by volume (%)	=	9.2	%
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)	=	85,043	dscfm
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12. Hourly time basis conversion of volumetric flow rate (Q_{std} example)

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

Where

Q _{std-min}	= volumetric flow rate, english units (ft ³ /min)	=	100,896	dscfm
60	= conversion factor (min/hr)	=	60	min/hr

Q _{std-hr}	= volumetric flow rate, hourly basis (dscf/hr)	=	6,053,758	dscf/hr
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13. Metric Conversion of Gas Volumes (Q_{std} example)

$$Q_{std-metric} = (Q_{std-english}) \left(\frac{60}{35.31} \right)$$

Where:

Q _{std-english}	= volumetric flow rate, english units (ft ³ /min)	=	100,896	dscfm
35.31	= conversion factor (ft ³ /m ³)	=	35.31	ft ³ /m ³
60	= conversion factor (min/hr)	=	60	min/hr

Q _{std-metric}	= volumetric flow rate, metric units (m ³ /hr)	=	171,446	dry std m ³ /hr
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14. Standard to Normal Conversion of Gas Volumes (Q_{std} example)

$$Q_{Normal} = (Q_{std-metric}) \left(\frac{32 + 460}{68 + 460} \right)$$

Where:

Q _{std-metric}	= volumetric flow rate, metric units (dry std m ³ /hr)	=	171,446	dry std m ³ /hr
32	= normal temperature (°F)	=	32	°F
68	= standard temperature (°F)	=	68	°F
460	= standard temperature in Rankine (68°F)	=	460	

Q _{Normal}	= volumetric flow rate, metric units (dry Nm ³ /hr)	=	159,757	dry Nm ³ /hr
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**USEPA Method 26A (HCI)
 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.

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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)	=	256.8	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)	=	12.09	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)	=	30.15	in. Hg
T_m	= average dry gas meter temperature (°F)	=	78.83	°F
V_m	= volume of gas sample through the dry gas meter at meter conditions (dcf)	=	41.67	dcf
Y_d	= gas meter correction factor (dimensionless)	=	1.0061	
ΔH	= average pressure drop across meter box orifice (in. H ₂ O)	=	1.50	in. H ₂ O
17.64	= standard temperature to pressure ratio (°R/in. Hg)	=	17.64	°R/in. Hg
13.6	= conversion factor (in. H ₂ O/in. Hg)	=	13.6	in. H ₂ O/in. Hg
460	= °F to °R conversion constant	=	460	
V_{mstd}	= volume of gas sampled through the dry gas meter at standard conditions (dscf)	=	41.527	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)	=	30.15	in. Hg
P_g	= sample gas static pressure (in. H ₂ O)	=	-11.50	in. H ₂ O
13.6	= conversion factor (in. H ₂ O/in. Hg)	=	13.6	in. H ₂ O/in. Hg
P_s	= absolute sample gas pressure (in. Hg)	=	29.30	in. Hg

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

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

Where:

T_s	= average sample gas temperature (°F)	=	302.17	°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)	=	29.30	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)	=	29.30	in. Hg
P_v	= water vapor pressure, actual (in. Hg)	=	29.30	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)	=	41.527	dscf
V_{wstd}	= volume of water collected at standard conditions (scf)	=	12.09	scf
B_{wo}	= proportion of water measured in the gas stream by volume	=	0.2254	
		=	22.54	%

7. Saturated moisture content (% by volume)

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

Where:

P_s	= absolute sample gas pressure (in. Hg)	=	29.30	in. Hg
P_v	= water vapor pressure, actual (in. Hg)	=	29.30	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)

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

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	=	0.2254	
B_w	= actual water vapor in gas	=	0.2254	
		=	22.54	%

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

PARAMETERS

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

QA/QC Initials: NK

Date: 5/7/12



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**Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 1**

Continuous Emissions Monitoring Parameters

Run Number	1				
Date (2012)	Mar 28				
Start Time	6:56				
End Time	7:23				
Elapsed Time (hh:mm)	00:26				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.18	9.95	153.72	15.24	17.30
Concentration (ppmdv)		99548.84	153.72	15.24	17.30
Concentration (lb/dscf)		1.137E-02	1.835E-05	1.108E-06	2.877E-06
Concentration (%dv)	9.184	9.955	0.015	0.002	0.002
Concentration (mg/dscm)		182086.47	293.92	17.74	46.07
Concentration @7%O2 (ppm)		118105.54	182.37	18.08	20.53
Concentration @12%CO2 (ppm)		120000.00	185.30	18.37	20.86
Mass Rate (lb/hr)		68835.68	111.11	6.71	17.42
Run Number	2				
Date (2012)	Mar 28				
Start Time	7:37				
End Time	8:04				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.53	9.69	139.73	15.58	13.05
Concentration (ppmdv)		96906.63	139.73	15.58	13.05
Concentration (lb/dscf)		1.107E-02	1.668E-05	1.132E-06	2.170E-06
Concentration (%dv)	9.526	9.691	0.014	0.002	0.001
Concentration (mg/dscm)		177253.57	267.18	18.13	34.74
Concentration @7%O2 (ppm)		118430.17	170.77	19.04	15.95
Concentration @12%CO2 (ppm)		120000.00	173.03	19.29	16.16
Mass Rate (lb/hr)		65600.39	98.88	6.71	12.86
Run Number	3				
Date (2012)	Mar 28				
Start Time	8:17				
End Time	8:44				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.78	9.52	132.60	14.71	16.46
Concentration (ppmdv)		95206.04	132.60	14.71	16.46
Concentration (lb/dscf)		1.087E-02	1.583E-05	1.069E-06	2.737E-06
Concentration (%dv)	9.778	9.521	0.013	0.001	0.002
Concentration (mg/dscm)		174142.98	253.55	17.12	43.83
Concentration @7%O2 (ppm)		118982.37	165.72	18.38	20.57
Concentration @12%CO2 (ppm)		120000.00	167.14	18.54	20.75
Mass Rate (lb/hr)		65278.17	95.04	6.42	16.43

**Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 1**

Continuous Emissions Monitoring Parameters

Run Number 4
Date (2012) Mar 28
Start Time 8:56
End Time 9:23
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.82	9.48	148.27	21.80	13.13
Concentration (ppmdv)		94785.05	148.27	21.80	13.13
Concentration (lb/dscf)		1.083E-02	1.770E-05	1.585E-06	2.184E-06
Concentration (%dv)	9.820	9.479	0.015	0.002	0.001
Concentration (mg/dscm)		173372.94	283.49	25.38	34.97
Concentration @7%O2 (ppm)		118909.30	186.00	27.35	16.48
Concentration @12%CO2 (ppm)		120000.00	187.71	27.60	16.63
Mass Rate (lb/hr)		66375.77	108.53	9.72	13.39

Run Number 5
Date (2012) Mar 28
Start Time 9:35
End Time 10:02
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.61	9.61	143.31	22.71	14.91
Concentration (ppmdv)		96107.69	143.31	22.71	14.91
Concentration (lb/dscf)		1.098E-02	1.711E-05	1.651E-06	2.480E-06
Concentration (%dv)	9.612	9.611	0.014	0.002	0.001
Concentration (mg/dscm)		175792.21	274.02	26.44	39.71
Concentration @7%O2 (ppm)		118349.92	176.48	27.97	18.37
Concentration @12%CO2 (ppm)		120000.00	178.94	28.36	18.62
Mass Rate (lb/hr)		69073.67	107.67	10.39	15.60

Run Number 6
Date (2012) Mar 28
Start Time 10:12
End Time 10:39
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.43	9.74	147.97	14.39	17.07
Concentration (ppmdv)		97434.71	147.97	14.39	17.07
Concentration (lb/dscf)		1.113E-02	1.767E-05	1.046E-06	2.839E-06
Concentration (%dv)	9.434	9.743	0.015	0.001	0.002
Concentration (mg/dscm)		178219.49	282.92	16.76	45.46
Concentration @7%O2 (ppm)		118113.36	179.37	17.45	20.70
Concentration @12%CO2 (ppm)		120000.00	182.24	17.73	21.03
Mass Rate (lb/hr)		68258.49	108.36	6.42	17.41

**Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 1**

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2012)	Mar 28				
Start Time	10:51				
End Time	11:18				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.62	9.62	147.42	16.33	11.10
Concentration (ppmdv)		96216.16	147.42	16.33	11.10
Concentration (lb/dscf)		1.099E-02	1.760E-05	1.187E-06	1.845E-06
Concentration (%dv)	9.622	9.622	0.015	0.002	0.001
Concentration (mg/dscm)		175990.61	281.87	19.01	29.54
Concentration @7%O2 (ppm)		118586.38	181.69	20.12	13.67
Concentration @12%CO2 (ppm)		120000.00	183.86	20.36	13.84
Mass Rate (lb/hr)		67278.63	107.76	7.27	11.29
Run Number	8				
Date (2012)	Mar 28				
Start Time	11:30				
End Time	11:57				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.49	9.70	156.07	15.14	11.22
Concentration (ppmdv)		96993.06	156.07	15.14	11.22
Concentration (lb/dscf)		1.108E-02	1.863E-05	1.101E-06	1.866E-06
Concentration (%dv)	9.494	9.699	0.016	0.002	0.001
Concentration (mg/dscm)		177411.66	298.41	17.63	29.88
Concentration @7%O2 (ppm)		118203.26	190.20	18.45	13.68
Concentration @12%CO2 (ppm)		120000.00	193.09	18.73	13.88
Mass Rate (lb/hr)		67918.04	114.24	6.75	11.44

Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 1

Continuous Emissions Monitoring Parameters

Run Number	9				
Date (2012)	Mar 28				
Start Time	12:08				
End Time	12:35				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.10	10.03	154.49	14.44	10.82
Concentration (ppmdv)		100303.62	154.49	14.44	10.82
Concentration (lb/dscf)		1.146E-02	1.845E-05	1.050E-06	1.799E-06
Concentration (%dv)	9.095	10.030	0.015	0.001	0.001
Concentration (mg/dscm)		183467.06	295.39	16.81	28.81
Concentration @7%O2 (ppm)		118106.12	181.91	17.00	12.74
Concentration @12%CO2 (ppm)		120000.00	184.82	17.27	12.95
Mass Rate (lb/hr)		69313.31	111.60	6.35	10.89
Run Number	10				
Date (2012)	Mar 28				
Start Time	12:48				
End Time	13:15				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	9.21	9.90	149.29	13.48	24.07
Concentration (ppmdv)		99025.53	149.29	13.48	24.07
Concentration (lb/dscf)		1.131E-02	1.783E-05	9.798E-07	4.001E-06
Concentration (%dv)	9.208	9.903	0.015	0.001	0.002
Concentration (mg/dscm)		181129.28	285.45	15.69	64.08
Concentration @7%O2 (ppm)		117730.16	177.49	16.02	28.61
Concentration @12%CO2 (ppm)		120000.00	180.91	16.33	29.16
Mass Rate (lb/hr)		66223.05	104.36	5.74	23.43

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 1 FF Outlet

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

Run No.	1	2	3	4
Date (2012)	Mar 28	Mar 28	Mar 28	Mar 28
Start Time (approx.)	07:04	07:45	08:26	09:03
Stop Time (approx.)	07:14	07:56	08:36	09:13
Sampling Conditions				
C _p Pitot tube coefficient	0.8270	0.8270	0.8270	0.8270
P _g Static pressure (in. H ₂ O)	-11.5000	-11.4000	-11.4000	-11.4000
A _s Sample location area (ft ²)	64.0000	64.0000	64.0000	64.0000
P _{bar} Barometric pressure (in. Hg)	30.15	30.15	30.15	30.15
O ₂ Oxygen (dry volume %)	9.1840	9.5262	9.7776	9.8200
CO ₂ Carbon dioxide (dry volume %)	9.9549	9.6907	9.5206	9.4785
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.8612	80.7831	80.7017	80.7015
T _s Sample temperature (°F)	304.3600	306.9600	306.2400	305.7600
Flow Results				
P _s Sample gas pressure, absolute (in. Hg)	29.3044	29.3118	29.3118	29.3118
P _v Vapor pressure, actual (in. Hg)	29.3044	29.3118	29.3118	29.3118
B _{wo} Moisture measured in sample (% by volume)	22.5416	22.5416	21.3412	21.3412
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	22.5416	22.5416	21.3412	21.3412
√ΔP Velocity head (√in. H ₂ O)	0.7250	0.7106	0.7101	0.7250
M _d MW of sample gas, dry (lb/lb-mole)	29.9601	29.9316	29.9144	29.9094
M _s MW of sample gas, wet (lb/lb-mole)	27.2641	27.2420	27.3717	27.3678
V _s Velocity of sample (ft/sec)	50.1380	49.2389	49.0650	50.0802
Q _a Volumetric flow rate, actual (acfm)	192,530	189,077	188,410	192,308
Q _s Volumetric flow rate, standard (scfm)	130,258	127,521	127,190	129,903
Q _{std} Volumetric flow rate, dry standard (dscfm)	100,896	98,776	100,046	102,180

Comments:

Moisture obtained from Method 26A Runs 1 and 2.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 1 FF Outlet

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

Run No.		5	6	7
Date (2012)		Mar 28	Mar 28	Mar 28
Start Time (approx.)		09:42	10:20	10:57
Stop Time (approx.)		09:54	10:33	11:07
Sampling Conditions				
C_p	Pitot tube coefficient	0.8270	0.8270	0.8270
P_g	Static pressure (in. H ₂ O)	-11.8000	-12.4000	-11.7000
A_s	Sample location area (ft ²)	64.0000	64.0000	64.0000
P_{bar}	Barometric pressure (in. Hg)	30.15	30.15	30.15
O_2	Oxygen (dry volume %)	9.6123	9.4335	9.6221
CO_2	Carbon dioxide (dry volume %)	9.6108	9.7435	9.6216
N_2+CO	Nitrogen plus carbon monoxide (dry volume %)	80.7769	80.8230	80.7563
T_s	Sample temperature (°F)	305.1600	305.2800	305.4000
Flow Results				
P_s	Sample gas pressure, absolute (in. Hg)	29.2824	29.2382	29.2897
P_v	Vapor pressure, actual (in. Hg)	29.2824	29.2382	29.2897
B_{wo}	Moisture measured in sample (% by volume)	22.4791	22.4791	22.8103
B_{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B_w	Actual water vapor in gas (% by volume)	22.4791	22.4791	22.8103
$\sqrt{\Delta P}$	Velocity head ($\sqrt{in. H_2O}$)	0.7534	0.7351	0.7356
M_d	MW of sample gas, dry (lb/lb-mole)	29.9222	29.9363	29.9243
M_s	MW of sample gas, wet (lb/lb-mole)	27.2422	27.2531	27.2044
V_s	Velocity of sample (ft/sec)	52.1645	50.9315	50.9725
Q_a	Volumetric flow rate, actual (acfm)	200,312	195,577	195,735
Q_s	Volumetric flow rate, standard (scfm)	135,280	131,862	132,180
Q_{std}	Volumetric flow rate, dry standard (dscfm)	104,870	102,221	102,029

Comments:

Moisture obtained from Method 26A Run 3 and Method 4 Run 1.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 1 FF Outlet

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

Run No.	8	9	10
Date (2012)	Mar 28	Mar 28	Mar 28
Start Time (approx.)	11:36	12:14	12:56
Stop Time (approx.)	11:47	12:24	13:08
Sampling Conditions			
C _p Pitot tube coefficient	0.8270	0.8270	0.8270
P _g Static pressure (in. H ₂ O)	-11.8000	-10.9000	-11.0000
A _s Sample location area (ft ²)	64.0000	64.0000	64.0000
P _{bar} Barometric pressure (in. Hg)	30.15	30.15	30.15
O ₂ Oxygen (dry volume %)	9.4942	9.0952	9.2084
CO ₂ Carbon dioxide (dry volume %)	9.6993	10.0304	9.9026
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.8065	80.8744	80.8891
T _s Sample temperature (°F)	305.0800	304.7200	304.0000
Flow Results			
P _s Sample gas pressure, absolute (in. Hg)	29.2824	29.3485	29.3412
P _v Vapor pressure, actual (in. Hg)	29.2824	29.3485	29.3412
B _{wo} Moisture measured in sample (% by volume)	22.8103	22.3094	22.3094
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	22.8103	22.3094	22.3094
√ΔP Velocity head (√in. H ₂ O)	0.7367	0.7225	0.6988
M _d MW of sample gas, dry (lb/lb-mole)	29.9317	29.9687	29.9527
M _s MW of sample gas, wet (lb/lb-mole)	27.2100	27.2985	27.2862
V _s Velocity of sample (ft/sec)	51.0363	49.9046	48.2617
Q _a Volumetric flow rate, actual (acfm)	195,979	191,634	185,325
Q _s Volumetric flow rate, standard (scfm)	132,368	129,786	125,600
Q _{std} Volumetric flow rate, dry standard (dscfm)	102,174	100,832	97,579

Comments:

Moisture obtained from Method 4 Runs 1 and 2.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 1 FF Outlet

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

Run No.	1	2	3	Average
Date (2012)	Mar 28	Mar 28	Mar 28	
Start Time (approx.)	06:51	08:17	09:36	
Stop Time (approx.)	07:51	09:17	10:36	
Sampling Conditions				
Y_d Dry gas meter correction factor	1.0061	1.0061	1.0061	
P_g Static pressure (in. H ₂ O)	-11.5000	-11.4000	-12.4000	
A_s Sample location area (ft ²)	64.0000	64.0000	64.0000	
P_{bar} Barometric pressure (in. Hg)	30.15	30.15	30.15	30.1500
O_2 Oxygen (dry volume %)	9.3100	9.8200	9.5100	9.5467
CO_2 Carbon dioxide (dry volume %)	10.0800	9.6600	10.0000	9.9133
N_2+CO Nitrogen plus carbon monoxide (dry volume %)	80.6100	80.5200	80.4900	80.5400
V_{lc} Total Liquid collected (ml)	256.80	237.70	254.30	
V_m Volume metered, meter conditions (ft ³)	41.6650	41.6450	41.8750	
T_m Dry gas meter temperature (°F)	78.8333	82.4583	84.9167	
T_s Sample temperature (°F)	302.1667	302.5000	301.0000	301.8889
ΔH Meter box orifice pressure drop (in. H ₂ O)	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)	12.0850	11.1862	11.9674	11.7462
V_{mstd} Volume metered, standard (dscf)	41.5269	41.2296	41.2703	41.3423
P_s Sample gas pressure, absolute (in. Hg)	29.3044	29.3118	29.2382	29.2848
P_v Vapor pressure, actual (in. Hg)	29.3044	29.3118	29.2382	29.2848
B_{wo} Moisture measured in sample (% by volume)	22.5416	21.3412	22.4791	22.1207
B_{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B_w Actual water vapor in gas (% by volume)	22.5416	21.3412	22.4791	22.1207
M_d MW of sample gas, dry (lb/lb-mole)	29.9852	29.9384	29.9804	29.9680
M_s MW of sample gas, wet (lb/lb-mole)	27.2835	27.3906	27.2873	27.3205

Comments:

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Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 1 FF Outlet

USEPA Method 4 Sampling, Velocity and Moisture Parameters

Run No.		1	2	Average
Date (2012)		Mar 28	Mar 28	
Start Time (approx.)		10:57	12:13	
Stop Time (approx.)		11:42	12:38	
Sampling Conditions				
Y_d	Dry gas meter correction factor	1.0061	1.0061	
P_g	Static pressure (in. H ₂ O)	-11.7000	-10.9000	-11.3000
P_{bar}	Barometric pressure (in. Hg)	30.15	30.15	30.1500
V_{lc}	Total Liquid collected (ml)	179.40	175.00	
V_m	Volume metered, meter conditions (ft ³)	29.0450	29.5100	
T_m	Dry gas meter temperature (°F)	85.7222	92.3333	
ΔH	Meter box orifice pressure drop (in. H ₂ O)	1.3000	1.3000	
θ	Total sampling time (min)	45.0	45.0	
Flow Results				
V_{wstd}	Volume of water collected (ft ³)	8.4426	8.2355	8.3390
V_{mstd}	Volume metered, standard (dscf)	28.5694	28.6794	28.6244
P_s	Sample gas pressure, absolute (in. Hg)	29.2897	29.3485	29.3191
B_{wo}	Moisture measured in sample (% by volume)	22.8103	22.3094	22.5599
B_w	Actual water vapor in gas (% by volume)	22.8103	22.3094	22.5599

Comments:

Average includes 2 runs.

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**Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 2**

Continuous Emissions Monitoring Parameters

Run Number 1
Date (2012) Mar 26
Start Time 7:00
End Time 7:27
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.48	10.63	160.07	6.68	0.75
Concentration (ppmdv)		106330.56	160.07	6.68	0.75
Concentration (lb/dscf)		1.215E-02	1.911E-05	4.856E-07	1.248E-07
Concentration (%dv)	8.476	10.633	0.016	0.001	0.000
Concentration (mg/dscm)		194491.03	306.07	7.78	2.00
Concentration @7%O2 (ppm)		118964.54	179.09	7.47	0.84
Concentration @12%CO2 (ppm)		120000.00	180.65	7.54	0.85

Run Number 2
Date (2012) Mar 26
Start Time 7:44
End Time 8:11
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.82	10.28	161.59	7.79	1.47
Concentration (ppmdv)		102818.25	161.59	7.79	1.47
Concentration (lb/dscf)		1.174E-02	1.929E-05	5.666E-07	2.447E-07
Concentration (%dv)	8.823	10.282	0.016	0.001	0.000
Concentration (mg/dscm)		188066.61	308.98	9.07	3.92
Concentration @7%O2 (ppm)		118342.02	185.99	8.97	1.69
Concentration @12%CO2 (ppm)		120000.00	188.60	9.10	1.72
Mass Rate (lb/hr)		63258.76	103.93	3.05	1.32

Run Number 3
Date (2012) Mar 26
Start Time 8:53
End Time 9:20
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	7.86	11.09	173.81	4.96	4.32
Concentration (ppmdv)		110942.08	173.81	4.96	4.32
Concentration (lb/dscf)		1.267E-02	2.075E-05	3.604E-07	7.186E-07
Concentration (%dv)	7.861	11.094	0.017	0.000	0.000
Concentration (mg/dscm)		202926.04	332.33	5.77	11.51
Concentration @7%O2 (ppm)		118268.38	185.29	5.28	4.61
Concentration @12%CO2 (ppm)		120000.00	188.00	5.36	4.67
Mass Rate (lb/hr)		59839.49	98.00	1.70	3.39

**Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 2**

Continuous Emissions Monitoring Parameters

Run Number 4
Date (2012) Mar 26
Start Time 9:36
End Time 10:03
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	7.99	11.00	176.46	7.32	9.38
Concentration (ppmdv)		110031.08	176.46	7.32	9.38
Concentration (lb/dscf)		1.257E-02	2.107E-05	5.318E-07	1.560E-06
Concentration (%dv)	7.988	11.003	0.018	0.001	0.001
Concentration (mg/dscm)		201259.72	337.40	8.52	24.98
Concentration @7%O2 (ppm)		118448.00	189.96	7.87	10.10
Concentration @12%CO2 (ppm)		120000.00	192.45	7.98	10.23
Mass Rate (lb/hr)		61465.09	103.04	2.60	7.63

Run Number 5
Date (2012) Mar 26
Start Time 10:16
End Time 10:43
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	7.91	11.13	168.55	4.61	8.92
Concentration (ppmdv)		111265.10	168.55	4.61	8.92
Concentration (lb/dscf)		1.271E-02	2.013E-05	3.351E-07	1.482E-06
Concentration (%dv)	7.907	11.127	0.017	0.000	0.001
Concentration (mg/dscm)		203516.89	322.28	5.37	23.74
Concentration @7%O2 (ppm)		119036.14	180.33	4.93	9.54
Concentration @12%CO2 (ppm)		120000.00	181.79	4.97	9.62
Mass Rate (lb/hr)		66835.27	105.84	1.76	7.80

Run Number 6
Date (2012) Mar 26
Start Time 10:57
End Time 11:24
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.22	10.81	171.84	5.37	11.19
Concentration (ppmdv)		108130.40	171.84	5.37	11.19
Concentration (lb/dscf)		1.235E-02	2.052E-05	3.908E-07	1.861E-06
Concentration (%dv)	8.225	10.813	0.017	0.001	0.001
Concentration (mg/dscm)		197783.15	328.56	6.26	29.79
Concentration @7%O2 (ppm)		118580.05	188.44	5.89	12.27
Concentration @12%CO2 (ppm)		120000.00	190.70	5.96	12.42
Mass Rate (lb/hr)		66233.39	110.03	2.10	9.98

Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 2

Continuous Emissions Monitoring Parameters

Run Number 7
 Date (2012) Mar 26
 Start Time 11:37
 End Time 12:04
 Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.20	10.79	163.93	3.96	11.04
Concentration (ppmdv)		107923.08	163.93	3.96	11.04
Concentration (lb/dscf)		1.233E-02	1.957E-05	2.876E-07	1.835E-06
Concentration (%dv)	8.200	10.792	0.016	0.000	0.001
Concentration (mg/dscm)		197403.95	313.45	4.61	29.39
Concentration @7%O2 (ppm)		118125.14	179.43	4.33	12.08
Concentration @12%CO2 (ppm)		120000.00	182.28	4.40	12.27
Mass Rate (lb/hr)		61378.18	97.46	1.43	9.14

Run Number 8
 Date (2012) Mar 26
 Start Time 12:18
 End Time 12:45
 Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	7.92	11.02	174.95	4.38	9.13
Concentration (ppmdv)		110211.51	174.95	4.38	9.13
Concentration (lb/dscf)		1.259E-02	2.089E-05	3.183E-07	1.518E-06
Concentration (%dv)	7.920	11.021	0.017	0.000	0.001
Concentration (mg/dscm)		201589.75	334.52	5.10	24.32
Concentration @7%O2 (ppm)		118027.62	187.36	4.69	9.78
Concentration @12%CO2 (ppm)		120000.00	190.49	4.77	9.94
Mass Rate (lb/hr)		61055.89	101.32	1.54	7.36

Run Number 9
 Date (2012) Mar 26
 Start Time 12:59
 End Time 13:26
 Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.13	10.82	177.93	4.17	9.85
Concentration (ppmdv)		108221.27	177.93	4.17	9.85
Concentration (lb/dscf)		1.236E-02	2.125E-05	3.030E-07	1.637E-06
Concentration (%dv)	8.135	10.822	0.018	0.000	0.001
Concentration (mg/dscm)		197949.37	340.21	4.85	26.21
Concentration @7%O2 (ppm)		117842.68	193.75	4.54	10.72
Concentration @12%CO2 (ppm)		120000.00	197.30	4.62	10.92
Mass Rate (lb/hr)		61963.50	106.50	1.52	8.21

Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 2

Continuous Emissions Monitoring Parameters

Run Number 10
 Date (2012) Mar 26
 Start Time 13:38
 End Time 14:05
 Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	7.93	11.05	171.92	5.39	10.73
Concentration (ppmdv)		110517.68	171.92	5.39	10.73
Concentration (lb/dscf)		1.262E-02	2.053E-05	3.920E-07	1.784E-06
Concentration (%dv)	7.926	11.052	0.017	0.001	0.001
Concentration (mg/dscm)		202149.77	328.73	6.28	28.58
Concentration @7%O2 (ppm)		118402.25	184.19	5.78	11.50
Concentration @12%CO2 (ppm)		120000.00	186.68	5.85	11.65
Mass Rate (lb/hr)		61872.91	100.62	1.92	8.75

Run Number 11
 Date (2012) Mar 26
 Start Time 14:17
 End Time 14:44
 Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	7.90	11.10	176.70	5.26	10.18
Concentration (ppmdv)		110997.69	176.70	5.26	10.18
Concentration (lb/dscf)		1.268E-02	2.110E-05	3.827E-07	1.693E-06
Concentration (%dv)	7.899	11.100	0.018	0.001	0.001
Concentration (mg/dscm)		203027.76	337.85	6.13	27.11
Concentration @7%O2 (ppm)		118669.50	188.91	5.63	10.89
Concentration @12%CO2 (ppm)		120000.00	191.03	5.69	11.01
Mass Rate (lb/hr)		62095.51	103.33	1.87	8.29

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 2 FF Outlet

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

Run No.	1	2	3	4
Date (2012)	Mar 26	Mar 26	Mar 26	Mar 26
Start Time (approx.)	08:11	09:10	09:57	10:29
Stop Time (approx.)	08:25	09:20	10:07	10:41
Sampling Conditions				
C _p Pitot tube coefficient	0.8270	0.8270	0.8270	0.8270
P _g Static pressure (in. H ₂ O)	-10.5000	-10.5000	-10.6000	-10.6000
A _s Sample location area (ft ²)	64.0000	64.0000	64.0000	64.0000
P _{bar} Barometric pressure (in. Hg)	29.90	29.90	29.90	29.90
O ₂ Oxygen (dry volume %)	8.8234	7.8611	7.9877	7.9074
CO ₂ Carbon dioxide (dry volume %)	10.2818	11.0942	11.0031	11.1265
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.8948	81.0447	81.0092	80.9661
T _s Sample temperature (°F)	307.6800	304.6800	306.1200	306.0800
Flow Results				
P _s Sample gas pressure, absolute (in. Hg)	29.1279	29.1279	29.1206	29.1206
P _v Vapor pressure, actual (in. Hg)	29.1279	29.1279	29.1206	29.1206
B _{w0} Moisture measured in sample (% by volume)	21.3039	22.4233	22.4233	19.7638
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	21.3039	22.4233	22.4233	19.7638
√ΔP Velocity head (√in. H ₂ O)	0.6403	0.5677	0.5885	0.6156
M _d MW of sample gas, dry (lb/lb-mole)	29.9980	30.0895	30.0800	30.0965
M _s MW of sample gas, wet (lb/lb-mole)	27.4420	27.3787	27.3713	27.7058
V _s Velocity of sample (ft/sec)	44.3671	39.3027	40.7916	42.4075
Q _a Volumetric flow rate, actual (acfm)	170,370	150,923	156,640	162,845
Q _s Volumetric flow rate, standard (scfm)	114,076	101,451	105,070	109,238
Q _{std} Volumetric flow rate, dry standard (dscfm)	89,773	78,702	81,510	87,648

Comments:

Moisture obtained from Method 26A Runs 1, 2 and 3.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 2 FF Outlet

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

Run No.	5	6	7
Date (2012)	Mar 26	Mar 26	Mar 26
Start Time (approx.)	11:06	11:48	12:24
Stop Time (approx.)	11:16	11:59	12:32
Sampling Conditions			
C _p Pitot tube coefficient	0.8270	0.8270	0.8270
P _g Static pressure (in. H ₂ O)	-10.5000	-9.9000	-10.0000
A _s Sample location area (ft ²)	64.0000	64.0000	64.0000
P _{bar} Barometric pressure (in. Hg)	29.90	29.90	29.90
O ₂ Oxygen (dry volume %)	8.2249	8.2005	7.9205
CO ₂ Carbon dioxide (dry volume %)	10.8130	10.7923	11.0212
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.9620	81.0072	81.0584
T _s Sample temperature (°F)	306.4400	305.4000	305.5600
Flow Results			
P _s Sample gas pressure, absolute (in. Hg)	29.1279	29.1721	29.1647
P _v Vapor pressure, actual (in. Hg)	29.1279	29.1721	29.1647
B _{wo} Moisture measured in sample (% by volume)	19.7638	22.3826	22.3826
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	19.7638	22.3826	22.3826
√ΔP Velocity head (√in. H ₂ O)	0.6274	0.5979	0.5827
M _d MW of sample gas, dry (lb/lb-mole)	30.0591	30.0548	30.0802
M _s MW of sample gas, wet (lb/lb-mole)	27.6758	27.3566	27.3763
V _s Velocity of sample (ft/sec)	43.2534	41.3957	40.3419
Q _a Volumetric flow rate, actual (acfm)	166,093	158,959	154,913
Q _s Volumetric flow rate, standard (scfm)	111,392	106,915	104,145
Q _{std} Volumetric flow rate, dry standard (dscfm)	89,377	82,984	80,835

Comments:

Moisture obtained from Method 26A Run 3 and Method 4 Run 1

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 2 FF Outlet

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

Run No.		8	9	10
Date (2012)		Mar 26	Mar 26	Mar 26
Start Time (approx.)		13:07	13:44	14:23
Stop Time (approx.)		13:18	13:53	14:30
Sampling Conditions				
C _p	Pitot tube coefficient	0.8270	0.8270	0.8270
P _g	Static pressure (in. H ₂ O)	-10.3000	-10.1000	-10.2000
A _s	Sample location area (ft ²)	64.0000	64.0000	64.0000
P _{bar}	Barometric pressure (in. Hg)	29.90	29.90	29.90
O ₂	Oxygen (dry volume %)	8.1349	7.9256	7.8986
CO ₂	Carbon dioxide (dry volume %)	10.8221	11.0518	11.0998
N ₂ +CO	Nitrogen plus carbon monoxide (dry volume %)	81.0430	81.0226	81.0016
T _s	Sample temperature (°F)	305.0400	305.1600	305.0800
Flow Results				
P _s	Sample gas pressure, absolute (in. Hg)	29.1426	29.1574	29.1500
P _v	Vapor pressure, actual (in. Hg)	29.1426	29.1574	29.1500
B _{wo}	Moisture measured in sample (% by volume)	22.6321	22.6321	22.5548
B _{ws}	Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B _w	Actual water vapor in gas (% by volume)	22.6321	22.6321	22.5548
√ΔP	Velocity head (√in. H ₂ O)	0.6037	0.5904	0.5896
M _d	MW of sample gas, dry (lb/lb-mole)	30.0569	30.0853	30.0919
M _s	MW of sample gas, wet (lb/lb-mole)	27.3282	27.3501	27.3646
V _s	Velocity of sample (ft/sec)	41.8322	40.8889	40.8238
Q _a	Volumetric flow rate, actual (acfm)	160,636	157,013	156,763
Q _s	Volumetric flow rate, standard (scfm)	107,984	105,586	105,402
Q _{std}	Volumetric flow rate, dry standard (dscfm)	83,545	81,689	81,629

Comments:

Moisture obtained from Method 4 Runs 2 and 3.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 2 FF Outlet

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

Run No.	1	2	3	Average
Date (2012)	Mar 26	Mar 26	Mar 26	
Start Time (approx.)	07:12	08:51	10:21	
Stop Time (approx.)	08:27	09:56	11:21	
Sampling Conditions				
Y_d Dry gas meter correction factor	0.9992	0.9992	0.9992	
P_g Static pressure (in. H ₂ O)	-10.5000	-10.5000	-10.6000	
A_s Sample location area (ft ²)	64.0000	64.0000	64.0000	
P_{bar} Barometric pressure (in. Hg)	29.90	29.90	29.90	29.9000
O_2 Oxygen (dry volume %)	8.8000	7.8700	9.7300	8.8000
CO_2 Carbon dioxide (dry volume %)	10.5200	11.4000	9.7600	10.5600
N_2+CO Nitrogen plus carbon monoxide (dry volume %)	80.6800	80.7300	80.5100	80.6400
V_{lc} Total Liquid collected (ml)	242.40	256.80	215.50	
V_m Volume metered, meter conditions (ft ³)	42.9450	43.0450	42.8550	
T_m Dry gas meter temperature (°F)	79.0833	84.5833	90.5833	
T_s Sample temperature (°F)	303.2500	302.2500	302.5833	302.6944
ΔH Meter box orifice pressure drop (in. H ₂ O)	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)	11.4073	12.0850	10.1414	11.2113
V_{mstd} Volume metered, standard (dscf)	42.1384	41.8099	41.1718	41.7067
P_s Sample gas pressure, absolute (in. Hg)	29.1279	29.1279	29.1206	29.1255
P_v Vapor pressure, actual (in. Hg)	29.1279	29.1279	29.1206	29.1255
B_{wo} Moisture measured in sample (% by volume)	21.3039	22.4233	19.7638	21.1637
B_{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B_w Actual water vapor in gas (% by volume)	21.3039	22.4233	19.7638	21.1637
$\sqrt{\Delta P}$ Velocity head ($\sqrt{in. H_2O}$)	0.0000	0.0000	0.0000	0.0000
M_d MW of sample gas, dry (lb/lb-mole)	30.0352	30.1388	29.9508	30.0416
M_s MW of sample gas, wet (lb/lb-mole)	27.4712	27.4169	27.5889	27.4923

Comments:

Average includes 3 runs.

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Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 2 FF Outlet

USEPA Method 4 Sampling, Velocity and Moisture Parameters

Run No.		1	2	3	Average
Date (2012)		Mar 26	Mar 26	Mar 26	
Start Time (approx.)		11:47	13:06	14:22	
Stop Time (approx.)		12:32	13:51	15:07	
Sampling Conditions					
Y_d	Dry gas meter correction factor	0.9953	0.9953	0.9953	
P_g	Static pressure (in. H ₂ O)	-9.9000	-9.9000	-10.1000	-9.9667
P_{bar}	Barometric pressure (in. Hg)	29.90	29.90	29.90	29.9000
V_{lc}	Total Liquid collected (ml)	175.60	173.50	173.50	
V_m	Volume metered, meter conditions (ft ³)	29.9250	29.3650	29.6400	
T_m	Dry gas meter temperature (°F)	89.9444	94.0556	96.7778	
ΔH	Meter box orifice pressure drop (in. H ₂ O)	1.3000	1.3000	1.3000	
θ	Total sampling time (min)	45.0	45.0	45.0	
Flow Results					
V_{wstd}	Volume of water collected (ft ³)	8.2637	8.1649	8.1649	8.1979
V_{mstd}	Volume metered, standard (dscf)	28.6566	27.9117	28.0354	28.2012
P_s	Sample gas pressure, absolute (in. Hg)	29.1721	29.1721	29.1574	29.1672
B_{wo}	Moisture measured in sample (% by volume)	22.3826	22.6321	22.5548	22.5232
B_w	Actual water vapor in gas (% by volume)	22.3826	22.6321	22.5548	22.5232

Comments:

Average includes 3 runs.

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Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 3

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2012)	Mar 27				
Start Time	11:23				
End Time	11:50				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.20	10.82	166.45	8.87	7.75
Concentration (ppmdv)		108161.75	166.45	8.87	7.75
Concentration (lb/dscf)		1.235E-02	1.987E-05	6.446E-07	1.289E-06
Concentration (%dv)	8.196	10.816	0.017	0.001	0.001
Concentration (mg/dscm)		197840.50	318.26	10.32	20.64
Concentration @7%O2 (ppm)		118344.30	182.12	9.70	8.48
Concentration @12%CO2 (ppm)		120000.00	184.67	9.84	8.60
Mass Rate (lb/hr)		64815.98	104.27	3.38	6.76
Run Number	8				
Date (2012)	Mar 27				
Start Time	12:03				
End Time	12:30				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.95	10.21	159.88	9.71	7.50
Concentration (ppmdv)		102117.67	159.88	9.71	7.50
Concentration (lb/dscf)		1.166E-02	1.909E-05	7.056E-07	1.247E-06
Concentration (%dv)	8.953	10.212	0.016	0.001	0.001
Concentration (mg/dscm)		186785.16	305.70	11.30	19.97
Concentration @7%O2 (ppm)		118812.28	186.02	11.29	8.73
Concentration @12%CO2 (ppm)		120000.00	187.88	11.41	8.82
Mass Rate (lb/hr)		64158.83	105.01	3.88	6.86

Wheelabrator
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North Broward
Unit 3

Continuous Emissions Monitoring Parameters

Run Number 9
 Date (2012) Mar 27
 Start Time 12:45
 End Time 13:12
 Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.85	10.26	164.67	8.82	4.82
Concentration (ppmdv)		102609.28	164.67	8.82	4.82
Concentration (lb/dscf)		1.172E-02	1.966E-05	6.414E-07	8.008E-07
Concentration (%dv)	8.853	10.261	0.016	0.001	0.000
Concentration (mg/dscm)		187684.38	314.87	10.27	12.82
Concentration @7%O2 (ppm)		118396.48	190.01	10.18	5.56
Concentration @12%CO2 (ppm)		120000.00	192.58	10.32	5.63
Mass Rate (lb/hr)		62979.51	105.66	3.45	4.30

Run Number 10
 Date (2012) Mar 27
 Start Time 13:26
 End Time 13:53
 Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.96	10.14	168.05	10.28	3.70
Concentration (ppmdv)		101358.76	168.05	10.28	3.70
Concentration (lb/dscf)		1.158E-02	2.007E-05	7.477E-07	6.154E-07
Concentration (%dv)	8.962	10.136	0.017	0.001	0.000
Concentration (mg/dscm)		185397.03	321.32	11.97	9.85
Concentration @7%O2 (ppm)		118017.00	195.67	11.98	4.31
Concentration @12%CO2 (ppm)		120000.00	198.96	12.18	4.38
Mass Rate (lb/hr)		63901.01	110.75	4.13	3.40

**Wheelabrator
Clean Air Project No. 11414
North Broward
Unit 3**

Continuous Emissions Monitoring Parameters

Run Number	4				
Date (2012)	Mar 27				
Start Time	9:16				
End Time	9:43				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.84	10.24	162.85	12.62	13.26
Concentration (ppmdv)		102423.19	162.85	12.62	13.26
Concentration (lb/dscf)		1.170E-02	1.944E-05	9.173E-07	2.204E-06
Concentration (%dv)	8.844	10.242	0.016	0.001	0.001
Concentration (mg/dscm)		187344.01	311.38	14.69	35.30
Concentration @7%O2 (ppm)		118087.40	187.76	14.55	15.29
Concentration @12%CO2 (ppm)		120000.00	190.80	14.78	15.53
Mass Rate (lb/hr)		62332.85	103.60	4.89	11.74
Run Number	5				
Date (2012)	Mar 27				
Start Time	9:58				
End Time	10:25				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.46	10.56	165.25	10.72	9.25
Concentration (ppmdv)		105594.39	165.25	10.72	9.25
Concentration (lb/dscf)		1.206E-02	1.973E-05	7.796E-07	1.537E-06
Concentration (%dv)	8.460	10.559	0.017	0.001	0.001
Concentration (mg/dscm)		193144.50	315.97	12.48	24.62
Concentration @7%O2 (ppm)		117986.38	184.64	11.98	10.33
Concentration @12%CO2 (ppm)		120000.00	187.79	12.19	10.51
Mass Rate (lb/hr)		66014.96	107.99	4.27	8.41
Run Number	6				
Date (2012)	Mar 27				
Start Time	10:39				
End Time	11:06				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.47	10.57	167.63	11.71	7.67
Concentration (ppmdv)		105697.36	167.63	11.71	7.67
Concentration (lb/dscf)		1.207E-02	2.002E-05	8.515E-07	1.275E-06
Concentration (%dv)	8.475	10.570	0.017	0.001	0.001
Concentration (mg/dscm)		193332.84	320.52	13.63	20.41
Concentration @7%O2 (ppm)		118240.67	187.53	13.10	8.58
Concentration @12%CO2 (ppm)		120000.00	190.32	13.30	8.70
Mass Rate (lb/hr)		63706.37	105.62	4.49	6.73

**Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 3**

Continuous Emissions Monitoring Parameters

Run Number 1
Date (2012) Mar 27
Start Time 7:12
End Time 7:39
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.77	10.34	162.87	10.67	5.71
Concentration (ppmdv)		103385.73	162.87	10.67	5.71
Concentration (lb/dscf)		1.181E-02	1.945E-05	7.755E-07	9.487E-07
Concentration (%dv)	8.765	10.339	0.016	0.001	0.001
Concentration (mg/dscm)		189104.59	311.42	12.42	15.19
Concentration @7%O2 (ppm)		118425.80	186.57	12.22	6.54
Concentration @12%CO2 (ppm)		120000.00	189.05	12.38	6.62
Mass Rate (lb/hr)		64457.64	106.15	4.23	5.18

Run Number 2
Date (2012) Mar 27
Start Time 7:52
End Time 8:19
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.62	10.42	163.56	9.75	4.79
Concentration (ppmdv)		104222.08	163.56	9.75	4.79
Concentration (lb/dscf)		1.190E-02	1.953E-05	7.088E-07	7.963E-07
Concentration (%dv)	8.621	10.422	0.016	0.001	0.000
Concentration (mg/dscm)		190634.38	312.73	11.35	12.75
Concentration @7%O2 (ppm)		117984.80	185.16	11.04	5.42
Concentration @12%CO2 (ppm)		120000.00	188.32	11.23	5.51
Mass Rate (lb/hr)		64124.93	105.20	3.82	4.29

Run Number 3
Date (2012) Mar 27
Start Time 8:33
End Time 9:00
Elapsed Time (hh:mm) 00:27

Channel	1	2	3	4	5
Parameter	O2	CO2	NOX	CO	SO2
Location	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet
Measurement Units	%dv	%dv	ppmdv	ppmdv	ppmdv
Measured Average (drift-corrected)	8.91	10.18	154.41	14.84	15.65
Concentration (ppmdv)		101807.08	154.41	14.84	15.65
Concentration (lb/dscf)		1.163E-02	1.844E-05	1.079E-06	2.602E-06
Concentration (%dv)	8.910	10.181	0.015	0.001	0.002
Concentration (mg/dscm)		186217.06	295.24	17.28	41.67
Concentration @7%O2 (ppm)		118025.82	179.01	17.20	18.14
Concentration @12%CO2 (ppm)		120000.00	182.00	17.49	18.45
Mass Rate (lb/hr)		62916.87	99.75	5.84	14.08

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 3 FF Outlet

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

Run No.	1	2	3	4
Date (2012)	Mar 27	Mar 27	Mar 27	Mar 27
Start Time (approx.)	07:20	08:12	08:38	09:19
Stop Time (approx.)	07:31	08:25	08:49	09:30
Sampling Conditions				
C _p Pitot tube coefficient	0.8270	0.8270	0.8270	0.8270
P _g Static pressure (in. H ₂ O)	-10.1000	-10.2000	-9.7000	-9.9000
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 %)	8.7653	8.6214	8.9101	8.8438
CO ₂ Carbon dioxide (dry volume %)	10.3386	10.4222	10.1807	10.2423
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.8961	80.9564	80.9092	80.9139
T _s Sample temperature (°F)	308.8000	308.8000	309.4800	309.6000
Flow Results				
P _s Sample gas pressure, absolute (in. Hg)	29.2574	29.2500	29.2868	29.2721
P _v Vapor pressure, actual (in. Hg)	29.2574	29.2500	29.2868	29.2721
B _{wo} Moisture measured in sample (% by volume)	22.9211	22.9211	22.0906	22.0906
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	22.9211	22.9211	22.0906	22.0906
√ΔP Velocity head (√in. H ₂ O)	0.6592	0.6507	0.6475	0.6379
M _d MW of sample gas, dry (lb/lb-mole)	30.0048	30.0124	29.9853	29.9925
M _s MW of sample gas, wet (lb/lb-mole)	27.2532	27.2590	27.3377	27.3433
V _s Velocity of sample (ft/sec)	45.7667	45.1765	44.8764	44.2215
Q _a Volumetric flow rate, actual (acfm)	175,744	173,478	172,325	169,811
Q _s Volumetric flow rate, standard (scfm)	118,025	116,474	115,743	113,979
Q _{std} Volumetric flow rate, dry standard (dscfm)	90,973	89,777	90,175	88,800

Comments:

Moisture obtained from Method 26A Runs 1 and 2.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 3 FF Outlet

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

Run No.	5	6	7
Date (2012)	Mar 27	Mar 27	Mar 27
Start Time (approx.)	10:10	10:46	11:29
Stop Time (approx.)	10:22	10:58	00:00
Sampling Conditions			
C _p Pitot tube coefficient	0.8270	0.8270	0.8270
P _g Static pressure (in. H ₂ O)	-9.8000	-9.8000	-9.6000
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
O ₂ Oxygen (dry volume %)	8.4599	8.4746	8.1960
CO ₂ Carbon dioxide (dry volume %)	10.5594	10.5697	10.8162
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.9807	80.9557	80.9878
T _s Sample temperature (°F)	311.3200	311.3200	311.6400
Flow Results			
P _s Sample gas pressure, absolute (in. Hg)	29.2794	29.2794	29.2941
P _v Vapor pressure, actual (in. Hg)	29.2794	29.2794	29.2941
B _{wo} Moisture measured in sample (% by volume)	22.7691	22.7691	21.0615
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	22.7691	22.7691	21.0615
√ΔP Velocity head (√in. H ₂ O)	0.6610	0.6373	0.6225
M _d MW of sample gas, dry (lb/lb-mole)	30.0279	30.0301	30.0584
M _s MW of sample gas, wet (lb/lb-mole)	27.2893	27.2910	27.5187
V _s Velocity of sample (ft/sec)	45.9172	44.2683	43.0573
Q _a Volumetric flow rate, actual (acfm)	176,322	169,990	165,340
Q _s Volumetric flow rate, standard (scfm)	118,115	113,874	110,768
Q _{std} Volumetric flow rate, dry standard (dscfm)	91,222	87,946	87,439

Comments:

Moisture Obtained from Method 26A Run 3 and Method 4 Run 1.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 3 FF Outlet

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

Run No.	8	9	10
Date (2012)	Mar 27	Mar 27	Mar 27
Start Time (approx.)	00:00	12:57	13:25
Stop Time (approx.)	00:00	13:10	13:45
Sampling Conditions			
C _p Pitot tube coefficient	0.8270	0.8270	0.8270
P _g Static pressure (in. H ₂ O)	-9.6000	-10.5000	-10.5000
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
O ₂ Oxygen (dry volume %)	8.9531	8.8535	8.9620
CO ₂ Carbon dioxide (dry volume %)	10.2118	10.2609	10.1359
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.8351	80.8856	80.9021
T _s Sample temperature (°F)	310.2800	311.4800	311.3200
Flow Results			
P _s Sample gas pressure, absolute (in. Hg)	29.2941	29.2279	29.2279
P _v Vapor pressure, actual (in. Hg)	29.2941	29.2279	29.2279
B _{w0} Moisture measured in sample (% by volume)	21.0615	23.5762	23.5762
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	21.0615	23.5762	23.5762
√ΔP Velocity head (√in. H ₂ O)	0.6514	0.6550	0.6726
M _d MW of sample gas, dry (lb/lb-mole)	29.9920	29.9959	29.9802
M _s MW of sample gas, wet (lb/lb-mole)	27.4663	27.1677	27.1557
V _s Velocity of sample (ft/sec)	45.0638	45.6461	46.8756
Q _a Volumetric flow rate, actual (acfm)	173,045	175,281	180,002
Q _s Volumetric flow rate, standard (scfm)	116,135	117,187	120,369
Q _{std} Volumetric flow rate, dry standard (dscfm)	91,675	89,559	91,990

Comments:

Average includes 3 runs.

Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 3 FF Outlet

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

Run No.	1	2	3	Average
Date (2012)	Mar 27	Mar 27	Mar 27	
Start Time (approx.)	06:52	08:16	09:50	
Stop Time (approx.)	07:54	09:16	10:50	
Sampling Conditions				
Y _d Dry gas meter correction factor	0.9915	0.9915	0.9915	
P _g Static pressure (in. H ₂ O)	-10.1000	-9.7000	-9.8000	
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 %)	8.7600	9.0000	8.8000	8.8533
CO ₂ Carbon dioxide (dry volume %)	10.5700	10.2800	10.5200	10.4567
N ₂ +CO Nitrogen plus carbon monoxide (dry volume %)	80.6700	80.7200	80.6800	80.6900
V _{lc} Total Liquid collected (ml)	253.10	237.90	246.10	
V _m Volume metered, meter conditions (ft ³)	41.2100	41.0400	41.2100	
T _m Dry gas meter temperature (°F)	81.8333	87.3750	92.4583	
T _s Sample temperature (°F)	306.0833	305.7500	306.9167	306.2500
ΔH Meter box orifice pressure drop (in. H ₂ O)	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)	11.9109	11.1956	11.5815	11.5626
V _{mstd} Volume metered, standard (dscf)	40.0538	39.4847	39.2834	39.6073
P _s Sample gas pressure, absolute (in. Hg)	29.2574	29.2868	29.2794	29.2745
P _v Vapor pressure, actual (in. Hg)	29.2574	29.2868	29.2794	29.2745
B _{wo} Moisture measured in sample (% by volume)	22.9211	22.0906	22.7691	22.5936
B _{ws} Saturated moisture content (% by volume)	100.0000	100.0000	100.0000	100.0000
B _w Actual water vapor in gas (% by volume)	22.9211	22.0906	22.7691	22.5936
M _d MW of sample gas, dry (lb/lb-mole)	30.0416	30.0048	30.0352	30.0272
M _s MW of sample gas, wet (lb/lb-mole)	27.2815	27.3529	27.2949	27.3098

Comments:

Average includes 3 runs.

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Wheelabrator North Broward, Inc.
 Clean Air Project No: 11414
 Unit 3 FF Outlet

USEPA Method 4 Sampling, Velocity and Moisture Parameters

Run No.		1	2	Average
Date (2012)		Mar 27	Mar 27	
Start Time (approx.)		11:29	12:57	
Stop Time (approx.)		12:14	13:42	
Sampling Conditions				
Y_d	Dry gas meter correction factor	0.9915	0.9915	
P_g	Static pressure (in. H ₂ O)	-9.6000	-10.5000	-10.0500
P_{bar}	Barometric pressure (in. Hg)	30.00	30.00	30.0000
V_{lc}	Total Liquid collected (ml)	155.10	180.40	
V_m	Volume metered, meter conditions (ft ³)	28.7000	29.0250	
T_m	Dry gas meter temperature (°F)	92.2222	95.1667	
ΔH	Meter box orifice pressure drop (in. H ₂ O)	1.3000	1.3000	
θ	Total sampling time (min)	45.0	45.0	
Flow Results				
V_{wstd}	Volume of water collected (ft ³)	7.2990	8.4896	7.8943
V_{mstd}	Volume metered, standard (dscf)	27.3566	27.5197	27.4381
P_s	Sample gas pressure, absolute (in. Hg)	29.2941	29.2279	29.2610
B_{wo}	Moisture measured in sample (% by volume)	21.0615	23.5762	22.3189
B_w	Actual water vapor in gas (% by volume)	21.0615	23.5762	22.3189

Comments:

Average includes 2 runs.

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WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

QA/QC DATA

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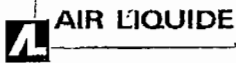
I hereby certify that all pages contained within this Appendix have been reviewed and, to the best of my ability, verified as accurate.

QA/QC Initials: MK

Date: 5/7/12



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Air Liquide America
Specialty Gases LLC



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.: 25377-66-65000
Document #: 40661163-001

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: **ALM048873** Certification Date: **21Feb2011** Exp. Date: **20Feb2013**
Cylinder Pressure***: **1935 PSIG**

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	10.0 %	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	225 PPM	+/- 1%	Direct NIST and VSL
SULFUR DIOXIDE *	45.2 PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	225 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
14% CO2	15Dec2011	K000893	13.94 %	CARBON DIOXIDE
NTRM 1685	17Mar2016	KAL003271	247.1 PPM	NITRIC OXIDE
NTRM 0260 SO	15Jan2012	KAL003926	255.5 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	28Jan2011	FTIR
FTIR//0928621	04Feb2011	FTIR
FTIR//0928621	28Jan2011	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: 14Feb2011 Response Unit: %
Z1=0.00031 R1=13.93708 T1=10.02547
R2=13.95354 Z2=0.00868 T2=10.02747
Z3=0.01253 T3=10.03911 R3=13.95466
Avg. Concentration: 10.02 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99997E-1
Constants: A = 0.00000E+0
B = 9.12626E-1 C = 1.19750E-2
D = 0.00000E+0 E = 0.00000E+0

NITRIC OXIDE

Date: 14Feb2011 Response Unit: PPM
Z1=-0.69897 R1=247.0797 T1=226.1795
R2=247.3445 Z2=-0.52028 T2=226.3387
Z3=-0.35322 T3=226.5970 R3=247.4250
Avg. Concentration: 226.2 PPM

Date: 21Feb2011 Response Unit: PPM
Z1=-0.48582 R1=246.5937 T1=221.5001
R2=246.6289 Z2=-0.33641 T2=222.9012
Z3=0.13518 T3=224.0443 R3=247.7465
Avg. Concentration: 223.9 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99997E-1
Constants: A = 0.00000E+0
B = 9.62517E-1 C = 2.10000E-5
D = 0.00000E+0 E = 0.00000E+0

SULFUR DIOXIDE *

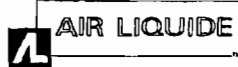
Date: 14Feb2011 Response Unit: PPM
Z1=-0.03584 R1=50.07821 T1=44.93508
R2=50.13437 Z2=-0.01929 T2=45.02175
Z3=0.03353 T3=45.08021 R3=50.15265
Avg. Concentration: 45.08 PPM

Date: 21Feb2011 Response Unit: PPM
Z1=-0.06438 R1=253.4292 T1=44.84587
R2=253.5297 Z2=-0.00245 T2=44.86224
Z3=0.16338 T3=44.96050 R3=253.6678
Avg. Concentration: 45.21 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99995E-1
Constants: A = 0.00000E+0
B = 1.01199E+0 C = 1.00000E-5
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY:

Rob McCrandall



Air Liquide America
Specialty Gases LLC



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 - PGVP Vendor ID: A22012

P.O. No.: CAE
Document #: 44720881-001

Customer
ALA-CYL-ROMEIOVILLE, IL (84131)

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

UNIT A FOR CAE
TRANSFER ACCOUNT
27 FORESTWOOD CT
ROMEIOVILLE IL 60446
US

ANALYTICAL INFORMATION Gas Type : SNC2

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

Cylinder Number: ALMO19186 Certification Date: 24Jan2012 Exp. Date: 23Jan2014
Cylinder Pressure***: 1963 PSIG Batch No: TRO050001

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	9.97 %	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	223 PPM	+/- 1%	Direct NIST and VSL
SULFUR DIOXIDE *	45.1 PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	223. 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 1800 C	01Mar2013	1D004854	17.87 %	CARBON DIOXIDE
NTRM 1685	01Oct2015	AAL071072	246.1 PPM	NITRIC OXIDE
NTRM 0260 2	20May2016	AAL073224	255.3 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	06Jan2012	FTIR
FTIR//0928621	19Jan2012	FTIR
FTIR//0928621	20Jan2012	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: 17Jan2012 Response Unit: %
Z1 = -0.00072 R1 = 17.77379 T1 = 9.92219
R2 = 17.78153 Z2 = 0.00818 T2 = 9.92356
Z3 = 0.01745 T3 = 9.93209 R3 = 17.81853
Avg. Concentration: 9.966 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99984E-1
Constants: A = 0.00000E+0
B = 9.90204E-1 C = 1.23260E-2
D = 1.90000E-5 E = 0.00000E+0

NITRIC OXIDE

Date: 17Jan2012 Response Unit: PPM
Z1 = -0.60538 R1 = 246.2617 T1 = 220.3657
R2 = 246.3206 Z2 = -0.57518 T2 = 223.1174
Z3 = -0.53722 T3 = 223.6502 R3 = 247.1208
Avg. Concentration: 222.0 PPM

Date: 24Jan2012 Response Unit: PPM
Z1 = -0.21240 R1 = 247.5818 T1 = 224.2750
R2 = 247.6089 Z2 = -0.08971 T2 = 224.7174
Z3 = -0.04259 T3 = 226.2480 R3 = 247.9820
Avg. Concentration: 223.6 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99999E-1
Constants: A = 0.00000E+0
B = 9.99897E-1 C = 3.00000E-5
D = 0.00000E+0 E = 0.00000E+0

SULFUR DIOXIDE *

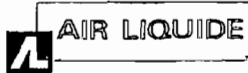
Date: 17Jan2012 Response Unit: PPM
Z1 = -0.05065 R1 = 253.7164 T1 = 45.04455
R2 = 253.9392 Z2 = 0.03183 T2 = 45.12106
Z3 = 0.04278 T3 = 45.14300 R3 = 254.1837
Avg. Concentration: 45.34 PPM

Date: 24Jan2012 Response Unit: PPM
Z1 = -0.00017 R1 = 253.6599 T1 = 44.68305
R2 = 253.7981 Z2 = 0.04665 T2 = 44.73362
Z3 = 0.18248 T3 = 44.81375 R3 = 253.8572
Avg. Concentration: 44.95 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99991E-1
Constants: A = 0.00000E+0
B = 1.00555E+0 C = -4.00000E-6
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY:

Rob McCrandall



Air Liquide America
Specialty Gases LLC



RATA CLASS
Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083

Phone: 248-589-2950

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

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P.O. No.: CAE

Customer

ALA-CYL-ROMEUVILLE, IL (84131)

AIR LIQUIDE AMERICA SPECIALTY GASES LLC Document #: 44720881-002
1290 COMBERMERE STREET
TROY, MI 48083

UNIT A FOR CAE
TRANSFER ACCOUNT
27 FORESTWOOD CT
ROMEUVILLE IL 60446
US

ANALYTICAL INFORMATION Gas Type : SNC2

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

Cylinder Number: **ALM012619** Certification Date: **24Jan2012** Exp. Date: **23Jan2014**
Cylinder Pressure***: **1968 PSIG** Batch No: **TRO0050002**

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON DIOXIDE	9.97 %	+/- 1%	Direct NIST and VSL
NITRIC OXIDE	448 PPM	+/- 1%	Direct NIST and VSL
SULFUR DIOXIDE *	90.8 PPM	+/- 1%	Direct NIST and VSL
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	448 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 1800 C	01Mar2013	1D004854	17.87 %	CARBON DIOXIDE
NTRM 1685	01Oct2015	AAL071072	246.1 PPM	NITRIC OXIDE
NTRM 0260 2	20May2016	AAL073224	255.3 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	06Jan2012	FTIR
FTIR//0928621	19Jan2012	FTIR
FTIR//0928621	20Jan2012	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: 17Jan2012 Response Unit: %
Z1 = -0.00072 R1 = 17.77379 T1 = 9.93180
R2 = 17.78153 Z2 = 0.00818 T2 = 9.93257
Z3 = 0.01745 T3 = 9.93373 R3 = 17.81853
Avg. Concentration: 9.973 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 9.99984E-1
Constants: A = 0.00000E+0
B = 9.90204E-1 C = 1.23280E-2
D = 1.90000E-5 E = 0.00000E+0

NITRIC OXIDE

Date: 17Jan2012 Response Unit: PPM
Z1 = -0.60538 R1 = 246.2617 T1 = 450.1221
R2 = 246.3206 Z2 = -0.57518 T2 = 450.9347
Z3 = -0.53722 T3 = 451.2103 R3 = 247.1208
Avg. Concentration: 449.4 PPM

Date: 24Jan2012 Response Unit: PPM
Z1 = -0.21240 R1 = 247.5818 T1 = 448.0163
R2 = 247.6069 Z2 = -0.08971 T2 = 450.0441
Z3 = -0.04259 T3 = 450.2402 R3 = 247.9820
Avg. Concentration: 446.4 PPM

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 9.99999E-1
Constants: A = 0.00000E+0
B = 9.99897E-1 C = 3.00000E-5
D = 0.00000E+0 E = 0.00000E+0

SULFUR DIOXIDE *

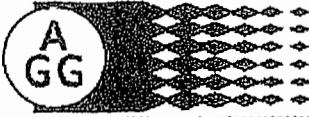
Date: 17Jan2012 Response Unit: PPM
Z1 = -0.05065 R1 = 253.7164 T1 = 90.15717
R2 = 253.9392 Z2 = 0.03183 T2 = 90.34216
Z3 = 0.04278 T3 = 90.43878 R3 = 254.1837
Avg. Concentration: 90.79 PPM

Date: 24Jan2012 Response Unit: PPM
Z1 = -0.00017 R1 = 253.6599 T1 = 90.14060
R2 = 253.7981 Z2 = 0.04665 T2 = 90.32017
Z3 = 0.18248 T3 = 90.45968 R3 = 253.8572
Avg. Concentration: 90.80 PPM

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 9.99991E-1
Constants: A = 0.00000E+0
B = 1.00555E+0 C = -4.00000E-6
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY:

Rob McCrandall



SPECIALTY GASES OF AMERICA, INC.
AMERICAN INDUSTRIAL GASES, INC.
AMERICAN RARE GASES, INC.

6055 BRENT DR. TOLEDO, OH 43611
419-729-7732 FAX 419-729-2411

THE AMERICAN GAS GROUP

www.americangasgroup.com

ANALYTICAL REPORT

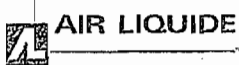
Certificate ID: 061311042 Date: 6/13/2011
Customer Name: Clean Air Engineering, Inc
Customer Address: 500 West Wood Street
Palatine IL 60067
800-627-0033
Purchase Order: 1813 Work Order: 120312-02
Lot Number: 0524UE11 Product Name: 3-Component Mixture, Certified
Size: A31 Pressure: 2200 psig @ 80 Deg F
Content: N/A
Serial #: EB0019471

<u>Component</u>	<u>Nominal</u>	<u>Actual</u>	<u>Accuracy</u>	<u>Method</u>
Nitrogen Dioxide	50.0 ppm	49.2 ppm	+/- 5% rel	FTIR
Oxygen	1.00%	1.00%	+/- 2% rel	Paramagnetic
Nitrogen	Balance	Balance		

Note: Expiration Date: 05/24/2013

Issued by:

Josh Jones



Air Liquide America
Specialty Gases LLC



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.: 59092-71-85000
Document #: 42679778-006

Customer

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

ANALYTICAL INFORMATION Gas Type : OC2

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

Cylinder Number: **ALM036149** Certification Date: **15Aug2011** Exp. Date: **14Aug2014**
Cylinder Pressure***: **2000 PSIG** Batch No: **TRO0039465**

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	6.00 %	+/- 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	20Jul2011	PARAMAGNETIC
PIR/2000/609015	02Aug2011	NDIR

ANALYZER READINGS

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

First Triad Analysis

Second Triad Analysis

Calibration Curve

OXYGEN

Date: 16Aug2011 Response Unit: %
Z1=0.00000 R1=23.20000 T1=6.02000
R2=23.20000 Z2=0.00000 T2=6.02000
Z3=0.00000 T3=6.02000 R3=23.20000
Avg. Concentration: 6.005 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.999998
Constants: A = -0.01525256
B = 1.000032519 C = 0
D = 0 E = 0

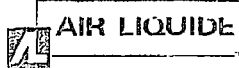
CARBON DIOXIDE

Date: 15Aug2011 Response Unit: MV
Z1=0.00000 R1=98.40000 T1=74.50000
R2=98.40000 Z2=0.00000 T2=74.50000
Z3=0.00000 T3=74.50000 R3=98.40000
Avg. Concentration: 13.89 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.999996
Constants: A = -0.00179303
B = 0.134633752 C = -0.000327
D = 1.2834E-05 E = 0

APPROVED BY: _____

JEFF CROTEAU



Air Liquide America
Specialty Gases LLC



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 #: 40716347-004

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: **ALMX067937** Certification Date: **28Feb2011** Exp. Date: **27Feb2014**
Cylinder Pressure***: **2000 PSIG**

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
OXYGEN	14.0 %	+/- 1%	Direct NIST and VSL
CARBON DIOXIDE	5.99 %	+/- 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)

First Triad Analysis

Second Triad Analysis

Calibration Curve

OXYGEN

Date: 01Mar2011 Response Unit: %
Z1=0.00000 R1=23.20000 T1=14.05000
R2=23.20000 Z2=0.00000 T2=14.06000
Z3=0.00000 T3=14.08000 R3=23.20000
Avg. Concentration: 14.04 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.999998
Constants: A = -0.01314124
B = 1.000039653 C = 0
D = 0 E = 0

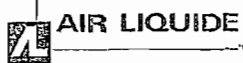
CARBON DIOXIDE

Date: 01Mar2011 Response Unit: MV
Z1=0.00000 R1=100.0000 T1=41.70000
R2=100.0000 Z2=0.00000 T2=41.70000
Z3=0.00000 T3=41.70000 R3=100.0000
Avg. Concentration: 5.989 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.999994
Constants: A = -0.0032159
B = 0.134654642 C = -0.0003116
D = 1.26756E-05 E = 0

APPROVED BY: _____

JEFF CROTEAU



Air Liquide America
Specialty Gases LLC



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 - PGVP Vendor ID: A22011

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

P.O. No.: 58953-71-65000
Document #: 41867307-002

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: **ALM023610** Certification Date: **07Jun2011** Exp. Date: **06Jun2014**
Cylinder Pressure***: **2015 PSIG**

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE	48.6 PPM	+/- 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 2636 25	02Oct2011	KAL003767	240.8 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR/0928621	18May2011	FTIR

ANALYZER READINGS

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

First Triad Analysis

Second Triad Analysis

Calibration Curve

CARBON MONOXIDE

Date: 31May2011 Response Unit: PPM
Z1 = -0.04588 R1 = 240.7863 T1 = 48.68128
R2 = 240.7876 Z2 = 0.22589 T2 = 48.70651
Z3 = 0.31347 T3 = 48.73238 R3 = 241.1768
Avg. Concentration: **48.55** PPM

Date: 07Jun2011 Response Unit: PPM
Z1 = -0.05132 R1 = 241.1098 T1 = 48.71504
R2 = 241.3521 Z2 = 0.17028 T2 = 48.78989
Z3 = 0.19557 T3 = 48.83290 R3 = 241.4932
Avg. Concentration: **48.59** PPM

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 9.99997E-1
Constants: A = -9.18174E+2
B = 1.74557E+0 C = 0.00000E+0
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY:

Robert McCrandall
Rob McCrandall



Air Liquide America
Specialty Gases LLC



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 - PGVP Vendor ID: A22011

P.O. No.: 59343-71-65000

Customer
CLEAN AIR

AIR LIQUIDE AMERICA SPECIALTY GASES LLC Document #: 44063920-001
1290 COMBERMERE STREET
TROY, MI 48083

DON ALLEN
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : NONE

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

Cylinder Number: CC181272 Certification Date: 29Nov2011 Exp. Date: 28Nov2014
Cylinder Pressure***: 1955 PSIG Batch No: TRO0046582

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE	96.3 PPM	+/- 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 1679 1	25Aug2016	KAL003115	101.0 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR/0928621	28Nov2011	FTIR

ANALYZER READINGS

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

First Triad Analysis

Second Triad Analysis

Calibration Curve

CARBON MONOXIDE

Date: 21Nov2011 Response Unit: PPM

Z1=-0.01152	R1=101.1684	T1=96.36357
R2=101.2626	Z2=0.07064	T2=96.46207
Z3=0.09866	T3=96.49303	R3=101.3349
Avg. Concentration: 96.19 PPM		

Date: 29Nov2011 Response Unit: PPM

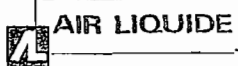
Z1=-0.03962	R1=100.6843	T1=96.04078
R2=100.7658	Z2=-0.01546	T2=96.14331
Z3=0.06891	T3=96.38446	R3=101.0479
Avg. Concentration: 96.35 PPM		

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 9.99998E-1

Constants: A = 0.00000E+0
B = 6.94249E-1 C = 3.64000E-4
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY:

Rob McCrandall



Air Liquide America
Specialty Gases LLC



Shipped 1290 COMBERMERE STREET
From: 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

ALA-CYL-ROMEDEVILLE, IL (84131)
UNIT A FOR CAE
TRANSFER ACCOUNT
27 FORESTWOOD CT
ROMEDEVILLE IL 60446
US

DOCUMENT#: 44355918 -002
PO#: CAE
ITEM #: 763-30AL
DATE: 12Dec2011

CYLINDER #: ALM028189
FILL PRESSURE: 2015

PRODUCT EXPIRATION: 11Dec2014

PURE MATERIAL: NITROGEN

CAS# 7727-37-9

GRADE: ZERO GAS

PURITY: 99.998%

<u>IMPURITY</u>	<u>MAXIMUM</u> <u>CONCENTRATIONS</u>	<u>ACTUAL</u> <u>CONCENTRATIONS</u>
THC	0.5 PPM	< 0.5 PPM

LOT# NITFILL112211

QC BATCH : TRO0048351

ANALYST: Robert Mccrandall
ROBERT MCCRANDALL

Sample Probe Calibration

Probe Type: M5 with S-Type Pitot I.D. Number: 66-8P-13
 Project Number: 11414

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	72	73	-1	0.19%	%Difference ≤ 1.5
2	200 °F-250 °F	252	255	-3	0.42%	

* Based on Absolute Temperature (Rankine)

Does thermocouple assembly meet specifications? → YES

Pitot Tube Calibration (Wind Tunnel Method @ 50 ft/sec)

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

Pitot Side 'A' :				Abs. Deviation from Avg. C _{p(A)} **	Specification Avg. C _p Deviations ≤ 0.01
Trial No.	Reference ΔP	Probe ΔP	Probe C _{p(S)} *		
1	0.546	0.784	0.827	0.003	
2	0.544	0.789	0.822	0.002	
3	0.541	0.783	0.823	0.001	
Side 'A' Average Probe C _{p(A)} =			0.8240	0.0017	

Pitot Side 'B' :				Abs. Deviation from Avg. C _{p(B)} **	Specification Avg. C _p Deviations ≤ 0.01
Trial No.	Reference ΔP	Probe ΔP	Probe C _{p(S)} *		
1	0.539	0.765	0.831	0.000	
2	0.541	0.771	0.829	0.001	
3	0.545	0.772	0.832	0.001	
Side 'B' Average Probe C _{p(B)} =			0.8307	0.0009	

'A' Average C _p 0.824	-	'B' Average C _p 0.831	=	Difference -0.007	Specification Difference ≤ 0.01
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Does assembly meet specifications? YES → If "Yes", C_p = Average of Side 'A' and 'B' C_p values. If "No", Pitot must be replaced.

$$* C_{P(S)} = C_{P(STD)} \sqrt{\frac{\Delta P_{(STD)}}{\Delta P_{(S)}}}$$

$$** Deviation = |C_{P(S)} - \bar{C}_{P(A \text{ or } B)}|$$

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

Probe Cp= 0.827 Calibrated by: B ARNOLD Date: 03/12/2012

Meter Box Full Test Calibration

Meter Box Serial No: 61-8

Calibration Signature: 

Date of Calibration: 6/21/2011

Meter Box Yd: 0.9891

Standard Meter Serial No: 11AH6

Meter Box ΔH@: 1.7632

Date of Calibration: 10/26/2010

Barometer Serial No: W12637

Calibration Conducted by: Oleg Lavrov

Barometric Pressure: 28.88

				Standard Meter Gas Volume (ft ³)			Meter Box Gas Volume (ft ³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)			Time (min.)	Calibration Results	
Q	ΔH	ΔP	Y _{ds}	Initial	Final	V _{ds} Net	Initial	Final	V _d Net	T _{is} In	T _{os} Out	T _{ds} Avg.	T _i In	T _o Out	T _d Avg.	⊙	Y _d	ΔH@
0.944	3.00	-1.80	1.0000	0.000	10.000	10.000	713.272	723.443	10.171	77.0	77.0	77.00	90.0	82.0	86.00	10.05	0.9875	1.7807
0.945	3.00	-1.80	1.0000	0.000	10.000	10.000	723.443	733.608	10.165	77.0	77.0	77.00	90.0	82.0	86.00	10.04	0.9881	1.7772
0.388	0.50	-1.20	1.0000	0.000	5.000	5.000	674.131	679.216	5.085	77.0	77.0	77.00	84.0	81.0	82.50	12.23	0.9891	1.7613
0.388	0.50	-1.20	1.0000	0.000	6.000	6.000	679.216	685.321	6.105	77.0	77.0	77.00	84.0	81.0	82.50	14.68	0.9886	1.7622
0.674	1.50	-1.50	1.0000	0.000	10.000	10.000	691.052	701.214	10.162	77.0	77.0	77.00	88.0	82.0	85.00	14.08	0.9911	1.7476
0.673	1.50	-1.50	1.0000	0.000	10.000	10.000	701.214	711.385	10.171	77.0	77.0	77.00	88.0	82.0	85.00	14.09	0.9902	1.7501
Averages																0.98911	1.76318	

D-13

Nomenclature	Equations
<p>P_b Barometric Pressure (in. Hg)</p> <p>Q Flow Rate (cfm)</p> <p>ΔH Orifice Pressure differential (in. H₂O)</p> <p>ΔP Inlet Pressure Differential (in. H₂O)</p> <p>V_d Gas Meter Volume - Dry (ft³)</p> <p>V_{ds} Standard Meter Volume - Dry (ft³)</p> <p>T_d Average Meter Box Temperature (°F)</p> <p>T_o Outlet Meter Box Temperature (°F)</p> <p>T_{ds} Average Standard Meter Temperature (°F)</p> <p>Y_d Meter Correction Factor (unitless), Y_i ≤ Y_{avg} ± 0.02</p> <p>Y_{ds} Standard Meter Correction Factor (unitless)</p> <p>ΔH@ Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H₂O)</p> <p>ΔH@_i ≤ ΔH@_{avg} ± 0.2</p> <p>⊙ Duration of Run (minutes)</p>	$Y_d = (Y_{ds}) \left[\frac{V_{ds}}{V_d} \right] \left[\frac{T_d + 460}{T_{ds} + 460} \right] \left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6} \right]$ $\Delta H@ = \frac{(0.0319)(\Delta H)}{P_b(T_o + 460)} \left[\frac{(T_{ds} + 460)\ominus}{(V_{ds})(Y_{ds})} \right]^2$ $Q = \frac{17.64(V_{ds})(P_b)}{(T_{ds} + 460)(\ominus)}$

Vacuum Gauge	
Standard (in.Hg)	Gauge (in.Hg)
4.5	5.0
9.7	10.0
14.7	15.0
19.5	20.0
24.7	25.0

Meter Box - Pyrometer Calibration Sheet

Meter Box No: 61-8 Office: _____
 Calibrated by: Oleg Lavrov Client: _____
 Date: 6/21/11 Job No: _____
 Temperature Scale Used: Fahrenheit Type of Calibration: Full-Test

Calibration Reference Settings (°F)	Pyrometer Reading for each Channel (°F)						
	1 Aux	2 Probe	3 Filter	4 Imp Out	5 Stack	6 DGM In	7 DGM Out
50	49	52	52				
100	99	102	102				
150	149	152	152				
200	199	202	202				
250	249	252	252				
300	299	302	302				
350	349	352	352				
400	399	402	402				
450	449	452	452				
500	499	502	502				
550	549	552	552				
600	599	601	602				

Tolerance = ±2°F difference from reference setting.

Calibration Reference Information

Reference Used: <u>Omega CL23A</u>	Serial No: <u>T-279500</u>
Calibrated By: <u>JH Metrology</u>	Date Calibrated: <u>8/17/2010</u>
Calibration Report No: <u>1000150487</u>	Calibration Due Date: <u>8/17/2011</u>

Meter Box Full Test Calibration

Meter Box Serial No: 61-5

Calibration Signature: 

Date of Calibration: 5/2/2011

Meter Box Yd: 0.9992

Standard Meter Serial No: 11AH6

Meter Box ΔH@: 1.7185

Date of Calibration: 10/26/2010

Barometer Serial No: W12637

Calibration Conducted by: Oleg Lavrov

Barometric Pressure: 29.39

				Standard Meter Gas Volume (ft ³)			Meter Box Gas Volume (ft ³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)			Time (min.)	Calibration Results	
Q	ΔH	ΔP	Y _{ds}	Initial	Final	V _{ds} Net	Initial	Final	V _d Net	T _{is} In	T _{os} Out	T _{ds} Avg.	T _i In	T _o Out	T _d Avg.	⊙	Y _d	ΔH@
0.980	3.00	-1.80	1.0000	0.000	10.000	10.000	696.428	706.508	10.080	70.0	70.0	70.00	84.0	76.0	80.00	9.98	0.9987	1.6997
0.979	3.00	-1.80	1.0000	0.000	10.000	10.000	706.508	716.627	10.119	70.0	70.0	70.00	85.0	77.0	81.00	9.99	0.9967	1.6999
0.389	0.50	-1.00	1.0000	0.000	5.000	5.000	752.146	757.182	5.036	70.0	70.0	70.00	78.0	76.0	77.00	12.58	1.0022	1.8004
0.389	0.50	-1.00	1.0000	0.000	5.000	5.000	757.182	762.223	5.041	70.0	70.0	70.00	78.0	76.0	77.00	12.58	1.0012	1.8004
0.703	1.50	-1.40	1.0000	0.000	10.000	10.000	776.034	786.180	10.126	70.0	70.0	70.00	83.0	76.0	79.50	13.92	0.9980	1.6533
0.701	1.50	-1.40	1.0000	0.000	10.000	10.000	786.160	796.294	10.134	70.0	70.0	70.00	83.0	77.0	80.00	13.95	0.9981	1.6573
																Averages	0.99916	1.71849

D-15

Nomenclature	Equations
<p>P_b Barometric Pressure (in. Hg)</p> <p>Q Flow Rate (cfm)</p> <p>ΔH Orifice Pressure differential (in. H₂O)</p> <p>ΔP Inlet Pressure Differential (in. H₂O)</p> <p>V_d Gas Meter Volume - Dry (ft³)</p> <p>V_{ds} Standard Meter Volume - Dry (ft³)</p> <p>T_d Average Meter Box Temperature (°F)</p> <p>T_o Outlet Meter Box Temperature (°F)</p> <p>T_{ds} Average Standard Meter Temperature (°F)</p> <p>Y_d Meter Correction Factor (unitless), Y₁ ≤ Y_{avg} ± 0.02</p> <p>Y_{ds} Standard Meter Correction Factor (unitless)</p> <p>ΔH@ Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H₂O) ΔH@₁ ≤ ΔH@_{avg} ± 0.2</p> <p>⊙ Duration of Run (minutes)</p>	$Y_d = (Y_{ds}) \left[\frac{V_{ds}}{V_d} \right] \left[\frac{T_d + 460}{T_{ds} + 460} \right] \left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6} \right]$ $\Delta H@ = \frac{(0.0319)(\Delta H)}{P_b (T_o + 460)} \left[\frac{(T_{ds} + 460)\ominus}{(V_{ds})(Y_{ds})} \right]^2$ $Q = \frac{17.64(V_{ds})(P_b)}{(T_{ds} + 460)(\ominus)}$

Vacuum Gauge	
Standard (in. Hg)	Gauge (in. Hg)
5.1	5.0
10.1	10.0
15.2	15.0
20.2	20.0
25.3	25.0

Meter Box - Pyrometer Calibration Sheet

Meter Box No: 61-5 Office: _____
 Calibrated by: Oleg Lavrov Client: _____
 Date: 5/2/11 Job No: _____
 Temperature Scale Used: Fahrenheit Type of Calibration: Full-Test

Calibration Reference Settings (°F)	Pyrometer Reading for each Channel (°F)						
	1 Stack	2 Probe	3 Filter	4 Imp Out	5 Aux	6 DGM In	7 DGM Out
50	51	51	51				
100	101	101	101				
150	151	151	150				
200	201	201	201				
250	251	251	251				
300	301	301	300				
350	351	351	350				
400	401	401	400				
450	451	451	450				
500	501	501	500				
550	551	551	550				
600	601	601	600				

Tolerance = ±2°F difference from reference setting.

Calibration Reference Information

Reference Used: <u>Omega CL23A</u>	Serial No: <u>T-279500</u>
Calibrated By: <u>JH Metrology</u>	Date Calibrated: <u>8/17/2010</u>
Calibration Report No: <u>1000150487</u>	Calibration Due Date: <u>8/17/2011</u>

Meter Box Full Test Calibration

Meter Box Serial No: 61-6

Calibration Signature: Martin Vaquero

Date of Calibration: 7/22/2011

Meter Box Yd: 1.0061

Standard Meter Serial No: 11AH6

Meter Box ΔH@: 1.7252

Date of Calibration: 10/26/2010

Barometer Serial No: W12637

Calibration Conducted by: Martin Vaquero

Barometric Pressure: 29.30

				Standard Meter Gas Volume (ft ³)			Meter Box Gas Volume (ft ³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)			Time (min.)	Calibration Results	
Q	ΔH	ΔP	Y _{ds}	Initial	Final	V _{ds} Net	Initial	Final	V _d Net	T _{1s} In	T _{0s} Out	T _{ds} Avg.	T ₁ In	T ₀ Out	T _d Avg.	⊖	Y _d	ΔH@
0.984	3.00	-1.80	1.0000	0.000	10.000	10.000	59.084	69.039	9.955	80.0	80.0	80.00	91.0	82.0	86.50	9.73	1.0045	1.6636
0.973	3.00	-1.80	1.0000	0.000	10.000	10.000	69.039	78.996	9.957	80.0	80.0	80.00	91.0	82.0	86.50	9.84	1.0043	1.7015
0.387	0.50	-1.00	1.0000	0.000	5.000	5.000	88.686	93.659	4.973	79.5	79.5	79.50	83.0	81.0	82.00	12.39	1.0063	1.7984
0.387	0.50	-1.00	1.0000	0.000	5.000	5.000	93.659	98.624	4.965	79.5	79.5	79.50	83.0	81.0	82.00	12.37	1.0079	1.7926
0.689	1.50	-1.20	1.0000	0.000	10.000	10.000	106.633	116.579	9.946	79.5	79.5	79.50	88.0	81.0	84.50	13.90	1.0079	1.6976
0.689	1.50	-1.20	1.0000	0.000	10.000	10.000	116.579	126.547	9.968	79.5	79.5	79.50	88.0	81.0	84.50	13.90	1.0057	1.6976
Averages																	1.00608	1.72520

D-17

Nomenclature	Equations
<p>P_b Barometric Pressure (in. Hg)</p> <p>Q Flow Rate (cfm)</p> <p>ΔH Orifice Pressure differential (in. H₂O)</p> <p>ΔP Inlet Pressure Differential (in. H₂O)</p> <p>V_d Gas Meter Volume - Dry (ft³)</p> <p>V_{ds} Standard Meter Volume - Dry (ft³)</p> <p>T_d Average Meter Box Temperature (°F)</p> <p>T_o Outlet Meter Box Temperature (°F)</p> <p>T_{ds} Average Standard Meter Temperature (°F)</p> <p>Y_d Meter Correction Factor (unitless), Y₁ ≤ Y_{avg} ± 0.02</p> <p>Y_{ds} Standard Meter Correction Factor (unitless)</p> <p>ΔH@ Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H₂O)</p> <p>ΔH@₁ ≤ ΔH@_{avg} ± 0.2</p> <p>⊖ Duration of Run (minutes)</p>	$Y_d = (Y_{ds}) \left[\frac{V_{ds}}{V_d} \right] \left[\frac{T_d + 460}{T_{ds} + 460} \right] \left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6} \right]$ $\Delta H@ = \frac{(0.0319)(\Delta H)}{P_b(T_o + 460)} \left[\frac{(T_{ds} + 460)\ominus}{(V_{ds})(Y_{ds})} \right]^2$ $Q = \frac{17.64(V_{ds})(P_b)}{(T_{ds} + 460)(\ominus)}$

Vacuum Gauge	
Standard (in.Hg)	Gauge (in.Hg)
5.0	5.8
10.0	10.9
15.0	15.7
20.0	20.5
24.0	24.0

Meter Box - Pyrometer Calibration Sheet

Meter Box No: 61-6 Office: _____
 Calibrated by: Martin Vaquero Client: _____
 Date: 7/22/11 Job No: _____
 Temperature Scale Used: Fahrenheit Type of Calibration: Full-Test

Calibration Reference Settings (°F)	Pyrometer Reading for each Channel (°F)						
	1	2	3	4	5	6	7
	Stack	Probe	Filter	Imp Out	Aux	DGM In	DGM Out
50	49	51	51				
100	99	102	101				
150	150	152	151				
200	200	202	201				
250	250	251	251				
300	300	302	301				
350	350	352	351				
400	399	401	401				
450	449	452	451				
500	500	501	501				
550	549	551	551				
600	600	601	601				

Tolerance = $\pm 2^{\circ}\text{F}$ difference from reference setting.

Calibration Reference Information

Reference Used: <u>Omega CL23A</u>	Serial No: <u>T-279500</u>
Calibrated By: <u>JH Metrology</u>	Date Calibrated: <u>8/17/2010</u>
Calibration Report No: <u>1000150487</u>	Calibration Due Date: <u>8/17/2011</u>

Client: Source

Reviewed By: M. Vaquero

Calibration Signature: [Signature]

ID No: 66-4

Calibrated By: Jeff Ivens

Meter Box Yd: 0.9953

Dept No: 66

Date of Calibration: 11/02/11

Meter Box ΔH@: 1.7374

Meter Box Serial No: 08R-5010-63-M

Due Date of Calibration: 11/02/12

Barometer Serial No: W12637

Manufacturer Part No: 0028

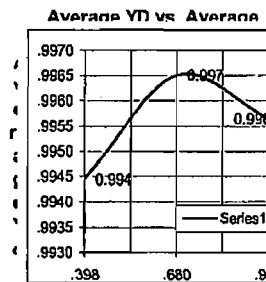
Meter Box Vacuum: 1.0 in. H₂O

Barometric Pressure: 29.27 in. Hg

				Standard Meter Gas Volume (ft ³)			Meter Box Gas Volume (ft ³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)			Time (min.)	Calibration Results	
Q	ΔH	ΔP	Y _{ds}	Initial	Final	V _{ds} Net	Initial	Final	V _d Net	T _{is} In	T _{os} Out	T _{ds} Avg.	T _i In	T _o Out	T _d Avg.	Θ	Y _d	ΔH@
0.398	0.50	-1.20	1.0000	0.000	5.000	5.000	916.700	921.788	5.088	70.5	70.5	70.50	80.0	77.0	78.50	12.23	0.9933	1.7086
0.398	0.50	-1.20	1.0000	0.000	5.000	5.000	921.788	926.864	5.076	70.5	70.5	70.50	80.0	77.0	78.50	12.23	0.9956	1.7086
0.681	1.50	-1.50	1.0000	0.000	10.000	10.000	888.600	898.746	10.146	70.5	70.5	70.50	83.0	77.0	80.00	14.30	0.9957	1.7520
0.679	1.50	-1.50	1.0000	0.000	10.000	10.000	898.746	908.895	10.149	70.5	70.5	70.50	84.0	78.0	81.00	14.33	0.9973	1.7561
0.967	3.00	-1.80	1.0000	0.000	10.000	10.000	855.200	865.292	10.092	70.5	70.5	70.50	83.0	76.0	79.50	10.07	0.9956	1.7408
0.962	3.00	-1.80	1.0000	0.000	10.000	10.000	865.292	875.408	10.116	70.5	70.5	70.50	84.0	76.0	80.00	10.12	0.9942	1.7582
Averages																	0.99529	1.73738

D-19

Nomenclature	Equations
P _b Barometric Pressure (in. Hg) Q Flow Rate (cfm) ΔH Orifice Pressure differential (in. H ₂ O) ΔP Inlet Pressure Differential (in. H ₂ O) V _d Gas Meter Volume - Dry (ft ³) V _{ds} Standard Meter Volume - Dry (ft ³) T _d Average Meter Box Temperature (°F) T _o Outlet Meter Box Temperature (°F) T _{ds} Average Standard Meter Temperature (°F) Y _d Meter Correction Factor (unitless), Y ₁ ≤ Y _{avg} ± 0.02 Y _{ds} Standard Meter Correction Factor (unitless) ΔH@ Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H ₂ O) ΔH@ ₁ ≤ ΔH@ _{avg} ± 0.2 Θ Duration of Run (minutes)	$Y_d = (Y_{ds}) \left[\frac{V_{ds}}{V_d} \right] \left[\frac{T_d + 460}{T_{ds} + 460} \right] \left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6} \right]$ $\Delta H@ = \frac{(0.0319)(\Delta H)}{P_b (T_o + 460)} \left[\frac{(T_{ds} + 460)\Theta}{(V_{ds})(Y_{ds})} \right]^2$ $Q = \frac{17.64(V_{ds})(P_b)}{(T_{ds} + 460)(\Theta)}$



Vacuum Gauge	
Standard (in. Hg)	Gauge (in. Hg)
5.2	5.0
10.2	10.0
15.2	15.0
20.0	20.0
25.3	25.0

Calibration Reference Information (Standard Meter)	
Reference Used: <u>Wet Test Meter</u>	Serial No: <u>11AH6</u>
Calibrated By: <u>Martin Vaquero</u>	Date Calibrated: <u>10/26/2011</u>
Percent Error: <u>0.198%</u>	Calibration Due Date: <u>10/26/2012</u>

Meter Box Pre-Calibration Inspection			
Positive Leak Check:	Pass	Electrical Check:	Pass
Negative Leak Check:	Pass	Pyrometer Check:	Pass
Vacuum Gauge Check:	Pass	YD Tolerance:	Pass ± 2%



Meter Box - Pyrometer Calibration Sheet

Meter Box No: 66-4

Office: _____

Calibrated by: Jeff Ivens

Client: SOURCE 66

Date: 11/2/11

Job No: _____

Temperature Scale Used: Fahrenheit

Type of Calibration: Full-Test

Calibration Reference Settings (°F)	Pyrometer Reading for each Channel (°F)						
	1	2	3	4	5	6	7
	Stack	Probe	Filter	Imp Out	Aux	DGM In	DGM Out
50	50	52	52				
100	100	102	102				
150	150	152	152				
200	200	202	202				
250	250	252	252				
300	300	302	302				
350	350	352	352				
400	400	402	402				
450	450	452	452				
500	500	502	502				
550	550	552	552				
600	600	602	602				

Tolerance = ±2°F difference from reference setting.

Calibration Reference Information

Reference Used: <u>Omega CL23A</u>	Serial No: <u>T-225950</u>
Calibrated By: <u>JH Metrology</u>	Date Calibrated: <u>11/10/2011</u>
Calibration Report No: <u>R044791</u>	Calibration Due Date: <u>11/10/2012</u>

Meter Box Full Test Calibration

Meter Box Serial No: 66-11
 Date of Calibration: 7/25/2011
 Standard Meter Serial No: 11AH6
 Date of Calibration: 10/26/2010
 Calibration Conducted by: Martin Vaquero

Calibration Signature: Martin Vaquero
 Meter Box Yd: 0.9915
 Meter Box ΔH@: 1.8118
 Barometer Serial No: W12637
 Barometric Pressure: 29.22

				Standard Meter Gas Volume (ft ³)			Meter Box Gas Volume (ft ³)			Std. Meter Temperature (°F)			Meter Box Temperature (°F)			Time (min.)	Calibration Results	
Q	ΔH	ΔP	Y _{ds}	Initial	Final	V _{ds} Net	Initial	Final	V _d Net	T _{is} In	T _{os} Out	T _{ds} Avg.	T _i In	T _o Out	T _d Avg.	⊙	Y _d	ΔH@
0.953	3.00	-1.80	1.0000	0.000	10.000	10.000	48.593	58.716	10.123	79.0	79.0	79.00	94.0	81.0	87.50	10.03	0.9914	1.7694
0.952	3.00	-1.80	1.0000	0.000	10.000	10.000	58.716	68.869	10.153	79.0	79.0	79.00	95.0	83.0	89.00	10.04	0.9912	1.7664
0.378	0.50	-0.90	1.0000	0.000	5.000	5.000	73.527	78.626	5.099	78.5	78.5	78.50	89.0	84.0	86.50	12.67	0.9917	1.8684
0.378	0.50	-0.90	1.0000	0.000	5.000	5.000	78.626	83.727	5.101	78.5	78.5	78.50	89.0	84.0	86.50	12.67	0.9913	1.8684
0.665	1.50	-1.50	1.0000	0.000	10.000	10.000	89.422	99.637	10.215	78.5	78.5	78.50	94.0	86.0	90.00	14.39	0.9923	1.8010
0.665	1.50	-1.50	1.0000	0.000	10.000	10.000	99.637	109.873	10.236	78.5	78.5	78.50	94.0	87.0	90.50	14.39	0.9912	1.7977
Averages																0.99151	1.81185	

D-21

Nomenclature	Equations
<p>P_b Barometric Pressure (in. Hg) Q Flow Rate (cfm) ΔH Orifice Pressure Differential (in. H₂O) ΔP Inlet Pressure Differential (in. H₂O) V_d Gas Meter Volume - Dry (ft³) V_{ds} Standard Meter Volume - Dry (ft³) T_d Average Meter Box Temperature (°F) T_o Outlet Meter Box Temperature (°F) T_{ds} Average Standard Meter Temperature (°F) Y_d Meter Correction Factor (unitless), Y₁ ≤ Y_{avg} ± 0.02 Y_{ds} Standard Meter Correction Factor (unitless) ΔH@ Orifice Pressure Differential giving 0.75 cfm of air at 68°F and 29.92 in. Hg (in. H₂O) ΔH@₁ ≤ ΔH@_{avg} ± 0.2 ⊙ Duration of Run (minutes)</p>	$Y_d = (Y_{ds}) \left[\frac{V_{ds}}{V_d} \right] \left[\frac{T_d + 460}{T_{ds} + 460} \right] \left[\frac{P_b + \Delta P / 13.6}{P_b + \Delta H / 13.6} \right]$ $\Delta H@ = \frac{(0.0319)(\Delta H)}{P_b(T_o + 460)} \left[\frac{(T_{ds} + 460)\ominus}{(V_{ds})(Y_{ds})} \right]^2$ $Q = \frac{17.64(V_{ds})(P_b)}{(T_{ds} + 460)(\ominus)}$

Standard (in.Hg)	Gauge (in.Hg)
5.0	4.7
10.0	9.9
15.0	15.0
20.0	20.3
25.0	25.9



Meter Box - Pyrometer Calibration Sheet

Meter Box No: 66-11

Office: _____

Calibrated by: Martin Vaquero

Client: _____

Date: 7/25/11

Job No: _____

Temperature Scale Used: Fahrenheit

Type of Calibration: Full-Test

Calibration Reference Settings (°F)	Pyrometer Reading for each Channel (°F)						
	1	2	3	4	5	6	7
	Stack	Probe	Filter	Imp Out	Aux	DGM In	DGM Out
50	48	51	51				
100	98	101	101				
150	148	151	151				
200	198	201	201				
250	248	251	250				
300	298	301	301				
350	348	351	351				
400	398	401	401				
450	448	451	451				
500	498	501	501				
550	548	551	550				
600	598	601	601				

Tolerance = $\pm 2^{\circ}\text{F}$ difference from reference setting.

Calibration Reference Information

Reference Used: <u>Omega CL23A</u>	Serial No: <u>T-279500</u>
Calibrated By: <u>JH Metrology</u>	Date Calibrated: <u>8/17/2010</u>
Calibration Report No: <u>1000150487</u>	Calibration Due Date: <u>8/17/2011</u>

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

FIELD DATA

E

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

QA/QC Initials: MR

Date: 5/7/12



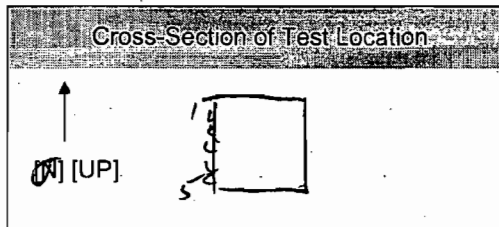
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TEST LOCATION: FF out
 UNIT: 1

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE OF

Client	<u>Yheak</u>	Project No.	<u>11414</u>
Plant	<u>NB</u>	Date	<u>3/28/12</u>
Meter Operator	<u>K Sullivan</u>		
Probe Operator	<u>D Luckhard</u>		
Source of Moisture and Molecular Weight Data			
<u>M26</u>			



Amb. Temp. (°F)	<u>60</u>	Bar. Press. <u>30.15</u> [in. Hg] [mbar]
Pitot Cp	<u>0.827</u>	Probe I.D. No. <u>668913</u>
Duct Diameters from Disturbance		
Downstream	Upstream	
First point all the way	<input checked="" type="checkbox"/> [Out]	Port Len. (in.) <u>10</u>
Gas Flow	<input checked="" type="checkbox"/> [Out]	of page
Duct Dimensions (in.) <u>16 x 16</u>		

Run	Load	Run	Load	Run	Load	Run	Load
<u>1</u>	<u>7:04</u>	<u>7:14</u>	<u>7:14</u>	<u>2</u>	<u>7:45</u>	<u>7:56</u>	<u>7:56</u>
Static Press. (in. H ₂ O)		<u>-11.5</u>		Static Press. (in. H ₂ O)		<u>-11.4</u>	
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>	
Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
<u>1-1</u>	<u>304</u>	<u>0.48</u>		<u>4-1</u>	<u>305</u>	<u>0.42</u>	
<u>2</u>	<u>305</u>	<u>0.49</u>		<u>2</u>	<u>306</u>	<u>0.47</u>	
<u>3</u>	<u>305</u>	<u>0.53</u>		<u>3</u>	<u>306</u>	<u>0.44</u>	
<u>4</u>	<u>305</u>	<u>0.57</u>		<u>4</u>	<u>306</u>	<u>0.50</u>	
<u>5</u>	<u>305</u>	<u>0.62</u>		<u>5</u>	<u>306</u>	<u>0.61</u>	
<u>2-1</u>	<u>303</u>	<u>0.55</u>		<u>5-1</u>	<u>303</u>	<u>0.48</u>	
<u>2</u>	<u>303</u>	<u>0.52</u>		<u>2</u>	<u>304</u>	<u>0.49</u>	
<u>3</u>	<u>303</u>	<u>0.54</u>		<u>3</u>	<u>304</u>	<u>0.44</u>	
<u>4</u>	<u>304</u>	<u>0.62</u>		<u>4</u>	<u>303</u>	<u>0.44</u>	
<u>5</u>	<u>303</u>	<u>0.63</u>		<u>5</u>	<u>303</u>	<u>0.60</u>	
<u>3-1</u>	<u>304</u>	<u>0.55</u>		<u>3-1</u>	<u>310</u>	<u>0.51</u>	
<u>2</u>	<u>304</u>	<u>0.50</u>		<u>2</u>	<u>310</u>	<u>0.47</u>	
<u>3</u>	<u>305</u>	<u>0.50</u>		<u>3</u>	<u>311</u>	<u>0.50</u>	
<u>4</u>	<u>305</u>	<u>0.58</u>		<u>4</u>	<u>310</u>	<u>0.56</u>	
<u>5</u>	<u>305</u>	<u>0.62</u>		<u>5</u>	<u>310</u>	<u>0.61</u>	
Total	<u>7609</u>	<u>18.1259</u>					
Average	<u>304.3600</u>	<u>0.7150</u>					

Sum of square roots.

Circle correct bracketed units on data sheet.



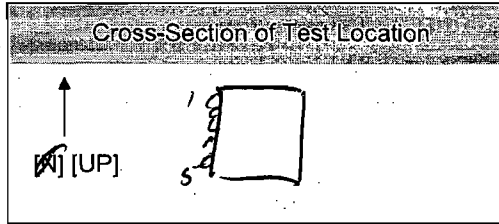
TEST LOCATION: FF outlet

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

UNIT: 1

Client: <u>Wheel</u>	Project No: <u>11414</u>
Plant: <u>NS</u>	Date: <u>3/29/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>D Luckhard</u>	
Source of Moisture and Molecular Weight Data <u>M26</u>	



Amb. Temp. (°F): <u>80</u>	Bar. Press. <u>30.8</u> (in. Hg) (mbar)
Pitot Cp: <u>0.527</u>	Probe ID No: <u>66-89-13</u>
Duct Diameters from Disturbance	
Downstream:	Upstream:
First point all the way <input checked="" type="checkbox"/> [Out]	Port Len. (in.): <u>10</u>
Gas Flow <input checked="" type="checkbox"/> [Out] of page	
Duct Dimensions (in.): <u>96x96</u>	

Run <u>3</u> Load				Run <u>4</u> Load				Run <u>4</u> Load				Run <u>4</u> Load			
Start Time <u>8:26</u>		Stop Time <u>8:36</u>		Start Time		Stop Time		Start Time <u>9:03</u>		Stop Time <u>9:13</u>		Start Time		Stop Time	
Static Press. (in. H ₂ O) <u>-11.4</u>				Static Press. (in. H ₂ O)				Static Press. (in. H ₂ O) <u>-11.4</u>				Static Press. (in. H ₂ O)			
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>			
Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	308	0.47		1-1	303	0.57		1-1	304	0.50		4-1	305	0.53	
2	308	0.48		2	303	0.45		2	304	0.50		2	305	0.46	
3	309	0.53		3	303	0.39		3	304	0.51		3	306	0.42	
4	309	0.60		4	303	0.52		4	304	0.57		4	306	0.50	
5	309	0.59		5	303	0.63		5	304	0.58		5	307	0.63	
2-1	307	0.50		5-1	306	0.29		2-1	307	0.50		5-1	305	0.49	
2	307	0.47		2	306	0.98		2	307	0.55		2	306	0.47	
3	308	0.49		3	306	0.70		3	307	0.53		3	305	0.41	
4	308	0.58		4	307	0.48		4	307	0.60		4	305	0.40	
5	306	0.61		5	306	0.52		5	307	0.64		5	305	0.61	
3-1	307	0.50						3-1	306	0.52					
2	306	0.46						2	307	0.48					
3	306	0.57						3	307	0.51					
4	306	0.59						4	307	0.65					
5	306	0.65						5	307	0.64					
Total	7656	17.7534						7624	18.1251						
Average	306.2400	0.7101						305.7600	0.7250						

Sum of square roots.

Circle correct bracketed units on data sheet.

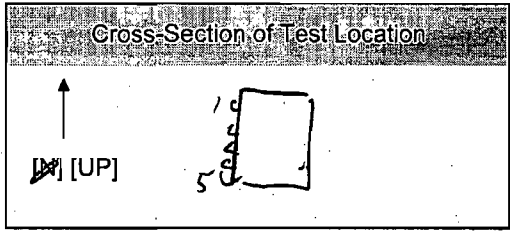


E-4

TEST LOCATION: FF outlet
 UNIT: 1

VELOCITY DETERMINATION FIELD DATA SHEET

Client: <u>wheel</u>	Project No: <u>11414</u>
Plant: <u>NB</u>	Date: <u>3/28/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>A Olmehovsk</u>	
Source of Moisture and Molecular Weight Data: <u>M26</u>	



Amb. Temp. (°F): <u>86</u>	Bar. Press. <u>30.15</u> [in. Hg] [mbar]
Pitot Cp: <u>0.827</u>	Probe I.D. No: <u>16-8P/13</u>
Duct Diameters from Disturbance: Downstream: _____ Upstream: _____	
First point all the way <u>in</u> [Out]	Port Len. (in): <u>10</u>
Gas Flow <u>in</u> [Out] of page	
Duct Dimensions (in): <u>76 x 96</u>	

Run <u>5</u> Load				Run <u>6</u> Load				Run <u>6</u> Load							
Start Time		Stop Time		Start Time		Stop Time		Start Time		Stop Time					
Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)					
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>							
Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	306	0.53		4-1	302	0.60		1-1	302	0.53		4-1	308	0.57	
2	306	0.54		2	302	0.59		2	302	0.52		2	308	0.49	
3	306	0.60		3	302	0.50		3	303	0.54		3	308	0.44	
4	307	0.65		4	302	0.55		4	303	0.64		4	308	0.50	
5	307	0.64		5	303	0.66		5	303	0.66		5	307	0.60	
2-1	308	0.55		5-1	301	0.58		2-1	303	0.53		5-1	309	0.58	
2	308	0.53		2	302	0.55		2	303	0.50		2	309	0.54	
3	308	0.54		3	302	0.47		3	303	0.51		3	309	0.44	
4	308	0.63		4	302	0.42		4	304	0.59		4	309	0.43	
5	308	0.65		5	303	0.62		5	304	0.59		5	309	0.61	
3-1	307	0.52						3-1	304	0.54					
2	307	0.51						2	304	0.52					
3	308	0.55						3	304	0.50					
4	307	0.63						4	303	0.56					
5	307	0.63						5	303	0.62					
Total	7627	18.9340						7632	18.3712						
Average	305.1600	0.7534						305.2800	0.7351						

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



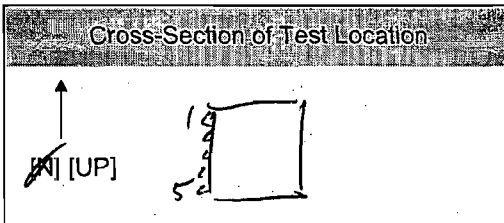
QA/QC KS
Date 3/28/12

E-5

TEST LOCATION: FF outlet
 UNIT: 1

VELOCITY DETERMINATION FIELD DATA SHEET

Client	<u>Wheat.</u>	Project No.	<u>11414</u>
Plant	<u>NB</u>	Date	<u>3/28/14</u>
Meter Operator	<u>K Sullivan</u>		
Probe Operator	<u>A Omichowski</u>		
Source of Moisture and Molecular Weight Data	<u>M4</u>		



Amb. Temp. (°F)	<u>65</u>	Bar. Press. <u>30.15</u> [PSI] (mbar)
Pt. Cp	<u>0.827</u>	Probe ID No. <u>66-8P-13</u>
Duct Diameters from Disturbance		
Downstream		Upstream
First point all the way thru [In] [Out]		Port Len. (in.) <u>10</u>
Gas Flow [In] [Out] of page		
Duct Dimensions (in.) <u>96 x 96</u>		

Run	Load	Run	Load	Run	Load	Run	Load								
<u>7</u>				<u>8</u>											
Start Time	<u>10:57</u>	Stop Time	<u>11:07</u>	Start Time	<u>11:36</u>	Stop Time	<u>11:47</u>								
Static Press. (in. H ₂ O)	<u>-11.7</u>			Static Press. (in. H ₂ O)	<u>-11.8</u>										
Post-Test Leak Check:	Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>	Post-Test Leak Check:	Pass <input type="checkbox"/> Fail <input type="checkbox"/>	Post-Test Leak Check:	Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>	Post-Test Leak Check:	Pass <input type="checkbox"/> Fail <input type="checkbox"/>								
Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
<u>1-1</u>	<u>306</u>	<u>0.46</u>		<u>4-1</u>	<u>304</u>	<u>0.55</u>		<u>1-1</u>	<u>304</u>	<u>0.47</u>		<u>4-1</u>	<u>305</u>	<u>0.62</u>	
<u>2</u>	<u>307</u>	<u>0.45</u>		<u>2</u>	<u>304</u>	<u>0.49</u>		<u>2</u>	<u>304</u>	<u>0.48</u>		<u>2</u>	<u>305</u>	<u>0.50</u>	
<u>3</u>	<u>307</u>	<u>0.54</u>		<u>3</u>	<u>305</u>	<u>0.43</u>		<u>3</u>	<u>304</u>	<u>0.54</u>		<u>3</u>	<u>305</u>	<u>0.45</u>	
<u>4</u>	<u>307</u>	<u>0.60</u>		<u>4</u>	<u>305</u>	<u>0.55</u>		<u>4</u>	<u>305</u>	<u>0.60</u>		<u>4</u>	<u>305</u>	<u>0.56</u>	
<u>5</u>	<u>307</u>	<u>0.64</u>		<u>5</u>	<u>305</u>	<u>0.63</u>		<u>5</u>	<u>304</u>	<u>0.65</u>		<u>5</u>	<u>305</u>	<u>0.67</u>	
<u>2-1</u>	<u>307</u>	<u>0.53</u>		<u>5-1</u>	<u>301</u>	<u>0.57</u>		<u>2-1</u>	<u>306</u>	<u>0.50</u>		<u>5-1</u>	<u>304</u>	<u>0.56</u>	
<u>2</u>	<u>306</u>	<u>0.50</u>		<u>2</u>	<u>301</u>	<u>0.52</u>		<u>2</u>	<u>306</u>	<u>0.49</u>		<u>2</u>	<u>305</u>	<u>0.51</u>	
<u>3</u>	<u>307</u>	<u>0.52</u>		<u>3</u>	<u>301</u>	<u>0.47</u>		<u>3</u>	<u>306</u>	<u>0.57</u>		<u>3</u>	<u>305</u>	<u>0.43</u>	
<u>4</u>	<u>307</u>	<u>0.60</u>		<u>4</u>	<u>302</u>	<u>0.51</u>		<u>4</u>	<u>306</u>	<u>0.60</u>		<u>4</u>	<u>305</u>	<u>0.40</u>	
<u>5</u>	<u>307</u>	<u>0.65</u>		<u>5</u>	<u>302</u>	<u>0.60</u>		<u>5</u>	<u>306</u>	<u>0.65</u>		<u>5</u>	<u>305</u>	<u>0.61</u>	
<u>3-1</u>	<u>307</u>	<u>0.54</u>						<u>3-1</u>	<u>305</u>	<u>0.52</u>					
<u>2</u>	<u>307</u>	<u>0.51</u>						<u>2</u>	<u>305</u>	<u>0.57</u>					
<u>3</u>	<u>307</u>	<u>0.50</u>						<u>3</u>	<u>305</u>	<u>0.53</u>					
<u>4</u>	<u>308</u>	<u>0.59</u>						<u>4</u>	<u>306</u>	<u>0.61</u>					
<u>5</u>	<u>308</u>	<u>0.62</u>						<u>5</u>	<u>306</u>	<u>0.66</u>					
Total	<u>7635</u>	<u>18.3903</u>							<u>7627</u>	<u>18.4167</u>					
Average	<u>305.400</u>	<u>0.7356</u>							<u>305.0900</u>	<u>0.7367</u>					

Sum of square roots.

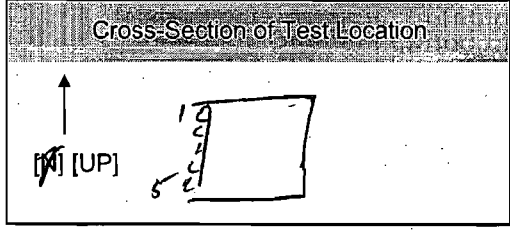
Circle correct bracketed units on data sheet.



TEST LOCATION: FF outlet
 UNIT: _____

VELOCITY DETERMINATION FIELD DATA SHEET

Client	<u>Wheel</u>	Project No.	<u>11414</u>
Plant	<u>NR</u>	Date	<u>3/28/12</u>
Meter Operator	<u>K Sullivan</u>		
Probe Operator			
Source of Moisture and Molecular Weight Data	<u>M4</u>		



Amb. Temp. (°F)	<u>85</u>	Bar. Press. <u>30.15</u> [in Hg] [mbar]
Pitot Cp	<u>0.827</u>	Probe ID. No. <u>66-89213</u>
Duct Diameters from Disturbance		
Downstream	Upstream	
First point all the way	<input checked="" type="checkbox"/> [Out]	Port Len. (in.) <u>10</u>
Gas Flow (in³) [Out] of page		
Duct Dimensions (in)	<u>76 x 96</u>	

Run	Load	Run	Load	Run	Load	Run	Load								
<u>9</u>				<u>10</u>											
Start Time	<u>12:14</u>	Stop Time	<u>12:24</u>	Start Time	<u>12:56</u>	Stop Time	<u>13:08</u>								
Static Press. (in. H ₂ O)	<u>-10.9</u>		Static Press. (in. H ₂ O)	<u>-11.0</u>		Static Press. (in. H ₂ O)									
Post-Test Leak Check	Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>	Post-Test Leak Check	Pass <input type="checkbox"/> Fail <input type="checkbox"/>	Post-Test Leak Check	Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>	Post-Test Leak Check	Pass <input type="checkbox"/> Fail <input type="checkbox"/>								
Traverse Point Number	Stack Temp (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
<u>1-1</u>	<u>305</u>	<u>0.48</u>		<u>4-1</u>	<u>305</u>	<u>0.56</u>		<u>1-1</u>	<u>303</u>	<u>0.48</u>		<u>4-1</u>	<u>303</u>	<u>0.52</u>	
<u>2</u>	<u>305</u>	<u>0.46</u>		<u>2</u>	<u>305</u>	<u>0.45</u>		<u>2</u>	<u>303</u>	<u>0.48</u>		<u>2</u>	<u>303</u>	<u>0.46</u>	
<u>3</u>	<u>305</u>	<u>0.52</u>		<u>3</u>	<u>305</u>	<u>0.37</u>		<u>3</u>	<u>304</u>	<u>0.47</u>		<u>3</u>	<u>304</u>	<u>0.38</u>	
<u>4</u>	<u>305</u>	<u>0.59</u>		<u>4</u>	<u>305</u>	<u>0.49</u>		<u>4</u>	<u>304</u>	<u>0.52</u>		<u>4</u>	<u>304</u>	<u>0.46</u>	
<u>5</u>	<u>305</u>	<u>0.63</u>		<u>5</u>	<u>305</u>	<u>0.59</u>		<u>5</u>	<u>304</u>	<u>0.58</u>		<u>5</u>	<u>304</u>	<u>0.61</u>	
<u>2-1</u>	<u>304</u>	<u>0.54</u>		<u>5-1</u>	<u>303</u>	<u>0.50</u>		<u>2-1</u>	<u>304</u>	<u>0.46</u>		<u>5-1</u>	<u>304</u>	<u>0.50</u>	
<u>2</u>	<u>305</u>	<u>0.52</u>		<u>2</u>	<u>303</u>	<u>0.46</u>		<u>2</u>	<u>304</u>	<u>0.45</u>		<u>2</u>	<u>304</u>	<u>0.44</u>	
<u>3</u>	<u>305</u>	<u>0.50</u>		<u>3</u>	<u>304</u>	<u>0.38</u>		<u>3</u>	<u>304</u>	<u>0.48</u>		<u>3</u>	<u>304</u>	<u>0.34</u>	
<u>4</u>	<u>305</u>	<u>0.57</u>		<u>4</u>	<u>304</u>	<u>0.40</u>		<u>4</u>	<u>304</u>	<u>0.52</u>		<u>4</u>	<u>304</u>	<u>0.39</u>	
<u>5</u>	<u>305</u>	<u>0.63</u>		<u>5</u>	<u>303</u>	<u>0.62</u>		<u>5</u>	<u>305</u>	<u>0.59</u>		<u>5</u>	<u>304</u>	<u>0.50</u>	
<u>3-1</u>	<u>305</u>	<u>0.56</u>						<u>3-1</u>	<u>305</u>	<u>0.55</u>					
<u>2</u>	<u>305</u>	<u>0.50</u>						<u>2</u>	<u>305</u>	<u>0.47</u>					
<u>3</u>	<u>305</u>	<u>0.55</u>						<u>3</u>	<u>304</u>	<u>0.51</u>					
<u>4</u>	<u>306</u>	<u>0.60</u>						<u>4</u>	<u>304</u>	<u>0.54</u>					
<u>5</u>	<u>306</u>	<u>0.64</u>						<u>5</u>	<u>305</u>	<u>0.56</u>					
Total	<u>7618</u>	<u>14.0622</u>						<u>7600</u>	<u>17.4697</u>						
Average	<u>304.7200</u>	<u>0.7225</u>						<u>304.0000</u>	<u>0.6988</u>						

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



E-7

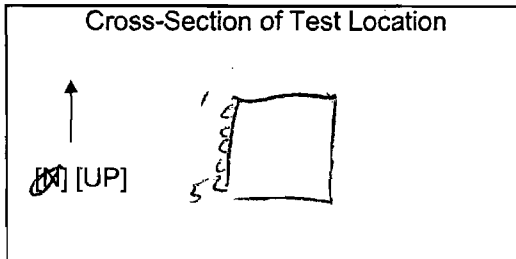
TEST LOCATION: FF outlet HCl TESTING METHOD: KA PAGE 1 OF 1
 UNIT: 1 RUN: 1

FIELD DATA SHEET

Client <u>Wheel</u>	Project No. <u>11/114</u>
Plant <u>NR</u>	Date <u>3/25/12</u>
Meter Operator <u>Sullivan</u>	
Probe Operator <u>Sullivan</u>	

Meter Box <u>61-S</u>	Sample Box No. <u>B3</u>
Meter Y _d <u>1.0061</u>	Meter ΔH _@ <u>1.7252</u>
K Factor <u> </u>	Pitot C _p <u> </u>

Leak Rate Before <u>0.004 (CFM)</u> [Lpm]	@ <u>15</u> (in. Hg)
Leak Rate After <u>0.002 (CFM)</u> [Lpm]	@ <u>4</u> (in. Hg)
Pitot Leak Check Before: <input checked="" type="checkbox"/>	After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>



Duct Dimensions (in.) <u>9.6 x 9.6</u>			
Static Pres (in. H ₂ O)	Port Len. (in.)	Gas Flow <input checked="" type="checkbox"/> [Out]	First point all the way <input checked="" type="checkbox"/> [Out]
<u>-11.5</u>	<u>10</u>		

Amb. Temp. (°F) <u>80</u>	Bar. Press. <u>30.15</u> [in. Hg] [mbar]
Probe I.D. No. <u>67-4-3</u>	
Liner Material <u>Pyrex</u>	

Filter No. <u> </u>	
Thimble No. <u> </u>	
Nozzle Diameter <u> </u>	Nozzle I.D. <u> </u>

Start Time: <u>6:51</u>	Stop Time: <u>7:51</u>
-------------------------	------------------------

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. [L]	Stack Temp. T _s (°F)	Filter T _f (°F)		Cond. Temp. T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{min} (°F)	Pump Vacuum (in. Hg)	Oxygen Indicator, approx (% dv)	Notes		
						Set Points								<input type="checkbox"/> Amb Filter	<input type="checkbox"/> Dioxin Trap
3-3	5	N/A	1.5	712.935	300	300	300	63	78	72	3	9.9			
	10		1.5	719.89	300	304	300	58	79	73	3	9.7			
	15		1.5	723.29	300	300	301	55	80	73	3	9.9			
	20		1.5	726.78	300	300	300	57	80	74	3	9.8			
	25		1.5	730.25	302	300	300	59	83	75	3	10.0			
	30		1.5	733.70	300	301	300	63	84	75	3	8.6			
	35		1.5	737.20	304	300	300	65	84	76	3	9.7			
	40		1.5	740.71	303	300	299	56	84	76	3	10.2			
	45		1.5	744.18	303	300	300	53	84	77	3	9.7			
	50		1.5	747.66	304	300	300	53	84	77	3	9.7			
	55		1.5	751.13	305	299	300	54	85	77	3	9.4			
	60		1.5	754.60	305	300	300	55	85	77	3	9.2			
	Total *		18.0	41.665	3026				990	902					
	Average		1.5000	2.3147	3026				78.8333						

* Sum of square roots.

Circle correct bracketed units on data sheet.



E-8

TEST LOCATION: FF out HCL TESTING METHOD: 76A PAGE 1 OF 1

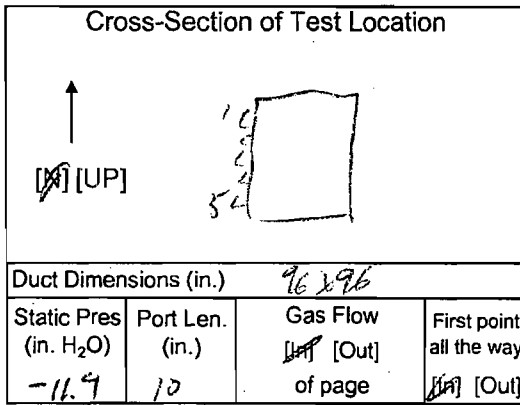
UNIT: 1 RUN: 2

FIELD DATA SHEET

Client <u>Wheel</u>	Project No. <u>11114</u>
Plant <u>NB</u>	Date <u>3/28/12</u>
Meter Operator <u>K Sullivan</u>	
Probe Operator <u>K Sullivan</u>	

Meter Box <u>61-6</u>	Sample Box No. <u>B6</u>
Meter Y _d <u>1.0061</u>	Meter ΔH _@ <u>6.7252</u>
K Factor <u> </u>	Pitot C _p <u> </u>

Leak Rate Before <u>3.00</u> [cfm] [Lpm] @ <u>15</u> (in. Hg)
Leak Rate After <u>3.00</u> [cfm] [Lpm] @ <u>5</u> (in. Hg)
Pitot Leak Check Before: <input checked="" type="checkbox"/> After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>



Amb. Temp. (°F) <u>80</u>	Bar. Press. <u>30.15</u> [in. Hg] [mbar]
Probe I.D. No. <u>67-4-3</u>	
Liner Material <u>Pymex</u>	

Filter No. <u> </u>	
Thimble No. <u> </u>	
Nozzle Diameter <u> </u>	Nozzle I.D. <u> </u>

Start Time: <u>8:17</u>	Stop Time: <u>9:17</u>
-------------------------	------------------------

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. <u>[L]</u>	Stack Temp. T _s (°F)	Probe T _p (°F)	Filter T _f (°F)	Cond. Temp. T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{min} (°F)	Pump Vacuum (in.Hg)	Oxygen Indicator, approx (%.dv)	<input type="checkbox"/> Amb Filter <input type="checkbox"/> Dioxin Trap	Notes
						Set Points								
3-3	5	N/A	1.5	755.070	306	302	302	64	77	78	3	10.5		
	10		1.5	762.13	299	304	301	63	82	78	3	10.1		
	15		1.5	765.57	305	301	301	63	84	78	3	10.2		
	20		1.5	769.04	299	300	300	62	85	79	3	10.4		
	25		1.5	772.54	304	301	300	59	86	79	3	10.4		
	30		1.5	776.01	301	300	300	58	86	79	3	10.4		
	35		1.5	779.46	303	299	300	60	87	80	3	10.6		
	40		1.5	782.92	300	299	300	61	87	80	3	10.7		
	45		1.5	786.39	304	300	300	62	87	80	3	10.2		
	50		1.5	789.84	302	301	300	63	87	80	3	9.6		
	55		1.5	793.29	303	300	300	64	88	81	3	10.3		
	60		1.5	796.715	304	300	301	65	88	81	3	10.2		
	Total		18.0	41.645	3630				1026	953				
	Average		6.500	302.500					82.4583					

Sum of square roots.

Circle correct bracketed units on data sheet.



6-E

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

UNIT: 1 RUN: 3

FIELD DATA SHEET

Cross-Section of Test Location

Duct Dimensions (in.) 96 x 96

Static Pres (in. H ₂ O)	Port Len. (in.)	Gas Flow (in. Hg) [Out]	First point all the way (in.) [Out]
<u>-12.4</u>	<u>10</u>	<u>10</u> of page	<u>10</u> [Out]

Amb. Temp. (°F)	<u>85</u>	Bar. Press.	<u>30.15</u> [<input checked="" type="checkbox"/> Hg] [mbar]
Probe I.D. No.	<u>67-4-3</u>		
Liner Material	<u>Pyrex</u>		

Client	<u>wheel.</u>	Project No.	<u>11414</u>
Plant	<u>NB</u>	Date	<u>3/28/12</u>
Meter Operator	<u>K Sullivan</u>		
Probe Operator	<u>K Sullivan</u>		

Meter Box	<u>61-6</u>	Sample Box No.	<u>N/A</u>
Meter Y _d	<u>1.0061</u>	Meter ΔH _@	<u>1.7252</u>
K Factor	<u>1</u>	Pitot C _p	<u>1</u>
Leak Rate Before	<u>2.003</u> [cfm] [Lpm]	@	<u>15</u> (in. Hg)
Leak Rate After	<u>3.003</u> [cfm] [Lpm]	@	<u>8</u> (in. Hg)
Pitot Leak Check Before:	<input checked="" type="checkbox"/>	After:	Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>

Filter No.	<u>1</u>		
Thimble No.	<u>1</u>		
Nozzle Diameter	<u>1</u>	Nozzle I.D.	<u>1</u>

Start Time: 9:36 Stop Time: 10:36

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. [L]	Stack Temp. T _s (°F)	Probe T _p (°F)		Filter T _f (°F)		Cond. Temp. T _c (°F)	DGM Inlet T _{m in} (°F)	DGM Outlet T _{m out} (°F)	Pump Vacuum (in. Hg)	Oxygen Indicator, approx (%dv)	<input type="checkbox"/> Amb Filter <input type="checkbox"/> Dioxin Trap	Notes
						300	300	300	300							
3-3	5	N/A	6.5	500.89	300	303	300	65	85	81	5	9.7				
	10		6.5	804.25	304	304	301	64	86	81	5	10.2				
	15		6.5	807.70	302	301	301	64	86	81	5	10.4				
	20		6.5	811.18	301	300	299	63	87	82	6	10.4				
	25		1.5	814.67	301	300	300	62	87	82	6	9.4				
	30		1.5	818.16	301	300	301	61	88	82	6	9.2				
	35		1.5	821.64	299	300	300	59	89	82	6	9.8				
	40		1.5	825.15	300	300	301	57	89	82	6	10.3				
	45		1.5	828.66	300	301	299	57	89	83	6	10.4				
	50		1.5	832.16	305	300	300	59	89	83	6	10.3				
	55		1.5	835.68	299	300	301	62	89	83	6	9.5				
	60		1.5	839.190	300	299	300	65	89	83	6	9.4				
	Total		18.0	41.975	3612				1053	955						
	Average		1.5000		361.0000				84.2167							

Sum of square roots.

Circle correct bracketed units on data sheet.



E-10

Impinger Weight Sheet

Client Wheelabrator		Unit Name / Location Unit 1 FF Outlet	
Plant North Broward	Job No. 11414	Method Modified M26A	

Balance Calibration Check			
Balance ID		Reference Weight Mass	
Reference Weight ID		Reference Weight Reading	

Check must be performed at least Once per Method per Job Reference Weight Mass must agree with Reference Weight Reading to within ±0.5 g.

Run No.	1	Filter Type Teflon Mat	Sample Box No. B3
Date	3/28/12	Lot No.	pH
Analyst	R. Viera	Filter No. NA	Rinse NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	541.7	373.4 373.4	461.6 80.1	QA/QC 59 Date 3/28
Impinger 2	100 mL 0.1N H2SO4	660.6	450.6 450.6	538.9 121.7	
Impinger 3	100 mL 0.1N H2SO4	666.9	543.6 543.6	631.7 35.2	
Impinger 4	Empty	449.2	438.7	10.5	
Impinger 5	Silica Gel	751.4	742.1	9.3	Total Weight (gm)
Impinger 6					247.5
Impinger 7					256.8

Run No.	2	Filter Type Teflon Mat	Sample Box No. B6
Date	3/28/12	Lot No.	pH
Analyst	R. Viera	Filter No. NA	Rinse NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	616.8	553.6	63.2	QA/QC 58 Date 3/28
Impinger 2	100 mL 0.1N H2SO4	740.7	628.1	112.6	
Impinger 3	100 mL 0.1N H2SO4	576.7	536.1	40.6	
Impinger 4	Empty	483.8	475.6	8.2	
Impinger 5	Silica Gel	788.6	775.5	13.1	Total Weight (gm)
Impinger 6					224.6
Impinger 7					237.7

Run No.	3	Filter Type Teflon Mat	Sample Box No. Black
Date	3/28/12	Lot No.	pH
Analyst	R. Viera	Filter No. NA	Rinse NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	526.3	458.0	68.3	QA/QC 56 Date 3/28
Impinger 2	100 mL 0.1N H2SO4	680.2	553.1	127.1	
Impinger 3	100 mL 0.1N H2SO4	581.0	545.7	35.3	
Impinger 4	Empty	446.9	438.5	8.4	
Impinger 5	Silica Gel	793.3	778.1	15.2	Total Weight (gm)
Impinger 6					239.1
Impinger 7					254.3

QA/QC **58**
Date **3/28**



TEST LOCATION:

FRONT

UNIT: 1

RUN: 1

MOISTURE DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

Client: wheel, Project No: 11414, Plant: NB, Date: 3/28/12, Meter Operator: K Sullivan, Probe Operator: K Sullivan

Meter Box No: 61-6, Meter V: 1.206

Leak Rate Before: 0.205 (cfm) @ 15 (in. Hg), Leak Rate After: 1.002 (cfm) @ 4 (in. Hg)

Cross-Section of Test Location diagram, Duct Dimensions: 96 x 96, Static Press: -11.7, Port Lens: 10, Gas Flow: [Out], Point No: 1

Amb. Temp: 55, Bar. Press: 30.15 [in. Hg] [mbar], Liner Material: SS

H2O: 174 [gm] [gm], Silica Gel: 5.4, Total V: 179.4

Start Time: 10:57, Stop Time: 11:42

Table with columns: Traverse Point Number, Min/pt Elapsed Time, Orifice Setting, Gas Sample Volume Vm, Stack Temp, Cond. Temp, DGM Inlet, DGM Outlet, Pump Vacuum, Notes. Includes summary rows for Total and Average.

Circle correct bracketed units on data sheet.

E-12

TEST LOCATION: FF Outlet

UNIT: 1

RUN: 2

MOISTURE DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

Client	<u>Wheel</u>	Project No.	<u>11414</u>
Plant	<u>NB</u>	Date	<u>3/29/12</u>
Meter Operator	<u>K Sullivan</u>		
Probe Operator	<u>K Sullivan</u>		

Meter Box No.	<u>61-6</u>
Meter Yr.	<u>1.0061</u>

Leak Rate Before	<u>0.003</u> (cfm) @	<u>15</u> (in. Hg)
Leak Rate After	<u>0.001</u> (cfm) @	<u>6</u> (in. Hg)

Cross-Section of Test Location

Duct Dimensions (in.) 96 x 96

Static Press (in. H ₂ O)	Port Lens (in.)	Gas Flow (in. H ₂ O) [Out]	Point No. 1
<u>-10.9</u>	<u>18</u>	<u>18</u> of page	<u>18</u> [Out]

Amb. Temp. (°F)	<u>85</u>	Bar. Press.	<u>30.15</u> [in. Hg] [mbar]
Liner Material	<u>SS</u>		

H ₂ O	<u>169</u> [gm]	Silica Gel (gm)	<u>6.0</u>
Total V _c	<u>175.0</u>		

Start Time	<u>12:13</u>	Stop Time	<u>12:58</u>
------------	--------------	-----------	--------------

Traverse Point Number	Min/pt 5 Elapsed Time	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. [L]	Stack Temp. T _s (°F)	Cond. Temp. T _c (°F)	DGM Inlet T _{m in} (°F)	DGM Outlet T _{m out} (°F)	Pump Vacuum (in. Hg)	Notes
3-3	5	1.3	872.02	N/A	62	89	88	4	
	10	1.3	875.29		61	91	89	4	
	15	1.3	878.55		55	92	89	4	
	20	1.3	881.73		52	93	89	4	
	25	1.3	885.07		57	94	90	4	
	30	1.3	888.37		53	96	91	4	
	35	1.3	891.67		55	97	92	4	
	40	1.3	894.96		56	98	93	4	
	45	1.3	898.295		60	98	93	4	
	Total	11.7	29.510			848	814		
	Average	1.3000				92.3333			

Circle correct bracketed units on data sheet.

E-13

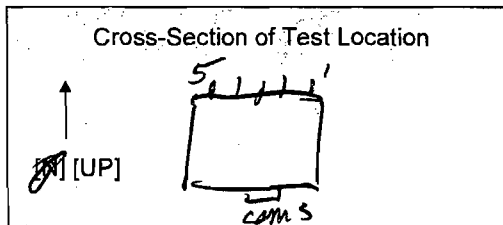
TEST LOCATION: CF out

UNIT: 2

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

Client: <u>wheel</u>	Project No. <u>112124</u>
Plant: <u>NB000</u>	Date: <u>3/26/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>D Luckhard</u>	
Source of Moisture and Molecular Weight Data: <u>ML6</u>	



Amb. Temp. (°F) <u>88</u>	Bar. Press. <u>29.95</u> [in. Hg] [mbar]
Pitot Cp <u>0.827</u>	Probe I.D. No. <u>16-87-B</u>
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way [In] [Out]	Port Len. (in.) <u>10</u>
Gas Flow [In] [Out] of page	
Duct Dimensions (in.) <u>96 x 96</u>	

Run	Load	Run	Load	Run <u>2</u>	Load	Run	Load								
Start Time <u>8:11</u>	Stop Time <u>8:25</u>	Start Time	Stop Time	Start Time <u>9:10</u>	Stop Time <u>9:20</u>	Start Time	Stop Time								
Static Press. (in. H ₂ O) <u>-10.5</u>		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O) <u>-10.5</u>		Static Press. (in. H ₂ O)									
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>									
Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	308	0.41		4-1	307	0.47		1-1	306	0.33		4-1	304	0.31	
2	308	0.40		2	307	0.48		2	306	0.35		2	304	0.29	
3	308	0.40		3	308	0.45		3	305	0.35		3	304	0.31	
4	308	0.34		4	308	0.46		4	305	0.33		4	304	0.33	
5	308	0.31		5	308	0.42		5	304	0.43		5	305	0.33	
2-1	307	0.44		5-1	308	0.37		2-1	305	0.30		5-1	304	0.29	
2	307	0.44		2	308	0.40		2	305	0.30		2	304	0.30	
3	307	0.42		3	307	0.41		3	305	0.32		3	304	0.33	
4	308	0.41		4	307	0.42		4	306	0.38		4	304	0.27	
5	308	0.40		5	307	0.41		5	304	0.38		5	304	0.31	
3-1	308	0.35						3-1	305	0.29					
2	308	0.42						2	305	0.28					
3	308	0.42						3	305	0.30					
4	308	0.40						4	305	0.32					
5	308	0.39						5	305	0.35					
Total	7692	16.0086						1617	14.1926						
Average	307.600	0.4103						304.6000	0.5677						

Sum of square roots.

Circle correct bracketed units on data sheet.



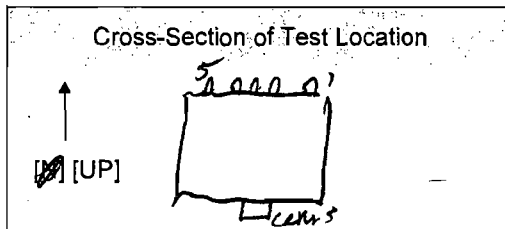
TEST LOCATION: FF OUT

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

UNIT: 2

Client <u>wheel.</u>	Project No. <u>11414</u>
Plant <u>NB</u>	Date <u>3/26/12</u>
Meter Operator <u>R. Sullivan</u>	
Probe Operator	
Source of Moisture and Molecular Weight Data <u>MD6</u>	



Amb. Temp. (°F) <u>80</u>	Bar. Press. <u>29.28</u> [H. Hg] [mbar]
Pitot Cp. <u>0.927</u>	Probe I.D. No. <u>66-9913</u>
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way <input checked="" type="checkbox"/> [Out]	Port Len. (in.) <u>10</u>
Gas Flow <input checked="" type="checkbox"/> [Out]	of page
Duct Dimensions (in.) <u>96 x 96</u>	

Run <u>3</u>				Run <u>4</u>				Run <u>4</u>				Run <u>4</u>			
Load		Load		Load		Load		Load		Load		Load			
Start Time	Stop Time	Start Time	Stop Time	Start Time	Stop Time	Start Time	Stop Time	Start Time	Stop Time	Start Time	Stop Time	Start Time	Stop Time		
Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)			
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>			
Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	307	0.30		4-1	305	0.36		1-1	305	0.36		4-1	305	0.33	
2	307	0.30		2	306	0.36		2	306	0.35		2	306	0.35	
3	307	0.29		3	307	0.40		3	306	0.39		3	306	0.38	
4	307	0.30		4	307	0.40		4	306	0.38		4	306	0.43	
5	307	0.28		5	307	0.40		5	307	0.40		5	306	0.46	
2-1	306	0.32		5-1	306	0.38		2-1	307	0.35		5-1	304	0.41	
2	306	0.30		2	306	0.36		2	307	0.38		2	304	0.39	
3	306	0.31		3	306	0.35		3	307	0.36		3	305	0.35	
4	307	0.31		4	306	0.38		4	307	0.38		4	306	0.36	
5	306	0.30		5	306	0.41		5	307	0.36		5	306	0.42	
3-1	306	0.35						3-1	306	0.35					
2	306	0.37						2	306	0.35					
3	305	0.37						3	307	0.36					
4	304	0.38						4	307	0.39					
5	304	0.41						5	307	0.45					
Total	1253	14.7126						2652	15.389						
Average	306.1200	0.5985						306.3900	0.6156						

Sum of square roots.

Circle correct bracketed units on data sheet.



QA/QC KS
Date 7/2/12

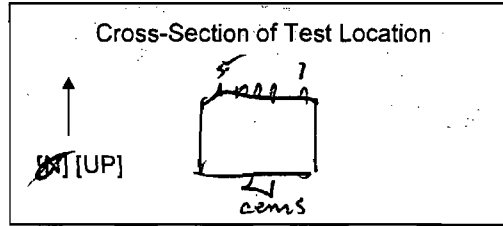
TEST LOCATION: FF out

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE OF

UNIT: 2

Client: <u>Whed.</u>	Project No. <u>11914</u>
Plant: <u>NB</u>	Date <u>3/26/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>A Doucheville</u>	
Source of Moisture and Molecular Weight Data: <u>MM4</u>	



Amb. Temp. (°F) <u>50</u>	Bar. Press. <u>29.70</u> (in. Hg) [mbar]
Pitot Cp <u>0.527</u>	Probe I.D. No. <u>66-8P13</u>
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way <input checked="" type="checkbox"/> [Out]	Port Len. (in.) <u>10</u>
Gas Flow <input checked="" type="checkbox"/> [In] <input checked="" type="checkbox"/> [Out] of page	
Duct Dimensions (in.) <u>96x96</u>	

Run	Load	Run	Load	Run	Load	Run	Load								
5		6													
Start Time <u>11:06</u>	Stop Time <u>11:16</u>	Start Time	Stop Time	Start Time <u>11:48</u>	Stop Time <u>11:59</u>	Start Time	Stop Time								
Static Press. (in. H ₂ O) <u>-10.5</u>		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O) <u>-9.9</u>		Static Press. (in. H ₂ O)									
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>									
Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	304	0.34		4-1	306	0.40		1-1	306	0.35		4-1	305	0.30	
2	304	0.35		2	306	0.38		2	306	0.30		2	305	0.33	
3	306	0.35		3	306	0.40		3	306	0.34		3	305	0.35	
4	306	0.34		4	307	0.43		4	306	0.36		4	305	0.32	
5	305	0.36		5	307	0.44		5	306	0.32		5	305	0.29	
2-1	307	0.34		5-1	307	0.43		2-1	306	0.41		5-1	305	0.36	
2	307	0.36		2	307	0.40		2	306	0.42		2	305	0.37	
3	307	0.34		3	307	0.42		3	305	0.40		3	305	0.33	
4	307	0.36		4	307	0.42		4	305	0.38		4	305	0.30	
5	307	0.35		5	307	0.47		5	305	0.39		5	305	0.30	
3-1	306	0.43						3-1	305	0.42					
2	307	0.41						2	305	0.44					
3	307	0.43						3	306	0.41					
4	307	0.43						4	306	0.40					
5	307	0.47						5	306	0.38					
Total	1661	15.6706						1635	14.9467						
Average	306.4100	0.6268						305.4000	0.5979						

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



E-16

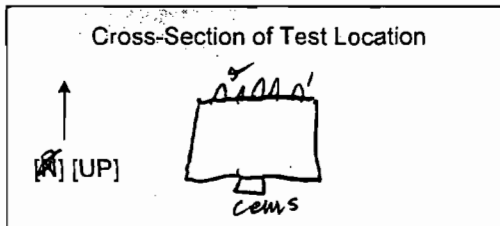
TEST LOCATION: FF out

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

UNIT: 2

Client: <u>Wheel</u>	Project No: <u>11414</u>
Plant: <u>NB</u>	Date: <u>3/26/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>B Arnold</u>	
Source of Moisture and Molecular Weight Data: <u>MM</u>	



Amb. Temp. (°F): <u>85</u>	Bar. Press. <u>29.28</u> (in. Hg) (mbar)
Pitot Cp: <u>0.827</u>	Probe I.D. No: <u>66-8P-13</u>
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way <u>in</u> [Out]	Port Len. (in.): <u>10</u>
Gas Flow <u>in</u> [Out] of page	
Duct Dimensions (in.): <u>96x96</u>	

Run	Load	Run	Load	Run	Load	Run	Load								
7		8		8											
Start Time: <u>12:24</u>	Stop Time: <u>12:32</u>	Start Time	Stop Time	Start Time: <u>13:07</u>	Stop Time: <u>13:18</u>	Start Time	Stop Time								
Static Press. (in. H ₂ O): <u>-10.0</u>		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O): <u>-10.3</u>		Static Press. (in. H ₂ O)									
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>									
Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	307	0.32		4-1	305	0.36		1-1	306	0.31		4-1	305	0.40	
2	307	0.32		2	305	0.38		2	306	0.33		2	305	0.38	
3	307	0.32		3	305	0.38		3	305	0.37		3	305	0.40	
4	307	0.28		4	305	0.39		4	304	0.32		4	305	0.35	
5	307	0.29		5	305	0.38		5	304	0.37		5	305	0.35	
2-1	307	0.33		5-1	305	0.36		2-1	305	0.31		5-1	305	0.37	
2	307	0.32		2	305	0.32		2	305	0.32		2	305	0.36	
3	307	0.34		3	305	0.35		3	304	0.32		3	305	0.38	
4	307	0.30		4	305	0.38		4	305	0.35		4	305	0.39	
5	307	0.30		5	305	0.42		5	306	0.38		5	305	0.43	
3-1	304	0.34						3-1	305	0.39					
2	303	0.31						2	305	0.37					
3	303	0.35						3	305	0.35					
4	304	0.34						4	306	0.39					
5	305	0.33						5	305	0.42					
Total	7639	14.5681							7626	15.0924					
Average	305.5600	0.5827							305.04	0.6037					

Sum of square roots.

Circle correct bracketed units on data sheet.



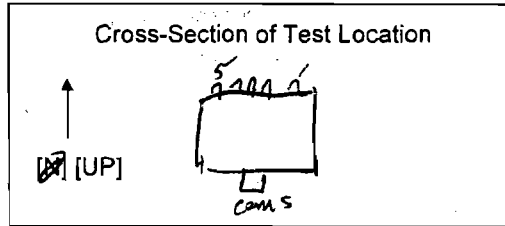
TEST LOCATION: FF out

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

UNIT: 2

Client: <u>Wheel.</u>	Project No. <u>11714</u>
Plant: <u>NB</u>	Date: <u>3/26/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>B Arnold</u>	
Source of Moisture and Molecular Weight Data: <u>WFI</u>	



Amb. Temp. (°F) <u>85</u>	Bar. Press. <u>29.90</u> [in. Hg] [mbar]
Pitot Cp <u>0.827</u>	Probe I.D. No. <u>66-SP-13</u>
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way <u>in</u> [Out]	Port Len. (in.) <u>10</u>
Gas Flow <u>in</u> [Out] of page	
Duct Dimensions (in.) <u>76x96</u>	

Run	Load	Run	Load	Run	Load	Run	Load								
9		10		10											
Start Time <u>13:44</u>	Stop Time <u>13:53</u>	Start Time	Stop Time	Start Time <u>14:23</u>	Stop Time <u>14:36</u>	Start Time	Stop Time								
Static Press. (in. H ₂ O) <u>-10.1</u>		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O) <u>-10.2</u>		Static Press. (in. H ₂ O)									
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>									
Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	305	0.31		4-1	305	0.37		1-1	305	0.31		4-1	305	0.38	
2	305	0.30		2	305	0.39		2	305	0.31		2	305	0.38	
3	305	0.31		3	305	0.39		3	305	0.33		3	305	0.41	
4	305	0.29		4	306	0.36		4	305	0.32		4	305	0.37	
5	305	0.30		5	306	0.41		5	305	0.30		5	304	0.35	
2-1	305	0.31		5-1	306	0.42		2-1	305	0.28		5-1	305	0.37	
2	305	0.32		2	305	0.37		2	305	0.31		2	305	0.36	
3	305	0.33		3	305	0.38		3	305	0.32		3	305	0.34	
4	305	0.32		4	305	0.39		4	306	0.33		4	305	0.37	
5	305	0.35		5	305	0.41		5	305	0.32		5	305	0.37	
3-1	305	0.33						3-1	304	0.39					
2	306	0.34						2	305	0.38					
3	305	0.35						3	306	0.38					
4	305	0.35						4	306	0.37					
5	305	0.33						5	306	0.30					
Total	7629	14.7605						7621	14.7375						
Average	305.1609	0.5964						305.0909	0.5896						

Sum of square roots.

Circle correct bracketed units on data sheet.



E-18

TEST LOCATION: FF owl

UNIT: 2

RUN: 1

HCl TESTING METHOD: 26A PAGE 1 OF 1

FIELD DATA SHEET

Cross-Section of Test Location

Duct Dimensions (in.) 96 x 96

Static Pres (in. H ₂ O)	Port Len. (in.)	Gas Flow (In/Out)	First point all the way [In/Out]
<u>-10.5</u>	<u>75</u>	<u>[In]</u> <u>[Out]</u>	<u>[In]</u> <u>[Out]</u>

Client <u>Wheelabrator</u>	Project No. <u>91914</u>
Plant <u>N. Boulevard</u>	Date <u>3/26/12</u>
Meter Operator <u>K. Sullivan</u>	
Probe Operator <u>K. Sullivan</u>	

Meter Box <u>61-5</u>	Sample Box No. <u>83</u>
Meter Y _d <u>0.9992</u>	Meter ΔH _@ <u>1.7185</u>
K Factor <u>/</u>	Pitot C _p <u>/</u>
Leak Rate Before <u>0.001</u> [cfm] [Lpm] @ <u>15</u> (in. Hg)	
Leak Rate After <u>0.002</u> [cfm] [Lpm] @ <u>5</u> (in. Hg)	
Pitot Leak Check Before: <input checked="" type="checkbox"/> After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>	

Amb. Temp. (°F) <u>50</u>	Bar. Press. <u>29.95</u> [in. Hg] [mbar]
Probe I.D. No. <u>67-4-3</u>	
Liner Material <u>PVDF</u>	

Filter No. <u>/</u>	
Thimble No. <u>/</u>	
Nozzle Diameter <u>/</u>	Nozzle I.D. <u>/</u>

Start Time: <u>7:12</u>	Stop Time: <u>8:27</u>
-------------------------	------------------------

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. [L]	Stack Temp. T _s (°F)	Probe T _p Filter T _f (°F)		Cond. Temp. T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{min} (°F)	Pump Vacuum (in. Hg)	Oxygen Indicator, approx (%dv)	Amb Filter <input type="checkbox"/> Dioxin Trap <input type="checkbox"/>			Notes
						Set Points	Set Points									
3-3	5	N/A	1.5	400.54	304	300	300	65	73	70	3	9.3				402.87
	10		1.5	405.20	303	303	300	53	76	71	3	9.5				404.02
	15		1.5	408.79	303	303	300	54	78	73	4	9.4				411.05
	20		1.5	412.30	303	300	305	49	82	74	4	9.8				
	25		1.5	415.91	304	301	300	51	84	75	4	9.7				
	30		1.5	419.50	303	301	301	54	86	76	4	9.4				
	35		1.5	423.08	304	301	300	57	86	76	4	8.8				
	40		1.5	426.65	303	299	300	60	86	76	4	8.5				
	45		1.5	430.23	303	299	300	63	87	77	4	9.8				
	50		1.5	433.79	303	299	301	64	87	77	4	8.5				
	55		1.5	437.37	303	299	300	65	87	77	4	8.9				
	60		1.5	440.925	303	300	300	65	87	77	4	9.2				
	Total		18.0	42.945	303				899	899						
	Average		1.5000		303.250							79.0533				

Sum of square roots.

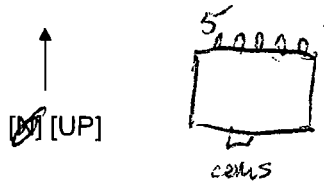
Circle correct bracketed units on data sheet.



TEST LOCATION: DF area WCI TESTING METHOD: 21A PAGE 1 OF 1
 UNIT: 2 RUN: 2

FIELD DATA SHEET

Cross-Section of Test Location



Duct Dimensions (in.) 96 x 96

Static Pres (in. H ₂ O)	Port Len. (in.)	Gas Flow (scfm) [Out]	First point all the way [Out]
<u>-15.5</u>	<u>10</u>	<u>12</u>	<u>12</u>

Amb. Temp. (°F)	<u>80</u>	Bar. Press.	<u>29.98</u> [Hg] [mbar]
Probe I.D. No.	<u>62-4-3</u>		
Liner Material	<u>Pipe/O</u>		

Filter No.	<u>/</u>	
Thimble No.	<u>/</u>	
Nozzle Diameter	<u>/</u>	Nozzle I.D. <u>/</u>

Start Time:	<u>8:51</u>	Stop Time:	<u>9:56</u>
-------------	-------------	------------	-------------

Client	<u>Wheel</u>	Project No.	<u>114124</u>
Plant	<u>NB</u>	Date	<u>3/26/12</u>
Meter Operator	<u>R Sullivan</u>		
Probe Operator	<u>R Sullivan</u>		

Meter Box	<u>61-5</u>	Sample Box No.	<u>86</u>
Meter Y _d	<u>0.9992</u>	Meter ΔH _@	<u>1.2155</u>
K Factor	<u>/</u>	Pitot C _p	<u>/</u>
Leak Rate Before <u>0.03</u> [Lpm]	@	<u>15</u> (in. Hg)	
Leak Rate After <u>0.02</u> [Lpm]	@	<u>6</u> (in. Hg)	
Pitot Leak Check Before:	<input checked="" type="checkbox"/>	After: Good	<input checked="" type="checkbox"/> Bad <input type="checkbox"/>

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. [L]	Stack Temp. T _s (°F)	Probe T _p (°F)	Filter T _f (°F)	Cond. Temp. T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{max} (°F)	Pump Vacuum (in.Hg)	Oxygen Indicator, approx (%dv)	<input type="checkbox"/> Amb Filter <input type="checkbox"/> Dioxin Trap <input type="checkbox"/>		Notes
													Set Points	Set Points	
3-3	5	NA	1.5	441.575	304	303	301	65	81	77	4	8.2			
	10		1.5	449.80	303	303	301	58	85	78	4	8.3			
	15		1.5	452.30	302	299	299	55	88	79	4	8.9			
	20		1.5	455.80	303	300	300	56	90	80	4	8.3			
	25		1.5	459.43	303	300	301	58	90	80	4	8.2			
	30		1.5	463.06	303	301	300	65	90	80	4	6.4			
	35		1.5	466.73	303	300	301	66	91	81	4	7.5			
	40		1.5	470.35	302	300	300	65	91	81	4	8.4			
	45		1.5	474.00	301	300	300	65	91	81	4	8.1			
	50		1.6	472.52	301	300	297	62	91	81	4	7.8			
	55		1.5	481.08	301	300	300	62	91	81	4	7.8			
	60		1.5	484.620	301	299	300	63	91	81	4	7.8			
Total			18.9	43.045	3024				1075	965					
Average			1.500		302.25				84.5833						

Sum of square roots.

Circle correct bracketed units on data sheet.



QA/QC KS
Date 3/26/12

TEST LOCATION: FF out

HCL

TESTING

METHOD: Z6A

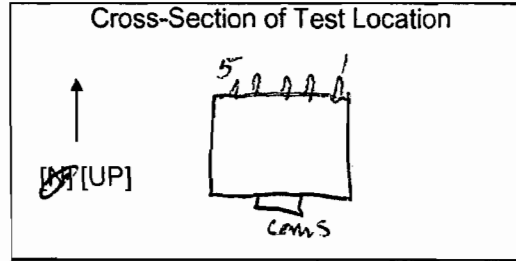
PAGE 1 OF 1

UNIT: 2

RUN: 3

FIELD DATA SHEET

Client <u>Wheel</u>	Project No. <u>11414</u>
Plant <u>NB</u>	Date <u>3/26/12</u>
Meter Operator <u>K. Sullivan</u>	
Probe Operator <u>K. Sullivan</u>	



Amb. Temp. (°F) <u>55</u>	Bar. Press. <u>29.90</u> [<u>15</u> Hg] [mbar]
Probe I.D. No. <u>67-4-3</u>	
Liner Material <u>PYREX</u>	

Meter Box <u>61-5</u>	Sample Box No. <u>N/A</u>
Meter Y _d <u>0.002</u>	Meter ΔH ₀ <u>1.7155</u>
K Factor	Pitot C _p

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

Leak Rate Before <u>2.004</u> [Lpm] @ <u>15</u> (in. Hg)
Leak Rate After <u>2.004</u> [Lpm] @ <u>8</u> (in. Hg)
Pitot Leak Check Before: <input checked="" type="checkbox"/> After: <input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad <input type="checkbox"/>

Duct Dimensions (in.) <u>96 x 96</u>			
Static Pres (in. H ₂ O) <u>-10.6</u>	Port Len. (in.) <u>10</u>	Gas Flow (ft ³ /min) [Out] of page	First point all the way <input checked="" type="checkbox"/> [Out]

Start Time: <u>10:21</u>	Stop Time: <u>11:21</u>
--------------------------	-------------------------

Traverse Point Number	Min/pt 5 Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. [L]	Stack Temp. T _s (°F)	Filter T _f (°F)		Cond. Temp. T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{out} (°F)	Pump Vacuum (in. Hg)	Oxygen Indicator, approx (%dv)	<input type="checkbox"/> Amb Filter <input type="checkbox"/> Dioxin Trap	Notes
						Probe T _p (°F)	Set Points							
303	5	N/A	1.5	485.375	303	300	300	65	92	86	7	10.2		
	10		1.5	492.38	303	301	300	64	93	86	7	9.4		
	15		1.5	495.90	303	300	299	62	93	86	7	10.0		
	20		1.5	499.46	302	300	299	60	95	87	7	10.2		
	25		1.5	502.94	302	299	300	61	95	87	7	10.2		
	30		1.5	506.50	302	300	300	55	95	87	7	10.0		
	35		1.5	510.15	302	300	300	54	95	87	7	10.6		
	40		1.5	513.73	302	300	301	35	95	87	7	9.2		
	45		1.5	517.32	303	301	301	59	95	87	7	9.3		
	50		1.5	521.00	303	301	300	57	95	87	7	10.1		
	55		1.5	524.61	303	300	302	59	95	87	7	10.1		
	60		1.5	528.250	303	301	300	63	95	87	7	9.6		
	Total		15.0	42.955	3631				1133	1041				
	Average		1.5000		302.5833				90.5833					

Sum of square roots.

Circle correct bracketed units on data sheet.



E-21

Impinger Weight Sheet

Client Wheelabrator		Unit Name / Location Unit 2 FF Outlet	
Plant North Broward	Job No. 11414	Method	Modified M26A

Balance Calibration Check			
Balance ID	SN 8028301069	Reference Weight Mass	500
Reference Weight ID	22548	Reference Weight Reading	499.5

Check must be performed at least Once per Method per Job Reference Weight Mass must agree with Reference Weight Reading to within ±0.5 g.

Run No.	1	Filter Type Teflon Mat	Sample Box No.	B3
Date	3/26/12	Lot No. NA	pH	
Analyst	R. Vicere	Filter No. NA	Rinse	NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	532.2	458.1	74.1	
Impinger 2	100 mL 0.1N H2SO4	667.1	543.3	123.8	
Impinger 3	100 mL 0.1N H2SO4	658.8	631.5	27.3	
Impinger 4	Empty	445.3	439.5	5.8	
Impinger 5	Silica Gel	730.9	719.5	11.4	Total Weight (gm)
Impinger 6					231.0
Impinger 7					242.9

QA/QC	SB
Date	3/26

Run No.	2	Filter Type Teflon Mat	Sample Box No.	B6
Date	3/26/12	Lot No. NA	pH	
Analyst	R. Vicere	Filter No. NA	Rinse	NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	618.0	553.6	64.4	
Impinger 2	100 mL 0.1N H2SO4	750.1	628.3	121.8	
Impinger 3	100 mL 0.1N H2SO4	583.1	539.6	43.5	
Impinger 4	Empty	484.9	474.7	10.2	
Impinger 5	Silica Gel	764.5	747.6	16.9	Total Weight (gm)
Impinger 6					239.9
Impinger 7					256.8

QA/QC	SB
Date	3/26

Run No.	3	Filter Type Teflon Mat	Sample Box No.	Black
Date	3/26/12	Lot No. NA	pH	
Analyst	R. Vicere	Filter No. NA	Rinse	NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	498.5	460.1	38.4	
Impinger 2	100 mL 0.1N H2SO4	659.2	555.1	104.1	
Impinger 3	100 mL 0.1N H2SO4	584.0	544.0	40.0	
Impinger 4	Empty	450.2	438.2	12.0	
Impinger 5	Silica Gel	804.8	783.8	21.0	Total Weight (gm)
Impinger 6					194.5
Impinger 7					215.5

QA/QC	SB
Date	3/26

QA/QC SB
Date 3/26



TEST LOCATION: CFail

UNIT: 2

RUN: i

MOISTURE DETERMINATION
FIELD DATA SHEET

Client	<u>Wheel</u>	Project No.	<u>11214</u>
Plant	<u>NB</u>	Date	<u>3/26/12</u>
Meter Operator	<u>* Sullivan</u>		
Probe Operator	<u>B Arnold</u>		
Meter Box No.	<u>66-4</u>		
Meter Vol.	<u>0.9953</u>		
Leak Rate Before	<u>0.004</u> (scm) @	<u>15</u> (in. Hg)	
Leak Rate After	<u>0.002</u> (scm) @	<u>5</u> (in. Hg)	

Cross Section of Test Location			
↑ [UP]			
Duct Dimensions (in.) <u>96x96</u>			
Static Press. (in. H ₂ O)	Port Lens (in.)	Gas Flow [] [Out]	Point No. of page
<u>-2.9</u>	<u>10</u>		<u>1</u> [Out]

Amb. Temp. (°F)	<u>55</u>	Bar. Press. (mm Hg) (mbar)	<u>29.70</u> (mm Hg)
Liner Material	<u>SS</u>		
H ₂ O	<u>163</u> (gm)	Silica Gel (gm)	<u>12.6</u>
Total Vol.	<u>175.6</u>		
Start Time	<u>11:47</u>	Stop Time	<u>12:32</u>

Traverse Point Number	Min/pl. Elapsed Time	Orifice Setting (in. H ₂ O)	Gas Sample Volume (ml) Init. Vol. (ml)	Stack Temp. (°F)	Cond. Temp. (°F)	DGM Inlet Temp. (°F)	DGM Outlet Temp. (°F)	Pump Vacuum (in. Hg)	Notes
3.3	5	1.3	322.84	N/A	65	87	86	4	
	10	1.3	325.91		64	87	87	4	
	15	1.3	329.29		59	89	87	4	
	20	1.3	332.50		58	89	87	4	
	25	1.3	335.67		55	89	88	4	
	30	1.3	339.13		65	89	89	4	
	35	1.3	342.57		59	96	89	4	
	40	1.3	346.04		55	97	91	4	
	45	1.3	349.465		58	98	91	4	
Total		<u>147</u>	<u>29.925</u>			<u>827</u>	<u>795</u>		
Average		<u>1.300</u>				<u>89.9444</u>			

Circle correct bracketed units on data sheet.

QA/QC KS
Date 3/26/12

TEST LOCATION: FF out

UNIT: 2

RUN: 2

MOISTURE DETERMINATION
FIELD DATA SHEET

PAGE 1 OF 1

Client	<u>Wharf</u>	Project No.	<u>11114</u>
Plant	<u>NB</u>	Date	<u>3/26/12</u>
Meter Operator	<u>R Sullivan</u>		
Probe Operator	<u>B Arnold</u>		
Meter Box No.	<u>66-4</u>		
Meter No.	<u>0.9953</u>		

Cross-Section of Test Location

Duct Dimensions (in.): 96 x 96

Static Press. (in. H ₂ O)	Port Lens. (in.)	Gas Flow [Out]	Point No. all the way
<u>-9.9</u>	<u>10</u>	<u>1</u> of page	<u>1</u> [Out]

Amb. Temp. (°F)	<u>85</u>	Bar. Press.	<u>29.98</u> [in. Hg] [mbar]
Liner Material	<u>65</u>		

H ₂ O	<u>165</u> [µm] [gm]	Silica Gel [gm]	<u>8.5</u>
Total V.	<u>173.5</u>		

Leak Rate Before	<u>0.003</u> (cm) @ <u>15</u> (in. Hg)
Leak Rate After	<u>0.002</u> (cm) @ <u>5</u> (in. Hg)

Start Time	<u>13:06</u>	Stop Time	<u>13:51</u>
------------	--------------	-----------	--------------

Traverse Point Number	Min/pl Elapsed Time	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _s (L)	Stack Temp. T _s (°F)	Cond. Temp. T _c (°F)	DGM Inlet T _{in} (°F)	DGM Outlet T _{out} (°F)	Pump Vacuum (in. Hg)	Notes
3-3	5	1.3	349.655	N/A	52	92	91	4	
	10	1.3	356.26		52	94	92	4	
	15	1.3	359.53		51	96	93	4	
	20	1.3	362.79		50	97	93	4	
	25	1.3	366.04		53	96	93	4	
	30	1.3	369.29		55	96	93	4	
	35	1.3	372.55		58	96	93	4	
	40	1.3	375.80		59	96	93	4	
	45	1.3	379.020		62	96	93	4	
Total	11.7		<u>29.365</u>			859	834		
Average	<u>1.3000</u>					<u>94.0556</u>			

Circle correct bracketed units on data sheet.

QA/QC ks
Date 3/26/12

TEST LOCATION: FF out
 UNIT: 2 RUN: 3

MOISTURE DETERMINATION FIELD DATA SHEET

PAGE/ OF 1

Client: <u>Wheel</u>	Project No: <u>11414</u>
Plant: <u>KJB</u>	Date: <u>3/26/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>B Arnold</u>	

Meter Box No: <u>66-4</u>
Meter No: <u>0.9953</u>

Leak Rate Before: <u>0.003</u> (cfm) @ <u>15</u> (in. Hg)
Leak Rate After: <u>0.002</u> (cfm) @ <u>5</u> (in. Hg)

Cross-Section of Test Location

Duct Dimensions (in.): 96 x 96

Static Press (in. H ₂ O): <u>-10.1</u>	Port Lens (in.): <u>10</u>	Gas Flow: <u>Out</u>	Point No: <u>1</u>
		of page	<u>1</u> [Out]

Amb. Temp (°F): <u>85</u>	Bar Press: <u>27.78</u> [in. Hg] [mbar]
Liner Material: <u>SS</u>	

H ₂ O: <u>163</u> [gm]	Silica Gel: <u>10.5</u>
Total V: <u>173.5</u>	

Start Time: <u>14:22</u>	Stop Time: <u>15:07</u>
--------------------------	-------------------------

Traverse Point Number	Min/pt Elapsed Time	Orifice Setting (in. H ₂ O)	Gas Sample Volume V _m (L)	Stack Temp T _s (°F)	Cond. Temp T _c (°F)	DGM Inlet T _{in} (°F)	DGM Outlet T _{out} (°F)	Pump Vacuum (in. Hg)	Notes
5.3	5	1.3	377.160	N/A	51	96	96	4	
	10	1.3	385.82		50	98	96	4	
	15	1.3	389.06		51	99	96	4	
	20	1.3	392.55		53	99	96	4	
	25	1.3	395.65		56	99	96	4	
	30	1.3	398.95		58	99	96	4	
	35	1.3	402.28		60	98	96	4	
	40	1.3	405.53		61	96	94	4	
	45	1.3	408.800		63	96	96	4	
	Total	<u>11.7</u>	<u>29.640</u>			<u>580</u>	<u>862.0</u>		
	Average	<u>1.3000</u>				<u>96.778</u>			

Circle correct bracketed units on data sheet.

QA/QC KS
Date 3/26/12

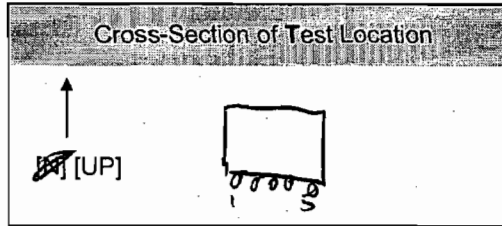
TEST LOCATION: FF outlet

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE OF

UNIT: 3

Client: <u>wheat.</u>	Project No: <u>11414</u>
Plant: <u>NB</u>	Date: <u>3/27/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>D Luckhard</u>	
Source of Moisture and Molecular Weight Data: <u>MZGA</u>	



Amb. Temp. (°F): <u>50</u>	Bar. Press: <u>30.05</u> [in. Hg] [mbar]
Pitot Cp: <u>0.527</u>	Probe ID. No: <u>66-SP-B</u>
Duct Diameters from Disturbance	
Downstream: <u> </u>	Upstream: <u> </u>
First point all the way <input checked="" type="checkbox"/> [Out]	Port Len. (in.): <u>10</u>
Gas Flow: <u> </u> [in] [Out] of page	
Duct Dimensions (in.): <u>96x96</u>	

Run <u>1</u> Load				Run <u>2</u> Load				Run <u>3</u> Load			
Start Time		Stop Time		Start Time		Stop Time		Start Time		Stop Time	
Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)	
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>				Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>			
Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	310	0.38		4-1	311	0.48		1-1	309	0.40	
2	311	0.37		2	311	0.45		2	310	0.38	
3	310	0.40		3	310	0.46		3	309	0.38	
4	310	0.42		4	310	0.47		4	309	0.38	
5	309	0.42		5	311	0.50		5	309	0.34	
2-1	307	0.42		5-1	309	0.48		2-1	309	0.36	
2	308	0.41		2	309	0.48		2	309	0.41	
3	308	0.43		3	309	0.46		3	310	0.42	
4	308	0.44		4	309	0.45		4	310	0.39	
5	308	0.42		5	309	0.46		5	309	0.35	
3-1	306	0.42						3-1	308	0.55	
2	306	0.41						2	308	0.52	
3	307	0.41						3	308	0.48	
4	307	0.42						4	308	0.42	
5	307	0.42						5	309	0.46	
Total	7720	16.4812						7720	16.2683		
Average	308.8000	0.6592						308.8000	0.6597		

Sum of square roots.

Circle correct bracketed units on data sheet.

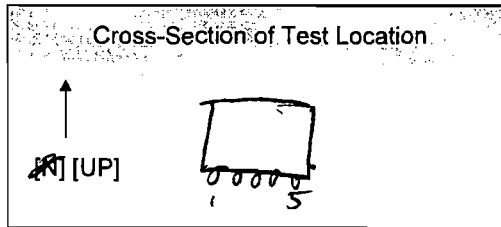


E - 26

TEST LOCATION: FF out
 UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

Client: <u>Wheel</u>	Project No. <u>11414</u>
Plant: <u>NB</u>	Date: <u>3/27/12</u>
Meter Operator: <u>K Sullivan</u>	
Probe Operator: <u>D Luckhard</u>	
Source of Moisture and Molecular Weight Data: <u>M26</u>	



Amb. Temp. (°F) <u>50</u>	Bar. Press. <u>30.00</u> (in. Hg) [mbar]
Pitot Cp. <u>0.827</u>	Probe I.D. No. <u>66-SP-13</u>
Duct Diameters from Disturbance	
Downstream	Upstream
First point all the way <input checked="" type="checkbox"/> [Out]	Port Len. (in.) <u>10</u>
Gas Flow <input checked="" type="checkbox"/> [Out] of page	
Duct Dimensions (in.) <u>96x96</u>	

Run <u>3</u> Load				Run <u>4</u> Load				Run <u>4</u> Load				Run <u>4</u> Load			
Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>	Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>	Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>	Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1	310	0.48		4-1	310	0.38		1-1	309	0.43		4-1	309	0.45	
2	310	0.50		2	310	0.37		2	310	0.45		2	309	0.43	
3	310	0.48		3	310	0.39		3	310	0.42		3	309	0.42	
4	310	0.47		4	310	0.42		4	310	0.38		4	309	0.40	
5	310	0.45		5	310	0.44		5	310	0.35		5	309	0.38	
2-1	308	0.45		5-1	309	0.43		2-1	309	0.47		5-1	310	0.39	
2	308	0.44		2	309	0.41		2	309	0.50		2	310	0.35	
3	308	0.41		3	309	0.40		3	310	0.43		3	310	0.31	
4	309	0.38		4	309	0.38		4	310	0.40		4	310	0.33	
5	308	0.40		5	309	0.40		5	310	0.38		5	310	0.38	
3-1	310	0.37						3-1	309	0.49					
2	311	0.38						2	309	0.47					
3	310	0.40						3	310	0.44					
4	310	0.42						4	310	0.39					
5	310	0.45						5	310	0.38					
Total	7737	16.1866						7240	15.9465						
Average	309.480	0.6475						309.600	0.6379						

Sum of square roots.

Circle correct bracketed units on data sheet.



E-27

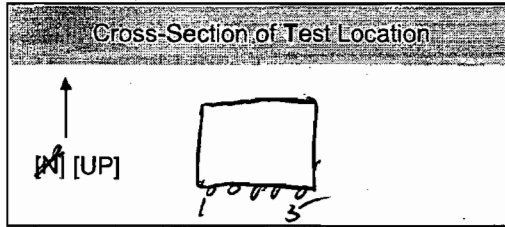
TEST LOCATION: Font

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

UNIT: 3

Client	<u>Wreck</u>	Project No	<u>11414</u>
Plant	<u>NB</u>	Date	<u>3/27/12</u>
Meter Operator	<u>K Sullivan</u>		
Probe Operator	<u>A Douchowski</u>		
Source of Moisture and Molecular Weight Data	<u>M2L</u>		



Amb. Temp. (°F)	<u>80</u>	Bar. Press. <u>30.00</u> [in. Hg] (mbar)
Pitot Cp	<u>0.827</u>	Probe I.D. No. <u>16-8P-13</u>
Duct Diameters from Disturbance		
Downstream		Upstream
First point all the way <input checked="" type="checkbox"/> [Out]	Port Len. (in.)	<u>10</u>
Gas Flow <u>mt</u> [Out] of page		
Duct Dimensions (in.)	<u>96x96</u>	

Run <u>5</u>				Run <u>6</u>				Run <u>6</u>				Run <u>6</u>			
Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check	Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check	Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check	Start Time	Stop Time	Static Press. (in. H ₂ O)	Post-Test Leak Check
Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	311	0.36		4-1	313	0.45		1-1	311	0.35		4-1	310	0.48	
2	311	0.37		2	312	0.49		2	311	0.35		2	311	0.45	
3	311	0.38		3	313	0.48		3	311	0.34		3	311	0.43	
4	311	0.38		4	312	0.46		4	311	0.35		4	312	0.43	
5	311	0.36		5	311	0.44		5	311	0.35		5	312	0.42	
2-1	310	0.38		5-1	310	0.50		2-1	311	0.36		5-1	311	0.48	
2	310	0.42		2	311	0.50		2	311	0.37		2	312	0.46	
3	310	0.41		3	311	0.43		3	311	0.39		3	312	0.41	
4	310	0.40		4	311	0.42		4	311	0.35		4	312	0.40	
5	310	0.40		5	312	0.49		5	311	0.34		5	312	0.49	
3-1	313	0.53						3-1	311	0.45					
2	312	0.51						2	312	0.45					
3	313	0.48						3	312	0.45					
4	312	0.47						4	312	0.43					
5	312	0.45						5	311	0.41					
Total	2783	16.5255						7783	15.9325						
Average	311.3220	0.6610						311.32	0.662	N.H.					

Sum of square roots.

Circle correct bracketed units on data sheet.

0.6373



E-28

6.2109

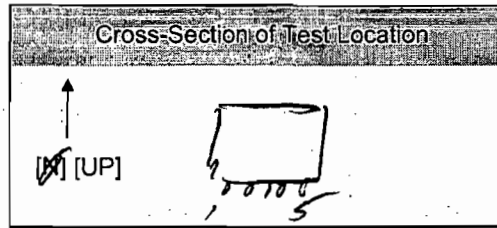
TEST LOCATION: FF out

UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

Client	Wheel	Project No.	11914
Plant	NB	Date	3/27/12
Meter Operator	K. SULLIVAN		
Probe Operator			
Source of Moisture and Molecular Weight Data			



Amb. Temp. (°F)	85	Bar. Press.	30.00 [in. H ₂ O] [mbar]
Pitot Cp	0.827	Probe I.D. No.	6688-13
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	Load	Run	Load	Run	Load	Run	Load								
Start Time	Stop Time	Start Time	Stop Time	Start Time	Stop Time	Start Time	Stop Time								
Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)		Static Press. (in. H ₂ O)									
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>									
Traverse Point Number	Stack Temp. (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	313	0.40		4-1	311	0.50		5-1	312	0.51		4-1	310	0.53	
2	313	0.42		2	311	0.47		2	310	0.42		2	310	0.53	
3	313	0.40		3	311	0.41		3	311	0.40		3	310	0.47	
4	313	0.37		4	312	0.37		4	311	0.44		4	310	0.43	
5	313	0.35		5	311	0.36		5	311	0.48		5	310	0.41	
2-1	312	0.41		5-1	311	0.40		2-1	310	0.50	0.33	5-1	310	0.38	
2	312	0.44		2	311	0.34		2	310	0.46		2	310	0.46	
3	312	0.38		3	311	0.30		3	310	0.41		3	310	0.38	
4	312	0.37		4	311	0.34		4	310	0.35		4	310	0.35	
5	312	0.34		5	310	0.36		5	310	0.33		5	310	0.33	
3-1	311	0.45						3-1	310	0.53					
2	311	0.43						2	310	0.53					
3	311	0.41						3	310	0.46					
4	312	0.36						4	311	0.41					
5	311	0.34						5	311	0.40					
Total															
Average	311.6400	0.6225						310.2600	0.6514						

Sum of square roots.

Circle correct bracketed units on data sheet.



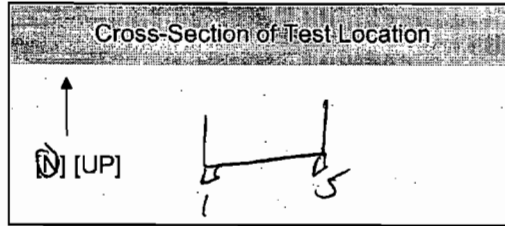
TEST LOCATION: FF outlet

UNIT: 3

VELOCITY DETERMINATION FIELD DATA SHEET

PAGE 1 OF 1

Client: <u>Weldlabator</u>	Project No: <u>11414</u>
Plant: <u>N. BROWARD</u>	Date: <u>3-27-12</u>
Meter Operator: <u>S. APNAD</u>	
Probe Operator: <u>A. OLSCHOWSKI</u>	
Source of Moisture and Molecular Weight Data	



Amb. Temp. (°F): <u>95</u>	Bar. Press: <u>30.08</u> (in. Hg) [mbar]
Pitot Cp: <u>0.47</u>	Probe I.D. No.: <u>107062</u>
Duct Diameters from Disturbance	
Downstream: _____	Upstream: _____
First point all the way <input checked="" type="checkbox"/> [Out]	Rort Len. (in.): <u>10</u>
Gas Flow: <input checked="" type="checkbox"/> [Out] of page	
Duct Dimensions (in.): <u>76x96</u>	

Run	Load	Run	Load	Run	Load	Run	Load								
9		10		10											
Start Time: <u>12:54</u>	Stop Time: <u>13:10</u>	Start Time: _____	Stop Time: _____	Start Time: <u>13:25</u>	Stop Time: <u>13:45</u>	Start Time: _____	Stop Time: _____								
Static Press. (in. H ₂ O): <u>-10.5</u>		Static Press. (in. H ₂ O): _____		Static Press. (in. H ₂ O): <u>-10.5</u>		Static Press. (in. H ₂ O): _____									
Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>		Post-Test Leak Check: Pass <input type="checkbox"/> Fail <input type="checkbox"/>									
Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes	Traverse Point Number	Stack Temp. T _s (°F)	Velocity Head ΔP (in. H ₂ O)	Notes
1-1	313	0.44		4-1	312	0.51		1-1	313	0.42		5-1	310	0.52	
2	313	0.44		2	312	0.46		2	313	0.44		2	310	0.47	
3	312	0.43		3	312	0.44		3	312	0.43		3	311	0.43	
4	312	0.40		4	312	0.42		4	311	0.39		4	312	0.44	
5	312	0.39		5	312	0.39		5	311	0.28		5	312	0.50	
2-1	311	0.48		5-1	311	0.46		2-1	311	0.45		4-1	311	0.55	
2	311	0.47		2	311	0.37		2	311	0.46		2	311	0.52	
3	311	0.45		3	310	0.37		3	311	0.43		3	311	0.47	
4	310	0.40		4	310	0.41		4	310	0.39		4	311	0.43	
5	310	0.36		5	310	0.43		5	310	0.38		5	311	0.43	
3-1	312	0.51						3-1	311	0.54					
2	312	0.47						2	312	0.52					
3	312	0.45						3	312	0.48					
4	312	0.42						4	312	0.44					
5	312	0.38						5	312	0.43					
Total															
Average	<u>311.460</u>	<u>0.6550</u>						<u>311.320</u>	<u>0.6726</u>						

Sum of square roots.

Circle correct bracketed units on data sheet.



TEST LOCATION: FF out

HCl

TESTING

METHOD: 26A

PAGE 1

OF 1

UNIT: 3

RUN: i

FIELD DATA SHEET

Client	<u>wheat.</u>	Project No.	<u>11414</u>
Plant	<u>NB</u>	Date	<u>3/27/12</u>
Meter Operator	<u>R Sullivan</u>		
Probe Operator	<u>R Sullivan</u>		

Meter Box	<u>66-11</u>	Sample Box No.	<u>B3</u>
Meter Y _d	<u>0.9925</u>	Meter ΔH _@	<u>1.818</u>
K Factor	<u> </u>	Pitot C _p	<u> </u>

Leak Rate Before	<u>0.0010</u> [Lpm]	@	<u>15</u> (in. Hg)
Leak Rate After	<u>0.0020</u> [Lpm]	@	<u>5</u> (in. Hg)
Pitot Leak Check Before:	<input checked="" type="checkbox"/>	After: Good	<input checked="" type="checkbox"/> Bad <input type="checkbox"/>

Cross-Section of Test Location

Duct Dimensions (in.) 96x96

Static Pres (in. H ₂ O)	Port Len. (in.)	Gas Flow [In] [Out] of page	First point all the way [In] [Out]
<u>-10.1</u>	<u>10</u>		<u>[In] [Out]</u>

Amb. Temp. (°F)	<u>80</u>	Bar. Press.	<u>30.00</u> [10 in. Hg] [mbar]
Probe I.D. No.	<u>67-4-3</u>		
Liner Material	<u>Pyrex</u>		

Filter No.	<u> </u>		
Thimble No.	<u> </u>		
Nozzle Diameter	<u> </u>	Nozzle I.D.	<u> </u>

Start Time:	<u>6:52</u>	Stop Time:	<u>9:54</u>
-------------	-------------	------------	-------------

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol. [L]	Stack Temp. T _s (°F)	Probe T _p (°F)	Filter T _f (°F)	Cond. Temp. T _c (°F)	DGM Inlet T _{m in} (°F)	DGM Outlet T _{m out} (°F)	Pump Vacuum (in. Hg)	Oxygen Indicator, approx (% dv)	<input type="checkbox"/> Amb Filter <input type="checkbox"/> Dioxin Trap <input type="checkbox"/> _____	Notes
						Set Points								
3.3	5	N/A	1.5	707.240	306	304	298	55	78	74	3	7.7		
	10		1.5	714.05	306	302	299	55	81	75	3	8.3		
	15		1.5	717.45	306	300	299	56	83	75	4	8.9		
	20		1.5	720.82	306	300	300	56	84	76	4	8.7		
	25		1.5	724.25	306	300	300	56	85	77	4	8.3		
	30		1.5	727.70	306	300	300	59	86	77	4	8.8		
	35		1.5	731.14	306	300	301	63	87	78	4	8.9		
	40		1.5	734.63	306	300	301	59	88	79	4	8.7		
	45		1.5	738.19	306	301	299	54	89	80	4	9.4		
	50		1.5	741.54	305	300	299	55	88	81	4	8.9		
	55		1.5	745.00	307	301	300	49	90	81	4	8.8		
	60		1.5	748.450	307	300	300	52	91	81	4	8.7		
	Total		18.0	41.210	3673				1030	934				
	Average		1.5000		306.0833				81.8333					

Sum of square roots.

Circle correct bracketed units on data sheet.



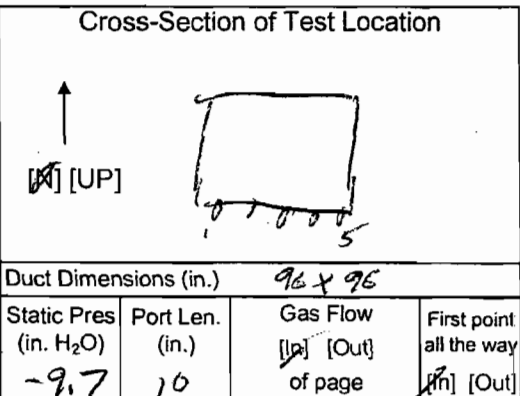
E-31

TEST LOCATION: FF outlet HCl TESTING METHOD: 26A PAGE 1 OF 1
 UNIT: 3 RUN: 2
FIELD DATA SHEET

Client <u>Wheel.</u>	Project No. <u>11414</u>
Plant <u>NB</u>	Date <u>3/27/12</u>
Meter Operator <u>K. Sullivan</u>	
Probe Operator <u>K. Sullivan</u>	

Meter Box <u>66-11</u>	Sample Box No. <u>86</u>
Meter Yd <u>0.9915</u>	Meter ΔH@ <u>1.4118</u>
K Factor	Pitot Cp

Leak Rate Before <u>0.05</u> [Lpm] @ <u>15</u> (in. Hg)
Leak Rate After <u>0.02</u> [Lpm] @ <u>5</u> (in. Hg)
Pitot Leak Check Before: <input checked="" type="checkbox"/> After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>



Amb. Temp. (°F) <u>86</u>	Bar. Press. <u>30.05</u> [in. Hg] [mbar]
Probe I.D. No. <u>62-4-3</u>	
Liner Material <u>Pyrex</u>	

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

Start Time: <u>8:16</u>	Stop Time: <u>9:16</u>
-------------------------	------------------------

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Onifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _m Init. Vol.	Stack Temp. T _s (°F)	Probe T _p (°F)		Filter T _f (°F)	Cond. Temp. T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{max} (°F)	Pump Vacuum (in. Hg)	Oxygen Indicator, approx (% dv)	Amb Filter			Notes
						Set Points								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	5	N/A	1.5	749.210	306	300	300	300	66	84	82	4	8.8				
	10		1.5	756.13	306	304	300	300	63	86	83	4	8.1				
	15		1.5	759.59	305	301	299	299	62	90	83	4	7.9				
	20		1.5	763.17	305	301	298	298	62	91	83	4	8.8				
	25		1.5	766.54	305	300	298	298	59	92	84	4	9.7				
	30		1.5	769.93	306	300	299	299	58	91	83	4	7.9				
	35		1.5	773.33	306	300	299	299	57	92	84	4	8.9				
	40		1.5	776.76	308	300	298	298	57	92	84	4	8.9				
	45		1.5	780.14	306	300	299	299	58	93	85	4	8.7				
	50		1.5	783.57	306	300	298	298	59	92	85	4	7.4				
	55		1.5	786.88	305	300	299	299	59	93	86	4	8.8				
	60		1.5	790.250	305	300	300	300	61	93	86	4	8.9				
	Total		18.0	41.010	3669					1089	1008						
	Average		1.5000		305.1500					89.3750							

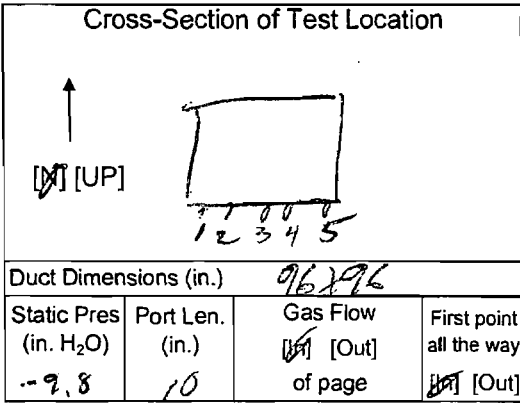
Sum of square roots.

Circle correct bracketed units on data sheet.



E-32

TEST LOCATION: FF outlet HCl TESTING METHOD: 26A PAGE 1 OF 1
 UNIT: 3 RUN: 3 FIELD DATA SHEET



Client <u>Wheat</u>	Project No. <u>11114</u>
Plant <u>NB</u>	Date <u>3/27/12</u>
Meter Operator <u>K Sullivan</u>	
Probe Operator <u>K Sullivan</u>	
Meter Box <u>66-11</u>	Sample Box No. <u>N/A</u>
Meter Y_d <u>0.9915</u>	Meter ΔH_0 <u>1.8118</u>
K Factor <u> </u>	Pitot C_p <u> </u>
Leak Rate Before <u>0.00</u> [Lpm] @ <u>15</u> (in. Hg)	
Leak Rate After <u>0.00</u> [Lpm] @ <u>6</u> (in. Hg)	
Pitot Leak Check Before: <input type="checkbox"/> After: Good <input checked="" type="checkbox"/> Bad <input type="checkbox"/>	

Amb. Temp. (°F) <u>80</u>	Bar. Press. <u>30.00</u> [in. Hg] [mbar]
Probe I.D. No. <u>67-4-3</u>	
Liner Material <u>Pynet</u>	
Filter No. <u> </u>	
Thimble No. <u> </u>	
Nozzle Diameter <u> </u>	Nozzle I.D. <u> </u>
Start Time: <u>9:50</u>	Stop Time: <u>10:53</u>

Traverse Point Number	Min/pt Elapsed Time	Velocity Head ΔP (in. H ₂ O)	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V_m Init. Vol. [L]	Stack Temp. T_s (°F)	Probe T_p (°F)	Filter T_f (°F)	Cond. Temp. T_c (°F)	DGM Inlet T_{min} (°F)	DGM Outlet T_{mout} (°F)	Pump Vacuum (in. Hg)	Oxygen Indicator, approx (% dv)	<input type="checkbox"/> Amb Filter <input type="checkbox"/> Dioxin Trap	Notes
						Set Points								
3-3	5	N/A	1.5	790.570	308	296	300	66	90	88	6	7.9		
	10		1.5	797.85	308	302	299	63	93	89	6	8.1		
	15		1.5	801.25	307	302	300	52	95	89	6	8.8		
	20		1.5	801.64	307	301	299	47	96	89	6	7.6		
	25		1.5	808.02	307	300	300	46	96	89	6	9.0		
	30		1.5	811.40	307	299	299	53	95	90	6	8.4		
	35		1.5	814.83	307	300	301	54	95	90	6	9.3		
	40		1.5	818.25	307	300	300	56	95	90	6	8.8		
	45		1.5	821.67	307	300	299	58	95	90	6	9.0		
	50		1.5	825.13	306	300	299	59	96	91	6	8.2		
	55		1.5	828.62	306	300	307	61	98	91	6	8.6		
	60		1.5	832.080	306	300	302	62	98	91	6	8.2		
	Total		18.0	41.210	3653				1147	1077				
	Average		1.5000	306.9167					92.4553					

* Sum of square roots.

Circle correct bracketed units on data sheet.



E-33

Impinger Weight Sheet

Client Wheelabrator	Unit Name / Location Unit 3 FF Outlet
Plant North Broward	Job No. 11414 Method Modified M26A

Balance Calibration Check			
Balance ID		Reference Weight Mass	
Reference Weight ID		Reference Weight Reading	

Check must be performed at least Once per Method per Job Reference Weight Mass must agree with Reference Weight Reading to within ±0.5 g.

Run No. 1	Filter Type Teflon Mat	Sample Box No. B3
Date 3/27/12	Lot No.	pH
Analyst R. Vicore	Filter No. NA	Rinse NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	530.6	460.0	70.6	
Impinger 2	100 mL 0.1N H2SO4	668.7	542.2	126.5	QA/QC 58 Date 3/27
Impinger 3	100 mL 0.1N H2SO4	667.0	631.3	36.5	
Impinger 4	Empty	446.3	438.3	8.0	
Impinger 5	Silica Gel	742.3	730.8	11.5	Total Weight (gm)
Impinger 6					241.6
Impinger 7					253.1

Run No. 2	Filter Type Teflon Mat	Sample Box No. B6
Date 3/27/12	Lot No.	pH
Analyst R. Vicore	Filter No. NA	Rinse NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	612.5	554.6	57.9	
Impinger 2	100 mL 0.1N H2SO4	755.5	628.8	126.7	QA/QC 58 Date 3/27
Impinger 3	100 mL 0.1N H2SO4	573.1	536.6	36.5	
Impinger 4	Empty	482.0	476.2	5.8	
Impinger 5	Silica Gel	775.5	764.5	11.0	Total Weight (gm)
Impinger 6					226.9
Impinger 7					237.9

Run No. 3	Filter Type Teflon Mat	Sample Box No. Bk4
Date 3/27/12	Lot No.	pH
Analyst R. Vicore	Filter No. NA	Rinse NA

	Contents	Gross Weight (gm)	Tare Weight (gm)	Net Weight Gain (gm)	
Impinger 1	50 mL 0.1N H2SO4	512.5	459.0	53.5	
Impinger 2	100 mL 0.1N H2SO4	682.5	553.3	129.2	QA/QC 58 Date 3/27
Impinger 3	100 mL 0.1N H2SO4	585.6	545.2	40.4	
Impinger 4	Empty	446.3	438.0	8.3	
Impinger 5	Silica Gel	778.3	763.6	14.7	Total Weight (gm)
Impinger 6					231.4
Impinger 7					246.1

QA/QC **58**
Date **3/27**



TEST LOCATION: PF outlet

UNIT: 3

RUN: 1

MOISTURE DETERMINATION FIELD DATA SHEET

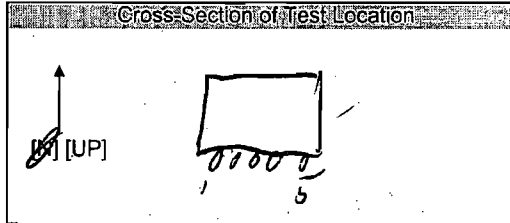
PAGE 1 OF 1

Client	<u>Wheel</u>	Project No.	<u>11419</u>
Plant	<u>NB</u>	Date	<u>3/27/12</u>
Meter Operator	<u>B. ARNOLD</u>		
Probex Operator	<u>—</u>		

Meter Box No.	<u>66-11</u>
Meter No.	<u>1848 0.9915</u>

Leak Rate Before	<u>0.001</u> (cm) @	<u>15</u> (in. Hg)
------------------	---------------------	--------------------

Leak Rate After	<u>0.001</u> (cm) @	<u>8</u> (in. Hg)
-----------------	---------------------	-------------------



Duct Dimensions (in.)	<u>96x96</u>		
Static Press. (in. H ₂ O)	Port/Lens (in.)	Gas Flow	Point No.
<u>-9.6</u>	<u>16</u>	<u>IN</u> [Out]	<u>all the way</u>

Amb. Temp. (°F)	<u>85</u>	Bar. Press.	<u>30.00</u> [in. Hg] [mbar]
Liner Material	<u>SS</u>		

H ₂ O	<u>146</u> [in. Hg]	Silica Gel (gm)	<u>9.1</u>
Total Vol.	<u>155.1</u>		

Start Time	<u>11:29</u>	Stop Time	<u>12:14</u>
------------	--------------	-----------	--------------

Traverse Point Number	Min./pt. Elapsed Time	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume V _g	Stack Temp.		Cond. Temp.		DGM Inlet	DGM Outlet	Pump Vacuum (in. Hg)	Notes
			Init. Vol. [L]	T _s (°F)	T _c (°F)	T _{in} (°F)	T _{out} (°F)				
3-3	5	1.3	832.880	n/a	62	88	88	3.0			
	10		839.03		60	88	88	3.0			
	15		842.25		58	93	89	3.0			
	20		845.45		55	94	89	3.0			
	25		848.67		54	96	90	3.0			
	30		851.90		54	97	90	3.0			
	35		855.13		55	98	92	3.0			
	40		858.35		57	98	92	3.0			
	45		861.580		59	98	92	3.0			
	Total		<u>28.7000</u>								
	Average		<u>1.3060</u>				<u>92.2222</u>				


Circle correct bracketed units on data sheet.

QA/QC
Date: 3-27-12

TEST LOCATION: FF outlet
 UNIT: 3 RUN: 2

MOISTURE DETERMINATION
 FIELD DATA SHEET

Client: Whe Laboratories Project No: 1114
 Plant: N. Brown RD Date: 3-27-12
 Meter Operator: B. Brown
 Probe Operator: _____
 Meter Box No: 66-11
 Meter Yr: 1-8118 DA 09915
 Leak Rate Before: 0.01 (fpm) @ 15 (in. Hg)
 Leak Rate After: 0.01 (fpm) @ 7 (in. Hg)

Cross-Section of Test Location

 Duct Dimensions (in.): 96 x 96
 Static Press (in. H₂O): -10.5 Port Lens (in.): 10
 Gas Flow: 12 [Out] of page
 Point No.: all the way [Out]

Amb Temp (°F): 95 Bar. Press: 30.00 [in. Hg] [mbar]
 Liner Material: STAINLESS
 H₂O: 174 (ml) [gm] Silica Gel (gm): 6.4
 Total Vc: 180.4
 Start Time: 12:57 Stop Time: 13:42

Traverse Point Number	Min/pt Elapsed Time	Orifice Setting ΔH (in. H ₂ O)	Gas Sample Volume		Stack Temp T _s (°F)	Cond. Temp T _c (°F)	DGM Inlet T _{min} (°F)	DGM Outlet T _{max} (°F)	Pump Vacuum (in. Hg)	Notes
			Init. Vol. (ft ³) [L]	Volume (ft ³) [L]						
3-3	5	1.3	861.1000		N/A	53	93	92	3.0	
	10	1.3	868.05			53	93	92	3.0	
	15	1.3	871.52			55	93	91	3.0	
	20	1.3	874.50			57	95	93	3.0	
	25	1.3	877.73			60	98	94	3.0	
	30	1.3	880.94			62	99	95	3.0	
	35	1.3	884.18			60	100	95	3.0	
	40	1.3	888.49			57	100	95	3.0	
	45	1.3	890.625			55	100	95	3.0	
Total			29.0250							
Average			1.3000				95.1667			

Circle correct bracketed units on data sheet.

QA/QC BA
 Date 3-27-12



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 End of Appendix

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

FIELD DATA PRINTOUTS

F

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

QA/QC Initials: NK

Date: 5/7/12



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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568
 Test Date: 3/28/12
 Start Time: 07:04
 Stop Time: 07:14
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.15
 Static P: -11.5
 O₂ (dry volume %): 9.18
 CO₂ (dry volume %): 9.95
 N₂+CO (dry volume %): 80.86

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.54

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.48			304			0.69		
1-02		0.49			305			0.70		
1-03		0.53			305			0.73		
1-04		0.57			305			0.75		
1-05		0.62			305			0.79		
2-01		0.55			303			0.74		
2-02		0.52			303			0.72		
2-03		0.54			303			0.73		
2-04		0.62			304			0.79		
2-05		0.63			303			0.79		
3-01		0.55			304			0.74		
3-02		0.50			304			0.71		
3-03		0.50			305			0.71		
3-04		0.58			305			0.76		
3-05		0.62			305			0.79		
4-01		0.42			305			0.65		
4-02		0.47			306			0.69		
4-03		0.44			306			0.66		
4-04		0.50			306			0.71		
4-05		0.61			306			0.78		
5-01		0.48			303			0.69		
5-02		0.49			304			0.70		
5-03		0.44			304			0.66		
5-04		0.44			303			0.66		
5-05		0.60			303			0.77		
Final	0.0				304.36000			0.72504		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt. ΔP: 0.7250
 304.3600
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 090038

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568
 Test Date: 3/28/12
 Start Time: 07:45
 Stop Time: 07:56
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.15
 Static P: -11.4
 O₂ (dry volume %): 9.53
 CO₂ (dry volume %): 9.69
 N₂+CO (dry volume %): 80.78

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.54

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01		0.45			310			0.67		
1-02		0.46			310			0.68		
1-03		0.49			310			0.70		
1-04		0.57			309			0.75		
1-05		0.56			309			0.75		
2-01		0.48			310			0.69		
2-02		0.46			311			0.68		
2-03		0.49			312			0.70		
2-04		0.58			312			0.76		
2-05		0.61			312			0.78		
3-01		0.51			310			0.71		
3-02		0.47			310			0.69		
3-03		0.50			311			0.71		
3-04		0.56			310			0.75		
3-05		0.61			310			0.78		
4-01		0.47			303			0.69		
4-02		0.45			303			0.67		
4-03		0.40			303			0.63		
4-04		0.45			304			0.67		
4-05		0.58			305			0.76		
5-01		0.52			300			0.72		
5-02		0.48			300			0.69		
5-03		0.42			300			0.65		
5-04		0.48			300			0.69		
5-05		0.62			300			0.79		
Final	0.0				306.96000			0.71063		

25 points sampled
 QC-Check: Field Averages
 Sq.RI.ΔP: 0.7106
 306.9600
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 090038

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568
 Test Date: 3/28/12
 Start Time: 08:26
 Stop Time: 08:36
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.15
 Static P: -11.4
 O₂ (dry volume %): 9.78
 CO₂ (dry volume %): 9.52
 N₂+CO (dry volume %): 80.70

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 21.34

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.47			308			0.69		
1-02		0.48			308			0.69		
1-03		0.53			309			0.73		
1-04		0.60			309			0.77		
1-05		0.59			309			0.77		
2-01		0.50			307			0.71		
2-02		0.47			307			0.69		
2-03		0.49			308			0.70		
2-04		0.58			308			0.76		
2-05		0.61			306			0.78		
3-01		0.50			307			0.71		
3-02		0.48			306			0.69		
3-03		0.51			306			0.71		
3-04		0.57			306			0.75		
3-05		0.65			306			0.81		
4-01		0.57			303			0.75		
4-02		0.45			303			0.67		
4-03		0.39			303			0.62		
4-04		0.52			303			0.72		
4-05		0.63			303			0.79		
5-01		0.29			306			0.54		
5-02		0.38			306			0.62		
5-03		0.40			306			0.63		
5-04		0.48			307			0.69		
5-05		0.56			306			0.75		
Final	0.0				306.24000			0.71013		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.7101 306.2400
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 090038
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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568

Bar. Press. (in. Hg): 30.15
 Static P: -11.4
 O₂ (dry volume %): 9.82
 CO₂ (dry volume %): 9.48
 N₂+CO (dry volume %): 80.70

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/28/12
 Start Time: 09:03
 Stop Time: 09:13
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 21.34

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.50			304			0.71		
1-02		0.50			304			0.71		
1-03		0.51			304			0.71		
1-04		0.57			304			0.75		
1-05		0.58			304			0.76		
2-01		0.50			307			0.71		
2-02		0.55			307			0.74		
2-03		0.53			307			0.73		
2-04		0.60			307			0.77		
2-05		0.64			307			0.80		
3-01		0.52			306			0.72		
3-02		0.48			307			0.69		
3-03		0.51			307			0.71		
3-04		0.65			307			0.81		
3-05		0.64			307			0.80		
4-01		0.53			305			0.73		
4-02		0.46			305			0.68		
4-03		0.42			306			0.65		
4-04		0.50			306			0.71		
4-05		0.63			307			0.79		
5-01		0.49			305			0.70		
5-02		0.47			306			0.69		
5-03		0.41			305			0.64		
5-04		0.40			305			0.63		
5-05		0.61			305			0.78		
Final	0.0				305.76000			0.72500		

25 points sampled
 QC-Check: Field Averages
 Sq. Rt. ΔP: 0.7250 305.7600
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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USEPA Method 3 Laboratory Data

Location: Unit 1 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
1	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		9.95488		9.18396	80.86115	29.96014	1.17691	<input checked="" type="checkbox"/> Fo value within expected range.
2	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		9.69066		9.52619	80.78315	29.93155	1.17369	<input checked="" type="checkbox"/> Fo value within expected range.
3	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		9.52060		9.77765	80.70175	29.91440	1.16824	<input checked="" type="checkbox"/> Fo value within expected range.
4	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		9.47850		9.82002	80.70147	29.90936	1.16896	<input checked="" type="checkbox"/> Fo value within expected range.

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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567
 Test Date: 3/28/12
 Start Time: 09:42
 Stop Time: 09:54
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.15
 Static P: -11.8
 O₂ (dry volume %): 9.61
 CO₂ (dry volume %): 9.61
 N₂+CO (dry volume %): 80.78

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.48

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.53			306			0.73		
1-02		0.54			306			0.73		
1-03		0.60			306			0.77		
1-04		0.65			307			0.81		
1-05		0.64			307			0.80		
2-01		0.55			308			0.74		
2-02		0.53			308			0.73		
2-03		0.54			308			0.73		
2-04		0.63			308			0.79		
2-05		0.65			308			0.81		
3-01		0.52			307			0.72		
3-02		0.51			307			0.71		
3-03		0.55			308			0.74		
3-04		0.63			307			0.79		
3-05		0.63			307			0.79		
4-01		0.60			302			0.77		
4-02		0.58			302			0.76		
4-03		0.50			302			0.71		
4-04		0.55			302			0.74		
4-05		0.66			303			0.81		
5-01		0.58			301			0.76		
5-02		0.55			302			0.74		
5-03		0.47			302			0.69		
5-04		0.42			302			0.65		
5-05		0.62			303			0.79		
Final	0.0				305.16000			0.75336		

25 points sampled
 QC-Check: Field Averages

Sq.RI.ΔP	0.7534	305.1600	
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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567
 Test Date: 3/28/12
 Start Time: 10:20
 Stop Time: 10:33
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.15
 Static P: -12.4
 O₂ (dry volume %): 9.43
 CO₂ (dry volume %): 9.74
 N₂+CO (dry volume %): 80.82

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.48

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.53			302			0.73		
1-02		0.52			302			0.72		
1-03		0.54			303			0.73		
1-04		0.64			303			0.80		
1-05		0.66			303			0.81		
2-01		0.53			303			0.73		
2-02		0.50			303			0.71		
2-03		0.51			303			0.71		
2-04		0.59			304			0.77		
2-05		0.59			304			0.77		
3-01		0.54			304			0.73		
3-02		0.52			304			0.72		
3-03		0.50			304			0.71		
3-04		0.56			303			0.75		
3-05		0.62			303			0.79		
4-01		0.57			308			0.75		
4-02		0.49			308			0.70		
4-03		0.44			308			0.66		
4-04		0.50			308			0.71		
4-05		0.60			307			0.77		
5-01		0.58			309			0.76		
5-02		0.54			309			0.73		
5-03		0.44			309			0.66		
5-04		0.43			309			0.66		
5-05		0.61			309			0.78		
Final	0.0				305.28000			0.73509		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.7351
 305.2800
 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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567

Bar. Press. (in. Hg): 30.15
 Static P: -11.7
 O₂ (dry volume %): 9.62
 CO₂ (dry volume %): 9.62
 N₂+CO (dry volume %): 80.76

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot Cp: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/28/12
 Start Time: 10:57
 Stop Time: 11:07
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.81

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.46			306			0.68		
1-02		0.45			307			0.67		
1-03		0.54			307			0.73		
1-04		0.60			307			0.77		
1-05		0.64			307			0.80		
2-01		0.53			307			0.73		
2-02		0.50			306			0.71		
2-03		0.52			307			0.72		
2-04		0.60			307			0.77		
2-05		0.65			307			0.81		
3-01		0.54			307			0.73		
3-02		0.51			307			0.71		
3-03		0.50			307			0.71		
3-04		0.59			308			0.77		
3-05		0.62			308			0.79		
4-01		0.55			304			0.74		
4-02		0.49			304			0.70		
4-03		0.43			305			0.66		
4-04		0.55			305			0.74		
4-05		0.63			305			0.79		
5-01		0.57			301			0.75		
5-02		0.52			301			0.72		
5-03		0.47			301			0.69		
5-04		0.51			302			0.71		
5-05		0.60			302			0.77		
Final	0.0				305.40000			0.73561		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.7356
 305.4000

Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 060239
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USEPA Method 3 Laboratory Data

Location: Unit 1 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
5	1							
	2							
	3							
Avg.								
CEM or Other Avg:		9.61077		9.61231	80.77692	29.92222	1.17448	<input checked="" type="checkbox"/> Fo value within expected range.
6	1							
	2							
	3							
Avg.								
CEM or Other Avg:		9.74347		9.43354	80.82299	29.93630	1.17684	<input checked="" type="checkbox"/> Fo value within expected range.
7	1							
	2							
	3							
Avg.								
CEM or Other Avg:		9.62162		9.62211	80.75628	29.92434	1.17214	<input checked="" type="checkbox"/> Fo value within expected range.
	1							
	2							
	3							
Avg.								
CEM or Other Avg:								<input type="checkbox"/> Fo value within expected range.

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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567
 Test Date: 3/28/12
 Start Time: 11:36
 Stop Time: 11:47
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.15
 Static P: -11.8
 O₂ (dry volume %): 9.49
 CO₂ (dry volume %): 9.70
 N₂+CO (dry volume %): 80.81

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.81

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.47			304			0.69		
1-02		0.48			304			0.69		
1-03		0.54			304			0.73		
1-04		0.60			305			0.77		
1-05		0.65			304			0.81		
2-01		0.50			306			0.71		
2-02		0.49			306			0.70		
2-03		0.51			306			0.71		
2-04		0.60			306			0.77		
2-05		0.65			306			0.81		
3-01		0.52			305			0.72		
3-02		0.51			305			0.71		
3-03		0.53			305			0.73		
3-04		0.61			306			0.78		
3-05		0.66			306			0.81		
4-01		0.62			305			0.79		
4-02		0.50			305			0.71		
4-03		0.45			305			0.67		
4-04		0.56			305			0.75		
4-05		0.67			305			0.82		
5-01		0.56			304			0.75		
5-02		0.51			305			0.71		
5-03		0.43			305			0.66		
5-04		0.40			305			0.63		
5-05		0.61			305			0.78		
Final	0.0				305.08000			0.73667		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt. ΔP: 0.7367
 305.0800

Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 090239
 6

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567
 Test Date: 3/28/12
 Start Time: 12:14
 Stop Time: 12:24
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.15
 Static P: -10.9
 O₂ (dry volume %): 9.10
 CO₂ (dry volume %): 10.03
 N₂+CO (dry volume %): 80.87

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.31

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.48			305			0.69		
1-02		0.48			305			0.69		
1-03		0.52			305			0.72		
1-04		0.59			305			0.77		
1-05		0.63			305			0.79		
2-01		0.54			304			0.73		
2-02		0.51			305			0.71		
2-03		0.50			305			0.71		
2-04		0.57			305			0.75		
2-05		0.63			305			0.79		
3-01		0.56			305			0.75		
3-02		0.50			305			0.71		
3-03		0.55			305			0.74		
3-04		0.60			306			0.77		
3-05		0.64			306			0.80		
4-01		0.56			305			0.75		
4-02		0.45			305			0.67		
4-03		0.37			305			0.61		
4-04		0.49			305			0.70		
4-05		0.59			305			0.77		
5-01		0.50			303			0.71		
5-02		0.46			303			0.68		
5-03		0.38			304			0.62		
5-04		0.40			304			0.63		
5-05		0.62			303			0.79		
Final	0.0				304.72000			0.72249		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.7225 304.7200
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 080239

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567

Bar. Press. (in. Hg): 30.15
 Static P: -11.0
 O₂ (dry volume %): 9.21
 CO₂ (dry volume %): 9.90
 N₂+CO (dry volume %): 80.89

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/28/12
 Start Time: 12:56
 Stop Time: 13:08
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.31

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.48			303			0.69		
1-02		0.48			303			0.69		
1-03		0.47			304			0.69		
1-04		0.52			304			0.72		
1-05		0.58			304			0.76		
2-01		0.46			304			0.68		
2-02		0.45			304			0.67		
2-03		0.48			304			0.69		
2-04		0.52			304			0.72		
2-05		0.59			305			0.77		
3-01		0.55			305			0.74		
3-02		0.47			305			0.69		
3-03		0.51			304			0.71		
3-04		0.54			304			0.73		
3-05		0.56			305			0.75		
4-01		0.52			303			0.72		
4-02		0.46			303			0.68		
4-03		0.38			304			0.62		
4-04		0.46			304			0.68		
4-05		0.61			304			0.78		
5-01		0.50			304			0.71		
5-02		0.44			304			0.66		
5-03		0.34			304			0.58		
5-04		0.39			304			0.62		
5-05		0.50			304			0.71		
Final	0.0				304.00000			0.69879		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.6988
 304.0000
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041012 060230

USEPA Method 3 Laboratory Data

Location: Unit 1 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
8	1							
	2							
	3							
Avg.								
CEM or Other Avg:		9.69931		9.49419	80.80650	29.93166	1.17594	<input checked="" type="checkbox"/> Fo value within expected range.
9	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.03036		9.09519	80.87445	29.96867	1.17691	<input checked="" type="checkbox"/> Fo value within expected range.
10	1							
	2							
	3							
Avg.								
CEM or Other Avg:		9.90255		9.20839	80.88905	29.95274	1.18067	<input checked="" type="checkbox"/> Fo value within expected range.
	1							
	2							
	3							
Avg.								
CEM or Other Avg:								<input type="checkbox"/> Fo value within expected range.

041812 090239
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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: 11414

Source Area (ft²): 64.00000

Meter Operator: K. Sullivan 579
 Probe Operator: K. Sullivan 579

Test Date: 3/28/12

Start Time: 06:51

Stop Time: 07:51

Leak Rate Before: 0.004 cfm @ 15 "Hg
 Leak Rate After: 0.002 cfm @ 4 "Hg

Bar. Press. (in. Hg): 30.15
 Static P: -11.5

O₂ (dry volume %): 9.31
 CO₂ (dry volume %): 10.08
 N₂+CO (dry volume %): 80.61

Nozzle ID No: NA
 Nozzle Diameter (D_n): NA
 Probe ID No: 67-4-3
 Pitot C_p: NA
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm): 247.5
 H₂O (silica, g): 9.3
 Actual Moisture (%): 22.54

Meter Box ID. No: 61-6
 Meter ΔH@: 1.72520
 Meter Y_d: 1.00610

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			712.935						
3-03	5.0		1.50	716.430	300	78	72		3.50	
3-03	10.0		1.50	719.890	300	79	73		3.46	
3-03	15.0		1.50	723.290	300	80	73		3.40	
3-03	20.0		1.50	726.780	300	80	74		3.49	
3-03	25.0		1.50	730.250	302	83	75		3.47	
3-03	30.0		1.50	733.700	300	84	75		3.45	
3-03	35.0		1.50	737.200	304	84	76		3.50	
3-03	40.0		1.50	740.710	303	84	76		3.51	
3-03	45.0		1.50	744.180	303	84	77		3.47	
3-03	50.0		1.50	747.660	304	84	77		3.48	
3-03	55.0		1.50	751.130	305	85	77		3.47	
3-03	60.0		1.50	754.600	305	85	77		3.47	
Final	60.0		1.50000	41.66500	302.16667	78.83333		0.00000	41.66500	

9 points sampled

Sq.Rt.ΔP

QC-Check: Field Averages

1.5000	41.6650	302.1667	78.8333
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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0

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: K. Sullivan 579

Bar. Press. (in. Hg): 30.15
 Static P: -11.4
 O₂ (dry volume %): 9.82
 CO₂ (dry volume %): 9.66
 N₂+CO (dry volume %): 80.52

Nozzle ID No: NA
 Nozzle Diameter (D_n): NA
 Probe ID No: 67-4-3
 Pitot C_p: NA
 Pitot Leak Check: Pass Fail

Test Date: 3/28/12
 Start Time: 08:17
 Stop Time: 09:17
 Leak Rate Before: 0.004 cfm @ 15 "Hg
 Leak Rate After: 0.001 cfm @ 5 "Hg

H₂O (condensate, ml or gm): 224.6
 H₂O (silica, g): 13.1
 Actual Moisture (%): 21.34

Meter Box ID No: 61-6
 Meter ΔH@: 1.72520
 Meter Y_d: 1.00610

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			755.070						
3-03	5.0		1.50	758.640	306	79	78		3.57	
3-03	10.0		1.50	762.130	299	82	78		3.49	
3-03	15.0		1.50	765.570	305	84	78		3.44	
3-03	20.0		1.50	769.040	299	85	79		3.47	
3-03	25.0		1.50	772.540	304	86	79		3.50	
3-03	30.0		1.50	776.010	301	86	79		3.47	
3-03	35.0		1.50	779.460	303	87	80		3.45	
3-03	40.0		1.50	782.920	300	87	80		3.46	
3-03	45.0		1.50	786.390	304	87	80		3.47	
3-03	50.0		1.50	789.840	302	87	80		3.45	
3-03	55.0		1.50	793.290	303	88	81		3.45	
3-03	60.0		1.50	796.715	304	88	81		3.43	
Final	60.0		1.50000	41.64500	302.50000	82.45833		0.00000	41.64500	

9 points sampled
 QC-Check: Field Averages

Sq.Rt.ΔP	1.5000	41.6450	302.5000	82.4583
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Avg. OK
 Avg. OK
 Avg. OK
 Avg. OK
 Avg. OK

041812 090917
K

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: K. Sullivan 579

Bar. Press. (in. Hg): 30.15
 Static P: -12.4
 O₂ (dry volume %): 9.51
 CO₂ (dry volume %): 10.00
 N₂+CO (dry volume %): 80.49

Nozzle ID No: NA
 Nozzle Diameter (D_n): NA
 Probe ID No: 67-4-3
 Pitot C_p: NA
 Pitot Leak Check: Pass Fail

Test Date: 3/28/12
 Start Time: 09:36
 Stop Time: 10:36
 Leak Rate Before: 0.005 cfm @ 15 "Hg
 Leak Rate After: 0.003 cfm @ 8 "Hg

H₂O (condensate, ml or gm): 239.1
 H₂O (silica, g): 15.2
 Actual Moisture (%): 22.48

Meter Box ID. No: 61-6
 Meter ΔH@: 1.72520
 Meter Y_d: 1.00610

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _a (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			797.315						
3-03	5.0		1.50	800.890	300	85	81		3.57	
3-03	10.0		1.50	804.250	304	86	81		3.36	
3-03	15.0		1.50	807.700	302	86	81		3.45	
3-03	20.0		1.50	811.180	301	87	82		3.48	
3-03	25.0		1.50	814.670	301	87	82		3.49	
3-03	30.0		1.50	818.160	301	88	82		3.49	
3-03	35.0		1.50	821.640	299	89	82		3.48	
3-03	40.0		1.50	825.150	300	89	82		3.51	
3-03	45.0		1.50	828.660	300	89	83		3.51	
3-03	50.0		1.50	832.160	305	89	83		3.50	
3-03	55.0		1.50	835.680	299	89	83		3.52	
3-03	60.0		1.50	839.190	300	89	83		3.51	
Final	60.0		1.50000	41.87500	301.00000	84.91667		0.00000	41.87500	

9 points sampled
 QC-Check: Field Averages

Sq.Rt.ΔP	1.5000	41.8750	301.0000	84.9167
<input type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK

041812 000017
 N

USEPA Method 4 Laboratory Data

Location: Unit 1 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414

Test Method: USEPA Method 26A
Analyte: HCl
 Analyst: R. Vicere
 Analyst Emp No: 563

Test Run: 1

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	541.7	461.6	80.1
Impinger 2	100 ml 0.1N H2SO4	660.6	538.9	121.7
Impinger 3	100 ml 0.1N H2SO4	666.9	631.7	35.2
Impinger 4	Empty	449.2	438.7	10.5
Impinger 5	Silica Gel	751.4	742.1	9.3
Impinger 6				
Impinger 7				
Impinger 8				

247.5 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
247.5 Net Liquid (gm)		247.5 <input checked="" type="checkbox"/> QA/QC OK
+ 9.3 Silica Gel (gm)		9.3 <input checked="" type="checkbox"/> QA/QC OK
256.8 Total Vlc (gm)		256.8 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: 2

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	616.8	553.6	63.2
Impinger 2	100 ml 0.1N H2SO4	740.7	628.1	112.6
Impinger 3	100 ml 0.1N H2SO4	576.7	536.1	40.6
Impinger 4	Empty	483.8	475.6	8.2
Impinger 5	Silica Gel	788.6	775.5	13.1
Impinger 6				
Impinger 7				
Impinger 8				

224.6 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
224.6 Net Liquid (gm)		224.6 <input checked="" type="checkbox"/> QA/QC OK
+ 13.1 Silica Gel (gm)		13.1 <input checked="" type="checkbox"/> QA/QC OK
237.7 Total Vlc (gm)		237.7 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: 3

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	526.3	458.0	68.3
Impinger 2	100 ml 0.1N H2SO4	680.2	553.1	127.1
Impinger 3	100 ml 0.1N H2SO4	581.0	545.7	35.3
Impinger 4	Empty	446.9	438.5	8.4
Impinger 5	Silica Gel	793.3	778.1	15.2
Impinger 6				
Impinger 7				
Impinger 8				

239.1 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
239.1 Net Liquid (gm)		239.1 <input checked="" type="checkbox"/> QA/QC OK
+ 15.2 Silica Gel (gm)		15.2 <input checked="" type="checkbox"/> QA/QC OK
254.3 Total Vlc (gm)		254.3 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: _____

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1				
Impinger 2				
Impinger 3				
Impinger 4				
Impinger 5				
Impinger 6				
Impinger 7				
Impinger 8				

Liquid (gm)	<i>Field Data Check</i>	
less rinse (gm)		
Net Liquid (gm)		<input type="checkbox"/> QA/QC OK
Silica Gel (gm)		<input type="checkbox"/> QA/QC OK
Total Vlc (gm)		<input type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

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 OKN

Field Data Printout

Location: Unit 1 FF Outlet
 Test Run: 1
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000

Test Method: USEPA Method 4
Analyte: Moisture

Test Date: 3/28/12
 Start Time: 10:57
 Stop Time: 11:42
 Leak Rate Before: 0.005 cfm @ 15 "Hg
 Leak Rate After: 0.002 cfm @ 4 "Hg

Bar. Press. (in. Hg): 30.15
 Static P: -11.7
 O₂ (dry volume %): N/A
 CO₂ (dry volume %): N/A
 N₂+CO (dry volume %): N/A

Nozzle ID No: N/A
 Nozzle Diameter (D_n): N/A
 Probe ID No: N/A
 Pitot C_p: N/A
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm): 174.0
 H₂O (silica, g): 5.4
 Actual Moisture (%): 22.81

Meter Box ID. No: 61-6
 Meter ΔH@: N/A
 Meter Y_g: 1.00610

Traverse Point	Run Time 5.0 min/read	Pilot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
3-03	0.0	N/A	1.30	839.58	N/A	83	82	N/A	3.29	N/A
3-03	5.0	N/A	1.30	842.87	N/A	86	83	N/A	3.31	N/A
3-03	10.0	N/A	1.30	846.18	N/A	88	83	N/A	3.20	N/A
3-03	15.0	N/A	1.30	849.38	N/A	89	84	N/A	3.21	N/A
3-03	20.0	N/A	1.30	852.59	N/A	89	84	N/A	3.23	N/A
3-03	25.0	N/A	1.30	855.82	N/A	89	83	N/A	4.03	N/A
3-03	30.0	N/A	1.30	859.85	N/A	89	83	N/A	2.34	N/A
3-03	35.0	N/A	1.30	862.19	N/A	90	84	N/A	3.22	N/A
3-03	40.0	N/A	1.30	865.41	N/A	90	84	N/A	3.22	N/A
3-03	45.0	N/A	1.30	868.63	N/A	90	84	N/A	3.22	N/A
Final	45.0		1.30000	29.04500	N/A	85.72222		N/A	29.04500	

9 points sampled
 QC-Check: Field Averages

Sq.Rt. ΔP	N/A	1.3000	29.0450	N/A	85.7222
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 090707

Field Data Printout

Test Method: USEPA Method 4
Analyte: Moisture

Location: Unit 1 FF Outlet
 Test Run: 2
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 30.15
 Static P: -10.9

Nozzle ID No: N/A
 Nozzle Diameter (D_n): N/A

O₂ (dry volume %): N/A
 CO₂ (dry volume %): N/A
 N₂+CO (dry volume %): N/A

Probe ID No: N/A
 Pitot C_p: N/A
 Pitot Leak Check: Pass Fail

Test Date: 3/28/12
 Start Time: 12:13
 Stop Time: 12:38
 Leak Rate Before: 0.003 cfm @ 15 "Hg
 Leak Rate After: 0.001 cfm @ 6 "Hg

H₂O (condensate, ml or gm): 169.0
 H₂O (silica, g): 6.0
 Actual Moisture (%): 22.31

Meter Box ID. No: 61-6
 Meter ΔH@: N/A
 Meter Y_d: 1.00610

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
3-03	5.0	N/A	1.30	872.02	N/A	89	88	N/A	3.24	N/A
3-03	10.0		1.30	875.29		91	89		3.27	
3-03	15.0		1.30	878.55		92	89		3.26	
3-03	20.0		1.30	881.73		93	89		3.18	
3-03	25.0		1.30	885.07		94	90		3.34	
3-03	30.0		1.30	888.37		96	91		3.30	
3-03	35.0		1.30	891.67		97	92		3.30	
3-03	40.0		1.30	894.96		98	93		3.29	
3-03	45.0		1.30	898.30		98	93		3.33	
Final	45.0		1.30000	29.51000	N/A	92.33333		N/A	29.51000	

9 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: N/A 1.3000 29.5100 N/A 92.3333
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 060707

USEPA Method 4 Laboratory Data

Location: Unit 1 FF Outlet

Client: Wheelabrator North Broward, Inc.

Project No: 11414

Test Method:
Analyte:

USEPA Method 4
Moisture

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)	
Impinger 1	DI Water	274.0	100.0	174.0	
Impinger 2	DI Water				
Impinger 3	Empty				
Impinger 4	Silica Gel	305.4	300.0	5.4	
Impinger 5					
Impinger 6					
Impinger 7					
Impinger 8					

Rinse: (ml or gm)

174.0 Liquid (gm)		
0.0 less rinse (gm)		
174.0 Net Liquid (gm)	174.0	<input checked="" type="checkbox"/> QA/QC OK
+ 5.4 Silica Gel (gm)	5.4	<input checked="" type="checkbox"/> QA/QC OK
179.4 Total Vlc (gm)	179.4	<input checked="" type="checkbox"/> QA/QC OK

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)	
Impinger 1	DI Water	269.0	100.0	169.0	
Impinger 2	DI Water				
Impinger 3	Empty				
Impinger 4	Silica Gel	306.0	300.0	6.0	
Impinger 5					
Impinger 6					
Impinger 7					
Impinger 8					

Rinse: (ml or gm)

169.0 Liquid (gm)		
0.0 less rinse (gm)		
169.0 Net Liquid (gm)	169.0	<input checked="" type="checkbox"/> QA/QC OK
+ 6.0 Silica Gel (gm)	6.0	<input checked="" type="checkbox"/> QA/QC OK
175.0 Total Vlc (gm)	175.0	<input checked="" type="checkbox"/> QA/QC OK

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)	
Impinger 1	DI Water				
Impinger 2	DI Water				
Impinger 3	Empty				
Impinger 4	Silica Gel				
Impinger 5					
Impinger 6					
Impinger 7					
Impinger 8					

Rinse: (ml or gm)

Liquid (gm)		
less rinse (gm)		
Net Liquid (gm)		<input type="checkbox"/> QA/QC OK
Silica Gel (gm)		<input type="checkbox"/> QA/QC OK
Total Vlc (gm)		<input type="checkbox"/> QA/QC OK

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)	
Impinger 1	DI Water				
Impinger 2	DI Water				
Impinger 3	Empty				
Impinger 4	Silica Gel				
Impinger 5					
Impinger 6					
Impinger 7					
Impinger 8					

Rinse: (ml or gm)

Liquid (gm)		
less rinse (gm)		
Net Liquid (gm)		<input type="checkbox"/> QA/QC OK
Silica Gel (gm)		<input type="checkbox"/> QA/QC OK
Total Vlc (gm)		<input type="checkbox"/> QA/QC OK

041812 090707

OLQ

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568
 Test Date: 3/26/12
 Start Time: 08:11
 Stop Time: 08:25
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 29.90
 Static P: -10.5
 O₂ (dry volume %): 8.82
 CO₂ (dry volume %): 10.28
 N₂+CO (dry volume %): 80.89

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 21.30

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.41			308			0.64		
1-02		0.40			308			0.63		
1-03		0.40			308			0.63		
1-04		0.34			308			0.58		
1-05		0.34			308			0.58		
2-01		0.44			307			0.66		
2-02		0.44			307			0.66		
2-03		0.42			307			0.65		
2-04		0.41			308			0.64		
2-05		0.40			308			0.63		
3-01		0.35			308			0.59		
3-02		0.42			308			0.65		
3-03		0.42			308			0.65		
3-04		0.40			308			0.63		
3-05		0.39			308			0.62		
4-01		0.47			307			0.69		
4-02		0.48			307			0.69		
4-03		0.45			308			0.67		
4-04		0.46			308			0.68		
4-05		0.42			308			0.65		
5-01		0.37			308			0.61		
5-02		0.40			308			0.63		
5-03		0.41			307			0.64		
5-04		0.42			307			0.65		
5-05		0.41			307			0.64		
Final	0.0				307.68000			0.64034		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.6403
 307.6800
 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 2 FF Outlet

Test Run: 2

Client: Wheelabrator North Broward, Inc.

Project No: 11414

Source Area (ft²): 64.00000

Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568

Test Date: 3/26/12

Start Time: 09:10

Stop Time: 09:20

Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 29.90

Static P: -10.5

O₂ (dry volume %): 7.86

CO₂ (dry volume %): 11.09

N₂+CO (dry volume %): 81.04

Nozzle ID No: NA

Nozzle Diameter (D_n): 66-8P-13

Probe ID No: NA

Pitot C_p: 0.827

Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):

H₂O (silica, g):

Actual Moisture (%): 22.42

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01		0.33			306			0.57		
1-02		0.35			306			0.59		
1-03		0.35			305			0.59		
1-04		0.33			305			0.57		
1-05		0.43			304			0.66		
2-01		0.30			305			0.55		
2-02		0.30			305			0.55		
2-03		0.32			305			0.57		
2-04		0.38			306			0.62		
2-05		0.38			304			0.62		
3-01		0.29			305			0.54		
3-02		0.28			305			0.53		
3-03		0.30			305			0.55		
3-04		0.32			305			0.57		
3-05		0.35			305			0.59		
4-01		0.31			304			0.56		
4-02		0.29			304			0.54		
4-03		0.31			304			0.56		
4-04		0.33			304			0.57		
4-05		0.33			305			0.57		
5-01		0.29			304			0.54		
5-02		0.30			304			0.55		
5-03		0.33			304			0.57		
5-04		0.27			304			0.52		
5-05		0.31			304			0.56		
Final	0.0				304.68000			0.56771		

25 points sampled

QC-Check: Field Averages

Sq.Rt.ΔP				
0.5677			304.6800	

Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 091645

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: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 29.90
 Static P: -10.6
 O₂ (dry volume %): 7.99
 CO₂ (dry volume %): 11.00
 N₂+CO (dry volume %): 81.01

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Meter Operator: K. Sullivan 579
 Probe Operator:
 Test Date: 3/26/12
 Start Time: 09:57
 Stop Time: 10:07
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.42

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.30			307			0.55		
1-02		0.30			307			0.55		
1-03		0.29			307			0.54		
1-04		0.30			307			0.55		
1-05		0.28			307			0.53		
2-01		0.32			306			0.57		
2-02		0.30			306			0.55		
2-03		0.31			306			0.56		
2-04		0.31			307			0.56		
2-05		0.30			306			0.55		
3-01		0.35			306			0.59		
3-02		0.37			306			0.61		
3-03		0.37			305			0.61		
3-04		0.38			304			0.62		
3-05		0.41			304			0.64		
4-01		0.36			305			0.60		
4-02		0.36			306			0.60		
4-03		0.40			307			0.63		
4-04		0.40			307			0.63		
4-05		0.40			307			0.63		
5-01		0.38			306			0.62		
5-02		0.36			306			0.60		
5-03		0.35			306			0.59		
5-04		0.38			306			0.62		
5-05		0.41			306			0.64		
Final	0.0				306.12000			0.58850		

25 points sampled
 QC-Check: Field Averages
 Sq.RI.ΔP: 0.5885 306.1200

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator:
 Test Date: 3/26/12
 Start Time: 10:29
 Stop Time: 10:41
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 29.90
 Static P: -10.6
 O₂ (dry volume %): 7.91
 CO₂ (dry volume %): 11.13
 N₂+CO (dry volume %): 80.97

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 19.76

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01		0.36			305			0.60		
1-02		0.35			306			0.59		
1-03		0.39			306			0.62		
1-04		0.38			306			0.62		
1-05		0.40			307			0.63		
2-01		0.35			307			0.59		
2-02		0.38			307			0.62		
2-03		0.36			307			0.60		
2-04		0.38			307			0.62		
2-05		0.36			307			0.60		
3-01		0.35			306			0.59		
3-02		0.35			306			0.59		
3-03		0.36			307			0.60		
3-04		0.39			307			0.62		
3-05		0.45			307			0.67		
4-01		0.33			305			0.57		
4-02		0.35			306			0.59		
4-03		0.38			306			0.62		
4-04		0.43			306			0.66		
4-05		0.46			306			0.68		
5-01		0.41			304			0.64		
5-02		0.39			304			0.62		
5-03		0.35			305			0.59		
5-04		0.36			306			0.60		
5-05		0.42			306			0.65		
Final	0.0				306.08000			0.61556		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.6156 306.0800

Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 091645

USEPA Method 3 Laboratory Data

Location: Unit 2 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
1	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		10.28182		8.82336	80.89481	29.99803	1.17456	<input checked="" type="checkbox"/> Fo value within expected range.
2	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		11.09421		7.86106	81.04474	30.08952	1.17529	<input checked="" type="checkbox"/> Fo value within expected range.
3	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		11.00311		7.98773	81.00916	30.08001	1.17351	<input checked="" type="checkbox"/> Fo value within expected range.
4	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		11.12651		7.90743	80.96606	30.09654	1.16771	<input checked="" type="checkbox"/> Fo value within expected range.

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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567

Bar. Press. (in. Hg): 29.90
 Static P: -10.5
 O₂ (dry volume %): 8.22
 CO₂ (dry volume %): 10.81
 N₂+CO (dry volume %): 80.96

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/26/12
 Start Time: 11:06
 Stop Time: 11:16
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 19.76

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01		0.34			304			0.58		
1-02		0.35			304			0.59		
1-03		0.35			306			0.59		
1-04		0.34			306			0.58		
1-05		0.36			305			0.60		
2-01		0.34			307			0.58		
2-02		0.36			307			0.60		
2-03		0.34			307			0.58		
2-04		0.36			307			0.60		
2-05		0.35			307			0.59		
3-01		0.43			306			0.66		
3-02		0.41			307			0.64		
3-03		0.43			307			0.66		
3-04		0.45			307			0.67		
3-05		0.47			307			0.69		
4-01		0.40			306			0.63		
4-02		0.38			306			0.62		
4-03		0.40			306			0.63		
4-04		0.43			307			0.66		
4-05		0.44			307			0.66		
5-01		0.43			307			0.66		
5-02		0.40			307			0.63		
5-03		0.42			307			0.65		
5-04		0.42			307			0.65		
5-05		0.47			307			0.69		
Final	0.0				306.44000			0.62743		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt. ΔP: 0.6268
 306.4400

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 2 FF Outlet
 Test Run: 6
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567

Bar. Press. (in. Hg): 29.90
 Static P: -9.9
 O₂ (dry volume %): 8.20
 CO₂ (dry volume %): 10.79
 N₂+CO (dry volume %): 81.01

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/26/12
 Start Time: 11:48
 Stop Time: 11:59
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.38

Meter Box ID. No: NA
 Meter ΔH@: NA
 Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _a (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.35			306			0.59		
1-02		0.30			306			0.55		
1-03		0.34			306			0.58		
1-04		0.36			306			0.60		
1-05		0.32			306			0.57		
2-01		0.41			306			0.64		
2-02		0.42			306			0.65		
2-03		0.40			305			0.63		
2-04		0.38			305			0.62		
2-05		0.39			305			0.62		
3-01		0.42			305			0.65		
3-02		0.44			305			0.66		
3-03		0.41			306			0.64		
3-04		0.40			306			0.63		
3-05		0.38			306			0.62		
4-01		0.30			305			0.55		
4-02		0.33			305			0.57		
4-03		0.35			305			0.59		
4-04		0.32			305			0.57		
4-05		0.29			305			0.54		
5-01		0.36			305			0.60		
5-02		0.37			305			0.61		
5-03		0.33			305			0.57		
5-04		0.30			305			0.55		
5-05		0.30			305			0.55		
Final	0.0				305.40000			0.59787		

25 points sampled
 QC-Check: Field Averages Sq.Rt.ΔP 0.5979 305.4000

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 2 FF Outlet
 Test Run: 7
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: B. Arnold 770

Bar. Press. (in. Hg): 29.90
 Static P: -10.0
 O₂ (dry volume %): 7.92
 CO₂ (dry volume %): 11.02
 N₂+CO (dry volume %): 81.06

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/26/12
 Start Time: 12:24
 Stop Time: 12:32
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.38

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.32			307			0.57		
1-02		0.32			307			0.57		
1-03		0.32			307			0.57		
1-04		0.28			307			0.53		
1-05		0.29			307			0.54		
2-01		0.33			307			0.57		
2-02		0.32			307			0.57		
2-03		0.34			307			0.58		
2-04		0.30			307			0.55		
2-05		0.30			307			0.55		
3-01		0.34			304			0.58		
3-02		0.31			303			0.56		
3-03		0.35			303			0.59		
3-04		0.34			304			0.58		
3-05		0.33			305			0.57		
4-01		0.36			305			0.60		
4-02		0.38			305			0.62		
4-03		0.38			305			0.62		
4-04		0.39			305			0.62		
4-05		0.38			305			0.62		
5-01		0.36			305			0.60		
5-02		0.32			305			0.57		
5-03		0.35			305			0.59		
5-04		0.38			305			0.62		
5-05		0.42			305			0.65		
Final	0.0				305.56000			0.58272		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt. ΔP: 0.5827 305.5600
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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USEPA Method 3 Laboratory Data

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Location: Unit 2 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
5	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.81304		8.22491	80.96205	30.05908	1.17220	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
6	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.79231		8.20049	81.00720	30.05479	1.17672	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
7	1							
	2							
	3							
Avg.								
CEM or Other Avg:		11.02115		7.92050	81.05835	30.08020	1.17769	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
	1							
	2							
	3							
Avg.								
CEM or Other Avg:								<input type="checkbox"/> Fo value within expected range.

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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567

Bar. Press. (in. Hg): 29.90
 Static P: -10.3
 O₂ (dry volume %): 8.13
 CO₂ (dry volume %): 10.82
 N₂+CO (dry volume %): 81.04

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/26/12
 Start Time: 13:07
 Stop Time: 13:18
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.63

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.31			306			0.56		
1-02		0.33			306			0.57		
1-03		0.37			305			0.61		
1-04		0.32			304			0.57		
1-05		0.37			304			0.61		
2-01		0.31			305			0.56		
2-02		0.32			305			0.57		
2-03		0.32			304			0.57		
2-04		0.35			305			0.59		
2-05		0.38			306			0.62		
3-01		0.39			305			0.62		
3-02		0.37			305			0.61		
3-03		0.35			305			0.59		
3-04		0.39			306			0.62		
3-05		0.42			305			0.65		
4-01		0.40			305			0.63		
4-02		0.38			305			0.62		
4-03		0.40			305			0.63		
4-04		0.35			305			0.59		
4-05		0.35			305			0.59		
5-01		0.39			305			0.62		
5-02		0.36			305			0.60		
5-03		0.38			305			0.62		
5-04		0.39			305			0.62		
5-05		0.43			305			0.66		
Final	0.0				305.04000			0.60370		

25 points sampled
 QC-Check: Field Averages
 So. Rt. ΔP: 0.6037
 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: 9
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567
 Test Date: 3/26/12
 Start Time: 13:44
 Stop Time: 13:53
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 29.90
 Static P: -10.1
 O₂ (dry volume %): 7.93
 CO₂ (dry volume %): 11.05
 N₂+CO (dry volume %): 81.02

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.63

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.31			305			0.56		
1-02		0.30			305			0.55		
1-03		0.31			305			0.56		
1-04		0.29			305			0.54		
1-05		0.30			305			0.55		
2-01		0.31			305			0.56		
2-02		0.32			305			0.57		
2-03		0.33			305			0.57		
2-04		0.32			305			0.57		
2-05		0.36			305			0.60		
3-01		0.33			305			0.57		
3-02		0.34			306			0.58		
3-03		0.35			305			0.59		
3-04		0.35			305			0.59		
3-05		0.33			305			0.57		
4-01		0.37			305			0.61		
4-02		0.39			305			0.62		
4-03		0.39			305			0.62		
4-04		0.36			306			0.60		
4-05		0.41			306			0.64		
5-01		0.42			306			0.65		
5-02		0.37			305			0.61		
5-03		0.38			305			0.62		
5-04		0.39			305			0.62		
5-05		0.41			305			0.64		
Final	0.0				305.16000			0.59042		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.5904 305.1600
 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 2 FF Outlet

Test Run: 10

Client: Wheelabrator North Broward, Inc.

Project No: 11414

Source Area (ft²): 64.00000

Meter Operator:	K. Sullivan	579
Probe Operator:	B. Arnold	770

Bar. Press. (in. Hg): 29.90

Static P: -10.2

O₂ (dry volume %): 7.90

CO₂ (dry volume %): 11.10

N₂+CO (dry volume %): 81.00

Nozzle ID No: NA

Nozzle Diameter (D_n): 66-8P-13

Probe ID No: NA

Pilot C_p: 0.827

Pitot Leak Check: Pass Fail

Test Date: 3/26/12

Start Time: 14:23

Stop Time: 14:30

Leak Rate Before:	NA	cfm	
Leak Rate After:	NA	cfm	

H₂O (condensate, ml or gm):

H₂O (silica, g):

Actual Moisture (%): 22.55

Meter Box ID No: NA

Meter ΔH@: NA

Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read	Pilot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01		0.31			305			0.56		
1-02		0.31			305			0.56		
1-03		0.33			305			0.57		
1-04		0.32			305			0.57		
1-05		0.30			305			0.55		
2-01		0.28			305			0.53		
2-02		0.31			305			0.56		
2-03		0.32			305			0.57		
2-04		0.33			306			0.57		
2-05		0.32			305			0.57		
3-01		0.39			304			0.62		
3-02		0.38			305			0.62		
3-03		0.38			306			0.62		
3-04		0.37			306			0.61		
3-05		0.36			306			0.60		
4-01		0.38			305			0.62		
4-02		0.38			305			0.62		
4-03		0.41			305			0.64		
4-04		0.37			305			0.61		
4-05		0.35			304			0.59		
5-01		0.37			305			0.61		
5-02		0.36			305			0.60		
5-03		0.34			305			0.58		
5-04		0.37			305			0.61		
5-05		0.37			305			0.61		
Final	0.0				305.08000			0.58959		

25 points sampled

QC-Check: Field Averages

Sq.Rt.ΔP	0.5896		305.0800	
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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USEPA Method 3 Laboratory Data

Location: Unit 2 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
8	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.82213		8.13488	81.04299	30.05694	1.17954	<input checked="" type="checkbox"/> Fo value within expected range.
9	1							
	2							
	3							
Avg.								
CEM or Other Avg:		11.05177		7.92562	81.02261	30.08531	1.17396	<input checked="" type="checkbox"/> Fo value within expected range.
10	1							
	2							
	3							
Avg.								
CEM or Other Avg:		11.09977		7.89861	81.00162	30.09191	1.17132	<input checked="" type="checkbox"/> Fo value within expected range.
	1							
	2							
	3							
Avg.								
CEM or Other Avg:								<input type="checkbox"/> Fo value within expected range.

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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: K. Sullivan 579

Bar. Press. (in. Hg): 29.90
 Static P: -10.5
 O₂ (dry volume %): 8.80
 CO₂ (dry volume %): 10.52
 N₂+CO (dry volume %): 80.68

Nozzle ID No: NA
 Nozzle Diameter (D_n): NA
 Probe ID No: 67-4-3
 Pitot C_p: NA
 Pitot Leak Check: Pass Fail

Test Date: 3/26/12
 Start Time: 07:12
 Stop Time: 08:27
 Leak Rate Before: 0.001 cfm @ 15 "Hg
 Leak Rate After: 0.002 cfm @ 5 "Hg

H₂O (condensate, ml or gm): 231.0
 H₂O (silica, g): 11.4
 Actual Moisture (%): 21.30

Meter Box ID. No: 61-5
 Meter ΔH@: 1.71850
 Meter Y_d: 0.99920

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			396.930						
3-03	5.0		1.50	400.540	304	73	70		3.61	
3-03	7.5		1.50	402.970	303	76	71		2.43	
LEAK CHECK	7.5			404.020						
3-03	10.0		1.50	405.200	303	76	71		1.18	
3-03	15.0		1.50	408.790	303	78	73		3.59	
3-03	20.0		1.50	412.300	303	82	74		3.51	
3-03	25.0		1.50	415.910	304	84	75		3.61	
3-03	30.0		1.50	419.500	303	86	76		3.59	
3-03	35.0		1.50	423.080	304	86	76		3.58	
3-03	40.0		1.50	426.650	303	86	76		3.57	
3-03	45.0		1.50	430.230	303	87	77		3.58	
3-03	50.0		1.50	433.790	303	87	77		3.56	
3-03	55.0		1.50	437.370	303	87	77		3.58	
3-03	60.0		1.50	440.925	303	87	77		3.56	
Final	60.0		1.50000	42.94500	303.25000	79.08333		0.00000	42.94500	

9 points sampled Sq.Rt.ΔP

QC-Check: Field Averages	1.5000	42.9450	303.2500	79.0833
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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 2 FF Outlet

Test Run: 2

Client: Wheelabrator North Broward, Inc.

Project No: 11414

Source Area (ft²): 64.00000

Meter Operator: K. Sullivan 579

Probe Operator: K. Sullivan 579

Test Date: 3/26/12

Start Time: 08:51

Stop Time: 09:56

Leak Rate Before: 0.005 cfm @ 15 "Hg

Leak Rate After: 0.002 cfm @ 6 "Hg

Bar. Press. (in. Hg): 29.90

Static P: -10.5

O₂ (dry volume %): 7.87

CO₂ (dry volume %): 11.40

N₂+CO (dry volume %): 80.73

Nozzle ID No: NA

Nozzle Diameter (D_n): NA

Probe ID No: 67-4-3

Pitot C_p: NA

Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm): 239.9

H₂O (silica, g): 16.9

Actual Moisture (%): 22.42

Meter Box ID. No: 61-5

Meter ΔH@: 1.71850

Meter Y_d: 0.99920

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			441.575						
3-03	5.0		1.50	445.270	304	81	77		3.69	
3-03	10.0		1.50	448.800	303	85	78		3.53	
3-03	15.0		1.50	452.300	302	88	79		3.50	
3-03	20.0		1.50	455.800	303	90	80		3.50	
3-03	25.0		1.50	459.430	303	90	80		3.63	
3-03	30.0		1.50	463.060	303	90	80		3.63	
3-03	35.0		1.50	466.730	303	91	81		3.67	
3-03	40.0		1.50	470.350	302	91	81		3.62	
3-03	45.0		1.50	474.000	301	91	81		3.65	
3-03	50.0		1.50	477.520	301	91	81		3.52	
3-03	55.0		1.50	481.080	301	91	81		3.56	
3-03	60.0		1.50	484.620	301	91	81		3.54	
Final	60.0		1.50000	43.04500	302.25000	84.58333		0.00000	43.04500	

9 points sampled

Sq.Rt.AP

QC-Check: Field Averages

1.5000	43.0450	302.2500	84.5833
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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Field Data Printout

Test Method: USEPA Method 26A
Analyte: HCI

Location: Unit 2 FF Outlet
 Test Run: 3

Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000

Meter Operator: K. Sullivan 579
 Probe Operator: K. Sullivan 579

Test Date: 3/26/12

Start Time: 10:21

Stop Time: 11:21

Leak Rate Before: 0.004 cfm @ 15 "Hg
 Leak Rate After: 0.004 cfm @ 8 "Hg

Bar. Press. (in. Hg): 29.90
 Static P: -10.6

O₂ (dry volume %): 9.73
 CO₂ (dry volume %): 9.76
 N₂+CO (dry volume %): 80.51

Nozzle ID No: NA
 Nozzle Diameter (D_n): NA
 Probe ID No: 67-4-3
 Pitot C_p: NA
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm): 194.5

H₂O (silica, g): 21.0

Actual Moisture (%): 19.76

Meter Box ID. No: 61-5

Meter ΔH@: 1.71850

Meter Y_d: 0.99920

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			485.395						
3-03	5.0		1.50	488.860	303	92	86		3.47	
3-03	10.0		1.50	492.380	303	93	86		3.52	
3-03	15.0		1.50	495.900	303	93	86		3.52	
3-03	20.0		1.50	499.460	302	95	87		3.56	
3-03	25.0		1.50	502.940	302	95	87		3.48	
3-03	30.0		1.50	506.580	302	95	87		3.64	
3-03	35.0		1.50	510.150	302	95	87		3.57	
3-03	40.0		1.50	513.730	302	95	87		3.58	
3-03	45.0		1.50	517.320	303	95	87		3.59	
3-03	50.0		1.50	521.000	303	95	87		3.68	
3-03	55.0		1.50	524.610	303	95	87		3.61	
3-03	60.0		1.50	528.250	303	95	87		3.64	
Final	60.0		1.50000	42.85500	302.58333	90.58333		0.00000	42.85500	

9 points sampled.

Sq.Rt.ΔP

QC-Check: Field Averages

1.5000	42.8550	302.5833	90.5833
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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USEPA Method 4 Laboratory Data

Location: Unit 2 FF Outlet

Client: Wheelabrator North Broward, Inc.

Project No: 11414

Test Method: **USEPA Method 26A**

Analyte: **HCl**

Analyst: R. Vicere

Analyst Emp No: 563

Test Run: 1

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	532.2	458.1	74.1
Impinger 2	100 ml 0.1N H2SO4	667.1	543.3	123.8
Impinger 3	100 ml 0.1N H2SO4	658.8	631.5	27.3
Impinger 4	Empty	445.3	439.5	5.8
Impinger 5	Silica Gel	730.9	719.5	11.4
Impinger 6				
Impinger 7				
Impinger 8				

231.0 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
231.0 Net Liquid (gm)		231.0 <input checked="" type="checkbox"/> QA/QC OK
+ 11.4 Silica Gel (gm)		11.4 <input checked="" type="checkbox"/> QA/QC OK
242.4 Total Vlc (gm)		242.4 <input checked="" type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

Test Run: 2

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	618.0	553.6	64.4
Impinger 2	100 ml 0.1N H2SO4	750.1	628.3	121.8
Impinger 3	100 ml 0.1N H2SO4	583.1	539.6	43.5
Impinger 4	Empty	484.9	474.7	10.2
Impinger 5	Silica Gel	764.5	747.6	16.9
Impinger 6				
Impinger 7				
Impinger 8				

239.9 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
239.9 Net Liquid (gm)		239.9 <input checked="" type="checkbox"/> QA/QC OK
+ 16.9 Silica Gel (gm)		16.9 <input checked="" type="checkbox"/> QA/QC OK
256.8 Total Vlc (gm)		256.8 <input checked="" type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

Test Run: 3

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	498.5	460.1	38.4
Impinger 2	100 ml 0.1N H2SO4	659.2	555.1	104.1
Impinger 3	100 ml 0.1N H2SO4	584.0	544.0	40.0
Impinger 4	Empty	450.2	438.2	12.0
Impinger 5	Silica Gel	804.8	783.8	21.0
Impinger 6				
Impinger 7				
Impinger 8				

194.5 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
194.5 Net Liquid (gm)		194.5 <input checked="" type="checkbox"/> QA/QC OK
+ 21.0 Silica Gel (gm)		21.0 <input checked="" type="checkbox"/> QA/QC OK
215.5 Total Vlc (gm)		215.5 <input checked="" type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1				
Impinger 2				
Impinger 3				
Impinger 4				
Impinger 5				
Impinger 6				
Impinger 7				
Impinger 8				

Liquid (gm)	<i>Field Data Check</i>	
less rinse (gm)		
Net Liquid (gm)		<input type="checkbox"/> QA/QC OK
Silica Gel (gm)		<input type="checkbox"/> QA/QC OK
Total Vlc (gm)		<input type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

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USEPA Method 3 Laboratory Data

Location: Unit 2 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 26A
 Analyte: HCl

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
1	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.52000	8.80000	80.68000	30.03520	1.15019	<input checked="" type="checkbox"/> Fo value within expected range.	
2	1							
	2							
	3							
Avg.								
CEM or Other Avg:		11.40000	7.87000	80.73000	30.13880	1.14298	<input checked="" type="checkbox"/> Fo value within expected range.	
3	1							
	2							
	3							
Avg.								
CEM or Other Avg:		9.76000	9.73000	80.51000	29.95080	1.14447	<input checked="" type="checkbox"/> Fo value within expected range.	
	1							
	2							
	3							
Avg.								
CEM or Other Avg:							<input type="checkbox"/> Fo value within expected range.	

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Field Data Printout

Test Method: USEPA Method 4
Analyte: Moisture

Location: Unit 2 FF Outlet
 Test Run: 1
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 29.90
 Static P: -9.9
 O₂ (dry volume %): N/A
 CO₂ (dry volume %): N/A
 N₂+CO (dry volume %): N/A

Nozzle ID No: N/A
 Nozzle Diameter (D_n): N/A
 Probe ID No: N/A
 Pitot C_p: N/A
 Pitot Leak Check: Pass Fail

Test Date: 3/26/12
 Start Time: 11:47
 Stop Time: 12:32
 Leak Rate Before: 0.004 cfm @ 15 "Hg
 Leak Rate After: 0.002 cfm @ 5 "Hg

H₂O (condensate, ml or gm): 163.0
 H₂O (silica, g): 12.6
 Actual Moisture (%): 22.38

Meter Box ID. No: 66-4
 Meter ΔH@: N/A
 Meter Y_d: 0.99530

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			319.54						
3-03	5.0	N/A	1.30	322.84	N/A	87	86	N/A	3.30	N/A
3-03	10.0		1.30	325.91		87	87		3.07	
3-03	15.0		1.30	329.29		89	87		3.38	
3-03	20.0		1.30	332.50		89	87		3.21	
3-03	25.0		1.30	335.67		89	88		3.17	
3-03	30.0		1.30	339.13		92	89		3.46	
3-03	35.0		1.30	342.57		96	89		3.44	
3-03	40.0		1.30	346.04		97	91		3.47	
3-03	45.0		1.30	349.47		98	91		3.42	
Final	45.0		1.30000	29.92500	N/A	89.94444		N/A	29.92500	

9 points sampled
 QC-Check: Field Averages

Sq. Rt. ΔP	N/A	1.3000	29.9250	N/A	89.9444
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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Field Data Printout

Test Method: USEPA Method 4
Analyte: Moisture

Location: Unit 2 FF Outlet
Test Run: 2
Client: Wheelabrator North Broward, Inc.
Project No: 11414
Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 29.90
Static P: -9.9
O₂ (dry volume %): N/A
CO₂ (dry volume %): N/A
N₂+CO (dry volume %): N/A

Nozzle ID No: N/A
Nozzle Diameter (D_n): N/A
Probe ID No: N/A
Pitot C_p: N/A
Pitot Leak Check: Pass Fail

Test Date: 3/26/12
Start Time: 13:06
Stop Time: 13:51
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 5 "Hg

H₂O (condensate, ml or gm): 165.0
H₂O (silica, g): 8.5
Actual Moisture (%): 22.63

Meter Box ID. No: 66-4
Meter ΔH@: N/A
Meter Y_d: 0.99530

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			349.66						
3-03	5.0	N/A	1.30	352.96	N/A	92	91	N/A	3.31	N/A
3-03	10.0		1.30	356.26		94	92		3.30	
3-03	15.0		1.30	359.53		96	93		3.27	
3-03	20.0		1.30	362.79		97	93		3.26	
3-03	25.0		1.30	366.04		96	93		3.25	
3-03	30.0		1.30	369.29		96	93		3.25	
3-03	35.0		1.30	372.55		96	93		3.26	
3-03	40.0		1.30	375.80		96	93		3.25	
3-03	45.0		1.30	379.02		96	93		3.22	
Final	45.0		1.30000	29.36500	N/A	94.05556		N/A	29.36500	

9 points sampled
QC-Check: Field Averages

Sq. Rt. ΔP	N/A	1.3000	29.3650	N/A	94.0556
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Avg. OK
 Avg. OK
 Avg. OK
 Avg. OK
 Avg. OK

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N

Field Data Printout

Test Method: USEPA Method 4
Analyte: Moisture

Location: Unit 2 FF Outlet
Test Run: 3
Client: Wheelabrator North Broward, Inc.
Project No: 11414
Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 29.90
Static P: -10.1
O₂ (dry volume %): N/A
CO₂ (dry volume %): N/A
N₂+CO (dry volume %): N/A

Nozzle ID No: N/A
Nozzle Diameter (D_n): N/A
Probe ID No: N/A
Pitot C_p: N/A
Pitot Leak Check: Pass Fail

Test Date: 3/26/12
Start Time: 14:22
Stop Time: 15:07
Leak Rate Before: 0.003 cfm @ 15 "Hg
Leak Rate After: 0.002 cfm @ 5 "Hg

H₂O (condensate, ml or gm): 163.0
H₂O (silica, g): 10.5
Actual Moisture (%): 22.55

Meter Box ID. No: 66-4
Meter ΔH@: N/A
Meter Y_d: 0.99530

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			379.16						
5-03	5.0	N/A	1.30	382.62	N/A	96	96	N/A	3.46	N/A
5-03	10.0		1.30	385.82		98	96		3.20	
5-03	15.0		1.30	389.06		99	96		3.24	
5-03	20.0		1.30	392.35		99	96		3.29	
5-03	25.0		1.30	395.65		99	96		3.30	
5-03	30.0		1.30	398.95		99	96		3.30	
5-03	35.0		1.30	402.28		98	96		3.33	
5-03	40.0		1.30	405.53		96	94		3.25	
5-03	45.0		1.30	408.80		96	96		3.27	
Final	45.0		1.30000	29.64000	N/A	96.77778		N/A	29.64000	

15 points sampled
QC-Check: Field Averages

Sq.Rt.ΔP	N/A	1.3000	29.6400	N/A	96.7778
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Avg. OK
 Avg. OK
 Avg. OK
 Avg. OK
 Avg. OK

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USEPA Method 4 Laboratory Data

Location: Unit 2 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414

Test Method: USEPA Method 4
 Analyte: Moisture

Test Run: 1

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water	263.0	100.0	163.0
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel	312.6	300.0	12.6
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

163.0 Liquid (gm)	Field Data Check
0.0 less rinse (gm)	
163.0 Net Liquid (gm)	163.0 <input checked="" type="checkbox"/> QA/QC OK
+ 12.6 Silica Gel (gm)	12.6 <input checked="" type="checkbox"/> QA/QC OK
175.6 Total Vlc (gm)	175.6 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: 2

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water	265.0	100.0	165.0
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel	308.5	300.0	8.5
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

165.0 Liquid (gm)	Field Data Check
0.0 less rinse (gm)	
165.0 Net Liquid (gm)	165.0 <input checked="" type="checkbox"/> QA/QC OK
+ 8.5 Silica Gel (gm)	8.5 <input checked="" type="checkbox"/> QA/QC OK
173.5 Total Vlc (gm)	173.5 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: 3

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water	263.0	100.0	163.0
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel	310.5	300.0	10.5
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

163.0 Liquid (gm)	Field Data Check
0.0 less rinse (gm)	
163.0 Net Liquid (gm)	163.0 <input checked="" type="checkbox"/> QA/QC OK
+ 10.5 Silica Gel (gm)	10.5 <input checked="" type="checkbox"/> QA/QC OK
173.5 Total Vlc (gm)	173.5 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: _____

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water			
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel			
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

Liquid (gm)	Field Data Check
less rinse (gm)	
Net Liquid (gm)	<input type="checkbox"/> QA/QC OK
Silica Gel (gm)	<input type="checkbox"/> QA/QC OK
Total Vlc (gm)	<input type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

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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: 11414

Source Area (ft²): 64.00000

Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568

Test Date: 3/27/12

Start Time: 07:20

Stop Time: 07:31

Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
 Static P: -10.1
 O₂ (dry volume %): 8.77
 CO₂ (dry volume %): 10.34
 N₂+CO (dry volume %): 80.90

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.92

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.38			310			0.62		
1-02		0.37			311			0.61		
1-03		0.40			310			0.63		
1-04		0.42			310			0.65		
1-05		0.42			309			0.65		
2-01		0.42			307			0.65		
2-02		0.41			308			0.64		
2-03		0.43			308			0.66		
2-04		0.44			308			0.66		
2-05		0.42			308			0.65		
3-01		0.42			306			0.65		
3-02		0.41			306			0.64		
3-03		0.41			307			0.64		
3-04		0.42			307			0.65		
3-05		0.42			307			0.65		
4-01		0.48			311			0.69		
4-02		0.45			311			0.67		
4-03		0.46			310			0.68		
4-04		0.47			310			0.69		
4-05		0.50			311			0.71		
5-01		0.48			309			0.69		
5-02		0.48			309			0.69		
5-03		0.46			309			0.68		
5-04		0.45			309			0.67		
5-05		0.46			309			0.68		
Final	0.0				308.8000			0.65925		

25 points sampled

Sq.Rt. ΔP

QC-Check: Field Averages

0.6592

308.8000

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568

Bar. Press. (in. Hg): 30.00
 Static P: -10.2
 O₂ (dry volume %): 8.62
 CO₂ (dry volume %): 10.42
 N₂+CO (dry volume %): 80.96

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/27/12
 Start Time: 08:12
 Stop Time: 08:25
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.92

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.40			309			0.63		
1-02		0.38			310			0.62		
1-03		0.38			309			0.62		
1-04		0.38			309			0.62		
1-05		0.34			309			0.58		
2-01		0.36			309			0.60		
2-02		0.41			309			0.64		
2-03		0.42			310			0.65		
2-04		0.39			310			0.62		
2-05		0.35			309			0.59		
3-01		0.55			308			0.74		
3-02		0.52			308			0.72		
3-03		0.48			308			0.69		
3-04		0.42			308			0.65		
3-05		0.40			309			0.63		
4-01		0.55			308			0.74		
4-02		0.50			308			0.71		
4-03		0.44			309			0.66		
4-04		0.40			308			0.63		
4-05		0.36			308			0.60		
5-01		0.54			309			0.73		
5-02		0.43			309			0.66		
5-03		0.40			309			0.63		
5-04		0.39			309			0.62		
5-05		0.45			309			0.67		
Final	0.0				308.80000			0.65073		

25 points sampled Sq.Rt.ΔP
 QC-Check: Field Averages 0.6507 308.8000

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: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 30.00
 Static P: -9.7
 O₂ (dry volume %): 8.91
 CO₂ (dry volume %): 10.18
 N₂+CO (dry volume %): 80.91

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Meter Operator: K. Sullivan 579
 Probe Operator: D. Luckhard 568

Test Date: 3/27/12
 Start Time: 08:38
 Stop Time: 08:49

Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.09

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.48			310			0.69		
1-02		0.50			310			0.71		
1-03		0.48			310			0.69		
1-04		0.47			310			0.69		
1-05		0.45			310			0.67		
2-01		0.45			308			0.67		
2-02		0.44			308			0.66		
2-03		0.41			308			0.64		
2-04		0.38			309			0.62		
2-05		0.40			308			0.63		
3-01		0.37			310			0.61		
3-02		0.38			311			0.62		
3-03		0.40			310			0.63		
3-04		0.42			310			0.65		
3-05		0.45			310			0.67		
4-01		0.38			310			0.62		
4-02		0.37			310			0.61		
4-03		0.39			310			0.62		
4-04		0.42			310			0.65		
4-05		0.44			310			0.66		
5-01		0.43			309			0.66		
5-02		0.41			309			0.64		
5-03		0.40			309			0.63		
5-04		0.38			309			0.62		
5-05		0.40			309			0.63		
Final	0.0				309.48000			0.64746		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.6475 309.4800
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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USEPA Method 3 Laboratory Data

Location: Unit 3 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
 Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
1	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.33857		8.76530	80.89613	30.00478	1.17373	<input checked="" type="checkbox"/> F _o value within expected range.
2	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.42221		8.62141	80.95638	30.01241	1.17812	<input checked="" type="checkbox"/> F _o value within expected range.
3	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.18071		8.91009	80.90920	29.98532	1.17771	<input checked="" type="checkbox"/> F _o value within expected range.
4	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.24232		8.84382	80.91386	29.99252	1.17709	<input checked="" type="checkbox"/> F _o value within expected range.

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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567

Bar. Press. (in. Hg): 30.00
 Static P: -9.8
 O₂ (dry volume %): 8.46
 CO₂ (dry volume %): 10.56
 N₂+CO (dry volume %): 80.98

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/27/12
 Start Time: 10:10
 Stop Time: 10:22
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.77

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.36			311			0.60		
1-02		0.37			311			0.61		
1-03		0.38			311			0.62		
1-04		0.38			311			0.62		
1-05		0.36			311			0.60		
2-01		0.38			310			0.62		
2-02		0.42			310			0.65		
2-03		0.41			310			0.64		
2-04		0.40			310			0.63		
2-05		0.40			310			0.63		
3-01		0.53			313			0.73		
3-02		0.51			312			0.71		
3-03		0.48			313			0.69		
3-04		0.47			312			0.69		
3-05		0.45			312			0.67		
4-01		0.45			313			0.67		
4-02		0.49			312			0.70		
4-03		0.48			313			0.69		
4-04		0.46			312			0.68		
4-05		0.44			311			0.66		
5-01		0.50			310			0.71		
5-02		0.50			311			0.71		
5-03		0.43			311			0.66		
5-04		0.42			311			0.65		
5-05		0.49			312			0.70		
Final	0.0				311.32000			0.66102		

25 points sampled Sq Rt. ΔP
 QC-Check: Field Averages **0.6610** **311.3200**
 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 3 FF Outlet
 Test Run: 6
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 30.00
 Static P: -9.8
 O₂ (dry volume %): 8.47
 CO₂ (dry volume %): 10.57
 N₂+CO (dry volume %): 80.96

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567
 Test Date: 3/27/12
 Start Time: 10:46
 Stop Time: 10:58
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 22.77

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.35			311			0.59		
1-02		0.35			311			0.59		
1-03		0.34			311			0.58		
1-04		0.35			311			0.59		
1-05		0.35			311			0.59		
2-01		0.36			311			0.60		
2-02		0.37			311			0.61		
2-03		0.39			311			0.62		
2-04		0.35			311			0.59		
2-05		0.34			311			0.58		
3-01		0.45			311			0.67		
3-02		0.45			312			0.67		
3-03		0.45			312			0.67		
3-04		0.43			312			0.66		
3-05		0.41			311			0.64		
4-01		0.48			310			0.69		
4-02		0.45			311			0.67		
4-03		0.43			311			0.66		
4-04		0.43			312			0.66		
4-05		0.42			312			0.65		
5-01		0.48			311			0.69		
5-02		0.46			312			0.68		
5-03		0.41			312			0.64		
5-04		0.40			312			0.63		
5-05		0.49			312			0.70		
Final	0.0				311.32000			0.63730		

25 points sampled
 QC-Check: Field Averages

Sq.Rt.ΔP	0.6373			311.3200
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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: 7
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator:
 Test Date: 3/27/12
 Start Time: 11:29
 Stop Time:
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
 Static P: -9.6
 O₂ (dry volume %): 8.20
 CO₂ (dry volume %): 10.82
 N₂+CO (dry volume %): 80.99

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm):
 H₂O (silica, g):
 Actual Moisture (%): 21.06

Meter Box ID. No: NA
 Meter ΔH@: NA
 Meter Y_d: NA

Traverse Point	Run Time 5.0 min/read 0.0	Pitot	Sample	Metered (dcf)	Stack	Dry Gas Meter		√ΔP _s	Volume	Isokinetics
		ΔP _s (in. H ₂ O)	ΔH (in. H ₂ O)		T _s (°F)	T _{m-in} (°F)	T _{m-out} (°F)	(calculated) (√in. H ₂ O)	(calculated) (ft ³)	(calculated) (%)
1-01		0.40			313			0.63		
1-02		0.42			313			0.65		
1-03		0.40			313			0.63		
1-04		0.37			313			0.61		
1-05		0.35			313			0.59		
2-01		0.41			312			0.64		
2-02		0.44			312			0.66		
2-03		0.38			312			0.62		
2-04		0.37			312			0.61		
2-05		0.34			312			0.58		
3-01		0.45			311			0.67		
3-02		0.43			311			0.66		
3-03		0.41			311			0.64		
3-04		0.36			312			0.60		
3-05		0.34			311			0.58		
4-01		0.50			311			0.71		
4-02		0.47			311			0.69		
4-03		0.41			311			0.64		
4-04		0.37			312			0.61		
4-05		0.36			311			0.60		
5-01		0.40			311			0.63		
5-02		0.34			311			0.58		
5-03		0.30			311			0.55		
5-04		0.34			311			0.58		
5-05		0.36			310			0.60		
Final	0.0				311.64000			0.62248		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.6225 311.6400
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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USEPA Method 3 Laboratory Data

Location: Unit 3 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
5	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.55944		8.45990	80.98066	30.02791	1.17810	<input checked="" type="checkbox"/> Fo value within expected range.
6	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.56974		8.47455	80.95571	30.03014	1.17557	<input checked="" type="checkbox"/> Fo value within expected range.
7	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.81618		8.19598	80.98784	30.05843	1.17454	<input checked="" type="checkbox"/> Fo value within expected range.
	1							
	2							
	3							
Avg.								
CEM or Other Avg:								<input type="checkbox"/> Fo value within expected range.

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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: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 30.00
 Static P: -9.6
 O₂ (dry volume %): 8.95
 CO₂ (dry volume %): 10.21
 N₂+CO (dry volume %): 80.84

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Meter Operator: K. Sullivan 579
 Probe Operator: A. Obuchowski 567
 Test Date: 3/27/12
 Start Time:
 Stop Time:
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
5-01	0.0	0.51			312			0.71		
5-02		0.42			310			0.65		
5-03		0.40			311			0.63		
5-04		0.44			311			0.66		
5-05		0.48			311			0.69		
2-01		0.33			310			0.57		
2-02		0.46			310			0.68		
2-03		0.41			310			0.64		
2-04		0.35			310			0.59		
2-05		0.33			310			0.57		
3-01		0.53			310			0.73		
3-02		0.53			310			0.73		
3-03		0.46			310			0.68		
3-04		0.41			311			0.64		
3-05		0.40			311			0.63		
4-01		0.53			310			0.73		
4-02		0.53			310			0.73		
4-03		0.47			310			0.69		
4-04		0.43			310			0.66		
4-05		0.41			310			0.64		
1-01		0.38			310			0.62		
1-02		0.40			310			0.63		
1-03		0.38			310			0.62		
1-04		0.35			310			0.59		
1-05		0.33			310			0.57		
Final	0.0				310.28000			0.65144		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.6514 310.2800
 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: 9
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000
 Meter Operator: B. Arnold 770
 Probe Operator: A. Obuchowski 567

Bar. Press. (in. Hg): 30.00
 Static P: -10.5
 O₂ (dry volume %): 8.85
 CO₂ (dry volume %): 10.26
 N₂+CO (dry volume %): 80.89

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Test Date: 3/27/12
 Start Time: 12:57
 Stop Time: 13:10
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

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 ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.44			313			0.66		
1-02		0.44			313			0.66		
1-03		0.43			312			0.66		
1-04		0.40			312			0.63		
1-05		0.39			312			0.62		
2-01		0.48			311			0.69		
2-02		0.47			311			0.69		
2-03		0.45			311			0.67		
2-04		0.40			310			0.63		
2-05		0.36			310			0.60		
3-01		0.51			312			0.71		
3-02		0.47			312			0.69		
3-03		0.45			312			0.67		
3-04		0.42			312			0.65		
3-05		0.38			312			0.62		
4-01		0.51			312			0.71		
4-02		0.46			312			0.68		
4-03		0.44			312			0.66		
4-04		0.42			312			0.65		
4-05		0.39			312			0.62		
5-01		0.46			311			0.68		
5-02		0.37			311			0.61		
5-03		0.37			310			0.61		
5-04		0.41			310			0.64		
5-05		0.43			310			0.66		
Final	0.0				311.48000			0.65501		

25 points sampled
 QC-Check: Field Averages
 Sq.Rt.ΔP: 0.6550
 311.4800

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: 10
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000
 Meter Operator: B. Arnold 770
 Probe Operator: A. Obuchowski 567
 Test Date: 3/27/12
 Start Time: 13:25
 Stop Time: 13:45
 Leak Rate Before: NA cfm
 Leak Rate After: NA cfm

Bar. Press. (in. Hg): 30.00
 Static P: -10.5
 O₂ (dry volume %): 8.96
 CO₂ (dry volume %): 10.14
 N₂+CO (dry volume %): 80.90

Nozzle ID No: NA
 Nozzle Diameter (D_n): 66-8P-13
 Probe ID No: NA
 Pitot C_p: 0.827
 Pitot Leak Check: Pass Fail

Meter Box ID No: NA
 Meter ΔH@: NA
 Meter Y_e: NA

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
1-01	0.0	0.42			313			0.65		
1-02		0.44			313			0.66		
1-03		0.43			312			0.66		
1-04		0.39			311			0.62		
1-05		0.38			311			0.62		
2-01		0.45			311			0.67		
2-02		0.46			311			0.68		
2-03		0.43			311			0.66		
2-04		0.39			310			0.62		
2-05		0.38			310			0.62		
3-01		0.54			311			0.73		
3-02		0.52			312			0.72		
3-03		0.48			312			0.69		
3-04		0.44			312			0.66		
3-05		0.43			312			0.66		
4-01		0.52			310			0.72		
4-02		0.47			311			0.69		
4-03		0.43			311			0.66		
4-04		0.44			312			0.66		
4-05		0.50			312			0.71		
5-01		0.55			311			0.74		
5-02		0.52			311			0.72		
5-03		0.47			311			0.69		
5-04		0.43			311			0.66		
5-05		0.43			311			0.66		
Final	0.0				311.32000			0.67257		

25 points sampled
 QC-Check: Field Averages
 Sq RLAP: 0.6726 311.3200
 Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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USEPA Method 3 Laboratory Data

Location: Unit 3 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 2
Analyte: Velocity & Flow Rate

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
8	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.21177		8.95312	80.83511	29.99201	1.16991	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
9	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.26093		8.85345	80.88562	29.99589	1.17402	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
10	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.13588		8.96200	80.90212	29.98022	1.17780	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
	1							
	2							
	3							
Avg.								
CEM or Other Avg:								<input type="checkbox"/> Fo value within expected range.

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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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: K. Sullivan 579

Bar. Press. (in. Hg): 30.00
 Static P: -10.1
 O₂ (dry volume %): 8.76
 CO₂ (dry volume %): 10.57
 N₂+CO (dry volume %): 80.67

Nozzle ID No: NA
 Nozzle Diameter (D_n): NA
 Probe ID No: 67-4-3
 Pitot C_p: NA
 Pitot Leak Check: Pass Fail

Test Date: 3/27/12
 Start Time: 06:52
 Stop Time: 07:54
 Leak Rate Before: 0.004 cfm @ 15 "Hg
 Leak Rate After: 0.002 cfm @ 5 "Hg

H₂O (condensate, ml or gm): 241.6
 H₂O (silica, g): 11.5
 Actual Moisture (%): 22.92

Meter Box ID. No: 66-11
 Meter ΔH@: 1.81180
 Meter Y_d: 0.99150

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			707.240						
3-03	5.0		1.50	710.660	306	78	74		3.42	
3-03	10.0		1.50	714.050	306	81	75		3.39	
3-03	15.0		1.50	717.450	306	83	75		3.40	
3-03	20.0		1.50	720.820	306	84	76		3.37	
3-03	25.0		1.50	724.250	306	85	77		3.43	
3-03	30.0		1.50	727.700	306	86	77		3.45	
3-03	35.0		1.50	731.140	306	87	78		3.44	
3-03	40.0		1.50	734.630	306	88	79		3.49	
3-03	45.0		1.50	738.190	306	89	80		3.56	
3-03	50.0		1.50	741.540	305	88	81		3.35	
3-03	55.0		1.50	745.000	307	90	81		3.46	
3-03	60.0		1.50	748.450	307	91	81		3.45	
Final	60.0		1.50000	41.21000	306.08333	81.83333		0.00000	41.21000	

9 points sampled
 QC-Check: Field Averages

Sq.Rt.ΔP	1.5000	41.2100	306.0833	81.8333
<input type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK

041812 093404
K

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: 11414

Source Area (ft²): 64.00000

Meter Operator: K. Sullivan 579

Probe Operator: K. Sullivan 579

Test Date: 3/27/12

Start Time: 08:16

Stop Time: 09:16

Leak Rate Before: 0.005 cfm @ 15 "Hg

Leak Rate After: 0.002 cfm @ 5 "Hg

Bar. Press. (in. Hg): 30.00

Static P: -9.7

O₂ (dry volume %): 9.00

CO₂ (dry volume %): 10.28

N₂+CO (dry volume %): 80.72

Nozzle ID No: NA

Nozzle Diameter (D_n): NA

Probe ID No: 67-4-3

Pitot C_p: NA

Pitot Leak Check: Pass Fail

H₂O (condensate, ml or gm): 226.9

H₂O (silica, g): 11.0

Actual Moisture (%): 22.09

Meter Box ID. No: 66-11

Meter ΔH@: 1.81180

Meter Y_d: 0.99150

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			749.210						
3-03	5.0		1.50	752.720	306	84	82		3.51	
3-03	10.0		1.50	756.130	306	86	83		3.41	
3-03	15.0		1.50	759.590	305	90	83		3.46	
3-03	20.0		1.50	763.120	305	91	83		3.53	
3-03	25.0		1.50	766.540	305	92	84		3.42	
3-03	30.0		1.50	769.930	306	91	83		3.39	
3-03	35.0		1.50	773.330	306	92	84		3.40	
3-03	40.0		1.50	776.760	308	92	84		3.43	
3-03	45.0		1.50	780.140	306	93	85		3.38	
3-03	50.0		1.50	783.570	306	92	85		3.43	
3-03	55.0		1.50	786.880	305	93	86		3.31	
3-03	60.0		1.50	790.250	305	93	86		3.37	
Final	60.0		1.50000	41.04000	305.75000	87.37500		0.00000	41.04000	

9 points sampled
QC-Check: Field Averages

Sq.Rt. ΔP				
1.5000	41.0400	305.7500	87.3750	
<input type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK

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M

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: 11414
 Source Area (ft²): 64.00000
 Meter Operator: K. Sullivan 579
 Probe Operator: K. Sullivan 579

Bar. Press. (in. Hg): 30.00
 Static P: -9.8
 O₂ (dry volume %): 8.80
 CO₂ (dry volume %): 10.52
 N₂+CO (dry volume %): 80.68

Nozzle ID No: NA
 Nozzle Diameter (D_n): NA
 Probe ID No: 67-4-3
 Pitot C_p: NA
 Pitot Leak Check: Pass Fail

Test Date: 3/27/12
 Start Time: 09:50
 Stop Time: 10:50
 Leak Rate Before: 0.006 cfm @ 15 "Hg
 Leak Rate After: 0.006 cfm @ 6 "Hg

H₂O (condensate, ml or gm): 231.4
 H₂O (silica, g): 14.7
 Actual Moisture (%): 22.77

Meter Box ID. No: 66-11
 Meter ΔH@: 1.81180
 Meter Y_d: 0.99150

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			790.870						
3-03	5.0		1.50	794.390	308	90	88		3.52	
3-03	10.0		1.50	797.850	308	93	89		3.46	
3-03	15.0		1.50	801.250	307	95	89		3.40	
3-03	20.0		1.50	804.640	307	96	89		3.39	
3-03	25.0		1.50	808.020	307	96	89		3.38	
3-03	30.0		1.50	811.400	307	95	90		3.38	
3-03	35.0		1.50	814.830	307	95	90		3.43	
3-03	40.0		1.50	818.250	307	95	90		3.42	
3-03	45.0		1.50	821.670	307	95	90		3.42	
3-03	50.0		1.50	825.130	306	96	91		3.46	
3-03	55.0		1.50	828.620	306	98	91		3.49	
3-03	60.0		1.50	832.080	306	98	91		3.46	
Final	60.0		1.50000	41.21000	306.91667	92.45833		0.00000	41.21000	

9 points sampled
 QC-Check: Field Averages

Sq.Rt.ΔP	1.5000	41.2100	306.9167	92.4583
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

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 P

USEPA Method 3 Laboratory Data

Location: Unit 3 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Method: EPA Method 3A
 Fuel Type: Municipal Waste
 F_o for Fuel: 1.03 to 1.3

Test Method: USEPA Method 26A
Analyte: HCI

Analyst:
 Analyst Emp No:

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
1	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.57000		8.76000	80.67000	30.04160	1.14853	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
2	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.28000		9.00000	80.72000	30.00480	1.15759	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis: CEM
3	1							
	2							
	3							
Avg.								
CEM or Other Avg:		10.52000		8.80000	80.68000	30.03520	1.15019	<input checked="" type="checkbox"/> Fo value within expected range.

Run Number	Trial	Percent CO ₂	Percent O ₂ +CO ₂	Percent O ₂	Percent N ₂	Dry Mol. Weight	F _o	Method of Analysis:
	1							
	2							
	3							
Avg.								
CEM or Other Avg:								<input type="checkbox"/> Fo value within expected range.

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 KMP@

USEPA Method 4 Laboratory Data

Location: Unit 3 FF Outlet
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414

Test Method: USEPA Method 26A
Analyte: HCl
Analyst: R. Vicere
Analyst Emp No: 563

Test Run: 1

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	530.6	460.0	70.6
Impinger 2	100 ml 0.1N H2SO4	668.7	542.2	126.5
Impinger 3	100 ml 0.1N H2SO4	667.8	631.3	36.5
Impinger 4	Empty	446.3	438.3	8.0
Impinger 5	Silica Gel	742.3	730.8	11.5
Impinger 6				
Impinger 7				
Impinger 8				

241.6 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
241.6 Net Liquid (gm)		241.6 <input checked="" type="checkbox"/> QA/QC OK
+ 11.5 Silica Gel (gm)		11.5 <input checked="" type="checkbox"/> QA/QC OK
253.1 Total Vlc (gm)		253.1 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: 2

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	612.5	554.6	57.9
Impinger 2	100 ml 0.1N H2SO4	755.5	628.8	126.7
Impinger 3	100 ml 0.1N H2SO4	573.1	536.6	36.5
Impinger 4	Empty	482.0	476.2	5.8
Impinger 5	Silica Gel	775.5	764.5	11.0
Impinger 6				
Impinger 7				
Impinger 8				

226.9 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
226.9 Net Liquid (gm)		226.9 <input checked="" type="checkbox"/> QA/QC OK
+ 11.0 Silica Gel (gm)		11.0 <input checked="" type="checkbox"/> QA/QC OK
237.9 Total Vlc (gm)		237.9 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: 3

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	50 ml 0.1N H2SO4	512.5	459.0	53.5
Impinger 2	100 ml 0.1N H2SO4	682.5	553.3	129.2
Impinger 3	100 ml 0.1N H2SO4	585.6	545.2	40.4
Impinger 4	Empty	446.3	438.0	8.3
Impinger 5	Silica Gel	778.3	763.6	14.7
Impinger 6				
Impinger 7				
Impinger 8				

231.4 Liquid (gm)	<i>Field Data Check</i>	
0.0 less rinse (gm)		
231.4 Net Liquid (gm)		231.4 <input checked="" type="checkbox"/> QA/QC OK
+ 14.7 Silica Gel (gm)		14.7 <input checked="" type="checkbox"/> QA/QC OK
246.1 Total Vlc (gm)		246.1 <input checked="" type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

Test Run: _____

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1				
Impinger 2				
Impinger 3				
Impinger 4				
Impinger 5				
Impinger 6				
Impinger 7				
Impinger 8				

Liquid (gm)	<i>Field Data Check</i>	
less rinse (gm)		
Net Liquid (gm)		<input type="checkbox"/> QA/QC OK
Silica Gel (gm)		<input type="checkbox"/> QA/QC OK
Total Vlc (gm)		<input type="checkbox"/> QA/QC OK

Rinse: _____ (ml or gm)

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K.M.P.®

Field Data Printout

Test Method: USEPA Method 4
Analyte: Moisture

Location: Unit 3 FF Outlet
 Test Run: 1
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 30.00
 Static P: -9.6

Nozzle ID No: N/A
 Nozzle Diameter (D_n): N/A
 Probe ID No: N/A
 Pitot C_p: N/A
 Pitot Leak Check: Pass Fail

O₂ (dry volume %): N/A
 CO₂ (dry volume %): N/A
 N₂+CO (dry volume %): N/A

Test Date: 3/27/12
 Start Time: 11:29
 Stop Time: 12:14

H₂O (condensate, ml or gm): 146.0

Meter Box ID. No: 66-11

Leak Rate Before: 0.001 cfm @ 15 "Hg
 Leak Rate After: 0.001 cfm @ 8 "Hg

H₂O (silica, g): 9.1
 Actual Moisture (%): 21.06

Meter ΔH@: N/A
 Meter Y_s: 0.99150

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			832.88						
3-03	5.0	N/A	1.30	835.84	N/A	88	88	N/A	2.96	N/A
3-03	10.0		1.30	839.03		88	88		3.19	
3-03	15.0		1.30	842.25		93	89		3.22	
3-03	20.0		1.30	845.45		94	89		3.20	
3-03	25.0		1.30	848.67		96	90		3.22	
3-03	30.0		1.30	851.90		97	90		3.23	
3-03	35.0		1.30	855.13		98	92		3.23	
3-03	40.0		1.30	858.35		98	92		3.22	
3-03	45.0		1.30	861.58		98	92		3.23	
Final	45.0		1.30000	28.70000	N/A	92.22222		N/A	28.70000	

9 points sampled

Sq.Rt.ΔP

QC-Check: Field Averages

N/A	1.3000	28.7000	N/A	92.2222
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Avg. OK Avg. OK Avg. OK Avg. OK Avg. OK

041812 093513
M

Field Data Printout

Test Method: USEPA Method 4
Analyte: Moisture

Location: Unit 3 FF Outlet
 Test Run: 2
 Client: Wheelabrator North Broward, Inc.
 Project No: 11414
 Source Area (ft²): 64.00000

Bar. Press. (in. Hg): 30.00
 Static P: -10.5
 O₂ (dry volume %): N/A
 CO₂ (dry volume %): N/A
 N₂+CO (dry volume %): N/A

Nozzle ID No: N/A
 Nozzle Diameter (D_n): N/A
 Probe ID No: N/A
 Pitot C_p: N/A
 Pitot Leak Check: Pass Fail

Test Date: 3/27/12
 Start Time: 12:57
 Stop Time: 13:42
 Leak Rate Before: 0.001 cfm @ 15 "Hg
 Leak Rate After: 0.001 cfm @ 7 "Hg

H₂O (condensate, ml or gm): 174.0
 H₂O (silica, g): 6.4
 Actual Moisture (%): 23.58

Meter Box ID. No: 66-11
 Meter ΔH@: N/A
 Meter Y_d: 0.99150

Traverse Point	Run Time 5.0 min/read	Pitot ΔP _s (in. H ₂ O)	Sample ΔH (in. H ₂ O)	Metered (dcf)	Stack T _s (°F)	Dry Gas Meter		√ΔP _s (calculated) (√in. H ₂ O)	Volume (calculated) (ft ³)	Isokinetics (calculated) (%)
						T _{m-in} (°F)	T _{m-out} (°F)			
	0.0			861.60						
3-03	5.0	N/A	1.30	864.83	N/A	93	92	N/A	3.23	N/A
3-03	10.0		1.30	868.05		93	92		3.22	
3-03	15.0		1.30	871.52		93	91		3.47	
3-03	20.0		1.30	874.50		95	93		2.98	
3-03	25.0		1.30	877.73		98	94		3.23	
3-03	30.0		1.30	880.94		99	95		3.21	
3-03	35.0		1.30	884.18		100	95		3.24	
3-03	40.0		1.30	888.49		100	95		4.31	
3-03	45.0		1.30	890.63		100	95		2.13	
Final	45.0		1.30000	29.02500	N/A	95.16667		N/A	29.02500	

9 points sampled
 QC-Check: Field Averages

Sq.Rt.ΔP	N/A	1.3000	29.0250	N/A	95.1667
<input type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK	<input checked="" type="checkbox"/> Avg. OK

041812 093513

USEPA Method 4 Laboratory Data

Location: Unit 3 FF Outlet

Client: Wheelabrator North Broward, Inc.

Project No: 11414

Test Method:

USEPA Method 4

Analyte:

Moisture

Test Run:

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water	246.0	100.0	146.0
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel	309.1	300.0	9.1
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

146.0 Liquid (gm)		Field Data Check
0.0 less rinse (gm)		
146.0 Net Liquid (gm)	146.0	<input checked="" type="checkbox"/> QA/QC OK
+ 9.1 Silica Gel (gm)	9.1	<input checked="" type="checkbox"/> QA/QC OK
155.1 Total Vlc (gm)	155.1	<input checked="" type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

Test Run:

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water	274.0	100.0	174.0
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel	306.4	300.0	6.4
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

174.0 Liquid (gm)		Field Data Check
0.0 less rinse (gm)		
174.0 Net Liquid (gm)	174.0	<input checked="" type="checkbox"/> QA/QC OK
+ 6.4 Silica Gel (gm)	6.4	<input checked="" type="checkbox"/> QA/QC OK
180.4 Total Vlc (gm)	180.4	<input checked="" type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

Test Run:

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water			
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel			
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

Liquid (gm)		Field Data Check
less rinse (gm)		
Net Liquid (gm)		<input type="checkbox"/> QA/QC OK
Silica Gel (gm)		<input type="checkbox"/> QA/QC OK
Total Vlc (gm)		<input type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

Test Run:

Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1 DI Water			
Impinger 2 DI Water			
Impinger 3 Empty			
Impinger 4 Silica Gel			
Impinger 5			
Impinger 6			
Impinger 7			
Impinger 8			

Liquid (gm)		Field Data Check
less rinse (gm)		
Net Liquid (gm)		<input type="checkbox"/> QA/QC OK
Silica Gel (gm)		<input type="checkbox"/> QA/QC OK
Total Vlc (gm)		<input type="checkbox"/> QA/QC OK

Rinse: (ml or gm)

041812 093513
M O E

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

PLANT CEM DATA

G

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

QA/QC Initials: MK

Date: 5/7/12



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Plant Name: NBWD
 General Average Report

R1

Reporting Period: 03/28/2012 to 03/28/2012

Unit Name: UNIT1

Time of Report: 03/28/12 07:29

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	06:57	10.4	116443.0	31.1	192.2	64667.8	20.6	9.4	25.8	159.5
	06:58	10.2	115654.4	28.8	188.2	63137.0	17.6	9.2	24.2	158.1
	06:59	10.0	115519.1	23.3	186.8	61806.8	21.1	9.5	19.1	153.0
	07:00	9.9	115444.6	17.5	185.6	60864.1	18.8	9.6	14.2	151.0
	07:01	10.0	115180.9	15.0	183.2	61469.8	19.8	9.6	12.2	148.9
	07:02	10.4	115641.6	15.3	188.2	64203.1	18.5	9.3	12.8	157.1
	07:03	10.3	116293.1	21.1	191.7	64303.6	16.6	9.1	17.9	162.1
	07:04	10.0	116348.4	27.3	188.4	62421.6	18.6	9.4	22.6	155.6
	07:05	9.8	116194.6	29.8	195.6	61137.6	18.3	9.7	24.0	157.9
	07:06	10.0	116265.0	26.9	204.2	61941.6	16.6	9.7	21.7	164.6
	07:07	10.4	116475.3	14.9	200.7	64743.9	15.0	9.3	12.5	167.8
	07:08	10.3	116822.2	11.4	205.6	64370.2	14.8	9.2	9.5	172.3
	07:09	10.4	117136.1	16.7	204.9	65442.2	18.1	9.3	13.9	170.9
	07:10	10.6	117327.2	25.6	206.5	66795.6	16.9	8.8	22.3	179.7
	07:11	9.9	117240.3	25.5	211.8	61768.3	16.9	9.5	20.9	173.9
	07:12	9.9	117282.8	22.3	211.2	62414.9	19.0	9.8	17.8	168.7
	07:13	10.3	117626.2	20.1	196.5	65080.6	20.6	9.4	16.7	163.1
	07:14	11.0	117626.2	20.3	188.6	68921.4	19.2	8.6	18.0	166.6
	07:15	10.3	117211.3	19.6	193.8	64695.3	15.6	8.9	16.9	167.4
	07:16	10.0	116851.3	29.3	195.5	62321.6	19.9	9.6	23.8	159.0
	07:17	10.1	117147.4	35.2	199.6	63250.3	20.3	9.5	28.9	163.8
	07:18	10.4	117905.8	30.5	193.6	65467.5	22.0	9.3	25.4	161.1
	07:19	10.3	118904.3	20.2	178.8	65769.7	20.8	9.2	17.0	151.0
	07:20	10.4	119367.6	15.2	177.0	66536.8	21.8	9.2	12.8	148.4
	07:21	10.0	118999.7	16.9	178.3	63785.7	17.1	9.4	14.0	147.9
	07:22	9.8	118447.1	23.3	178.9	62328.1	25.8	9.8	18.6	142.4
	07:23	10.2	118055.1	24.0	182.9	64527.5	22.9	9.4	19.8	150.9

Average =	10.2	117015.2	22.5	192.9	63858.2	19.0	9.4	18.6	160.1
Geometric Avg. =	10.2	117010.0	21.7	192.6	63829.8	18.8	9.4	18.0	159.9
Maximum =	11.0	119367.6	35.2	211.8	68921.4	25.8	9.8	28.9	179.7
Minimum =	9.8	115180.9	11.4	177.0	60864.1	14.8	8.6	9.5	142.4
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	275.5	3159410.2	607.0	5208.2	1724172.6	513.1	252.8	503.1	4322.8

- * - 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

Plant Name: NBWD
 General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 07:29
 Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	06:57	17.1	184.2
	06:58	14.7	184.0
	06:59	17.3	182.5
	07:00	15.3	182.1
	07:01	16.1	182.7
	07:02	15.4	183.6
	07:03	14.0	184.4
	07:04	15.4	183.4
	07:05	14.8	181.9
	07:06	13.4	183.7
	07:07	12.6	184.5
	07:08	12.4	185.0
	07:09	15.1	187.8
	07:10	14.7	184.8
	07:11	13.8	182.3
	07:12	15.2	182.6
	07:13	17.1	187.3
	07:14	16.9	185.4
	07:15	13.5	183.5
	07:16	16.2	182.6
	07:17	16.7	183.7
	07:18	18.3	184.0
	07:19	17.6	184.8
	07:20	18.3	184.2
	07:21	14.2	182.2
	07:22	20.5	182.3
	07:23	18.9	184.8

Average =	15.8	183.9
Geometric Avg. =	15.6	183.9
Maximum =	20.5	187.8
Minimum =	12.4	181.9
Possible Values =	27	27
Included Values =	27	27
Total =	425.4	4964.4

- * - excluded values (missing, OOC, invalid, suspect)
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Plant Name: NBWD
 General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

22

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 08:09
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	07:38	10.5	116664.4	6.7	188.3	65346.1	18.1	9.1	5.7	159.1
	07:39	9.9	117403.6	6.5	188.3	62411.1	19.4	9.5	5.3	154.0
	07:40	9.8	118382.7	6.7	190.1	62330.1	18.1	9.7	5.4	152.6
	07:41	9.9	118925.0	8.3	197.6	63149.9	19.3	9.7	6.7	159.3
	07:42	10.2	118555.1	18.7	192.0	64790.3	31.0	9.5	15.4	157.8
	07:43	10.4	117788.2	31.6	186.6	65719.4	20.4	9.2	26.7	157.6
	07:44	10.0	116943.5	33.0	188.2	62518.9	20.6	9.5	27.1	154.3
	07:45	9.5	116397.1	22.3	189.0	59431.1	21.0	10.0	17.5	148.1
	07:46	10.0	116020.7	13.4	184.2	62240.6	20.6	9.8	10.7	146.6
	07:47	10.3	115934.5	9.8	170.4	63765.3	18.5	9.4	8.1	140.9
	07:48	10.0	115959.8	8.4	169.5	62011.6	19.2	9.5	6.8	138.4
	07:49	9.7	116106.3	7.9	173.6	60413.2	19.7	9.8	6.3	138.9
	07:50	9.9	116545.5	7.9	175.3	61597.6	21.6	9.9	6.3	138.5
	07:51	10.0	117076.4	9.2	171.0	62733.9	20.3	9.6	7.5	139.4
	07:52	9.7	117348.1	13.3	171.9	60808.3	21.3	9.9	10.5	135.5
	07:53	9.7	117549.0	20.8	175.3	61038.1	20.1	10.0	16.3	137.7
	07:54	10.0	117522.0	26.0	179.3	62752.7	20.3	9.7	20.9	144.0
	07:55	10.3	117424.1	23.9	183.1	64773.0	19.6	9.4	19.7	151.0
	07:56	10.1	117167.4	18.1	180.1	63210.9	18.1	9.4	15.0	149.1
	07:57	9.7	117125.0	12.2	183.5	60630.1	19.5	9.9	9.6	144.9
	07:58	9.6	117856.5	9.4	187.2	60746.0	16.2	10.0	7.4	146.4
	07:59	9.8	118717.9	9.3	184.1	62385.9	14.0	9.9	7.4	146.0
	08:00	9.9	119490.9	13.0	178.1	63337.6	15.4	9.8	10.5	142.8
	08:01	9.8	119655.9	20.0	174.6	62580.2	16.7	9.8	16.0	139.8
	08:02	9.9	119103.7	28.7	170.7	62909.3	19.9	9.8	22.9	135.9
	08:03	9.9	118673.5	27.7	169.0	62765.6	19.3	9.8	22.2	135.1
	08:04	9.7	118451.2	23.1	177.6	61659.7	18.3	9.9	18.3	140.8

Average =		9.9	117584.7	16.2	180.7	62520.6	19.5	9.7	13.0	145.7
Geometric Avg. =		9.9	117579.8	14.1	180.5	62503.0	19.3	9.7	11.4	145.5
Maximum =		10.5	119655.9	33.0	197.6	65719.4	31.0	10.0	27.1	159.3
Minimum =		9.5	115934.5	6.5	169.0	59431.1	14.0	9.1	5.3	135.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		268.4	3174788.0	436.2	4878.2	1688056.6	526.6	261.7	352.1	3934.4

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- 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: 03/28/2012 to 03/28/2012

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/28/12 08:09
Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	07:38	15.3	183.3
	07:39	15.9	182.5
	07:40	14.5	181.4
	07:41	15.5	182.3
	07:42	25.5	183.4
	07:43	17.3	183.2
	07:44	16.9	181.3
	07:45	16.5	181.6
	07:46	16.4	183.2
	07:47	15.3	182.7
	07:48	15.7	181.2
	07:49	15.8	181.2
	07:50	17.1	183.5
	07:51	16.5	181.5
	07:52	16.8	181.9
	07:53	15.8	182.8
	07:54	16.3	185.0
	07:55	16.2	185.6
	07:56	15.0	183.2
	07:57	15.4	181.9
	07:58	12.6	182.4
	07:59	11.1	183.0
	08:00	12.4	182.4
	08:01	13.4	183.1
	08:02	15.9	182.9
	08:03	15.4	183.1
	08:04	14.5	183.1

Average =	15.7	182.7
Geometric Avg. =	15.6	182.7
Maximum =	25.5	185.6
Minimum =	11.1	181.2
Possible Values =	27	27
Included Values =	27	27
Total =	424.8	4932.7

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Plant Name: NBWD
 General Average Report
 Reporting Period: 03/28/2012 to 03/28/2012

23

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 08:48
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	08:18	10.0	125139.1	7.9	168.0	66610.2	19.3	9.8	6.4	134.6
	08:19	10.0	124649.6	13.9	166.3	66963.1	17.5	9.6	11.3	135.3
	08:20	10.0	124539.1	32.8	166.2	66421.9	18.0	9.7	26.5	134.4
	08:21	9.8	124267.4	41.9	168.7	65330.9	16.4	9.8	33.5	134.8
	08:22	9.9	123939.4	31.9	173.3	65474.5	16.4	9.8	25.4	138.1
	08:23	10.0	123948.2	18.7	171.6	66166.4	18.1	9.7	15.0	137.7
	08:24	10.1	124552.6	11.9	177.4	67315.1	17.7	9.6	9.7	144.5
	08:25	10.0	125432.3	9.7	173.3	66913.9	16.9	9.6	7.9	141.1
	08:26	9.7	125904.8	9.8	169.0	65601.4	19.5	9.9	7.7	133.3
	08:27	9.6	125712.8	12.1	167.4	64638.5	23.2	10.1	9.4	130.0
	08:28	9.8	125248.1	21.6	167.2	65525.0	22.8	10.0	17.0	131.6
	08:29	9.8	124574.3	35.7	165.3	65308.0	21.2	9.8	28.4	131.7
	08:30	9.8	123692.1	36.7	173.5	64634.9	22.3	10.0	28.8	136.1
	08:31	10.0	122517.6	27.4	177.2	65384.2	16.3	9.6	22.2	143.8
	08:32	10.1	122003.3	17.6	181.5	65987.4	15.0	9.6	14.3	147.7
	08:33	9.6	121714.8	14.4	176.7	62327.9	14.2	9.9	11.4	140.0
	08:34	9.2	121934.5	13.3	181.6	60046.9	17.1	10.6	9.9	135.1
	08:35	9.5	122061.2	13.8	180.6	61961.2	20.8	10.3	10.5	137.2
	08:36	9.9	122056.3	15.6	172.4	64515.6	18.7	9.9	12.3	136.4
	08:37	9.9	122160.1	19.1	170.8	64439.8	17.9	9.8	15.2	136.4
	08:38	9.7	122144.0	24.4	177.1	63571.2	18.0	9.9	19.3	139.8
	08:39	9.5	122335.0	27.6	185.2	62007.5	20.1	10.2	21.2	142.2
	08:40	9.6	122287.7	26.3	194.0	62520.9	21.4	10.3	20.1	148.3
	08:41	10.0	122204.7	24.4	189.1	65325.0	21.9	9.7	19.6	152.1
	08:42	9.6	121863.4	21.5	187.0	62846.1	19.3	9.9	16.9	147.6
	08:43	9.3	121882.9	17.6	186.8	60882.0	22.5	10.3	13.4	142.2
	08:44	9.5	121677.7	16.0	188.7	62128.8	25.1	10.3	12.3	144.5

Average =	9.8	123349.7	20.9	176.1	64475.9	19.2	9.9	16.5	139.1
Geometric Avg. =	9.8	123341.5	19.0	176.0	64446.1	19.0	9.9	15.0	139.0
Maximum =	10.1	125904.8	41.9	194.0	67315.1	25.1	10.6	33.5	152.1
Minimum =	9.2	121677.7	7.9	165.3	60046.9	14.2	9.6	6.4	130.0
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	263.8	3330443.0	563.5	4755.9	1740848.2	517.6	267.7	445.7	3756.2

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- B - invalid (PADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1

Time of Report: 03/28/12 08:48

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	08:18	15.5	183.6
	08:19	14.2	184.2
	08:20	14.6	183.4
	08:21	13.1	183.1
	08:22	13.1	183.7
	08:23	14.5	183.8
	08:24	14.4	183.3
	08:25	13.8	183.2
	08:26	15.4	182.8
	08:27	18.0	182.8
	08:28	17.9	184.4
	08:29	16.9	183.3
	08:30	17.5	184.1
	08:31	13.2	184.9
	08:32	12.2	184.9
	08:33	11.2	181.3
	08:34	12.7	181.2
	08:35	15.8	182.2
	08:36	14.8	183.1
	08:37	14.3	183.1
	08:38	14.2	181.3
	08:39	15.4	180.8
	08:40	16.3	183.9
	08:41	17.6	183.8
	08:42	15.2	181.7
	08:43	17.1	181.5
	08:44	19.2	183.6

Average =	15.1	183.1
Geometric Avg. =	15.0	183.1
Maximum =	19.2	184.9
Minimum =	11.2	180.8
Possible Values =	27	27
Included Values =	27	27
Total =	408.4	4943.0

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 H - exceedance
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 U - missing data substituted
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Plant Name: NBWD
 General Average Report

24

Reporting Period: 03/28/2012 to 03/28/2012

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 09:28
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	08:57	9.8	123057.1	16.3	191.4	64295.4	27.8	10.0	12.8	150.2
	08:58	10.2	123649.8	15.7	191.5	67268.1	27.2	9.5	12.9	156.9
	08:59	10.0	123994.3	15.3	196.5	66073.9	22.8	9.5	12.5	160.4
	09:00	9.7	123893.6	15.5	191.9	64012.4	29.3	9.9	12.2	151.4
	09:01	9.6	123368.3	16.8	189.7	63400.0	40.1	10.1	13.1	147.4
	09:02	9.7	123521.1	17.3	193.1	63985.1	30.3	10.1	13.5	150.4
	09:03	9.9	123717.9	17.2	192.8	65487.6	32.6	9.8	13.7	153.9
	09:04	9.9	123930.6	16.2	192.8	65401.3	32.3	9.7	13.1	155.2
	09:05	9.8	124240.5	14.7	193.8	64845.0	31.9	9.9	11.6	152.7
	09:06	10.5	124445.6	15.1	190.2	69744.4	31.3	9.4	12.4	156.9
	09:07	10.1	125236.0	16.1	187.3	67374.1	26.5	9.3	13.5	156.8
	09:08	9.6	125218.0	16.2	201.0	64283.6	32.2	10.1	12.6	156.4
	09:09	9.8	124835.3	15.4	205.1	65244.5	26.0	10.0	12.1	160.8
	09:10	9.8	124116.7	18.3	196.2	65300.4	21.2	9.9	14.5	155.4
	09:11	9.8	123814.0	22.6	184.6	65130.1	21.4	9.9	18.0	146.6
	09:12	9.9	125078.3	11.0	186.9	66397.3	21.5	9.8	8.8	149.3
	09:13	9.8	128231.8	7.7	195.9	66973.9	22.5	9.9	6.1	155.2
	09:14	9.7	130663.0	15.4	202.6	67498.3	23.9	10.1	12.0	157.6
	09:15	9.6	132052.0	30.5	204.7	67942.7	22.4	10.1	23.7	159.1
	09:16	9.5	135318.8	29.7	199.5	68552.4	22.7	10.3	22.7	152.5
	09:17	9.5	135947.4	20.5	198.3	69022.3	26.9	10.3	15.6	151.2
	09:18	9.5	135849.2	15.1	194.5	69286.1	31.8	10.3	11.6	148.9
	09:19	9.5	135618.4	13.8	198.9	69236.1	32.5	10.3	10.6	152.3
	09:20	9.5	134611.7	13.5	208.1	68448.5	28.4	10.2	10.4	159.7
	09:21	9.4	132110.5	13.2	206.3	66655.0	27.9	10.3	10.0	157.1
	09:22	9.5	126261.2	12.2	205.0	64137.1	30.5	10.3	9.3	156.3
	09:23	9.8	120923.0	10.8	195.4	63171.7	36.3	10.1	8.5	152.3

Average =		9.7	127174.2	16.4	196.1	66265.5	28.1	10.0	12.9	154.2
Geometric Avg. =		9.7	127088.4	15.8	196.0	66237.1	27.7	10.0	12.4	154.1
Maximum =		10.5	135947.4	30.5	208.1	69744.4	40.1	10.3	23.7	160.8
Minimum =		9.4	120923.0	7.7	184.6	63171.7	21.2	9.3	6.1	146.6
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		263.2	3433704.0	442.1	5293.9	1789167.1	759.9	269.0	347.5	4162.8

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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

Plant Name: NBWD
 General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 09:28
 Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	08:57	21.8	183.9
	08:58	22.3	184.0
	08:59	18.6	182.9
	09:00	23.1	182.5
	09:01	31.2	182.3
	09:02	23.6	183.0
	09:03	26.0	183.1
	09:04	26.0	182.1
	09:05	25.2	185.6
	09:06	25.8	186.0
	09:07	22.2	183.1
	09:08	25.1	182.8
	09:09	20.4	182.6
	09:10	16.8	183.6
	09:11	17.0	184.6
	09:12	17.2	184.2
	09:13	17.8	183.4
	09:14	18.6	183.3
	09:15	17.4	181.9
	09:16	17.4	181.3
	09:17	20.5	183.1
	09:18	24.3	183.1
	09:19	24.9	183.0
	09:20	21.8	182.2
	09:21	21.2	182.4
	09:22	23.2	183.4
	09:23	28.3	185.7

Average =	22.1	183.3
Geometric Avg. =	21.8	183.3
Maximum =	31.2	186.0
Minimum =	16.8	181.3
Possible Values =	27	27
Included Values =	27	27
Total =	597.5	4949.3

- * - 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

25

Reporting Period: 03/28/2012 to 03/28/2012

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 10:05
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	09:36	9.8	118162.9	20.1	172.9	62031.1	32.8	9.7	16.2	139.5
	09:37	9.7	118336.5	30.3	179.5	61577.9	36.0	10.0	23.9	141.4
	09:38	9.6	119088.0	28.6	184.2	61455.1	38.5	10.1	22.4	143.8
	09:39	9.6	119665.2	18.8	189.7	61669.8	38.1	10.1	14.6	147.4
	09:40	9.7	120423.5	13.6	197.0	62440.6	41.8	10.1	10.6	153.2
	09:41	9.7	123322.0	11.7	191.3	63969.9	40.5	10.0	9.1	149.8
	09:42	9.8	124536.4	11.0	187.1	65037.2	35.8	9.9	8.7	147.5
	09:43	9.6	124776.6	10.6	184.8	64114.9	34.4	10.1	8.2	143.7
	09:44	9.6	125542.3	9.7	182.5	64179.3	31.4	10.2	7.5	140.9
	09:45	9.7	126403.0	10.9	187.0	65751.2	29.2	10.0	8.6	146.5
	09:46	9.9	126875.9	16.4	184.6	67216.9	26.1	9.7	13.2	148.5
	09:47	9.8	126569.8	26.0	184.1	66196.1	25.5	9.8	20.7	146.7
	09:48	9.8	126192.3	31.9	189.8	65834.5	26.2	9.9	25.3	150.4
	09:49	9.9	125888.3	27.7	200.5	66560.2	27.9	9.9	21.9	158.3
	09:50	10.3	124168.2	17.5	196.2	68437.8	20.8	9.4	14.5	161.9
	09:51	10.3	123294.5	10.9	187.1	68136.5	22.5	9.3	9.1	156.0
	09:52	9.8	123605.5	9.2	188.0	64974.2	21.3	9.7	7.4	151.8
	09:53	9.6	123575.1	10.5	190.7	63408.2	22.6	10.1	8.2	148.7
	09:54	9.7	123706.4	14.5	191.4	64356.8	23.8	10.0	11.3	149.5
	09:55	10.3	124468.7	21.1	185.9	68735.5	22.2	9.5	17.4	152.9
	09:56	10.5	124192.1	32.4	187.3	69715.3	18.3	9.2	27.2	157.4
	09:57	10.2	123542.6	36.5	193.8	67184.4	16.4	9.3	30.3	161.2
	09:58	9.8	123359.9	26.5	189.2	64460.2	24.3	9.9	21.0	150.1
	09:59	10.1	123475.9	15.2	181.5	66373.3	34.3	9.6	12.3	147.1
	10:00	10.2	124217.1	9.7	175.8	67572.3	28.6	9.4	8.0	145.1
	10:01	10.1	124818.9	7.7	175.3	67552.5	21.4	9.5	6.3	143.9
	10:02	10.3	125419.1	8.5	179.8	69026.7	18.3	9.4	7.1	148.9

Average =		9.9	123615.8	18.1	186.6	65480.3	28.1	9.8	14.5	149.3
Geometric Avg. =		9.9	123592.2	16.2	186.4	65436.6	27.2	9.8	12.9	149.2
Maximum =		10.5	126875.9	36.5	200.5	69715.3	41.8	10.2	30.3	161.9
Minimum =		9.6	118162.9	7.7	172.9	61455.1	16.4	9.2	6.3	139.5
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		267.4	3337626.8	487.7	5037.0	1767968.2	759.2	263.8	391.0	4032.0

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
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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

General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1

Data Averaging Type: 1m

Time of Report: 03/28/12 10:05

Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	09:36	26.5	184.0
	09:37	28.3	183.2
	09:38	30.1	182.1
	09:39	29.6	183.3
	09:40	32.5	184.0
	09:41	31.7	184.8
	09:42	28.2	184.4
	09:43	26.8	183.2
	09:44	24.3	183.3
	09:45	22.9	184.9
	09:46	21.0	184.6
	09:47	20.4	183.1
	09:48	20.8	182.8
	09:49	22.0	185.1
	09:50	17.2	187.7
	09:51	18.8	184.9
	09:52	17.2	183.4
	09:53	17.6	181.7
	09:54	18.6	184.3
	09:55	18.3	186.7
	09:56	15.4	186.6
	09:57	13.6	184.4
	09:58	19.3	184.6
	09:59	27.8	184.8
	10:00	23.6	185.2
	10:01	17.6	186.2
	10:02	15.2	187.7

Average =	22.4	184.5
Geometric Avg. =	21.8	184.5
Maximum =	32.5	187.7
Minimum =	13.6	181.7
Possible Values =	27	27
Included Values =	27	27
Total =	605.0	4980.8

* - excluded values (missing, OOC, invalid, suspect)
 < - missing
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 S - suspect
 H - exceedance
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 B - invalid (PADER)
 U - missing data substituted
 -999 - missing value
 -888 - value could not be calculated

General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

RL

Unit Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/28/12 10:42
Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	10:13	9.5	124414.6	15.6	197.5	63376.5	16.5	9.9	12.3	155.7
	10:14	9.6	123609.7	41.5	205.2	63572.6	19.0	10.2	32.0	158.3
	10:15	10.6	122855.8	55.2	204.7	69530.4	18.1	9.3	45.9	170.3
	10:16	10.7	122406.0	35.3	191.6	70052.6	12.0	8.7	31.0	168.3
	10:17	9.5	122964.1	16.8	195.5	62742.9	12.0	9.7	13.6	157.5
	10:18	9.5	123656.1	10.3	198.4	62666.1	16.0	10.2	7.9	152.5
	10:19	9.8	124221.0	8.8	189.6	64978.8	19.5	10.0	6.9	148.5
	10:20	10.3	124055.5	9.2	180.9	68198.8	20.1	9.5	7.5	148.3
	10:21	10.2	123681.1	8.7	182.4	67177.1	19.3	9.4	7.2	150.8
	10:22	10.3	123987.0	9.2	188.6	68050.6	18.6	9.4	7.6	156.0
	10:23	9.9	124234.0	11.8	189.3	66082.0	16.3	9.6	9.6	153.9
	10:24	9.7	123951.6	23.4	184.4	64550.6	17.7	9.8	18.6	146.7
	10:25	9.6	123984.4	38.2	177.1	63584.0	20.8	10.2	29.6	136.9
	10:26	10.0	123394.5	38.0	167.8	65965.4	22.6	9.8	30.3	134.2
	10:27	10.2	122448.3	25.0	166.1	66671.2	19.0	9.5	20.6	136.5
	10:28	10.1	122352.6	14.5	171.4	66411.9	19.4	9.5	11.9	140.9
	10:29	10.0	122497.7	10.0	178.8	65409.6	16.8	9.5	8.2	146.4
	10:30	10.1	122726.7	7.9	182.9	65976.1	17.2	9.6	6.4	148.7
	10:31	10.4	122596.7	7.3	180.9	68217.5	17.5	9.3	6.1	151.2
	10:32	10.2	122705.6	13.0	190.9	66738.0	16.0	9.2	10.9	160.3
	10:33	9.8	122657.1	31.8	203.3	64572.9	18.7	9.6	25.7	164.6
	10:34	9.8	122382.6	47.3	205.7	64043.3	21.8	9.9	37.6	163.3
	10:35	9.9	121787.8	35.9	198.0	64538.7	22.8	9.7	29.0	160.0
	10:36	10.2	121578.8	18.7	197.7	66049.3	21.0	9.5	15.3	161.7
	10:37	10.3	122811.9	11.9	201.7	67388.1	15.8	9.4	9.9	167.0
	10:38	10.1	124255.4	10.1	204.8	67423.6	16.4	9.4	8.4	168.9
	10:39	9.9	125129.4	10.5	195.4	66087.5	16.1	9.6	8.5	159.5

Average =		10.0	123235.0	21.0	190.0	65928.0	18.0	9.6	17.0	154.3
Geometric Avg. =		10.0	123231.9	17.1	189.7	65899.7	17.8	9.6	13.9	154.0
Maximum =		10.7	125129.4	55.2	205.7	70052.6	22.8	10.2	45.9	170.3
Minimum =		9.5	121578.8	7.3	166.1	62666.1	12.0	8.7	6.1	134.2
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		270.1	3327345.8	566.0	5130.8	1780056.1	487.1	259.4	458.6	4167.1

- * - excluded values (missing, OOC, invalid, suspect)
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- B - invalid (PADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

Plant Name: NBWD
General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/28/12 10:42
Rolling Average Interval: 1

Date	Time	COFFM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	10:13	13.0	181.1
	10:14	14.7	184.9
	10:15	15.0	189.4
	10:16	10.5	184.8
	10:17	9.7	182.1
	10:18	12.3	181.5
	10:19	15.3	184.5
	10:20	16.5	184.3
	10:21	16.0	186.3
	10:22	15.3	185.2
	10:23	13.2	183.5
	10:24	14.1	181.7
	10:25	16.1	182.4
	10:26	18.1	184.2
	10:27	15.6	184.6
	10:28	15.9	184.3
	10:29	13.7	183.9
	10:30	14.0	184.9
	10:31	14.6	185.1
	10:32	13.4	184.6
	10:33	15.1	183.6
	10:34	17.3	183.1
	10:35	18.4	183.0
	10:36	17.2	185.0
	10:37	13.1	185.1
	10:38	13.6	185.6
	10:39	13.2	183.9

Average =	14.6	184.2
Geometric Avg. =	14.5	184.2
Maximum =	18.4	189.4
Minimum =	9.7	181.1
Possible Values =	27	27
Included Values =	27	27
Total =	395.0	4972.7

- * - 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

Plant Name: NBWD
 General Average Report

27

Reporting Period: 03/28/2012 to 03/28/2012

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 11:21
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	10:52	9.8	125323.7	29.7	206.3	65423.8	22.3	10.0	23.3	161.7
	10:53	10.2	125282.2	36.7	199.5	68042.2	19.2	9.6	29.9	162.7
	10:54	9.6	125030.8	30.8	196.5	64499.6	21.0	9.8	24.7	157.5
	10:55	9.6	124759.6	19.0	202.1	63865.9	22.0	10.1	14.8	156.8
	10:56	10.0	124729.1	11.1	206.7	66440.9	20.4	9.8	8.9	164.9
	10:57	10.1	124845.1	9.1	198.9	67150.5	18.1	9.5	7.5	163.4
	10:58	10.0	125057.4	9.3	193.9	66950.2	17.5	9.5	7.6	158.9
	10:59	10.0	125462.5	9.6	194.3	66851.8	19.3	9.7	7.8	157.2
	11:00	10.1	126035.8	9.8	194.3	68080.6	20.1	9.5	8.0	158.9
	11:01	10.0	126402.0	10.9	198.9	67936.0	19.3	9.5	8.9	162.4
	11:02	10.2	126513.5	23.0	198.1	69101.2	19.3	9.5	18.9	162.9
	11:03	10.1	124951.2	45.4	191.8	67577.3	20.0	9.5	37.3	157.7
	11:04	9.8	124085.9	30.4	198.3	64755.5	19.9	9.9	24.0	156.5
	11:05	9.9	123963.1	15.7	189.2	65657.2	20.5	9.8	12.5	150.6
	11:06	9.9	123567.8	9.6	182.2	65187.9	20.8	9.8	7.6	144.9
	11:07	9.7	122976.5	6.7	190.2	63865.2	21.7	10.0	5.3	149.2
	11:08	9.8	123044.8	5.4	190.5	64552.2	22.2	9.9	4.3	150.7
	11:09	9.7	123563.5	4.7	193.9	64280.2	21.6	10.0	3.7	152.4
	11:10	10.0	124066.2	4.0	194.4	66191.8	19.6	9.7	3.2	156.3
	11:11	9.9	124331.6	3.4	189.2	65949.9	21.3	9.7	2.7	152.2
	11:12	10.0	124296.5	3.0	188.0	66713.5	19.5	9.6	2.5	152.6
	11:13	9.8	124527.1	2.8	186.9	65172.2	17.9	9.9	2.2	148.3
	11:14	9.8	124945.2	2.7	178.3	65333.1	18.1	9.9	2.1	141.0
	11:15	9.6	125473.7	2.8	172.8	64492.1	21.4	10.0	2.2	136.1
	11:16	9.7	125783.3	4.0	174.6	65067.2	24.4	10.1	3.1	135.2
	11:17	10.0	125905.8	8.8	184.2	67016.1	20.9	9.7	7.0	147.8
	11:18	10.0	126179.4	19.6	192.5	67589.2	21.9	9.6	16.0	157.1

Average =		9.9	124855.7	13.6	192.1	66064.6	20.4	9.8	11.0	153.9
Geometric Avg. =		9.9	124852.0	9.6	191.9	66049.2	20.3	9.8	7.7	153.7
Maximum =		10.2	126513.5	45.4	206.7	69101.2	24.4	10.1	37.3	164.9
Minimum =		9.6	122976.5	2.7	172.8	63865.2	17.5	9.5	2.1	135.2
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		267.1	3371103.0	368.0	5186.5	1783743.2	550.2	263.7	295.9	4155.8

- * - 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

Plant Name: NEWD
 General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 11:21
 Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	10:52	17.5	185.3
	10:53	15.7	185.4
	10:54	16.8	183.8
	10:55	17.1	184.5
	10:56	16.3	184.6
	10:57	14.9	184.7
	10:58	14.3	184.3
	10:59	15.6	184.9
	11:00	16.4	183.8
	11:01	15.8	183.9
	11:02	15.8	185.0
	11:03	16.5	183.5
	11:04	15.7	183.1
	11:05	16.3	183.2
	11:06	16.6	182.4
	11:07	17.0	182.7
	11:08	17.6	182.6
	11:09	16.9	184.2
	11:10	15.7	183.9
	11:11	17.1	184.8
	11:12	15.8	183.4
	11:13	14.2	183.8
	11:14	14.3	182.8
	11:15	16.9	182.3
	11:16	18.9	183.0
	11:17	16.8	184.0
	11:18	17.8	182.9

Average =	16.3	183.8
Geometric Avg. =	16.3	183.8
Maximum =	18.9	185.4
Minimum =	14.2	182.3
Possible Values =	27	27
Included Values =	27	27
Total =	440.4	4962.9

- * - 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

RB

Reporting Period: 03/28/2012 to 03/28/2012

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 12:00
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	11:31	10.0	128850.1	13.9	199.2	69136.9	21.9	9.6	11.3	162.1
	11:32	10.3	128911.5	25.2	194.1	71083.2	21.2	9.4	20.9	160.9
	11:33	10.1	128164.3	39.2	187.2	69198.5	18.9	9.4	32.4	154.4
	11:34	10.0	127396.5	35.9	198.1	68110.5	18.5	9.6	29.2	161.4
	11:35	9.7	126952.6	20.2	198.4	66075.0	20.3	9.9	16.0	157.4
	11:36	9.9	126410.1	10.6	200.2	66610.7	19.9	9.8	8.5	159.3
	11:37	10.1	126305.0	6.7	197.4	68186.8	20.4	9.5	5.5	161.4
	11:38	10.3	126254.9	4.8	205.0	69362.8	15.4	9.4	4.0	170.3
	11:39	9.9	126775.5	3.8	208.8	67223.6	14.7	9.6	3.1	170.1
	11:40	9.8	126508.9	3.0	204.8	66069.5	14.3	9.7	2.4	164.4
	11:41	9.8	127114.9	2.9	209.3	66435.9	16.2	9.8	2.3	166.5
	11:42	10.3	127287.1	3.9	206.9	70182.9	15.1	9.4	3.2	171.0
	11:43	10.1	126864.3	5.1	197.5	68427.7	14.0	9.4	4.2	163.2
	11:44	10.1	126448.3	6.6	207.5	68383.6	14.8	9.5	5.4	170.0
	11:45	9.9	126476.1	7.3	212.4	66846.4	14.1	9.7	5.8	171.1
	11:46	10.1	126975.2	7.9	214.1	68377.7	16.2	9.6	6.4	173.4
	11:47	10.2	127036.3	8.5	212.2	69040.2	18.2	9.5	7.0	174.6
	11:48	10.1	127080.6	9.6	203.2	68525.1	19.6	9.5	7.9	167.2
	11:49	9.7	126986.5	10.1	204.4	66158.2	23.1	9.8	8.0	163.2
	11:50	9.9	126675.5	10.9	205.2	66904.1	22.9	9.9	8.7	162.5
	11:51	10.1	126514.3	13.0	202.7	68573.8	20.9	9.5	10.6	166.2
	11:52	10.2	126264.1	15.4	200.1	69041.5	18.1	9.4	12.7	165.3
	11:53	9.7	126353.1	15.6	193.4	65566.9	19.2	9.8	12.5	155.0
	11:54	9.5	126014.6	17.7	186.4	64025.3	22.5	10.1	13.7	144.3
	11:55	9.7	125293.7	20.2	178.3	64896.6	26.5	10.1	15.7	138.2
	11:56	10.1	124851.7	19.7	180.6	67258.6	22.7	9.6	16.0	146.6
	11:57	10.1	124692.7	16.8	181.4	67224.1	22.7	9.6	13.7	147.9

Average =		10.0	126720.7	13.1	199.6	67663.9	19.0	9.6	10.6	161.8
Geometric Avg. =		10.0	126717.2	10.4	199.3	67644.7	18.7	9.6	8.4	161.5
Maximum =		10.3	128911.5	39.2	214.1	71083.2	26.5	10.1	32.4	174.6
Minimum =		9.5	124692.7	2.9	178.3	64025.3	14.0	9.4	2.3	138.2
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		269.5	3421458.2	354.3	5388.6	1826926.4	512.3	260.2	287.0	4367.9

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- 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: 03/28/2012 to 03/28/2012

Site Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 12:00
 Rolling Average Interval: 1

Date	Time	COFFM_1 (PPMD)	STMRF1_1 (KLB/HR)
03/28/12	11:31	17.8	186.1
	11:32	17.6	186.0
	11:33	15.6	185.5
	11:34	15.1	183.1
	11:35	16.1	183.3
	11:36	15.8	184.9
	11:37	16.7	186.4
	11:38	12.8	185.9
	11:39	12.0	184.0
	11:40	11.5	183.6
	11:41	12.9	186.2
	11:42	12.5	185.9
	11:43	11.6	185.7
	11:44	12.1	183.9
	11:45	11.3	184.5
	11:46	13.1	185.0
	11:47	15.0	185.5
	11:48	16.2	183.6
	11:49	18.4	183.6
	11:50	18.1	185.0
	11:51	17.1	186.6
	11:52	15.0	183.8
	11:53	15.4	181.9
	11:54	17.5	183.3
	11:55	20.5	185.3
	11:56	18.4	186.5
	11:57	18.5	185.5

Average =	15.4	184.8
Geometric Avg. =	15.1	184.8
Maximum =	20.5	186.6
Minimum =	11.3	181.9
Possible Values =	27	27
Included Values =	27	27
Total =	414.6	4990.3

- * - excluded values (missing, OOC, invalid, suspect)
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- 888 - value could not be calculated

Plant Name: NBWD
 General Average Report

R9

Reporting Period: 03/28/2012 to 03/28/2012

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 12:40
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	12:09	9.9	119401.7	12.3	215.3	62923.0	23.3	9.8	9.8	172.2
	12:10	10.0	119835.5	10.7	206.3	64219.8	25.6	9.7	8.6	166.3
	12:11	10.2	119743.8	10.1	191.4	65213.6	24.1	9.4	8.3	158.2
	12:12	10.0	119879.9	9.4	187.3	64168.8	24.2	9.5	7.7	153.8
	12:13	9.7	120038.8	8.5	185.0	62281.8	27.7	9.9	6.7	146.0
	12:14	10.1	120239.0	8.5	190.8	64769.4	24.1	9.6	6.9	155.0
	12:15	10.1	120173.0	9.1	194.1	64886.5	22.0	9.5	7.5	159.5
	12:16	10.3	120650.9	9.2	192.9	66198.0	21.2	9.4	7.6	159.5
	12:17	10.4	121240.8	9.0	194.1	67148.6	19.6	9.2	7.6	162.7
	12:18	10.3	121361.6	10.3	194.1	67126.7	18.0	9.3	8.6	161.5
	12:19	10.3	121237.5	10.9	194.3	66885.2	16.1	9.3	9.0	161.5
	12:20	10.1	121265.9	10.9	192.7	65744.2	15.1	9.4	9.0	159.3
	12:21	9.8	121428.9	9.6	197.4	63879.8	16.4	9.8	7.7	157.6
	12:22	10.3	121597.8	8.7	194.2	67097.0	16.4	9.5	7.1	159.8
	12:23	10.6	121702.8	9.1	187.4	68788.8	15.0	9.1	7.7	158.6
	12:24	10.7	121969.8	11.8	186.8	69929.1	14.6	8.9	10.2	161.8
	12:25	10.4	122778.9	13.7	189.8	68422.9	14.6	9.1	11.7	161.4
	12:26	10.4	123696.5	13.8	197.2	69035.7	14.0	9.2	11.7	166.5
	12:27	10.5	123800.4	13.1	195.2	69380.6	14.2	9.2	11.0	164.4
	12:28	10.5	124181.0	12.9	192.8	70058.9	13.1	9.1	11.0	163.4
	12:29	10.6	126114.1	13.2	191.2	71536.2	13.0	9.0	11.3	164.0
	12:30	10.3	127470.8	13.3	192.6	70518.7	13.9	9.3	11.0	160.5
	12:31	10.6	126642.1	13.9	189.5	71777.0	13.8	9.2	11.7	159.4
	12:32	10.8	126219.7	16.4	186.7	73090.3	12.4	8.9	14.2	161.5
	12:33	10.7	126142.0	18.7	183.2	72505.5	10.7	8.8	16.3	160.1
	12:34	10.5	126175.8	20.5	188.1	71006.5	10.6	9.0	17.5	160.4
	12:35	10.3	125803.8	19.3	185.7	69462.7	9.8	9.3	16.1	155.2

Average =	10.3	122622.0	12.1	192.4	67705.8	17.2	9.3	10.1	160.4
Geometric Avg. =	10.3	122596.1	11.7	192.3	67638.9	16.5	9.3	9.8	160.3
Maximum =	10.8	127470.8	20.5	215.3	73090.3	27.7	9.9	17.5	172.2
Minimum =	9.7	119401.7	8.5	183.2	62281.8	9.8	8.8	6.7	146.0
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	278.6	3310792.8	327.0	5195.8	1828055.5	463.6	251.4	273.8	4330.0

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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

Plant Name: NBWD
 General Average Report
 Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 12:40
 Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	12:09	18.6	183.3
	12:10	20.6	185.0
	12:11	19.9	184.7
	12:12	19.9	182.6
	12:13	21.8	183.7
	12:14	19.6	183.8
	12:15	18.0	183.7
	12:16	17.5	184.1
	12:17	16.5	185.5
	12:18	15.0	185.3
	12:19	13.4	184.3
	12:20	12.5	181.7
	12:21	13.1	182.8
	12:22	13.5	183.8
	12:23	12.7	186.0
	12:24	12.6	185.0
	12:25	12.5	184.6
	12:26	11.8	184.6
	12:27	12.0	185.4
	12:28	11.1	185.6
	12:29	11.2	183.5
	12:30	11.6	183.5
	12:31	11.6	184.8
	12:32	10.7	185.2
	12:33	9.3	184.9
	12:34	9.0	184.5
	12:35	8.2	185.4

Average =	14.2	184.3
Geometric Avg. =	13.7	184.3
Maximum =	21.8	186.0
Minimum =	8.2	181.7
Possible Values =	27	27
Included Values =	27	27
Total =	384.3	4977.4

- * - excluded values (missing, OOC, invalid, suspect)
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- 999 - missing value
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Plant Name: NBWD
 General Average Report

R10

Reporting Period: 03/28/2012 to 03/28/2012

Unit Name: UNIT1
 Data Averaging Type: 1m

Time of Report: 03/28/12 13:20
 Rolling Average Interval: 1

Date	Time	CO2_1 (PERCENTD)	STKFLOW1 (SCFM)	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CO2LBHR1 (LB/HR)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)
03/28/12	12:49	9.9	124410.3	51.3	173.4	65661.2	16.7	9.6	41.7	141.0
	12:50	9.8	124693.2	45.9	185.0	65201.4	16.4	9.9	36.3	146.3
	12:51	10.1	124894.1	41.9	192.8	67448.5	18.4	9.6	34.0	156.3
	12:52	10.3	124415.2	39.5	183.0	68730.3	25.6	9.4	32.8	151.6
	12:53	10.3	123923.2	36.4	179.6	68429.8	27.3	9.3	30.4	149.8
	12:54	10.3	123799.1	34.8	182.4	67953.0	20.9	9.3	28.9	151.6
	12:55	10.0	123469.1	31.2	180.5	65912.8	20.8	9.5	25.6	148.1
	12:56	9.8	122847.7	39.4	176.0	64393.0	34.6	9.8	31.6	141.2
	12:57	10.0	122137.6	24.0	183.7	65511.3	20.3	9.7	19.4	147.9
	12:58	10.3	118681.9	12.6	180.9	65143.1	16.1	9.4	10.4	149.8
	12:59	10.3	117897.6	14.0	182.2	64812.5	16.6	9.4	11.6	150.9
	13:00	10.2	118278.6	17.4	182.4	64480.2	15.9	9.4	14.4	150.8
	13:01	10.4	118148.0	20.0	187.5	65562.0	15.2	9.4	16.6	155.7
	13:02	10.7	113998.7	23.3	188.1	64948.5	13.4	9.1	19.8	159.8
	13:03	10.6	112965.4	26.0	191.0	63789.8	11.0	8.9	22.5	165.4
	13:04	10.1	113173.0	30.4	191.2	61171.0	12.5	9.4	25.2	158.5
	13:05	10.2	113054.6	37.3	181.7	61776.2	14.4	9.4	30.8	150.1
	13:06	10.4	113054.6	43.0	184.7	62913.0	13.7	9.3	35.9	154.2
	13:07	10.3	113321.1	48.2	187.8	62380.5	13.3	9.3	40.2	156.4
	13:08	10.3	113276.7	54.2	188.3	62115.7	13.0	9.4	44.8	155.8
	13:09	10.3	112965.8	61.1	195.0	62007.6	12.1	9.4	50.8	162.0
	13:10	10.1	112580.9	60.8	197.1	60515.8	12.2	9.4	50.2	162.7
	13:11	9.7	112374.2	56.0	197.5	58012.5	11.4	9.9	44.6	157.0
	13:12	9.1	111933.2	50.2	212.3	54250.7	12.4	10.9	36.2	153.0
	13:13	10.0	111787.4	15.9	215.5	59794.3	14.5	10.2	12.2	165.8
	13:14	10.5	112272.4	5.3	213.2	62852.0	12.7	9.1	4.5	180.9
	13:15	10.1	112772.6	3.5	220.1	60720.0	13.2	9.4	2.9	182.0

Average =	10.1	117301.0	34.2	190.1	63573.6	16.5	9.5	27.9	155.7
Geometric Avg. =	10.1	117194.6	28.6	189.7	63490.3	15.8	9.5	23.4	155.5
Maximum =	10.7	124894.1	61.1	220.1	68730.3	34.6	10.9	50.8	182.0
Minimum =	9.1	111787.4	3.5	173.4	54250.7	11.0	8.9	2.9	141.0
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	273.6	3167126.2	923.7	5132.7	1716486.4	444.7	256.6	754.1	4204.8

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- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

General Average Report

Reporting Period: 03/28/2012 to 03/28/2012

Site Name: UNIT1

Time of Report: 03/28/12 13:20

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/28/12	12:49	13.6	180.8
	12:50	13.0	181.6
	12:51	14.9	183.8
	12:52	21.2	184.6
	12:53	22.7	185.3
	12:54	17.4	183.3
	12:55	17.1	182.1
	12:56	27.8	183.2
	12:57	16.4	183.8
	12:58	13.3	183.1
	12:59	13.8	182.7
	13:00	13.1	183.4
	13:01	12.7	184.8
	13:02	11.4	185.9
	13:03	9.6	183.4
	13:04	10.4	183.4
	13:05	11.9	183.5
	13:06	11.4	183.7
	13:07	11.1	183.6
	13:08	10.8	183.7
	13:09	10.1	183.8
	13:10	10.1	181.7
	13:11	9.1	181.7
	13:12	8.9	184.0
	13:13	11.1	185.1
	13:14	10.8	183.0
	13:15	10.9	184.3

Average =	13.5	183.5
Geometric Avg. =	12.9	183.5
Maximum =	27.8	185.9
Minimum =	8.9	180.8
Possible Values =	27	27
Included Values =	27	27
Total =	364.4	4953.5

* - excluded values (missing, OOC, invalid, suspect)
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 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: 03/26/2012 to 03/26/2012

Unit Name: UNIT2

Time of Report: 03/26/12 07:52

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)
03/26/12	07:01	164986.5	2.7	196.1	7.7	68177.5	16.0	12.2	1.7	122.9
	07:02	161498.4	1.9	195.8	8.7	75186.8	15.2	10.9	1.4	140.8
	07:03	160981.8	1.7	195.0	10.0	85869.8	10.7	9.5	1.4	159.6
	07:04	160734.8	1.7	196.7	9.9	84775.2	9.6	9.7	1.4	159.1
	07:05	160225.6	1.8	206.8	9.2	79170.5	12.7	10.5	1.4	155.3
	07:06	160202.0	2.1	196.7	8.6	73609.3	15.8	11.2	1.5	137.6
	07:07	160076.7	2.0	187.9	8.6	73848.5	15.8	11.1	1.4	132.3
	07:08	159635.8	1.8	193.0	9.2	78961.6	13.9	10.3	1.3	146.5
	07:09	158795.5	1.6	198.2	9.5	80856.1	12.7	10.1	1.3	154.2
	07:10	154563.5	1.8	202.4	9.5	78869.4	11.4	10.1	1.4	157.6
	07:11	153017.9	1.9	204.0	9.2	75063.4	10.2	10.5	1.4	152.8
	07:12	152684.5	2.0	200.8	8.7	71254.9	9.6	11.0	1.4	142.8
	07:13	152450.8	1.7	199.4	9.2	74687.4	6.9	10.5	1.3	149.9
	07:14	152185.5	1.7	195.3	9.6	77911.0	6.1	10.0	1.3	152.8
	07:15	151964.5	1.7	193.6	9.3	75673.8	6.8	10.4	1.3	146.6
	07:16	150771.1	1.9	194.2	9.0	72509.7	8.3	10.7	1.4	142.9
	07:17	146837.2	1.9	192.8	8.7	68680.5	8.8	11.0	1.4	137.4
	07:18	146994.8	1.7	186.0	9.0	71086.7	8.2	10.7	1.3	136.4
	07:19	147497.8	1.5	180.1	9.3	73525.7	7.3	10.4	1.1	136.3
	07:20	148096.7	1.5	181.4	9.6	75712.1	6.3	10.0	1.2	142.2
	07:21	148510.1	1.7	188.8	9.4	74427.5	6.2	10.2	1.3	144.9
	07:22	148173.4	2.0	193.0	9.2	72686.9	5.9	10.4	1.5	145.3
	07:23	146605.4	2.0	195.1	9.0	70401.8	6.0	10.7	1.5	143.4
	07:24	141381.0	2.0	198.1	8.8	66670.4	6.7	10.9	1.5	142.5
	07:25	133967.8	2.2	193.0	8.9	64070.3	6.7	10.7	1.6	141.1
	07:26	128292.2	2.0	183.5	9.2	63185.7	6.7	10.5	1.5	137.7
	07:27	123871.6	1.9	176.3	9.3	61726.3	6.5	10.3	1.4	134.5

Average =	150926.0	1.9	193.5	9.1	73651.8	9.5	10.5	1.4	144.3
Geometric Avg. =	150585.1	1.9	193.4	9.1	73419.3	9.0	10.5	1.4	144.0
Maximum =	164986.5	2.7	206.8	10.0	85869.8	16.0	12.2	1.7	159.6
Minimum =	123871.6	1.5	176.3	7.7	61726.3	5.9	9.5	1.1	122.9
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	4075003.0	50.4	5224.2	246.4	1988598.8	256.9	284.4	37.4	3895.2

- * - 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

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 07:52
 Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRT_2 (KLB/HR)
03/26/12	07:01	10.0	176.5
	07:02	10.9	183.5
	07:03	8.8	186.5
	07:04	7.7	186.8
	07:05	9.5	183.5
	07:06	11.0	181.4
	07:07	11.1	182.6
	07:08	10.6	184.3
	07:09	9.8	185.7
	07:10	8.9	186.5
	07:11	7.6	184.0
	07:12	6.8	183.7
	07:13	5.2	185.9
	07:14	4.8	186.1
	07:15	5.2	185.7
	07:16	6.1	183.1
	07:17	6.3	182.3
	07:18	6.0	183.1
	07:19	5.5	185.4
	07:20	4.9	186.0
	07:21	4.8	185.9
	07:22	4.4	184.8
	07:23	4.4	183.4
	07:24	4.9	183.5
	07:25	4.9	183.9
	07:26	5.0	184.7
	07:27	4.9	184.1

Average =	7.0	184.2
Geometric Avg. =	6.7	184.2
Maximum =	11.1	186.8
Minimum =	4.4	176.5
Possible Values =	27	27
Included Values =	27	27
Total =	190.1	4972.9

- * - 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

General Average Report

Reporting Period: 03/26/2012 to 03/26/2012

Unit Name: UNIT2

Time of Report: 03/26/12 08:52

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)
03/26/12	07:45	126306.3	3.5	210.6	9.0	60638.8	9.2	10.7	2.6	154.4
	07:46	125875.3	3.3	206.9	8.9	59989.1	8.4	10.8	2.4	150.4
	07:47	125664.7	3.0	203.5	8.7	58714.7	9.7	11.0	2.1	144.4
	07:48	125499.3	3.0	198.8	8.8	58823.1	12.5	11.0	2.1	141.0
	07:49	125286.3	2.8	202.9	8.9	59652.5	13.4	10.9	2.0	146.0
	07:50	125090.3	2.7	196.3	9.1	60803.7	12.0	10.6	2.0	144.9
	07:51	124992.5	3.1	192.5	8.9	59644.2	11.5	10.8	2.2	139.6
	07:52	124992.5	3.1	191.8	8.9	59746.7	11.9	10.8	2.3	139.1
	07:53	122587.9	3.0	190.1	8.9	58640.9	11.7	10.8	2.2	138.3
	07:54	121554.3	3.6	195.6	8.5	55303.2	11.1	11.3	2.5	135.0
	07:55	122839.9	3.8	196.7	8.2	54087.9	13.3	11.6	2.6	131.1
	07:56	123140.7	3.6	192.1	8.5	56036.0	14.5	11.4	2.5	131.8
	07:57	123248.7	3.2	181.0	9.2	60936.8	12.5	10.4	2.4	136.4
	07:58	123272.5	3.2	179.6	9.2	60353.0	11.5	10.5	2.4	134.6
	07:59	123617.4	3.7	196.6	8.2	54500.8	11.7	11.7	2.4	130.6
	08:00	124086.2	3.6	205.2	8.1	53900.3	12.4	11.8	2.3	134.6
	08:01	124121.3	3.1	203.5	8.6	57170.4	11.6	11.2	2.1	142.5
	08:02	123980.3	3.0	204.0	8.9	58931.2	12.3	10.9	2.2	147.0
	08:03	123832.1	2.7	201.4	9.0	59587.2	11.7	10.7	2.0	147.4
	08:04	123883.5	2.7	199.2	9.0	59892.4	10.1	10.7	2.0	145.6
	08:05	123971.4	3.0	201.8	8.6	56948.9	11.3	11.2	2.1	140.3
	08:06	124084.5	2.9	208.8	8.5	56458.8	10.8	11.3	2.0	144.0
	08:07	124197.7	2.8	208.6	8.9	59402.2	10.5	10.8	2.0	151.7
	08:08	124294.9	2.4	202.3	9.6	63645.8	8.4	10.0	1.9	158.2
	08:09	124392.3	2.5	207.8	9.5	63447.3	8.2	10.2	1.9	160.6
	08:10	124392.3	2.4	210.7	9.5	63034.8	8.0	10.2	1.9	162.3
	08:11	124376.1	2.4	216.7	9.1	60687.1	9.1	10.6	1.8	160.1

Average =	124206.7	3.0	200.2	8.9	58925.1	11.1	10.9	2.2	144.1
Geometric Avg. =	124202.3	3.0	200.0	8.9	58867.1	11.0	10.9	2.2	143.9
Maximum =	126306.3	3.8	216.7	9.6	63645.8	14.5	11.8	2.6	162.3
Minimum =	121554.3	2.4	179.6	8.1	53900.3	8.0	10.0	1.8	130.6
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	3353581.2	82.1	5405.0	239.5	1590977.8	299.3	294.1	58.9	3891.8

- * - 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

Plant Name: NBWD
 General Average Report

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 08:52
 Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/26/12	07:45	6.8	182.4
	07:46	6.1	180.7
	07:47	6.9	180.5
	07:48	8.8	181.7
	07:49	9.6	183.5
	07:50	8.8	184.0
	07:51	8.3	184.5
	07:52	8.6	185.6
	07:53	8.5	183.6
	07:54	7.7	180.1
	07:55	8.9	179.6
	07:56	9.9	183.7
	07:57	9.4	185.7
	07:58	8.6	181.6
	07:59	7.8	179.1
	08:00	8.1	180.3
	08:01	8.1	181.5
	08:02	8.9	183.7
	08:03	8.6	185.6
	08:04	7.4	183.8
	08:05	7.8	182.1
	08:06	7.5	182.4
	08:07	7.6	186.1
	08:08	6.6	186.9
	08:09	6.3	188.2
	08:10	6.2	187.0
	08:11	6.7	185.7

Average =	8.0	183.3
Geometric Avg. =	7.9	183.3
Maximum =	9.9	188.2
Minimum =	6.1	179.1
Possible Values =	27	27
Included Values =	27	27
Total =	214.7	4949.8

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
- T - out-of-control
- 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: 03/26/2012 to 03/26/2012

R3

Unit Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 09:25

Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMDC)	NOXPPM_2 (PPMDC)
03/26/12	08:54	127585.2	6.4	190.3	10.0	67953.2	10.6	9.6	5.2	154.1
	08:55	127072.7	6.0	196.4	10.1	68910.5	8.8	9.3	5.0	163.2
	08:56	126686.9	6.2	201.6	9.8	66350.0	8.7	9.9	4.9	159.7
	08:57	126289.8	5.6	196.9	9.9	67204.8	8.2	9.6	4.6	159.6
	08:58	125848.5	5.9	200.1	9.6	64605.1	10.3	10.1	4.6	155.9
	08:59	125936.8	5.8	199.9	9.5	64295.6	10.2	10.1	4.5	154.7
	09:00	125832.1	5.5	194.4	9.9	66541.0	10.5	9.7	4.4	156.8
	09:01	125645.4	5.3	191.1	10.5	70853.7	9.3	8.9	4.6	164.9
	09:02	125849.4	6.5	195.1	10.4	69786.3	8.6	9.2	5.5	163.9
	09:03	125811.4	7.7	197.1	10.3	69603.7	7.4	9.2	6.5	166.4
	09:04	125503.1	8.0	204.9	9.7	64969.2	7.4	10.0	6.3	161.0
	09:05	125095.2	7.4	206.4	9.6	64254.0	8.5	10.0	5.8	161.3
	09:06	126069.1	6.5	206.9	10.0	67550.4	6.2	9.5	5.3	169.5
	09:07	126819.3	5.7	197.5	10.4	70663.2	6.6	9.0	4.9	169.7
	09:08	126780.7	5.7	197.7	10.4	70775.1	5.8	9.0	4.9	169.0
	09:09	126758.7	6.4	203.5	9.5	64656.5	4.4	10.2	4.9	157.3
	09:10	126919.8	5.9	198.6	9.3	62847.0	4.3	10.4	4.4	150.0
	09:11	126620.1	5.1	194.9	10.1	68466.4	5.0	9.4	4.2	161.1
	09:12	126199.3	5.0	193.7	11.1	74968.5	4.1	8.2	4.6	177.6
	09:13	125834.5	5.5	191.7	11.3	76064.1	3.5	8.0	5.2	178.6
	09:14	125452.4	6.5	197.7	10.8	72567.7	3.8	8.6	5.7	174.5
	09:15	125063.6	7.0	199.3	9.8	65452.5	5.3	9.8	5.6	159.7
	09:16	124293.9	6.8	196.0	9.9	65936.6	5.3	9.6	5.5	159.1
	09:17	123842.0	6.8	192.5	10.4	69086.0	5.0	9.0	5.9	165.0
	09:18	123949.7	8.0	190.0	10.6	70007.9	4.6	8.9	6.9	164.4
	09:19	123703.6	8.4	191.4	10.7	70596.8	5.1	8.8	7.3	166.3
	09:20	123313.6	9.0	187.1	11.1	73122.3	4.5	8.2	8.2	170.6

Average =		125732.5	6.5	196.8	10.2	68447.7	6.7	9.3	5.4	163.5
Geometric Avg. =		125727.7	6.4	196.7	10.2	68367.5	6.4	9.3	5.3	163.3
Maximum =		127585.2	9.0	206.9	11.3	76064.1	10.6	10.4	8.2	178.6
Minimum =		123313.6	5.0	187.1	9.3	62847.0	3.5	8.0	4.2	150.0
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3394777.0	174.7	5312.9	274.9	1848088.0	182.0	252.2	145.4	4413.8

- * - excluded values (missing, OOC, invalid, suspect)
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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

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 09:25
 Rolling Average Interval: 1

Date	Time	COPPM_2		STMRT_2
		(PPMD)		(KLE/HR)
03/26/12	08:54	8.6		186.3
	08:55	7.3		186.4
	08:56	6.9		186.2
	08:57	6.6		184.3
	08:58	8.0		181.8
	08:59	7.9		182.3
	09:00	8.4		185.6
	09:01	8.0		186.2
	09:02	7.2		189.0
	09:03	6.2		186.8
	09:04	5.8		184.7
	09:05	6.7		184.2
	09:06	5.1		187.3
	09:07	5.7		186.3
	09:08	5.0		178.8
	09:09	3.4		174.8
	09:10	3.3		177.6
	09:11	4.1		181.8
	09:12	3.7		184.3
	09:13	3.2		182.4
	09:14	3.4		177.3
	09:15	4.2		176.1
	09:16	4.3		177.7
	09:17	4.3		178.3
	09:18	4.0		179.9
	09:19	4.5		183.7
	09:20	4.1		180.1

Average =	5.6	182.6
Geometric Avg. =	5.3	182.6
Maximum =	8.6	189.0
Minimum =	3.2	174.8
Possible Values =	27	27
Included Values =	27	27
Total =	150.0	4930.2

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
- T - out-of-control
- 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

General Average Report

Reporting Period: 03/26/2012 to 03/26/2012

24

Unit Name: UNIT2

Time of Report: 03/26/12 10:08

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)
03/26/12	09:37	123798.6	20.0	189.8	10.4	68949.2	14.9	9.1	16.9	160.5
	09:38	124201.1	20.3	189.8	10.7	71109.8	11.8	8.7	17.8	167.2
	09:39	124429.8	19.8	195.5	10.1	67284.2	13.1	9.4	16.4	161.9
	09:40	124191.3	17.7	201.0	9.4	62394.9	12.6	10.2	13.6	154.4
	09:41	124059.4	15.5	207.6	9.2	60974.9	12.3	10.5	11.6	155.5
	09:42	123839.5	13.2	217.1	9.6	63641.1	11.8	10.1	10.3	169.2
	09:43	123559.6	11.7	218.9	10.2	67738.9	11.2	9.3	9.7	182.8
	09:44	123419.2	11.8	216.5	10.5	69024.0	8.9	9.0	10.1	185.3
	09:45	123575.6	12.5	220.7	10.1	66873.9	9.8	9.4	10.4	182.4
	09:46	123591.7	12.5	219.7	10.0	66165.6	10.1	9.5	10.3	180.4
	09:47	123584.2	13.0	217.1	9.7	63801.8	11.1	9.9	10.2	171.1
	09:48	123628.2	12.8	207.9	9.7	64448.3	10.6	9.9	10.1	164.4
	09:49	123672.2	11.9	195.6	10.6	70256.9	9.1	8.8	10.3	169.8
	09:50	123584.2	12.3	188.7	10.8	71584.0	6.9	8.5	11.0	168.2
	09:51	123468.2	13.5	195.4	10.0	65751.7	7.5	9.5	11.1	160.6
	09:52	123785.1	14.2	198.4	9.4	62206.2	9.1	10.2	10.9	152.1
	09:53	123917.2	13.3	195.3	9.7	64409.0	7.5	9.9	10.5	155.1
	09:54	124049.4	12.5	190.9	10.4	69093.3	7.9	9.1	10.6	161.8
	09:55	124329.9	12.6	188.9	10.6	70497.5	7.8	8.8	11.0	164.7
	09:56	124984.1	14.0	198.8	10.1	67265.3	7.9	9.5	11.5	163.5
	09:57	125380.9	14.1	193.5	10.1	67396.2	8.2	9.5	11.6	159.4
	09:58	125380.9	14.2	190.5	10.1	67454.3	9.7	9.5	11.7	156.3
	09:59	124807.8	14.6	193.6	10.1	67664.4	9.1	9.4	12.1	160.2
	10:00	124455.1	14.3	198.0	10.1	67410.4	7.9	9.4	11.8	163.6
	10:01	124455.1	14.0	197.0	10.1	67191.4	9.2	9.5	11.5	161.8
	10:02	124262.5	13.6	195.6	10.2	67913.8	9.4	9.3	11.3	162.7
	10:03	123813.0	13.4	198.4	10.5	69330.3	7.8	9.0	11.4	169.3

Average =		124082.4	14.2	200.7	10.1	66956.7	9.7	9.4	11.7	165.3
Geometric Avg. =		124081.2	14.0	200.5	10.1	66901.1	9.6	9.4	11.5	165.1
Maximum =		125380.9	20.3	220.7	10.8	71584.0	14.9	10.5	17.8	185.3
Minimum =		123419.2	11.7	188.7	9.2	60974.9	6.9	8.5	9.7	152.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3350223.5	383.2	5420.0	272.4	1807831.2	263.1	254.9	315.8	4464.0

- * - 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

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/26/12 10:08
Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/26/12	09:37	12.6	184.2
	09:38	10.4	184.0
	09:39	10.8	181.7
	09:40	9.7	179.8
	09:41	9.2	180.2
	09:42	9.2	182.0
	09:43	9.4	184.6
	09:44	7.6	183.7
	09:45	8.1	183.3
	09:46	8.3	180.3
	09:47	8.7	179.4
	09:48	8.4	183.7
	09:49	7.9	186.6
	09:50	6.2	184.9
	09:51	6.1	181.6
	09:52	7.0	181.1
	09:53	6.0	183.5
	09:54	6.7	185.5
	09:55	6.8	183.9
	09:56	6.5	183.6
	09:57	6.8	183.6
	09:58	7.9	182.3
	09:59	7.5	182.0
	10:00	6.5	181.7
	10:01	7.5	182.5
	10:02	7.8	184.1
	10:03	6.7	184.3

Average =	8.0	182.9
Geometric Avg. =	7.9	182.9
Maximum =	12.6	186.6
Minimum =	6.0	179.4
Possible Values =	27	27
Included Values =	27	27
Total =	216.3	4938.3

- * - 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: 03/26/2012 to 03/26/2012

25

Unit Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 10:48
 Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)
03/26/12	10:17	127568.5	11.3	191.8	10.4	71267.2	7.4	9.1	9.6	163.4
	10:18	127793.8	12.0	185.2	10.5	71860.1	6.7	9.0	10.2	158.1
	10:19	127645.0	13.6	186.9	10.5	71378.2	6.1	9.0	11.6	159.7
	10:20	127237.1	15.6	199.4	9.6	65671.8	6.6	10.0	12.2	156.1
	10:21	126989.6	14.8	197.5	9.8	66506.3	6.9	9.8	11.8	158.0
	10:22	126929.3	13.3	191.5	10.1	68601.9	7.0	9.5	10.9	157.4
	10:23	127127.7	12.0	187.2	10.3	70080.4	6.7	9.3	10.0	156.1
	10:24	127221.1	10.5	179.8	10.8	73602.1	6.1	8.6	9.3	158.5
	10:25	127573.5	10.6	190.1	10.4	70724.1	4.9	9.1	9.0	160.9
	10:26	127925.9	10.9	197.9	10.0	68239.6	6.7	9.6	8.8	160.3
	10:27	128295.0	10.7	192.8	10.3	70655.2	5.7	9.2	9.1	162.9
	10:28	128483.7	11.6	200.6	9.7	66968.0	6.5	9.9	9.2	159.0
	10:29	128689.4	11.2	196.0	9.9	67798.0	5.5	9.8	9.0	157.0
	10:30	128922.8	10.4	185.9	10.3	70986.5	5.2	9.3	8.7	155.7
	10:31	129082.6	10.6	186.2	10.2	70669.0	5.6	9.3	8.9	155.4
	10:32	129317.6	11.4	182.2	10.2	70766.5	6.8	9.3	9.5	151.9
	10:33	129657.2	12.8	177.1	10.4	71926.7	6.2	9.1	10.9	150.0
	10:34	129464.0	14.6	180.5	10.1	70094.1	6.6	9.5	12.0	148.3
	10:35	129220.3	14.8	182.2	10.2	70675.2	7.7	9.3	12.4	152.2
	10:36	129128.2	15.9	188.3	9.8	67599.8	6.2	9.9	12.6	149.1
	10:37	129084.1	15.3	192.7	9.8	67529.6	6.1	9.8	12.2	153.2
	10:38	129128.2	13.8	192.0	10.1	69820.3	7.1	9.5	11.3	157.0
	10:39	128450.2	12.5	188.4	10.4	71702.5	7.4	9.1	10.7	160.2
	10:40	127221.1	12.9	190.6	10.3	69783.7	6.3	9.3	10.8	159.4
	10:41	125943.6	13.3	200.8	9.8	66303.1	6.5	9.8	10.6	160.0
	10:42	124990.8	12.2	196.9	10.1	67847.2	4.5	9.3	10.1	164.1
	10:43	122515.3	11.7	198.2	9.8	63910.7	4.5	9.9	9.2	156.6

Average =		127837.2	12.6	190.3	10.1	69369.2	6.3	9.4	10.4	157.1
Geometric Avg. =		127828.0	12.5	190.2	10.1	69332.3	6.2	9.4	10.3	157.0
Maximum =		129657.2	15.9	200.8	10.8	73602.1	7.7	10.0	12.6	164.1
Minimum =		122515.3	10.4	177.1	9.6	63910.7	4.5	8.6	8.7	148.3
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3451605.5	340.4	5138.5	273.9	1872967.9	169.7	254.4	280.5	4240.4

- * - excluded values (missing, OOC, invalid, suspect)
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- 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: 03/26/2012 to 03/26/2012

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/26/12 10:48
Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/26/12	10:17	6.3	185.1
	10:18	5.7	186.4
	10:19	5.2	184.0
	10:20	5.2	182.8
	10:21	5.5	183.7
	10:22	5.8	183.3
	10:23	5.6	186.5
	10:24	5.4	185.9
	10:25	4.1	185.8
	10:26	5.4	186.6
	10:27	4.9	183.6
	10:28	5.1	182.4
	10:29	4.4	183.9
	10:30	4.3	182.8
	10:31	4.7	182.6
	10:32	5.7	184.2
	10:33	5.2	183.8
	10:34	5.5	184.9
	10:35	6.4	182.9
	10:36	4.9	181.5
	10:37	4.8	181.9
	10:38	5.8	185.0
	10:39	6.3	185.4
	10:40	5.2	184.8
	10:41	5.2	185.2
	10:42	3.8	182.9
	10:43	3.6	182.3

Average =	5.2	184.1
Geometric Avg. =	5.1	184.1
Maximum =	6.4	186.6
Minimum =	3.6	181.5
Possible Values =	27	27
Included Values =	27	27
Total =	140.2	4970.3

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- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

Plant Name: NBWD
General Average Report

RL

Reporting Period: 03/26/2012 to 03/26/2012

Unit Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/26/12 11:29
Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)
03/26/12	10:58	119154.5	12.1	202.7	10.4	66532.7	6.8	9.0	10.4	173.1
	10:59	119644.2	13.5	206.4	10.3	65801.4	6.9	9.2	11.4	173.9
	11:00	120553.6	14.5	209.0	9.9	63798.6	7.8	9.7	11.7	168.8
	11:01	120855.5	15.5	209.5	9.6	61916.9	8.1	10.1	12.0	162.9
	11:02	121163.6	15.7	209.3	9.7	62815.7	9.5	9.9	12.4	165.7
	11:03	121311.4	15.2	202.8	10.0	65089.7	7.8	9.5	12.5	165.9
	11:04	121289.9	14.7	204.4	10.2	66477.3	6.9	9.3	12.3	170.1
	11:05	121501.3	14.0	196.5	10.4	67769.4	6.2	9.0	11.9	167.9
	11:06	121765.8	14.8	201.4	9.9	64793.0	6.2	9.6	12.0	163.1
	11:07	122162.6	15.5	196.9	9.8	63932.6	6.1	9.8	12.4	157.8
	11:08	122515.3	15.8	195.6	9.9	64720.0	5.4	9.7	12.8	157.9
	11:09	122948.1	16.4	193.4	10.2	67107.7	5.4	9.3	13.7	161.6
	11:10	123168.3	17.6	182.8	10.3	68178.8	6.0	9.1	15.0	155.3
	11:11	123096.3	19.4	185.8	9.8	64436.6	6.5	9.8	15.5	148.8
	11:12	123308.8	19.2	187.9	9.4	62175.7	8.7	10.1	14.8	145.4
	11:13	123573.4	18.9	185.7	9.4	61994.1	9.5	10.3	14.4	141.9
	11:14	123617.4	17.9	184.6	9.9	65405.8	9.7	9.7	14.4	148.4
	11:15	123300.5	17.4	185.4	10.3	67891.9	7.2	9.2	14.7	156.2
	11:16	122727.8	17.2	195.1	10.1	66320.1	6.9	9.4	14.3	162.0
	11:17	122639.7	17.4	200.8	9.6	63134.9	7.8	9.9	13.7	158.2
	11:18	122904.0	17.9	201.0	9.3	61057.9	8.0	10.4	13.6	152.5
	11:19	123212.4	17.5	198.2	9.4	62034.8	8.4	10.3	13.3	151.3
	11:20	123048.2	16.3	199.9	9.9	65144.1	8.2	9.7	13.2	161.7
	11:21	122504.2	16.5	201.8	10.0	65555.0	7.6	9.6	13.4	164.1
	11:22	121617.8	16.7	203.9	9.9	64397.7	6.9	9.5	13.6	166.9
	11:23	121194.2	17.9	206.4	9.5	61839.8	7.6	10.1	13.9	160.6
	11:24	121063.1	18.4	205.5	9.5	61621.8	7.9	10.1	14.3	159.9

Average =		122068.2	16.4	198.3	9.9	64516.4	7.4	9.7	13.2	160.1
Geometric Avg. =		122062.5	16.3	198.1	9.9	64483.3	7.3	9.7	13.2	159.9
Maximum =		123617.4	19.4	209.5	10.4	68178.8	9.7	10.4	15.5	173.9
Minimum =		119154.5	12.1	182.8	9.3	61057.9	5.4	9.0	10.4	141.9
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3295842.0	444.0	5352.8	266.8	1741944.0	200.1	261.2	357.7	4321.8

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- S - suspect
- H - exceedance
- F - stack not operating
- B - invalid (PADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 11:29
 Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRT_2 (KLB/HR)
03/26/12	10:58	5.8	185.3
	10:59	5.8	184.4
	11:00	6.3	182.9
	11:01	6.3	182.2
	11:02	7.6	182.7
	11:03	6.4	183.5
	11:04	5.8	185.3
	11:05	5.3	183.7
	11:06	5.0	182.6
	11:07	4.9	182.4
	11:08	4.4	183.4
	11:09	4.5	185.7
	11:10	5.1	184.5
	11:11	5.2	182.6
	11:12	6.7	180.4
	11:13	7.3	181.5
	11:14	7.8	183.9
	11:15	6.1	184.8
	11:16	5.7	183.3
	11:17	6.1	180.7
	11:18	6.1	179.1
	11:19	6.4	181.4
	11:20	6.7	183.0
	11:21	6.2	184.7
	11:22	5.6	183.4
	11:23	6.0	182.7
	11:24	6.2	181.0

Average =	6.0	183.0
Geometric Avg. =	5.9	183.0
Maximum =	7.8	185.7
Minimum =	4.4	179.1
Possible Values =	27	27
Included Values =	27	27
Total =	161.1	4941.1

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
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- 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

27

Reporting Period: 03/26/2012 to 03/26/2012

Unit Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 12:08
 Rolling Average Interval: 1

Date	Time	STEFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMDC)	NOXPPM_2 (PPMDC)
03/26/12	11:38	119781.9	14.1	184.1	10.0	63925.3	4.9	9.5	11.6	151.2
	11:39	119488.9	14.7	192.4	9.7	61891.0	5.5	9.8	11.7	153.2
	11:40	119053.0	14.4	194.5	9.7	61516.7	7.0	9.9	11.4	154.4
	11:41	118876.5	14.4	183.2	10.0	63397.6	5.9	9.6	11.7	149.2
	11:42	118375.7	14.8	176.9	10.3	65168.1	4.8	9.1	12.5	149.7
	11:43	118062.6	15.9	183.1	10.0	63120.3	5.4	9.5	13.1	150.7
	11:44	118033.9	16.4	188.5	9.7	60972.2	5.6	9.9	12.9	149.1
	11:45	118391.1	16.1	188.2	9.7	61198.4	6.1	9.9	12.7	148.8
	11:46	119258.1	16.8	182.7	9.8	62703.8	6.0	9.7	13.5	146.7
	11:47	120090.6	18.0	173.8	10.2	65565.2	6.1	9.3	15.1	145.3
	11:48	120245.3	20.4	173.9	10.2	65300.2	6.2	9.3	16.9	144.5
	11:49	119814.8	21.6	189.1	9.7	62142.1	5.3	9.9	17.1	149.7
	11:50	119880.1	19.7	201.3	9.2	59207.2	5.8	10.4	14.9	152.0
	11:51	120178.7	17.1	196.8	9.5	61338.8	6.5	10.1	13.2	152.4
	11:52	120531.4	15.4	194.2	10.0	64469.2	6.0	9.6	12.5	158.0
	11:53	120393.1	15.4	195.8	10.2	65775.4	5.5	9.3	12.9	163.8
	11:54	120172.8	15.9	198.5	10.2	65408.7	5.5	9.3	13.2	165.9
	11:55	120188.5	16.4	203.8	9.8	62895.1	6.7	9.8	13.1	163.1
	11:56	120238.5	15.7	198.0	9.7	62638.3	6.8	9.8	12.5	158.3
	11:57	120465.1	14.5	197.7	9.8	63003.4	5.4	9.8	11.6	158.0
	11:58	120597.5	13.2	189.7	10.2	65719.4	4.1	9.3	11.0	158.6
	11:59	120304.3	13.1	187.3	10.2	65559.6	3.4	9.2	11.0	157.0
	12:00	119824.5	13.4	190.0	9.9	63666.9	4.6	9.6	10.9	154.7
	12:01	119515.3	13.7	187.9	9.9	63450.6	5.0	9.6	11.2	153.2
	12:02	119515.3	14.9	190.5	9.7	62233.9	4.5	9.9	11.8	151.4
	12:03	119455.5	15.4	192.5	9.6	61476.5	5.3	10.0	12.1	151.5
	12:04	119317.8	15.9	187.7	9.8	62833.1	5.5	9.6	12.9	152.0

Average =	119631.5	15.8	189.7	9.9	63206.6	5.5	9.7	12.8	153.4
Geometric Avg. =	119629.2	15.7	189.6	9.9	63183.5	5.5	9.6	12.7	153.3
Maximum =	120597.5	21.6	203.8	10.3	65775.4	7.0	10.4	17.1	165.9
Minimum =	118033.9	13.1	173.8	9.2	59207.2	3.4	9.1	10.9	144.5
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	3230050.8	427.2	5122.1	266.7	1706576.9	149.5	260.6	345.2	4142.3

- * - excluded values (missing, OOC, invalid, suspect)
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- S - suspect
- H - exceedance
- F - stack not operating
- B - invalid (FADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

General Average Report

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2

Data Averaging Type: 1m

Time of Report: 03/26/12 12:08

Rolling Average Interval: 1

Date	Time	COPFM_2		STMPT_2	
		(PPMD)	()	(KLB/HR)	()
03/26/12	11:38	4.0		182.4	
	11:39	4.4		181.5	
	11:40	5.6		181.9	
	11:41	4.8		184.0	
	11:42	4.1		184.0	
	11:43	4.4		182.4	
	11:44	4.4		181.4	
	11:45	4.8		180.8	
	11:46	4.8		183.5	
	11:47	5.1		184.9	
	11:48	5.2		182.9	
	11:49	4.2		179.8	
	11:50	4.4		180.2	
	11:51	5.0		181.8	
	11:52	4.9		183.8	
	11:53	4.6		184.9	
	11:54	4.6		183.7	
	11:55	5.4		183.1	
	11:56	5.4		182.4	
	11:57	4.3		184.2	
	11:58	3.4		184.7	
	11:59	2.9		183.5	
	12:00	3.8		184.2	
	12:01	4.1		182.8	
	12:02	3.6		181.3	
	12:03	4.2		181.8	
	12:04	4.4		182.5	

Average =	4.5	182.8
Geometric Avg. =	4.4	182.8
Maximum =	5.6	184.9
Minimum =	2.9	179.8
Possible Values =	27	27
Included Values =	27	27
Total =	120.8	4934.5

- * - 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: 03/26/2012 to 03/26/2012

Site Name: UNIT2

Time of Report: 03/26/12 12:50

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMDC)	NOXPPM_2 (PPMDC)
03/26/12	12:19	121245.9	10.1	193.1	10.2	65897.6	5.3	9.3	8.4	160.8
	12:20	121457.2	9.8	186.0	10.4	67376.7	5.7	9.0	8.4	159.0
	12:21	121164.4	9.9	191.4	10.2	65799.3	6.4	9.3	8.3	159.7
	12:22	121259.4	10.5	194.0	9.9	64153.8	6.6	9.6	8.5	157.0
	12:23	121435.9	10.8	193.6	9.9	64452.9	6.8	9.6	8.8	157.6
	12:24	121524.1	11.3	187.7	10.4	67533.0	5.7	9.0	9.6	160.1
	12:25	121480.0	13.3	188.1	10.2	66154.8	6.2	9.3	11.1	156.5
	12:26	121612.4	14.9	193.0	10.0	64763.4	6.7	9.5	12.2	157.7
	12:27	121612.4	15.1	187.6	10.0	65001.9	6.8	9.5	12.3	153.2
	12:28	121684.7	14.9	185.4	10.3	66787.0	6.9	9.3	12.5	155.1
	12:29	121809.9	15.4	183.8	10.3	67376.9	6.6	9.1	13.0	155.5
	12:30	121633.6	16.6	185.5	10.4	67514.4	5.9	9.1	14.2	158.1
	12:31	121236.8	16.3	193.8	10.1	65727.3	6.5	9.4	13.5	160.4
	12:32	121060.4	14.5	195.7	10.1	65576.7	6.6	9.3	12.1	162.8
	12:33	121369.0	14.2	200.4	10.0	64874.0	6.4	9.6	11.6	163.5
	12:34	121633.6	14.1	203.2	10.0	65199.7	6.0	9.5	11.5	166.1
	12:35	121589.5	13.7	195.1	10.1	65992.2	6.1	9.3	11.5	163.1
	12:36	121633.6	14.1	202.7	9.9	64643.5	5.7	9.7	11.4	164.0
	12:37	121914.0	13.4	200.3	10.1	66064.0	5.7	9.3	11.1	166.8
	12:38	121788.9	13.7	206.8	10.0	65193.9	6.2	9.5	11.2	169.8
	12:39	121420.0	13.7	208.1	10.0	65176.2	6.1	9.5	11.2	170.3
	12:40	121044.7	13.7	202.4	10.2	65941.5	5.6	9.3	11.4	168.6
	12:41	120899.5	13.7	201.3	10.2	66136.1	4.7	9.2	11.6	169.8
	12:42	121195.1	14.1	210.3	10.0	64994.9	5.3	9.4	11.6	173.3
	12:43	121693.5	13.9	214.9	9.9	64556.0	4.8	9.5	11.4	175.6
	12:44	122186.0	13.0	210.1	9.8	63755.3	4.4	9.7	10.5	168.9
	12:45	122258.3	12.6	192.9	9.9	64528.5	5.4	9.6	10.2	157.1

Average =	121512.7	13.4	196.6	10.1	65598.9	6.0	9.4	11.1	162.6
Geometric Avg. =	121512.3	13.2	196.4	10.1	65590.9	5.9	9.4	11.0	162.5
Maximum =	122258.3	16.6	214.9	10.4	67533.0	6.9	9.7	14.2	175.6
Minimum =	120899.5	9.8	183.8	9.8	63755.3	4.4	9.0	8.3	153.2
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	3280842.8	361.2	5307.1	272.5	1771171.5	161.2	253.7	298.9	4390.5

- * - 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

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/26/12 12:50
Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/26/12	12:19	4.4	185.1
	12:20	4.9	185.0
	12:21	5.4	183.3
	12:22	5.3	183.3
	12:23	5.6	185.1
	12:24	4.9	185.0
	12:25	5.2	184.2
	12:26	5.4	183.3
	12:27	5.6	183.6
	12:28	5.8	184.2
	12:29	5.6	185.0
	12:30	5.0	185.0
	12:31	5.4	185.4
	12:32	5.5	184.9
	12:33	5.3	184.4
	12:34	4.9	185.0
	12:35	5.1	184.0
	12:36	4.6	184.0
	12:37	4.7	183.8
	12:38	5.1	183.4
	12:39	5.0	183.8
	12:40	4.7	184.8
	12:41	4.0	184.6
	12:42	4.4	183.7
	12:43	3.9	183.3
	12:44	3.5	183.6
	12:45	4.4	184.0

Average =	4.9	184.2
Geometric Avg. =	4.9	184.2
Maximum =	5.8	185.4
Minimum =	3.5	183.3
Possible Values =	27	27
Included Values =	27	27
Total =	133.4	4974.5

- * - 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

R9

Plant Name: NBWD
 General Average Report
 Reporting Period: 03/26/2012 to 03/26/2012

Unit Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 13:30
 Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)
03/26/12	13:00	121538.4	17.5	199.0	9.9	64198.7	5.9	9.6	14.2	161.3
	13:01	121538.4	16.8	204.2	9.7	63046.9	5.6	9.9	13.3	162.0
	13:02	121510.2	16.0	206.8	9.7	62832.9	6.1	9.9	12.6	163.5
	13:03	121088.7	15.7	210.4	9.6	62461.7	6.1	9.9	12.4	166.0
	13:04	120553.6	15.4	198.7	10.3	66636.8	6.5	9.0	13.1	169.5
	13:05	120415.4	16.0	198.9	10.7	68919.8	4.2	8.6	14.2	175.4
	13:06	121163.6	18.4	234.8	9.3	60083.1	4.9	10.5	13.8	176.1
	13:07	122103.7	17.9	236.4	8.8	57490.7	5.6	10.9	12.9	170.4
	13:08	123008.2	16.6	222.2	9.2	60282.8	6.9	10.5	12.4	166.4
	13:09	123909.9	14.3	205.3	9.9	65388.2	7.1	9.6	11.6	166.2
	13:10	126279.5	13.1	193.2	10.7	72328.0	5.8	8.6	11.6	170.7
	13:11	128249.4	14.1	193.6	10.6	72539.3	4.9	8.8	12.2	168.0
	13:12	130670.0	15.5	218.0	9.6	67210.7	5.7	10.1	12.1	170.2
	13:13	133372.1	14.9	216.9	9.4	67154.8	5.7	10.2	11.5	167.7
	13:14	133581.9	13.9	212.4	9.3	66646.0	5.9	10.3	10.6	162.0
	13:15	133360.5	12.8	204.4	9.6	68416.4	5.8	10.0	10.0	159.8
	13:16	132990.4	12.4	199.2	9.8	69459.3	5.5	9.8	9.9	159.1
	13:17	133035.9	12.5	197.3	9.3	66221.8	6.7	10.4	9.5	149.1
	13:18	132833.0	11.1	202.8	9.3	66108.9	6.8	10.3	8.5	154.6
	13:19	132611.0	12.6	213.9	9.6	67960.8	6.6	10.0	9.9	167.5
	13:20	132937.0	13.3	204.9	9.7	68649.2	5.8	9.9	10.5	161.7
	13:21	134011.9	12.8	191.6	9.9	71103.8	5.3	9.6	10.4	156.2
	13:22	134435.6	12.4	183.8	10.3	74408.5	5.3	9.1	10.5	156.0
	13:23	134418.5	13.1	190.8	10.3	74099.5	6.2	9.2	11.1	161.1
	13:24	134418.5	13.8	196.3	10.0	71942.6	7.3	9.5	11.3	160.9
	13:25	134330.4	13.4	193.3	10.0	71620.0	7.7	9.6	10.9	157.8
	13:26	134771.2	12.9	185.9	10.4	74894.6	6.7	9.1	10.9	157.2

Average =		128634.7	14.4	204.3	9.8	67485.4	6.0	9.7	11.6	163.6
Geometric Avg. =		128509.1	14.3	203.9	9.8	67332.7	6.0	9.7	11.5	163.4
Maximum =		134771.2	18.4	236.4	10.7	74894.6	7.7	10.9	14.2	176.1
Minimum =		120415.4	11.1	183.8	8.8	57490.7	4.2	8.6	8.5	149.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3473137.0	389.2	5514.9	264.8	1822105.9	162.9	263.0	311.9	4416.3

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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

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 13:30
 Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRT_2 (KLB/HR)
03/26/12	13:00	4.8	182.3
	13:01	4.4	181.6
	13:02	4.8	181.2
	13:03	4.8	185.2
	13:04	5.6	188.2
	13:05	3.7	184.0
	13:06	3.7	179.9
	13:07	4.1	177.8
	13:08	5.1	180.2
	13:09	5.7	185.4
	13:10	5.1	187.3
	13:11	4.3	185.1
	13:12	4.5	183.9
	13:13	4.4	181.5
	13:14	4.5	180.8
	13:15	4.6	184.7
	13:16	4.4	186.2
	13:17	5.1	185.6
	13:18	5.2	183.5
	13:19	5.2	181.7
	13:20	4.6	182.2
	13:21	4.4	184.0
	13:22	4.5	184.8
	13:23	5.3	183.7
	13:24	6.0	183.1
	13:25	6.2	184.4
	13:26	5.7	186.4

Average =	4.8	183.5
Geometric Avg. =	4.8	183.5
Maximum =	6.2	188.2
Minimum =	3.7	177.8
Possible Values =	27	27
Included Values =	27	27
Total =	130.6	4954.7

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
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- S - suspect
- H - exceedance
- F - stack not operating
- B - invalid (PADER)
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- 999 - missing value
- 888 - value could not be calculated

Plant Name: NBWD
 General Average Report
 Reporting Period: 03/26/2012 to 03/26/2012

R10

Unit Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 14:13
 Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)
03/26/12	13:39	128481.8	14.6	185.6	10.6	72825.4	7.0	8.8	12.7	161.7
	13:40	128249.4	18.5	191.6	10.1	69532.6	7.3	9.3	15.4	159.3
	13:41	128662.3	19.5	195.7	9.7	66715.9	7.6	9.9	15.5	155.4
	13:42	129480.9	16.7	198.9	9.7	66988.0	7.4	9.9	13.2	157.4
	13:43	129728.5	14.1	197.3	10.1	70069.7	5.9	9.4	11.7	163.7
	13:44	130084.4	13.4	198.4	10.3	71557.2	6.5	9.2	11.3	167.0
	13:45	130436.9	13.8	201.8	10.3	71900.6	6.1	9.1	11.6	170.6
	13:46	130348.8	14.5	203.5	10.3	71621.3	6.9	9.3	12.1	170.1
	13:47	130701.2	15.5	198.1	10.1	70892.1	7.9	9.3	12.9	164.7
	13:48	131185.7	17.3	205.6	9.4	65885.5	7.8	10.2	13.3	157.8
	13:49	131185.7	16.4	198.0	9.8	68477.0	7.3	9.9	13.0	156.9
	13:50	131288.4	15.2	185.2	10.4	73373.5	7.3	9.0	13.0	158.4
	13:51	131376.6	15.0	189.6	10.4	73415.7	7.7	9.1	12.8	161.4
	13:52	131685.2	14.2	191.9	10.3	72747.7	6.4	9.2	11.9	161.5
	13:53	131597.0	13.8	189.9	10.4	73081.4	6.5	9.1	11.8	161.7
	13:54	131009.5	14.3	192.0	10.3	71986.7	6.4	9.3	12.0	160.7
	13:55	131141.7	14.7	196.7	10.0	70069.6	7.0	9.5	12.1	161.0
	13:56	132022.7	14.9	201.4	9.8	69106.9	7.7	9.8	11.9	161.0
	13:57	133316.4	14.0	195.5	10.1	71882.8	7.8	9.5	11.5	160.5
	13:58	133951.1	13.5	189.2	10.4	74660.9	6.7	9.1	11.5	161.0
	13:59	133747.1	14.4	190.3	10.4	74418.5	6.1	9.0	12.3	162.5
	14:00	133570.6	16.0	197.4	10.0	71653.1	6.6	9.5	13.1	161.6
	14:01	133376.7	17.5	197.3	9.7	69142.7	8.7	9.9	13.8	155.7
	14:02	133096.0	17.7	193.6	9.6	68468.0	9.0	10.0	13.9	151.7
	14:03	133272.3	17.2	188.5	10.0	71371.9	7.9	9.5	14.1	154.5
	14:04	133608.6	17.3	193.4	10.2	73031.3	7.7	9.3	14.4	161.5
	14:05	133784.8	17.4	201.6	10.1	71944.5	7.5	9.5	14.2	165.0

Average =	131495.9	15.6	195.1	10.1	70993.3	7.2	9.4	12.8	160.9
Geometric Avg. =	131484.9	15.5	195.0	10.1	70956.2	7.2	9.4	12.8	160.8
Maximum =	133951.1	19.5	205.6	10.6	74660.9	9.0	10.2	15.5	170.6
Minimum =	128249.4	13.4	185.2	9.4	65885.5	5.9	8.8	11.3	151.7
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	3550390.2	421.3	5267.8	272.5	1916820.2	194.6	254.6	346.9	4344.4

- * - excluded values (missing, OOC, invalid, suspect)
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- H - exceedance
- F - stack not operating
- B - invalid (PADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/26/12 14:13
Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/26/12	13:39	6.1	184.8
	13:40	6.0	182.3
	13:41	6.1	181.0
	13:42	5.9	182.6
	13:43	4.9	183.6
	13:44	5.5	184.8
	13:45	5.1	185.4
	13:46	5.7	184.6
	13:47	6.5	182.0
	13:48	6.0	181.3
	13:49	5.8	184.1
	13:50	6.2	183.9
	13:51	6.5	183.4
	13:52	5.4	184.9
	13:53	5.5	185.6
	13:54	5.4	184.6
	13:55	5.7	182.6
	13:56	6.1	182.9
	13:57	6.4	184.5
	13:58	5.7	184.9
	13:59	5.2	183.7
	14:00	5.4	181.8
	14:01	6.9	180.3
	14:02	7.0	182.1
	14:03	6.5	183.6
	14:04	6.4	183.9
	14:05	6.1	183.9

Average =	5.9	183.4
Geometric Avg. =	5.9	183.4
Maximum =	7.0	185.6
Minimum =	4.9	180.3
Possible Values =	27	27
Included Values =	27	27
Total =	160.2	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

Plant Name: NBWD
 General Average Report
 Reporting Period: 03/26/2012 to 03/26/2012

211

Unit Name: UNIT2
 Data Averaging Type: 1m

Time of Report: 03/26/12 14:48
 Rolling Average Interval: 1

Date	Time	STKFLOW2 (SCFM)	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CO2_2 (PERCENTD)	CO2LBHR2 (LB/HR)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMDC)	NOXPPM_2 (PPMDC)
03/26/12	14:18	132419.2	13.2	182.8	10.4	73563.9	6.9	9.2	11.1	154.5
	14:19	131376.6	13.3	185.6	10.2	71427.1	7.1	9.3	11.1	154.5
	14:20	129331.8	14.5	191.3	9.6	66199.5	6.7	10.1	11.3	148.8
	14:21	124974.5	14.9	191.6	9.6	64147.5	6.8	10.1	11.6	149.3
	14:22	122735.7	14.2	193.2	10.0	65339.7	7.5	9.7	11.4	155.6
	14:23	120355.1	13.1	189.8	10.6	68278.0	7.3	8.9	11.3	163.4
	14:24	120222.8	13.1	189.7	10.6	68417.4	6.1	8.8	11.4	164.7
	14:25	120427.5	13.8	199.5	10.2	65989.6	7.2	9.3	11.5	165.8
	14:26	120188.5	14.0	199.8	10.1	65226.5	7.7	9.4	11.6	165.1
	14:27	119737.9	15.0	203.5	9.7	62388.2	8.2	9.9	11.8	160.6
	14:28	119870.1	14.8	203.9	9.7	61901.5	8.7	10.0	11.6	159.3
	14:29	119634.1	14.2	201.4	10.2	65512.2	8.4	9.4	11.8	167.3
	14:30	119056.0	15.0	205.0	10.8	68737.7	6.0	8.6	13.2	180.8
	14:31	118875.0	16.5	213.9	10.4	66434.9	5.9	8.9	14.2	184.0
	14:32	119462.7	17.3	220.3	9.8	62496.1	7.7	9.8	13.7	175.2
	14:33	120408.8	16.7	216.4	9.8	63125.3	6.9	9.9	13.3	171.8
	14:34	120707.8	15.7	209.6	10.2	65907.5	5.7	9.3	13.1	174.3
	14:35	120795.9	14.9	197.1	10.6	68778.0	6.4	8.8	13.0	171.5
	14:36	120795.9	15.0	189.3	10.6	68162.0	6.1	8.9	12.9	163.6
	14:37	120663.7	15.5	198.2	10.2	66023.3	5.7	9.2	13.1	166.6
	14:38	120751.8	15.8	208.5	9.7	62938.1	6.4	9.8	12.6	166.4
	14:39	120767.6	14.7	199.0	10.0	64684.9	6.4	9.5	12.0	162.7
	14:40	120553.3	14.0	187.9	10.4	67225.6	6.3	9.0	11.9	160.5
	14:41	120156.2	14.3	190.3	10.5	67773.2	6.4	8.9	12.4	164.8
	14:42	120052.3	15.2	195.1	10.4	66533.1	6.9	9.1	12.9	165.4
	14:43	120090.6	16.1	196.4	10.3	66264.2	7.7	9.2	13.6	166.0
	14:44	120575.5	17.4	203.2	10.2	65477.4	7.3	9.4	14.4	168.4

Average =		121666.2	14.9	198.6	10.2	66257.5	6.9	9.4	12.4	164.9
Geometric Avg. =		121617.1	14.9	198.4	10.2	66205.8	6.9	9.3	12.3	164.6
Maximum =		132419.2	17.4	220.3	10.8	73563.9	8.7	10.1	14.4	184.0
Minimum =		118875.0	13.1	182.8	9.6	61901.5	5.7	8.6	11.1	148.8
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3284986.8	402.4	5362.4	275.0	1788952.4	186.5	252.6	333.9	4451.0

- * - 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

Reporting Period: 03/26/2012 to 03/26/2012

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/26/12 14:48
Rolling Average Interval: 1

Date	Time	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/26/12	14:18	5.9	185.4
	14:19	5.9	183.7
	14:20	5.2	181.9
	14:21	5.3	182.2
	14:22	6.0	184.4
	14:23	6.3	185.7
	14:24	5.3	185.4
	14:25	6.0	184.9
	14:26	6.4	182.0
	14:27	6.5	180.1
	14:28	6.8	182.1
	14:29	6.9	186.5
	14:30	5.3	187.2
	14:31	5.1	185.8
	14:32	6.2	183.3
	14:33	5.4	184.4
	14:34	4.8	186.1
	14:35	5.5	187.1
	14:36	5.3	186.3
	14:37	4.8	183.7
	14:38	5.1	183.1
	14:39	5.2	183.8
	14:40	5.3	184.8
	14:41	5.6	185.3
	14:42	5.8	185.1
	14:43	6.5	183.9
	14:44	6.1	184.2

Average =	5.7	184.4
Geometric Avg. =	5.7	184.4
Maximum =	6.9	187.2
Minimum =	4.8	180.1
Possible Values =	27	27
Included Values =	27	27
Total =	154.6	4978.4

- * - 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

R1

General Average Report

Reporting Period: 03/27/2012 to 03/27/2012

Unit Name: UNIT3

Time of Report: 03/27/12 07:44

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMDC)	NOXPPM_3 (PPMDC)
03/27/12	07:13	125232.7	5.7	210.0	10.8	72273.1	8.7	8.3	5.2	189.8
	07:14	124097.9	5.8	216.2	10.7	70899.2	11.1	8.6	5.1	191.1
	07:15	122468.7	5.7	220.5	11.0	72317.8	11.6	8.2	5.2	201.9
	07:16	118795.2	6.2	206.3	10.3	65307.0	11.7	8.8	5.4	179.9
	07:17	116754.2	6.1	210.5	10.3	64528.4	13.6	9.2	5.1	176.7
	07:18	113787.5	5.8	209.9	10.5	63933.5	13.3	8.8	5.1	182.9
	07:19	113919.9	6.0	202.7	10.4	63662.6	15.9	9.0	5.2	173.7
	07:20	114007.3	6.5	202.9	10.5	64178.9	15.1	8.8	5.6	176.7
	07:21	113867.5	7.0	208.0	10.6	64435.2	16.6	8.9	6.1	179.7
	07:22	113849.0	7.1	212.5	10.8	65561.4	12.3	8.5	6.4	190.2
	07:23	113348.8	7.3	208.7	10.7	64626.7	12.1	8.7	6.4	182.9
	07:24	113153.5	7.1	193.9	10.6	64303.5	12.4	8.6	6.2	171.3
	07:25	113358.8	7.2	187.3	10.3	62500.2	12.9	9.0	6.1	159.7
	07:26	113447.0	7.1	187.9	10.3	62579.2	12.2	9.1	6.0	159.4
	07:27	113471.9	6.6	179.8	10.4	62947.0	10.9	9.0	5.7	154.2
	07:28	113422.8	6.5	176.8	10.2	61837.8	11.0	9.2	5.5	149.0
	07:29	113337.8	6.5	183.6	10.3	62236.0	12.1	9.2	5.4	154.8
	07:30	113471.6	6.4	185.8	10.3	62702.1	13.8	9.1	5.5	158.2
	07:31	113562.9	6.5	186.0	10.2	62238.2	14.5	9.2	5.5	156.9
	07:32	113647.7	7.3	182.4	10.2	62082.0	13.4	9.2	6.1	153.3
	07:33	114063.5	6.6	187.3	10.9	66386.5	11.8	8.7	5.8	164.4
	07:34	114410.2	6.0	182.4	10.7	65639.8	9.8	8.4	5.4	164.2
	07:35	114923.5	6.2	176.2	10.2	62584.3	12.6	9.1	5.2	149.2
	07:36	114483.8	6.1	174.6	10.1	62008.1	16.1	9.2	5.1	146.5
	07:37	113862.4	6.2	176.6	10.0	61092.9	18.8	9.5	5.1	144.4
	07:38	113542.4	6.0	185.7	10.6	64362.6	16.1	8.8	5.2	161.3
	07:39	113421.8	6.1	186.0	10.2	62170.9	14.3	9.0	5.2	159.1

Average =		115174.5	6.4	194.1	10.5	64422.0	13.1	8.9	5.5	167.8
Geometric Avg. =		115128.3	6.4	193.6	10.5	64357.9	13.0	8.9	5.5	167.1
Maximum =		125232.7	7.3	220.5	11.0	72317.8	18.8	9.5	6.4	201.9
Minimum =		113153.5	5.7	174.6	10.0	61092.9	8.7	8.2	5.1	144.4
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3109710.2	173.6	5240.3	282.3	1739395.1	354.7	240.2	149.8	4531.3

- * - 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: 03/27/2012 to 03/27/2012

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/27/12 07:44
Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/27/12	07:13	7.8	183.8
	07:14	9.8	186.2
	07:15	10.6	183.0
	07:16	10.2	182.8
	07:17	11.4	182.6
	07:18	11.6	182.8
	07:19	13.7	182.5
	07:20	13.1	183.1
	07:21	14.4	183.2
	07:22	11.0	184.4
	07:23	10.6	183.6
	07:24	11.0	182.7
	07:25	11.0	181.9
	07:26	10.4	183.0
	07:27	9.4	183.2
	07:28	9.3	183.0
	07:29	10.2	183.1
	07:30	11.8	182.3
	07:31	12.2	181.5
	07:32	11.3	185.1
	07:33	10.3	185.1
	07:34	8.8	183.4
	07:35	10.7	183.2
	07:36	13.5	182.7
	07:37	15.4	185.1
	07:38	14.0	183.1
	07:39	12.2	185.3

Average =	11.3	183.4
Geometric Avg. =	11.2	183.4
Maximum =	15.4	186.2
Minimum =	7.8	181.5
Possible Values =	27	27
Included Values =	27	27
Total =	305.5	4951.5

- * - excluded values (missing, OOC, invalid, suspect)
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- 888 - value could not be calculated

Plant Name: NBWD
 General Average Report
 Reporting Period: 03/27/2012 to 03/27/2012

R2

Unit Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 08:21
 Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)
03/27/12	07:53	95871.6	4.2	197.6	10.6	54559.4	9.9	8.6	3.7	175.3
	07:54	95127.4	4.2	196.2	10.4	53008.0	12.0	9.0	3.6	168.4
	07:55	95433.1	3.9	204.4	10.9	55722.0	10.5	8.4	3.5	183.4
	07:56	95859.5	4.2	192.0	10.4	53245.1	8.7	8.8	3.7	166.8
	07:57	96145.8	4.0	204.0	10.8	55375.4	11.2	8.8	3.5	177.6
	07:58	95664.8	4.1	202.0	10.7	54799.9	11.1	8.5	3.7	180.9
	07:59	95232.6	4.4	194.9	10.4	53126.1	13.9	9.1	3.8	166.1
	08:00	95072.0	3.9	207.6	11.2	57122.0	12.4	8.2	3.6	189.4
	08:01	94610.6	4.4	194.8	10.4	52399.6	10.5	8.5	3.9	173.1
	08:02	94000.3	4.7	197.3	10.0	50519.7	11.0	9.5	3.9	161.9
	08:03	91749.2	4.2	216.2	10.9	53415.7	9.4	8.7	3.7	190.4
	08:04	91267.2	4.0	202.0	10.9	53297.8	10.1	8.3	3.6	183.2
	08:05	91499.4	3.9	199.0	10.5	51386.0	11.1	8.7	3.5	174.2
	08:06	91330.3	4.0	210.3	10.9	53049.6	12.0	8.7	3.5	185.2
	08:07	90875.1	4.3	205.0	10.8	52542.2	9.4	8.4	3.9	184.2
	08:08	90241.1	4.6	183.7	10.4	50237.0	11.0	8.9	4.0	158.8
	08:09	90010.4	4.6	185.8	10.9	52363.2	13.1	8.7	4.0	162.4
	08:10	89825.7	4.9	187.4	10.9	52520.0	11.8	8.2	4.5	171.5
	08:11	89458.4	5.8	174.1	10.0	47991.0	14.2	9.2	4.9	147.1
	08:12	86963.3	5.9	184.1	10.5	48799.8	15.3	9.3	4.9	154.2
	08:13	86608.5	6.1	186.2	11.0	50940.0	12.2	8.3	5.6	168.2
	08:14	86706.3	7.1	189.2	10.9	50564.7	11.2	8.3	6.4	171.3
	08:15	86956.2	8.0	173.3	10.2	47545.0	13.8	8.9	6.9	149.2
	08:16	87042.9	7.9	180.7	10.2	47572.0	16.6	9.4	6.6	150.2
	08:17	87024.9	7.6	185.2	10.5	48849.9	12.9	8.9	6.5	159.6
	08:18	86556.2	7.6	182.0	10.4	48363.0	12.8	8.9	6.5	156.5
	08:19	86106.8	8.2	176.9	10.4	47820.3	13.4	9.0	7.0	151.8

Average =		91231.1	5.2	193.0	10.6	51745.7	11.9	8.7	4.6	168.9
Geometric Avg. =		91162.2	5.0	192.7	10.6	51677.9	11.8	8.7	4.4	168.4
Maximum =		96145.8	8.2	216.2	11.2	57122.0	16.6	9.5	7.0	190.4
Minimum =		86106.8	3.9	173.3	10.0	47545.0	8.7	8.2	3.5	147.1
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		2463239.8	140.9	5211.9	286.3	1397134.5	321.6	236.1	122.9	4560.9

- * - excluded values (missing, OOC, invalid, suspect)
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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

Reporting Period: 03/27/2012 to 03/27/2012

Site Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 08:21
 Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/27/12	07:53	8.8	184.0
	07:54	10.3	186.1
	07:55	9.4	182.8
	07:56	7.6	185.1
	07:57	9.7	184.6
	07:58	9.9	184.0
	07:59	11.9	188.8
	08:00	11.3	185.5
	08:01	9.3	182.7
	08:02	9.0	184.1
	08:03	8.3	184.5
	08:04	9.2	183.2
	08:05	9.7	184.9
	08:06	10.6	184.6
	08:07	8.5	183.2
	08:08	9.5	185.9
	08:09	11.4	186.7
	08:10	10.8	182.7
	08:11	12.0	183.5
	08:12	12.8	185.8
	08:13	11.0	186.9
	08:14	10.1	183.7
	08:15	11.9	183.5
	08:16	13.8	183.5
	08:17	11.2	183.3
	08:18	11.0	183.6
	08:19	11.5	185.1

Average =	10.4	184.5
Geometric Avg. =	10.3	184.5
Maximum =	13.8	188.8
Minimum =	7.6	182.7
Possible Values =	27	27
Included Values =	27	27
Total =	280.6	4982.2

- * - 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

Plant Name: NBWD
 General Average Report

P3

Reporting Period: 03/27/2012 to 03/27/2012

Unit Name: UNIT3

Time of Report: 03/27/12 09:03

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMDC)	NOXPPM_3 (PPMDC)
03/27/12	08:34	111094.9	11.2	181.1	10.6	63054.4	14.1	8.6	9.9	159.8
	08:35	114666.8	11.5	181.1	10.3	62894.3	14.2	9.1	9.7	153.7
	08:36	117249.6	11.3	178.9	10.4	65335.2	15.5	9.2	9.5	150.9
	08:37	118940.7	11.7	190.9	11.4	72437.8	12.9	8.1	10.8	175.8
	08:38	119339.5	12.9	188.3	10.5	67212.6	11.8	8.5	11.5	168.6
	08:39	119697.0	13.1	181.3	9.5	60841.1	15.7	9.9	10.4	143.5
	08:40	119903.5	12.0	185.0	10.3	66343.8	16.7	9.5	9.8	151.5
	08:41	120198.0	16.0	191.2	11.4	72989.2	14.8	8.1	14.8	175.9
	08:42	121398.8	22.9	182.5	10.4	67279.4	13.2	8.5	20.3	162.2
	08:43	123959.4	24.9	180.2	9.8	65217.7	17.4	9.7	20.1	145.2
	08:44	124237.5	24.2	173.4	10.2	67723.0	20.2	9.4	20.1	143.8
	08:45	124398.6	25.9	177.6	10.5	70072.0	24.9	9.1	22.0	151.0
	08:46	124283.2	26.2	175.3	10.4	68911.1	24.0	9.0	22.4	150.3
	08:47	123969.4	26.1	176.2	10.3	68085.1	25.8	9.2	22.1	148.6
	08:48	123959.5	27.7	179.8	10.1	67085.2	22.8	9.4	22.9	149.0
	08:49	124231.1	29.4	195.1	10.5	69591.0	17.1	9.0	25.2	167.3
	08:50	124794.4	23.3	197.7	10.3	68927.6	17.1	9.1	19.8	167.5
	08:51	125167.8	17.0	192.8	10.3	68888.4	14.1	9.0	14.6	165.0
	08:52	125142.3	16.5	197.2	10.3	69119.7	16.4	9.2	13.9	166.5
	08:53	125130.6	17.5	192.1	10.4	69559.5	15.0	8.9	15.1	166.0
	08:54	124854.2	18.2	192.2	10.5	69884.4	18.7	9.0	15.6	165.0
	08:55	124733.4	18.3	184.7	10.2	68260.1	21.6	9.1	15.6	157.2
	08:56	124705.5	17.9	192.0	10.3	68956.3	22.7	9.1	15.2	163.2
	08:57	124990.7	18.4	196.0	10.2	68055.5	22.2	9.2	15.4	164.7
	08:58	125236.3	18.4	197.9	10.3	69194.0	18.9	9.0	15.8	169.2
	08:59	125544.6	18.6	199.6	10.5	70326.8	20.4	9.0	15.9	170.4
	09:00	126275.0	19.6	198.8	10.6	71617.0	15.5	8.6	17.4	176.4

Average =		122522.3	18.9	187.4	10.4	68069.0	17.9	9.0	16.1	160.3
Geometric Avg. =		122466.0	18.1	187.2	10.4	68012.4	17.5	9.0	15.5	160.0
Maximum =		126275.0	29.4	199.6	11.4	72989.2	25.8	9.9	25.2	176.4
Minimum =		111094.9	11.2	173.4	9.5	60841.1	11.8	8.1	9.5	143.5
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3308102.5	510.7	5058.8	280.5	1837862.0	483.7	243.4	435.8	4328.2

- * - 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

Reporting Period: 03/27/2012 to 03/27/2012

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/27/12 09:03
Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRTPT_3 (KLB/HR)
03/27/12	08:34	12.4	183.7
	08:35	12.1	184.8
	08:36	13.1	190.3
	08:37	11.9	185.8
	08:38	10.6	178.9
	08:39	12.4	181.5
	08:40	13.6	188.0
	08:41	13.6	184.0
	08:42	11.8	181.1
	08:43	14.0	180.5
	08:44	16.7	182.7
	08:45	21.2	180.9
	08:46	20.6	181.2
	08:47	21.8	180.9
	08:48	18.9	181.4
	08:49	14.6	182.5
	08:50	14.5	181.3
	08:51	12.1	182.8
	08:52	13.8	181.9
	08:53	13.0	183.2
	08:54	16.0	181.1
	08:55	18.4	181.6
	08:56	19.3	181.5
	08:57	18.6	181.0
	08:58	16.2	182.7
	08:59	17.4	181.9
	09:00	13.7	183.2

Average =	15.3	182.6
Geometric Avg. =	15.0	182.6
Maximum =	21.8	190.3
Minimum =	10.6	178.9
Possible Values =	27	27
Included Values =	27	27
Total =	412.4	4930.2

- * - 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

24

Plant Name: NBWD
General Average Report

Reporting Period: 03/27/2012 to 03/27/2012

Unit Name: UNIT3

Time of Report: 03/27/12 09:46

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)
03/27/12	09:17	109829.0	15.5	189.5	10.2	60005.8	14.4	9.0	13.3	162.9
	09:18	108907.3	16.1	192.6	10.3	59880.9	17.0	9.3	13.5	161.0
	09:19	105279.8	17.8	196.0	10.3	58177.2	16.3	9.0	15.2	167.7
	09:20	101713.9	19.2	200.4	10.6	57820.7	16.4	8.9	16.5	173.0
	09:21	101502.6	20.5	192.1	10.5	56795.7	13.7	8.7	18.0	168.8
	09:22	101628.5	20.3	201.7	10.6	57618.1	16.0	8.9	17.5	173.6
	09:23	101518.8	20.9	199.4	10.8	58479.0	13.0	8.4	18.7	179.0
	09:24	101248.5	20.6	193.5	10.3	56030.8	12.7	9.0	17.6	166.1
	09:25	101014.4	19.3	200.2	10.5	56531.6	11.4	8.8	16.7	173.8
	09:26	100544.3	17.8	198.4	10.4	55829.3	11.7	9.1	15.1	169.0
	09:27	99270.4	16.9	202.2	10.8	57104.2	11.2	8.6	15.0	179.6
	09:28	97278.4	16.6	197.2	10.4	53981.2	14.0	8.9	14.3	170.3
	09:29	97235.5	16.0	197.8	10.6	55231.6	15.0	8.7	14.1	173.9
	09:30	97073.6	16.4	182.7	9.9	51422.4	15.1	9.3	13.7	152.2
	09:31	96775.3	14.8	194.9	10.0	51838.6	18.1	9.6	12.1	158.9
	09:32	96547.0	14.6	197.7	10.5	54453.2	18.6	9.1	12.4	168.5
	09:33	96396.0	15.7	190.5	10.3	52950.2	18.0	9.0	13.5	163.3
	09:34	96128.1	15.7	197.8	10.5	54105.5	19.0	9.1	13.3	168.3
	09:35	96027.0	15.3	183.7	10.4	53663.4	16.7	8.8	13.3	160.0
	09:36	95757.7	15.3	187.3	10.5	53606.8	16.7	8.9	13.2	161.6
	09:37	95561.8	15.0	189.7	10.3	52764.5	16.6	9.1	12.7	161.0
	09:38	95712.6	14.0	196.5	10.4	53376.8	16.0	9.0	12.0	168.4
	09:39	95804.2	13.7	208.6	10.9	55742.2	14.8	8.7	12.0	182.9
	09:40	95951.8	14.5	196.1	10.5	53766.8	13.8	8.6	12.9	174.0
	09:41	96175.8	14.9	195.7	10.2	52614.9	16.8	9.2	12.5	164.7
	09:42	96322.8	14.0	188.8	10.1	52051.3	18.4	9.3	11.7	157.7
	09:43	96305.5	13.2	191.4	10.2	52711.6	19.1	9.2	11.1	161.0

Average =	99018.9	16.5	194.9	10.4	55131.6	15.6	9.0	14.2	167.4
Geometric Avg. =	98944.3	16.3	194.8	10.4	55078.6	15.4	9.0	14.0	167.3
Maximum =	109829.0	20.9	208.6	10.9	60005.8	19.1	9.6	18.7	182.9
Minimum =	95561.8	13.2	182.7	9.9	51422.4	11.2	8.4	11.1	152.2
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	2673510.5	444.5	5262.4	281.1	1488554.2	420.6	242.0	382.2	4521.1

- * - 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

Plant Name: NBWD
 General Average Report

Reporting Period: 03/27/2012 to 03/27/2012

Site Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 09:46
 Rolling Average Interval: 1

Date	Time	COFFM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/27/12	09:17	12.4	182.8
	09:18	14.2	182.1
	09:19	13.9	184.4
	09:20	14.2	182.7
	09:21	12.0	184.3
	09:22	13.7	184.5
	09:23	11.7	182.6
	09:24	10.9	182.7
	09:25	9.9	182.6
	09:26	10.0	183.9
	09:27	9.9	183.0
	09:28	12.1	184.9
	09:29	13.1	182.1
	09:30	12.6	180.9
	09:31	14.8	183.8
	09:32	15.9	181.7
	09:33	15.5	183.2
	09:34	16.2	182.1
	09:35	14.6	182.7
	09:36	14.4	181.5
	09:37	14.1	181.7
	09:38	13.7	184.0
	09:39	13.0	182.7
	09:40	12.2	182.3
	09:41	14.2	181.3
	09:42	15.4	181.5
	09:43	16.1	183.4

Average =	13.4	182.8
Geometric Avg. =	13.2	182.8
Maximum =	16.2	184.9
Minimum =	9.9	180.9
Possible Values =	27	27
Included Values =	27	27
Total =	360.5	4935.5

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
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- S - suspect
- H - exceedance
- F - stack not operating
- B - invalid (PADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

25

Plant Name: NBWD
General Average Report

Reporting Period: 03/27/2012 to 03/27/2012

Unit Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/27/12 10:29
Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMDC)	NOXPPM_3 (PPMDC)
03/27/12	09:59	116186.4	11.8	196.5	10.9	67673.9	13.1	8.4	10.6	177.4
	10:00	116292.0	12.6	183.5	10.6	66107.5	16.0	8.7	11.0	160.9
	10:01	116364.5	12.9	199.0	11.4	70993.3	15.6	8.1	11.9	183.1
	10:02	116438.7	14.1	186.4	10.4	65039.1	12.7	8.4	12.7	168.3
	10:03	116517.0	13.2	170.7	9.6	60097.2	13.8	9.8	10.6	136.7
	10:04	116367.6	10.9	182.6	10.4	64449.5	15.1	9.4	9.0	151.4
	10:05	115993.6	10.9	191.5	11.3	69981.1	13.1	8.1	10.0	176.1
	10:06	115738.7	12.3	180.8	10.6	65607.6	13.1	8.5	11.0	161.8
	10:07	115593.0	12.4	185.3	10.5	64896.4	13.3	8.9	10.7	159.9
	10:08	115727.8	12.7	185.7	10.7	66086.3	12.1	8.7	11.1	162.5
	10:09	116301.3	11.9	189.0	10.8	67336.5	10.2	8.4	10.7	170.6
	10:10	116563.4	11.1	190.2	10.6	65794.5	11.2	8.8	9.7	166.0
	10:11	116509.1	11.0	190.5	10.8	67311.4	12.0	8.6	9.8	169.2
	10:12	116393.2	10.8	193.6	11.1	68852.6	13.2	8.4	9.8	174.7
	10:13	115946.4	10.6	191.8	10.9	67379.0	11.7	8.2	9.7	175.1
	10:14	115680.5	10.1	190.7	10.4	64636.2	13.6	8.8	8.8	165.5
	10:15	115870.8	9.4	193.4	10.5	64798.9	14.7	8.9	8.1	166.5
	10:16	116008.5	9.1	189.6	10.4	64323.1	13.0	8.9	7.9	163.6
	10:17	115944.4	9.2	197.6	10.6	65445.1	13.1	8.9	7.9	170.2
	10:18	115711.0	9.6	200.6	10.7	66210.8	11.8	8.6	8.5	177.8
	10:19	115370.5	9.7	201.6	11.0	67743.7	12.9	8.4	8.7	181.1
	10:20	114996.7	10.0	200.0	10.8	66160.8	11.1	8.4	9.1	180.5
	10:21	114568.0	10.2	200.0	10.6	65219.7	12.2	8.7	9.0	175.5
	10:22	113981.1	10.3	195.0	10.8	65678.1	9.7	8.5	9.1	173.5
	10:23	113259.7	10.4	203.5	11.5	69381.7	10.0	8.0	9.7	188.4
	10:24	112686.1	11.3	204.7	11.5	69171.0	8.3	7.5	10.9	197.7
	10:25	110797.9	11.7	194.8	10.4	61562.3	9.8	8.6	10.3	171.7

Average =		115474.4	11.1	192.2	10.7	66219.9	12.5	8.6	9.9	170.6
Geometric Avg. =		115466.6	11.0	192.0	10.7	66178.4	12.3	8.6	9.8	170.2
Maximum =		116563.4	14.1	204.7	11.5	70993.3	16.0	9.8	12.7	197.7
Minimum =		110797.9	9.1	170.7	9.6	60097.2	8.3	7.5	7.9	136.7
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		3117808.0	300.2	5188.7	289.5	1787937.2	336.7	231.5	266.2	4605.6

- * - 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: 03/27/2012 to 03/27/2012

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/27/12 10:29
Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/27/12	09:59	11.8	183.9
	10:00	14.0	189.8
	10:01	14.3	186.2
	10:02	11.5	180.5
	10:03	11.1	180.7
	10:04	12.5	185.2
	10:05	12.0	182.3
	10:06	11.8	181.9
	10:07	11.5	182.3
	10:08	10.6	183.5
	10:09	9.2	181.6
	10:10	9.8	182.0
	10:11	10.7	183.8
	10:12	11.9	183.6
	10:13	10.7	184.0
	10:14	11.8	183.1
	10:15	12.7	182.2
	10:16	11.2	182.7
	10:17	11.3	182.6
	10:18	10.4	184.5
	10:19	11.6	183.3
	10:20	10.0	182.3
	10:21	10.7	182.0
	10:22	8.7	185.9
	10:23	9.2	187.1
	10:24	8.1	183.3
	10:25	8.7	184.2

Average =	11.0	183.5
Geometric Avg. =	10.9	183.5
Maximum =	14.3	189.8
Minimum =	8.1	180.5
Possible Values =	27	27
Included Values =	27	27
Total =	297.8	4954.4

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
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- 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

RP

Reporting Period: 03/27/2012 to 03/27/2012

Unit Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 11:10
 Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMDC)	NOXPPM_3 (PPMDC)
03/27/12	10:40	111466.9	9.2	185.2	10.5	62411.0	10.5	8.8	8.0	160.7
	10:41	111890.9	8.4	188.8	10.9	65112.1	11.7	8.6	7.4	167.6
	10:42	112323.0	8.1	183.6	10.7	64021.8	12.7	8.7	7.2	161.7
	10:43	112563.5	8.1	196.3	11.0	66446.7	13.8	8.4	7.3	176.9
	10:44	112521.2	9.4	187.0	10.5	63232.0	13.2	8.6	8.4	165.8
	10:45	112431.5	9.7	189.1	10.5	62889.8	14.4	9.1	8.3	161.0
	10:46	112693.8	9.2	194.8	10.8	64896.2	15.2	8.7	8.1	170.9
	10:47	113052.6	9.6	189.6	11.0	66322.2	15.2	8.3	8.7	171.7
	10:48	112114.8	10.9	183.9	10.5	62833.7	15.4	8.7	9.5	160.9
	10:49	110391.6	11.5	186.7	10.3	61041.4	15.5	9.1	9.8	158.6
	10:50	108086.9	11.0	184.0	10.3	59680.3	15.2	9.1	9.4	156.5
	10:51	104884.2	10.3	182.9	10.4	58351.3	15.7	9.1	8.8	155.5
	10:52	101538.5	10.1	186.9	10.7	58273.1	15.6	8.8	8.7	162.3
	10:53	100883.0	10.1	181.5	10.8	58517.4	13.7	8.5	9.1	162.1
	10:54	98828.9	10.3	185.0	10.7	56471.4	13.9	8.7	9.0	162.3
	10:55	97594.0	10.0	184.6	10.4	54243.3	15.1	9.0	8.6	158.0
	10:56	97386.0	9.3	194.0	10.6	55100.0	15.1	8.9	8.0	166.8
	10:57	97066.1	8.9	204.1	10.9	56727.4	14.7	8.5	7.9	181.7
	10:58	97239.6	8.8	200.8	10.7	55623.9	13.7	8.6	7.8	177.2
	10:59	97363.5	8.0	216.5	11.2	58524.3	12.9	8.3	7.3	197.0
	11:00	97727.2	7.6	216.5	10.8	56677.0	11.9	8.3	6.9	195.9
	11:01	98076.2	7.3	214.6	11.0	57684.9	13.9	8.5	6.5	192.1
	11:02	98307.1	6.7	204.5	11.1	58513.1	11.9	8.0	6.2	189.1
	11:03	97595.9	6.8	204.5	10.7	55888.6	14.4	8.6	6.0	180.4
	11:04	97209.4	6.7	211.5	10.9	56880.5	14.7	8.5	6.0	189.3
	11:05	96873.1	6.8	215.7	11.6	60172.4	14.3	7.8	6.4	202.5
	11:06	96507.3	7.8	201.4	11.3	58413.9	13.9	7.5	7.5	194.0

Average =		103874.7	8.9	195.3	10.8	59813.0	14.0	8.6	7.9	173.3
Geometric Avg. =		103653.9	8.8	195.0	10.8	59709.7	13.9	8.6	7.8	172.7
Maximum =		113052.6	11.5	216.5	11.6	66446.7	15.7	9.1	9.8	202.5
Minimum =		96507.3	6.7	181.5	10.3	54243.3	10.5	7.5	6.0	155.5
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		2804616.5	240.7	5274.0	290.9	1614949.9	378.2	231.7	212.6	4678.6

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- 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: 03/27/2012 to 03/27/2012

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/27/12 11:10
Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/27/12	10:40	9.1	183.8
	10:41	10.4	183.0
	10:42	11.1	185.2
	10:43	12.4	182.7
	10:44	11.7	181.7
	10:45	12.3	182.6
	10:46	13.3	183.6
	10:47	13.8	183.6
	10:48	13.5	183.0
	10:49	13.1	182.1
	10:50	12.9	181.0
	10:51	13.3	182.4
	10:52	13.5	182.7
	10:53	12.2	183.2
	10:54	12.2	181.4
	10:55	12.9	181.4
	10:56	13.0	184.1
	10:57	13.1	182.7
	10:58	12.1	185.3
	10:59	11.7	183.6
	11:00	10.7	184.5
	11:01	12.5	184.3
	11:02	11.0	182.6
	11:03	12.7	182.2
	11:04	13.2	187.1
	11:05	13.5	185.8
	11:06	13.4	183.2

Average =	12.4	183.3
Geometric Avg. =	12.3	183.3
Maximum =	13.8	187.1
Minimum =	9.1	181.0
Possible Values =	27	27
Included Values =	27	27
Total =	334.8	4948.9

- * - 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

Plant Name: NBWD
 General Average Report
 Reporting Period: 03/27/2012 to 03/27/2012

27

Unit Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 11:54
 Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)
03/27/12	11:24	91566.6	7.4	202.0	10.9	53595.0	15.5	8.5	6.6	180.7
	11:25	91432.9	6.7	208.8	11.4	55815.2	13.7	8.0	6.2	193.9
	11:26	91942.5	7.3	197.1	11.3	55437.9	12.4	7.8	6.9	185.4
	11:27	92587.7	7.8	198.3	11.5	56833.8	12.6	7.8	7.3	186.5
	11:28	93257.7	8.1	193.7	11.3	56538.5	11.6	7.7	7.7	183.7
	11:29	93956.1	7.9	197.5	11.4	57263.4	12.8	8.0	7.4	183.7
	11:30	94510.8	8.1	198.2	11.4	57559.9	12.1	7.6	7.7	189.4
	11:31	94324.1	8.2	189.4	10.8	54460.7	12.9	8.4	7.4	170.3
	11:32	93459.2	7.4	195.3	11.5	57468.8	13.4	7.9	6.9	182.2
	11:33	91895.2	7.7	195.5	11.3	55581.4	12.3	7.8	7.2	184.9
	11:34	91758.8	7.9	184.4	10.7	52407.0	10.6	8.5	7.1	165.1
	11:35	92698.8	7.3	192.4	10.9	54290.8	9.2	8.6	6.5	170.8
	11:36	93110.8	7.0	197.7	11.2	55992.9	7.1	7.9	6.6	185.1
	11:37	92981.5	7.2	187.2	10.8	53892.7	7.8	8.4	6.5	168.2
	11:38	92039.4	7.1	194.1	11.2	55118.9	8.8	8.2	6.5	176.8
	11:39	92699.1	7.7	180.7	10.7	53191.9	7.9	8.3	6.9	163.3
	11:40	92262.1	7.9	184.8	10.9	53623.8	9.8	8.7	6.9	162.5
	11:41	91184.9	7.8	188.9	11.1	54314.5	8.5	8.1	7.2	174.2
	11:42	90245.8	8.1	184.7	10.6	51196.9	8.6	8.6	7.1	163.2
	11:43	87959.2	7.8	192.6	11.0	51922.6	8.6	8.5	7.0	172.4
	11:44	87951.7	8.2	180.6	10.9	51095.0	8.4	8.3	7.5	163.8
	11:45	87629.8	8.8	181.3	11.0	51330.0	10.0	8.5	7.8	161.6
	11:46	87401.3	9.6	181.1	10.9	51172.6	7.5	8.2	8.8	165.4
	11:47	88432.8	10.5	176.1	10.3	48733.7	8.3	9.1	8.9	149.4
	11:48	91033.8	10.6	181.2	10.6	51506.0	8.4	8.9	9.2	157.0
	11:49	95211.8	13.1	178.8	10.3	52299.7	8.8	9.1	11.1	151.5
	11:50	97880.1	14.8	186.2	10.6	55754.7	9.7	8.9	12.7	160.3

Average =		91904.2	8.4	189.9	11.0	54014.8	10.3	8.3	7.6	172.3
Geometric Avg. =		91872.2	8.3	189.8	11.0	53965.5	10.0	8.3	7.5	171.9
Maximum =		97880.1	14.8	208.8	11.5	57559.9	15.5	9.1	12.7	193.9
Minimum =		87401.3	6.7	176.1	10.3	48733.7	7.1	7.6	6.2	149.4
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		2481414.8	228.1	5128.5	296.7	1458398.4	277.3	224.2	205.7	4651.6

- * - 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

Reporting Period: 03/27/2012 to 03/27/2012

Site Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 11:54
 Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/27/12	11:24	13.9	185.0
	11:25	12.7	183.3
	11:26	11.7	184.8
	11:27	11.9	184.2
	11:28	11.0	185.5
	11:29	11.9	186.0
	11:30	11.6	183.3
	11:31	11.6	186.3
	11:32	12.5	186.6
	11:33	11.6	184.1
	11:34	9.5	184.9
	11:35	8.2	184.7
	11:36	6.7	183.5
	11:37	7.0	185.8
	11:38	8.0	183.5
	11:39	7.1	184.9
	11:40	8.6	185.2
	11:41	7.8	183.0
	11:42	7.6	184.6
	11:43	7.7	183.4
	11:44	7.6	185.1
	11:45	8.9	185.0
	11:46	6.9	182.8
	11:47	7.1	183.1
	11:48	7.2	182.6
	11:49	7.4	184.6
	11:50	8.4	182.5

Average =	9.3	184.4
Geometric Avg. =	9.1	184.4
Maximum =	13.9	186.6
Minimum =	6.7	182.5
Possible Values =	27	27
Included Values =	27	27
Total =	252.1	4978.1

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
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- H - exceedance
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- B - invalid (PADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

Plant Name: NBWD
 General Average Report

28

Reporting Period: 03/27/2012 to 03/27/2012

Unit Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 12:35
 Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)
03/27/12	12:04	112181.4	9.3	203.1	10.7	63971.1	11.2	8.9	8.0	174.9
	12:05	112153.5	9.7	193.8	10.4	62595.5	10.1	8.8	8.4	168.5
	12:06	112269.1	10.1	192.9	10.2	61329.0	14.0	9.3	8.4	160.5
	12:07	112279.3	9.9	195.1	10.3	61825.0	14.5	9.2	8.3	164.0
	12:08	112092.2	10.1	199.7	10.7	64399.9	12.8	8.8	8.8	173.4
	12:09	112044.7	10.8	197.3	10.3	61685.8	11.0	9.0	9.3	169.5
	12:10	112043.5	10.6	197.5	10.4	62314.4	12.2	9.1	9.0	167.3
	12:11	112027.3	10.2	193.3	10.4	62255.4	13.3	9.1	8.7	164.6
	12:12	111965.2	10.3	204.4	10.9	65424.8	12.7	8.6	9.1	181.0
	12:13	111847.9	11.3	197.4	10.1	60530.6	10.3	9.0	9.7	168.6
	12:14	111615.5	10.4	201.1	10.0	59887.4	11.6	9.6	8.4	163.7
	12:15	111707.6	9.8	195.9	10.4	62103.1	13.0	9.2	8.3	164.4
	12:16	111400.1	10.5	185.4	10.5	62443.2	12.4	8.9	9.0	159.4
	12:17	111011.5	10.7	184.9	10.3	61334.7	12.7	9.2	9.1	156.0
	12:18	110630.8	10.1	183.3	10.1	59832.4	12.7	9.4	8.3	151.8
	12:19	110149.2	8.9	187.4	10.4	61113.5	12.8	9.3	7.5	156.8
	12:20	109306.2	8.0	191.9	10.8	63383.9	11.7	8.7	7.0	168.3
	12:21	107134.8	7.8	184.8	10.6	60673.1	10.6	8.7	6.8	161.6
	12:22	105551.3	7.4	186.6	10.3	58336.7	11.9	9.1	6.3	158.3
	12:23	105308.4	6.9	188.8	10.3	58202.5	11.9	9.2	5.8	158.5
	12:24	104690.3	6.4	192.3	10.4	58075.5	11.3	9.2	5.4	161.9
	12:25	101510.6	6.0	198.0	10.6	57460.8	12.2	9.0	5.1	170.0
	12:26	100690.7	6.0	198.5	10.6	56969.7	11.2	8.9	5.1	171.2
	12:27	100819.8	6.2	196.5	10.4	56207.0	11.5	9.1	5.3	166.8
	12:28	100826.0	6.3	202.9	10.5	56731.7	12.3	9.0	5.4	173.7
	12:29	100587.8	6.7	200.9	10.5	56714.3	11.9	8.9	5.8	172.9
	12:30	100356.6	6.9	193.0	10.3	55110.3	10.6	9.2	5.8	162.3

Average =		108303.8	8.8	194.3	10.4	60404.1	12.0	9.1	7.5	165.6
Geometric Avg. =		108205.4	8.6	194.2	10.4	60343.5	12.0	9.1	7.3	165.4
Maximum =		112279.3	11.3	204.4	10.9	65424.8	14.5	9.6	9.7	181.0
Minimum =		100356.6	6.0	183.3	10.0	55110.3	10.1	8.6	5.1	151.8
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		2924201.5	237.5	5246.6	281.6	1630911.0	324.3	244.6	202.3	4469.9

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- 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: 03/27/2012 to 03/27/2012

Site Name: UNIT3

Time of Report: 03/27/12 12:35

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	COFFM_3 (PPMD)	STMRT_3 (KLB/HR)
03/27/12	12:04	9.7	182.8
	12:05	8.8	182.8
	12:06	11.6	182.6
	12:07	12.2	185.2
	12:08	11.2	182.8
	12:09	9.5	183.6
	12:10	10.4	183.3
	12:11	11.3	186.5
	12:12	11.3	182.2
	12:13	8.8	181.0
	12:14	9.4	182.5
	12:15	10.9	182.7
	12:16	10.7	182.4
	12:17	10.7	180.2
	12:18	10.5	181.3
	12:19	10.7	183.5
	12:20	10.2	183.1
	12:21	9.2	181.2
	12:22	10.1	181.5
	12:23	10.0	180.6
	12:24	9.6	181.5
	12:25	10.5	182.5
	12:26	9.7	181.5
	12:27	9.8	182.3
	12:28	10.5	183.3
	12:29	10.2	182.0
	12:30	8.9	181.3

Average =	10.2	182.4
Geometric Avg. =	10.2	182.4
Maximum =	12.2	186.5
Minimum =	8.8	180.2
Possible Values =	27	27
Included Values =	27	27
Total =	276.1	4925.9

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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: 03/27/2012 to 03/27/2012

R9

Unit Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 13:16
 Rolling Average Interval: 1

Date	Time	STEFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBHR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)
03/27/12	12:46	104810.0	6.0	192.8	10.6	59403.2	10.8	8.9	5.2	166.0
	12:47	106723.2	6.2	192.5	10.8	61362.8	8.8	8.6	5.5	169.8
	12:48	108018.9	6.3	197.0	10.7	61915.2	9.7	8.8	5.4	171.4
	12:49	107310.8	5.3	198.9	10.6	60858.8	9.3	8.7	4.6	174.5
	12:50	106832.9	5.0	199.7	10.5	60006.9	10.5	9.0	4.3	170.9
	12:51	104290.2	5.4	195.4	10.5	58532.2	8.7	8.9	4.7	169.1
	12:52	97488.9	5.7	193.9	10.5	54567.2	10.2	9.1	4.9	165.1
	12:53	91168.3	5.6	185.7	10.5	51224.5	9.8	8.9	4.8	160.6
	12:54	80740.4	5.5	185.0	10.7	46027.6	11.2	8.9	4.8	160.4
	12:55	77512.5	5.9	183.8	10.3	42646.6	8.3	9.0	5.1	157.0
	12:56	78379.9	6.0	188.5	10.3	43116.8	9.0	9.3	5.0	157.5
	12:57	79274.9	6.1	190.5	10.2	43298.2	12.0	9.3	5.1	158.6
	12:58	80182.2	6.1	188.8	10.1	43364.9	12.8	9.4	5.1	156.5
	12:59	81849.2	6.1	187.9	10.0	43967.3	15.0	9.6	5.0	153.1
	13:00	83245.5	5.8	189.4	10.3	46081.3	14.9	9.2	4.9	158.9
	13:01	85408.1	5.9	191.6	10.3	47150.5	11.8	9.2	5.0	161.8
	13:02	87923.2	5.6	200.6	10.3	48460.7	9.9	9.2	4.7	168.9
	13:03	89809.2	5.1	198.6	10.3	49340.1	9.6	9.1	4.4	168.1
	13:04	91922.1	4.8	200.5	10.4	50886.0	10.2	9.1	4.1	169.6
	13:05	93270.9	4.3	211.8	10.7	53287.2	11.7	8.8	3.7	183.9
	13:06	93535.7	3.8	209.8	10.7	53663.6	12.8	8.7	3.4	184.8
	13:07	94560.3	3.4	213.8	11.2	56552.7	12.4	8.2	3.1	195.2
	13:08	98194.7	3.5	208.4	10.5	55216.2	12.4	8.6	3.1	184.1
	13:09	102030.9	4.2	213.1	10.4	56736.6	12.1	9.0	3.6	181.9
	13:10	104745.0	4.5	212.3	10.4	58087.1	12.7	9.1	3.9	180.4
	13:11	108116.6	4.3	210.3	10.8	62356.7	11.7	8.6	3.8	185.5
	13:12	110181.9	4.2	206.9	10.6	62212.1	10.1	8.8	3.7	179.6

Average =	94352.8	5.2	198.1	10.5	52974.9	11.0	9.0	4.5	170.1
Geometric Avg. =	93736.5	5.1	197.8	10.5	52542.8	10.9	9.0	4.4	169.8
Maximum =	110181.9	6.3	213.8	11.2	62356.7	15.0	9.6	5.5	195.2
Minimum =	77512.5	3.4	183.8	10.0	42646.6	8.3	8.2	3.1	153.1
Possible Values =	27	27	27	27	27	27	27	27	27
Included Values =	27	27	27	27	27	27	27	27	27
Total =	2547526.5	140.8	5347.5	283.0	1430323.1	298.1	242.1	120.6	4593.2

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- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

Reporting Period: 03/27/2012 to 03/27/2012

Site Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 13:16
 Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/27/12	12:46	9.3	183.5
	12:47	7.8	184.3
	12:48	8.5	183.5
	12:49	8.2	184.3
	12:50	9.0	183.4
	12:51	7.5	184.0
	12:52	8.7	182.8
	12:53	8.5	184.7
	12:54	9.7	182.6
	12:55	7.1	182.6
	12:56	7.5	182.3
	12:57	10.0	181.1
	12:58	10.6	180.1
	12:59	12.2	181.4
	13:00	12.5	181.4
	13:01	10.0	182.2
	13:02	8.3	181.6
	13:03	8.1	181.1
	13:04	8.6	183.0
	13:05	10.1	183.6
	13:06	11.3	185.5
	13:07	11.3	183.5
	13:08	10.9	184.0
	13:09	10.3	183.5
	13:10	10.8	184.9
	13:11	10.3	184.5
	13:12	8.8	187.4

Average =	9.5	183.2
Geometric Avg. =	9.4	183.2
Maximum =	12.5	187.4
Minimum =	7.1	180.1
Possible Values =	27	27
Included Values =	27	27
Total =	255.7	4946.6

- * - excluded values (missing, OOC, invalid, suspect)
- < - missing
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- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

General Average Report

Reporting Period: 03/27/2012 to 03/27/2012

Unit Name: UNIT3

Time of Report: 03/27/12 13:57

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	STKFLOW3 (SCFM)	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CO2_3 (PERCENTD)	CO2LBR3 (LB/HR)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)
03/27/12	13:27	119003.3	5.7	188.1	10.4	65909.3	13.3	9.1	4.8	159.1
	13:28	116379.0	5.5	186.4	10.1	62816.7	13.7	9.3	4.6	155.6
	13:29	112985.5	5.3	193.1	10.1	61045.5	15.2	9.5	4.4	158.7
	13:30	112246.3	5.1	198.1	10.4	62406.6	14.6	9.1	4.3	168.1
	13:31	111801.8	5.0	200.9	10.3	61372.7	14.4	9.2	4.2	169.3
	13:32	108664.7	4.7	204.9	10.2	59544.0	13.6	9.2	4.0	172.1
	13:33	108133.5	4.5	206.6	10.5	60525.4	13.0	9.1	3.8	176.1
	13:34	106597.6	4.3	201.2	10.4	59371.1	15.7	9.0	3.7	171.9
	13:35	104183.0	4.2	202.7	10.5	58425.6	14.3	9.0	3.6	173.9
	13:36	103723.2	3.9	205.4	10.6	58833.5	12.7	8.8	3.4	178.5
	13:37	103411.2	4.0	216.5	10.6	58684.2	11.4	8.7	3.5	189.4
	13:38	100847.1	4.1	217.8	10.4	56051.4	11.0	8.9	3.5	187.2
	13:39	100171.1	3.9	214.4	10.4	55622.1	11.5	9.0	3.3	183.5
	13:40	100031.1	3.8	205.6	10.4	55383.8	12.4	9.1	3.3	174.4
	13:41	100212.3	3.9	204.6	10.3	55394.8	13.5	9.1	3.3	174.0
	13:42	100287.3	3.9	203.2	10.4	55767.1	13.4	9.1	3.3	173.1
	13:43	100369.2	3.7	207.3	10.4	55633.7	13.2	9.1	3.1	175.6
	13:44	100277.7	3.5	202.2	10.4	55833.2	11.9	8.9	3.0	174.0
	13:45	100392.0	3.4	205.7	10.4	56006.1	13.0	9.0	2.9	175.8
	13:46	100261.5	3.3	205.6	10.4	55609.7	11.9	9.0	2.8	175.4
	13:47	100052.4	3.1	207.8	10.5	56216.2	11.0	8.8	2.7	180.3
	13:48	99803.4	3.2	207.4	10.3	54973.1	12.0	9.2	2.7	175.1
	13:49	99578.4	3.3	206.5	10.3	54982.3	11.4	9.1	2.8	175.9
	13:50	99293.0	3.4	211.9	10.3	54585.7	12.0	9.2	2.8	178.0
	13:51	99037.1	3.4	211.1	10.3	54365.6	11.6	9.3	2.9	176.8
	13:52	99090.4	3.5	212.2	10.5	55887.7	10.1	8.9	3.0	183.7
	13:53	99894.1	3.7	204.8	10.4	55833.4	10.2	9.0	3.2	175.7

Average =		103952.9	4.0	204.9	10.4	57669.6	12.7	9.1	3.4	174.5
Geometric Avg. =		103799.6	4.0	204.8	10.4	57595.6	12.6	9.1	3.4	174.3
Maximum =		119003.3	5.7	217.8	10.6	65909.3	15.7	9.5	4.8	189.4
Minimum =		99037.1	3.1	186.4	10.1	54365.6	10.1	8.7	2.7	155.6
Possible Values =		27	27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27	27
Total =		2806727.2	109.2	5532.0	280.1	1557080.5	341.9	244.8	92.9	4711.2

- * - excluded values (missing, OOC, invalid, suspect)
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- S - suspect
- H - exceedance
- F - stack not operating
- B - invalid (PADER)
- U - missing data substituted
- 999 - missing value
- 888 - value could not be calculated

Reporting Period: 03/27/2012 to 03/27/2012

Site Name: UNIT3
 Data Averaging Type: 1m

Time of Report: 03/27/12 13:57
 Rolling Average Interval: 1

Date	Time	COPPM_3 (PPMD)	STMRTPT_3 (KLB/HR)
03/27/12	13:27	11.2	181.6
	13:28	11.4	180.5
	13:29	12.5	182.3
	13:30	12.4	182.0
	13:31	12.2	182.0
	13:32	11.4	183.2
	13:33	11.1	183.4
	13:34	13.4	183.6
	13:35	12.3	184.2
	13:36	11.0	184.6
	13:37	10.0	183.3
	13:38	9.5	182.8
	13:39	9.8	182.9
	13:40	10.5	182.7
	13:41	11.5	183.3
	13:42	11.4	183.7
	13:43	11.2	183.2
	13:44	10.3	183.7
	13:45	11.1	183.4
	13:46	10.1	183.7
	13:47	9.6	183.9
	13:48	10.1	183.0
	13:49	9.7	183.9
	13:50	10.1	183.2
	13:51	9.7	184.1
	13:52	8.7	184.3
	13:53	8.7	183.1

Average =	10.8	183.2
Geometric Avg. =	10.7	183.2
Maximum =	13.4	184.6
Minimum =	8.7	180.5
Possible Values =	27	27
Included Values =	27	27
Total =	290.9	4945.6

- * - 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

WHEELABRATOR NORTH BROWARD, INC.
POMPANO BEACH, FL

Client Reference No: Service Agreement
CleanAir Project No: 11414-4

REFERENCE METHOD DATA

H

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

QA/QC Initials: *AA*

Date: 5/7/12



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Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 1

Date: **March 28, 2012**
Start Time 6:16
Stop Time 6:40

CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Instrument Information						
Manufacturer:	Servomex	Servomex	Thermo	Thermo	Wstrn Rsrch	
Model:	1440C	1440B	42i-LS	48i	921L UV	
Detection:	Paramagn.	NDIR	Chemilumi.	GFC/NDIR	Photo.	
Asset or Serial No:	207361	207364	205174	204433	204654	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Response Time (seconds)						
	90	90	90	90	90	
Manufacturer Certified Cylinder Value (C_v)						
Zero	0.000	0.000	0.000	0.000	0.000	
Low	6.000	5.990	223.000	23.500	45.100	
Mid				48.600		
High	14.000	13.900	448.000	96.300	90.800	
Actual gas to be used for bias checks						
	14.000	5.990	223.000	48.600	45.100	
Cylinder ID						
Zero	alm028189	alm028189	alm028189	alm028189	alm028189	
Low	alm036149	almx067937	alm019186	alm042811	alm019186	
Mid				alm023610		
High	almx067937	alm036149	alm012619	cc181272	alm012619	
Analyzer Calibration Response (C_{dir})						
Zero	-0.007	0.008	0.000	-0.029	-0.088	
Low	5.995	6.056	222.738		43.933	
Mid				49.268		
High	14.005	13.914	448.398	96.322	91.512	
Analyzer Calibration Error (ACE) (Llimit = 2%, Method 25A limit = 5% of gas value)						
Zero	-0.1%	0.1%	0.0%	0.0%	-0.1%	
Low	0.0%	0.5%	-0.1%	N/A	-1.3%	
Mid	N/A	N/A	N/A	0.7%	N/A	
High	0.0%	0.1%	0.1%	0.0%	0.8%	
Calibration Error Status						
Zero	OK	OK	OK	OK	OK	
Low	OK	OK	OK	N/A	OK	
Mid	N/A	N/A	N/A	OK	N/A	
High	OK	OK	OK	OK	OK	

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06:16:26	0.073	0.050	0.211	0.094	-0.650
06:16:26	0.073	0.050	0.211	0.094	-0.650
06:16:41	0.020	0.012	-0.293	-0.093	-0.589
06:16:56	0.000	0.018	0.000	-0.003	-0.617
06:17:11	0.007	0.011	0.000	-0.065	-0.718
06:17:26	0.001	-0.001	0.000	0.001	-0.749
06:17:41	0.009	0.020	-0.138	-0.059	-0.352
06:17:56	0.003	0.012	0.000	-0.015	-0.130
06:18:11	-0.003	0.012	0.000	0.005	-0.071
06:18:26	-0.003	0.011	0.000	-0.041	-0.088
06:18:41	-0.009	0.007	0.000	-0.004	-0.081
06:18:56	-0.009	0.007	0.000	-0.044	-0.095
06:19:11	4.513	1.378	0.000	-0.005	-0.096
06:19:26	13.390	5.643	0.000	-0.047	-0.212
06:19:41	14.009	6.058	0.000	-0.016	-0.163
06:19:56	14.041	6.071	0.000	0.047	-0.129

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

Date: **March 28, 2012**
 Start Time 6:16
 Stop Time 6:40

CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
06:20:11	14.046	6.074	0.000	-0.008	-0.111	
06:20:26	14.035	6.069	0.000	0.059	-0.076	
06:20:41	14.005	6.072	0.000	-0.003	-0.073	
06:20:56	14.005	6.083	0.000	0.075	-0.071	
06:21:11	14.005	6.073	0.000	0.026	-0.075	
06:21:26	12.274	6.613	0.000	0.031	-0.054	
06:21:41	6.667	12.627	-0.041	-0.039	-0.034	
06:21:56	6.037	13.881	-0.334	0.034	-0.063	
06:22:11	5.999	13.974	-0.220	-0.056	-0.076	
06:22:26	5.996	13.923	0.008	-0.017	-0.073	
06:22:41	5.995	13.907	0.000	-0.029	-0.134	
06:22:56	5.994	13.911	0.000	-0.088	-0.098	
06:23:11	8.264	12.361	0.000	-0.091	-0.150	
06:23:26	13.561	6.690	0.000	-0.099	-0.599	
06:23:41	13.978	6.108	0.000	-0.051	-0.291	
06:23:56	13.999	6.050	0.000	-0.012	-0.185	
06:24:11	14.001	6.063	0.000	-0.016	-0.145	
06:24:26	14.004	6.056	0.000	0.044	-0.117	
06:24:41	12.142	5.525	0.000	0.101	-0.171	
06:24:56	1.462	0.851	-0.081	6.417	-0.278	
06:25:11	0.096	0.087	-0.334	42.525	-0.249	
06:25:26	0.000	0.018	-0.374	72.487	-0.169	
06:25:41	-0.036	0.019	0.000	91.905	-0.134	
06:25:56	0.018	0.032	0.000	95.661	-0.120	
06:26:11	0.008	0.014	0.000	96.444	-0.114	
06:26:26	0.008	0.019	0.000	96.485	-0.173	
06:26:41	0.001	0.009	0.000	96.303	-0.171	
06:26:56	0.012	0.015	0.000	96.334	-0.173	
06:27:11	-0.010	0.000	0.000	96.331	-0.182	
06:27:26	0.292	0.136	0.000	96.327	-0.174	
06:27:41	0.079	0.042	0.000	89.073	-0.181	
06:27:56	-0.016	0.015	0.000	72.716	-0.171	
06:28:11	-0.013	0.013	0.000	55.390	-0.197	
06:28:26	0.001	0.006	-0.008	50.424	-0.164	
06:28:41	-0.004	0.013	0.000	49.316	-0.192	
06:28:56	-0.004	0.010	0.000	49.231	-0.182	
06:29:11	-0.003	0.009	0.000	49.257	-0.184	
06:29:26	0.153	0.552	0.000	49.387	0.654	
06:29:41	0.087	8.233	0.000	45.485	27.096	
06:29:56	-0.029	9.743	202.597	31.904	70.537	
06:30:11	-0.005	9.843	340.098	13.618	84.827	
06:30:26	-0.005	9.865	416.875	5.162	88.625	
06:30:41	-0.006	9.868	433.586	0.759	90.090	
06:30:56	0.000	9.870	442.231	-0.039	90.740	
06:31:11	0.000	9.876	445.161	-0.203	91.043	
06:31:26	0.000	9.874	446.788	-0.220	91.129	
06:31:41	0.000	9.874	448.271	-0.220	91.137	
06:31:56	-0.013	9.880	448.466	-0.220	91.154	
06:32:11	0.000	9.878	448.344	-0.228	91.323	
06:32:26	0.000	9.879	448.018	-0.228	91.552	
06:32:41	0.000	9.878	448.336	-0.220	91.783	
06:32:56	0.000	9.879	448.319	-0.220	91.910	
06:33:11	-0.005	9.878	448.303	-0.220	92.047	
06:33:26	0.000	9.880	448.409	-0.236	91.878	
06:33:41	0.000	9.879	448.612	-0.236	91.468	
06:33:56	0.000	9.879	448.344	-0.220	91.526	
06:34:11	0.000	9.878	448.238	-0.220	91.541	
06:34:26	0.000	9.877	448.319	-0.220	91.678	
06:34:41	0.287	9.330	448.230	-0.220	59.845	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

Date: **March 28, 2012**
 Start Time 6:16
 Stop Time 6:40

CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
06:34:56	-0.014	9.790	341.245	-0.140	27.609	
06:35:11	-0.022	9.860	270.191	-0.093	37.411	
06:35:26	-0.010	9.871	232.715	-0.106	41.727	
06:35:41	-0.013	9.866	226.618	-0.189	42.823	
06:35:56	-0.012	9.875	223.720	-0.213	43.222	
06:36:11	-0.011	9.870	222.442	-0.216	43.489	
06:36:26	-0.012	9.873	222.434	-0.200	43.676	
06:36:41	-0.013	9.874	222.621	-0.195	43.792	
06:36:56	-0.010	9.875	222.719	-0.212	43.938	
06:37:11	-0.011	9.876	222.873	-0.223	44.069	
06:37:26	0.484	8.088	222.792	-0.203	39.096	
06:37:41	1.022	0.858	221.172	-0.065	10.155	
06:37:56	1.007	0.099	134.237	-0.005	2.317	
06:38:11	1.017	0.031	80.757	-0.041	1.221	
06:38:26	1.023	0.023	59.626	-0.036	0.910	
06:38:41	1.006	0.037	55.148	-0.041	0.726	
06:38:56	1.016	0.029	52.649	-0.021	0.762	
06:39:11	1.012	0.017	51.877	0.000	0.762	
06:39:26	1.002	-0.003	51.665	-0.106	0.814	
06:39:41	1.001	0.011	51.087	-0.041	0.771	
06:39:56	1.007	0.018	51.119	-0.002	0.784	
06:40:11	1.011	0.017	51.436	0.000	0.697	
06:40:26	1.027	0.006	51.754	-0.003	0.796	

NOX Conversion Efficiency
 NO2 Cylinder Value = 49.200
 Average Response = 51.437
 Conversion Efficiency = 104.5%

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 6:44
 Stop Time 6:51

CALIBRATION BIAS 00

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.057	0.094	0.334	-0.050	0.096	
C _{ul} Upscale gas	13.845	5.983	222.095	48.952	42.627	
Analyzer Calibration Error Reponses (C_{Dir})						
C _{oca} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mca} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.5%	0.6%	0.1%	0.0%	0.2%	
Upscale gas	-1.1%	-0.5%	-0.1%	-0.3%	-1.4%	
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 _{ul} 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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06:44:02	13.846	5.984	1.701	0.120	0.633
06:44:17	13.842	5.983	0.757	0.122	0.511
06:44:32	13.846	5.983	0.562	0.176	0.401
06:44:47	13.848	5.982	0.814	0.078	0.248
06:45:02	13.851	5.980	0.399	0.143	0.269
06:45:17	13.850	5.979	0.806	0.119	0.249
06:45:32	13.122	5.853	0.391	0.117	0.238
06:45:47	2.875	1.864	0.782	2.181	0.011
06:46:02	0.250	0.287	1.612	17.338	-0.021
06:46:17	0.125	0.160	0.887	34.279	0.060
06:46:32	0.098	0.126	0.423	45.587	0.067
06:46:47	0.069	0.109	0.383	48.464	0.080
06:47:02	0.060	0.098	0.334	49.196	0.150
06:47:17	0.042	0.075	0.285	49.196	0.059
06:47:32	0.059	0.072	0.382	49.192	0.005
06:47:47	0.042	0.071	0.016	49.192	0.046
06:48:02	0.037	0.058	0.114	49.188	0.051
06:48:17	0.036	0.301	0.187	49.179	0.127
06:48:32	0.018	7.023	13.610	46.307	2.947
06:48:47	0.021	9.445	62.459	32.293	23.533
06:49:02	0.014	9.611	159.658	13.302	36.260
06:49:17	0.002	9.658	200.708	4.298	39.832
06:49:32	0.015	9.682	213.903	0.588	41.008
06:49:47	0.020	9.688	219.251	0.037	41.643
06:50:02	0.019	9.704	220.903	-0.002	41.947
06:50:17	0.018	9.706	221.473	-0.028	42.133
06:50:32	0.004	9.713	221.929	-0.039	42.366
06:50:47	0.021	9.719	222.108	-0.060	42.633
06:51:02	0.019	9.720	222.246	-0.050	42.883

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 6:56
 Stop time 7:23

REFERENCE METHOD RUN 1

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.057	0.094	0.334	-0.050	0.096	
C _{ui} Initial upscale	13.845	5.983	222.095	48.952	42.627	
C _{of} Final zero	0.020	0.095	0.594	-0.007	0.379	
C _{uf} Final upscale	13.816	6.029	222.545	49.307	43.254	
C _{ms} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	9.086	9.919	153.394	15.383	16.622	
C _{gas} Bias adjusted	9.184	9.955	153.719	15.236	17.305	

Clock Time (at end of sample period)

041712 153505						
06:57	9.279	9.739	150.034	16.102	18.975	
06:58	8.711	10.191	151.720	17.190	23.038	
06:59	9.290	9.752	151.315	15.332	19.633	
07:00	9.203	9.798	146.241	16.875	15.452	
07:01	9.571	9.522	144.289	15.041	12.018	
07:02	9.251	9.765	141.191	16.866	11.546	
07:03	8.634	10.249	146.502	15.792	12.683	
07:04	9.055	9.914	155.680	13.395	17.987	
07:05	9.362	9.689	148.962	14.660	20.640	
07:06	9.510	9.572	150.291	14.727	21.252	
07:07	9.333	9.686	156.710	13.198	16.369	
07:08	8.710	10.237	159.605	13.329	8.420	
07:09	9.061	9.931	165.328	11.784	9.135	
07:10	8.531	10.361	162.041	13.627	14.884	
07:11	8.739	10.231	172.432	15.022	20.511	
07:12	9.836	9.335	170.038	12.883	16.891	
07:13	9.138	9.866	162.846	14.741	15.196	
07:14	8.738	10.205	156.697	15.481	14.433	
07:15	8.135	10.798	159.146	18.523	16.248	
07:16	9.302	9.805	163.082	13.630	15.190	
07:17	9.219	9.797	151.951	14.737	25.111	
07:18	9.478	9.615	155.293	16.233	25.573	
07:19	8.647	10.261	154.290	17.779	21.329	
07:20	9.035	9.968	147.437	17.697	13.404	
07:21	8.685	10.250	139.583	18.832	10.981	
07:22	9.525	9.595	143.313	15.349	13.719	
07:23	9.342	9.681	135.625	16.508	18.186	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 7:25
 Stop Time 7:34

CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	0.020	0.095	0.594	-0.007	0.379	
C _{ul} Upscale gas	13.816	6.029	222.545	49.307	43.254	
Analyzer Calibration Error Responses (C_{Dr})						
C _{ocb} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mcb} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.6%	0.1%	0.0%	0.5%	
Upscale gas	-1.3%	-0.2%	0.0%	0.0%	-0.7%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.057	0.094	0.334	-0.050	0.096	
C _{ui} Upscale gas	13.845	5.983	222.095	48.952	42.627	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.3%	0.0%	0.1%	0.0%	0.3%	
Upscale gas	-0.2%	0.3%	0.1%	0.4%	0.7%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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07:25:55	13.225	6.305	163.989	0.073	20.692
07:26:10	13.733	6.073	96.988	0.145	8.160
07:26:25	13.785	6.048	35.368	0.107	4.145
07:26:40	13.799	6.046	16.394	0.149	2.595
07:26:55	13.809	6.035	7.391	0.203	1.851
07:27:10	13.817	6.027	3.997	0.164	1.483
07:27:25	13.822	6.024	2.743	0.132	1.143
07:27:40	13.826	6.021	2.174	0.151	0.905
07:27:55	13.799	6.018	1.897	0.174	0.829
07:28:10	5.664	3.214	1.742	1.618	0.615
07:28:25	0.429	0.423	1.921	13.192	0.472
07:28:40	0.119	0.179	1.807	34.232	0.526
07:28:55	0.081	0.155	1.221	44.897	0.524
07:29:10	0.057	0.134	1.237	48.638	0.475
07:29:25	0.025	0.119	1.115	49.260	0.417
07:29:40	0.036	0.108	0.749	49.304	0.386
07:29:55	0.026	0.099	0.904	49.335	0.366
07:30:10	0.027	0.094	1.026	49.322	0.373
07:30:25	0.014	0.097	0.456	49.317	0.384
07:30:40	0.023	0.096	0.464	49.280	0.384
07:30:55	0.023	0.091	0.863	49.325	0.368
07:31:10	0.021	0.059	0.749	49.307	0.366
07:31:25	0.037	0.048	0.407	49.304	0.295
07:31:40	0.020	0.059	0.790	49.271	0.303
07:31:55	0.020	0.059	0.513	49.302	0.366
07:32:10	0.030	0.056	0.741	49.284	0.312
07:32:25	0.022	0.060	0.627	49.218	0.241
07:32:40	0.010	0.076	0.399	49.263	0.213
07:32:55	0.035	6.023	3.395	47.539	5.358
07:33:10	-0.006	9.385	52.080	31.860	28.405
07:33:25	-0.020	9.614	163.394	14.330	38.685
07:33:40	-0.004	9.675	198.584	3.610	41.272
07:33:55	0.001	9.690	214.603	0.638	42.188

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 7:25
 Stop Time 7:34

CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
07:34:10	-0.021	9.707	219.959	-0.008	42.710	
07:34:25	-0.011	9.711	222.190	0.003	42.999	
07:34:40	-0.002	9.722	222.695	-0.002	43.285	
07:34:55	0.002	9.725	222.752	-0.023	43.479	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 7:37
 Stop time 8:04

REFERENCE METHOD RUN 2

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.020	0.095	0.594	-0.007	0.379	
C _{ui} Initial upscale	13.816	6.029	222.545	49.307	43.254	
C _{of} Final zero	0.014	0.062	0.372	-0.049	0.059	
C _{uf} Final upscale	13.830	6.019	222.393	49.217	43.306	
C _{ms} Actual gas value	14.000	5.990	223.000	48,600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	9.411	9.697	139.582	15.769	12.678	
C _{Gas} Bias adjusted	9.526	9.691	139.735	15.576	13.049	

Clock Time (at end of sample period)

041712 153505						
07:38	8.990	9.969	151.557	14.617	7.182	
07:39	8.836	10.130	151.864	16.121	6.907	
07:40	9.568	9.531	147.041	14.919	5.873	
07:41	9.589	9.540	144.630	15.600	6.433	
07:42	9.276	9.778	151.842	13.918	8.152	
07:43	8.871	10.114	149.473	23.284	19.833	
07:44	9.115	9.938	151.223	21.017	26.423	
07:45	9.463	9.657	147.679	17.381	23.201	
07:46	9.900	9.296	142.102	16.399	13.164	
07:47	9.226	9.848	141.077	17.114	9.689	
07:48	9.123	9.960	135.224	14.880	8.292	
07:49	9.350	9.775	131.512	15.528	7.106	
07:50	9.824	9.414	132.646	15.159	6.713	
07:51	9.420	9.710	132.775	16.450	7.196	
07:52	9.447	9.717	132.510	17.271	9.100	
07:53	9.665	9.516	129.054	16.596	12.439	
07:54	9.765	9.433	131.301	15.794	17.795	
07:55	9.340	9.754	136.252	15.829	19.925	
07:56	8.787	10.190	143.531	16.964	17.469	
07:57	9.426	9.683	141.524	14.757	12.956	
07:58	9.693	9.457	137.452	15.943	8.966	
07:59	9.905	9.282	139.324	13.852	7.887	
08:00	9.438	9.664	138.983	11.824	8.288	
08:01	9.355	9.720	135.543	11.978	11.763	
08:02	9.809	9.393	134.749	12.060	16.923	
08:03	9.450	9.672	129.465	15.776	22.643	
08:04	9.472	9.679	128.396	14.740	19.975	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 8:06

Stop Time 8:14

CALIBRATION BIAS 02

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	0.014	0.062	0.372	-0.049	0.059	
C _{uf} Upscale gas	13.830	6.019	222.393	49.217	43.306	
Analyzer Calibration Error Responses (C_{di})						
C _{ocb} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mcb} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.4%	0.1%	0.0%	0.2%	
Upscale gas	-1.3%	-0.3%	-0.1%	-0.1%	-0.7%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.020	0.095	0.594	-0.007	0.379	
C _{ui} Upscale gas	13.816	6.029	222.545	49.307	43.254	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	-0.2%	0.0%	0.0%	-0.4%	
Upscale gas	0.1%	-0.1%	0.0%	-0.1%	0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 153505	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
08:06:40	13.828	6.019	3.459	0.187	0.658	
08:06:56	13.830	6.020	2.353	0.190	0.509	
08:07:11	13.831	6.018	1.587	0.185	0.378	
08:07:25	13.834	6.019	1.335	0.156	0.291	
08:07:40	13.835	6.019	1.009	0.221	0.242	
08:07:56	13.826	6.020	1.090	0.195	0.244	
08:08:11	5.888	3.257	1.107	1.652	0.085	
08:08:26	0.361	0.368	1.343	14.303	0.044	
08:08:41	0.117	0.178	0.977	36.187	0.047	
08:08:56	0.086	0.139	0.645	45.933	0.133	
08:09:11	0.045	0.124	0.847	49.094	0.171	
08:09:25	0.059	0.112	0.407	49.179	0.080	
08:09:41	0.053	0.101	0.749	49.182	0.075	
08:09:55	0.042	0.092	0.521	49.184	0.121	
08:10:11	0.014	0.059	0.733	49.191	0.079	
08:10:26	0.031	0.074	0.513	49.211	0.122	
08:10:40	0.023	0.064	0.627	49.203	0.075	
08:10:56	0.043	0.061	0.733	49.206	0.059	
08:11:10	0.020	0.072	0.391	49.216	0.091	
08:11:26	0.011	0.066	0.489	49.219	0.051	
08:11:41	0.012	0.049	0.236	49.217	0.035	
08:11:55	0.033	0.028	0.383	49.216	0.072	
08:12:11	0.019	0.052	0.350	49.206	0.011	
08:12:26	0.040	0.435	0.260	49.260	0.119	
08:12:41	0.019	7.848	0.105	44.195	9.971	
08:12:56	0.002	9.531	95.866	26.729	32.545	
08:13:10	0.001	9.659	165.690	8.216	39.463	
08:13:26	0.012	9.691	205.014	1.968	41.477	
08:13:40	0.007	9.709	215.588	0.132	42.294	
08:13:55	0.000	9.717	220.277	0.003	42.815	
08:14:10	0.001	9.727	222.141	-0.041	43.171	
08:14:25	0.002	9.735	222.426	-0.034	43.254	
08:14:40	0.012	9.741	222.613	-0.073	43.493	

Wheelaerator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 8:17
 Stop time 8:44

REFERENCE METHOD RUN 3

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.014	0.062	0.372	-0.049	0.059	
C _{ui} Initial upscale	13.830	6.019	222.393	49.217	43.306	
C _{of} Final zero	0.030	0.064	0.272	-0.036	0.064	
C _{uf} Final upscale	13.816	6.031	221.829	49.232	43.595	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	9.661	9.539	132.206	14.868	15.900	
C _{Gas} Bias adjusted	9.778	9.521	132.604	14.708	16.463	

Clock Time (at end of sample period)

041712 153505						
08:18	9.476	9.710	126.076	15.938	7.512	
08:19	9.303	9.822	128.335	15.131	9.988	
08:20	9.450	9.719	128.588	13.970	21.586	
08:21	9.594	9.610	128.608	14.096	32.398	
08:22	9.556	9.640	128.860	13.060	24.997	
08:23	9.506	9.675	131.199	12.632	14.529	
08:24	9.386	9.768	130.623	14.786	10.122	
08:25	9.270	9.869	137.963	14.611	8.666	
08:26	9.682	9.529	131.445	13.927	8.085	
08:27	10.011	9.282	125.446	15.239	9.218	
08:28	9.656	9.560	125.002	18.811	13.959	
08:29	9.473	9.696	125.090	17.820	26.270	
08:30	9.927	9.334	126.294	15.770	27.668	
08:31	9.305	9.825	133.344	17.758	21.200	
08:32	9.275	9.830	136.819	12.374	13.258	
08:33	9.580	9.627	141.062	12.066	12.311	
08:34	10.371	8.973	130.405	10.705	10.411	
08:35	10.114	9.190	129.445	13.305	10.974	
08:36	9.612	9.578	132.110	15.492	12.354	
08:37	9.523	9.648	129.422	14.486	13.927	
08:38	9.571	9.598	130.053	14.346	17.151	
08:39	9.883	9.352	132.503	14.024	19.744	
08:40	10.082	9.177	137.275	14.961	19.576	
08:41	9.475	9.645	143.435	16.549	18.144	
08:42	9.612	9.555	144.713	17.830	18.162	
08:43	10.008	9.227	139.159	15.284	14.525	
08:44	10.139	9.113	136.294	16.458	12.571	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 8:45
 Stop Time 8:53

CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.030	0.064	0.272	-0.036	0.064	
C _{ui} Upscale gas	13.816	6.031	221.829	49.232	43.595	
Analyzer Calibration Error Responses (C_{dir})						
C _{ocp} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mca} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.4%	0.1%	0.0%	0.2%	
Upscale gas	-1.3%	-0.2%	-0.2%	0.0%	-0.4%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.014	0.062	0.372	-0.049	0.059	
C _{ui} Upscale gas	13.830	6.019	222.393	49.217	43.306	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	0.0%	0.0%	0.0%	0.0%	
Upscale gas	-0.1%	0.1%	-0.1%	0.0%	0.3%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 153505

08:45:21	9.430	9.709	142.458	20.687	14.520
08:45:36	10.223	9.262	142.548	19.666	13.937
08:45:51	13.108	6.839	128.083	15.600	10.387
08:46:06	13.764	6.083	88.522	9.527	5.027
08:46:21	13.802	6.040	41.636	2.997	2.367
08:46:36	13.822	6.028	16.093	0.783	1.322
08:46:51	13.824	6.025	7.693	0.261	0.837
08:47:06	13.825	6.026	3.500	0.200	0.672
08:47:21	13.195	5.918	2.361	0.223	0.545
08:47:36	2.863	1.871	1.400	2.035	0.288
08:47:51	0.247	0.286	0.781	19.266	0.192
08:48:06	0.095	0.168	1.213	36.576	0.272
08:48:21	0.059	0.139	0.765	46.852	0.294
08:48:36	0.048	0.124	0.521	48.936	0.247
08:48:51	0.048	0.111	0.635	49.182	0.220
08:49:06	0.030	0.102	0.936	49.184	0.177
08:49:21	0.020	0.096	0.627	49.182	0.238
08:49:36	0.032	0.085	0.399	49.234	0.220
08:49:51	0.035	0.085	0.424	49.189	0.112
08:50:06	0.026	0.062	0.269	49.208	0.051
08:50:21	0.038	0.071	0.269	49.216	0.050
08:50:36	0.026	0.060	0.277	49.273	0.090
08:50:51	0.037	0.081	0.277	49.244	0.041
08:51:06	0.030	0.073	0.440	49.320	0.091
08:51:21	0.048	0.373	0.382	49.203	0.137
08:51:36	0.018	7.392	5.584	45.639	9.838
08:51:51	0.006	9.505	60.252	26.953	33.084
08:52:06	-0.007	9.655	173.138	10.274	40.267
08:52:21	0.013	9.695	200.790	2.019	41.993
08:52:36	0.002	9.708	214.896	0.260	42.730
08:52:51	0.008	9.723	218.844	0.000	43.051
08:53:06	0.018	9.728	221.253	-0.008	43.280
08:53:21	0.007	9.733	221.693	-0.021	43.451

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 1

March 28, 2012

Start Time 8:45

Stop Time 8:53

CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
08:53:36	0.001	9.743	221.856	-0.046	43.611	
08:53:51	0.005	9.748	221.937	-0.041	43.721	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 8:56
 Stop time 9:23

REFERENCE METHOD RUN 4

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{0i} Initial zero	0.030	0.064	0.272	-0.036	0.064	
C _{ui} Initial upscale	13.816	6.031	221.829	49.232	43.595	
C _{0f} Final zero	0.012	0.053	0.220	-0.024	0.356	
C _{uf} Final upscale	13.832	6.041	222.347	49.307	43.714	
C _{ms} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	9.703	9.517	147.742	22.083	12.862	
C _{Gss} Bias adjusted	9.820	9.479	148.266	21.799	13.134	

Clock Time (at end of sample period)

041712 153505						
08:57	9.468	9.632	142.694	23.781	13.984	
08:58	9.029	9.965	148.038	22.252	13.269	
08:59	9.526	9.589	155.122	19.490	12.116	
09:00	9.809	9.391	149.278	18.775	12.114	
09:01	9.799	9.403	139.503	32.957	12.677	
09:02	9.757	9.428	142.849	25.497	12.797	
09:03	9.479	9.664	146.107	24.371	12.906	
09:04	9.558	9.631	149.235	26.951	12.522	
09:05	9.691	9.513	146.434	24.933	10.985	
09:06	8.601	10.398	148.527	26.676	12.412	
09:07	9.650	9.586	149.876	23.024	12.715	
09:08	9.781	9.451	148.105	24.537	11.903	
09:09	9.629	9.585	152.694	23.469	11.642	
09:10	9.606	9.609	152.009	16.663	14.778	
09:11	9.697	9.552	142.409	15.651	17.105	
09:12	9.548	9.689	141.669	18.291	6.652	
09:13	9.728	9.556	148.160	17.274	5.725	
09:14	9.806	9.458	149.786	18.689	15.602	
09:15	9.907	9.377	153.978	17.489	24.172	
09:16	10.093	9.241	149.054	17.307	21.158	
09:17	10.033	9.287	145.956	18.852	14.208	
09:18	9.973	9.333	144.149	22.640	11.740	
09:19	10.025	9.295	142.937	25.292	11.141	
09:20	10.019	9.292	149.978	23.917	11.512	
09:21	10.120	9.210	154.084	20.755	11.225	
09:22	10.001	9.282	149.139	22.018	10.337	
09:23	9.647	9.542	147.261	24.687	9.867	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 9:25
 Stop Time 9:33

CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.012	0.053	0.220	-0.024	0.356	
C _{ui} Upscale gas	13.832	6.041	222.347	49.307	43.714	
Analyzer Calibration Error Responses (C_{di})						
C _{ocb} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mcb} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.1%	0.3%	0.0%	0.0%	0.5%	
Upscale gas	-1.2%	-0.1%	-0.1%	0.0%	-0.2%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.030	0.064	0.272	-0.036	0.064	
C _{ui} Upscale gas	13.816	6.031	221.829	49.232	43.595	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	-0.1%	0.0%	0.0%	0.3%	
Upscale gas	0.1%	0.1%	0.1%	0.1%	0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

Time	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
09:25:08	11.910	6.823	143.305	20.152	16.347	
09:25:23	13.690	6.101	108.229	9.431	8.210	
09:25:38	13.805	6.047	52.405	2.485	3.419	
09:25:53	13.820	6.044	22.060	0.541	1.776	
09:26:08	13.828	6.042	9.109	0.254	1.177	
09:26:23	13.833	6.040	4.550	0.197	0.832	
09:26:38	13.835	6.039	2.963	0.156	0.682	
09:26:53	11.122	5.304	1.986	0.204	0.541	
09:27:08	1.323	0.984	1.595	6.574	0.373	
09:27:23	0.162	0.228	2.109	24.778	0.369	
09:27:38	0.072	0.165	1.530	41.322	0.408	
09:27:53	0.049	0.141	1.245	47.818	0.415	
09:28:08	0.041	0.125	1.009	49.216	0.409	
09:28:23	0.037	0.115	0.651	49.310	0.374	
09:28:38	0.032	0.099	0.838	49.278	0.368	
09:28:53	0.027	0.097	0.635	49.299	0.366	
09:29:08	0.026	0.094	0.749	49.244	0.371	
09:29:23	0.030	0.095	0.423	49.275	0.381	
09:29:38	0.028	0.092	0.513	49.271	0.366	
09:29:53	0.021	0.092	0.399	49.322	0.366	
09:30:08	0.020	0.088	0.456	49.298	0.366	
09:30:23	0.020	0.081	0.497	49.255	0.337	
09:30:38	0.011	0.064	0.383	49.312	0.366	
09:30:53	0.000	0.047	0.261	49.327	0.366	
09:31:08	0.025	0.054	0.261	49.297	0.335	
09:31:23	0.011	0.057	0.139	49.297	0.366	
09:31:38	0.027	0.658	0.448	49.200	0.374	
09:31:53	-0.011	7.880	20.098	44.415	10.566	
09:32:08	0.007	9.548	75.214	26.204	32.946	
09:32:23	0.000	9.674	170.615	9.630	40.036	
09:32:38	-0.010	9.705	203.997	2.211	41.970	
09:32:53	0.001	9.717	215.580	0.278	42.797	
09:33:08	0.000	9.731	220.505	0.008	43.248	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 9:25
 Stop Time 9:33

CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
09:33:23	0.006	9.734	221.872	-0.028	43.574	
09:33:38	-0.009	9.744	222.474	-0.018	43.730	
09:33:53	-0.014	9.750	222.695	-0.026	43.837	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 9:35
 Stop time 10:02

REFERENCE METHOD RUN 5

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.012	0.053	0.220	-0.024	0.356	
C _{ui} Initial upscale	13.832	6.041	222.347	49.307	43.714	
C _{of} Final zero	0.037	0.080	0.266	-0.035	0.258	
C _{uf} Final upscale	13.827	6.037	221.837	49.212	43.725	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	9.503	9.649	142.816	23.007	14.663	
C _{Gas} Bias adjusted	9.612	9.611	143.312	22.715	14.914	

Clock Time (at end of sample period)

041712 153505						
09:36	9.279	9.799	146.256	29.160	17.336	
09:37	9.723	9.472	132.725	25.684	21.966	
09:38	9.918	9.341	135.584	29.337	24.848	
09:39	9.799	9.453	137.088	31.007	15.577	
09:40	9.810	9.452	142.672	29.612	11.272	
09:41	9.737	9.502	147.053	32.853	10.138	
09:42	9.699	9.515	141.673	32.601	9.505	
09:43	9.851	9.413	139.032	27.710	9.660	
09:44	9.873	9.377	137.357	27.392	8.566	
09:45	9.794	9.428	133.914	24.809	8.518	
09:46	9.534	9.629	139.467	22.808	11.774	
09:47	9.640	9.553	141.870	20.416	17.746	
09:48	9.536	9.630	140.511	20.638	23.535	
09:49	9.798	9.431	144.434	21.610	22.265	
09:50	9.035	10.004	153.858	22.334	15.564	
09:51	8.972	10.042	154.072	16.190	9.860	
09:52	9.273	9.879	147.969	19.776	8.470	
09:53	9.777	9.439	144.621	17.254	8.226	
09:54	9.998	9.248	142.741	17.201	11.490	
09:55	9.243	9.825	142.528	18.663	14.146	
09:56	8.808	10.180	145.873	17.940	20.573	
09:57	8.763	10.228	151.789	14.997	30.366	
09:58	9.760	9.428	154.149	12.680	24.679	
09:59	9.416	9.681	143.455	19.086	15.267	
10:00	8.987	10.003	139.438	28.107	9.747	
10:01	9.293	9.761	139.337	23.030	7.420	
10:02	9.256	9.798	136.557	18.307	7.391	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 10:03

Stop Time 10:10

CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{of} Zero gas	0.037	0.080	0.266	-0.035	0.258	
C _{uf} Upscale gas	13.827	6.037	221.837	49.212	43.725	
Analyzer Calibration Error Responses (C_{dir})						
C _{occe} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{msa} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{me} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.5%	0.1%	0.0%	0.4%	
Upscale gas	-1.3%	-0.1%	-0.2%	-0.1%	-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	0.012	0.053	0.220	-0.024	0.356	
C _{ui} Upscale gas	13.832	6.041	222.347	49.307	43.714	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.2%	0.2%	0.0%	0.0%	-0.1%	
Upscale gas	0.0%	0.0%	-0.1%	-0.1%	0.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 153505

10:03:09	11.939	8.027	139.324	15.228	11.028
10:03:24	13.655	6.247	116.931	10.217	6.642
10:03:39	13.805	6.047	57.965	3.854	2.989
10:03:54	13.823	6.040	23.370	1.040	1.576
10:04:09	13.826	6.037	9.662	0.314	1.014
10:04:24	13.830	6.033	4.453	0.176	0.692
10:04:39	13.834	6.027	2.711	0.127	0.578
10:04:54	13.834	6.026	1.384	0.155	0.500
10:05:09	12.754	5.815	1.270	0.247	0.396
10:05:24	2.313	1.557	1.026	3.479	0.075
10:05:39	0.219	0.263	1.140	21.661	0.129
10:05:54	0.091	0.169	0.627	38.405	0.241
10:06:09	0.069	0.139	0.749	47.202	0.293
10:06:24	0.036	0.124	0.757	49.016	0.244
10:06:39	0.028	0.115	0.399	49.206	0.293
10:06:54	0.051	0.107	0.375	49.208	0.266
10:07:09	0.035	0.100	0.505	49.216	0.293
10:07:24	0.032	0.093	0.367	49.192	0.269
10:07:39	0.043	0.080	0.391	49.229	0.293
10:07:54	0.035	0.068	0.041	49.216	0.213
10:08:09	0.018	0.051	0.293	49.231	0.125
10:08:24	0.037	1.199	1.204	49.185	0.329
10:08:39	0.017	8.370	5.918	42.642	14.896
10:08:54	-0.022	9.575	91.738	24.923	35.621
10:09:09	0.005	9.682	177.069	8.194	41.068
10:09:24	-0.009	9.711	206.048	1.905	42.502
10:09:39	-0.006	9.723	215.865	0.130	43.125
10:09:54	0.007	9.737	219.780	-0.062	43.375
10:10:09	0.012	9.743	221.359	-0.003	43.588
10:10:24	0.003	9.747	221.921	-0.031	43.759
10:10:39	-0.009	9.756	222.230	-0.070	43.829

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 10:12
 Stop time 10:39

REFERENCE METHOD RUN 6

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.037	0.080	0.266	-0.035	0.258	
C _{ui} Initial upscale	13.827	6.037	221.837	49.212	43.725	
C _{of} Final zero	0.035	0.092	0.415	-0.045	0.358	
C _{uf} Final upscale	13.837	6.044	222.222	49.231	43.931	
C _{me} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	9.332	9.772	147.438	14.549	16.783	
C _{Gas} Bias adjusted	9.434	9.743	147.967	14.393	17.073	

Clock Time (at end of sample period)

041712 153505						
10:13	9.827	9.396	152.204	11.740	12.562	
10:14	10.029	9.233	148.677	13.681	27.499	
10:15	8.999	10.015	156.254	14.636	45.652	
10:16	8.080	10.857	163.246	15.291	33.450	
10:17	9.699	9.508	159.477	9.327	13.090	
10:18	9.943	9.278	148.026	10.220	7.992	
10:19	9.745	9.422	143.578	12.492	7.604	
10:20	9.142	9.911	141.089	15.232	8.203	
10:21	9.233	9.861	142.053	16.621	8.314	
10:22	8.967	10.044	146.186	16.322	8.753	
10:23	9.420	9.725	150.200	14.550	9.554	
10:24	9.521	9.659	144.853	13.694	15.229	
10:25	9.962	9.321	136.244	13.953	26.520	
10:26	9.485	9.677	128.795	16.541	30.329	
10:27	9.104	9.961	127.353	18.089	20.526	
10:28	9.269	9.822	130.324	14.946	12.228	
10:29	9.220	9.889	135.289	16.809	9.210	
10:30	9.357	9.739	139.611	13.247	7.519	
10:31	9.044	9.965	143.234	13.577	7.388	
10:32	8.724	10.281	145.151	15.172	8.900	
10:33	9.461	9.644	154.178	12.892	19.258	
10:34	9.767	9.402	158.333	14.868	34.168	
10:35	9.348	9.740	155.509	17.536	32.212	
10:36	9.250	9.807	152.890	17.898	17.055	
10:37	9.007	9.975	155.354	16.885	11.079	
10:38	9.221	9.807	161.581	12.451	9.452	
10:39	9.132	9.894	161.138	14.152	9.403	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 10:40

Stop Time 10:48

CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_S)						
C _{oi} Zero gas	0.035	0.092	0.415	-0.045	0.358	
C _{ui} Upscale gas	13.837	6.044	222.222	49.231	43.931	
Analyzer Calibration Error Responses (C_{Dir})						
C _{oco} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mce} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.6%	0.1%	0.0%	0.5%	
Upscale gas	-1.2%	-0.1%	-0.1%	0.0%	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	0.037	0.080	0.266	-0.035	0.258	
C _{ui} Upscale gas	13.827	6.037	221.837	49.212	43.725	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.1%	0.0%	0.0%	0.1%	
Upscale gas	0.1%	0.1%	0.1%	0.0%	0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 153505

10:40:44	13.790	6.094	80.863	8.549	4.238
10:40:59	13.827	6.047	38.054	3.801	2.133
10:41:14	13.839	6.047	15.808	0.944	1.332
10:41:29	13.844	6.039	6.952	0.304	0.921
10:41:44	13.846	6.038	3.720	0.197	0.770
10:41:59	13.848	6.038	2.401	0.152	0.650
10:42:14	13.466	5.993	1.139	0.174	0.575
10:42:29	3.315	2.107	1.123	2.786	0.392
10:42:44	0.259	0.306	1.091	16.669	0.338
10:42:59	0.111	0.179	0.977	36.298	0.374
10:43:14	0.080	0.142	0.505	45.503	0.381
10:43:29	0.056	0.134	0.407	48.733	0.379
10:43:44	0.048	0.122	0.521	49.283	0.371
10:43:59	0.049	0.110	0.684	49.275	0.317
10:44:14	0.027	0.103	0.399	49.275	0.319
10:44:29	0.040	0.098	0.513	49.289	0.342
10:44:44	0.043	0.092	0.375	49.216	0.342
10:44:59	0.030	0.092	0.391	49.275	0.366
10:45:14	0.032	0.092	0.481	49.203	0.366
10:45:29	0.036	0.092	0.603	49.275	0.366
10:45:44	0.036	0.092	0.456	49.262	0.366
10:45:59	0.038	0.172	0.163	49.218	0.366
10:46:14	0.035	6.645	4.599	47.101	6.187
10:46:29	0.009	9.494	51.095	30.857	30.473
10:46:44	0.014	9.667	160.220	13.797	40.005
10:46:59	-0.018	9.705	198.551	3.751	42.230
10:47:14	0.002	9.723	213.887	0.656	43.058
10:47:29	0.002	9.722	219.438	0.025	43.520
10:47:44	0.002	9.742	221.498	-0.002	43.743
10:47:59	-0.021	9.749	222.002	-0.034	43.834
10:48:14	0.012	9.755	222.279	-0.046	43.919
10:48:29	0.005	9.762	222.385	-0.054	44.039
10:48:44	0.005	9.762	222.466	-0.073	44.204

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 1

March 28, 2012

Start Time 10:40

Stop Time 10:48

CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
10:48:59	-0.024	9.762	222.450	-0.052	44.298	

Wheelaerator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 10:51
 Stop time 11:18

REFERENCE METHOD RUN 7

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.035	0.092	0.415	-0.045	0.358	
C _{ui} Initial upscale	13.837	6.044	222.222	49.231	43.931	
C _{of} Final zero	0.023	0.083	0.380	-0.039	0.303	
C _{uf} Final upscale	13.818	6.036	221.647	49.206	43.799	
C _{me} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{AVG} Average conc.	9.512	9.649	146.850	16.507	11.040	
C _{Gas} Bias adjusted	9.622	9.622	147.419	16.327	11.095	

Clock Time (at end of sample period)

041712 153505						
10:52	9.773	9.416	150.592	18.963	19.092	
10:53	9.368	9.700	154.642	18.188	26.667	
10:54	9.291	9.794	155.315	16.364	26.348	
10:55	9.907	9.308	150.448	15.980	16.502	
10:56	9.801	9.369	150.108	17.528	10.695	
10:57	9.051	9.955	158.244	16.200	8.376	
10:58	9.219	9.833	155.208	14.262	7.947	
10:59	9.558	9.612	151.156	14.553	8.690	
11:00	9.359	9.768	150.084	16.373	8.864	
11:01	9.162	9.926	151.394	16.823	9.391	
11:02	9.210	9.913	154.522	15.374	11.184	
11:03	9.255	9.893	156.520	15.430	28.110	
11:04	9.628	9.638	149.866	17.313	32.281	
11:05	9.555	9.668	149.137	15.987	13.463	
11:06	9.642	9.615	143.840	15.771	8.753	
11:07	9.678	9.588	138.590	16.993	6.631	
11:08	9.743	9.505	142.625	16.997	5.604	
11:09	9.707	9.546	144.154	17.525	5.276	
11:10	9.632	9.578	144.621	17.173	4.528	
11:11	9.367	9.770	149.062	16.474	4.230	
11:12	9.374	9.742	144.504	16.960	3.806	
11:13	9.583	9.612	146.284	17.324	3.488	
11:14	9.651	9.534	141.414	14.722	3.311	
11:15	9.495	9.619	134.634	14.066	3.145	
11:16	9.906	9.319	128.521	16.125	3.646	
11:17	9.577	9.560	127.615	19.224	5.500	
11:18	9.343	9.745	141.839	17.004	12.565	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 11:19

Stop Time 11:27

CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{of} Zero gas	0.023	0.083	0.380	-0.039	0.303	
C _{uf} Upscale gas	13.818	6.036	221.647	49.206	43.799	
Analyzer Calibration Error Responses (C_{Dir})						
C _{oee} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mce} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.5%	0.1%	0.0%	0.4%	
Upscale gas	-1.3%	-0.1%	-0.2%	-0.1%	-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	0.035	0.092	0.415	-0.045	0.358	
C _{ui} Upscale gas	13.837	6.044	222.222	49.231	43.931	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	-0.1%	0.0%	0.0%	-0.1%	
Upscale gas	-0.1%	-0.1%	-0.1%	0.0%	-0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 153305

11:19:05	11.307	7.359	145.267	16.107	19.808
11:19:20	13.652	6.143	108.856	10.808	10.468
11:19:35	13.794	6.047	59.902	5.008	4.259
11:19:50	13.812	6.043	23.174	1.235	2.225
11:20:05	13.820	6.032	9.890	0.343	1.450
11:20:20	13.822	6.032	5.153	0.257	1.011
11:20:35	7.877	4.084	2.898	0.419	0.741
11:20:50	0.592	0.536	2.068	9.827	0.493
11:21:05	0.125	0.181	1.612	27.371	0.513
11:21:20	0.083	0.161	1.180	41.986	0.511
11:21:35	0.046	0.140	1.197	47.497	0.487
11:21:50	0.045	0.126	0.545	49.089	0.448
11:22:05	0.038	0.114	0.741	49.182	0.431
11:22:20	0.026	0.104	0.407	49.184	0.405
11:22:35	0.028	0.100	0.383	49.185	0.316
11:22:50	0.032	0.097	0.627	49.196	0.324
11:23:05	0.032	0.091	0.399	49.204	0.282
11:23:20	0.023	0.076	0.741	49.206	0.259
11:23:35	0.030	0.068	0.603	49.206	0.301
11:23:50	0.033	0.055	0.619	49.206	0.241
11:24:05	0.015	0.085	0.163	49.206	0.293
11:24:20	0.020	0.085	0.481	49.206	0.319
11:24:35	0.034	0.079	0.497	49.206	0.298
11:24:50	0.038	0.067	0.505	49.206	0.222
11:25:05	0.021	0.073	0.162	49.211	0.293
11:25:20	0.044	0.330	0.382	49.206	0.228
11:25:35	0.028	7.300	8.058	46.492	10.121
11:25:50	-0.007	9.516	56.435	29.856	33.100
11:26:05	0.012	9.661	164.029	13.120	40.226
11:26:20	-0.005	9.691	199.780	3.462	41.882
11:26:35	0.005	9.711	213.854	0.526	42.704
11:26:50	0.004	9.724	218.966	-0.044	43.113
11:27:05	-0.016	9.729	220.545	-0.031	43.466

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 11:19

Stop Time 11:27

CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
11:27:20	-0.011	9.740	221.327	-0.039	43.640	
11:27:35	-0.007	9.740	221.693	-0.031	43.805	
11:27:50	0.004	9.746	221.921	-0.047	43.951	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 11:30
 Stop time 11:57

REFERENCE METHOD RUN 8

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.023	0.083	0.380	-0.039	0.303	
C _{ui} Initial upscale	13.818	6.036	221.647	49.206	43.799	
C _{of} Final zero	0.022	0.086	0.481	-0.042	0.366	
C _{uf} Final upscale	13.822	6.043	221.560	49.294	43.714	
C _{me} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	9.380	9.727	155.221	15.316	11.139	
C _{Gas} Bias adjusted	9.494	9.699	156.070	15.141	11.222	

Clock Time (at end of sample period)

041712 153505		Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
11:31	9.450	9.657	150.570	17.006	11.409		
11:32	9.172	9.874	155.608	17.596	15.357		
11:33	8.968	10.075	152.914	18.375	25.816		
11:34	9.294	9.790	145.837	15.545	30.764		
11:35	9.744	9.450	156.292	14.859	18.791		
11:36	9.618	9.546	149.457	16.608	10.248		
11:37	9.274	9.801	151.752	16.098	6.998		
11:38	9.054	9.973	154.383	17.504	5.289		
11:39	9.334	9.742	163.952	12.626	4.338		
11:40	9.409	9.663	162.739	11.947	3.634		
11:41	9.641	9.488	157.977	11.198	3.215		
11:42	9.296	9.745	160.153	12.308	3.864		
11:43	9.007	10.074	165.745	12.599	5.661		
11:44	9.198	9.876	154.847	11.108	6.527		
11:45	9.560	9.621	163.557	11.774	7.531		
11:46	9.449	9.706	163.850	11.375	7.604		
11:47	9.090	9.985	167.534	13.246	8.207		
11:48	9.241	9.875	166.610	15.099	9.047		
11:49	9.613	9.594	159.886	16.308	9.464		
11:50	9.734	9.475	155.777	19.000	9.757		
11:51	9.199	9.855	155.230	18.410	10.833		
11:52	9.129	9.910	159.430	17.136	12.431		
11:53	9.364	9.728	159.703	14.955	14.077		
11:54	9.853	9.345	148.667	14.801	13.261		
11:55	9.889	9.318	137.263	17.562	15.491		
11:56	9.253	9.792	130.389	20.371	16.410		
11:57	9.416	9.681	140.857	18.122	14.723		

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 11:58
 Stop Time 12:05

CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.022	0.086	0.481	-0.042	0.366	
C _{ui} Upscale gas	13.822	6.043	221.560	49.294	43.714	
Analyzer Calibration Error Responses (C_{dir})						
C _{o_{ca}} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{m_{ca}} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.6%	0.1%	0.0%	0.5%	
Upscale gas	-1.3%	-0.1%	-0.3%	0.0%	-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	0.023	0.083	0.380	-0.039	0.303	
C _{ui} Upscale gas	13.818	6.036	221.647	49.206	43.799	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	0.0%	0.0%	0.1%	
Upscale gas	0.0%	0.1%	0.0%	0.1%	-0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 153505

11:58:12	12.999	6.689	126.610	16.697	10.520
11:58:27	13.757	6.095	87.969	9.358	5.462
11:58:42	13.813	6.053	38.934	3.261	2.615
11:58:57	13.823	6.039	15.832	0.809	1.566
11:59:12	13.831	6.038	7.603	0.205	1.084
11:59:27	13.834	6.038	3.451	0.223	0.858
11:59:42	7.334	3.871	2.410	0.865	0.656
11:59:57	0.510	0.490	1.579	10.836	0.417
12:00:12	0.123	0.195	1.042	29.534	0.466
12:00:27	0.070	0.159	1.058	42.810	0.462
12:00:42	0.048	0.140	1.091	48.368	0.422
12:00:57	0.046	0.123	0.757	49.224	0.404
12:01:12	0.041	0.112	1.010	49.250	0.394
12:01:27	0.036	0.106	0.749	49.278	0.374
12:01:42	0.020	0.100	0.741	49.286	0.374
12:01:57	0.035	0.094	0.513	49.257	0.368
12:02:12	0.027	0.092	0.741	49.221	0.371
12:02:27	0.043	0.093	0.399	49.283	0.371
12:02:42	0.030	0.093	0.627	49.203	0.368
12:02:57	0.032	0.085	0.595	49.284	0.366
12:03:12	0.024	0.085	0.383	49.313	0.366
12:03:27	0.011	0.088	0.464	49.284	0.366
12:03:42	0.207	0.451	0.749	49.312	0.369
12:03:57	0.059	7.207	3.524	46.808	8.031
12:04:12	-0.003	9.500	65.942	30.784	31.691
12:04:27	0.018	9.660	167.692	14.025	40.098
12:04:42	0.006	9.699	200.106	3.487	42.175
12:04:57	0.018	9.715	214.050	0.692	42.875
12:05:12	-0.011	9.727	218.779	-0.059	43.321
12:05:27	-0.028	9.731	221.042	-0.032	43.521
12:05:42	0.007	9.739	221.718	-0.046	43.743
12:05:57	-0.010	9.744	221.921	-0.047	43.876

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 12:08
 Stop time 12:35

REFERENCE METHOD RUN 9

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.022	0.086	0.481	-0.042	0.366	
C _{ui} Initial upscale	13.822	6.043	221.560	49.294	43.714	
C _{of} Final zero	0.021	0.065	0.315	-0.027	0.256	
C _{uf} Final upscale	13.817	6.033	220.952	49.183	43.782	
C _{me} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	8.986	10.061	153.401	14.604	10.734	
C _{Gas} Bias adjusted	9.095	10.030	154.487	14.439	10.822	

Clock Time (at end of sample period)

041712 153506						
12:09	9.482	9.678	160.983	17.391	11.602	
12:10	9.464	9.668	165.169	18.446	9.724	
12:11	9.045	9.997	155.535	21.197	9.274	
12:12	9.166	9.901	148.808	20.202	8.408	
12:13	9.843	9.381	144.701	20.812	7.380	
12:14	9.295	9.789	141.176	22.449	7.564	
12:15	9.266	9.829	150.808	18.520	8.295	
12:16	9.183	9.888	153.325	18.990	8.459	
12:17	8.869	10.172	153.803	17.380	8.251	
12:18	8.943	10.090	154.011	16.925	9.348	
12:19	9.090	9.964	154.239	14.053	9.706	
12:20	9.008	10.060	153.924	13.815	9.834	
12:21	9.654	9.521	149.546	12.005	8.424	
12:22	9.020	10.030	152.185	13.670	7.591	
12:23	8.716	10.279	151.007	13.881	8.129	
12:24	8.508	10.470	151.754	12.552	11.020	
12:25	8.908	10.154	155.344	12.483	12.542	
12:26	8.668	10.337	155.570	12.672	12.317	
12:27	8.863	10.176	157.593	11.307	11.387	
12:28	8.838	10.186	158.346	12.532	11.637	
12:29	8.488	10.462	154.509	11.264	11.809	
12:30	9.010	10.016	156.740	10.672	11.887	
12:31	8.827	10.167	151.783	11.567	11.910	
12:32	8.495	10.483	153.822	11.329	14.254	
12:33	8.268	10.666	153.360	10.545	15.549	
12:34	8.620	10.325	150.694	9.129	17.163	
12:35	9.081	9.953	153.093	8.522	16.358	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012

Start Time 12:36

Stop Time 12:46

CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	0.021	0.065	0.315	-0.027	0.256	
C _{uf} Upscale gas	13.817	6.033	220.952	49.183	43.782	
Analyzer Calibration Error Responses (C_{dlr})						
C _{ocb} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mce} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.4%	0.1%	0.0%	0.4%	
Upscale gas	-1.3%	-0.2%	-0.4%	-0.1%	-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	0.022	0.086	0.481	-0.042	0.366	
C _{ui} Upscale gas	13.822	6.043	221.560	49.294	43.714	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	-0.2%	0.0%	0.0%	-0.1%	
Upscale gas	0.0%	-0.1%	-0.1%	-0.1%	0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 153805

12:36:18	10.383	7.569	153.415	7.393	17.941
12:36:33	13.601	6.162	114.538	4.861	10.269
12:36:48	13.785	6.044	56.361	1.984	4.135
12:37:03	13.805	6.042	24.111	0.561	2.201
12:37:18	13.812	6.038	10.785	0.239	1.493
12:37:33	13.819	6.034	5.055	0.246	1.088
12:37:48	13.822	6.029	2.963	0.184	0.799
12:38:03	7.826	4.071	2.051	0.552	0.637
12:38:18	0.576	0.534	1.424	10.386	0.456
12:38:33	0.127	0.198	1.245	28.985	0.453
12:38:48	0.082	0.159	0.887	42.768	0.418
12:39:03	0.060	0.139	0.586	47.953	0.397
12:39:18	0.057	0.126	0.684	49.115	0.410
12:39:33	0.034	0.119	0.668	49.182	0.375
12:39:48	0.023	0.112	0.521	49.182	0.318
12:40:03	0.043	0.102	0.391	49.182	0.299
12:40:18	0.034	0.098	0.627	49.185	0.301
12:40:33	0.043	0.092	0.741	49.195	0.296
12:40:48	0.029	0.092	0.513	49.195	0.272
12:41:03	0.027	0.069	0.407	49.177	0.203
12:41:18	0.021	0.053	0.391	49.215	0.294
12:41:33	0.021	0.073	0.163	49.164	0.203
12:41:48	0.021	0.068	0.391	49.169	0.270
12:42:03	0.020	0.062	0.464	49.192	0.294
12:42:18	0.026	0.073	0.212	49.174	0.203
12:42:33	0.020	0.051	0.390	49.177	0.272
12:42:48	0.025	0.073	0.203	49.205	0.226
12:43:03	0.023	0.045	0.334	49.188	0.317
12:43:18	0.037	0.086	0.171	49.182	0.272
12:43:33	0.050	4.655	0.781	48.333	3.572
12:43:48	0.012	9.302	37.282	36.189	26.728
12:44:03	0.002	9.619	141.872	17.988	38.501
12:44:18	-0.003	9.677	191.095	5.656	41.250

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 12:36
 Stop Time 12:46

CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
12:44:33	0.002	9.698	210.110	1.159	42.312	
12:44:48	0.001	9.711	217.135	0.081	42.870	
12:45:03	-0.004	9.722	219.219	-0.041	43.212	
12:45:18	-0.016	9.727	220.041	-0.003	43.513	
12:45:33	-0.011	9.728	220.708	-0.002	43.663	
12:45:48	-0.007	9.732	221.042	-0.037	43.819	
12:46:03	0.000	9.741	221.107	-0.042	43.863	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 12:48
 Stop time 13:15

REFERENCE METHOD RUN 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.021	0.065	0.315	-0.027	0.256	
C _{ui} Initial upscale	13.817	6.033	220.952	49.183	43.782	
C _{of} Final zero	0.029	0.057	0.272	-0.018	0.141	
C _{uf} Final upscale	13.815	6.026	220.529	49.213	43.589	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{AVG} Average conc.	9.096	9.929	147.874	13.628	23.404	
C _{GBA} Bias adjusted	9.208	9.903	149.290	13.478	24.066	

Clock Time (at end of sample period)

041712 153505						
12:49	9.562	9.558	133.944	13.165	37.097	
12:50	9.601	9.547	135.604	12.669	30.614	
12:51	9.183	9.878	148.972	13.541	30.092	
12:52	8.881	10.124	145.155	17.141	28.139	
12:53	9.091	9.939	141.423	25.479	25.714	
12:54	9.067	9.978	145.010	18.866	24.753	
12:55	9.380	9.721	141.034	15.504	20.699	
12:56	9.569	9.555	135.191	25.987	31.240	
12:57	9.097	9.917	137.505	21.448	11.040	
12:58	9.079	9.955	142.522	12.780	9.292	
12:59	9.054	9.984	143.765	13.280	12.485	
13:00	9.128	9.924	142.267	13.616	14.588	
13:01	8.861	10.135	148.185	12.965	15.418	
13:02	8.429	10.530	149.274	12.438	17.877	
13:03	8.954	10.102	156.956	10.082	20.049	
13:04	9.194	9.850	152.135	10.060	22.558	
13:05	8.933	10.061	143.024	11.484	29.148	
13:06	8.863	10.117	146.292	11.271	32.760	
13:07	9.049	9.955	147.540	11.300	36.753	
13:08	9.029	9.950	148.372	10.608	41.291	
13:09	8.991	9.990	149.878	10.618	46.422	
13:10	9.215	9.806	156.182	10.017	45.093	
13:11	9.530	9.550	151.339	9.957	23.222	
13:12	9.239	9.770	146.093	11.337	10.146	
13:13	8.610	10.294	157.986	11.618	6.830	
13:14	8.724	10.186	170.317	10.737	4.894	
13:15	9.283	9.697	176.638	9.982	3.688	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 13:16
 Stop Time 13:25

CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (Cs)						
C _{of} Zero gas	0.029	0.057	0.272	-0.018	0.141	
C _{uf} Upscale gas	13.815	6.026	220.529	49.213	43.589	
Analyzer Calibration Error Reponses (C_{Dir})						
C _{oca} Zero gas	-0.007	0.008	0.000	-0.029	-0.088	
C _{mca} Upscale gas	14.005	6.056	222.738	49.268	43.933	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.3%	0.1%	0.0%	0.3%	
Upscale gas	-1.4%	-0.2%	-0.5%	-0.1%	-0.4%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (Cs)						
C _{oi} Zero gas	0.021	0.065	0.315	-0.027	0.256	
C _{ui} Upscale gas	13.817	6.033	220.952	49.183	43.782	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	-0.1%	0.0%	0.0%	-0.1%	
Upscale gas	0.0%	-0.1%	-0.1%	0.0%	-0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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13:16:42	8.387	10.360	174.205	10.317	2.751
13:16:57	8.652	8.810	175.613	9.577	3.806
13:17:12	13.343	6.350	143.264	7.432	5.840
13:17:27	13.760	6.063	80.993	4.306	3.324
13:17:42	13.791	6.040	35.824	1.252	1.661
13:17:57	13.800	6.032	14.839	0.332	1.004
13:18:12	13.809	6.026	7.123	0.247	0.664
13:18:27	13.814	6.026	3.451	0.156	0.570
13:18:42	13.821	6.026	2.410	0.192	0.470
13:18:57	13.601	6.006	1.661	0.182	0.402
13:19:12	3.858	2.368	1.123	2.260	0.169
13:19:27	0.284	0.328	1.294	15.552	0.125
13:19:42	0.108	0.175	0.855	35.240	0.186
13:19:57	0.071	0.152	1.099	45.017	0.236
13:20:12	0.052	0.133	0.407	48.737	0.280
13:20:27	0.054	0.120	0.635	49.184	0.249
13:20:42	0.032	0.111	0.513	49.188	0.182
13:20:57	0.050	0.103	0.513	49.192	0.153
13:21:12	0.037	0.098	0.285	49.196	0.166
13:21:27	0.038	0.093	0.448	49.192	0.174
13:21:42	0.027	0.075	0.228	49.205	0.151
13:21:57	0.029	0.047	0.334	49.223	0.146
13:22:12	0.032	0.048	0.253	49.211	0.127
13:22:27	0.012	0.079	0.603	49.247	0.116
13:22:42	0.026	0.040	0.342	49.219	0.166
13:22:57	0.026	0.068	0.162	49.200	0.142
13:23:12	0.033	0.081	0.382	49.206	0.164
13:23:27	0.032	5.546	10.875	48.142	5.107
13:23:42	0.018	9.398	50.696	34.701	29.145
13:23:57	0.005	9.638	144.925	17.146	39.349
13:24:12	0.000	9.681	194.896	4.778	41.646
13:24:27	-0.007	9.697	212.584	1.073	42.659
13:24:42	0.012	9.708	217.599	0.029	43.153

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 1

March 28, 2012
 Start Time 13:16
 Stop Time 13:25

CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
13:24:57	-0.025	9.721	219.748	0.010	43.412	
13:25:12	-0.010	9.728	220.724	-0.044	43.614	
13:25:27	-0.010	9.734	221.115	-0.019	43.741	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

Date: **March 26, 2012**

Start Time 6:12

Stop Time 6:39

CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	CO2	NOX	CO	SO2	
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmv	FF Outlet ppmv	FF Outlet ppmv	
Instrument Information						
Manufacturer:	Servomex	Servomex	Thermo	Thermo	Wstrn Rsrch	
Model:	1440C	1440B	42i-LS	48i	921L	UV
Detection:	Paramagn.	NDIR	Chemilumi.	GFC/NDIR	Photo.	
Asset or Serial No:	207361	207364	205174	204433	204654	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Response Time (seconds)						
	90	90	90	90	90	
Manufacturer Certified Cylinder Value (C_v)						
Zero	0.000	0.000	0.000	0.000	0.000	
Low	6.000	5.990	225.000	23.500	45.200	
Mid				48.600		
High	14.000	13.900	448.000	96.300	90.800	
Actual gas to be used for bias checks						
	14.000	5.990	225.000	48.600	45.200	
Cylinder ID						
Zero	alm028189	alm028189	alm028189	alm028189	alm028189	
Low	alm036149	almx067937	alm048873	alm042811	alm048873	
Mid				alm023610		
High	almx067937	alm036149	alm012619	cc181272	alm012619	
Analyzer Calibration Response (C_{Dr})						
Zero	-0.009	-0.007	0.000	-0.036	-0.008	
Low	5.997	6.045	225.744		45.199	
Mid				49.315		
High	13.988	13.900	447.909	96.282	90.765	
Analyzer Calibration Error (ACE) (Limit = 2%, Method 25A limit = 5% of gas value)						
Zero	-0.1%	-0.1%	0.0%	0.0%	0.0%	
Low	0.0%	0.4%	0.2%	N/A	0.0%	
Mid	N/A	N/A	N/A	N/A	N/A	
High	-0.1%	0.0%	0.0%	0.0%	0.0%	
Calibration Error Status						
Zero	OK	OK	OK	OK	OK	
Low	OK	OK	OK	N/A	OK	
Mid	N/A	N/A	N/A	OK	N/A	
High	OK	OK	OK	OK	OK	

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06:12:26	0.000	-0.016	-0.244	-0.052	-1.800
06:12:26	0.000	-0.016	-0.244	-0.052	-1.800
06:12:41	-0.004	-0.016	-0.187	-0.047	-1.797
06:12:56	-0.006	-0.011	0.000	-0.047	-1.830
06:13:11	-0.006	-0.028	0.000	-0.071	-1.835
06:13:26	-0.008	-0.028	0.000	-0.036	-1.843
06:13:41	-0.007	-0.019	0.000	-0.018	-1.864
06:13:56	-0.005	0.005	0.000	-0.016	-1.205
06:14:11	-0.004	-0.005	0.000	-0.013	-0.069
06:14:26	-0.007	-0.022	0.000	-0.044	-0.020
06:14:41	-0.010	-0.011	0.000	-0.086	0.000
06:14:56	-0.010	-0.005	0.000	-0.021	0.000
06:15:11	-0.009	-0.005	0.000	0.000	-0.023
06:15:26	7.358	2.176	0.000	0.013	-0.023
06:15:41	13.571	5.682	0.000	-0.016	-0.095
06:15:56	13.873	5.950	-0.147	0.018	-0.032

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

Date: **March 26, 2012**
 Start Time 6:12
 Stop Time 6:39

CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
06:16:11	13.889	5.965	0.000	0.041	-0.023	
06:16:26	13.887	5.982	0.000	-0.045	-0.002	
06:16:41	13.887	5.983	0.000	0.020	-0.023	
06:16:56	13.900	5.991	0.000	0.085	-0.016	
06:17:11	13.899	5.995	0.000	-0.036	-0.021	
06:17:26	13.900	5.998	0.000	-0.034	-0.044	
06:17:41	12.077	7.117	0.000	0.021	-0.023	
06:17:56	6.571	12.824	0.000	0.062	-0.052	
06:18:11	5.986	13.731	0.000	0.028	-0.015	
06:18:26	5.948	13.792	0.000	-0.005	-0.016	
06:18:41	5.944	13.813	0.000	-0.021	0.000	
06:18:56	5.943	13.871	0.000	0.002	-0.046	
06:19:11	5.942	13.894	0.000	0.000	-0.023	
06:19:26	5.940	13.901	0.000	0.000	-0.016	
06:19:41	5.940	13.904	0.000	-0.013	-0.016	
06:19:56	6.939	13.419	0.000	-0.008	-0.015	
06:20:11	13.005	7.296	0.000	0.003	-0.404	
06:20:26	13.852	6.116	0.000	-0.044	-0.225	
06:20:41	13.892	6.060	0.000	-0.044	-0.062	
06:20:56	13.916	6.050	0.000	-0.008	-0.015	
06:21:11	13.977	6.046	0.000	0.007	-0.044	
06:21:26	13.987	6.046	0.000	-0.010	0.000	
06:21:41	13.988	6.045	0.000	0.028	-0.041	
06:21:56	13.988	6.045	0.000	0.028	-0.039	
06:22:11	12.827	6.683	0.000	0.007	-0.065	
06:22:26	6.840	12.681	0.000	-0.078	-0.091	
06:22:41	6.028	13.821	0.000	-0.036	-0.064	
06:22:56	5.984	13.893	0.000	0.013	-0.002	
06:23:11	5.978	13.904	0.000	0.000	-0.044	
06:23:26	6.083	13.616	0.000	0.005	-0.046	
06:23:41	1.307	2.630	0.073	5.032	-0.700	
06:23:56	0.150	0.333	0.122	29.522	-0.545	
06:24:11	-0.001	0.053	-0.106	59.171	-0.140	
06:24:26	-0.009	0.015	0.008	80.404	-0.031	
06:24:41	-0.011	-0.006	0.000	92.462	-0.068	
06:24:56	-0.013	0.012	0.000	95.788	-0.046	
06:25:11	-0.014	0.006	0.000	96.449	0.011	
06:25:26	-0.016	-0.004	0.000	96.308	-0.088	
06:25:41	-0.014	-0.011	0.000	96.259	-0.046	
06:25:56	-0.015	-0.011	0.000	96.313	-0.015	
06:26:11	-0.014	-0.011	0.000	96.275	-0.075	
06:26:26	-0.011	-0.004	0.000	96.378	-0.031	
06:26:41	0.916	0.193	0.000	94.320	-0.015	
06:26:56	0.033	0.018	-0.049	82.733	-0.064	
06:27:11	-0.017	0.000	-0.073	63.692	-0.029	
06:27:26	-0.020	0.003	-0.008	53.157	-0.098	
06:27:41	-0.016	-0.004	0.000	49.678	-0.013	
06:27:56	-0.012	-0.016	0.000	49.307	-0.046	
06:28:11	-0.012	-0.017	0.000	49.294	-0.016	
06:28:26	-0.012	-0.011	0.000	49.345	0.000	
06:28:41	0.256	0.069	0.000	49.273	0.037	
06:28:56	0.138	6.750	29.133	46.737	3.726	
06:29:11	-0.253	9.450	153.504	35.287	37.647	
06:29:26	-0.036	9.818	316.109	22.453	69.748	
06:29:41	-0.038	9.852	396.199	10.268	80.764	
06:29:56	-0.038	9.853	429.882	4.137	84.749	
06:30:11	-0.032	9.853	439.650	0.918	86.240	
06:30:26	-0.031	9.853	444.900	-0.020	87.258	
06:30:41	-0.032	9.853	447.269	-0.244	84.524	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

Date: **March 26, 2012**

Start Time 6:12

Stop Time 6:39

CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
06:30:56	-0.032	9.853	448.596	-0.280	81.008	
06:31:11	-0.031	9.853	448.189	-0.287	81.247	
06:31:26	-0.031	9.853	448.360	-0.293	81.578	
06:31:41	-0.031	9.853	448.466	-0.290	81.864	
06:31:56	-0.037	9.853	448.726	-0.260	82.066	
06:32:11	-0.042	9.852	447.684	-0.293	88.423	
06:32:26	-0.031	9.853	448.009	-0.259	90.864	
06:32:41	-0.031	9.853	447.863	-0.290	90.834	
06:32:56	-0.031	9.853	447.855	-0.257	90.598	
06:33:11	0.466	9.587	447.855	-0.267	74.050	
06:33:26	0.033	9.806	393.504	-0.135	42.868	
06:33:41	-0.029	9.870	331.771	-0.070	43.378	
06:33:56	-0.036	9.875	257.200	-0.073	44.347	
06:34:11	-0.037	9.878	239.544	-0.124	44.804	
06:34:26	-0.037	9.877	230.265	-0.148	44.962	
06:34:41	-0.037	9.877	227.082	-0.166	45.065	
06:34:56	-0.037	9.878	225.909	-0.137	45.115	
06:35:11	-0.037	9.879	225.771	-0.155	45.205	
06:35:26	-0.044	9.879	225.779	-0.163	45.189	
06:35:41	-0.037	9.879	225.682	-0.137	45.205	
06:35:56	0.319	9.702	225.535	-0.133	44.461	
06:36:11	1.217	2.139	225.120	-0.075	17.713	
06:36:26	0.951	0.153	144.802	0.003	3.551	
06:36:41	0.979	0.017	89.548	-0.023	1.495	
06:36:56	0.984	0.018	58.909	-0.073	1.182	
06:37:11	0.977	0.013	53.879	-0.078	1.042	
06:37:26	0.963	0.012	51.233	-0.068	0.993	
06:37:41	0.986	0.005	50.696	-0.042	0.929	
06:37:56	0.969	-0.006	51.054	-0.049	0.965	
06:38:11	0.984	-0.004	50.932	-0.057	0.897	
06:38:26	0.989	0.012	50.932	-0.023	0.855	
06:38:41	0.974	0.006	50.826	-0.054	0.964	
06:38:56	0.980	0.001	51.103	-0.044	0.983	
06:39:11	3.434	-0.003	51.095	-0.037	0.915	

NOX Conversion Efficiency

NO2 Cylinder Value = 49.200
 Average Response = 50.897
 Conversion Efficiency = 103.4%

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 2

March 26, 2012

Start Time 6:42

Stop Time 6:51

CALIBRATION BIAS 00

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	0.017	0.021	-0.171	-0.040	0.165	
C _{ul} Upscale gas	13.879	5.878	223.126	49.232	43.705	
Analyzer Calibration Error Responses (C_{Dr})						
C _{oc} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mce} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.2%		0.0%	0.2%	
Upscale gas	-0.8%	-1.2%	-0.6%	-0.1%	-1.6%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{ol} Zero gas	N/A	N/A	N/A	N/A	N/A	
C _{ul} 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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06:42:25	20.653	0.030	-0.090	0.233	0.189
06:42:40	20.653	0.055	-0.082	0.254	0.182
06:42:55	20.653	0.050	0.024	0.166	0.218
06:43:10	19.952	0.074	-0.204	0.457	0.147
06:43:25	13.234	2.554	0.757	3.310	0.247
06:43:40	13.813	5.490	2.116	5.171	0.270
06:43:55	13.882	5.820	3.679	3.575	0.272
06:44:10	13.884	5.863	1.595	1.094	0.225
06:44:25	13.882	5.868	0.798	0.324	0.225
06:44:40	13.871	5.903	0.448	0.107	0.270
06:44:55	13.877	5.894	-0.082	0.166	0.202
06:45:10	13.873	5.892	-0.204	0.168	0.247
06:45:25	13.865	5.922	0.024	0.130	0.269
06:45:40	13.736	5.900	0.016	0.124	0.247
06:45:55	4.926	2.787	0.138	1.464	0.120
06:46:10	0.403	0.348	1.384	14.971	-0.002
06:46:25	0.127	0.126	0.871	32.731	0.049
06:46:40	0.086	0.076	0.244	45.125	0.249
06:46:55	0.067	0.068	0.228	48.592	0.244
06:47:10	0.050	0.044	0.130	49.132	0.202
06:47:25	0.029	0.036	0.089	49.171	0.190
06:47:40	0.020	0.024	0.211	49.222	0.202
06:47:55	0.015	0.020	-0.130	49.180	0.146
06:48:10	0.015	0.024	-0.236	49.218	0.129
06:48:25	0.020	0.020	-0.147	49.298	0.221
06:48:40	0.034	4.089	3.859	48.145	0.199
06:48:55	0.002	9.136	33.203	37.316	6.390
06:49:10	-0.001	9.598	136.752	17.639	26.440
06:49:25	0.002	9.658	193.040	6.211	36.692
06:49:40	0.001	9.683	212.698	1.105	40.125
06:49:55	-0.007	9.703	219.634	0.145	41.511
06:50:10	-0.013	9.713	221.872	-0.015	42.339
06:50:25	-0.010	9.722	222.336	-0.054	42.870

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 6:42
 Stop Time 6:51

CALIBRATION BIAS 00

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
06:50:40	-0.005	9.731	222.882	-0.124	43.155	
06:50:55	-0.011	9.733	223.166	-0.083	43.554	
06:51:10	-0.011	9.743	223.191	-0.036	43.710	
06:51:25	-0.009	9.749	223.020	0.000	43.850	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 7:00
 Stop time 7:27

REFERENCE METHOD RUN 1

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.017	0.021	-0.171	-0.040	0.165	
C _{ui} Initial upsacle	13.879	5.878	223.126	49.232	43.705	
C _{of} Final zero	-0.004	0.033	0.635	-0.012	0.111	
C _{uf} Final upsacle	13.840	6.002	223.410	49.223	43.513	
C _{ma} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{Av9} Average conc.	8.394	10.523	158.907	6.744	0.861	
C _{Gas} Bias adjusted	8.476	10.633	160.072	6.680	0.751	

Clock Time (at end of sample period)

041712 154449						
07:01	10.496	8.802	135.008	7.538	1.002	
07:02	9.587	9.504	134.239	9.629	0.912	
07:03	7.313	11.430	162.501	11.296	0.981	
07:04	7.138	11.631	177.556	8.413	0.912	
07:05	7.866	11.039	175.938	7.748	0.925	
07:06	9.018	10.012	166.652	9.632	0.899	
07:07	9.204	9.846	147.086	11.220	0.787	
07:08	8.470	10.457	147.939	10.834	0.784	
07:09	7.837	11.061	167.277	10.830	0.871	
07:10	7.684	11.089	171.726	9.090	0.746	
07:11	8.097	10.857	174.155	8.550	0.730	
07:12	9.085	9.975	163.378	6.561	0.762	
07:13	8.260	10.236	159.953	5.555	0.694	
07:14	7.647	11.110	169.581	4.600	0.690	
07:15	7.859	10.962	166.050	4.214	0.716	
07:16	8.403	10.558	160.041	4.368	0.773	
07:17	9.043	10.002	156.944	5.232	0.803	
07:18	8.647	10.318	152.688	5.843	0.811	
07:19	8.283	10.654	151.718	5.438	0.823	
07:20	8.185	10.723	149.619	5.414	0.792	
07:21	7.866	11.005	157.906	4.524	0.885	
07:22	8.105	10.773	159.099	4.058	0.924	
07:23	8.493	10.428	160.275	3.862	1.004	
07:24	8.795	10.166	158.919	3.993	0.987	
07:25	8.750	10.182	157.308	4.573	1.025	
07:26	8.479	10.439	155.082	4.276	0.992	
07:27	8.017	10.851	151.854	4.789	1.005	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 7:31
 Stop Time 7:42

CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	-0.004	0.033	0.635	-0.012	0.111	
C _{uf} Upscale gas	13.840	6.002	223.410	49.223	43.513	
Analyzer Calibration Error Responses (C_{Dit})						
C _{ocse} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mca} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.3%	0.1%	0.0%	0.1%	
Upscale gas	-1.1%	-0.3%	-0.5%	-0.1%	-1.9%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.017	0.021	-0.171	-0.040	0.165	
C _{ui} Upscale gas	13.879	5.878	223.126	49.232	43.705	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	0.1%	0.2%	0.0%	-0.1%	
Upscale gas	-0.3%	0.9%	0.1%	0.0%	-0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154449

07:31:02	13.835	6.008	4.274	0.145	0.716
07:31:17	13.838	6.003	3.484	0.149	0.571
07:31:32	13.841	6.001	3.582	0.172	0.456
07:31:47	13.840	6.001	3.142	0.127	0.378
07:32:02	13.840	6.001	2.971	0.141	0.243
07:32:17	13.840	6.001	2.792	0.079	0.192
07:32:32	13.841	6.000	2.613	0.164	0.173
07:32:47	13.838	5.999	2.442	0.149	0.279
07:33:02	7.434	3.905	2.361	0.790	0.129
07:33:17	0.648	0.570	2.890	10.631	-0.003
07:33:32	0.130	0.193	2.890	29.138	0.052
07:33:47	0.048	0.150	2.401	42.304	0.192
07:34:02	0.029	0.125	2.239	48.008	0.127
07:34:17	0.034	0.111	2.076	48.991	0.200
07:34:32	-0.001	0.101	1.962	49.089	0.091
07:34:47	0.017	0.091	1.938	49.133	0.218
07:35:02	0.019	0.071	1.441	49.177	0.095
07:35:17	0.013	0.069	1.481	49.171	0.208
07:35:32	0.001	0.052	1.400	49.158	0.155
07:35:47	-0.002	0.055	1.473	49.203	0.156
07:36:02	0.012	0.050	1.506	49.192	0.093
07:36:17	0.012	0.055	1.237	49.180	0.048
07:36:32	-0.003	0.056	1.229	49.143	0.039
07:36:47	0.006	0.059	1.221	49.231	0.096
07:37:02	-0.009	0.039	0.977	49.244	0.095
07:37:17	-0.005	0.037	0.407	49.227	0.088
07:37:32	-0.010	0.039	0.830	49.219	0.109
07:37:47	-0.006	0.017	0.993	49.200	0.111
07:38:02	0.004	0.032	0.765	49.239	0.130
07:38:17	-0.019	0.032	0.619	49.221	0.124
07:38:32	0.003	0.037	0.521	49.210	0.080
07:38:47	-0.006	0.025	0.635	49.228	0.065
07:39:02	0.011	0.048	0.863	49.226	0.017

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 7:31
 Stop Time 7:42

CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
07:39:17	0.013	5.166	1.188	48.003	0.145	
07:39:32	-0.005	9.311	48.685	35.857	10.968	
07:39:47	-0.006	9.623	153.936	18.435	30.174	
07:40:02	-0.006	9.685	194.335	6.295	37.613	
07:40:17	-0.007	9.709	213.822	1.634	40.062	
07:40:32	-0.008	9.724	219.902	0.197	41.162	
07:40:47	-0.008	9.736	222.263	0.058	41.862	
07:41:02	-0.008	9.744	222.434	-0.020	42.323	
07:41:17	-0.009	9.753	222.947	-0.064	42.761	
07:41:32	-0.009	9.763	223.296	-0.018	42.996	
07:41:47	-0.011	9.757	223.386	0.024	43.202	
07:42:02	-0.012	9.768	223.378	-0.018	43.469	
07:42:17	-0.012	9.763	223.516	-0.016	43.494	
07:42:32	-0.012	9.770	223.337	0.000	43.577	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 7:44
 Stop time 8:11

REFERENCE METHOD RUN 2

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.004	0.033	0.635	-0.012	0.111	
C _{ui} Initial upscale	13.840	6.002	223.410	49.223	43.513	
C _{of} Final zero	-0.011	0.023	0.578	-0.004	-0.001	
C _{uf} Final upscale	13.816	6.036	222.783	49.196	43.758	
C _{ma} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	8.712	10.311	160.398	7.885	1.475	
C _{Gas} Bias adjusted	8.823	10.282	161.594	7.794	1.472	

Clock Time (at end of sample period)

041712 154449						
07:45	8.506	10.410	171.376	8.069	4.069	
07:46	8.389	10.533	172.688	7.196	2.065	
07:47	8.543	10.393	169.829	6.049	1.505	
07:48	8.869	10.141	163.816	5.816	1.353	
07:49	8.840	10.178	158.688	7.598	1.243	
07:50	8.632	10.374	159.906	9.193	1.300	
07:51	8.302	10.676	164.388	9.732	1.376	
07:52	8.625	10.360	158.541	8.585	1.402	
07:53	8.463	10.490	156.146	8.787	1.383	
07:54	8.559	10.411	156.077	8.488	1.333	
07:55	9.366	9.785	152.672	8.089	1.258	
07:56	9.598	9.597	147.364	8.329	1.437	
07:57	9.132	9.915	144.898	9.082	1.466	
07:58	7.959	10.964	149.379	9.870	1.328	
07:59	8.354	10.672	150.971	8.621	1.366	
08:00	9.818	9.423	146.024	7.506	1.380	
08:01	9.744	9.487	146.575	7.940	1.353	
08:02	8.888	10.129	158.012	8.851	1.342	
08:03	8.735	10.301	162.489	8.098	1.308	
08:04	8.523	10.483	163.398	9.040	1.284	
08:05	8.586	10.475	164.888	7.541	1.311	
08:06	9.242	9.882	156.758	7.170	1.307	
08:07	9.292	9.800	156.911	6.926	1.320	
08:08	8.695	10.281	166.176	7.013	1.389	
08:09	7.636	11.284	174.554	6.988	1.335	
08:10	7.988	10.956	176.787	6.052	1.306	
08:11	7.945	11.010	181.441	6.265	1.294	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 8:11

Stop Time 8:26

CALIBRATION BIAS O2

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	CO2	NOX	CO	SO2	
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{oi} Zero gas	-0.011	0.023	0.578	-0.004	-0.001	
C _{ui} Upscale gas	13.816	6.036	222.783	49.196	43.758	
Analyzer Calibration Error Responses (C_{dir})						
C _{oco} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mca} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.2%	0.1%	0.0%	0.0%	
Upscale gas	-1.2%	-0.1%	-0.7%	-0.1%	-1.6%	
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	-0.004	0.033	0.635	-0.012	0.111	
C _{ui} Upscale gas	13.840	6.002	223.410	49.223	43.513	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	-0.1%	0.0%	0.0%	-0.1%	
Upscale gas	-0.2%	0.2%	-0.1%	0.0%	0.3%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154449

08:11:58	8.492	10.492	179.191	5.951	1.235
08:12:13	11.332	8.601	177.208	6.292	1.096
08:12:28	13.616	6.307	155.149	5.250	0.721
08:12:42	13.788	6.060	79.593	2.953	0.694
08:12:58	13.809	6.044	33.639	0.907	0.605
08:13:13	13.816	6.032	17.176	0.246	0.519
08:13:28	13.823	6.032	8.713	0.141	0.414
08:13:43	13.826	6.026	6.431	0.174	0.280
08:13:58	13.832	6.018	4.689	0.155	0.246
08:14:13	13.834	6.011	3.681	0.126	0.196
08:14:28	12.627	5.760	3.619	0.194	0.241
08:14:43	2.127	1.480	3.454	3.508	-0.050
08:14:58	0.199	0.271	3.585	18.420	-0.057
08:15:13	0.063	0.170	3.489	35.788	0.012
08:15:28	0.051	0.140	3.009	45.318	0.033
08:15:42	0.022	0.122	2.849	48.482	0.118
08:15:58	0.030	0.108	2.580	48.954	0.035
08:16:13	0.012	0.097	2.503	49.025	0.068
08:16:27	0.014	0.089	2.320	49.065	0.030
08:16:42	0.018	0.070	2.239	49.078	0.046
08:16:58	0.008	0.060	2.198	49.074	-0.021
08:17:12	0.008	0.065	2.117	49.115	-0.012
08:17:28	-0.006	0.067	2.032	49.086	0.037
08:17:43	-0.005	0.037	1.954	49.137	0.051
08:17:58	0.001	0.049	1.884	49.140	0.007
08:18:12	0.006	0.061	1.539	49.146	0.028
08:18:28	-0.007	0.061	1.326	49.142	0.017
08:18:43	0.003	0.060	1.221	49.163	-0.018
08:18:57	-0.001	0.051	1.546	49.141	0.005
08:19:13	-0.010	0.048	1.221	49.180	-0.061
08:19:27	-0.013	0.036	1.123	49.180	0.044
08:19:43	-0.016	0.039	1.012	49.161	0.016
08:19:58	0.002	0.014	1.099	49.179	0.033

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 8:11

Stop Time 8:26

CALIBRATION BIAS 02

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
08:20:13	-0.005	0.019	1.099	49.204	-0.021	
08:20:28	0.006	0.019	0.759	49.156	0.019	
08:20:43	-0.006	0.031	1.055	49.189	-0.011	
08:20:58	-0.011	0.025	0.497	49.205	0.037	
08:21:13	-0.005	0.016	0.488	49.201	-0.037	
08:21:27	-0.017	0.027	0.749	49.184	-0.002	
08:21:43	-0.032	0.025	0.855	49.213	-0.018	
08:21:58	-0.007	0.014	0.855	49.215	-0.054	
08:22:12	-0.019	0.025	0.741	49.171	0.011	
08:22:28	-0.007	0.024	0.611	49.198	-0.021	
08:22:43	-0.026	0.016	0.489	49.160	-0.082	
08:22:58	0.001	5.447	0.689	47.967	0.386	
08:23:13	-0.022	9.349	50.994	35.835	14.655	
08:23:27	-0.014	9.624	151.901	18.688	31.798	
08:23:43	-0.014	9.686	194.270	6.189	38.183	
08:23:58	-0.012	9.711	212.995	1.472	40.335	
08:24:12	-0.014	9.724	218.730	0.227	41.351	
08:24:28	-0.012	9.734	221.821	0.035	42.032	
08:24:42	-0.012	9.756	222.263	-0.015	42.488	
08:24:58	-0.013	9.760	222.737	-0.026	42.803	
08:25:13	-0.014	9.750	222.824	-0.004	43.128	
08:25:27	-0.018	9.765	222.597	-0.047	43.324	
08:25:42	-0.015	9.769	222.874	-0.046	43.473	
08:25:57	-0.016	9.778	222.377	-0.049	43.608	
08:26:13	-0.015	9.785	222.737	-0.011	43.691	
08:26:28	-0.018	9.777	222.727	0.000	43.748	
08:26:43	-0.018	9.794	222.885	0.000	43.836	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 8:53
 Stop time 9:20

REFERENCE METHOD RUN 3

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.011	0.023	0.578	-0.004	-0.001	
C _{ui} Initial upscale	13.816	6.036	222.783	49.196	43.758	
C _{of} Final zero	-0.021	0.055	0.855	-0.015	0.003	
C _{uf} Final upscale	13.799	6.044	222.534	49.096	43.504	
C _{mb} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	7.746	11.154	172.163	5.005	4.173	
C _{gas} Bias adjusted	7.861	11.094	173.809	4.957	4.322	

Clock Time (at end of sample period)

041712 154449						
08:54	8.251	10.696	161.166	7.266	3.852	
08:55	7.562	11.312	163.629	7.562	3.707	
08:56	8.366	10.619	172.769	6.265	3.731	
08:57	8.013	10.923	168.217	6.276	3.274	
08:58	8.458	10.554	166.836	6.176	3.264	
08:59	8.656	10.366	163.199	7.569	3.225	
09:00	8.446	10.533	162.401	7.629	3.182	
09:01	7.422	11.436	166.691	8.014	3.362	
09:02	7.473	11.446	175.836	7.172	3.976	
09:03	7.457	11.449	173.230	7.018	5.738	
09:04	8.315	10.687	175.519	5.885	4.718	
09:05	8.702	10.300	167.961	5.080	3.988	
09:06	7.872	11.028	173.681	5.326	3.776	
09:07	7.575	11.288	178.724	4.044	3.180	
09:08	7.111	11.740	182.385	4.694	3.736	
09:09	8.314	10.687	175.800	3.597	3.741	
09:10	9.135	9.925	161.372	2.411	2.973	
09:11	8.114	10.785	160.214	2.877	2.920	
09:12	6.495	12.184	176.526	3.373	3.908	
09:13	6.148	12.481	188.234	2.786	4.336	
09:14	6.546	12.191	189.105	2.996	4.706	
09:15	8.172	10.810	181.335	2.884	4.677	
09:16	8.133	10.786	166.620	3.452	4.370	
09:17	7.520	11.341	170.240	3.299	4.919	
09:18	7.125	11.732	175.376	3.580	6.053	
09:19	7.348	11.536	173.746	3.520	6.102	
09:20	6.413	12.331	177.589	4.379	7.245	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 9:21
 Stop Time 9:34

CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	-0.021	0.055	0.855	-0.015	0.003	
C _{uf} Upscale gas	13.799	6.044	222.534	49.096	43.504	
Analyzer Calibration Error Responses (C_{Dir})						
C _{oce} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mce} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	-0.1%	0.4%	0.2%	0.0%	0.0%	
Upscale gas	-1.3%	0.0%	-0.7%	-0.2%	-1.9%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	-0.011	0.023	0.578	-0.004	-0.001	
C _{ui} Upscale gas	13.816	6.036	222.783	49.196	43.758	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	0.2%	0.1%	0.0%	0.0%	
Upscale gas	-0.1%	0.1%	-0.1%	-0.1%	-0.3%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154449

09:21:24	6.865	11.624	183.720	3.518	8.615
09:21:39	5.802	10.343	182.076	3.072	9.068
09:21:54	7.946	10.750	178.047	2.960	11.551
09:22:09	8.507	10.518	172.486	2.951	10.138
09:22:24	8.747	10.295	166.219	3.004	8.273
09:22:39	8.762	10.248	160.399	3.010	7.489
09:22:54	10.112	9.405	155.776	3.168	7.041
09:23:09	13.226	6.493	134.074	3.215	6.278
09:23:24	13.748	6.080	78.176	2.354	4.669
09:23:39	13.789	6.053	36.288	1.038	2.842
09:23:54	13.800	6.045	16.964	0.350	1.659
09:24:09	13.808	6.035	8.156	0.161	1.151
09:24:24	13.811	6.032	5.413	0.117	0.764
09:24:39	13.811	6.032	3.948	0.147	0.627
09:24:54	10.942	5.226	3.394	0.103	0.474
09:25:09	1.333	1.018	2.987	5.683	0.279
09:25:24	0.149	0.234	3.004	21.470	0.246
09:25:39	0.060	0.173	2.694	38.473	0.173
09:25:54	0.032	0.144	2.426	46.059	0.197
09:26:09	0.020	0.124	2.304	48.663	0.192
09:26:24	0.008	0.114	2.198	48.974	0.246
09:26:39	0.019	0.108	2.076	48.970	0.222
09:26:54	0.018	0.100	1.978	48.970	0.241
09:27:09	0.011	0.079	1.954	48.990	0.119
09:27:24	-0.008	0.067	1.726	48.967	0.130
09:27:39	0.011	0.051	1.832	49.009	0.103
09:27:54	0.011	0.072	1.522	48.991	0.114
09:28:09	-0.004	0.056	1.473	49.024	0.105
09:28:24	-0.010	0.062	1.481	49.060	0.101
09:28:39	-0.008	0.050	1.335	48.977	0.050
09:28:54	0.007	0.050	1.221	49.006	0.034
09:29:09	-0.010	0.050	0.513	49.035	0.037
09:29:24	-0.010	0.056	1.001	49.035	0.023

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 9:21
 Stop Time 9:34

CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
09:29:39	-0.010	0.061	1.148	49.052	0.067	
09:29:54	-0.031	0.050	0.733	49.060	0.037	
09:30:09	-0.027	0.065	0.822	49.123	-0.041	
09:30:24	-0.005	0.050	1.009	49.104	0.011	
09:30:39	-0.005	0.046	0.407	49.055	-0.008	
09:30:54	0.001	5.037	2.898	48.026	0.181	
09:31:09	-0.012	9.302	40.269	35.396	13.074	
09:31:24	-0.013	9.633	145.738	18.730	31.676	
09:31:39	-0.012	9.697	193.358	6.159	38.204	
09:31:54	-0.012	9.722	211.657	1.581	40.392	
09:32:09	-0.012	9.743	218.657	0.217	41.323	
09:32:24	-0.012	9.753	220.977	0.003	41.897	
09:32:39	-0.012	9.765	221.921	-0.088	42.299	
09:32:54	-0.023	9.775	222.320	-0.137	42.702	
09:33:09	-0.012	9.767	222.523	-0.042	42.973	
09:33:24	-0.012	9.788	222.377	-0.013	43.192	
09:33:39	-0.014	9.781	222.409	-0.021	43.380	
09:33:54	-0.012	9.804	222.507	-0.021	43.521	
09:34:09	-0.016	9.803	222.687	-0.002	43.609	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 9:36
 Stop time 10:03

REFERENCE METHOD RUN 4

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.021	0.055	0.855	-0.015	0.003	
C _{ui} Initial upscale	13.799	6.044	222.534	49.096	43.504	
C _{of} Final zero	-0.004	0.046	0.795	-0.001	0.228	
C _{uf} Final upscale	13.811	6.046	222.665	49.092	43.400	
C _{ms} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{AVG} Average conc.	7.871	11.062	174.755	7.383	9.111	
C _{GAS} Bias adjusted	7.988	11.003	176.460	7.315	9.382	

Clock Time (at end of sample period)

041712 154449						
09:37	7.469	11.352	159.868	11.089	14.508	
09:38	6.925	11.869	175.077	11.141	15.760	
09:39	7.917	11.012	172.540	9.221	11.468	
09:40	8.816	10.258	166.563	10.555	9.502	
09:41	9.073	9.955	160.552	8.814	7.799	
09:42	8.611	10.364	170.765	8.448	7.082	
09:43	7.702	11.226	187.216	8.560	7.106	
09:44	7.357	11.515	197.650	7.820	7.738	
09:45	7.930	11.037	197.179	6.653	7.906	
09:46	7.889	11.065	192.623	7.576	7.797	
09:47	8.482	10.532	187.607	7.304	7.600	
09:48	8.448	10.550	176.044	7.553	7.245	
09:49	7.085	11.719	177.535	7.647	7.718	
09:50	6.799	11.993	181.561	6.167	8.573	
09:51	7.937	11.028	176.374	5.579	8.613	
09:52	8.835	10.177	163.750	5.808	8.302	
09:53	8.372	10.559	161.349	5.739	8.069	
09:54	7.501	11.418	169.642	5.731	8.472	
09:55	6.978	11.841	173.502	6.194	8.766	
09:56	7.961	11.002	175.429	5.831	9.267	
09:57	7.809	11.111	171.424	6.421	9.449	
09:58	7.991	10.941	165.641	6.401	9.652	
09:59	7.763	11.189	168.101	7.556	9.997	
10:00	7.780	11.198	170.342	6.720	9.462	
10:01	7.863	11.115	173.152	5.893	9.407	
10:02	7.850	11.119	169.965	6.429	9.313	
10:03	7.382	11.530	176.945	6.484	9.419	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 10:05
 Stop Time 10:14

CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{oi} Zero gas	-0.004	0.046	0.795	-0.001	0.228	
C _{uj} Upscale gas	13.811	6.046	222.665	49.092	43.400	
Analyzer Calibration Error Responses (C_{dir})						
C _{ocb} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mca} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.4%	0.2%	0.0%	0.3%	
Upscale gas	-1.3%	0.0%	-0.7%	-0.2%	-2.0%	
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	-0.021	0.055	0.855	-0.015	0.003	
C _{uj} Upscale gas	13.799	6.044	222.534	49.096	43.504	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	-0.1%	0.0%	0.0%	0.2%	
Upscale gas	0.1%	0.0%	0.0%	0.0%	-0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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10:05:27	13.490	6.479	160.855	3.741	7.098
10:05:42	13.778	6.085	83.215	1.918	4.168
10:05:57	13.805	6.055	34.562	0.754	2.341
10:06:12	13.807	6.046	16.207	0.122	1.436
10:06:27	13.821	6.038	7.359	0.096	0.944
10:06:42	13.826	6.038	4.957	0.042	0.721
10:06:57	13.827	6.038	3.541	0.109	0.594
10:07:12	9.477	4.695	2.890	0.350	0.482
10:07:27	0.939	0.763	2.564	6.914	0.227
10:07:42	0.125	0.213	2.442	25.666	0.278
10:07:57	0.053	0.164	2.279	39.834	0.195
10:08:12	0.022	0.136	2.109	47.238	0.285
10:08:27	0.019	0.122	2.035	48.855	0.270
10:08:42	0.007	0.106	1.954	49.014	0.238
10:08:57	0.024	0.098	1.571	49.025	0.285
10:09:12	0.000	0.091	1.392	49.032	0.212
10:09:27	0.000	0.068	1.245	49.035	0.189
10:09:42	0.001	0.062	0.920	49.043	0.143
10:09:57	-0.004	0.060	1.229	49.037	0.218
10:10:12	-0.013	0.062	1.083	49.035	0.217
10:10:27	-0.020	0.061	1.107	49.035	0.218
10:10:42	-0.010	0.062	1.107	49.035	0.244
10:10:57	-0.027	0.062	1.026	49.038	0.247
10:11:12	-0.014	0.060	0.879	49.063	0.220
10:11:27	-0.005	0.052	1.107	49.066	0.244
10:11:42	0.000	0.056	1.001	49.065	0.195
10:11:57	-0.002	0.035	0.635	49.048	0.244
10:12:12	-0.009	0.048	0.749	49.162	0.244
10:12:27	0.013	1.237	1.628	48.962	0.246
10:12:42	-0.011	8.257	4.119	43.591	6.466
10:12:57	-0.012	9.573	107.481	27.300	28.265
10:13:12	-0.012	9.689	174.961	10.032	38.069
10:13:27	-0.012	9.721	208.808	2.956	40.827

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 10:05
 Stop Time 10:14

CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
10:13:42	-0.012	9.741	216.402	0.394	41.905	
10:13:57	-0.012	9.759	220.220	0.039	42.437	
10:14:12	-0.015	9.763	222.059	-0.031	42.849	
10:14:27	-0.014	9.774	222.573	0.000	43.129	
10:14:42	-0.016	9.784	222.646	-0.003	43.430	
10:14:57	-0.018	9.791	222.776	0.000	43.640	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 10:16
 Stop time 10:43

REFERENCE METHOD RUN 5

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.004	0.046	0.795	-0.001	0.228	
C _{ui} Initial upscale	13.811	6.046	222.665	49.092	43.400	
C _{of} Final zero	0.001	0.062	0.806	-0.010	0.220	
C _{uf} Final upscale	13.827	6.032	222.222	48.983	43.667	
C _{me} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	7.805	11.171	166.840	4.646	8.767	
C _{Gas} Bias adjusted	7.907	11.127	168.554	4.609	8.916	

Clock Time (at end of sample period)

041712 154449	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
10:17	7.330	11.557	177.063	5.176	10.325	
10:18	7.479	11.448	169.273	5.323	9.169	
10:19	7.190	11.732	167.786	5.348	10.456	
10:20	8.517	10.534	167.664	4.454	11.052	
10:21	8.185	10.807	165.647	5.018	9.975	
10:22	7.922	11.037	167.456	4.642	8.332	
10:23	7.723	11.269	167.021	5.082	7.473	
10:24	6.863	11.960	166.400	5.085	6.720	
10:25	7.362	11.595	170.745	3.993	7.002	
10:26	8.228	10.767	171.760	3.940	7.094	
10:27	7.364	11.550	171.591	4.728	7.505	
10:28	8.309	10.717	172.021	3.817	7.516	
10:29	8.232	10.757	166.632	4.178	7.015	
10:30	7.602	11.321	164.583	4.221	6.523	
10:31	7.691	11.300	166.235	4.123	7.225	
10:32	7.662	11.350	163.354	4.285	8.237	
10:33	7.439	11.500	158.925	4.729	10.062	
10:34	7.905	11.134	157.808	4.722	11.124	
10:35	7.601	11.365	159.070	5.936	11.350	
10:36	8.290	10.760	163.122	5.074	11.585	
10:37	8.204	10.817	159.680	5.005	10.371	
10:38	8.064	10.950	163.463	4.705	9.801	
10:39	7.538	11.448	167.880	5.256	8.482	
10:40	7.514	11.446	169.501	5.495	8.838	
10:41	8.405	10.635	166.819	4.110	8.364	
10:42	7.684	11.259	171.392	3.918	7.782	
10:43	8.423	10.602	171.774	3.075	7.335	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 10:46
 Stop Time 10:55

CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{oi} Zero gas	0.001	0.062	0.806	-0.010	0.220	
C _{ui} Upscale gas	13.827	6.032	222.222	48.983	43.667	
Analyzer Calibration Error Responses (C_{dir})						
C _{oae} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mce} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.1%	0.5%	0.2%	0.0%	0.3%	
Upscale gas	-1.1%	-0.1%	-0.8%	-0.3%	-1.7%	
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	-0.004	0.046	0.795	-0.001	0.228	
C _{ui} Upscale gas	13.811	6.046	222.665	49.092	43.400	
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%	0.3%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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10:46:34	13.828	6.032	3.142	0.100	0.695
10:46:49	13.827	6.032	2.653	0.125	0.547
10:47:04	13.827	6.032	2.344	0.150	0.464
10:47:19	13.827	6.032	2.149	0.122	0.428
10:47:34	13.832	6.032	1.987	0.077	0.366
10:47:49	13.834	6.030	1.881	0.020	0.236
10:48:04	13.707	6.017	1.539	0.106	0.229
10:48:19	4.750	2.784	1.587	1.802	0.184
10:48:34	0.360	0.392	1.547	13.758	0.085
10:48:49	0.098	0.171	1.832	32.651	0.241
10:49:04	0.035	0.148	1.278	44.106	0.168
10:49:19	0.036	0.127	1.009	48.117	0.171
10:49:34	0.027	0.115	1.115	48.962	0.218
10:49:49	0.020	0.105	0.969	48.962	0.140
10:50:04	0.016	0.095	1.197	48.960	0.166
10:50:19	0.004	0.082	1.001	48.962	0.182
10:50:34	0.007	0.077	1.026	48.956	0.155
10:50:49	-0.006	0.073	0.659	49.022	0.233
10:51:04	0.002	0.056	0.896	48.974	0.202
10:51:19	0.007	0.057	0.863	48.952	0.226
10:51:34	0.006	0.053	0.863	48.956	0.200
10:51:49	-0.018	0.044	0.586	48.991	0.153
10:52:04	0.004	0.042	0.513	48.949	0.189
10:52:19	0.002	0.070	0.513	49.027	0.192
10:52:34	-0.004	5.273	3.972	47.696	0.706
10:52:49	-0.007	9.351	44.501	34.658	16.467
10:53:04	-0.010	9.655	150.940	16.775	34.475
10:53:19	-0.012	9.714	195.751	5.265	39.844
10:53:34	-0.012	9.740	212.210	1.061	41.374
10:53:49	-0.012	9.761	218.486	0.122	42.105
10:54:04	-0.012	9.769	220.562	-0.065	42.603
10:54:19	-0.012	9.776	221.539	-0.059	42.956
10:54:34	-0.012	9.799	221.962	-0.013	43.282

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 2

March 26, 2012
Start Time 10:46
Stop Time 10:55

CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
10:54:49	-0.014	9.797	222.222	-0.003	43.502	
10:55:04	-0.017	9.815	222.222	0.000	43.705	
10:55:19	-0.018	9.806	222.222	-0.026	43.795	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 10:57
 Stop time 11:24

REFERENCE METHOD RUN 6

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.001	0.062	0.806	-0.010	0.220	
C _{ul} Initial upscale	13.827	6.032	222.222	48.983	43.667	
C _{of} Final zero	-0.007	0.061	0.909	-0.020	0.202	
C _{uf} Final upscale	13.812	6.044	222.363	49.062	43.475	
C _{ma} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	8.118	10.850	169.970	5.408	10.946	
C _{Gas} Bias adjusted	8.225	10.813	171.835	5.375	11.190	

Clock Time (at end of sample period)

041712 154449						
10:58	7.492	11.385	183.722	5.383	8.925	
10:59	7.378	11.541	183.184	5.677	9.532	
11:00	8.142	10.833	184.847	4.884	9.770	
11:01	8.352	10.652	176.644	6.088	9.846	
11:02	8.612	10.387	170.588	5.403	10.122	
11:03	8.097	10.861	176.549	6.534	10.489	
11:04	7.711	11.272	176.713	5.614	9.949	
11:05	7.413	11.463	179.440	4.880	9.414	
11:06	7.864	11.125	177.765	4.901	9.575	
11:07	8.299	10.692	169.882	4.243	9.898	
11:08	8.369	10.633	166.176	4.206	10.552	
11:09	7.727	11.199	168.687	4.319	11.558	
11:10	7.503	11.414	169.782	4.061	12.335	
11:11	7.862	11.091	162.100	4.739	13.505	
11:12	8.710	10.284	155.454	4.713	12.197	
11:13	8.902	10.156	152.273	6.551	11.740	
11:14	8.406	10.582	150.672	7.023	11.408	
11:15	7.547	11.402	160.458	7.269	12.012	
11:16	7.617	11.324	167.949	5.362	11.232	
11:17	8.302	10.700	171.905	5.157	11.165	
11:18	8.744	10.282	167.521	5.818	11.221	
11:19	8.924	10.103	161.253	5.595	11.262	
11:20	8.294	10.662	163.364	5.700	11.895	
11:21	7.957	10.990	172.574	5.502	11.070	
11:22	7.915	11.007	173.063	5.624	11.192	
11:23	8.584	10.415	176.825	5.008	10.643	
11:24	8.457	10.501	169.798	5.778	13.023	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 11:25

Stop Time 11:34

CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	-0.007	0.061	0.909	-0.020	0.202	
C _{uf} Upscale gas	13.812	6.044	222.363	49.062	43.475	
Analyzer Calibration Error Responses (C_{Dir})						
C _{ocb} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mca} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.5%	0.2%	0.0%	0.2%	
Upscale gas	-1.3%	0.0%	-0.8%	-0.3%	-1.9%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	0.001	0.062	0.806	-0.010	0.220	
C _{ui} Upscale gas	13.827	6.032	222.222	48.983	43.667	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	0.0%	0.0%	0.0%	0.0%	
Upscale gas	-0.1%	0.1%	0.0%	0.1%	-0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154449

11:25:51	13.346	6.267	145.470	3.468	14.219
11:26:06	13.762	6.060	72.650	1.721	7.726
11:26:21	13.803	6.055	34.082	0.449	3.730
11:26:36	13.814	6.040	14.677	0.128	2.152
11:26:51	13.821	6.038	7.904	0.062	1.410
11:27:06	13.826	6.038	4.689	0.018	1.019
11:27:21	13.831	6.037	3.337	0.108	0.793
11:27:36	13.726	6.025	2.963	0.059	0.676
11:27:51	4.920	2.875	2.466	1.781	0.487
11:28:06	0.350	0.402	2.832	12.902	0.373
11:28:21	0.086	0.187	2.507	33.727	0.386
11:28:36	0.053	0.153	2.296	44.091	0.401
11:28:51	0.026	0.133	2.125	48.456	0.404
11:29:06	0.007	0.117	1.962	49.032	0.412
11:29:21	-0.003	0.107	1.832	49.047	0.417
11:29:36	0.012	0.097	1.009	49.045	0.412
11:29:51	0.003	0.091	1.473	49.055	0.389
11:30:06	0.001	0.082	1.099	49.058	0.291
11:30:21	-0.002	0.074	0.643	49.060	0.184
11:30:36	-0.015	0.062	1.123	49.060	0.231
11:30:51	0.000	0.062	1.278	49.080	0.202
11:31:06	0.002	0.057	0.993	49.076	0.226
11:31:21	-0.004	0.057	0.855	49.062	0.179
11:31:36	-0.011	0.059	0.887	49.062	0.202
11:31:51	-0.005	0.066	0.985	49.062	0.225
11:32:06	-0.007	0.745	1.278	49.060	0.181
11:32:21	-0.003	7.792	2.784	44.542	3.642
11:32:36	-0.012	9.545	94.156	29.399	25.416
11:32:51	-0.012	9.688	170.248	10.844	37.478
11:33:06	-0.012	9.723	205.877	3.364	40.816
11:33:21	-0.012	9.744	215.466	0.448	42.006
11:33:36	-0.012	9.756	219.870	0.042	42.719
11:33:51	-0.013	9.754	221.612	-0.033	43.026

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 11:25

Stop Time 11:34

CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
11:34:06	-0.014	9.784	222.198	-0.024	43.275	
11:34:21	-0.017	9.791	222.320	-0.010	43.486	
11:34:36	-0.018	9.798	222.572	-0.026	43.663	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 11:37
 Stop time 12:04

REFERENCE METHOD RUN 7

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.007	0.061	0.909	-0.020	0.202	
C _{ui} Initial upscale	13.812	6.044	222.363	49.062	43.475	
C _{of} Final zero	-0.015	0.065	0.521	-0.065	0.531	
C _{uf} Final upscale	13.808	6.041	222.339	49.137	44.053	
C _{ms} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	8.085	10.837	162.198	3.958	10.964	
C _{Gas} Bias adjusted	8.200	10.792	163.934	3.956	11.038	

Clock Time (at end of sample period)

041712 154449						
11:38	7.440	11.397	160.423	3.397	10.646	
11:39	7.972	10.896	160.399	3.555	10.842	
11:40	8.267	10.642	159.569	3.937	10.411	
11:41	8.269	10.629	164.656	4.159	9.309	
11:42	7.926	10.946	158.814	4.453	9.209	
11:43	7.423	11.443	159.632	4.082	10.505	
11:44	7.928	10.966	159.165	3.656	11.237	
11:45	8.444	10.515	158.807	3.847	11.228	
11:46	8.301	10.635	156.022	4.155	10.746	
11:47	8.131	10.791	155.623	4.186	12.068	
11:48	7.585	11.333	153.272	4.308	13.411	
11:49	7.825	11.113	151.351	4.607	15.646	
11:50	8.595	10.462	157.092	4.496	14.697	
11:51	9.019	10.051	160.527	3.960	11.417	
11:52	8.564	10.441	159.642	4.269	9.801	
11:53	7.939	11.007	164.453	4.660	10.103	
11:54	7.671	11.268	172.733	4.360	11.169	
11:55	7.694	11.233	174.990	4.395	11.466	
11:56	8.353	10.592	175.238	4.500	11.349	
11:57	8.290	10.661	169.800	5.210	10.729	
11:58	8.288	10.613	167.847	4.391	9.456	
11:59	7.650	11.179	168.339	3.114	9.359	
12:00	7.702	11.166	167.442	2.498	9.266	
12:01	8.074	10.830	163.606	2.783	9.511	
12:02	8.010	10.853	161.056	3.398	10.041	
12:03	8.414	10.511	159.306	3.108	11.051	
12:04	8.518	10.422	159.542	3.381	11.344	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 12:05
 Stop Time 12:14

CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{of} Zero gas	-0.015	0.065	0.521	-0.065	0.531	
C _{uf} Upscale gas	13.808	6.041	222.339	49.137	44.053	
Analyzer Calibration Error Responses (C_{Dir})						
C _{ocb} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mcb} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.5%	0.1%	0.0%	0.6%	
Upscale gas	-1.3%	0.0%	-0.8%	-0.2%	-1.3%	
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	-0.007	0.061	0.909	-0.020	0.202	
C _{ui} Upscale gas	13.812	6.044	222.363	49.062	43.475	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-0.1%	0.0%	-0.1%	0.0%	0.4%	
Upscale gas	0.0%	0.0%	0.0%	0.1%	0.6%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154449

12:05:09	12.637	7.269	145.373	3.598	12.081
12:05:24	13.696	6.169	99.235	2.608	7.649
12:05:39	13.785	6.065	47.489	1.216	4.000
12:05:54	13.801	6.049	20.480	0.386	2.290
12:06:09	13.806	6.044	9.084	0.176	1.517
12:06:24	13.812	6.044	5.209	0.148	1.122
12:06:39	13.807	6.037	3.525	0.093	0.905
12:06:54	13.814	6.030	2.881	0.098	0.827
12:07:09	13.818	6.028	2.393	0.103	0.783
12:07:24	13.822	6.021	2.206	0.104	0.695
12:07:39	13.822	6.020	2.068	0.093	0.641
12:07:54	11.424	5.392	1.938	0.067	0.619
12:08:09	1.611	1.156	1.897	5.542	0.433
12:08:24	0.171	0.259	1.392	21.088	0.464
12:08:39	0.054	0.169	1.481	38.212	0.506
12:08:54	0.043	0.139	1.042	46.144	0.524
12:09:09	0.010	0.124	1.359	48.783	0.557
12:09:24	0.002	0.114	1.489	49.071	0.539
12:09:39	0.017	0.105	1.237	49.074	0.511
12:09:54	0.013	0.097	0.773	49.078	0.539
12:10:09	0.006	0.081	0.985	49.082	0.559
12:10:24	0.001	0.074	1.335	49.084	0.552
12:10:39	-0.007	0.063	1.001	49.082	0.537
12:10:54	-0.005	0.072	0.985	49.094	0.510
12:11:09	-0.015	0.066	0.993	49.091	0.537
12:11:24	-0.022	0.066	0.749	49.107	0.539
12:11:39	0.000	0.047	0.977	49.125	0.537
12:11:54	-0.024	0.067	0.407	49.159	0.531
12:12:09	-0.009	0.068	0.635	49.158	0.535
12:12:24	-0.012	0.060	0.521	49.094	0.526
12:12:39	0.015	3.223	0.578	48.380	0.882
12:12:54	-0.010	9.014	48.180	40.125	16.379
12:13:09	-0.033	9.632	123.980	21.345	34.904

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 12:05

Stop Time 12:14

CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
12:13:24	-0.012	9.706	187.676	8.506	40.496	
12:13:39	-0.014	9.731	210.216	2.085	42.339	
12:13:54	-0.012	9.751	217.827	0.295	43.114	
12:14:09	-0.017	9.753	221.042	0.033	43.572	
12:14:24	-0.018	9.777	222.100	-0.002	43.822	
12:14:39	-0.018	9.767	222.458	-0.106	44.052	
12:14:54	-0.018	9.766	222.459	-0.088	44.283	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 12:18
 Stop time 12:45

REFERENCE METHOD RUN 8

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.015	0.065	0.521	-0.065	0.531	
C _{ui} Initial upscale	13.808	6.041	222.339	49.137	44.053	
C _{of} Final zero	0.001	0.058	0.643	-0.023	0.681	
C _{uf} Final upscale	13.819	6.046	222.239	49.319	44.391	
C _{ms} Actual gas value	14.000	5.990	225.000	48.800	45.200	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	7.812	11.068	172.974	4.396	9.418	
C _{gas} Bias adjusted	7.920	11.021	174.952	4.379	9.133	

Clock Time (at end of sample period)

041712 154449						
12:19	7.756	11.067	175.073	4.057	7.050	
12:20	7.302	11.484	169.160	4.148	6.959	
12:21	7.740	11.113	169.017	4.444	6.819	
12:22	8.010	10.885	168.993	5.049	7.030	
12:23	8.114	10.770	165.118	4.780	7.286	
12:24	7.458	11.344	169.642	4.975	8.027	
12:25	7.730	11.179	169.267	4.376	9.849	
12:26	7.910	10.993	165.979	4.692	10.665	
12:27	8.083	10.843	165.201	4.796	10.821	
12:28	7.726	11.166	161.766	4.991	10.738	
12:29	7.467	11.421	163.313	5.211	11.110	
12:30	7.411	11.437	164.630	5.100	13.314	
12:31	7.864	11.063	168.445	4.943	10.764	
12:32	7.662	11.272	172.271	5.386	9.367	
12:33	8.063	10.876	172.006	4.874	9.452	
12:34	7.974	10.970	174.888	4.603	9.874	
12:35	7.648	11.225	175.452	4.675	9.948	
12:36	8.233	10.683	172.635	4.355	9.734	
12:37	7.604	11.293	175.932	4.548	9.529	
12:38	7.966	10.927	179.446	4.182	9.525	
12:39	8.037	10.866	180.252	4.354	9.707	
12:40	7.721	11.184	182.092	3.825	9.900	
12:41	7.480	11.356	178.431	3.742	10.158	
12:42	7.934	10.921	181.392	3.120	9.937	
12:43	7.851	11.019	187.072	3.603	9.387	
12:44	8.125	10.726	186.449	2.932	8.668	
12:45	8.058	10.749	176.364	2.918	8.676	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 12:47

Stop Time 12:56

CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{oi} Zero gas	0.001	0.058	0.643	-0.023	0.681	
C _{ui} Upscale gas	13.819	6.046	222.239	49.319	44.391	
Analyzer Calibration Error Responses (C_{Di})						
C _{ocb} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mcb} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.1%	0.5%	0.0%	0.0%	0.8%	
Upscale gas	-1.2%	0.0%	-0.8%	0.0%	-0.9%	
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	-0.015	0.065	0.521	-0.065	0.531	
C _{ui} Upscale gas	13.808	6.041	222.339	49.137	44.053	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	-0.1%	0.0%	0.0%	0.2%	
Upscale gas	0.1%	0.0%	0.0%	0.2%	0.4%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154449

12:47:19	13.779	6.092	73.838	1.367	4.409
12:47:34	13.806	6.059	32.218	0.376	2.598
12:47:49	13.813	6.047	13.528	0.094	1.768
12:48:04	13.820	6.045	7.244	0.091	1.402
12:48:19	13.824	6.046	3.981	0.073	1.162
12:48:34	13.804	6.042	3.069	0.122	0.930
12:48:49	5.663	3.186	2.442	1.781	0.816
12:49:04	0.367	0.415	2.426	14.284	0.725
12:49:19	0.084	0.184	2.255	35.547	0.765
12:49:34	0.042	0.157	2.035	45.789	0.755
12:49:49	0.044	0.135	1.433	48.969	0.750
12:50:04	0.025	0.121	1.343	49.141	0.775
12:50:19	0.008	0.111	1.131	49.203	0.760
12:50:34	0.014	0.105	1.457	49.229	0.762
12:50:49	0.016	0.098	1.465	49.229	0.728
12:51:04	-0.003	0.084	1.213	49.244	0.746
12:51:19	0.006	0.066	0.838	49.233	0.710
12:51:34	0.011	0.062	0.806	49.275	0.676
12:51:49	0.008	0.067	0.985	49.232	0.679
12:52:04	0.001	0.056	0.757	49.254	0.682
12:52:19	0.000	0.057	0.529	49.302	0.692
12:52:34	0.004	0.056	0.651	49.294	0.679
12:52:49	-0.001	0.062	0.749	49.359	0.671
12:53:04	0.007	0.062	0.749	49.340	0.681
12:53:19	-0.015	0.050	0.521	49.338	0.681
12:53:34	0.001	0.056	0.953	49.358	0.684
12:53:49	0.003	1.477	0.692	49.273	0.728
12:54:04	-0.005	8.540	15.059	43.302	11.468
12:54:19	-0.009	9.614	111.518	22.683	33.262
12:54:34	-0.011	9.706	172.991	7.853	40.505
12:54:49	-0.012	9.735	207.244	1.446	42.556
12:55:04	-0.012	9.753	216.590	0.177	43.375
12:55:19	-0.012	9.761	220.024	0.011	43.809

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 2

March 26, 2012
Start Time 12:47
Stop Time 12:56

CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
12:55:34	-0.012	9.776	221.783	-0.015	44.191	
12:55:49	-0.013	9.782	222.393	-0.054	44.420	
12:56:04	-0.014	9.801	222.540	0.000	44.563	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 12:59
 Stop time 13:26

REFERENCE METHOD RUN 9

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{Oi} Initial zero	0.001	0.058	0.643	-0.023	0.681	
C _{ui} Initial upscale	13.819	6.046	222.239	49.319	44.391	
C _{of} Final zero	-0.005	0.071	0.635	-0.027	0.694	
C _{uf} Final upscale	13.808	6.041	222.415	49.229	44.591	
C _{mb} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{AVG} Average conc.	8.026	10.866	175.950	4.202	10.228	
C _{GAS} Bias adjusted	8.135	10.822	177.930	4.167	9.845	

Clock Time (at end of sample period)

041712 154449						
13:00	7.931	10.923	174.850	4.775	13.010	
13:01	8.159	10.732	171.538	4.608	11.805	
13:02	8.347	10.582	171.844	4.001	11.029	
13:03	8.375	10.564	174.707	3.960	10.648	
13:04	8.252	10.660	177.298	4.235	10.696	
13:05	6.535	12.151	179.866	4.769	12.138	
13:06	7.795	11.157	189.282	3.388	12.485	
13:07	9.474	9.665	189.511	3.059	11.484	
13:08	9.349	9.741	182.456	3.751	10.746	
13:09	8.614	10.323	177.719	4.221	10.013	
13:10	7.458	11.364	179.029	4.990	10.127	
13:11	6.557	12.141	184.090	4.862	10.360	
13:12	7.758	11.140	180.413	3.593	10.360	
13:13	8.669	10.267	181.872	3.301	10.010	
13:14	8.807	10.184	180.010	4.112	9.612	
13:15	8.599	10.339	173.832	4.463	8.612	
13:16	8.004	10.856	171.402	4.004	8.466	
13:17	6.751	11.961	171.488	3.778	9.582	
13:18	7.697	11.189	171.728	3.160	9.918	
13:19	8.040	10.849	174.056	4.232	9.797	
13:20	8.635	10.303	179.902	3.995	9.418	
13:21	8.269	10.624	173.645	4.479	9.109	
13:22	7.776	11.053	165.503	3.824	9.181	
13:23	7.347	11.494	163.889	3.735	9.384	
13:24	7.695	11.187	171.286	4.212	9.505	
13:25	8.065	10.836	171.490	5.918	9.328	
13:26	7.737	11.096	167.935	6.030	9.346	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012

Start Time 13:28
 Stop Time 13:36

CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	-0.005	0.071	0.635	-0.027	0.694	
C _{uf} Upscale gas	13.808	6.041	222.415	49.229	44.591	
Analyzer Calibration Error Responses (C_{dir})						
C _{occa} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mca} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{MA} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.6%	0.1%	0.0%	0.8%	
Upscale gas	-1.3%	0.0%	-0.7%	-0.1%	-0.7%	
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	0.001	0.058	0.643	-0.023	0.681	
C _{ul} Upscale gas	13.819	6.046	222.239	49.319	44.391	
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%	0.0%	-0.1%	0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 13:449

13:28:36	13.798	6.046	18.030	0.250	1.932
13:28:51	13.803	6.044	8.620	0.101	1.387
13:29:06	13.810	6.042	4.160	0.106	1.133
13:29:21	13.812	6.036	3.150	0.106	0.908
13:29:36	13.816	6.031	2.401	0.063	0.842
13:29:51	13.557	6.001	2.125	0.127	0.806
13:30:06	3.824	2.354	1.734	2.409	0.676
13:30:21	0.277	0.339	1.025	19.025	0.633
13:30:36	0.072	0.174	0.993	35.722	0.712
13:30:51	0.040	0.141	1.359	46.756	0.736
13:31:06	0.016	0.126	0.790	48.887	0.746
13:31:21	0.009	0.113	1.009	49.133	0.738
13:31:36	0.013	0.102	0.847	49.184	0.739
13:31:51	0.002	0.094	0.969	49.195	0.723
13:32:06	0.006	0.082	0.887	49.231	0.708
13:32:21	0.012	0.073	0.643	49.206	0.689
13:32:36	0.001	0.056	1.099	49.195	0.666
13:32:51	-0.011	0.064	0.798	49.203	0.671
13:33:06	-0.001	0.063	0.863	49.250	0.689
13:33:21	-0.018	0.073	0.521	49.247	0.691
13:33:36	0.004	0.078	0.521	49.190	0.702
13:33:51	0.016	5.556	8.034	47.191	3.355
13:34:06	-0.009	9.400	45.022	33.662	26.422
13:34:21	-0.012	9.681	146.056	13.433	39.140
13:34:36	-0.012	9.727	196.703	4.544	42.473
13:34:51	-0.012	9.748	212.992	0.568	43.552
13:35:06	-0.013	9.757	218.877	0.067	44.037
13:35:21	-0.013	9.756	221.221	-0.020	44.338
13:35:36	-0.014	9.770	222.149	-0.020	44.483
13:35:51	-0.014	9.777	222.499	-0.067	44.583
13:36:06	-0.016	9.778	222.597	0.005	44.707

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 13:38
 Stop time 14:05

REFERENCE METHOD RUN 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.005	0.071	0.635	-0.027	0.694	
C _{uf} Initial upscale	13.808	6.041	222.415	49.229	44.591	
C _{of} Final zero	-0.004	0.063	0.643	-0.040	0.754	
C _{uf} Final upscale	13.806	6.037	222.236	49.221	44.659	
C _{ms} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	7.815	11.085	170.032	5.431	11.148	
C _{G88} Bias adjusted	7.926	11.052	171.925	5.392	10.733	

Clock Time (at end of sample period)

Clock Time	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
13:39	7.085	11.614	166.996	5.877	11.954	
13:40	7.456	11.399	170.918	6.103	13.371	
13:41	7.885	10.995	168.978	5.643	15.323	
13:42	8.584	10.337	163.056	5.544	11.443	
13:43	8.176	10.705	165.210	5.679	9.304	
13:44	7.623	11.268	172.542	5.151	8.755	
13:45	7.610	11.280	176.127	4.714	9.093	
13:46	7.668	11.238	179.752	4.779	9.948	
13:47	7.417	11.432	180.584	4.841	10.401	
13:48	8.422	10.579	176.518	5.928	11.728	
13:49	8.726	10.237	167.259	5.225	11.351	
13:50	7.835	11.043	165.838	5.004	10.882	
13:51	7.127	11.710	167.666	5.983	11.259	
13:52	7.451	11.433	170.861	5.781	10.620	
13:53	7.591	11.294	171.461	5.328	9.801	
13:54	7.543	11.349	171.866	4.833	9.905	
13:55	7.554	11.350	169.402	5.089	10.221	
13:56	8.369	10.622	171.268	4.826	10.495	
13:57	8.117	10.846	170.116	5.597	10.173	
13:58	7.644	11.289	169.459	5.369	9.820	
13:59	7.215	11.612	169.459	4.743	10.120	
14:00	7.606	11.282	172.772	4.467	11.473	
14:01	8.095	10.838	172.243	4.681	12.238	
14:02	8.447	10.510	166.742	6.374	12.508	
14:03	8.377	10.579	160.786	6.888	12.809	
14:04	7.701	11.213	162.438	6.435	13.009	
14:05	7.671	11.243	170.545	5.758	12.994	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 14:06
 Stop Time 14:14

CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{of} Zero gas	-0.004	0.063	0.643	-0.040	0.754	
C _{uf} Upscale gas	13.806	6.037	222.236	49.221	44.659	
Analyzer Calibration Error Responses (C_{di})						
C _{oce} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mca} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.5%	0.1%	0.0%	0.8%	
Upscale gas	-1.3%	-0.1%	-0.8%	-0.1%	-0.6%	
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	-0.005	0.071	0.635	-0.027	0.694	
C _{ui} Upscale gas	13.808	6.041	222.415	49.229	44.591	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	-0.1%	0.0%	0.0%	0.1%	
Upscale gas	0.0%	0.0%	0.0%	0.0%	0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 151449

14:06:45	13.749	6.052	78.226	1.654	6.701
14:07:00	13.786	6.046	35.482	0.452	3.337
14:07:15	13.796	6.044	15.100	0.177	2.188
14:07:30	13.800	6.043	7.179	0.112	1.626
14:07:45	13.808	6.039	3.850	0.132	1.322
14:08:00	13.811	6.029	2.784	0.132	1.143
14:08:15	10.735	5.170	2.182	0.120	0.982
14:08:30	1.198	0.924	1.987	6.935	0.764
14:08:45	0.138	0.237	2.117	24.806	0.765
14:09:00	0.047	0.163	1.661	41.719	0.777
14:09:15	0.034	0.134	0.895	47.688	0.775
14:09:30	0.023	0.118	1.465	49.044	0.778
14:09:45	0.018	0.109	0.969	49.140	0.779
14:10:00	0.001	0.102	0.497	49.189	0.752
14:10:15	-0.008	0.095	0.757	49.218	0.754
14:10:30	0.000	0.075	0.643	49.183	0.757
14:10:45	-0.008	0.062	0.537	49.258	0.765
14:11:00	-0.005	0.052	0.749	49.223	0.741
14:11:15	-0.007	0.067	0.839	49.203	0.726
14:11:30	0.001	0.150	0.399	49.312	0.729
14:11:45	-0.003	6.546	10.655	47.233	4.977
14:12:00	-0.006	9.473	79.634	30.887	28.572
14:12:15	-0.008	9.689	152.861	13.592	39.528
14:12:30	-0.009	9.729	200.700	3.465	42.287
14:12:45	-0.012	9.750	213.992	0.474	43.258
14:13:00	-0.012	9.769	219.138	0.037	43.712
14:13:15	-0.012	9.769	220.936	-0.023	44.084
14:13:30	-0.012	9.773	221.677	-0.055	44.267
14:13:45	-0.020	9.782	221.937	-0.021	44.436
14:14:00	-0.016	9.799	222.149	-0.080	44.534
14:14:15	-0.012	9.790	222.222	-0.042	44.667
14:14:30	-0.012	9.799	222.336	0.002	44.776

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 14:17
 Stop time 14:44

REFERENCE METHOD RUN 11

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	-0.004	0.063	0.643	-0.040	0.754	
C _{ui} Initial upscale	13.806	6.037	222.236	49.221	44.659	
C _{of} Final zero	-0.003	0.059	0.480	-0.034	0.645	
C _{uf} Final upscale	13.802	6.031	221.707	49.228	44.462	
C _{ma} Actual gas value	14.000	5.990	225.000	48.600	45.200	
Analyzer Averages (concentrations)						
C _{AVG} Average conc.	7.787	11.129	174.439	5.299	10.581	
C _{GBS} Bias adjusted	7.899	11.100	176.697	5.264	10.184	

Clock Time (at end of sample period)

041712 154449						
14:18	7.653	11.230	164.239	4.860	10.669	
14:19	7.863	11.112	162.485	5.510	10.192	
14:20	8.752	10.271	156.137	4.684	10.256	
14:21	8.524	10.468	157.063	4.983	10.113	
14:22	7.917	11.020	162.807	4.911	9.749	
14:23	7.152	11.727	172.127	5.691	9.641	
14:24	7.249	11.669	175.594	5.371	9.473	
14:25	7.831	11.146	176.101	5.076	9.562	
14:26	8.028	11.001	177.098	5.619	10.682	
14:27	8.540	10.515	170.268	6.039	10.273	
14:28	8.452	10.558	168.091	6.352	9.651	
14:29	7.477	11.451	174.141	6.926	10.341	
14:30	6.744	12.023	188.706	5.573	11.828	
14:31	7.850	11.126	198.215	4.967	12.142	
14:32	8.275	10.684	188.767	5.646	11.277	
14:33	8.486	10.493	184.158	5.509	10.994	
14:34	7.384	11.469	183.647	5.188	11.097	
14:35	7.029	11.759	184.174	4.747	11.056	
14:36	7.333	11.509	172.674	5.181	10.799	
14:37	7.868	11.026	174.176	5.024	11.256	
14:38	8.326	10.563	176.304	4.659	10.422	
14:39	7.862	10.982	173.860	4.188	9.494	
14:40	7.401	11.440	169.113	5.121	9.556	
14:41	7.157	11.649	170.541	5.352	10.034	
14:42	7.559	11.302	176.465	4.627	11.222	
14:43	7.592	11.305	174.815	5.098	11.672	
14:44	7.934	10.998	178.085	6.168	12.246	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 14:45
 Stop Time 14:54

CALIBRATION BIAS 11

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	-0.003	0.059	0.480	-0.034	0.645	
C _{uf} Upscale gas	13.802	6.031	221.707	49.228	44.462	
Analyzer Calibration Error Responses (C_{Dir})						
C _{oc} Zero gas	-0.009	-0.007	0.000	-0.036	-0.008	
C _{mce} Upscale gas	13.988	6.045	225.744	49.315	45.199	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	225.000	48.600	45.200	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.0%	0.5%	0.1%	0.0%	0.7%	
Upscale gas	-1.3%	-0.1%	-0.9%	-0.1%	-0.8%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (C_s)						
C _{oi} Zero gas	-0.004	0.063	0.643	-0.040	0.754	
C _{uf} Upscale gas	13.806	6.037	222.236	49.221	44.659	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	0.0%	0.0%	-0.1%	
Upscale gas	0.0%	0.0%	-0.1%	0.0%	-0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154449

14:45:52	8.163	11.016	177.216	6.255	10.919
14:46:07	12.437	7.567	167.343	5.778	9.638
14:46:22	13.681	6.178	121.433	3.648	5.988
14:46:37	13.766	6.050	58.291	1.382	3.197
14:46:52	13.790	6.042	25.234	0.402	1.950
14:47:07	13.798	6.038	9.890	0.137	1.478
14:47:22	13.801	6.038	5.120	0.075	1.214
14:47:37	13.807	6.032	3.297	0.161	0.975
14:47:52	13.799	6.023	2.401	0.099	0.799
14:48:07	6.000	3.328	1.946	1.330	0.711
14:48:22	0.408	0.420	1.962	13.652	0.550
14:48:37	0.074	0.177	1.783	32.840	0.668
14:48:52	0.034	0.149	1.514	45.026	0.726
14:49:07	0.036	0.129	1.123	48.664	0.733
14:49:22	0.019	0.114	1.123	49.091	0.741
14:49:37	0.018	0.106	0.659	49.125	0.736
14:49:52	0.013	0.097	0.643	49.114	0.712
14:50:07	0.009	0.092	0.382	49.148	0.659
14:50:22	0.012	0.079	0.863	49.226	0.657
14:50:37	-0.002	0.062	0.407	49.234	0.661
14:50:52	0.001	0.073	0.635	49.247	0.635
14:51:07	-0.009	0.042	0.399	49.201	0.638
14:51:22	-0.004	0.060	0.741	49.242	0.654
14:51:37	-0.011	0.053	0.627	49.315	0.659
14:51:52	0.006	0.117	0.627	49.278	0.635
14:52:07	-0.003	6.347	12.837	46.914	4.498
14:52:22	-0.006	9.466	62.238	31.543	27.704
14:52:37	-0.010	9.679	151.412	13.410	38.854
14:52:52	-0.010	9.719	197.395	3.334	41.838
14:53:07	-0.011	9.741	214.245	0.610	42.781
14:53:22	-0.011	9.756	218.185	0.036	43.484
14:53:37	-0.012	9.764	220.627	-0.042	43.826
14:53:52	-0.012	9.765	221.278	0.022	44.108

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 2

March 26, 2012
 Start Time 14:45
 Stop Time 14:54

CALIBRATION BIAS 11

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
14:54:07	-0.012	9.782	221.571	-0.085	44.322	
14:54:22	-0.012	9.770	221.693	-0.020	44.476	
14:54:37	-0.012	9.789	221.856	0.003	44.589	

Wheelabrator
CleanAir Project No. 11414
North Broward
Unit 3

Date: **March 27, 2012**

Start Time 6:20

Stop Time 7:00

CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Instrument Information						
Manufacturer:	Servomex	Servomex	Thermo	Thermo	Wstrn Rsrch	
Model:	1440C	1440B	42i-LS	48i	921L	UV
Detection:	Paramagn.	NDIR	Chemilumi.	GFC/NDIR	Photo.	
Asset or Serial No:	207361	207364	205174	204433	204654	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Response Time (seconds)						
	90	90	90	90	90	
Manufacturer Certified Cylinder Value (C_v)						
Zero	0.000	0.000	0.000	0.000	0.000	
Low	6.000	5.990	223.000	23.500	45.100	
Mid				48.600		
High	14.000	13.900	448.000	96.300	90.800	
Actual gas to be used for bias checks						
	14.000	5.990	223.000	48.600	45.100	
Cylinder ID						
Zero	alm028189	alm028189	alm028189	alm028189	alm028189	
Low	alm036149	almx067937	alm019186	alm042811	alm019186	
Mid				alm023610		
High	almx067937	alm036149	alm012619	cc181272	alm012619	
Analyzer Calibration Response (C_{Dir})						
Zero	-0.009	0.012	0.000	-0.045	-0.072	
Low	6.003	6.053	223.077		43.645	
Mid				49.287		
High	14.005	13.897	448.251	96.333	91.522	
Analyzer Calibration Error (ACE) (Limit = 2%, Method 25A limit = 5% of gas value)						
Zero	-0.1%	0.1%	0.0%	0.0%	-0.1%	
Low	0.0%	0.5%	0.0%	N/A	-1.6%	
Mid	N/A	N/A	N/A	0.7%	N/A	
High	0.0%	0.0%	0.1%	0.0%	0.8%	
Calibration Error Status						
Zero	OK	OK	OK	OK	OK	
Low	OK	OK	OK	N/A	OK	
Mid	N/A	N/A	N/A	OK	N/A	
High	OK	OK	OK	OK	OK	

Time	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
06:20:04	-0.008	0.008	0.000	-0.049	-0.243	
06:20:04	-0.008	0.008	0.000	-0.049	-0.243	
06:20:19	-0.009	-0.018	0.000	-0.061	-0.275	
06:20:34	-0.011	0.001	0.000	-0.007	-0.283	
06:20:49	-0.012	0.003	0.000	-0.043	-0.290	
06:21:04	-0.011	-0.003	0.000	-0.033	-0.271	
06:21:19	-0.012	-0.009	0.000	-0.008	-0.279	
06:21:34	-0.012	-0.020	0.000	-0.055	-0.230	
06:21:49	-0.012	0.007	0.000	-0.075	-0.104	
06:22:04	-0.012	-0.016	0.000	-0.047	-0.088	
06:22:19	-0.038	-0.003	0.000	-0.033	-0.073	
06:22:34	-0.013	-0.004	0.000	0.000	-0.071	
06:22:49	-0.010	0.006	0.000	-0.063	-0.054	
06:23:04	0.015	-0.005	-0.016	-0.070	-0.076	
06:23:19	0.009	0.003	0.000	-0.042	-0.046	
06:23:34	-0.003	-0.013	0.000	-0.021	-0.047	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

Date: **March 27, 2012**
 Start Time 6:20
 Stop Time 7:00

CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	CO2	NOX	CO	SO2	
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
06:23:49	0.007	0.012	0.000	-0.016	-0.054	
06:24:04	-0.008	0.012	0.000	-0.044	-0.064	
06:24:19	-0.026	0.012	0.000	-0.075	-0.098	
06:24:34	0.047	0.015	0.000	-0.015	-0.086	
06:24:49	9.923	3.486	-0.285	-0.026	-0.120	
06:25:04	13.864	5.926	-0.025	0.272	-0.145	
06:25:19	14.052	6.062	-0.049	0.164	-0.112	
06:25:34	14.064	6.054	0.000	0.093	-0.077	
06:25:49	14.057	6.066	0.000	0.054	-0.104	
06:26:04	14.047	6.070	0.000	0.024	-0.114	
06:26:19	14.027	6.086	0.000	0.005	-0.131	
06:26:34	14.003	6.082	0.000	0.049	-0.095	
06:26:49	14.005	6.090	0.000	0.028	-0.093	
06:27:04	14.006	6.077	0.000	0.021	-0.118	
06:27:19	13.419	6.194	0.000	0.054	-0.065	
06:27:34	7.678	11.498	-0.098	0.013	-0.132	
06:27:49	6.115	13.795	0.195	0.021	-0.155	
06:28:04	6.009	13.994	-0.098	-0.057	-0.052	
06:28:19	6.007	13.945	0.000	0.005	-0.049	
06:28:34	6.005	13.895	0.000	-0.043	-0.062	
06:28:49	6.003	13.897	0.000	-0.016	-0.088	
06:29:04	6.000	13.900	0.000	-0.020	-0.139	
06:29:19	7.689	12.824	-0.008	-0.072	-0.183	
06:29:34	13.356	6.945	0.000	-0.025	-0.541	
06:29:49	13.957	6.114	0.000	0.000	-0.321	
06:30:04	13.993	6.061	0.000	-0.010	-0.177	
06:30:19	13.999	6.049	0.000	-0.013	-0.124	
06:30:34	14.001	6.050	0.000	0.088	-0.101	
06:30:49	13.891	6.029	0.000	0.010	-0.108	
06:31:04	4.708	2.481	-0.098	2.172	-0.205	
06:31:19	0.243	0.184	0.122	26.312	-0.264	
06:31:34	0.016	0.033	-0.147	62.769	-0.194	
06:31:49	0.005	0.000	-0.008	86.997	-0.158	
06:32:04	0.004	0.012	-0.008	94.971	-0.152	
06:32:19	-0.007	0.012	-0.008	96.330	-0.147	
06:32:34	-0.005	0.015	-0.049	96.427	-0.127	
06:32:49	-0.015	0.000	-0.008	96.358	-0.147	
06:33:04	-0.010	0.000	-0.049	96.319	-0.150	
06:33:19	-0.010	0.006	-0.024	96.321	-0.147	
06:33:34	0.225	0.107	0.000	96.362	-0.140	
06:33:49	0.202	0.125	0.000	92.407	-0.136	
06:34:04	0.018	0.004	0.000	78.758	-0.150	
06:34:19	-0.003	0.001	0.000	61.423	-0.147	
06:34:34	-0.001	0.001	0.000	51.751	-0.124	
06:34:49	0.009	0.012	0.000	49.610	-0.101	
06:35:04	-0.005	0.001	0.000	49.311	-0.137	
06:35:19	-0.003	-0.005	0.000	49.281	-0.153	
06:35:34	-0.011	0.005	-0.008	49.268	-0.150	
06:35:49	-0.009	-0.009	-0.016	49.241	-0.132	
06:36:04	0.249	4.188	10.940	48.609	1.615	
06:36:19	0.003	9.474	122.011	38.418	38.175	
06:36:34	0.002	9.839	265.975	20.077	76.815	
06:36:49	-1.686	9.811	389.744	6.282	85.967	
06:37:04	-5.218	9.597	419.797	-0.001	88.142	
06:37:19	-3.616	9.594	433.154	-1.206	89.446	
06:37:34	0.000	9.847	441.563	-0.233	90.137	
06:37:49	-0.016	9.847	443.793	-0.244	90.576	
06:38:04	0.000	9.847	444.640	-0.231	90.855	
06:38:19	-0.016	9.847	444.453	-0.225	90.927	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

Date: **March 27, 2012**

Start Time 6:20

Stop Time 7:00

CALIBRATION ERROR

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
06:38:34	-0.011	9.849	446.569	-0.244	90.833	
06:38:49	-0.007	9.848	448.393	-0.244	90.629	
06:39:04	0.000	9.851	447.961	-0.244	90.818	
06:39:19	0.000	9.851	447.806	-0.244	90.924	
06:39:34	-0.005	9.853	447.708	-0.244	91.101	
06:39:49	-0.023	9.822	447.798	-0.244	91.233	
06:40:04	-0.021	9.793	437.403	-0.244	91.124	
06:40:19	-0.012	9.843	335.645	-0.234	90.782	
06:40:34	-0.006	9.849	339.390	-0.193	91.062	
06:40:49	-0.002	9.853	399.626	-0.198	91.549	
06:41:04	0.000	9.852	427.627	-0.233	91.912	
06:41:19	-0.011	9.854	439.463	-0.244	91.992	
06:41:34	0.000	9.853	444.005	-0.244	90.654	
06:41:49	-0.005	9.856	445.795	-0.244	90.748	
06:42:04	-0.011	9.855	446.756	-0.264	90.834	
06:42:19	0.000	9.853	447.269	-0.251	90.833	
06:42:34	-0.009	9.850	447.741	-0.261	90.854	
06:42:49	-0.009	9.854	447.798	-0.251	90.877	
06:43:04	-0.003	9.854	447.676	-0.249	90.911	
06:43:19	-0.001	9.855	448.189	-0.251	90.957	
06:43:34	-0.014	9.852	448.124	-0.275	90.950	
06:43:49	0.000	9.854	448.181	-0.244	90.771	
06:44:04	-0.002	9.854	448.450	-0.244	90.650	
06:44:19	-0.029	9.813	448.547	-0.274	90.611	
06:44:34	-0.032	9.794	442.442	-0.255	90.470	
06:44:49	0.171	9.720	390.077	-0.236	56.681	
06:45:04	0.001	9.843	257.411	-0.177	27.441	
06:45:19	-0.011	9.841	211.518	-0.169	36.068	
06:45:34	-0.013	9.841	207.611	-0.193	39.906	
06:45:49	-0.014	9.841	215.849	-0.217	40.943	
06:46:04	-0.013	9.844	218.421	-0.220	41.384	
06:46:19	-0.010	9.845	219.479	-0.234	41.568	
06:46:34	-0.011	9.847	220.301	-0.233	41.918	
06:46:49	-0.011	9.847	220.838	-0.228	42.097	
06:47:04	-0.012	9.847	221.204	-0.231	42.248	
06:47:19	-0.014	9.847	221.604	-0.220	42.356	
06:47:34	-0.013	9.847	221.848	-0.220	42.496	
06:47:49	-0.017	9.845	222.116	-0.236	42.631	
06:48:04	-0.021	9.845	222.352	-0.231	42.719	
06:48:19	-0.014	9.845	222.344	-0.220	42.759	
06:48:34	-0.028	9.845	222.230	-0.251	42.746	
06:48:49	-0.019	9.844	222.246	-0.259	42.766	
06:49:04	-0.013	9.844	222.548	-0.233	42.781	
06:49:19	-0.014	9.843	222.589	-0.223	42.834	
06:49:34	-0.021	9.845	222.646	-0.225	42.821	
06:49:49	-0.034	9.845	222.768	-0.251	42.848	
06:50:04	-0.016	9.845	222.752	-0.244	42.914	
06:50:19	-0.016	9.842	222.507	-0.220	43.035	
06:50:34	-0.014	9.843	222.825	-0.220	43.022	
06:50:49	-0.016	9.842	223.313	-0.226	42.991	
06:51:04	-0.014	9.843	222.881	-0.231	42.983	
06:51:19	-0.015	9.842	223.264	-0.236	42.981	
06:51:34	-0.016	9.843	223.085	-0.220	43.028	
06:51:49	-0.033	9.843	223.207	-0.220	42.974	
06:52:04	0.895	6.498	216.435	-0.207	32.918	
06:52:19	1.053	1.602	148.995	-0.104	15.105	
06:52:34	1.028	0.216	86.699	-0.057	3.850	
06:52:49	1.019	0.029	46.227	-0.059	1.280	
06:53:04	1.003	0.003	47.358	-0.083	0.884	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

Date: **March 27, 2012**

Start Time 6:20

Stop Time 7:00

CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
	O2	CO2	NOX	CO	SO2	
	FF Outlet	FF Outlet	FF Outlet	FF Outlet	FF Outlet	
	%dv	%dv	ppmdv	ppmdv	ppmdv	
06:53:19	1.003	0.017	49.410	-0.068	0.739	
06:53:34	1.008	-0.004	50.468	-0.032	0.773	
06:53:49	1.019	0.007	50.973	-0.019	0.747	
06:54:04	1.012	0.011	50.989	-0.022	0.759	
06:54:19	1.012	-0.003	51.241	-0.021	0.763	
06:54:34	1.005	0.018	50.867	-0.034	0.754	
06:54:49	1.012	0.013	51.119	-0.018	0.733	
06:55:04	1.017	0.007	51.436	-0.014	0.728	
06:55:19	1.013	0.007	51.542	-0.029	0.723	
06:55:34	0.680	2.470	51.436	-0.026	15.876	
06:55:49	0.045	9.153	108.018	-0.116	72.248	
06:56:04	0.000	9.800	277.493	-0.158	87.328	
06:56:19	-0.004	9.841	381.009	-0.213	89.590	
06:56:34	-0.007	9.841	424.607	-0.233	90.105	
06:56:49	-0.006	9.841	439.886	-0.244	90.320	
06:57:04	-0.005	9.841	444.802	-0.264	90.816	
06:57:19	-0.005	9.841	446.797	-0.246	91.503	
06:57:34	-0.006	9.845	447.676	-0.244	91.541	
06:57:49	-0.006	9.846	448.181	-0.275	91.521	
06:58:04	-0.002	9.808	446.634	-0.244	85.998	
06:58:19	-0.014	9.828	430.215	-0.244	49.966	
06:58:34	-0.018	9.841	353.341	-0.244	41.952	
06:58:49	-0.018	9.841	264.989	-0.239	42.211	
06:59:04	-0.018	9.841	240.000	-0.262	42.919	
06:59:19	-0.018	9.841	229.442	-0.228	43.266	
06:59:34	-0.018	9.841	225.999	-0.231	43.508	
06:59:49	-0.018	9.832	224.444	-0.225	43.624	
07:00:04	-0.018	9.841	223.728	-0.231	43.666	
07:00:19	-0.018	9.841	223.460	-0.220	43.644	

NOX Conversion Efficiency
 NO2 Cylinder Value = 49.200
 Average Response = 51.068
 Conversion Efficiency = 103.8%

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 7:03

Stop Time 7:10

CALIBRATION BIAS 00

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_S)						
C _{of} Zero gas	0.176	0.163	0.727	0.302	0.025	
C _{uf} Upscale gas	13.839	5.993	219.305	48.890	41.422	
Analyzer Calibration Error Responses (C_{DIR})						
C _{oca} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mcb} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	1.3%	1.1%	0.2%	0.4%	0.1%	
Upscale gas	-1.2%	-0.4%	-0.8%	-0.4%	-2.4%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (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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07:03:17	13.838	6.000	1.913	0.171	0.337
07:03:32	13.839	5.991	1.367	0.041	0.208
07:03:47	13.842	5.988	0.830	0.129	0.155
07:04:02	13.844	5.984	0.635	0.029	0.064
07:04:17	13.845	5.987	0.586	0.132	0.036
07:04:32	13.748	5.982	0.285	0.057	-0.020
07:04:47	4.757	2.822	1.083	1.669	-0.046
07:05:02	0.365	0.363	2.206	14.910	-0.081
07:05:17	0.121	0.160	1.783	33.685	-0.086
07:05:32	0.091	0.120	0.627	45.371	0.011
07:05:47	0.144	0.137	0.700	48.661	-0.010
07:06:02	0.215	0.166	0.627	49.050	0.067
07:06:17	0.167	0.187	0.855	48.959	0.019
07:06:32	0.161	0.189	0.879	48.832	-0.039
07:06:47	0.306	0.336	2.052	48.842	0.028
07:07:02	0.452	3.004	4.184	48.246	0.078
07:07:17	0.375	8.934	41.986	39.308	11.479
07:07:32	0.371	9.598	108.083	20.445	30.408
07:07:47	0.384	9.670	186.789	7.331	36.956
07:08:02	0.398	9.689	204.265	1.679	38.823
07:08:17	0.367	9.721	212.503	0.661	39.616
07:08:32	0.313	9.762	215.865	0.572	40.163
07:08:47	0.317	9.767	217.924	0.585	40.594
07:09:02	0.327	9.766	218.893	0.517	40.962
07:09:17	0.327	9.757	219.463	0.430	41.221
07:09:32	0.334	9.755	219.373	0.358	41.368
07:09:47	0.342	9.746	219.284	0.299	41.394
07:10:02	0.346	9.743	219.259	0.249	41.504

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 7:12
 Stop time 7:39

REFERENCE METHOD RUN 1

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.176	0.163	0.727	0.302	0.025	
C _{ui} Initial upscale	13.839	5.993	219.305	48.890	41.422	
C _{of} Final zero	0.021	0.053	0.573	-0.036	-0.082	
C _{uf} Final upscale	13.827	6.019	221.004	49.106	41.974	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	8.697	10.288	160.970	10.858	5.251	
C _{gas} Bias adjusted	8.765	10.339	162.873	10.667	5.706	

Clock Time (at end of sample period)

041712 154538						
07:13	8.269	10.624	183.958	7.618	5.604	
07:14	8.466	10.448	180.842	7.401	5.070	
07:15	7.682	11.179	187.257	10.008	5.438	
07:16	8.937	10.083	188.417	10.107	5.233	
07:17	8.927	10.052	162.192	10.403	4.591	
07:18	8.543	10.424	179.843	11.099	5.095	
07:19	8.800	10.182	166.162	11.955	5.244	
07:20	8.573	10.418	171.364	13.831	5.975	
07:21	8.627	10.333	165.960	13.245	5.414	
07:22	8.167	10.796	183.189	13.371	6.230	
07:23	8.643	10.326	175.401	9.662	5.804	
07:24	8.441	10.535	174.685	11.039	5.334	
07:25	8.869	10.145	154.178	10.937	5.285	
07:26	8.963	10.052	152.692	10.217	5.184	
07:27	8.703	10.295	152.525	9.726	4.886	
07:28	9.032	9.997	142.019	8.627	4.834	
07:29	8.997	10.025	146.148	9.000	5.040	
07:30	8.751	10.263	150.997	10.431	5.091	
07:31	9.025	10.002	148.630	11.057	5.330	
07:32	9.066	10.022	150.611	11.912	6.937	
07:33	8.415	10.513	143.820	10.884	4.939	
07:34	8.183	10.766	160.922	9.200	4.670	
07:35	9.082	9.951	150.149	8.365	4.764	
07:36	8.927	10.073	140.214	11.098	4.924	
07:37	9.490	9.610	137.031	13.018	4.876	
07:38	8.352	10.568	143.044	16.023	5.164	
07:39	8.903	10.090	153.934	12.945	4.815	

CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_S)						
C _{of} Zero gas	0.021	0.053	0.573	-0.036	-0.082	
C _{uf} Upscale gas	13.827	6.019	221.004	49.106	41.974	
Analyzer Calibration Error Responses (C_{Dir})						
C _{oce} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mca} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.3%	0.1%	0.0%	0.0%	
Upscale gas	-1.3%	-0.2%	-0.5%	-0.2%	-1.8%	
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	0.176	0.163	0.727	0.302	0.025	
C _{ul} Upscale gas	13.839	5.993	219.305	48.890	41.422	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	-1.1%	-0.8%	0.0%	-0.4%	-0.1%	
Upscale gas	-0.1%	0.2%	0.4%	0.2%	0.6%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154538

07:40:22	8.143	10.741	148.205	12.424	4.218
07:40:37	10.284	9.394	158.535	12.752	4.425
07:40:52	13.325	6.610	135.376	10.124	3.604
07:41:07	13.776	6.087	80.464	5.184	2.302
07:41:22	13.815	6.038	35.776	1.506	1.231
07:41:37	13.827	6.029	14.717	0.369	0.715
07:41:52	13.823	6.020	7.107	0.130	0.436
07:42:07	13.831	6.009	3.476	0.172	0.247
07:42:22	13.831	6.007	2.646	0.192	0.114
07:42:37	12.363	5.689	2.100	0.164	0.013
07:42:52	2.064	1.413	2.353	4.352	-0.058
07:43:07	0.211	0.249	2.809	21.068	-0.053
07:43:22	0.096	0.160	2.149	38.992	-0.021
07:43:37	0.040	0.130	1.368	46.810	-0.037
07:43:52	0.053	0.115	1.042	48.975	-0.039
07:44:07	0.044	0.104	0.960	49.016	-0.019
07:44:22	0.045	0.089	1.343	49.008	-0.024
07:44:37	0.040	0.070	1.278	49.076	-0.031
07:44:52	0.038	0.067	0.936	49.107	-0.075
07:45:07	0.032	0.051	1.164	49.053	-0.080
07:45:22	0.014	0.058	0.562	49.143	-0.088
07:45:37	0.022	0.050	0.407	49.081	-0.080
07:45:52	0.026	0.050	0.749	49.092	-0.080
07:46:07	0.020	0.062	0.635	49.159	-0.075
07:46:22	0.007	0.056	0.774	49.150	-0.116
07:46:37	0.006	0.067	0.513	49.140	-0.124
07:46:52	0.017	0.038	0.627	49.128	-0.085
07:47:07	0.015	0.048	0.285	49.140	-0.114
07:47:22	0.032	0.040	0.619	49.128	-0.083
07:47:37	0.025	0.378	0.505	49.115	-0.083
07:47:52	0.084	7.330	17.908	45.382	3.245
07:48:07	0.092	9.489	71.298	29.024	23.002
07:48:22	0.106	9.651	162.458	11.101	35.402

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 7:40

Stop Time 7:50

CALIBRATION BIAS 01

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
07:48:37	0.124	9.686	200.773	2.973	39.013	
07:48:52	0.114	9.703	213.138	0.423	40.269	
07:49:07	0.113	9.717	218.185	0.026	40.757	
07:49:22	0.110	9.723	219.919	0.005	41.340	
07:49:37	0.100	9.731	220.741	-0.003	41.672	
07:49:52	0.097	9.734	221.025	-0.051	42.016	
07:50:07	0.093	9.751	221.245	-0.055	42.235	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 7:52
 Stop time 8:19

REFERENCE METHOD RUN 2

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.021	0.053	0.573	-0.036	-0.082	
C _{ui} Initial upscale	13.827	6.019	221.004	49.106	41.974	
C _{of} Final zero	0.029	0.057	0.619	0.146	-0.052	
C _{uf} Final upscale	13.811	6.056	220.760	49.071	42.079	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	8.519	10.464	162.164	9.892	4.403	
C _{Gas} Bias adjusted	8.621	10.422	163.559	9.750	4.789	

Clock Time (at end of sample period)

041712 154538						
07:53	8.124	10.782	175.741	9.469	4.265	
07:54	8.707	10.255	168.952	8.481	3.483	
07:55	8.448	10.494	157.296	9.595	3.102	
07:56	8.294	10.694	175.765	9.629	3.469	
07:57	9.050	9.970	160.346	7.125	3.119	
07:58	7.906	11.014	166.614	9.315	3.542	
07:59	8.793	10.227	174.304	9.121	3.582	
08:00	8.551	10.393	155.533	11.113	3.099	
08:01	7.710	11.221	180.083	11.407	3.993	
08:02	9.331	9.803	167.623	9.246	3.842	
08:03	8.812	10.194	150.789	9.075	3.256	
08:04	7.987	10.944	183.954	7.859	3.231	
08:05	8.328	10.666	174.683	8.309	3.208	
08:06	8.797	10.204	166.001	8.736	3.232	
08:07	7.944	10.998	177.603	10.469	3.959	
08:08	8.534	10.472	176.107	8.012	4.081	
08:09	8.934	10.101	152.049	8.693	3.832	
08:10	7.708	11.195	153.164	11.040	4.526	
08:11	8.612	10.425	165.971	10.405	5.337	
08:12	9.471	9.660	141.451	11.317	4.788	
08:13	8.292	10.615	140.851	12.672	5.075	
08:14	8.109	10.823	158.885	11.202	6.381	
08:15	8.138	10.806	163.081	9.880	7.126	
08:16	9.281	9.799	148.107	9.838	6.808	
08:17	8.743	10.226	139.762	13.541	6.131	
08:18	8.702	10.279	153.152	11.003	6.110	
08:19	8.716	10.277	150.574	10.536	6.303	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 8:19
 Stop Time 8:29

CALIBRATION BIAS 02

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{oi} Zero gas	0.029	0.057	0.619	0.146	-0.052	
C _{ui} Upscale gas	13.811	6.056	220.760	49.071	42.079	
Analyzer Calibration Error Responses (C_{dir})						
C _{ocb} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mcb} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.3%	0.1%	0.2%	0.0%	
Upscale gas	-1.4%	0.0%	-0.5%	-0.2%	-1.7%	
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	0.021	0.053	0.573	-0.036	-0.082	
C _{ui} Upscale gas	13.827	6.019	221.004	49.106	41.974	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	0.0%	0.0%	0.2%	0.0%	
Upscale gas	-0.1%	0.3%	-0.1%	0.0%	0.1%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154538

08:19:47	10.570	9.093	144.485	10.922	7.186
08:20:02	13.329	6.611	134.962	9.034	5.425
08:20:17	13.779	6.085	73.073	5.221	3.215
08:20:32	13.820	6.043	33.399	1.623	1.631
08:20:47	13.834	6.040	12.291	0.389	0.897
08:21:02	13.843	6.029	6.561	0.138	0.567
08:21:17	13.846	6.026	3.085	0.060	0.329
08:21:32	8.103	4.188	2.483	0.656	0.134
08:21:47	0.649	0.578	2.117	9.444	-0.020
08:22:02	0.130	0.191	2.279	30.098	-0.013
08:22:17	0.071	0.147	1.995	42.950	0.081
08:22:32	0.056	0.126	1.669	48.336	-0.021
08:22:47	0.042	0.115	0.855	49.053	0.059
08:23:02	0.035	0.103	1.343	49.060	-0.029
08:23:17	0.041	0.094	1.066	49.060	-0.042
08:23:32	0.017	0.084	0.855	49.060	-0.011
08:23:47	0.027	0.069	0.952	49.060	-0.018
08:24:02	0.029	0.071	0.692	49.076	-0.051
08:24:17	0.022	0.050	0.521	49.073	-0.057
08:24:32	0.037	0.051	0.643	49.065	-0.049
08:24:47	0.009	0.067	0.725	49.106	-0.049
08:25:02	0.026	0.066	0.513	49.164	-0.059
08:25:17	0.018	0.050	0.399	49.154	-0.082
08:25:32	0.082	0.112	0.855	49.132	-0.108
08:25:47	0.238	5.119	10.313	47.953	0.821
08:26:02	0.243	9.346	48.759	34.077	17.810
08:26:17	0.243	9.659	141.953	16.106	33.364
08:26:32	0.245	9.709	192.943	4.176	38.002
08:26:47	0.238	9.736	211.925	0.945	39.630
08:27:02	0.209	9.749	216.647	0.181	40.373
08:27:17	0.204	9.763	218.942	0.163	40.967
08:27:32	0.203	9.748	219.919	0.122	41.348
08:27:47	0.227	9.776	220.448	0.127	41.564

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 8:19

Stop Time 8:29

CALIBRATION BIAS 02

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
08:28:02	0.238	9.786	220.570	0.125	41.783	
08:28:17	0.258	9.779	220.830	0.081	41.898	
08:28:32	0.234	9.783	220.960	0.174	41.983	
08:28:47	0.261	9.779	220.708	0.145	42.115	
08:29:02	0.247	9.763	220.611	0.119	42.139	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 8:33
 Stop time 9:00

REFERENCE METHOD RUN 3

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.029	0.057	0.619	0.146	-0.052	
C _{ui} Initial upscale	13.811	6.056	220.760	49.071	42.079	
C _{of} Final zero	0.023	0.056	0.532	0.520	-0.071	
C _{uf} Final upscale	13.840	6.031	219.200	49.032	42.240	
C _{me} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	8.808	10.232	152.495	15.210	14.590	
C _{gas} Bias adjusted	8.910	10.181	154.410	14.840	15.650	

Clock Time (at end of sample period)

041712 154538						
08:34	8.462	10.548	157.953	12.724	9.584	
08:35	8.933	10.082	147.865	12.632	8.739	
08:36	9.107	9.934	144.518	11.685	8.383	
08:37	7.473	11.379	149.849	14.012	11.284	
08:38	8.500	10.550	174.363	10.514	10.915	
08:39	10.018	9.267	149.400	11.132	8.277	
08:40	9.158	9.909	134.375	12.298	8.379	
08:41	7.513	11.398	153.879	14.552	17.201	
08:42	8.633	10.478	169.937	13.065	21.718	
08:43	9.710	9.524	142.581	11.215	17.757	
08:44	9.060	10.046	139.674	14.639	18.714	
08:45	8.786	10.303	134.874	18.012	18.959	
08:46	8.845	10.271	148.209	21.180	19.321	
08:47	8.918	10.170	139.797	22.225	19.771	
08:48	9.372	9.780	141.530	20.748	19.606	
08:49	8.568	10.439	151.127	18.547	25.661	
08:50	9.015	10.036	158.378	12.860	13.080	
08:51	8.780	10.244	162.434	13.410	10.042	
08:52	8.935	10.087	152.764	11.786	11.554	
08:53	8.702	10.296	163.132	13.146	14.434	
08:54	8.699	10.264	154.969	13.521	13.922	
08:55	8.868	10.141	157.672	16.722	14.466	
08:56	8.813	10.158	148.437	19.128	13.288	
08:57	9.160	9.885	157.045	19.032	14.066	
08:58	8.626	10.315	158.995	19.189	14.536	
08:59	9.022	9.966	157.499	15.092	13.205	
09:00	8.150	10.799	186.117	17.591	17.062	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 9:01

Stop Time 9:11

CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	0.023	0.056	0.532	0.520	-0.071	
C _{uf} Upscale gas	13.840	6.031	219.200	49.032	42.240	
Analyzer Calibration Error Reponses (C_{Dir})						
C _{oca} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mca} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.3%	0.1%	0.6%	0.0%	
Upscale gas	-1.2%	-0.2%	-0.9%	-0.3%	-1.5%	
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	0.029	0.057	0.619	0.146	-0.052	
C _{ui} Upscale gas	13.811	6.056	220.760	49.071	42.079	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	0.0%	0.4%	0.0%	
Upscale gas	0.2%	-0.2%	-0.3%	0.0%	0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154538

09:01:40	13.433	6.521	140.334	11.726	9.460
09:01:55	13.799	6.079	79.772	6.634	4.602
09:02:10	13.824	6.049	33.553	1.685	2.201
09:02:25	13.835	6.039	13.358	0.406	1.198
09:02:40	13.840	6.029	6.984	0.145	0.658
09:02:55	13.845	6.026	3.614	0.080	0.459
09:03:10	10.715	5.169	2.597	0.306	0.241
09:03:25	1.159	0.906	2.141	5.538	-0.067
09:03:40	0.161	0.214	2.271	26.012	-0.091
09:03:55	0.092	0.159	2.011	40.269	0.040
09:04:10	0.070	0.132	1.205	47.744	0.026
09:04:25	0.037	0.118	1.131	48.936	0.006
09:04:40	0.046	0.109	1.164	48.965	-0.076
09:04:55	0.047	0.099	1.001	48.972	-0.024
09:05:10	0.044	0.090	1.034	48.977	-0.022
09:05:25	0.034	0.068	1.107	49.019	-0.031
09:05:40	0.008	0.051	0.879	49.035	-0.024
09:05:55	0.030	0.066	0.782	49.035	-0.047
09:06:10	0.020	0.066	0.871	49.019	-0.073
09:06:25	0.043	0.045	0.749	49.021	-0.073
09:06:40	0.027	0.056	0.342	48.987	-0.067
09:06:55	0.026	0.061	0.741	49.062	-0.075
09:07:10	0.014	0.050	0.513	49.048	-0.071
09:07:25	0.030	0.067	0.285	49.032	-0.078
09:07:40	0.019	0.061	0.627	49.042	-0.076
09:07:55	0.076	0.088	0.627	49.044	-0.080
09:08:10	0.312	3.790	2.727	48.038	0.319
09:08:25	0.373	9.177	29.174	38.354	15.790
09:08:40	0.386	9.630	133.195	17.084	32.628
09:08:55	0.385	9.705	188.897	6.092	37.973
09:09:10	0.347	9.749	208.588	1.237	39.608
09:09:25	0.322	9.760	215.564	0.606	40.413
09:09:40	0.328	9.767	218.046	0.446	40.925

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 9:01

Stop Time 9:11

CALIBRATION BIAS 03

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
09:09:55	0.335	9.763	218.910	0.391	41.317	
09:10:10	0.328	9.770	219.390	0.389	41.429	
09:10:25	0.336	9.787	219.511	0.363	41.602	
09:10:40	0.352	9.780	219.251	0.318	41.815	
09:10:55	0.378	9.788	219.040	0.375	41.914	
09:11:10	0.392	9.807	218.755	0.391	41.973	
09:11:25	0.367	9.830	219.202	0.443	42.076	
09:11:40	0.353	9.813	219.113	0.550	42.261	
09:11:55	0.376	9.818	219.284	0.568	42.383	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 9:16
 Stop time 9:43

REFERENCE METHOD RUN 4

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.023	0.056	0.532	0.520	-0.071	
C _{ui} Initial upscale	13.840	6.031	219.200	49.032	42.240	
C _{of} Final zero	0.019	0.064	0.551	0.106	-0.098	
C _{uf} Final upscale	13.819	6.031	220.264	48.977	42.305	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	8.744	10.270	160.612	12.954	12.367	
C _{Gas} Bias adjusted	8.844	10.242	162.853	12.617	13.258	

Clock Time (at end of sample period)

0411712 154538						
09:17	8.463	10.534	167.277	14.341	11.886	
09:18	9.364	9.744	155.763	11.713	10.868	
09:19	8.585	10.381	153.879	14.332	14.381	
09:20	9.029	9.998	159.033	13.336	14.051	
09:21	8.109	10.766	164.715	14.987	17.643	
09:22	9.113	9.944	161.484	11.048	14.846	
09:23	7.961	10.953	164.249	13.853	17.040	
09:24	8.730	10.277	172.627	11.515	15.567	
09:25	8.667	10.306	157.202	10.537	14.535	
09:26	8.909	10.109	168.205	9.843	13.184	
09:27	8.405	10.521	159.503	9.385	11.884	
09:28	8.595	10.393	172.936	9.726	12.829	
09:29	8.558	10.399	161.524	10.862	11.372	
09:30	8.824	10.245	168.830	13.451	13.042	
09:31	9.532	9.627	144.279	11.710	9.861	
09:32	9.136	9.944	153.136	14.533	9.769	
09:33	8.396	10.638	161.304	15.405	12.927	
09:34	9.294	9.847	153.740	15.074	11.262	
09:35	8.228	10.771	161.719	16.668	12.453	
09:36	8.911	10.117	153.862	13.361	10.683	
09:37	8.647	10.383	156.398	15.277	11.800	
09:38	8.802	10.212	152.092	13.343	10.041	
09:39	8.886	10.120	161.146	13.664	10.044	
09:40	7.882	11.008	175.452	12.907	11.704	
09:41	9.138	9.928	169.434	11.218	11.237	
09:42	8.830	10.164	157.493	13.915	9.818	
09:43	9.088	9.966	149.241	13.762	9.175	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 9:43
 Stop Time 9:55

CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{oi} Zero gas	0.019	0.064	0.551	0.106	-0.098	
C _{ui} Upscale gas	13.819	6.031	220.264	48.977	42.305	
Analyzer Calibration Error Responses (C_{dir})						
C _{ocb} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mcb} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.4%	0.1%	0.2%	0.0%	
Upscale gas	-1.3%	-0.2%	-0.6%	-0.3%	-1.5%	
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	0.023	0.056	0.532	0.520	-0.071	
C _{ui} Upscale gas	13.840	6.031	219.200	49.032	42.240	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.1%	0.0%	-0.4%	0.0%	
Upscale gas	-0.2%	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	

041712 154538

09:43:56	7.886	9.735	152.560	14.992	8.646
09:44:11	11.798	7.244	145.063	13.043	10.414
09:44:26	13.702	6.154	122.458	8.363	7.007
09:44:41	13.788	6.055	58.177	2.869	2.774
09:44:56	13.815	6.040	21.693	0.768	1.291
09:45:11	13.815	6.029	9.743	0.155	0.685
09:45:26	13.827	6.024	4.265	0.039	0.431
09:45:41	12.886	5.800	2.995	0.060	0.229
09:45:56	2.331	1.587	2.442	3.580	-0.023
09:46:11	0.218	0.280	2.377	21.182	-0.015
09:46:26	0.086	0.169	2.011	37.548	-0.005
09:46:41	0.043	0.135	1.335	46.742	-0.091
09:46:56	0.060	0.117	1.237	48.730	-0.024
09:47:11	0.030	0.106	1.278	48.938	-0.029
09:47:26	0.031	0.099	0.887	48.938	-0.051
09:47:41	0.033	0.091	1.140	48.966	-0.059
09:47:56	0.020	0.054	0.627	48.978	-0.076
09:48:11	0.022	0.071	0.602	48.960	-0.096
09:48:26	0.014	0.067	0.423	48.993	-0.122
09:48:41	0.030	0.067	0.179	48.967	-0.129
09:48:56	0.024	0.054	0.822	49.011	-0.103
09:49:11	0.020	0.052	0.855	48.954	-0.125
09:49:26	0.026	0.051	0.627	48.993	-0.148
09:49:41	0.171	0.236	0.741	49.019	-0.145
09:49:56	0.449	4.387	3.589	47.969	1.262
09:50:11	0.456	9.326	49.516	35.453	19.774
09:50:26	0.472	9.754	149.532	17.980	33.768
09:50:41	0.492	9.801	190.956	5.424	37.656
09:50:56	0.509	9.809	210.240	1.695	38.986
09:51:11	0.502	9.814	216.011	0.741	39.604
09:51:26	0.507	9.810	218.413	0.684	40.008
09:51:41	0.523	9.805	218.738	0.684	40.381
09:51:56	0.545	9.811	218.861	0.662	40.571

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 9:43
 Stop Time 9:55

CALIBRATION BIAS 04

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
09:52:11	0.579	9.803	218.706	0.638	40.624	
09:52:26	0.571	9.767	218.518	0.593	40.760	
09:52:41	0.584	9.762	217.851	0.573	40.669	
09:52:56	0.590	9.778	217.436	0.570	40.837	
09:53:11	0.593	9.774	217.216	0.565	40.904	
09:53:26	0.563	9.814	217.411	0.603	40.931	
09:53:41	0.433	9.806	217.680	0.609	40.983	
09:53:56	0.322	9.812	218.348	0.606	41.206	
09:54:11	0.219	9.805	219.007	0.425	41.508	
09:54:26	0.218	9.810	219.397	0.218	41.869	
09:54:41	0.234	9.814	219.911	0.166	42.068	
09:54:56	0.219	9.814	220.269	0.133	42.255	
09:55:11	0.192	9.823	220.261	0.089	42.312	
09:55:26	0.214	9.810	220.261	0.094	42.348	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 9:58
 Stop time 10:25

REFERENCE METHOD RUN 5

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.019	0.064	0.551	0.106	-0.098	
C _{ui} Initial upscale	13.819	6.031	220.264	48.977	42.305	
C _{of} Final zero	0.028	0.060	0.616	0.190	-0.030	
C _{uf} Final upscale	13.834	6.053	217.623	49.067	41.393	
C _{ms} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	8.364	10.604	162.395	10.931	8.529	
C _{Gas} Bias adjusted	8.460	10.559	165.250	10.723	9.246	

Clock Time (at end of sample period)

041712 154538						
09:59	7.996	10.898	169.929	14.538	9.431	
10:00	8.497	10.521	167.454	11.627	9.001	
10:01	8.107	10.820	150.411	13.772	9.136	
10:02	7.798	11.163	179.345	14.504	12.278	
10:03	9.660	9.545	154.504	10.984	8.933	
10:04	9.377	9.705	128.718	10.748	6.869	
10:05	7.900	10.988	145.702	12.285	8.121	
10:06	8.078	10.936	170.344	11.912	10.658	
10:07	8.860	10.179	150.041	11.114	8.801	
10:08	8.661	10.352	152.827	10.751	9.727	
10:09	8.016	10.921	154.310	10.337	9.485	
10:10	8.673	10.347	162.194	8.436	7.297	
10:11	8.253	10.700	158.089	9.604	8.335	
10:12	8.360	10.613	159.733	10.254	8.482	
10:13	7.808	11.150	168.470	12.090	8.636	
10:14	8.694	10.323	164.794	10.363	7.369	
10:15	8.763	10.235	158.299	11.405	6.774	
10:16	8.579	10.404	158.374	12.834	6.717	
10:17	8.965	10.030	153.818	10.162	6.754	
10:18	8.261	10.652	164.333	11.278	7.346	
10:19	8.417	10.499	168.704	9.627	7.510	
10:20	7.902	11.002	172.611	11.626	8.226	
10:21	8.597	10.375	171.569	9.651	8.001	
10:22	8.251	10.681	167.350	10.497	8.067	
10:23	8.273	10.645	164.748	8.239	8.155	
10:24	6.934	11.815	179.424	9.011	9.748	
10:25	8.149	10.803	188.566	7.497	10.418	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 10:26
 Stop Time 10:36

CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (Cs)						
C _{of} Zero gas	0.028	0.060	0.616	0.190	-0.030	
C _{uf} Upscale gas	13.834	6.053	217.623	49.067	41.393	
Analyzer Calibration Error Responses (C_{dir})						
C _{oce} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mce} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.3%	0.1%	0.2%	0.0%	
Upscale gas	-1.2%	0.0%	-1.2%	-0.2%	-2.5%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gasses (Cs)						
C _{oi} Zero gas	0.019	0.064	0.551	0.106	-0.098	
C _{ui} Upscale gas	13.819	6.031	220.264	48.977	42.305	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	0.0%	0.0%	0.1%	0.1%	
Upscale gas	0.1%	0.2%	-0.6%	0.1%	-1.0%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154538

10:26:09	9.159	10.048	157.875	8.067	6.924
10:26:24	12.640	7.358	152.552	8.150	5.924
10:26:39	13.732	6.182	101.392	5.893	4.176
10:26:54	13.821	6.065	54.522	2.647	2.281
10:27:09	13.835	6.050	20.497	0.721	1.216
10:27:24	13.845	6.044	9.833	0.195	0.762
10:27:39	13.850	6.044	5.291	0.173	0.497
10:27:54	13.851	6.044	3.435	0.127	0.334
10:28:09	13.852	6.044	2.556	0.168	0.270
10:28:24	13.852	6.044	2.231	0.119	0.202
10:28:39	13.706	6.025	2.019	0.114	0.086
10:28:54	4.423	2.620	1.938	1.444	-0.020
10:29:09	0.335	0.355	1.580	14.643	-0.085
10:29:24	0.115	0.176	1.547	33.068	-0.011
10:29:39	0.083	0.147	1.245	44.619	-0.015
10:29:54	0.056	0.127	0.578	48.450	-0.011
10:30:09	0.042	0.114	1.237	49.031	-0.042
10:30:24	0.047	0.104	0.684	49.060	-0.137
10:30:39	0.043	0.096	0.879	49.062	-0.044
10:30:54	0.002	0.092	1.205	49.060	0.000
10:31:09	0.020	0.080	0.806	49.065	-0.046
10:31:24	0.036	0.050	0.716	49.066	-0.016
10:31:39	0.032	0.068	0.488	49.070	-0.039
10:31:54	0.015	0.062	0.643	49.065	-0.034
10:32:09	0.031	0.045	0.635	49.063	-0.036
10:32:24	0.020	0.068	0.749	49.065	-0.033
10:32:39	0.051	0.092	0.464	49.066	-0.041
10:32:54	0.391	2.204	1.522	48.951	0.006
10:33:09	0.453	8.744	29.719	40.622	9.672
10:33:24	0.474	9.610	113.594	23.549	30.056
10:33:39	0.501	9.701	175.450	8.270	36.928
10:33:54	0.475	9.748	202.434	2.362	38.966
10:34:09	0.433	9.802	211.942	0.661	39.743

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 10:26

Stop Time 10:36

CALIBRATION BIAS 05

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
10:34:24	0.379	9.797	215.539	0.422	40.257	
10:34:39	0.432	9.812	217.135	0.425	40.591	
10:34:54	0.424	9.796	217.794	0.355	40.905	
10:35:09	0.429	9.784	217.949	0.280	41.094	
10:35:24	0.423	9.775	218.087	0.125	41.325	
10:35:39	0.467	9.763	217.957	0.153	41.397	
10:35:54	0.486	9.768	217.689	0.216	41.354	
10:36:09	0.395	9.808	217.224	0.200	41.429	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 10:39
 Stop time 11:06

REFERENCE METHOD RUN 6

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.028	0.060	0.616	0.190	-0.030	
C _{ui} Initial upscale	13.834	6.053	217.623	49.067	41.393	
C _{of} Final zero	0.023	0.055	0.421	0.259	-0.114	
C _{uf} Final upscale	13.846	6.053	219.346	49.034	41.876	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{Avg} Average conc.	8.388	10.637	164.368	11.991	7.017	
C _{Gas} Bias adjusted	8.475	10.570	167.633	11.712	7.666	

Clock Time (at end of sample period)

041712 154538						
10:40	8.900	10.131	159.825	7.774	7.291	
10:41	8.096	10.865	156.486	9.885	6.381	
10:42	8.600	10.420	156.634	10.123	6.027	
10:43	7.914	11.040	156.644	11.928	6.714	
10:44	8.600	10.466	169.157	11.751	7.510	
10:45	8.824	10.237	147.983	11.490	6.400	
10:46	8.518	10.512	159.092	11.687	6.922	
10:47	7.993	11.008	165.659	13.374	7.959	
10:48	8.671	10.388	158.482	13.660	9.131	
10:49	8.964	10.099	149.770	12.725	9.297	
10:50	8.902	10.162	152.450	12.657	8.239	
10:51	8.849	10.219	146.016	13.195	7.263	
10:52	8.546	10.497	150.439	12.828	7.677	
10:53	8.266	10.802	155.859	12.805	8.523	
10:54	8.482	10.595	152.163	12.120	8.009	
10:55	9.032	10.108	151.325	12.007	7.448	
10:56	8.683	10.415	153.423	12.978	6.838	
10:57	8.146	10.887	164.422	12.936	7.460	
10:58	8.680	10.414	173.441	12.261	7.010	
10:59	7.736	11.219	173.710	12.286	6.469	
11:00	8.200	10.808	190.906	10.964	6.111	
11:01	8.343	10.637	182.362	10.587	5.295	
11:02	7.705	11.253	184.361	12.056	5.530	
11:03	8.654	10.371	174.231	10.788	5.164	
11:04	8.116	10.873	175.252	13.003	5.356	
11:05	7.517	11.352	180.490	12.600	5.663	
11:06	7.528	11.433	197.340	13.292	7.786	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 11:07
 Stop Time 11:18

CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{oi} Zero gas	0.023	0.055	0.421	0.259	-0.114	
C _{ui} Upscale gas	13.846	6.053	219.346	49.034	41.876	
Analyzer Calibration Error Reponses (C_{Dir})						
C _{ocb} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mca} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.3%	0.1%	0.3%	0.0%	
Upscale gas	-1.1%	0.0%	-0.8%	-0.3%	-1.9%	
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	0.028	0.060	0.616	0.190	-0.030	
C _{ui} Upscale gas	13.834	6.053	217.623	49.067	41.393	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.0%	0.0%	0.1%	-0.1%	
Upscale gas	0.1%	0.0%	0.4%	0.0%	0.5%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154538

11:07:20	9.451	9.877	165.445	13.267	5.569
11:07:35	12.604	7.401	153.830	13.746	4.492
11:07:50	13.739	6.202	119.105	9.789	2.965
11:08:05	13.837	6.054	49.687	4.967	1.530
11:08:20	13.847	6.052	22.963	1.078	0.786
11:08:35	13.854	6.054	10.102	0.269	0.454
11:08:50	13.859	6.051	5.071	0.086	0.249
11:09:05	6.752	3.660	3.093	0.296	0.072
11:09:20	0.631	0.507	2.588	11.026	-0.090
11:09:35	0.273	0.338	2.182	28.179	-0.055
11:09:50	0.192	0.349	2.515	42.955	-0.027
11:10:05	0.203	0.376	3.663	47.150	-0.022
11:10:20	0.226	0.383	4.396	48.098	-0.029
11:10:35	0.221	0.380	5.283	48.137	-0.022
11:10:50	0.218	0.346	5.788	48.073	-0.032
11:11:05	0.214	0.336	5.527	48.047	-0.039
11:11:20	0.237	0.343	5.079	48.086	-0.117
11:11:35	0.201	0.329	4.591	48.111	-0.031
11:11:50	0.200	0.343	4.249	48.143	-0.019
11:12:05	0.191	0.338	4.632	48.163	-0.041
11:12:20	0.203	0.332	4.876	48.135	-0.011
11:12:35	0.214	0.329	5.388	48.088	-0.050
11:12:50	0.182	0.305	5.096	48.095	0.005
11:13:05	0.222	0.301	4.746	48.213	-0.085
11:13:20	0.205	0.296	4.282	48.281	-0.013
11:13:35	0.204	0.294	4.241	48.243	-0.015
11:13:50	0.113	0.216	3.932	48.281	-0.016
11:14:05	0.044	0.070	3.606	48.374	-0.049
11:14:20	0.021	0.067	2.394	48.866	-0.032
11:14:35	0.026	0.062	1.034	49.025	-0.063
11:14:50	0.031	0.064	0.521	49.033	-0.109
11:15:05	0.023	0.060	0.147	49.035	-0.122
11:15:20	0.014	0.039	0.595	49.035	-0.109

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 11:07

Stop Time 11:18

CALIBRATION BIAS 06

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
11:15:35	-0.002	0.055	0.000	49.035	-0.155	
11:15:50	0.028	0.033	0.155	49.035	-0.147	
11:16:05	0.023	0.037	0.562	49.035	-0.179	
11:16:20	0.066	0.105	0.195	49.035	-0.195	
11:16:35	0.198	6.088	1.685	48.080	2.688	
11:16:50	0.207	9.473	47.871	33.884	24.345	
11:17:05	0.196	9.702	156.028	17.633	36.308	
11:17:20	0.227	9.743	194.123	5.151	39.367	
11:17:35	0.211	9.756	210.761	1.452	40.363	
11:17:50	0.232	9.774	216.410	0.423	40.926	
11:18:05	0.225	9.776	218.592	0.278	41.389	
11:18:20	0.200	9.779	219.105	0.254	41.623	
11:18:35	0.194	9.807	218.942	0.269	41.918	
11:18:50	0.189	9.803	219.992	0.254	42.086	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 11:23
 Stop time 11:50

REFERENCE METHOD RUN 7

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.023	0.055	0.421	0.259	-0.114	
C _{ui} Initial upscale	13.846	6.053	219.346	49.034	41.876	
C _{of} Final zero	0.022	0.084	0.632	-0.017	-0.107	
C _{uf} Final upscale	13.826	6.056	219.566	48.973	42.152	
C _{mb} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	8.109	10.877	163.937	9.039	7.131	
C _{gab} Bias adjusted	8.196	10.816	166.448	8.867	7.753	

Clock Time (at end of sample period)

041712 154538						
11:24	8.212	10.756	171.889	14.388	4.593	
11:25	7.296	11.593	181.622	12.994	6.166	
11:26	8.005	10.955	179.452	11.354	6.722	
11:27	7.273	11.593	175.240	11.704	7.001	
11:28	7.859	11.097	176.889	10.867	6.781	
11:29	7.402	11.459	170.336	10.545	6.169	
11:30	7.855	11.123	183.170	11.762	6.825	
11:31	8.315	10.628	163.378	10.914	5.811	
11:32	7.292	11.587	171.089	12.317	6.537	
11:33	7.835	11.152	176.164	12.086	6.612	
11:34	8.732	10.327	161.380	10.165	5.880	
11:35	7.711	11.193	154.853	8.123	5.552	
11:36	7.963	11.042	179.156	6.707	6.061	
11:37	8.447	10.589	163.077	6.244	5.536	
11:38	7.634	11.329	164.998	7.836	6.459	
11:39	8.700	10.395	161.103	6.957	6.360	
11:40	7.943	11.032	149.117	7.622	6.371	
11:41	8.112	10.929	167.601	7.898	6.977	
11:42	8.778	10.272	155.639	6.848	6.048	
11:43	7.805	11.107	160.936	7.882	6.538	
11:44	8.360	10.673	160.112	7.129	7.289	
11:45	8.009	10.954	149.617	7.298	7.652	
11:46	8.383	10.680	163.034	7.604	9.163	
11:47	9.063	10.025	142.194	5.587	7.944	
11:48	8.500	10.538	148.854	7.219	9.450	
11:49	9.122	9.976	144.748	6.275	12.145	
11:50	8.342	10.689	150.639	7.730	13.884	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 11:51

Stop Time 12:00

CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{of} Zero gas	0.022	0.084	0.632	-0.017	-0.107	
C _{uf} Upscale gas	13.826	6.056	219.566	48.973	42.152	
Analyzer Calibration Error Responses (C_{Dir})						
C _{oca} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mce} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.5%	0.1%	0.0%	0.0%	
Upscale gas	-1.3%	0.0%	-0.8%	-0.3%	-1.6%	
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	0.023	0.055	0.421	0.259	-0.114	
C _{ui} Upscale gas	13.846	6.053	219.346	49.034	41.876	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.2%	0.0%	-0.3%	0.0%	
Upscale gas	-0.1%	0.0%	0.0%	-0.1%	0.3%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154538

11:51:42	7.529	9.726	146.716	7.819	11.266
11:51:57	8.607	7.890	146.105	7.259	14.073
11:52:12	13.499	6.224	119.227	4.965	13.270
11:52:27	13.805	6.068	67.668	2.338	5.722
11:52:42	13.834	6.045	30.183	0.635	2.579
11:52:57	13.838	6.055	12.446	0.213	1.363
11:53:12	13.845	6.050	6.585	0.107	0.816
11:53:27	13.847	6.045	3.492	0.129	0.549
11:53:42	13.852	6.041	2.507	0.111	0.361
11:53:57	13.711	6.022	2.100	0.080	0.196
11:54:12	4.252	2.574	1.954	1.451	-0.013
11:54:27	0.306	0.344	1.954	13.369	-0.088
11:54:42	0.112	0.181	1.938	32.042	-0.027
11:54:57	0.073	0.150	1.188	43.529	-0.013
11:55:12	0.060	0.130	1.457	47.977	-0.024
11:55:27	0.047	0.116	1.229	48.835	-0.034
11:55:42	0.035	0.110	1.099	48.972	-0.075
11:55:57	0.028	0.102	0.920	48.977	-0.073
11:56:12	0.018	0.091	0.643	48.969	-0.076
11:56:27	0.029	0.087	0.627	48.977	-0.104
11:56:42	0.019	0.073	0.627	48.974	-0.140
11:56:57	0.029	0.071	0.749	48.970	-0.155
11:57:12	0.024	0.073	0.863	48.967	-0.147
11:57:27	0.017	0.069	0.741	48.970	-0.116
11:57:42	0.018	0.066	0.627	48.967	-0.130
11:57:57	0.141	5.499	0.399	47.880	0.959
11:58:12	0.186	9.409	54.774	35.740	20.047
11:58:27	0.189	9.672	148.612	17.889	35.010
11:58:42	0.197	9.726	191.876	5.640	38.992
11:58:57	0.194	9.750	210.110	1.285	40.161
11:59:12	0.177	9.757	215.930	0.148	40.847
11:59:27	0.181	9.776	218.527	-0.011	41.350
11:59:42	0.186	9.781	218.942	-0.042	41.708

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 11:51
 Stop Time 12:00

CALIBRATION BIAS 07

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
11:59:57	0.189	9.779	219.308	-0.044	41.950	
12:00:12	0.191	9.803	219.536	-0.005	42.185	
12:00:27	0.183	9.814	219.853	-0.003	42.321	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 12:03
 Stop time 12:30

REFERENCE METHOD RUN 8

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.022	0.084	0.632	-0.017	-0.107	
C _{ui} Initial upscale	13.826	6.056	219.566	48.973	42.152	
C _{of} Final zero	0.017	0.058	0.638	0.097	-0.224	
C _{uf} Final upscale	13.830	6.064	219.286	49.031	41.999	
C _{ma} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	8.850	10.282	157.499	9.818	6.861	
C _{gas} Bias adjusted	8.953	10.212	159.882	9.706	7.501	

Clock Time (at end of sample period)

041712 154538						
12:04	8.543	10.475	160.499	7.715	8.160	
12:05	8.786	10.329	167.879	9.157	8.515	
12:06	9.141	10.000	152.285	8.379	7.434	
12:07	9.070	10.062	156.109	11.919	7.703	
12:08	8.416	10.645	159.204	12.311	8.350	
12:09	8.994	10.155	165.842	9.942	8.789	
12:10	8.803	10.282	157.564	9.333	7.886	
12:11	8.975	10.144	158.154	9.630	7.720	
12:12	8.140	10.903	160.639	11.639	8.689	
12:13	9.185	10.033	174.082	9.455	8.382	
12:14	9.288	9.877	153.830	8.651	6.621	
12:15	8.956	10.174	156.797	9.199	7.321	
12:16	8.710	10.436	156.840	11.131	8.853	
12:17	8.939	10.211	147.871	10.740	8.064	
12:18	9.350	9.881	147.818	9.871	6.909	
12:19	8.972	10.189	145.218	10.416	6.567	
12:20	8.278	10.812	153.101	10.212	6.404	
12:21	8.661	10.491	160.181	9.390	6.417	
12:22	8.862	10.281	151.347	9.452	5.474	
12:23	9.044	10.114	147.790	9.548	5.309	
12:24	9.100	10.073	152.800	9.703	5.285	
12:25	8.620	10.520	158.252	9.705	5.070	
12:26	8.620	10.489	161.608	9.821	5.158	
12:27	8.967	10.160	160.612	8.752	4.897	
12:28	8.746	10.390	162.039	9.921	4.472	
12:29	8.603	10.497	164.933	10.440	5.378	
12:30	9.189	9.978	159.174	8.666	5.409	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 12:31
 Stop Time 12:43

CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (Cs)						
C _{of} Zero gas	0.017	0.058	0.638	0.097	-0.224	
C _{uf} Upscale gas	13.830	6.064	219.286	49.031	41.999	
Analyzer Calibration Error Responses (C_{dir})						
C _{ocb} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mcb} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.3%		0.1%	-0.2%	
Upscale gas	-1.2%	0.1%	-0.8%	-0.3%	-1.8%	
System Bias Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	
Previous System Response to Calibration Gases (Cs)						
C _{oi} Zero gas	0.022	0.084	0.632	-0.017	-0.107	
C _{ui} Upscale gas	13.826	6.056	219.566	48.973	42.152	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	-0.2%	0.0%	0.1%	-0.1%	
Upscale gas	0.0%	0.1%	-0.1%	0.1%	-0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

041712 154538

12:31:47	9.428	9.761	153.871	8.093	4.490
12:32:02	8.808	10.222	149.524	8.034	4.409
12:32:17	8.337	10.710	151.282	8.973	4.451
12:32:32	8.344	10.739	157.306	9.701	4.589
12:32:47	10.143	9.584	163.956	9.415	4.505
12:33:02	13.344	6.676	158.771	7.364	3.572
12:33:17	13.808	6.096	87.765	4.208	2.258
12:33:32	13.838	6.045	39.976	1.517	1.139
12:33:47	13.845	6.052	14.669	0.441	0.599
12:34:02	13.848	6.047	7.554	0.141	0.254
12:34:17	13.853	6.043	3.785	0.056	0.062
12:34:32	8.014	4.141	2.540	0.360	-0.067
12:34:47	0.598	0.542	1.954	8.324	-0.199
12:35:02	0.130	0.202	1.669	26.188	-0.171
12:35:17	0.076	0.155	0.944	40.322	-0.171
12:35:32	0.048	0.133	1.115	47.080	-0.138
12:35:47	0.040	0.121	0.887	48.800	-0.164
12:36:02	0.055	0.109	1.017	48.990	-0.182
12:36:17	0.044	0.101	0.944	49.000	-0.189
12:36:32	0.035	0.094	0.952	49.011	-0.203
12:36:47	0.032	0.091	0.749	49.011	-0.221
12:37:02	0.037	0.074	0.749	49.014	-0.222
12:37:17	0.031	0.063	0.863	49.021	-0.236
12:37:32	0.022	0.064	0.546	49.030	-0.234
12:37:47	0.010	0.046	0.741	49.032	-0.222
12:38:02	0.020	0.063	0.627	49.032	-0.215
12:38:17	0.003	0.056	0.513	49.033	-0.217
12:38:32	0.291	1.065	0.407	49.029	-0.217
12:38:47	0.508	8.175	21.473	44.667	6.258
12:39:02	0.565	9.598	94.628	28.837	27.536
12:39:17	0.580	9.702	165.828	13.133	35.886
12:39:32	0.607	9.723	198.624	4.108	38.072
12:39:47	0.591	9.756	209.858	1.198	38.955

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 12:31
 Stop Time 12:43

CALIBRATION BIAS 08

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
12:40:02	0.535	9.801	212.934	0.599	39.559	
12:40:17	0.503	9.830	214.522	0.589	39.946	
12:40:32	0.521	9.822	215.905	0.599	40.278	
12:40:47	0.541	9.831	216.728	0.540	40.505	
12:41:02	0.554	9.822	216.744	0.459	40.555	
12:41:17	0.568	9.824	216.761	0.442	40.648	
12:41:32	0.548	9.829	216.630	0.467	40.656	
12:41:47	0.495	9.844	216.590	0.534	40.760	
12:42:02	0.380	9.837	217.053	0.586	40.843	
12:42:17	0.310	9.821	218.120	0.495	41.192	
12:42:32	0.286	9.826	218.576	0.311	41.438	
12:42:47	0.290	9.817	219.202	0.182	41.742	
12:43:02	0.292	9.829	219.308	0.055	41.913	
12:43:17	0.282	9.824	219.414	0.164	42.009	
12:43:32	0.292	9.813	219.137	0.072	42.076	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 12:45
 Stop time 13:12

REFERENCE METHOD RUN 9

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.017	0.058	0.638	0.097	-0.224	
C _{ui} Initial upscale	13.830	6.064	219.286	49.031	41.999	
C _{of} Final zero	0.027	0.055	0.670	0.159	-0.259	
C _{uf} Final upscale	13.837	6.051	218.120	48.947	41.831	
C _{ms} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{avg} Average conc.	8.756	10.337	161.672	8.998	4.261	
C _{gas} Bias adjusted	8.853	10.261	164.674	8.823	4.816	

Clock Time (at end of sample period)

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12:46	8.454	10.590	155.429	8.765	5.272
12:47	8.612	10.484	162.778	7.904	6.544
12:48	8.390	10.664	161.565	7.580	4.156
12:49	8.792	10.327	166.939	7.581	3.238
12:50	8.629	10.438	161.960	7.982	4.420
12:51	8.924	10.195	163.753	7.414	4.720
12:52	8.573	10.495	154.318	7.500	4.335
12:53	8.942	10.194	155.144	7.645	4.399
12:54	8.358	10.716	149.320	9.101	4.676
12:55	9.313	9.901	150.757	6.668	4.762
12:56	8.938	10.191	149.147	6.984	4.587
12:57	9.128	10.066	149.233	8.128	4.253
12:58	9.364	9.870	151.250	9.873	4.635
12:59	9.324	9.896	144.137	10.594	4.545
13:00	8.896	10.259	151.473	13.238	4.885
13:01	8.957	10.181	153.297	11.029	4.749
13:02	8.882	10.200	159.453	8.029	4.277
13:03	9.069	10.040	162.116	7.763	3.805
13:04	8.887	10.207	160.224	7.996	3.379
13:05	8.246	10.752	171.661	9.574	3.167
13:06	8.543	10.481	175.698	9.911	3.176
13:07	7.695	11.256	183.134	11.671	3.110
13:08	8.916	10.184	182.302	9.884	3.401
13:09	8.636	10.398	171.675	11.337	4.483
13:10	8.950	10.109	171.708	9.446	4.300
13:11	8.241	10.758	175.600	11.093	4.182
13:12	8.766	10.237	171.070	8.261	3.579

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 13:14

Stop Time 13:24

CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gasses (C_s)						
C _{of} Zero gas	0.027	0.055	0.670	0.159	-0.259	
C _{uf} Upscale gas	13.837	6.051	218.120	48.947	41.831	
Analyzer Calibration Error Responses (C_{Dir})						
C _{ocb} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mce} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{MA})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.3%	0.3%	0.1%	0.2%	-0.2%	
Upscale gas	-1.2%	0.0%	-1.1%	-0.4%	-2.0%	
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	0.017	0.058	0.638	0.097	-0.224	
C _{ui} Upscale gas	13.830	6.064	219.286	49.031	41.999	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.1%	0.0%	0.0%	0.1%	0.0%	
Upscale gas	0.0%	-0.1%	-0.3%	-0.1%	-0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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13:14:02	13.058	6.547	181.579	6.102	7.516
13:14:17	13.771	6.103	100.708	3.301	5.027
13:14:32	13.829	6.060	46.976	1.119	2.258
13:14:47	13.838	6.045	17.868	0.238	1.017
13:15:02	13.845	6.048	9.328	0.120	0.575
13:15:17	13.848	6.049	5.031	0.104	0.311
13:15:32	13.854	6.046	3.338	0.106	0.103
13:15:47	13.688	6.031	2.523	0.148	0.011
13:16:02	4.106	2.498	2.157	1.791	-0.112
13:16:17	0.285	0.338	2.369	14.366	-0.171
13:16:32	0.110	0.180	2.247	32.991	-0.145
13:16:47	0.056	0.150	1.897	44.016	-0.111
13:17:02	0.050	0.129	1.197	48.187	-0.121
13:17:17	0.052	0.119	1.082	48.941	-0.135
13:17:32	0.030	0.111	1.351	48.960	-0.171
13:17:47	0.037	0.104	1.294	48.957	-0.184
13:18:02	0.038	0.096	1.091	48.954	-0.205
13:18:17	0.038	0.089	1.335	48.957	-0.200
13:18:32	0.034	0.073	1.123	48.949	-0.217
13:18:47	0.021	0.076	1.058	48.952	-0.249
13:19:02	0.020	0.061	0.716	48.948	-0.236
13:19:17	0.031	0.058	0.749	48.949	-0.223
13:19:32	0.035	0.055	0.635	48.951	-0.239
13:19:47	0.018	0.067	0.635	48.948	-0.256
13:20:02	0.028	0.043	0.741	48.941	-0.283
13:20:17	0.025	0.048	0.627	48.946	-0.274
13:20:32	0.098	0.137	0.741	48.943	-0.244
13:20:47	0.268	6.247	13.179	47.041	2.419
13:21:02	0.312	9.477	59.007	33.452	23.245
13:21:17	0.305	9.700	147.855	16.054	35.103
13:21:32	0.289	9.756	193.838	5.034	38.364
13:21:47	0.300	9.777	210.224	1.218	39.586
13:22:02	0.292	9.781	214.465	0.303	40.199

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 13:14

Stop Time 13:24

CALIBRATION BIAS 09

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
13:22:17	0.280	9.778	216.842	0.168	40.669	
13:22:32	0.299	9.771	217.632	0.124	41.071	
13:22:47	0.305	9.759	218.047	0.082	41.348	
13:23:02	0.295	9.784	218.274	0.038	41.558	
13:23:17	0.285	9.792	218.193	0.052	41.770	
13:23:32	0.268	9.797	218.177	0.137	41.758	
13:23:47	0.305	9.794	218.160	0.159	41.830	
13:24:02	0.298	9.800	218.022	0.181	41.906	

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 13:26
 Stop time 13:53

REFERENCE METHOD RUN 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
Calibration Checks						
C _{oi} Initial zero	0.027	0.055	0.670	0.159	-0.259	
C _{ui} Initial upscale	13.837	6.051	218.120	48.947	41.831	
C _{of} Final zero	0.024	0.066	0.429	0.015	-0.320	
C _{uf} Final upscale	13.825	6.063	219.922	48.988	42.036	
C _{me} Actual gas value	14.000	5.990	223.000	48.600	45.100	
Analyzer Averages (concentrations)						
C _{AVG} Average conc.	8.863	10.207	165.186	10.431	3.175	
C _{Gas} Bias adjusted	8.962	10.136	168.050	10.285	3.701	

Clock Time (at end of sample period)

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13:27	9.070	10.020	146.193	10.479	5.442
13:28	8.932	10.189	152.357	10.987	4.576
13:29	9.327	9.837	145.710	11.116	3.844
13:30	8.972	10.133	150.739	11.685	3.531
13:31	9.052	10.081	160.377	11.989	3.737
13:32	8.962	10.158	160.757	12.003	3.389
13:33	8.889	10.206	162.460	10.903	3.299
13:34	8.839	10.255	167.637	10.563	3.414
13:35	8.795	10.278	163.142	13.163	3.093
13:36	8.647	10.399	164.896	11.893	3.029
13:37	8.571	10.448	170.252	10.380	3.092
13:38	8.706	10.372	181.547	9.870	3.034
13:39	8.731	10.315	177.808	8.881	2.776
13:40	9.052	10.036	173.799	9.392	2.748
13:41	8.748	10.303	165.820	10.479	2.908
13:42	8.867	10.203	163.592	10.845	2.946
13:43	9.055	10.065	165.812	11.188	2.828
13:44	8.520	10.523	168.368	10.822	2.816
13:45	8.995	10.063	163.980	8.979	2.558
13:46	8.682	10.357	167.745	11.285	2.658
13:47	8.643	10.364	165.857	9.064	2.545
13:48	8.999	10.090	173.708	9.487	2.774
13:49	8.664	10.327	166.630	9.389	2.693
13:50	9.127	9.949	167.493	8.833	2.910
13:51	8.944	10.112	170.260	10.169	2.820
13:52	8.671	10.315	166.793	9.039	2.840
13:53	8.841	10.199	176.300	8.764	3.431

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012
 Start Time 13:54
 Stop Time 14:05

CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
System Response to Calibration Gases (C_s)						
C _{of} Zero gas	0.024	0.066	0.429	0.015	-0.320	
C _{uf} Upscale gas	13.825	6.063	219.922	48.988	42.036	
Analyzer Calibration Error Responses (C_{dir})						
C _{oce} Zero gas	-0.009	0.012	0.000	-0.045	-0.072	
C _{mce} Upscale gas	14.005	6.053	223.077	49.287	43.645	
Actual Upscale Gas Value (C_{Ma})						
C _{ma} Upscale gas	14.000	5.990	223.000	48.600	45.100	
Calibration Span Value (CS)						
	14.000	13.900	448.000	96.300	90.800	
System Bias as Percent of Calibration Span Value (SB) (5%)						
Zero gas	0.2%	0.4%		0.1%	-0.3%	
Upscale gas	-1.3%	0.1%	-0.7%	-0.3%	-1.8%	
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	0.027	0.055	0.670	0.159	-0.259	
C _{ul} Upscale gas	13.837	6.051	218.120	48.947	41.831	
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
Zero gas	0.0%	0.1%	-0.1%	-0.1%	-0.1%	
Upscale gas	-0.1%	0.1%	0.4%	0.0%	0.2%	
Drift Assessment Status						
Zero gas	OK	OK	OK	OK	OK	
Upscale gas	OK	OK	OK	OK	OK	

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13:54:17	11.004	8.796	169.353	8.718	3.069
13:54:32	13.499	6.472	137.224	6.942	2.546
13:54:47	13.807	6.088	77.590	3.893	1.695
13:55:02	13.830	6.049	34.742	1.232	0.842
13:55:17	13.837	6.051	14.392	0.236	0.370
13:55:32	13.843	6.047	7.180	0.108	0.125
13:55:47	13.846	6.044	3.639	0.065	-0.044
13:56:02	13.494	6.000	2.637	0.101	-0.094
13:56:17	3.444	2.149	2.076	2.221	-0.241
13:56:32	0.251	0.319	2.019	16.552	-0.306
13:56:47	0.097	0.179	2.019	34.462	-0.223
13:57:02	0.065	0.147	1.229	45.398	-0.174
13:57:17	0.061	0.126	1.424	48.400	-0.225
13:57:32	0.028	0.114	0.993	48.962	-0.207
13:57:47	0.041	0.108	1.115	48.962	-0.228
13:58:02	0.036	0.103	1.091	48.962	-0.266
13:58:17	0.033	0.095	0.667	48.964	-0.248
13:58:32	0.030	0.084	0.684	48.972	-0.267
13:58:47	0.029	0.072	1.083	48.979	-0.299
13:59:02	0.016	0.056	0.749	48.984	-0.319
13:59:17	0.031	0.079	0.293	48.987	-0.299
13:59:32	0.017	0.069	0.619	48.989	-0.324
13:59:47	0.025	0.048	0.375	48.989	-0.338
14:00:02	0.011	0.045	0.513	48.989	-0.320
14:00:17	0.012	0.045	0.269	48.993	-0.299
14:00:32	0.010	0.052	0.285	48.993	-0.303
14:00:47	0.081	0.084	0.684	48.992	-0.303
14:01:02	0.410	3.006	1.840	48.576	-0.057
14:01:17	0.488	9.040	38.014	39.927	14.465
14:01:32	0.523	9.661	104.868	21.771	32.246
14:01:47	0.543	9.720	186.276	8.451	37.061
14:02:02	0.549	9.750	204.200	2.370	38.450
14:02:17	0.556	9.755	212.178	0.882	39.106

Wheelabrator
 CleanAir Project No. 11414
 North Broward
 Unit 3

March 27, 2012

Start Time 13:54

Stop Time 14:05

CALIBRATION BIAS 10

	Channel 1 O2	Channel 2 CO2	Channel 3 NOX	Channel 4 CO	Channel 5 SO2	Channel 6
	FF Outlet %dv	FF Outlet %dv	FF Outlet ppmdv	FF Outlet ppmdv	FF Outlet ppmdv	
14:02:32	0.528	9.760	214.562	0.599	39.551	
14:02:47	0.501	9.796	215.775	0.584	39.906	
14:03:02	0.480	9.825	216.655	0.598	40.230	
14:03:17	0.481	9.804	217.232	0.584	40.454	
14:03:32	0.515	9.801	217.371	0.552	40.567	
14:03:47	0.517	9.788	217.127	0.459	40.589	
14:04:02	0.521	9.818	216.817	0.454	40.668	
14:04:17	0.415	9.805	217.078	0.542	40.685	
14:04:32	0.237	9.823	217.705	0.476	40.879	
14:04:47	0.156	9.814	218.624	0.299	41.325	
14:05:02	0.129	9.807	219.658	0.085	41.723	
14:05:17	0.123	9.819	219.935	-0.006	42.094	
14:05:32	0.116	9.804	220.171	-0.032	42.291	