CleanAir.

CleanAir Engineering
500 W. Wood Street
Palatine, IL 60067-4975
800-627-0033
www.cleanair.com

April 22, 2009

Mr. Chuck Faller
Wheelabrator North Broward, Inc.
2600 NW 48th Street
Pompano Beach, FL 30073

Dear Mr. Faller:

Enclosed are six copies of each of the final reports prepared by Clean Air Engineering for Wheelabrator North Broward, Inc. on a RATA and compliance testing (in two volumes) performed at the Pompano Beach, Florida, facility on March 10-12, 2009.

One copy of each of the final reports was also sent to Tim Porter.

You can reach me at (800) 627-0033 ext. 4544 if you have any questions about the data or comments about the report. We would also appreciate any comments you have regarding how we might better serve you in the future.

Respectfully submitted,

CLEAN AIR ENGINEERING

Scott Brown
Project Manager

SAB/cab

cc: Tim Porter, Hampton, NH

CleanAir

CleanAir Engineering
500 W. Wood Street
Palatine, IL 60067-4975
800-627-0033
www.cleanair.com

Wheelabrator North Broward, Inc.
2600 NW 48th Street
Pompano Beach, FL 33073

REPORT ON RELATIVE ACCURACY TEST AUDIT

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

CleanAir Project No: 10735-1
Revision 0: April 22, 2009

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.

Submitted by,

Scott Brown
Project Manager
sbrown@cleanair.com
(800) 627-0033 ext. 4544

Reviewed by,

Scott Lehmann
Midwest Engineering Group Leader
slehmann@cleanair.com
(800) 627-0033 ext. 4660

REPORT ON RELATIVE ACCURACY TEST AUDIT

DRAFT REPORT REVISION HISTORY

Revision:	Date	Pages	Comments
D0a	04/13/09	All	Draft version of original document.

FINAL REPORT REVISION HISTORY

Revision:	Date	Pages	Comments
0	04/22/09	All	Final version of original document.

CONTENTS

1 PROJECT OVERVIEW 1-1
INTRODUCTION 1-1
Key Project Participants 1-1
Test Program Parameters 1-1
TEST PROGRAM SYNOPSIS 1-1
Results Summary 1-1
Table 1-1: Summary of Test Results 1-2
Discussion of Test Program 1-2

2 RESULTS 2-1
Table 2-1: Relative Accuracy Unit 1 FF Outlet - Oxygen 2-1
Table 2-2: Relative Accuracy Unit 1 FF Outlet - Sulfur Dioxide 2-1
Table 2-3: Relative Accuracy Unit 1 FF Outlet - Nitrogen Oxides 2-2
Table 2-4: Relative Accuracy Unit 1 FF Outlet - Carbon Monoxide 2-2
Table 2-5: Relative Accuracy Unit 2 FF Outlet - Oxygen 2-3
Table 2-6: Relative Accuracy Unit 2 FF Outlet - Sulfur Dioxide 2-3
Table 2-7: Relative Accuracy Unit 2 FF Outlet - Nitrogen Oxides 2-4
Table 2-8: Relative Accuracy Unit 2 FF Outlet - Carbon Monoxide 2-4
Table 2-9: Relative Accuracy Unit 3 FF Outlet - Oxygen 2-5
Table 2-10: Relative Accuracy Unit 3 FF Outlet - Sulfur Dioxide 2-5
Table 2-11: Relative Accuracy Unit 3 FF Outlet - Nitrogen Oxides 2-6
Table 2-12: Relative Accuracy Unit 3 FF Outlet - Carbon Monoxide 2-6

3 DESCRIPTION OF INSTALLATION 3-1
PROCESS DESCRIPTION 3-1
CEMS DESCRIPTION GENERAL 3-1
PERKIN ELMER MCS-100 /E ANALYZER 3-1
ESC DAS 3-2
CEM CALIBRATION 3-2
CEMS SCHEMATIC 3-3
Figure 3-1: General CEMS Schematic 3-3
Figure 3-2: Process Flow Diagram and CEM Locations 3-4
DESCRIPTION OF SAMPLING LOCATIONS 3-5
Table 3-1: Sampling Points 3-5
Figure 3-3: Units 1, 2 and 3 FF Outlets – RATA Sampling Point Determination (PS 2) 3-6

4 METHODOLOGY 4-1
Table 4-1: Summary of Sampling Procedures 4-1

CONTENTS

5 APPENDIX 5-1
TEST METHOD SPECIFICATIONS ..... A
SAMPLE CALCULATIONS ..... B
PARAMETERS C
QA/QC DATA ..... D
REFERENCE METHOD FIELD DATA ..... E
CEM MONITOR AND PROCESS DATA ..... F

PROJECT OVERVIEW

INTRODUCTION

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

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

Key Project Participants

Individuals responsible for coordinating and conducting the test program were:

C. Faller – Wheelabrator North Broward, Inc.
S. Brown – CleanAir
D. Dreska – CleanAir

Test Program Parameters

The testing performed at the Units 1, 2 and 3 fabric filter (FF) baghouse outlets from March 10 through 12, 2009, included the following emissions measurements:

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

TEST PROGRAM SYNOPSIS

Results Summary

Table 1-1, on page 1-2, summarizes the results of the test program. A more detailed presentation of the test conditions and results of analysis are shown in Tables 2-1 through 2-12 on pages 2-1 through 2-6. The O_2 RATA results are presented for comparison purposes only.

Table 1-1:
Summary of Test Results

Monitor Constituent	CEM Serial Number	RM Avg	CEM Avg	Difference	95% CC	Relative Accuracy Result	Limit	Basis of Limit
Unit 1 FF Outlet CEMS (units of RATA)								
SO_2 (ppmdv @ 7% O_2)	280	22.2	20.1	2.1	0.655	9.6%	20%	S[1]
NO_X (ppmdv @ 7% O_2)	280	193.3	171.0	22.3	1.001	12.0%	20%	RM[2]
CO (ppmdv @ 7% O_2)	280	7.6	4.6	3.0	0.221	3.2%	5%	S[3]
Unit 2 FF Outlet CEMS (units of RATA)								
SO_2 (ppmdv @ 7% O_2)	281	13.7	11.8	1.9	0.564	8.6%	20%	S[1]
NO_X (ppmdv @ 7% O_2)	281	189.3	192.4	-3.1	1.269	2.1%	10%	S[4]
CO (ppmdv @ 7% O_2)	281	16.5	13.3	3.2	0.426	3.6%	5%	S[3]
Unit 3 FF Outlet CEMS (units of RATA)								
SO_2 (ppmdv @ 7% O_2)	271	16.1	16.3	-0.1	0.523	2.3%	20%	S[1]
NO_X (ppmdv @ 7% O_2)	271	196.7	189.0	7.6	0.636	4.0%	10%	S[4]
CO (ppmdv @ 7% O_2)	271	10.5	8.4	2.1	0.243	2.3%	5%	S[3]

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

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

[3] CO FF Outlet Relative Accuracy calculated as a percentage of the 100 ppm standard as per Performance Specification 4A, Section 13.2.

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

Basis of Limit: RM = Reference Method S = Standard

Discussion of Test Program

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

All RATA runs were 27 minutes in duration. Ten (10) runs were performed on Units 1, 2 and 3, except for SO_2 and O_2 on Unit 2, where 13 runs were performed.

After three (3) runs on Unit 2, it was realized that the SO_2 concentration was not in agreement with the reference method analyzer. The facility recalibrated the SO_2 analyzer, the SO_2 RATA was restarted, and ten (10) more RATA runs were performed.

A NO_X analyzer converter check was performed after the calibration error check each morning. The converter efficiency data is presented, along with the calibration error check, in Appendix E.

End of Section 1 – Project Overview

RESULTS

Table 2-1:
Relative Accuracy Unit 1 FF Outlet - Oxygen

Run No.	Start Time	Date (2009)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference	
1	7:13	Mar 11	8.80	8.60	0.20	2.3%	
2	7:53	Mar 11	8.50	8.30	0.20	2.4%	*
3	8:33	Mar 11	8.67	8.50	0.17	2.0%	
4	9:23	Mar 11	8.67	8.50	0.17	1.9%	
5	10:04	Mar 11	8.78	8.60	0.18	2.1%	
6	10:43	Mar 11	8.66	8.60	0.06	0.7%	
7	11:54	Mar 11	8.41	8.30	0.11	1.3%	
8	12:35	Mar 11	8.86	8.70	0.16	1.8%	
9	13:16	Mar 11	8.70	8.50	0.20	2.3%	
10	13:56	Mar 11	8.73	8.60	0.13	1.5%	
Average			8.70	8.54	0.15	1.8%	

Standard Deviation	0.0473	
Confidence Coefficient (CC)	0.0363	
		Limit
Avg. Absolute Difference (%dv)	0.15	NA

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

Table 2-2:
Relative Accuracy Unit 1 FF Outlet - Sulfur Dioxide

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:13	Mar 11	22.9	21.2	1.7	7.6%	
2	7:53	Mar 11	19.9	17.7	2.2	10.9%	
3	8:33	Mar 11	19.6	16.6	3.0	15.1%	
4	9:23	Mar 11	22.6	21.2	1.4	6.3%	
5	10:04	Mar 11	22.0	20.4	1.6	7.2%	
6	10:43	Mar 11	21.4	20.3	1.1	5.0%	
7	11:54	Mar 11	26.5	24.5	2.0	7.5%	
8	12:35	Mar 11	18.7	14.3	4.4	23.4%	*
9	13:16	Mar 11	21.4	17.6	3.8	17.9%	
10	13:56	Mar 11	24.0	21.5	2.5	10.4%	
Average			22.2	20.1	2.1	9.6%	

Standard Deviation	0.8524	
Confidence Coefficient (CC)	0.6552	
		Limits
Relative Accuracy (as % of RM)	12.6%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 29 (ppm@7%O2)	9.6%	20.0%

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

Table 2-3:
Relative Accuracy Unit 1 FF Outlet - Nitrogen Oxides

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:13	Mar 11	185.7	164.8	20.9	11.3%	
2	7:53	Mar 11	188.4	165.7	22.7	12.0%	
3	8:33	Mar 11	190.9	167.8	23.1	12.1%	
4	9:23	Mar 11	193.4	171.3	22.1	11.4%	
5	10:04	Mar 11	189.4	166.0	23.4	12.4%	*
6	10:43	Mar 11	183.4	160.3	23.1	12.6%	
7	11:54	Mar 11	198.7	179.2	19.5	9.8%	
8	12:35	Mar 11	206.8	183.1	23.7	11.5%	
9	13:16	Mar 11	198.5	176.3	22.2	11.2%	
10	13:56	Mar 11	193.6	170.5	23.1	11.9%	
Average			193.3	171.0	22.3	11.5%	

Standard Deviation	1.3018	
Confidence Coefficient (CC)	1.0006	
		Limits
Relative Accuracy (as % of RM)	12.0%	20.0%

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

Table 2-4:
Relative Accuracy Unit 1 FF Outlet - Carbon Monoxide

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	7:13	Mar 11	10.3	6.8	3.5	33.8%	*
2	7:53	Mar 11	6.4	3.5	2.9	45.3%	
3	8:33	Mar 11	7.2	4.4	2.8	39.3%	
4	9:23	Mar 11	9.4	6.4	3.0	32.0%	
5	10:04	Mar 11	8.9	5.8	3.1	34.6%	
6	10:43	Mar 11	6.9	4.4	2.5	35.9%	
7	11:54	Mar 11	6.2	3.3	2.9	46.8%	
8	12:35	Mar 11	8.0	4.6	3.4	42.3%	
9	13:16	Mar 11	7.2	3.8	3.4	47.1%	
10	13:56	Mar 11	8.0	4.8	3.2	40.1%	
Average			7.6	4.6	3.0	39.9%	

Standard Deviation	0.2878	
Confidence Coefficient (CC)	0.2212	
		Limits
Relative Accuracy (as % of RM)	42.8%	10.0%
Relative Accuracy (as % of Applicable Std.) Standard = 100 (ppm@7%O2)	3.2%	5.0%

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

Table 2-5:
Relative Accuracy Unit 2 FF Outlet - Oxygen

Run No.	Start Time	Date (2009)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference	
1	6:52	Mar 10	8.49	8.30	0.19	2.2%	*
2	7:42	Mar 10	8.11	8.10	0.01	0.1%	
3	8:23	Mar 10	9.19	9.20	< 0.01	-0.1%	
4	9:52	Mar 10	8.59	8.60	< 0.01	-0.1%	
5	10:33	Mar 10	9.23	9.20	0.03	0.3%	
6	11:13	Mar 10	8.79	8.50	0.29	3.3%	*
7	11:54	Mar 10	8.75	8.70	0.05	0.6%	
8	12:34	Mar 10	8.25	8.40	< 0.15	-1.9%	*
9	13:16	Mar 10	8.81	8.80	0.01	0.1%	
10	14:28	Mar 10	8.83	8.70	0.13	1.4%	*
11	15:08	Mar 10	8.94	8.90	0.04	0.5%	
12	15:44	Mar 10	9.17	9.10	0.07	0.7%	*
13	16:21	Mar 10	9.18	9.20	< 0.02	-0.2%	
Average			8.85	8.84	0.01	0.2%	

Standard Deviation	0.0271	
Confidence Coefficient (CC)	0.0227	
		Limit
Avg. Absolute Difference (%dv)	0.02	NA

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

Table 2-6:
Relative Accuracy Unit 2 FF Outlet - Sulfur Dioxide

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	6:52	Mar 10	14.7	9.0	5.7	38.7%	*
2	7:42	Mar 10	15.3	9.1	6.2	40.7%	*
3	8:23	Mar 10	11.3	4.8	6.5	57.5%	*
4	9:52	Mar 10	10.3	9.6	0.7	6.8%	
5	10:33	Mar 10	17.3	16.1	1.2	7.2%	
6	11:13	Mar 10	13.3	10.7	2.6	19.3%	
7	11:54	Mar 10	15.6	13.8	1.8	11.5%	
8	12:34	Mar 10	11.7	9.2	2.5	21.6%	
9	13:16	Mar 10	14.9	13.4	1.5	10.3%	
10	14:28	Mar 10	13.7	11.0	2.7	20.0%	
11	15:08	Mar 10	9.1	5.4	3.7	40.5%	*
12	15:44	Mar 10	10.3	7.6	2.7	26.1%	
13	16:21	Mar 10	16.1	14.5	1.6	9.7%	
Average			13.7	11.8	1.9	14.1%	

Standard Deviation	0.7339	
Confidence Coefficient (CC)	0.5641	
		Limits
Relative Accuracy (as % of RM)	18.2%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 29 (ppm@7%O2)	8.6%	20.0%

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

Table 2-7:
Relative Accuracy Unit 2 FF Outlet - Nitrogen Oxides

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	6:52	Mar 10	190.4	193.5	-3.1	-1.6%	
2	7:42	Mar 10	184.3	188.2	-3.9	-2.1%	
3	8:23	Mar 10	194.0	197.9	-3.9	-2.0%	
4	9:52	Mar 10	197.1	198.3	-1.2	-0.6%	
5	10:33	Mar 10	190.5	196.4	-5.9	-3.1%	
6	11:13	Mar 10	191.0	197.7	-6.7	-3.5%	*
7	11:54	Mar 10	188.7	191.3	-2.6	-1.4%	
8	12:34	Mar 10	187.3	187.9	-0.6	-0.3%	
9	13:16	Mar 10	180.4	184.9	-4.5	-2.5%	
10	14:28	Mar 10	190.5	193.0	-2.5	-1.3%	
Average			189.3	192.4	-3.1	-1.6%	

Standard Deviation	1.6513	
Confidence Coefficient (CC)	1.2693	
		Limits
Relative Accuracy (as % of RM)	2.3%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 205 (ppm@7%O2)	2.1%	10.0%

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

Table 2-8:
Relative Accuracy Unit 2 FF Outlet - Carbon Monoxide

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	6:52	Mar 10	19.5	16.0	3.5	17.8%	
2	7:42	Mar 10	10.4	6.8	3.6	34.5%	
3	8:23	Mar 10	12.5	9.4	3.1	24.5%	
4	9:52	Mar 10	18.6	15.3	3.3	17.7%	
5	10:33	Mar 10	19.0	16.1	2.9	15.4%	
6	11:13	Mar 10	20.1	16.4	3.7	18.5%	
7	11:54	Mar 10	19.1	15.9	3.2	17.0%	
8	12:34	Mar 10	11.0	7.2	3.8	34.5%	*
9	13:16	Mar 10	15.0	13.2	1.8	12.2%	
10	14:28	Mar 10	13.9	10.7	3.2	23.3%	
Average			16.5	13.3	3.2	19.2%	

Standard Deviation	0.5537	
Confidence Coefficient (CC)	0.4256	
		Limits
Relative Accuracy (as % of RM)	21.7%	10.0%
Relative Accuracy (as % of Applicable Std.) Standard = 100 (ppm@7%O2)	3.6%	5.0%

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

RESULTS

Table 2-9:
Relative Accuracy Unit 3 FF Outlet - Oxygen

Run No.	Start Time	Date (2009)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Percent Difference	
1	6:48	Mar 12	8.13	7.80	0.33	4.01%	
2	7:29	Mar 12	8.20	7.90	0.30	3.66%	
3	8:09	Mar 12	8.41	8.10	0.31	3.71%	
4	8:48	Mar 12	8.56	8.20	0.36	4.21%	*
5	9:29	Mar 12	8.61	8.30	0.31	3.56%	
6	10:08	Mar 12	9.26	9.00	0.26	2.83%	
7	10:48	Mar 12	9.49	9.20	0.29	3.02%	
8	11:29	Mar 12	9.28	9.00	0.28	2.97%	
9	12:38	Mar 12	9.47	9.20	0.27	2.88%	
10	13:20	Mar 12	9.37	9.10	0.27	2.92%	
Average			8.91	8.62	0.29	3.26%	

Standard Deviation	0.0215	
Confidence Coefficient (CC)	0.0165	
		Limit
Avg. Absolute Difference (%dv)	0.29	NA

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

Table 2-10:
Relative Accuracy Unit 3 FF Outlet - Sulfur Dioxide

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	6:48	Mar 12	16.2	16.8	-0.6	-3.5%	
2	7:29	Mar 12	15.1	13.9	1.2	8.1%	
3	8:09	Mar 12	13.4	13.0	0.4	3.2%	
4	8:48	Mar 12	11.3	11.0	0.3	2.8%	
5	9:29	Mar 12	18.4	18.9	-0.5	-2.7%	
6	10:08	Mar 12	15.8	16.2	-0.4	-2.6%	
7	10:48	Mar 12	24.9	25.3	-0.4	-1.5%	
8	11:29	Mar 12	15.7	16.1	-0.4	-2.2%	
9	12:38	Mar 12	14.1	15.2	-1.1	-7.5%	
10	13:20	Mar 12	9.1	7.2	1.9	20.9%	*
Average			16.1	16.3	-0.1	-0.9%	

Standard Deviation	0.6810	
Confidence Coefficient (CC)	0.5235	
		Limits
Relative Accuracy (as % of RM)	4.1%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 29 (ppm@7%O2)	2.3%	20.0%

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

Table 2-11:
Relative Accuracy Unit 3 FF Outlet - Nitrogen Oxides

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	6:48	Mar 12	201.7	194.4	7.3	3.6%	
2	7:29	Mar 12	199.6	191.8	7.8	3.9%	
3	8:09	Mar 12	204.8	193.9	10.9	5.3%	*
4	8:48	Mar 12	201.4	193.2	8.2	4.1%	
5	9:29	Mar 12	197.1	188.5	8.6	4.4%	
6	10:08	Mar 12	194.0	186.6	7.4	3.8%	
7	10:48	Mar 12	186.2	179.2	7.0	3.8%	
8	11:29	Mar 12	194.6	185.7	8.9	4.6%	
9	12:38	Mar 12	188.6	182.2	6.4	3.4%	
10	13:20	Mar 12	206.7	199.8	6.9	3.3%	
Average			196.7	189.0	7.6	3.9%	

Standard Deviation	0.8274	
Confidence Coefficient (CC)	0.6360	
		Limits
Relative Accuracy (as % of RM)	4.2%	20.0%
Relative Accuracy (as % of Applicable Std.) Standard = 205 (ppm@7%O2)	4.0%	10.0%

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

Table 2-12:
Relative Accuracy Unit 3 FF Outlet - Carbon Monoxide

Run No.	Start Time	Date (2009)	RM Data (ppm@7%O2)	CEMS Data (ppm@7%O2)	Difference (ppm@7%O2)	Percent Difference	
1	6:48	Mar 12	8.1	6.4	1.7	21.4%	
2	7:29	Mar 12	8.9	6.8	2.1	23.9%	
3	8:09	Mar 12	8.8	6.5	2.3	26.0%	
4	8:48	Mar 12	11.4	9.3	2.1	18.1%	
5	9:29	Mar 12	7.9	6.0	1.9	24.2%	
6	10:08	Mar 12	12.3	9.9	2.4	19.5%	
7	10:48	Mar 12	13.1	10.8	2.3	17.4%	
8	11:29	Mar 12	14.5	11.7	2.8	19.2%	*
9	12:38	Mar 12	11.0	9.5	1.5	13.6%	
10	13:20	Mar 12	13.1	10.7	2.4	18.6%	
Average			10.5	8.4	2.1	19.8%	

Standard Deviation	0.3156	
Confidence Coefficient (CC)	0.2426	
		Limits
Relative Accuracy (as % of RM)	22.1%	10.0%
Relative Accuracy (as % of Applicable Std.) Standard = 100 (ppm@7%O2)	2.3%	5.0%

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

End of Section 2 – Results

DESCRIPTION OF INSTALLATION

PROCESS DESCRIPTION

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

CEMS DESCRIPTION GENERAL

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). The MCS-100 /e analyzers measure pollutant and diluent concentrations on a hot-wet basis.

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

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

PERKIN ELMER MCS-100 /E ANALYZER

The analyzer uses multiple infrared measurements, including Gas Filter Correlation for measuring NO_X and CO, a single beam-dual wavelength for SO_2 and H_2O and a stand-alone Westinghouse Hagen-type ZrO_2 (analysis by zirconium oxide electrochemical cell) for O_2, which is controlled by the 100 /e motherboard. All measurements are performed on a hot-wet 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. H_2O and CO_2 are measured to correct for the slight interference that these two (2) components have on infrared measurement techniques. The H_2O measurement is used to automatically correct wet measurements to a dry basis prior to output of signals to the 8816 loggers.

DESCRIPTION OF INSTALLATION

The MSC 100 /e includes an integrated PLC that controls all analyzer functions, including optical bench operation, detector signal processing, dynamic gas calibrations, sample system operation and operational status alarms. The dry-based SO_2, NO_X, CO, O_2, CO_2 and actual H_2O measurement signals and operational status outputs are sent to the ESC 8816 data logger.

ESC DAS

The DAS consists of three (3) Model 8816 data loggers, a central data polling and reporting computer and engineering workstation. The 8816 loggers receive the measurement signals from the MCS-100 /e analyzers, and transmit the data to the central computer. The 8816 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 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 loggers also receive 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 is located in the CEM shelter, receives all data from the 8816 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 a CD ROM optical drive. The engineering workstation, located in the control room, 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 logger. No other adjustments or corrections are performed on the data.

DESCRIPTION OF INSTALLATION

CEMS SCHEMATIC

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

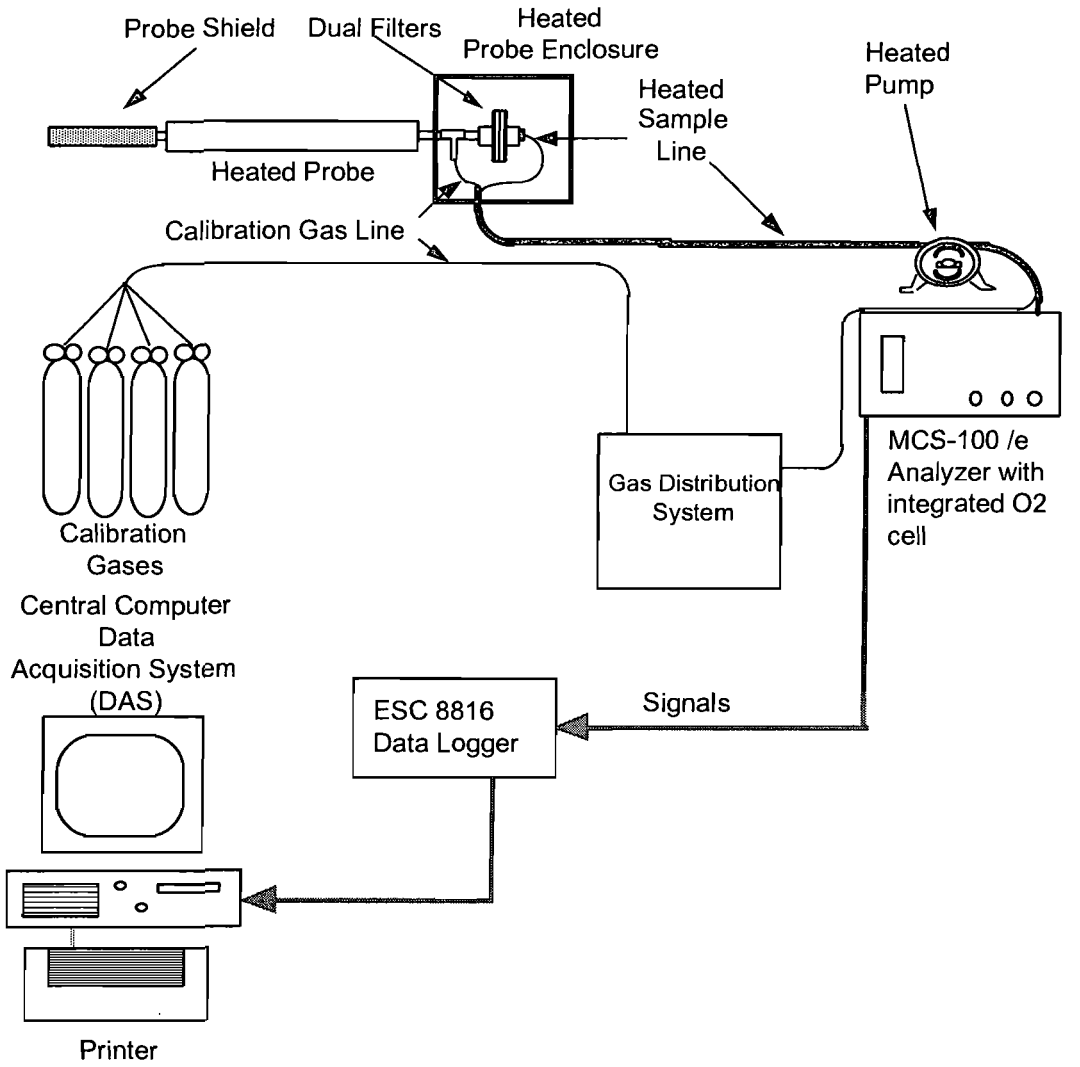


Figure 3-1: General CEMS Schematic

DESCRIPTION OF INSTALLATION

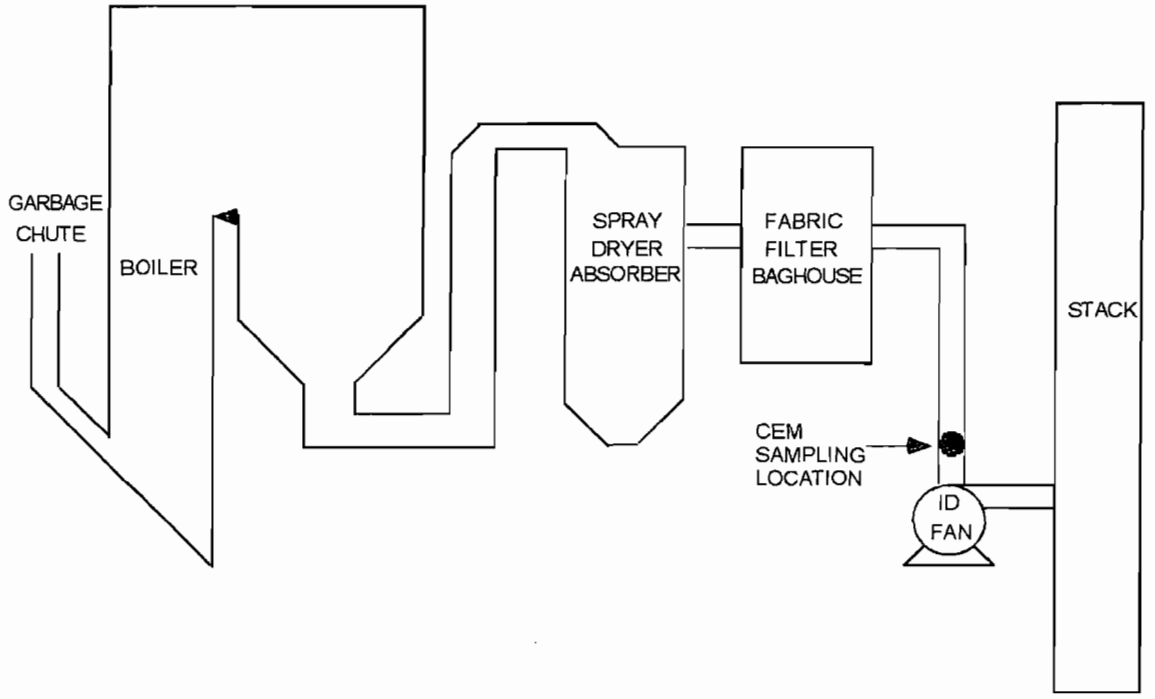


Figure 3-2: Process Flow Diagram and CEM Locations

DESCRIPTION OF SAMPLING LOCATIONS

Sampling point locations were determined according to EPA Method 1.

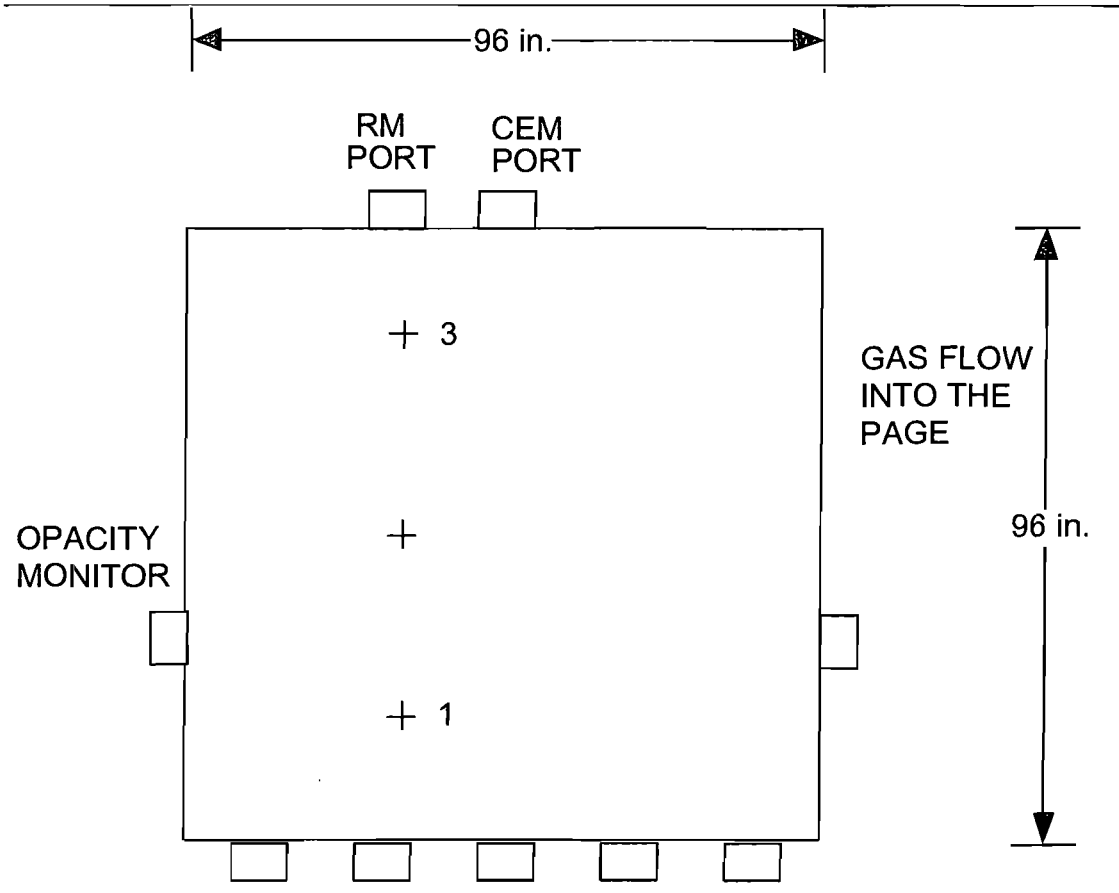
Table 3-1 outlines the sampling point configurations. Figure 3-3 on page 3-6 illustrates the sampling points and orientation of sampling ports for each of the sources tested in the program.

Table 3-1:
Sampling Points

Location Constituent	Methods	Run No.	Ports	Points per Port	Minutes per Point	Total Minutes	Figure
Unit 1 FF Outlets							
CEM	3A, 6C, 7E, 10	1-10	1	3	9	27	3-3
Unit 2 FF Outlet							
CEM	3A, 6C, 7E, 10	1-10/13	1	3	9	27	3-3
Unit 3 FF Outlet							
CEM	3A, 6C, 7E, 10	1-10	1	3	9	27	3-3

DESCRIPTION OF INSTALLATION

DESCRIPTION OF SAMPLING LOCATION (CONTINUED)



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)

End of Section 3 – Description of Installation

METHODOLOGY

Clean Air Engineering followed procedures as detailed in EPA Methods 3A, 6C, 7E and 10, as well as Performance Specifications 2, 3 and 4A. 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 3A	"Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
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"

These methods appear in detail in Title 40 of the Code of Federal Regulations (CFR) and on the World Wide Web at http://www.cleanair.com.

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 in EPA "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III Stationary Source-Specific Methods", EPA/600/R-94/038C. Additional QA/QC methods, as prescribed in CleanAir's internal Quality Manual, were also followed. Results of all QA/QC activities performed by CleanAir are summarized in Appendix D.

End of Section 4 – Methodology

APPENDIX

TEST METHOD SPECIFICATIONS ..... A
SAMPLE CALCULATIONS ..... B
PARAMETERS C
QA/QC DATA ..... D
REFERENCE METHOD FIELD DATA ..... E
CEM MONITOR AND PROCESS DATA ..... F

TEST METHOD SPECIFICATIONS

A

This Page Intentionally Left Blank

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

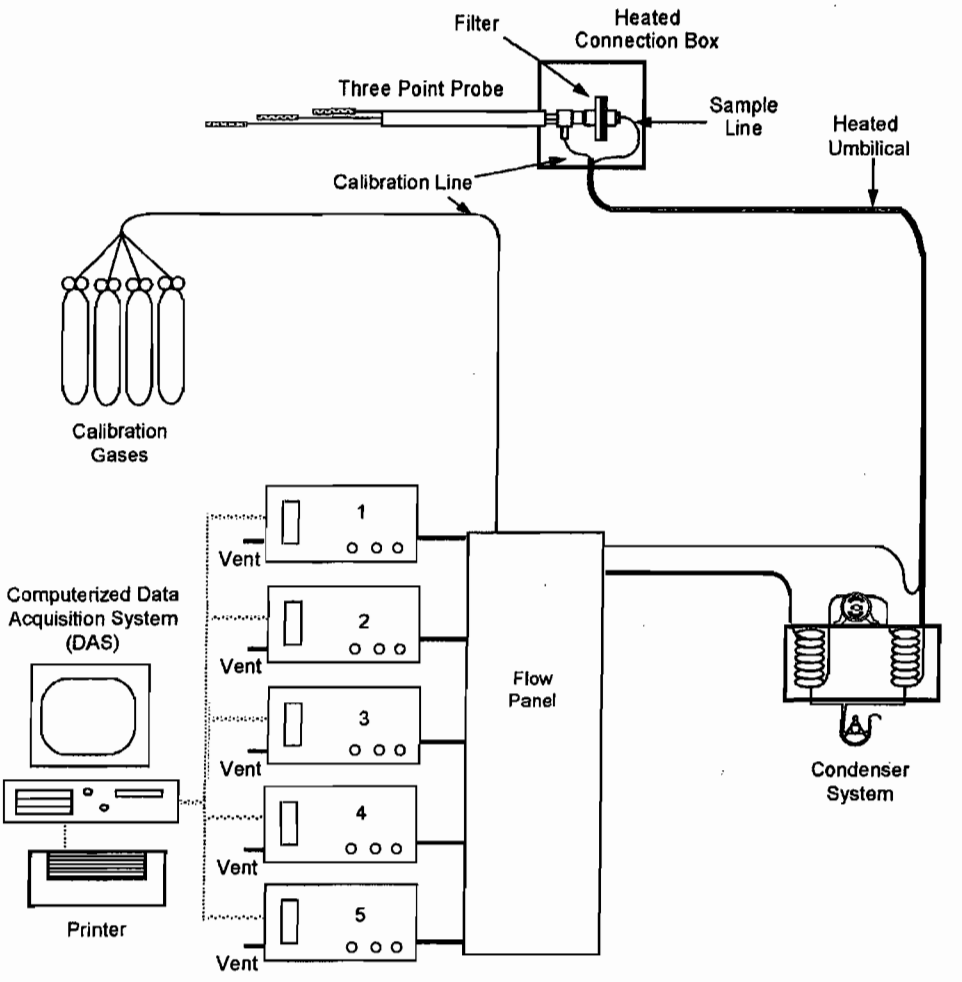
Source Location Name(s)	Units 1, 2 and 3 FF Outlets
Pollutant(s) to be Determined	Sulfur Dioxide (SO_2), Nitrogen Oxides (NO_x) and Carbon Monoxide (CO)
Other Parameters to be Determined from Train	O2 and CO2 (EPA Method 3A)

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

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

	Standard Method Specification	Actual Specification Used
Instrument Span Range		
Oxygen (O_2)	≤ 1.33 x Expected Maximum	0-14.02
Carbon Dioxide (CO_2)	≤ 1.33 x Expected Maximum	0-14.0%
Sulfur Dioxide (SO_2)	≤ 1.33 x Expected Maximum	0-86.89 ppm
Nitrogen Oxides (NO_x)	≤ 1.33 x Expected Maximum	0-453.9 ppm
Carbon Monoxide (CO)	≤ 1.33 x Expected Maximum	0-95.48 ppm
Total Hydrocarbon (THC)	N/A	N/A
Hydrogen Chloride (HCl)	N/A	N/A
Ammonia (NH_3)	N/A	N/A
Data Acquisition		
Data Recorder	Strip chart, Analog Computer or Digital Recorder	Digital Recorder
Recorder Resolution	0.5 Percent of Span	0.1 Percent of Span
Data Storage	Manually or Automatic	Automatic
Measurement Freq. ≤60 min. Sample Time	1-min. intervals or 30 measurements (less restrictive)	One reading per second
Recording Freq. ≤60 min. Sample Time	1-min. intervals or 30 measurements (less restrictive)	One Minute Average (60, 1 second readings)
Measurement Freq. >60 min. Sample Time	2-min. intervals or 96 measurements (less restrictive)	N/A
Recording Freq. >60 min. Sample Time	2-min. intervals or 96 measurements (less restrictive)	N/A
Calibration Gas Specifications		
Oxygen (O_2)	EPA Protocol 1	EPA Protocol 1
Carbon Dioxide (CO_2)	EPA Protocol 1	EPA Protocol 1
Sulfur Dioxide (SO_2)	EPA Protocol 1	EPA Protocol 1
Nitrogen Oxides (NO_x)	EPA Protocol 1	EPA Protocol 1
Carbon Monoxide (CO)	EPA Protocol 1	EPA Protocol 1
Total Hydrocarbon (THC)	N/A	
Hydrogen Chloride (HCl)	N/A	
Ammonia (NH_3)	N/A	

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



Number	Gas	Monitor	Range Used	Calibration Gas Concentrations
1	NO_X	T.E.I. 42C	0-453.9 ppm	0, 227.1, 453.9
2	SO_2	Western Research 921 NMP	0-86.89 ppm	0, 43.98, 86.89
3	CO	T.E.I. 48CHL	0-95.48 ppm	0, 48.15, 95.48
4	O_2	Servomex 1420B	0-14.02 %	0, 6.05, 14.02
5	CO_2	Servomex 1415B	0-14.0 %	0, 6.054, 14.0

This Page Intentionally Left Blank

SAMPLE CALCULATIONS

B

This Page Intentionally Left Blank

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

CEM Field Sample Calculations for NOX Unit 1 FF Outlet

Sample data taken from [redacted] and Channel 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.

040309 113051

1. Average of a calibration series

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

Where:

C_1, C_2, C_3	= concentrations of 3 consecutive gas samples that are representative of the calibration gas			
C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 1	=	227.796	ppmdv

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

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

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 1	=	227.796	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	227.100	ppmdv
l_{cal}	= limit for calibration error for hydrocarbons	=	5.0%	
E_{HC}	= calibration error check value	=	NA	

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

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

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 1	=	227.796	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	227.100	ppmdv
Span	= instrument span value	=	453.900	
l_{cal}	= limit for calibration error for non-hydrocarbons	=	2.0%	
E	= calibration error check value	=	0.15%	**Pass**

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

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

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 1	=	227.796	ppmdv
C_{mf}	= calibration error response concentration for Cal01	=	223.310	ppmdv
Span	= instrument span value	=	453.900	ppmdv
l_{bias}	= limit for system bias error	=	5.0%	
E_{bias}	= calibration bias error check value	=	0.99%	**Pass**

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

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

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

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	=	223.310	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	223.663	ppmdv
Span	= instrument span value	=	453.900	ppmdv
l_{drift}	= limit for system drift error	=	3.0%	
E_{drift}	= calibration drift error check value	=	0.08%	**Pass**

5. Average Concentration for an entire Run

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

Where: i=1

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for NOX on channel 1	=	147.926	ppmdv
N	= total number of readings in Run 1	=	27	
C	= average NOX concentration for Run 1	=	159.077	ppmdv

6. Drift-Corrected Average Concentration for an entire Run

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

C_{ma}	= concentration of actual callbration gas value	=	227.100	ppmdv
C	= average NOX concentration for Run 1	=	159.077	ppmdv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	223.310	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	223.663	ppmdv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	-0.063	ppmdv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	0.228	ppmdv
C_{DC}	= drift corrected average concentration for Run 1	=	161.624	ppmdv

CEM Emissions Sample Calculations
for NOX Unit 1 FF Outlet

Sample data taken from Run 1
and Channel 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.

040309 113302

1. NOX concentration (ppmdv)

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

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

Where:

C_{DC}	= drift corrected average concentration	=	161.624	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	0.000	% v/v
100	= conversion factor to change percentage to decimal	=	100	
k_1	= ppm/% to ppm conversion factor for diluent gases	=	1	
C (ppmdv)	= NOX concentration (ppmdv)	=	161.624	ppmdv

2. NOX concentration (ppmwv)

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

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

Where:

C_{DC}	= drift corrected average concentration	=	161.624	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 (ppmwv)	= NOX concentration (ppmwv)	=	161.624	ppmwv

3. NOX concentration (lb/dscf)

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

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	161.624	ppmdv
MW	= Molecular Weight of NOX gas	=	46.0055	lb/lb-mole
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
385.3	= molar volume	=	385.3	dscf/lb-mole
C (lb/dscf)	= NOX concentration (lb/dscf)	=	1.930E-05	lb/dscf

4. NOX concentration (%dv)

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

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	161.624	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)	=	0.0162%	%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)	=	1.930E-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)	=	309.034	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)	=	1.930E-05	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C (mg/Nm3 dr	= NOX concentration (mg/Nm3 dry)	=	331.647	mg/Nm^3 dry

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

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

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	161.624	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	8.803	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O2	= NOX concentration corrected to 7% O2 (ppmdv example)	=	185.720	ppmdv @ 7%O2

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

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

Where:

C (ppmdv)	= NOX concentration (ppmdv)	=	161.624	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	10.709	%
C (ppmdv -CO	= NOX concentration corrected to 12% CO2 (ppmdv example)	=	181.113	ppmdv @ 12%CO2

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

CEM RATA Sample Calculations for NOX Unit 1 FF Outlet

Sample data taken from	Run 1
and	Channel 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.

040309 113446

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	=	164.800	ppm@7%O2
C_R	= NOX value from CleanAir RM Data	=	185.720	ppm@7%O2
D	= NOX value difference between 2 methods	=	20.920	ppm@7%O2

2. Percent Value Difference (%)

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

Where:

C_R	= NOX value from CleanAir RM Data	=	185.720	ppm@7%O2
D	= NOX value difference between 2 methods	=	20.920	ppm@7%O2
$D_{\%}$	= NOX value difference as a percentage of RM Data	=	11.3%	

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

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

Where:

			i=1	
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	164.800	ppm@7%O2
N	= total number of runs included in the CEM data	=	9	
$C_{p,avg}$	= Average NOX value from Plant CEM Data	=	171.000	ppm@7%O2

Wheelabrator

CleanAir Project No. 10735

North Broward

Unit 1 FF Outlet

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

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

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	185.720	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	164.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	1.302	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	=	1.302	ppm@7%O2
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	1.001	ppm@7%O2

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

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

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	185.720	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	164.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	1.001	ppm@7%O2
RA	= relative accuracy (as a percentage of the reference method)	=	12.039%	
		Limit =	20.000%	

Wheelabrator

CleanAir Project No. 10735

North Broward

Unit 1 FF Outlet

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	=	185.720	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	164.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	1.001	
C_{std}	= NOX value of applicable standard	=	205.000	ppm@7%O2
RA	= relative accuracy (as percentage of the applicable standard)	=	11.350%	
		Limit =	10.000%	

8. Average Absolute Difference

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

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	185.720	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	164.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
AAD	= average absolute difference	=	22.266	ppm@7%O2
		Limit =	NA	ppm@7%O2

9. Average Absolute Difference, including Confidence Coefficient

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

Where:

$C_{R,i}$	= NOX value from CleanAir RM Data for ith run	=	185.720	ppm@7%O2
$C_{p,i}$	= NOX value from Plant CEM Data for ith run	=	164.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	1.001	ppm@7%O2
AAD_{cc}	= average absolute difference plus confidence coefficient	=	23.267	ppm@7%O2
		Limit =	NA	ppm@7%O2

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

CEM Field Sample Calculations for SO2 Unit 1 FF Outlet

Sample data taken from [redacted] and Channel 2

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

040309 113505

1. Average of a calibration series

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

Where:

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

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 2	=	43.582	ppmdv

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

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

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 2	=	43.582	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	43.980	ppmdv
l_{cal}	= limit for calibration error for hydrocarbons	=	5.0%	
E_{HC}	= calibration error check value	=	NA	

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

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

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 2	=	43.582	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	43.980	ppmdv
Span	= instrument span value	=	86.890	
l_{cal}	= limit for calibration error for non-hydrocarbons	=	2.0%	
E	= calibration error check value	=	0.46%	**Pass**

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

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

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 2	=	43.582	ppmdv
C_{mf}	= calibration error response concentration for Cal01	=	42.416	ppmdv
Span	= instrument span value	=	86.890	ppmdv
l_{bias}	= limit for system bias error	=	5.0%	
E_{bias}	= calibration bias error check value	=	1.34%	**Pass**

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

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

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

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	=	42.416	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	42.019	ppmdv
Span	= instrument span value	=	86.890	ppmdv
I_{drift}	= limit for system drift error	=	3.0%	
E_{drift}	= calibration drift error check value	=	0.46%	**Pass**

5. Average Concentration for an entire Run

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

Where: i=1

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for SO2 on channel 2	=	18.465	ppmdv
N	= total number of readings in Run 1	=	27	
C	= average SO2 concentration for Run 1	=	18.815	ppmdv

6. Drift-Corrected Average Concentration for an entire Run

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

C_{ma}	= concentration of actual calibration gas value	=	43.980	ppmdv
C	= average SO2 concentration for Run 1	=	18.815	ppmdv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	42.416	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	42.019	ppmdv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	-0.673	ppmdv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	-0.619	ppmdv
C_{DC}	= drift corrected average concentration for Run 1	=	19.968	ppmdv

CEM Emissions Sample Calculations
for SO2 Unit 1 FF Outlet

Sample data taken from Run 1
and Channel 2

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

040309 113505

1. SO2 concentration (ppmdv)

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

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

Where:

C_{DC}	= drift corrected average concentration	=	19.968	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	0.000	% v/v
100	= conversion factor to change percentage to decimal	=	100	
k_1	= ppm/% to ppm conversion factor for diluent gases	=	1	
C (ppmdv)	= SO2 concentration (ppmdv)	=	19.968	ppmdv

2. SO2 concentration (ppmwv)

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

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

Where:

C_{DC}	= drift corrected average concentration	=	19.968	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 (ppmwv)	= SO2 concentration (ppmwv)	=	19.968	ppmwv

3. SO2 concentration (lb/dscf)

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

Where:

C (ppmdv)	= SO2 concentration (ppmdv)	=	19.968	ppmdv
MW	= Molecular Weight of SO2 gas	=	64.0628	lb/lb-mole
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
385.3	= molar volume	=	385.3	dscf/lb-mole
C (lb/dscf)	= SO2 concentration (lb/dscf)	=	3.320E-06	lb/dscf

4. SO2 concentration (%dv)

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

Where:

C (ppmdv)	= SO2 concentration (ppmdv)	=	19.968	ppmdv
100	= conversion factor from decimal to percentage	=	1.00E+02	
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
C (%dv)	= SO2 concentration (%dv)	=	0.0020%	%dv

5. SO2 concentration (mg/dscm)

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

Where:

C (lb/dscf)	= SO2 concentration (lb/dscf)	=	3.320E-06	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
C (mg/dscm)	= SO2 concentration (mg/dscm)	=	53.165	mg/dscm

6. SO2 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)	= SO2 concentration (lb/dscf)	=	3.320E-06	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C (mg/Nm3 dr	= SO2 concentration (mg/Nm3 dry)	=	57.055	mg/Nm^3 dry

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

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

Where:

C (ppmdv)	= SO2 concentration (ppmdv)	=	19.968	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	8.803	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O2	= SO2 concentration corrected to 7% O2 (ppmdv example)	=	22.944	ppmdv @ 7%O2

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

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

Where:

C (ppmdv)	= SO2 concentration (ppmdv)	=	19.968	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	10.709	%
C (ppmdv -CO	= SO2 concentration corrected to 12% CO2 (ppmdv example)	=	22.375	ppmdv @ 12%CO2

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

CEM RATA Sample Calculations for SO2 Unit 1 FF Outlet

Sample data taken from Run 1
and Channel 2

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

040309 113626

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

$$D = C_R - C_P$$

Where:

C_P	= SO2 value from Plant CEM Data	=	21.200	ppm@7%O2
C_R	= SO2 value from CleanAir RM Data	=	22.944	ppm@7%O2
D	= SO2 value difference between 2 methods	=	1.744	ppm@7%O2

2. Percent Value Difference (%)

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

Where:

C_R	= SO2 value from CleanAir RM Data	=	22.944	ppm@7%O2
D	= SO2 value difference between 2 methods	=	1.744	ppm@7%O2
$D_{\%}$	= SO2 value difference as a percentage of RM Data	=	7.6%	

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

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

Where:

			i=1	
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	21.200	ppm@7%O2
N	= total number of runs included in the CEM data	=	9	
$C_{p,avg}$	= Average SO2 value from Plant CEM Data	=	20.111	ppm@7%O2

Wheelabrator

CleanAir Project No. 10735

North Broward

Unit 1 FF Outlet

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

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

Where:

$C_{R,I}$	= SO2 value from CleanAir RM Data for ith run	=	22.944	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	21.200	ppm@7%O2
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.852	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	=	0.852	ppm@7%O2
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.655	ppm@7%O2

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

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

Where:

$C_{R,i}$	= SO2 value from CleanAir RM Data for ith run	=	22.944	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	21.200	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.655	ppm@7%O2
RA	= relative accuracy (as a percentage of the reference method)	=	12.556%	
		Limit =	20.000%	

Wheelabrator

CleanAir Project No. 10735

North Broward

Unit 1 FF Outlet

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

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

Where:

$C_{R,i}$	= SO2 value from CleanAir RM Data for ith run	=	22.944	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	21.200	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.655	
C_{std}	= SO2 value of applicable standard	=	29.000	ppm@7%O2
RA	= relative accuracy (as percentage of the applicable standard)	=	9.633%	
		Limit =	20.000%	

8. Average Absolute Difference

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

Where:

$C_{R,i}$	= SO2 value from CleanAir RM Data for ith run	=	22.944	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	21.200	ppm@7%O2
N	= total Number of RATA Runs	=	9	
AAD	= average absolute difference	=	2.138	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:

$C_{R,i}$	= SO2 value from CleanAir RM Data for ith run	=	22.944	ppm@7%O2
$C_{p,i}$	= SO2 value from Plant CEM Data for ith run	=	21.200	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.655	ppm@7%O2
AAD_{cc}	= average absolute difference plus confidence coefficient	=	2.794	ppm@7%O2
		Limit =	NA	ppm@7%O2

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

CEM Field Sample Calculations for CO Unit 1 FF Outlet

Sample data taken from [redacted] 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.

040309 113648

1. Average of a calibration series

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

Where:

C_1, C_2, C_3	= concentrations of 3 consecutive gas samples that are representative of the calibration gas			
C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 3	=	48.280	ppmdv

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

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

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 3	=	48.280	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	48.150	ppmdv
l_{cal}	= limit for calibration error for hydrocarbons	=	5.0%	
E_{HC}	= calibration error check value	=	NA	

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

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

Where:

C_{mce}	= average concentration of a calibration series In this case the low cal series for channel 3	=	48.280	ppmdv
C_{ma}	= concentration of actual calibration gas value	=	48.150	ppmdv
Span	= instrument span value	=	95.480	
l_{cal}	= limit for calibration error for non-hydrocarbons	=	2.0%	
E	= calibration error check value	=	0.14%	**Pass**

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

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

Where:

C_{mce}	= average concentration of a calibration series in this case the Low cal series for channel 3	=	48.280	ppmdv
C_{mf}	= calibration error response concentration for Cal01	=	48.227	ppmdv
Span	= instrument span value	=	95.480	ppmdv
l_{bias}	= limit for system bias error	=	5.0%	
E_{bias}	= calibration bias error check value	=	0.06%	**Pass**

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

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

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

Where:

C_{mf}	= calibration error response concentration for Cal01 (final)	=	48.227	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	48.226	ppmdv
Span	= instrument span value	=	95.480	ppmdv
I_{drift}	= limit for system drift error	=	3.0%	
E_{drift}	= calibration drift error check value	=	0.00%	**Pass**

5. Average Concentration for an entire Run

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

Where: i=1

C_i	= All concentration readings for the entirety of Run 1 for the monitor looking for CO on channel 3	=	10.492	ppmdv
N	= total number of readings in Run 1	=	27	
C	= average CO concentration for Run 1	=	8.683	ppmdv

6. Drift-Corrected Average Concentration for an entire Run

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

C_{ma}	= concentration of actual calibration gas value	=	48.150	ppmdv
C	= average CO concentration for Run 1	=	8.683	ppmdv
C_{mf}	= calibration error response concentration for Cal01 (final)	=	48.227	ppmdv
C_{mi}	= calibration error response concentration for Cal00 (initial)	=	48.226	ppmdv
C_{of}	= calibration error response concentration for Cal01 (final) for zero gas	=	-0.314	ppmdv
C_{oi}	= calibration error response concentration for Cal00 (initial) for zero gas	=	-0.366	ppmdv
C_{DC}	= drift corrected average concentration for Run 1	=	8.946	ppmdv

CEM Emissions Sample Calculations for CO 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.

040309 113646

1. CO concentration (ppmdv)

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

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

Where:

C_{DC}	= drift corrected average concentration	=	8.946	ppmdv
B_w	= actual water vapor in gas (% v/v)	=	0.000	% v/v
100	= conversion factor to change percentage to decimal	=	100	
k_1	= ppm/% to ppm conversion factor for diluent gases	=	1	
C (ppmdv)	= CO concentration (ppmdv)	=	8.946	ppmdv

2. CO concentration (ppmwv)

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

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

Where:

C_{DC}	= drift corrected average concentration	=	8.946	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 (ppmwv)	= CO concentration (ppmwv)	=	8.946	ppmwv

3. CO concentration (lb/dscf)

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

Where:

C (ppmdv)	= CO concentration (ppmdv)	=	8.946	ppmdv
MW	= Molecular Weight of CO gas	=	28.0106	lb/lb-mole
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
385.3	= molar volume	=	385.3	dscf/lb-mole
C (lb/dscf)	= CO concentration (lb/dscf)	=	6.503E-07	lb/dscf

4. CO concentration (%dv)

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

Where:

C (ppmdv)	= CO concentration (ppmdv)	=	8.946	ppmdv
100	= conversion factor from decimal to percentage	=	1.00E+02	
10^6	= conversion factor from decimal to ppm	=	1.00E+06	
C (%dv)	= CO concentration (%dv)	=	0.0009%	%dv

5. CO concentration (mg/dscm)

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

Where:

C (lb/dscf)	= CO concentration (lb/dscf)	=	6.503E-07	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
C (mg/dscm)	= CO concentration (mg/dscm)	=	10.414	mg/dscm

6. CO 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)	= CO concentration (lb/dscf)	=	6.503E-07	lb/dscf
k_2	= conversion factor from lb to mg	=	453515	mg/lb
35.31	= conversion factor from dscf to dscm	=	35.31	ft^3/m^3
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
C (mg/Nm3 dr	= CO concentration (mg/Nm3 dry)	=	11.176	mg/Nm^3 dry

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

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

Where:

C (ppmdv)	= CO concentration (ppmdv)	=	8.946	ppmdv
x	= oxygen content of corrected gas (%)	=	7.00	%
O_2	= proportion of oxygen in the gas stream by volume (%)	=	8.803	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
C (ppmdv - O2	= CO concentration corrected to 7% O2 (ppmdv example)	=	10.280	ppmdv @ 7%O2

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

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

Where:

C (ppmdv)	= CO concentration (ppmdv)	=	8.946	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.00	%
CO_2	= proportion of carbon dioxide in the gas stream by volume (%)	=	10.709	%
C (ppmdv -CO	= CO concentration corrected to 12% CO2 (ppmdv example)	=	10.025	ppmdv @ 12%CO2

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

CEM RATA Sample Calculations for CO 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.

040309 113711

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

$$D = C_R - C_P$$

Where:

C_P	= CO value from Plant CEM Data	=	6.800	ppm@7%O2
C_R	= CO value from CleanAir RM Data	=	10.280	ppm@7%O2
D	= CO value difference between 2 methods	=	3.480	ppm@7%O2

2. Percent Value Difference (%)

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

Where:

C_R	= CO value from CleanAir RM Data	=	10.280	ppm@7%O2
D	= CO value difference between 2 methods	=	3.480	ppm@7%O2
$D_{\%}$	= CO value difference as a percentage of RM Data	=	33.8%	

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

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

Where:

			i=1	
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	6.800	ppm@7%O2
N	= total number of runs included in the CEM data	=	9	
$C_{p,avg}$	= Average CO value from Plant CEM Data	=	4.556	ppm@7%O2

Wheelabrator

CleanAir Project No. 10735

North Broward

Unit 1 FF Outlet

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

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

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	10.280	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	6.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
STDEV	= standard deviation of plant CEM data and CleanAir RM data	=	0.288	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	=	0.288	ppm@7%O2
t	= confidence factor	=	2.306	
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.221	ppm@7%O2

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

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

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	10.280	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	6.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.221	ppm@7%O2
RA	= relative accuracy (as a percentage of the reference method)	=	42.773%	
		Limit =	10.000%	

Wheelabrator

CleanAir Project No. 10735

North Broward

Unit 1 FF Outlet

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

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

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	10.280	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	6.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.221	
C_{std}	= CO value of applicable standard	=	100.000	ppm@7%O2
RA	= relative accuracy (as percentage of the applicable standard)	=	3.240%	
		Limit =	5.000%	

8. Average Absolute Difference

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

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	10.280	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	6.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
AAD	= average absolute difference	=	3.018	ppm@7%O2
		Limit =	NA	ppm@7%O2

9. Average Absolute Difference, including Confidence Coefficient

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

Where:

$C_{R,i}$	= CO value from CleanAir RM Data for ith run	=	10.280	ppm@7%O2
$C_{p,i}$	= CO value from Plant CEM Data for ith run	=	6.800	ppm@7%O2
N	= total Number of RATA Runs	=	9	
CC	= confidence coefficient	=	0.221	ppm@7%O2
AAD_{cc}	= average absolute difference plus confidence coefficient	=	3.240	ppm@7%O2
		Limit =	NA	ppm@7%O2

PARAMETERS

C

This Page Intentionally Left Blank

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	1				
Date (2009)	Mar 11				
Start Time	7:13				
End Time	7:40				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	161.62	19.97	8.95	8.80	10.71
Concentration (ppmdv)	161.62	19.97	8.95		
Concentration (%dv)	0.016	0.002	0.001	8.803	10.709
Concentration @7%O2 (ppm)	185.72	22.94	10.28		

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	2				
Date (2009)	Mar 11				
Start Time	7:53				
End Time	8:20				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	167.99	17.71	5.70	8.50	10.87
Concentration (ppmdv)	167.99	17.71	5.70		
Concentration (%dv)				8.503	10.874
Concentration @7%O2 (ppm)	188.35	19.86	6.39		

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	3				
Date (2009)	Mar 11				
Start Time	8:33				
End Time	9:00				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	167.94	17.21	6.38	8.67	10.82
Concentration (ppmdv)	167.94	17.21	6.38		
Concentration (%dv)				8.670	10.823
Concentration @7%O2 (ppm)	190.86	19.56	7.25		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	4				
Date (2009)	Mar 11				
Start Time	9:23				
End Time	9:50				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	170.26	19.91	8.28	8.67	10.94
Concentration (ppmdv)	170.26	19.91	8.28		
Concentration (%dv)				8.665	10.936
Concentration @7%O2 (ppm)	193.44	22.62	9.41		

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	5				
Date (2009)	Mar 11				
Start Time	10:04				
End Time	10:31				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	165.17	19.16	7.73	8.78	10.76
Concentration (ppmdv)	165.17	19.16	7.73		
Concentration (%dv)				8.781	10.764
Concentration @7%O2 (ppm)	189.44	21.98	8.87		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	6				
Date (2009)	Mar 11				
Start Time	10:43				
End Time	11:10				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	161.56	18.81	6.05	8.66	10.86
Concentration (ppmdv)	161.56	18.81	6.05		
Concentration (%dv)				8.659	10.859
Concentration @7%O2 (ppm)	183.45	21.36	6.87		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2009)	Mar 11				
Start Time	11:54				
End Time	12:21				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	178.65	23.81	5.58	8.41	11.18
Concentration (ppmdv)	178.65	23.81	5.58		
Concentration (%dv)				8.405	11.179
Concentration @7%O2 (ppm)	198.74	26.49	6.20		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	8				
Date (2009)	Mar 11				
Start Time	12:35				
End Time	13:02				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	179.15	16.17	6.91	8.86	10.77
Concentration (ppmdv)	179.15	16.17	6.91		
Concentration (%dv)				8.859	10.768
Concentration @7%O2 (ppm)	206.81	18.67	7.98		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	9				
Date (2009)	Mar 11				
Start Time	13:16				
End Time	13:43				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF	Unit 1 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	174.13	18.80	6.30	8.70	10.90
Concentration (ppmdv)	174.13	18.80	6.30		
Concentration (%dv)				8.704	10.898
Concentration @7%O2 (ppm)	198.46	21.43	7.19		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 1 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	10				
Date (2009)	Mar 11				
Start Time	13:56				
End Time	14:23				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet	Unit 1 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	169.41	21.01	7.01	8.73	10.82
Concentration (ppmdv)	169.41	21.01	7.01		
Concentration (%dv)				8.734	10.822
Concentration @7%O2 (ppm)	193.56	24.01	8.01		

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	1				
Date (2009)	Mar 10				
Start Time	6:52				
End Time	7:19				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	170.07	13.12	17.39	8.49	11.20
Concentration (ppmdv)	170.07	13.12	17.39		
Concentration (%dv)	0.017	0.001	0.002	8.487	11.201
Concentration @7%O2 (ppm)	190.44	14.69	19.48		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	2				
Date (2009)	Mar 10				
Start Time	7:42				
End Time	8:09				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	169.66	14.11	9.55	8.11	11.42
Concentration (ppmdv)	169.66	14.11	9.55		
Concentration (%dv)				8.107	11.419
Concentration @7%O2 (ppm)	184.34	15.34	10.38		

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	3				
Date (2009)	Mar 10				
Start Time	8:23				
End Time	8:50				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	163.45	9.53	10.49	9.19	10.27
Concentration (ppmdv)	163.45	9.53	10.49		
Concentration (%dv)				9.188	10.274
Concentration @7%O2 (ppm)	193.98	11.30	12.45		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	4				
Date (2009)	Mar 10				
Start Time	9:52				
End Time	10:19				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	174.60	9.12	16.47	8.59	10.96
Concentration (ppmdv)	174.60	9.12	16.47		
Concentration (%dv)				8.590	10.956
Concentration @7%O2 (ppm)	197.14	10.30	18.60		

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	5				
Date (2009)	Mar 10				
Start Time	10:33				
End Time	11:00				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	159.95	14.56	15.97	9.23	10.32
Concentration (ppmdv)	159.95	14.56	15.97		
Concentration (%dv)				9.229	10.323
Concentration @7%O2 (ppm)	190.50	17.34	19.02		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	6				
Date (2009)	Mar 10				
Start Time	11:13				
End Time	11:40				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	166.43	11.56	17.55	8.79	10.66
Concentration (ppmdv)	166.43	11.56	17.55		
Concentration (%dv)				8.786	10.662
Concentration @7%O2 (ppm)	190.97	13.26	20.13		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2009)	Mar 10				
Start Time	11:54				
End Time	12:21				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	164.89	13.63	16.73	8.75	10.70
Concentration (ppmdv)	164.89	13.63	16.73		
Concentration (%dv)				8.755	10.696
Concentration @7%O2 (ppm)	188.72	15.60	19.15		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	8				
Date (2009)	Mar 10				
Start Time	12:34				
End Time	13:01				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	170.54	10.68	10.01	8.25	11.26
Concentration (ppmdv)	170.54	10.68	10.01		
Concentration (%dv)				8.247	11.256
Concentration @7%O2 (ppm)	187.34	11.74	11.00		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	9				
Date (2009)	Mar 10				
Start Time	13:16				
End Time	13:43				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet	Unit 2 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	156.90	12.98	13.08	8.81	10.79
Concentration (ppmdv)	156.90	12.98	13.08		
Concentration (%dv)				8.813	10.788
Concentration @7%O2 (ppm)	180.44	14.93	15.04		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	10				
Date (2009)	Mar 10				
Start Time	14:28				
End Time	14:55				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF	Unit 2 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	165.46	11.94	12.11	8.83	10.72
Concentration (ppmdv)	165.46	11.94	12.11		
Concentration (%dv)				8.828	10.722
Concentration @7%O2 (ppm)	190.51	13.75	13.95		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	11		
Date (2009)	Mar 10		
Start Time	15:08		
End Time	15:35		
Elapsed Time (hh:mm)	00:27		
Channel		2	4
Parameter		SO2	O2
Location		Unit 2 FF Outlet	Unit 2 FF Outlet
Measurement Units		ppmdv	%dv
Measured Average (drift-corrected)		7.80	8.94
Concentration (ppmdv)		7.80	
Concentration @7%O2 (ppm)		9.07	

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	12		
Date (2009)	Mar 10		
Start Time	15:44		
End Time	16:11		
Elapsed Time (hh:mm)	00:27		
Channel		2	4
Parameter		SO2	O2
		Unit 2 FF	Unit 2 FF
Location		Outlet	Outlet
Measurement Units		ppmdv	%dv
Measured Average (drift-corrected)		8.68	9.17
Concentration (ppmdv)		8.68	
Concentration @7%O2 (ppm)		10.28	

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 2 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	13		
Date (2009)	Mar 10		
Start Time	16:21		
End Time	16:48		
Elapsed Time (hh:mm)	00:27		
Channel		2	4
Parameter		SO2	O2
		Unit 2 FF	Unit 2 FF
Location		Outlet	Outlet
Measurement Units		ppmdv	%dv
Measured Average (drift-corrected)		13.53	9.18
Concentration (ppmdv)		13.53	
Concentration @7%O2 (ppm)		16.05	

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	1				
Date (2009)	Mar 12				
Start Time	6:48				
End Time	7:15				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	185.35	14.92	7.49	8.13	11.45
Concentration (ppmdv)	185.35	14.92	7.49		
Concentration (%dv)	0.019	0.001	0.001	8.126	11.446
Concentration @7%O2 (ppm)	201.69	16.24	8.14		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	2				
Date (2009)	Mar 12				
Start Time	7:29				
End Time	7:56				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	182.41	13.81	8.16	8.20	11.32
Concentration (ppmdv)	182.41	13.81	8.16		
Concentration (%dv)				8.200	11.317
Concentration @7%O2 (ppm)	199.64	15.12	8.93		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	3				
Date (2009)	Mar 12				
Start Time	8:09				
End Time	8:36				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	184.01	12.07	7.89	8.41	11.16
Concentration (ppmdv)	184.01	12.07	7.89		
Concentration (%dv)				8.412	11.156
Concentration @7%O2 (ppm)	204.82	13.43	8.78		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	4				
Date (2009)	Mar 12				
Start Time	8:48				
End Time	9:15				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	178.79	10.05	10.08	8.56	11.07
Concentration (ppmdv)	178.79	10.05	10.08		
Concentration (%dv)				8.560	11.074
Concentration @7%O2 (ppm)	201.40	11.32	11.36		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	5				
Date (2009)	Mar 12				
Start Time	9:29				
End Time	9:56				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	174.31	16.27	7.00	8.61	10.98
Concentration (ppmdv)	174.31	16.27	7.00		
Concentration (%dv)				8.607	10.982
Concentration @7%O2 (ppm)	197.09	18.40	7.91		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	6				
Date (2009)	Mar 12				
Start Time	10:08				
End Time	10:35				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	162.45	13.23	10.29	9.26	10.33
Concentration (ppmdv)	162.45	13.23	10.29		
Concentration (%dv)				9.262	10.334
Concentration @7%O2 (ppm)	194.03	15.80	12.29		

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	7				
Date (2009)	Mar 12				
Start Time	10:48				
End Time	11:15				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	152.92	20.47	10.73	9.49	10.15
Concentration (ppmdv)	152.92	20.47	10.73		
Concentration (%dv)				9.486	10.151
Concentration @7%O2 (ppm)	186.24	24.92	13.07		

QA/QC _____
Date _____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	8				
Date (2009)	Mar 12				
Start Time	11:29				
End Time	11:56				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	162.70	13.17	12.11	9.28	10.28
Concentration (ppmdv)	162.70	13.17	12.11		
Concentration (%dv)				9.276	10.281
Concentration @7%O2 (ppm)	194.55	15.75	14.48		

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	9				
Date (2009)	Mar 12				
Start Time	12:38				
End Time	13:05				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF	Unit 3 FF
Location	Outlet	Outlet	Outlet	Outlet	Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	155.01	11.63	9.03	9.47	10.29
Concentration (ppmdv)	155.01	11.63	9.03		
Concentration (%dv)				9.473	10.291
Concentration @7%O2 (ppm)	188.56	14.14	10.99		

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

QA/QC_____
Date_____

Wheelabrator
Clean Air Project No. 10735
North Broward
Unit 3 FF Outlet

Continuous Emissions Monitoring Parameters

Run Number	10				
Date (2009)	Mar 12				
Start Time	13:20				
End Time	13:47				
Elapsed Time (hh:mm)	00:27				
Channel	1	2	3	4	5
Parameter	NOX	SO2	CO	O2	CO2
Location	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet	Unit 3 FF Outlet
Measurement Units	ppmdv	ppmdv	ppmdv	%dv	%dv
Measured Average (drift-corrected)	171.37	7.55	10.90	9.37	10.20
Concentration (ppmdv)	171.37	7.55	10.90		
Concentration (%dv)				9.374	10.202
Concentration @7%O2 (ppm)	206.67	9.11	13.14		

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 08-2004a

QA/QC_____
Date_____

This Page Intentionally Left Blank

QA/QC DATA

D

This Page Intentionally Left Blank

RATA CLASS

Dual-Analyzed Calibration Standard

Scott Specialty Gases

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

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY,MI 48083

P.O. No.: 23477-0180-66
Project No.: 05-53251-001

Customer
CLEAN AIR ENGINEERING

SCOTT BROWN
500 WEST WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION

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

Cylinder Number: ALM057156 **Certification Date:** 29Mar2007 **Exp. Date:** 28Mar2009
Cylinder Pressure*:** 1886 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	10.06	%	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	226.9	PPM	+/- 1%	Direct NIST and NMi
SULFUR DIOXIDE *	43.98	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	227.1	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.
* This Protocol has been certified using corrected NIST SO2 standard values, per EPA guidance dated 7/24/96 and will not correlate with uncorrected Fipt

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1675	04Jul2008	1D37533	13.93 %	CARBON DIOXIDE
NTRM 1685	01Jan2010	AAL071082	246.1 PPM	NITRIC OXIDE
NTRM 1693	15Aug2009	ALM023718	50.79 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	01Mar2007	FTIR
FTIR//0928621	18Mar2007	FTIR
FTIR//0928621	27Feb2007	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: 22Mar2007 Response Unit:%
Z1 = -0.00075 R1 = 13.81497 T1 = 9.97069
R2 = 13.82267 Z2 = 0.00009 T2 = 9.98122
Z3 = 0.00113 T3 = 10.00270 R3 = 13.83900
Avg. Concentration: 10.06 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99994E-1
Constants: A = 0.00000E+0
B = 6.45329E-1 C = 4.83600E-3
D = 2.00000E-6 E = 0.00000E+0

NITRIC OXIDE

Date: 22Mar2007 Response Unit:PPM
Z1 = -0.34262 R1 = 245.5390 T1 = 226.7244
R2 = 245.9611 Z2 = -0.29264 T2 = 227.1110
Z3 = 0.67807 T3 = 228.3050 R3 = 246.1610
Avg. Concentration: 227.6 PPM

Date: 29Mar2007 Response Unit: PPM
Z1 = -0.31118 R1 = 244.9626 T1 = 224.5560
R2 = 245.2870 Z2 = -0.30543 T2 = 225.4931
Z3 = -0.22963 T3 = 226.3596 R3 = 245.7366
Avg. Concentration: 226.2 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99999E-1
Constants: A = 0.00000E+0
B = 9.85324E-1 C = 5.10000E-5
D = 0.00000E+0 E = 0.00000E+0

SULFUR DIOXIDE *

Date: 22Mar2007 Response Unit:PPM
Z1 = -0.00859 R1 = 50.95224 T1 = 43.94314
R2 = 50.97496 Z2 = 0.02157 T2 = 43.97812
Z3 = 0.04765 T3 = 44.15920 R3 = 51.01803
Avg. Concentration: 43.86 PPM

Date: 29Mar2007 Response Unit: PPM
Z1 = -0.03837 R1 = 50.33154 T1 = 43.84260
R2 = 50.67310 Z2 = -0.02946 T2 = 43.90377
Z3 = 0.03056 T3 = 44.02210 R3 = 50.72942
Avg. Concentration: 44.11 PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 9.99990E-1
Constants: A = 0.00000E+0
B = 9.94443E-1 C = 1.40000E-5
D = 0.00000E+0 E = 0.00000E+0

APPROVED BY: _____
Scott King

AIR LIQUIDE Scott Specialty Gases
Air Liquide America Specialty Gases LLC

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-21

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

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 66-65000
Project No.: 05-62553-001

Customer
CLEAN AIR ENGINEERING

DON ALLEN
500 W. WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION

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

Cylinder Number: ALM013846 **Certification Date:** 12Feb2008 **Exp. Date:** 11Feb2010
Cylinder Pressure*:** 1764 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	10.05	%	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	453.7	PPM	+/- 1%	Direct NIST and NMi
SULFUR DIOXIDE *	86.89	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	453.9	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.
* This Protocol has been certified using corrected NIST SO2 standard values, per EPA guidance dated 7/24/96 and will not correlate with uncorrected P.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Mar2009	K027180	17.87 %	CARBON DIOXIDE
NTRM 1685	01Sep2010	KAL003463	247.1 PPM	NITRIC OXIDE
NTRM 1694	15Aug2009	ALM043477	97.81 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	24Jan2008	FTIR
FTIR//0928621	17Jan2008	FTIR
FTIR//0928621	07Feb2008	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: 05Feb2008 Response Unit:%
Z1=-0.01489 R1=17.66329 T1=9.94413
R2=17.74783 Z2=0.01115 T2=9.96169
Z3=0.01230 T3=10.00345 R3=17.75156
Avg. Concentration: 10.05 %

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99995E-1
Constants: A=0.00000E+0
B=5.93062E-1 C=4.33100E-3
D=0.00000E+0 E=0.00000E+0

NITRIC OXIDE

Date: 05Feb2008 Response Unit:PPM
Z1=-0.25650 R1=492.2479 T1=451.8905
R2=494.4330 Z2=0.32315 T2=452.2656
Z3=0.42698 T3=454.0023 R3=497.1497
Avg. Concentration: 455.5 PPM

Date: 12Feb2008 Response Unit: PPM
Z1=-0.14227 R1=247.0216 T1=451.2214
R2=247.1263 Z2=0.46688 T2=451.8494
Z3=0.51162 T3=451.9505 R3=247.1490
Avg. Concentration: 451.9 PPM

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99999E-1
Constants: A=0.00000E+0
B=1.00236E+0 C=5.10000E-5
D=0.00000E+0 E=0.00000E+0

SULFUR DIOXIDE *

Date: 05Feb2008 Response Unit:PPM
Z1=-0.01068 R1=99.05542 T1=87.44545
R2=99.08011 Z2=0.08325 T2=87.77479
Z3=0.09255 T3=87.94551 R3=99.24430
Avg. Concentration: 86.55 PPM

Date: 12Feb2008 Response Unit: PPM
Z1=0.02251 R1=98.53427 T1=87.84141
R2=98.64226 Z2=0.08956 T2=87.98949
Z3=0.09485 T3=88.00758 R3=98.65797
Avg. Concentration: 87.22 PPM

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99986E-1
Constants: A=0.00000E+0
B=9.98271E-1 C=5.00000E-6
D=0.00000E+0 E=0.00000E+0

APPROVED BY: _____
Rob McCrandall

AIR LIQUIDE Air Liquide America Specialty Gases LLC SCOTT™

COMPLIANCE CLASS

Dual-Analyzed Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310

P.O. No.: 57090-71-65000
Project No.: 01-98275-001

Customer

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

ANALYTICAL INFORMATION

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

Cylinder Number: ALM006458 **Certification Date:** 15Dec2008 **Exp. Date:** 15Jun2009
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
NITROGEN DIOXIDE	48.0	PPM	+/- 2%	GMIS
NITROGEN		BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
GMIS NO2/AIR	06Mar2010	ALM014385	254.0 PPM	NITROGEN DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HORIBA/CLA220/5708850810	15Dec2008	CHEMILUMINESCENCE

Special Notes: ADD 1 % O2 FOR STABILIZING

APPROVED BY: JAMES L. MCHALE SUPERVISOR: STEVEN JANKOWSKI

AIR LIQUIDE

Scott Specialty Gases
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.: 56738-71-65000
Project No.: 05-67151-001

Customer

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

ANALYTICAL INFORMATION

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

Cylinder Number: ALM012863 **Certification Date:** 29Jul2008 **Exp. Date:** 29Jul2011
Cylinder Pressure*:** 1900 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	48.15	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1678	15Aug2009	ALM042447	51.13 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928821	17Jul2008	FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE

Date: 22Jul2008 Response Unit:PPM

Z1=-0.00554	R1=51.22229	T1=48.13689
R2=51.25370	Z2=0.00551	T2=48.13752
Z3=0.02507	T3=48.20032	R3=51.26436

Avg. Concentration: 48.05 PPM

Second Triad Analysis

Date: 29Jul2008 Response Unit: PPM

Z1=-0.05453	R1=51.08416	T1=48.20590
R2=51.09050	Z2=-0.03049	T2=48.26255
Z3=0.01193	T3=48.35215	R3=51.30385

Avg. Concentration: 48.25 PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99995E-1

Constants:	A=0.00000E+0
B=8.26132E-1	C=5.21000E-4
D=1.00000E-6	E=0.00000E+0

APPROVED BY: _____
Rob McCrandall

AIR LIQUIDE Scott Specialty Gases
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

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 56557-71-65000
Project No.: 05-65234-009

Customer

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

ANALYTICAL INFORMATION

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

Cylinder Number: ALM026936 **Certification Date:** 07May2008 **Exp. Date:** 07May2011
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	95.48	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1679	01May2011	ALM030193	94.90 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//0928621	01May2008	FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE

Date: 30Apr2008	Response Unit:PPM	
Z1=-0.05716	R1=95.37100	T1=95.86661
R2=95.43290	Z2=-0.04553	T2=95.87431
Z3=0.03266	T3=96.15537	R3=95.56405
Avg. Concentration:	95.41	PPM

Second Triad Analysis

Date: 07May2008	Response Unit: PPM	
Z1=-0.03940	R1=95.74764	T1=96.38229
R2=95.75310	Z2=0.00625	T2=96.43016
Z3=0.01973	T3=96.47813	R3=95.79765
Avg. Concentration:	95.56	PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4	
r=9.99998E-1	
Constants:	A=0.00000E+0
B=9.83408E-1	C=8.32000E-4
D=1.00000E-6	E=0.00000E+0

APPROVED BY: _____
Rob McCrandall

AIR LIQUIDE Air Liquide America Specialty Gases LLC

SCOTT™

RATA CLASS

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 57134-71-65000
Project No.: 05-72060-003

Customer

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

ANALYTICAL INFORMATION

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

Cylinder Number: ALM045493 **Certification Date:** 13Jan2009 **Exp. Date:** 13Jan2012
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	14.0	%	+/- 1%	Direct NIST and NMi
OXYGEN	6.05	%	+/- 1%	Direct NIST and NMi
NITROGEN	BALANCE			

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2000	01Jul2009	K026898	5.006 %	CARBON DIOXIDE
NTRM 2350	01Dec2011	K016398	23.20 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
PIR/2000/609015	13Jan2009	NDIR
CAI/110P/V03018	22Dec2008	PARAMAGNETIC

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: 13Jan2009	Response Unit:MV	
Z1=0.00000	R1=39.30000	T1=83.10000
R2=39.40000	Z2=0.00000	T2=83.10000
Z3=0.00000	T3=83.10000	R3=39.40000
Avg. Concentration:	14.00	%

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999998
Constants: A=-0.0052472
B=0.108852633 C=0.0002522
D=5.76883E-06 E=0

OXYGEN

Date: 13Jan2008	Response Unit:%	
Z1=0.00000	R1=23.20000	T1=6.05000
R2=23.20000	Z2=0.00000	T2=6.05000
Z3=0.00000	T3=6.05000	R3=23.20000
Avg. Concentration:	6.053	%

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=-0.00558067
B=0.999821643 C=0
D=0 E=0

APPROVED BY: _____
JEFF PROTEAU

RATA CLASS

Scott Specialty Gases

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

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY,MI 48083

P.O. No.: 55647-71-65000
Project No.: 05-53475-001

Customer

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

ANALYTICAL INFORMATION

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

Cylinder Number: AAL9828 Certification Date: 05Apr2007 Exp. Date: 04Apr2010
Cylinder Pressure***: 1900 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	6.054	%	+/- 1%	Direct NIST and NMi
OXYGEN	14.02	%	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2300	01Nov2010	1D002807	23.04 %	CARBON DIOXIDE
NTRM 2350	01May2009	K026542	23.48 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3400/10693	04Apr2007	THERMAL CONDUCTIVITY
CALIFORNIA/110P/S02041	05Apr2007	PARAMAGNETIC

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: 04Apr2007	Response Unit:AREA	
Z1 = 0.00000	R1 = 1165892.	T1 = 305456.0
R2 = 1166031.	Z2 = 0.00000	T2 = 305856.0
Z3 = 0.00000	T3 = 305949.0	R3 = 1166669.
Avg. Concentration:	6.054	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999996
Constants: A = 0.010560
B = 0.000020 C = 0
D = 0 E = 0

OXYGEN

Date: 05Apr2007	Response Unit:%	
Z1 = 0.00000	R1 = 23.48000	T1 = 14.03000
R2 = 23.48000	Z2 = 0.00000	T2 = 14.03000
Z3 = 0.00000	T3 = 14.02000	R3 = 23.49000
Avg. Concentration:	14.02	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999999
Constants: A = -0.002923
B = 0.999759 C = 0
D = 0 E = 0

APPROVED BY: _____

AIR LIQUIDE | Scott Specialty Gases
Air Liquide America Specialty Gases LLC

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

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

WAREHOUSE/STOCK
WAREHOUSE/STOCK/
CHICAGO WAREHOUSE
868 SIVERT
WOOD DALE IL 60191

PROJECT #: 05-69004-002
PO#: GENERAL STOCK
ITEM #: 0501813 AL
DATE: 15Sep2008

CYLINDER #: ALM061790
FILL PRESSURE: 02000 PSIG

PURE MATERIAL: NITROGEN CAS# 7727-37-9

GRADE: ZERO GAS

PURITY: 99.998%

IMPURITY	MAXIMUM CONCENTRATIONS
THC	0.5 PPM

ANALYST: _____

REFERENCE METHOD FIELD DATA

E

This Page Intentionally Left Blank

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

Date: **March 11, 2009**
Start Time 6:12
Stop Time 6:34

CALIBRATION ERROR

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Instrument Information					
Manufacturer:	T.E.I.	Wstrn Rsrch	T.E.I.	Servomex	Servomex
Model:	42C	921NMP	48CHL	1420B	1415B
Detection:	Chemilumi.	UV Photo.	GFC/NDIR	Paramagn.	NDIR
Asset or Serial No:	205423	204168	204764	203470	203499
Calibration Span Value (CS)					
	453.900	86.890	95.480	14.020	14.000
System Response Time (seconds)					
	50	50	50	50	50
Manufacturer Certified Cylinder Value (C_v)					
Zero	0.000	0.000	0.000	0.000	0.000
Low	227.100	43.980	48.150	6.050	6.054
Mid					
High	453.900	86.890	95.480	14.020	14.000
Actual gas to be used for bias checks					
	227.100	43.980	48.150	14.020	6.054
Cylinder ID					
Zero					
Low	ALM057156	ALM057156	ALM012863	ALM045493	AAL9828
Mid					
High	ALM013846	ALM013846	ALM026936	AAL9828	ALM045493
Analyzer Calibration Response (C_{Dir})					
Zero	-0.282	-0.371	-0.534	-0.041	-0.007
Low	227.796	43.582	48.280	6.048	6.034
Mid					
High	454.177	86.944	95.535	14.041	14.075
Analyzer Calibration Error (ACE) (Limit = 2%, Method 25A limit = 5% of gas value)					
Zero	-0.1%	-0.4%	-0.6%	-0.3%	-0.1%
Low	0.2%	-0.5%	0.1%	0.0%	-0.1%
Mid	N/A	N/A	N/A	N/A	N/A
High	0.1%	0.1%	0.1%	0.1%	0.5%
Calibration Error Status					
Zero	OK	OK	OK	OK	OK
Low	OK	OK	OK	OK	OK
Mid	N/A	N/A	N/A	N/A	N/A
High	OK	OK	OK	OK	OK

040309 110517

06:12:39	1.832	0.827	0.226	14.039	5.948
06:12:54	0.065	0.778	0.062	14.040	5.961
06:13:09	-0.024	0.796	-0.015	14.041	6.032
06:13:24	-0.496	0.785	-0.026	14.042	6.034
06:13:39	-0.065	0.075	-0.047	14.042	6.036
06:13:54	-0.171	-0.137	-0.049	11.897	7.560
06:14:09	-0.147	-0.158	-0.046	6.466	13.563
06:14:24	0.244	-0.265	-0.013	6.070	14.156
06:14:39	-0.008	-0.358	-0.018	6.053	14.040
06:14:54	0.008	-0.400	-0.073	6.052	14.083
06:15:09	-0.383	-0.355	-0.091	6.050	14.075
06:15:24	-0.187	-0.178	-0.114	6.046	14.073
06:15:39	-0.260	-0.104	-0.135	6.049	14.075

Prepared by Clean Air Engineering Proprietary Software
SS CEM Version 08-2004a

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

Date: March 11, 2009
Start Time 6:12
Stop Time 6:34

CALIBRATION ERROR

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
06:15:54	-0.293	-0.098	-0.129	6.050	14.082
06:16:09	-0.293	-0.098	-0.139	6.044	14.089
06:16:24	-0.171	0.288	-0.140	6.048	14.056
06:16:39	-0.260	3.652	-0.101	3.992	11.863
06:16:54	-0.187	52.329	0.138	0.239	9.982
06:17:09	70.338	81.071	0.515	-0.006	10.004
06:17:24	263.459	85.526	0.453	-0.025	10.017
06:17:39	406.528	86.489	-0.039	-0.028	10.022
06:17:54	441.791	86.867	-0.371	-0.029	10.007
06:18:09	447.489	87.114	-0.489	-0.024	10.011
06:18:24	448.270	87.253	-0.539	-0.028	10.011
06:18:39	448.685	87.339	-0.579	-0.029	10.003
06:18:54	450.541	87.359	-0.556	-0.030	10.012
06:19:09	453.146	86.844	-0.555	-0.030	10.012
06:19:24	453.976	86.870	-0.549	-0.031	10.010
06:19:39	453.927	86.965	-0.506	-0.029	9.999
06:19:54	454.090	86.997	-0.488	-0.031	10.008
06:20:09	454.180	87.015	-0.556	-0.033	10.008
06:20:24	454.261	75.674	-0.556	0.219	9.870
06:20:39	449.825	45.973	-0.531	0.000	9.999
06:20:54	387.236	43.598	-0.389	-0.050	10.040
06:21:09	286.602	43.508	-0.435	-0.047	10.045
06:21:24	234.620	43.572	-0.565	-0.045	10.042
06:21:39	228.921	43.580	-0.643	-0.041	10.042
06:21:54	228.148	43.585	-0.526	-0.041	10.043
06:22:09	227.985	43.582	-0.625	-0.041	10.045
06:22:24	227.920	43.629	-0.511	-0.042	10.047
06:22:39	227.481	43.650	-0.552	-0.042	10.045
06:22:54	227.172	39.963	-0.415	0.341	7.448
06:23:09	223.737	13.776	3.972	0.061	0.743
06:23:24	197.778	2.592	24.645	-0.014	0.072
06:23:39	111.331	0.581	57.457	-0.018	0.008
06:23:54	23.118	0.148	84.841	-0.018	-0.001
06:24:09	2.515	0.021	93.229	-0.020	-0.017
06:24:24	0.383	0.023	95.328	-0.019	-0.011
06:24:39	0.310	-0.019	95.510	-0.020	-0.011
06:24:54	0.382	0.002	95.552	-0.020	0.000
06:25:09	0.057	-0.080	95.541	-0.020	-0.011
06:25:24	0.146	0.081	95.018	0.233	0.131
06:25:39	0.032	0.228	89.508	-0.005	-0.003
06:25:54	0.106	0.054	73.019	-0.016	0.000
06:26:09	0.391	0.036	58.269	-0.021	0.000
06:26:24	-0.098	-0.049	50.115	-0.020	0.000
06:26:39	0.032	-0.075	48.489	-0.071	-0.015
06:26:54	-0.358	-0.023	48.318	-0.033	-0.006
06:27:09	-0.098	0.000	48.316	-0.022	-0.005
06:27:24	-0.098	0.000	48.308	-0.021	-0.003
06:27:39	-0.098	0.002	48.308	-0.021	0.000
06:27:54	0.130	-1.286	48.226	0.237	0.092
06:28:09	-0.098	-1.748	41.639	0.553	-0.004
06:28:24	3.012	-0.802	19.998	0.546	-0.006
06:28:39	17.680	-0.225	5.464	0.530	-0.006
06:28:54	34.571	-0.042	0.433	0.530	-0.006
06:29:09	39.675	0.018	-0.065	0.532	-0.006
06:29:24	42.099	0.132	-0.083	0.531	-0.009

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

Date: **March 11, 2009**
Start Time 6:12
Stop Time 6:34

CALIBRATION ERROR

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
06:29:39	43.384	0.124	-0.098	0.529	-0.010
06:29:54	43.506	0.057	-0.098	0.532	-0.007
06:30:09	43.725	0.127	-0.098	0.533	-0.006
06:30:24	44.315	0.096	-0.098	0.535	-0.007
06:30:39	44.896	0.176	-0.098	0.533	-0.008
06:30:54	44.018	0.164	-0.098	0.534	-0.011
06:31:09	42.020	0.169	-0.124	0.533	-0.008
06:31:24	45.002	0.174	-0.130	0.533	-0.006
06:31:39	45.010	0.195	-0.108	0.530	-0.006
06:31:54	45.092	0.028	-0.098	0.505	-0.009
06:32:09	45.182	-0.148	-0.098	0.501	-0.012
06:32:24	45.263	-0.234	-0.098	0.503	-0.010
06:32:39	45.353	-0.272	-0.098	0.504	-0.006
06:32:54	45.377	-0.314	-0.098	0.502	-0.006
06:33:09	45.442	-0.301	-0.098	0.505	-0.009
06:33:24	45.613	-0.303	-0.098	0.506	-0.012
06:33:39	45.694	1.285	-0.081	0.774	-0.008
06:33:54	45.515	1.620	-0.088	8.545	0.121
06:34:09	42.166	1.516	-0.091	20.971	0.026

NOX Converter Check
Expected Value = 48.0
Average = 45.6
Efficiency = 95.0%

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 6:37
Stop Time 6:48

CALIBRATION BIAS 00

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Callbration Gasses (C_s)					
C_{of} Zero gas	0.228	-0.619	-0.366	-0.010	0.038
C_{uf} Upscale gas	223.663	42.019	48.226	13.977	5.961
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce} Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.3%	0.2%	0.2%	0.3%
Upscale gas	-0.9%	-1.8%	-0.1%	-0.5%	-0.5%
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_{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

040309_110517

06:37:03	0.171	-0.727	0.374	20.870	0.020
06:37:18	0.171	-0.750	0.383	20.657	0.039
06:37:33	-0.204	0.708	1.330	10.887	2.622
06:37:48	6.512	12.155	4.998	5.717	5.320
06:38:03	27.635	13.280	8.532	12.831	5.665
06:38:18	39.813	5.452	6.002	13.902	5.851
06:38:33	29.255	1.975	2.067	13.963	5.870
06:38:48	11.689	0.684	0.534	13.972	5.878
06:39:03	2.353	0.073	0.185	13.976	5.932
06:39:18	1.538	-0.099	-0.005	13.976	5.944
06:39:33	0.716	-0.257	0.036	13.979	5.949
06:39:48	0.602	-0.340	0.056	13.977	5.952
06:40:03	0.822	-0.422	0.010	13.976	5.954
06:40:18	0.546	-0.558	0.056	13.976	5.958
06:40:33	0.407	-0.534	0.008	13.978	5.961
06:40:48	0.456	-0.601	0.027	13.977	5.964
06:41:03	0.114	-0.601	0.011	13.976	5.965
06:41:18	0.114	-0.656	0.077	13.976	5.966
06:41:33	-0.033	-0.565	0.077	11.410	6.438
06:41:48	2.499	9.065	0.060	1.520	9.349
06:42:03	22.784	29.687	-0.039	0.168	9.920
06:42:18	99.544	37.011	-0.129	0.061	9.958
06:42:33	195.425	39.176	-0.262	0.049	9.966
06:42:48	219.601	40.094	-0.330	0.018	9.972
06:43:03	222.133	40.646	-0.358	0.001	9.993
06:43:18	222.548	41.016	-0.342	0.018	10.002
06:43:33	222.898	41.291	-0.348	-0.008	10.002
06:43:48	222.580	41.501	-0.366	-0.018	9.992

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 6:37
Stop Time 6:48

CALIBRATION BIAS 00

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
06:44:03	223.337	41.648	-0.366	-0.004	10.007
06:44:18	223.549	41.836	-0.366	-0.002	10.006
06:44:33	223.639	41.972	-0.366	-0.021	10.002
06:44:48	223.655	42.056	-0.352	-0.010	10.015
06:45:03	223.696	42.030	-0.360	-0.003	9.864
06:45:18	222.434	32.497	0.303	0.655	3.320
06:45:33	190.183	12.490	7.349	1.150	0.416
06:45:48	124.021	5.159	21.805	1.289	0.192
06:46:03	44.078	3.362	37.555	1.296	0.147
06:46:18	8.580	2.955	43.448	1.394	0.117
06:46:33	1.791	2.263	44.848	0.508	0.107
06:46:48	1.237	1.447	45.241	0.036	0.072
06:47:03	0.733	0.742	46.338	-0.064	0.064
06:47:18	0.391	0.404	47.450	-0.003	0.029
06:47:33	0.432	0.104	48.081	0.012	0.020
06:47:48	0.342	-0.015	48.190	-0.001	0.025
06:48:03	0.505	-0.101	48.173	0.000	0.032
06:48:18	0.293	-0.191	48.202	0.030	0.028
06:48:33	0.065	-0.234	48.246	0.007	0.017
06:48:48	0.390	-0.278	48.230	0.015	0.017

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 7:13
North Broward Stop time 7:40
Unit 1 FF Outlet **REFERENCE METHOD RUN 1**

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.228	-0.619	-0.366	-0.010	0.038
C_{ui}	Initial upscale	223.663	42.019	48.226	13.977	5.961
C_{of}	Final zero	-0.063	-0.673	-0.314	-0.011	0.020
C_{uf}	Final upscale	223.310	42.416	48.227	13.840	6.109
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	159.077	18.815	8.683	8.730	10.653
C_{Gas}	**Bias adjusted**	**161.624**	**19.968**	**8.946**	**8.803**	**10.709**

Clock Time (at end of sample period)

040309 11C517

07:14	147.926	18.465	10.492	8.866	10.548
07:15	147.240	22.192	11.000	8.675	10.748
07:16	148.462	16.994	10.717	8.919	10.507
07:17	149.947	12.341	11.647	9.183	10.239
07:18	151.309	13.927	12.597	9.207	10.231
07:19	146.254	18.987	11.274	8.854	10.543
07:20	147.468	20.175	11.224	8.725	10.652
07:21	142.652	17.490	21.302	8.626	10.781
07:22	145.674	14.384	14.771	9.235	10.160
07:23	147.181	21.635	9.739	9.567	9.855
07:24	141.695	28.390	12.245	9.139	10.283
07:25	149.746	21.229	11.271	8.698	10.673
07:26	151.321	13.438	8.660	8.809	10.556
07:27	150.843	11.453	8.678	9.010	10.369
07:28	148.240	14.472	8.346	9.024	10.338
07:29	152.916	20.958	7.922	8.664	10.678
07:30	158.510	21.071	5.954	8.652	10.710
07:31	161.192	17.270	5.422	8.634	10.721
07:32	168.472	14.359	5.182	8.560	10.819
07:33	171.618	13.976	5.045	8.124	11.220
07:34	175.787	15.877	4.678	7.805	11.535
07:35	188.472	17.694	3.637	8.867	10.520
07:36	186.207	23.522	4.198	8.488	10.886
07:37	180.388	26.390	4.026	8.287	11.065
07:38	181.630	24.374	4.197	8.724	10.661
07:39	178.875	23.274	5.141	8.221	11.146
07:40	175.047	23.666	5.087	8.136	11.186

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 7:42
Stop Time 7:51

CALIBRATION BIAS 01

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	-0.063	-0.673	-0.314	-0.011	0.020
C_{uf} Upscale gas	223.310	42.416	48.227	13.840	6.109
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce} Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)					
	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.0%	-0.3%	0.2%	0.2%	0.2%
Upscale gas	-1.0%	-1.3%	-0.1%	-1.4%	0.5%
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	0.228	-0.619	-0.366	-0.010	0.038
C_{ui} Upscale gas	223.663	42.019	48.226	13.977	5.961
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	-0.1%	-0.1%	0.1%	0.0%	-0.1%
Upscale gas	-0.1%	0.5%	0.0%	-1.0%	1.1%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 110517

07:42:12	173.496	13.882	6.579	2.778	3.876
07:42:27	158.112	6.743	12.495	3.361	2.134
07:42:42	92.495	3.655	23.875	12.419	5.374
07:42:57	40.146	1.610	26.563	13.683	6.063
07:43:12	15.418	0.682	15.863	13.789	6.088
07:43:27	8.612	0.226	6.020	13.802	6.096
07:43:42	5.397	-0.015	1.588	13.814	6.106
07:43:57	4.534	-0.060	0.506	13.819	6.105
07:44:12	4.119	-0.168	0.386	13.822	6.098
07:44:27	3.899	-0.234	0.357	13.810	6.136
07:44:42	4.396	-0.256	0.229	13.816	6.129
07:44:57	4.379	-0.295	0.249	13.811	6.140
07:45:12	4.502	-0.298	0.267	13.894	6.058
07:45:27	3.761	-0.285	0.207	12.009	5.491
07:45:42	2.409	-0.374	1.737	1.715	1.085
07:45:57	0.879	-0.471	10.309	0.168	0.194
07:46:12	0.619	-0.521	27.595	0.064	0.116
07:46:27	0.187	-0.607	40.681	0.036	0.093
07:46:42	-0.065	-0.585	46.658	0.021	0.052
07:46:57	-0.082	-0.628	47.904	0.015	0.046
07:47:12	0.154	-0.677	48.057	0.009	0.042
07:47:27	0.252	-0.682	48.138	0.011	0.032
07:47:42	-0.008	-0.659	48.198	0.003	0.038
07:47:57	0.024	-0.742	48.205	0.000	0.031
07:48:12	0.130	-0.698	48.205	0.006	0.020
07:48:27	-0.098	-0.750	48.218	0.008	0.021
07:48:42	0.008	-0.767	48.259	-0.004	0.020
07:48:57	-0.098	0.785	48.171	0.013	3.700

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 7:42
Stop Time 7:51

CALIBRATION BIAS 01

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
07:49:12	8.954	20.619	43.281	-0.004	9.382
07:49:27	43.663	35.627	29.581	-0.008	9.907
07:49:42	145.250	39.683	13.092	-0.009	9.953
07:49:57	208.555	40.907	3.854	-0.010	9.984
07:50:12	222.003	41.558	0.534	-0.010	9.983
07:50:27	222.654	41.905	-0.163	-0.010	10.004
07:50:42	222.532	42.123	-0.246	-0.010	10.021
07:50:57	222.898	42.199	-0.269	-0.012	10.030
07:51:12	223.370	42.294	-0.309	-0.010	10.036
07:51:27	223.191	42.297	-0.317	-0.011	10.042
07:51:42	223.370	42.658	-0.315	1.240	10.093

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 7:53
North Broward Stop time 8:20
Unit 1 FF Outlet **REFERENCE METHOD RUN 2**

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	-0.063	-0.673	-0.314	-0.011	0.020
C_{ui}	Initial upscale	223.310	42.416	48.227	13.840	6.109
C_{of}	Final zero	0.002	-0.670	-0.345	-0.018	0.042
C_{uf}	Final upscale	222.475	42.610	48.067	13.818	6.166
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	164.867	16.719	5.411	8.382	11.000
C_{Gas}	**Bias adjusted**	**167.987**	**17.711**	**5.702**	**8.503**	**10.874**

Clock Time (at end of sample period)

340309 110517

07:54	159.778	6.722	4.756	8.735	10.678
07:55	162.015	8.087	5.709	8.232	11.128
07:56	165.091	19.564	5.843	8.436	10.987
07:57	158.936	19.623	5.330	8.934	10.474
07:58	162.872	11.574	6.191	8.551	10.876
07:59	156.850	12.461	6.385	8.300	11.058
08:00	164.957	22.071	6.788	8.402	11.004
08:01	169.363	31.760	5.986	7.643	11.667
08:02	172.420	20.383	5.241	8.780	10.630
08:03	166.048	13.742	4.971	8.256	11.072
08:04	169.886	14.402	4.937	8.261	11.077
08:05	170.098	27.771	5.774	7.665	11.641
08:06	166.494	17.988	5.121	8.833	10.565
08:07	161.954	14.167	4.860	7.941	11.395
08:08	170.132	15.370	3.879	8.248	11.117
08:09	163.270	18.020	3.907	8.367	10.982
08:10	171.581	21.037	6.043	8.271	11.128
08:11	163.370	16.245	5.112	8.775	10.622
08:12	162.137	15.931	6.544	8.579	10.839
08:13	161.370	15.357	5.226	8.294	11.074
08:14	162.080	16.944	5.488	8.410	11.020
08:15	157.073	14.640	5.487	8.190	11.184
08:16	166.174	14.195	5.299	8.497	10.913
08:17	166.654	15.608	4.991	8.208	11.163
08:18	163.952	16.794	5.177	8.659	10.733
08:19	164.198	16.127	6.116	8.139	11.262
08:20	172.664	14.832	4.938	8.699	10.700

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 8:22
Stop Time 8:30

CALIBRATION BIAS 02

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_S)						
C_{of}	Zero gas	0.002	-0.670	-0.345	-0.018	0.042
C_{uf}	Upscale gas	222.475	42.610	48.067	13.818	6.166
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce}	Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	-0.3%	0.2%	0.2%	0.4%
	Upscale gas	-1.2%	-1.1%	-0.2%	-1.6%	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_{of}	Zero gas	-0.063	-0.673	-0.314	-0.011	0.020
C_{uf}	Upscale gas	223.310	42.416	48.227	13.840	6.109
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	0.0%	0.0%	0.0%	0.0%	0.2%
	Upscale gas	-0.2%	0.2%	-0.2%	-0.2%	0.4%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

040309 110517

08:22:29	170.476	4.749	0.918	13.756	6.203
08:22:44	81.669	2.061	0.288	13.809	6.172
08:22:59	17.713	1.107	0.156	13.827	6.158
08:23:14	6.089	0.638	0.159	13.845	6.143
08:23:29	4.151	0.298	0.119	13.772	6.155
08:23:44	3.809	0.218	0.127	13.812	6.172
08:23:59	3.638	0.062	0.099	13.815	6.165
08:24:14	4.542	0.013	0.174	13.820	6.162
08:24:29	3.826	-0.044	0.197	13.820	6.165
08:24:44	4.274	-0.002	0.213	13.924	6.059
08:24:59	3.614	-0.099	0.207	9.505	4.641
08:25:14	3.077	-0.221	3.258	0.847	0.630
08:25:29	0.993	-0.316	13.519	0.115	0.168
08:25:44	0.293	-0.376	32.122	0.050	0.116
08:25:59	0.310	-0.477	42.923	0.045	0.110
08:26:14	-0.220	-0.631	47.282	0.026	0.095
08:26:29	-0.293	-0.689	47.915	0.010	0.066
08:26:44	0.154	-0.586	48.008	0.004	0.052
08:26:59	0.040	-0.645	47.985	0.014	0.051
08:27:14	-0.065	-0.669	48.013	-0.018	0.032
08:27:29	0.032	-0.697	48.077	-0.002	0.044
08:27:44	0.040	-0.682	48.110	0.006	0.031
08:27:59	1.139	2.030	47.577	-0.006	5.481
08:28:14	14.562	24.267	40.339	-0.009	9.631
08:28:29	65.942	36.938	25.403	-0.011	9.932
08:28:44	158.217	40.161	9.562	-0.031	9.988
08:28:59	213.285	41.161	2.644	-0.018	9.991
08:29:14	221.408	41.682	0.097	-0.016	10.006

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 8:22
Stop Time 8:30

CALIBRATION BIAS 02

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
08:29:29	222.035	42.035	-0.246	-0.019	10.034
08:29:44	222.377	42.219	-0.327	-0.022	10.044
08:29:59	222.442	42.294	-0.365	-0.073	10.050
08:30:14	222.434	42.427	-0.384	-0.153	10.047
08:30:29	222.459	42.581	-0.347	-0.030	10.055
08:30:44	222.532	42.585	-0.345	-0.071	10.064
08:30:59	222.686	42.665	-0.344	-0.031	10.064

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 8:33
Stop time 9:00

REFERENCE METHOD RUN 3

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.002	-0.670	-0.345	-0.018	0.042
C_{ui}	Initial upscale	222.475	42.610	48.067	13.818	6.166
C_{of}	Final zero	0.334	-0.511	-0.366	-0.005	0.051
C_{uf}	Final upscale	222.330	42.440	48.061	13.955	6.039
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	164.510	16.279	6.059	8.583	10.873
C_{Gas}	**Bias adjusted**	**167.940**	**17.208**	**6.379**	**8.670**	**10.823**

Clock Time (at end of sample period)

040309 110517

08:34	165.977	15.405	5.236	9.103	10.350
08:35	161.944	16.896	5.575	8.757	10.692
08:36	157.625	15.690	6.176	8.181	11.205
08:37	164.066	14.330	6.864	8.911	10.586
08:38	161.722	11.838	5.690	9.142	10.328
08:39	158.235	14.849	7.557	8.772	10.705
08:40	152.247	15.499	7.712	8.669	10.759
08:41	153.962	15.028	7.421	8.810	10.682
08:42	154.251	12.870	6.463	8.728	10.733
08:43	155.065	12.278	6.796	9.058	10.461
08:44	142.222	11.462	6.319	8.743	10.714
08:45	153.398	13.203	6.533	8.754	10.722
08:46	151.209	10.849	7.697	8.586	10.880
08:47	156.437	14.155	6.455	9.156	10.362
08:48	156.905	23.694	6.699	9.114	10.395
08:49	170.244	22.141	7.462	8.020	11.400
08:50	180.497	15.192	6.554	7.788	11.611
08:51	191.284	12.050	6.407	7.694	11.717
08:52	191.074	9.772	4.514	8.934	10.555
08:53	176.339	12.821	4.599	8.374	11.059
08:54	172.552	17.199	4.938	8.744	10.713
08:55	179.253	21.156	5.223	7.652	11.735
08:56	187.464	16.936	4.171	8.333	11.145
08:57	169.340	16.632	3.589	8.597	10.864
08:58	163.803	18.153	4.220	8.483	10.989
08:59	160.399	26.693	5.152	8.214	11.179
09:00	154.249	32.741	7.564	8.420	11.042

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 9:56
Stop Time 10:05

CALIBRATION BIAS 03

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.334	-0.511	-0.366	-0.005	0.051
C_{uf} Upscale gas	222.330	42.440	48.061	13.955	6.039
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce} Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.2%	0.2%	0.3%	0.4%
Upscale gas	-1.2%	-1.3%	-0.2%	-0.6%	0.0%
System Bias Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK
Previous System Response to Calibration Gases (C_S)					
C_{ol} Zero gas	0.002	-0.670	-0.345	-0.018	0.042
C_{ul} Upscale gas	222.475	42.610	48.067	13.818	6.166
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.1%	0.2%	0.0%	0.1%	0.1%
Upscale gas	0.0%	-0.2%	0.0%	1.0%	-0.9%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 :10517:

09:56:47	175.173	23.766	3.412	12.153	6.733
09:57:02	156.093	7.321	1.273	13.793	6.129
09:57:17	87.130	2.535	0.358	13.906	6.072
09:57:32	24.078	1.048	0.067	13.909	6.051
09:57:47	5.381	0.459	-0.018	13.936	6.045
09:58:02	1.791	0.052	0.077	13.946	6.054
09:58:17	1.205	-0.055	-0.010	13.947	6.049
09:58:32	0.594	-0.205	0.046	13.951	6.046
09:58:47	0.529	-0.269	0.046	13.941	6.042
09:59:02	0.652	-0.342	0.018	13.954	6.041
09:59:17	0.220	-0.399	0.059	13.955	6.040
09:59:32	0.497	-0.578	0.027	13.956	6.037
09:59:47	0.285	-0.555	0.050	13.938	6.032
10:00:02	0.390	1.429	0.050	5.615	8.025
10:00:17	20.448	23.359	0.000	0.376	9.875
10:00:32	94.270	36.736	-0.041	0.060	10.024
10:00:47	167.969	40.041	-0.179	-0.001	10.051
10:01:02	211.347	41.110	-0.293	0.012	10.059
10:01:17	220.057	41.566	-0.358	-0.013	10.064
10:01:32	221.131	41.890	-0.366	-0.007	10.070
10:01:47	221.530	42.097	-0.366	-0.016	10.073
10:02:02	221.791	42.149	-0.366	-0.004	10.074
10:02:17	221.986	42.341	-0.366	-0.005	10.076
10:02:32	222.214	42.444	-0.366	-0.005	10.079
10:02:47	222.303	42.535	-0.366	-0.004	9.903
10:03:02	222.474	33.985	0.690	-0.025	2.919
10:03:17	195.588	12.400	6.927	-0.004	0.380
10:03:32	102.645	4.230	24.625	-0.017	0.183
10:03:47	30.492	1.794	38.448	-0.007	0.141

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 9:56
Stop Time 10:05

CALIBRATION BIAS 03

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
10:04:02	5.934	0.864	46.182	-0.015	0.114
10:04:17	1.498	0.402	47.605	-0.002	0.110
10:04:32	0.863	0.143	47.945	-0.025	0.100
10:04:47	0.773	-0.023	47.982	-0.004	0.058
10:05:02	0.383	-0.130	48.008	-0.010	0.053
10:05:17	0.375	-0.235	48.049	-0.003	0.041
10:05:32	0.554	-0.271	48.125	1.069	0.790
10:05:47	1.685	3.736	47.020	7.418	8.615

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 9:23
North Broward Stop time 9:50
Unit 1 FF Outlet **REFERENCE METHOD RUN 4**

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.334	-0.511	-0.366	-0.005	0.051
C_{ui}	Initial upscale	222.330	42.440	48.061	13.955	6.039
C_{of}	Final zero	0.328	-0.837	-0.366	-0.012	0.056
C_{uf}	Final upscale	221.414	42.180	48.042	13.961	6.018
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	166.426	18.788	7.964	8.624	10.848
C_{Gas}	**Bias adjusted**	**170.263**	**19.913**	**8.284**	**8.665**	**10.936**

Clock Time (at end of sample period)

040309 110517

09:24	167.757	20.400	8.140	7.986	11.438
09:25	162.389	19.206	7.930	8.656	10.847
09:26	149.990	19.781	8.499	8.618	10.872
09:27	153.830	21.498	8.290	9.209	10.332
09:28	151.140	22.438	8.441	9.154	10.389
09:29	154.937	25.526	9.948	8.454	11.043
09:30	165.735	25.497	7.532	8.469	10.997
09:31	173.767	27.051	7.055	8.405	11.076
09:32	171.412	20.192	7.398	9.136	10.378
09:33	166.339	21.238	8.517	9.440	10.106
09:34	168.842	25.898	8.270	8.582	10.869
09:35	177.576	21.547	8.384	9.403	10.140
09:36	171.640	17.611	8.715	9.010	10.469
09:37	168.909	18.030	8.488	8.466	10.937
09:38	173.417	15.283	6.902	8.470	10.981
09:39	174.410	9.279	5.510	8.786	10.632
09:40	177.184	11.078	6.909	8.582	10.864
09:41	177.021	14.755	6.018	8.309	11.069
09:42	177.792	17.263	6.115	7.916	11.526
09:43	170.747	13.339	5.484	8.998	10.512
09:44	163.991	13.996	7.357	8.271	11.211
09:45	164.500	14.865	8.453	8.419	11.030
09:46	163.645	20.855	9.324	7.469	11.925
09:47	167.835	15.960	7.780	9.092	10.452
09:48	155.802	15.406	8.365	9.180	10.323
09:49	154.461	18.840	9.186	8.420	10.991
09:50	168.445	20.444	12.011	7.941	11.494

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 9:51
Stop Time 10:01

CALIBRATION BIAS 04

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_s)						
C_{of}	Zero gas	0.328	-0.837	-0.366	-0.012	0.056
C_{uf}	Upscale gas	221.414	42.180	48.042	13.961	6.018
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce}	Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	-0.5%	0.2%	0.2%	0.5%
	Upscale gas	-1.4%	-1.6%	-0.2%	-0.6%	-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_{of}	Zero gas	0.334	-0.511	-0.366	-0.005	0.051
C_{uf}	Upscale gas	222.330	42.440	48.061	13.955	6.039
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	0.0%	-0.4%	0.0%	-0.1%	0.0%
	Upscale gas	-0.2%	-0.3%	0.0%	0.0%	-0.2%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

040309 110517

09:51:22	166.732	40.716	9.337	4.915	6.893
09:51:37	163.004	20.478	12.446	1.098	1.837
09:51:52	123.411	7.906	23.102	10.077	4.016
09:52:07	59.097	3.209	29.185	13.690	5.856
09:52:22	12.951	1.187	20.166	13.899	5.990
09:52:37	4.143	0.326	9.223	13.927	6.010
09:52:52	1.481	-0.049	2.102	13.938	6.016
09:53:07	0.773	-0.293	0.485	13.944	6.016
09:53:22	0.440	-0.458	0.171	13.946	6.017
09:53:37	0.367	-0.576	0.101	13.948	6.016
09:53:52	0.383	-0.674	0.021	13.950	6.018
09:54:07	-0.041	-0.775	0.085	13.955	6.020
09:54:22	0.276	-0.804	0.052	13.956	6.020
09:54:37	0.293	-0.776	0.033	13.960	6.019
09:54:52	-0.301	-0.808	-0.013	13.962	6.017
09:55:07	-0.179	-0.827	0.077	13.961	6.018
09:55:22	0.366	-0.804	0.034	13.961	6.020
09:55:37	0.366	-0.872	0.077	13.964	6.021
09:55:52	0.252	-0.835	0.034	13.881	6.021
09:56:07	0.049	1.517	-0.008	4.850	8.178
09:56:22	13.007	23.134	0.059	0.331	9.886
09:56:37	83.874	36.228	0.067	0.065	10.009
09:56:52	181.164	39.648	-0.079	0.031	10.042
09:57:07	212.601	40.778	-0.275	0.006	10.052
09:57:22	219.406	41.309	-0.350	-0.001	10.059
09:57:37	220.090	41.607	-0.366	-0.013	10.063
09:57:52	220.684	41.879	-0.366	-0.003	10.067
09:58:07	220.968	42.025	-0.366	-0.006	10.069

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 9:51
Stop Time 10:01

CALIBRATION BIAS 04

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
09:58:22	221.196	42.154	-0.366	-0.008	10.071
09:58:37	221.400	42.232	-0.350	-0.004	10.073
09:58:52	221.645	42.155	-0.350	-0.001	9.067
09:59:07	220.660	28.716	0.965	-0.009	1.701
09:59:22	203.289	9.722	11.030	0.005	0.288
09:59:37	126.251	3.552	26.569	-0.001	0.168
09:59:52	28.661	1.577	41.695	-0.005	0.127
10:00:07	4.176	0.702	46.400	-0.014	0.107
10:00:22	1.245	0.191	47.769	-0.017	0.102
10:00:37	0.692	-0.021	47.914	-0.005	0.067
10:00:52	0.708	-0.173	48.016	-0.012	0.054
10:01:07	0.383	-0.306	48.057	-0.009	0.047
10:01:22	0.464	-0.342	48.054	1.107	0.832

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 10:04
North Broward Stop time 10:31
Unit 1 FF Outlet

REFERENCE METHOD RUN 5

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.328	-0.837	-0.366	-0.012	0.056
C_{ui}	Initial upscale	221.414	42.180	48.042	13.961	6.018
C_{of}	Final zero	0.301	-0.802	-0.366	-0.008	0.043
C_{uf}	Final upscale	221.924	42.387	48.107	13.955	6.017
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	161.309	17.958	7.412	8.738	10.661
C_{Gas}	**Bias adjusted**	**165.173**	**19.160**	**7.731**	**8.781**	**10.764**

Clock Time (at end of sample period)

040309 110517

10:05	166.801	16.303	6.370	8.812	10.579
10:06	164.371	15.478	6.224	8.472	10.851
10:07	166.998	18.570	6.627	8.826	10.582
10:08	157.238	17.531	5.750	8.850	10.553
10:09	168.710	17.919	6.149	9.133	10.307
10:10	164.778	18.292	7.031	8.307	11.052
10:11	172.662	16.429	7.078	8.959	10.457
10:12	164.567	15.477	7.559	8.457	10.903
10:13	170.549	15.541	7.586	8.899	10.516
10:14	169.969	17.111	8.510	8.830	10.628
10:15	164.249	19.855	8.755	8.931	10.499
10:16	163.197	18.839	8.836	9.133	10.289
10:17	153.917	16.360	9.245	9.085	10.341
10:18	153.254	14.043	8.810	8.921	10.464
10:19	157.788	15.668	10.469	8.901	10.514
10:20	156.262	18.681	9.018	8.409	10.944
10:21	156.862	21.088	8.903	8.880	10.571
10:22	154.003	19.028	7.151	8.770	10.629
10:23	154.499	16.211	7.438	8.700	10.693
10:24	157.794	17.843	7.118	8.307	11.075
10:25	156.738	19.761	5.950	8.691	10.709
10:26	152.226	20.847	6.135	8.642	10.753
10:27	156.262	18.521	5.875	8.729	10.657
10:28	162.281	18.539	7.457	7.507	11.777
10:29	170.999	18.617	7.612	8.876	10.568
10:30	156.427	18.851	5.939	9.319	10.121
10:31	161.933	23.470	6.526	8.585	10.804

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 10:31
Stop Time 10:41

CALIBRATION BIAS 05

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	0.301	-0.802	-0.366	-0.008	0.043
C_{uf} Upscale gas	221.924	42.387	48.107	13.955	6.017
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce} Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.5%	0.2%	0.2%	0.4%
Upscale gas	-1.3%	-1.4%	-0.2%	-0.6%	-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	0.328	-0.837	-0.366	-0.012	0.056
C_{ui} Upscale gas	221.414	42.180	48.042	13.961	6.018
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.0%	0.0%	-0.1%
Upscale gas	0.1%	0.2%	0.1%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 110517

10:31:55	154.448	16.676	8.143	2.025	3.154
10:32:10	128.140	6.706	14.901	4.648	1.911
10:32:25	75.385	2.756	26.102	13.081	5.455
10:32:40	25.242	0.946	26.061	13.855	5.937
10:32:55	7.155	0.161	14.037	13.924	5.995
10:33:10	1.799	-0.199	4.954	13.938	6.008
10:33:25	0.798	-0.417	1.056	13.944	6.013
10:33:40	0.660	-0.601	0.238	13.945	6.014
10:33:55	0.334	-0.687	0.080	13.951	6.015
10:34:10	0.399	-0.773	0.124	13.953	6.015
10:34:25	0.171	-0.795	0.101	13.956	6.018
10:34:40	0.374	-0.838	0.038	13.955	6.018
10:34:55	-0.025	-0.399	-0.008	9.330	6.955
10:35:10	3.411	16.182	0.062	0.818	9.676
10:35:25	28.636	34.115	0.033	0.074	9.974
10:35:40	125.397	38.963	-0.029	0.025	10.030
10:35:55	201.018	40.389	-0.182	0.019	10.048
10:36:10	218.803	41.195	-0.326	-0.014	10.055
10:36:25	220.391	41.620	-0.366	-0.008	10.059
10:36:40	220.781	41.933	-0.366	-0.019	10.065
10:36:55	221.107	42.103	-0.366	-0.011	10.067
10:37:10	221.351	42.243	-0.366	-0.001	10.068
10:37:25	221.555	42.374	-0.366	-0.011	10.070
10:37:40	221.807	42.543	-0.366	-0.005	10.072
10:37:55	221.921	42.310	-0.366	-0.005	9.096
10:38:10	222.043	26.888	1.164	-0.009	1.705
10:38:25	200.977	8.553	9.841	0.004	0.292
10:38:40	104.974	3.048	26.468	-0.004	0.170

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 10:31
Stop Time 10:41

CALIBRATION BIAS 05

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
10:38:55	25.177	1.311	40.887	-0.010	0.127
10:39:10	3.801	0.580	46.378	-0.022	0.109
10:39:25	1.449	0.088	47.738	0.000	0.101
10:39:40	0.407	-0.026	47.974	0.004	0.089
10:39:55	0.546	-0.190	48.011	-0.012	0.069
10:40:10	0.578	-0.301	47.974	0.004	0.060
10:40:25	0.448	-0.376	48.023	-0.002	0.050
10:40:40	0.090	-0.596	48.097	-0.009	0.020
10:40:55	0.171	-0.557	48.130	-0.013	0.045
10:41:10	0.171	-0.516	48.093	1.301	0.941
10:41:25	2.426	6.771	46.706	7.709	8.618

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 10:43
North Broward Stop time 11:10
Unit 1 FF Outlet **REFERENCE METHOD RUN 6**

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.301	-0.802	-0.366	-0.008	0.043
C_{ui}	Initial upscale	221.924	42.387	48.107	13.955	6.017
C_{of}	Final zero	-0.168	-0.711	-0.366	-0.006	0.055
C_{uf}	Final upscale	222.187	42.764	48.042	13.963	6.013
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	157.987	17.781	5.720	8.618	10.750
C_{Gas}	**Bias adjusted**	**161.557**	**18.815**	**6.049**	**8.659**	**10.859**

Clock Time (at end of sample period)						
040309 110517						
	10:44	179.518	16.445	8.588	8.051	11.278
	10:45	184.449	17.857	6.447	7.966	11.355
	10:46	174.367	17.717	5.197	8.836	10.553
	10:47	157.487	13.777	4.557	8.752	10.610
	10:48	158.020	16.458	4.878	8.780	10.608
	10:49	162.041	31.772	5.699	7.706	11.594
	10:50	169.379	20.293	4.838	8.420	10.965
	10:51	161.720	15.426	4.042	8.545	10.798
	10:52	157.446	17.182	4.454	8.695	10.698
	10:53	151.970	20.627	3.874	8.803	10.548
	10:54	156.716	21.425	4.862	8.204	11.140
	10:55	152.367	16.466	4.033	8.980	10.403
	10:56	148.604	15.524	4.533	8.249	11.099
	10:57	157.033	16.080	4.807	8.950	10.464
	10:58	154.300	19.586	4.577	8.234	11.078
	10:59	156.968	19.263	4.291	8.721	10.630
	11:00	150.607	17.170	4.755	8.321	10.993
	11:01	154.595	16.081	5.507	9.016	10.383
	11:02	151.636	17.140	6.396	8.485	10.894
	11:03	152.810	18.723	6.559	8.770	10.619
	11:04	155.484	17.258	8.120	8.673	10.680
	11:05	156.205	15.575	8.024	8.628	10.764
	11:06	162.361	15.039	7.828	8.978	10.437
	11:07	152.088	15.209	6.984	8.985	10.410
	11:08	144.339	16.164	5.727	9.189	10.222
	11:09	146.388	16.822	6.795	9.144	10.233
	11:10	156.760	19.011	8.068	8.616	10.780

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 11:13
Stop Time 11:22

CALIBRATION BIAS 06

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_s)						
C_{of}	Zero gas	-0.168	-0.711	-0.366	-0.006	0.055
C_{uf}	Upscale gas	222.187	42.764	48.042	13.963	6.013
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce}	Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.0%	-0.4%	0.2%	0.3%	0.4%
	Upscale gas	-1.2%	-0.9%	-0.2%	-0.6%	-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	0.301	-0.802	-0.366	-0.008	0.043
C_{ui}	Upscale gas	221.924	42.387	48.107	13.955	6.017
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%	0.4%	-0.1%	0.1%	0.0%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

040309 110517

11:13:14	3.623	0.016	9.972	13.936	5.998
11:13:29	0.904	-0.234	2.994	13.947	6.001
11:13:44	0.806	-0.378	0.591	13.952	6.006
11:13:59	0.464	-0.536	0.054	13.957	6.009
11:14:14	0.570	-0.591	0.037	13.960	6.011
11:14:29	0.276	-0.698	0.018	13.961	6.013
11:14:44	-0.147	-0.687	0.034	13.963	6.013
11:14:59	-0.065	-0.724	0.056	13.962	6.012
11:15:14	-0.293	-0.705	0.012	13.964	6.013
11:15:29	0.154	-0.703	0.054	12.609	6.191
11:15:44	1.677	7.806	0.088	2.148	9.115
11:15:59	15.303	30.795	0.073	0.170	9.953
11:16:14	83.394	38.447	-0.010	0.044	10.008
11:16:29	179.349	40.477	-0.151	0.014	10.041
11:16:44	217.550	41.281	-0.303	0.008	10.050
11:16:59	220.065	41.736	-0.361	-0.005	10.057
11:17:14	220.806	41.994	-0.366	-0.011	10.061
11:17:29	221.205	42.183	-0.366	-0.002	10.062
11:17:44	221.539	42.328	-0.366	-0.016	10.067
11:17:59	221.775	42.367	-0.366	-0.006	10.067
11:18:14	221.872	42.514	-0.366	-0.002	10.068
11:18:29	221.962	42.614	-0.366	-0.004	10.073
11:18:44	222.035	42.665	-0.366	-0.004	10.071
11:18:59	222.027	42.701	-0.366	-0.005	10.072
11:19:14	222.100	42.766	-0.366	-0.008	10.073
11:19:29	222.181	42.826	-0.366	-0.005	10.075
11:19:44	222.279	38.094	0.023	-0.005	5.034
11:19:59	215.482	15.383	4.943	0.009	0.530

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 11:13
Stop Time 11:22

CALIBRATION BIAS 06

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
11:20:14	152.381	4.850	19.245	-0.016	0.199
11:20:29	52.169	2.035	35.704	-0.001	0.146
11:20:44	7.961	0.931	45.040	-0.009	0.117
11:20:59	2.214	0.523	47.442	-0.005	0.110
11:21:14	1.245	0.223	47.895	-0.010	0.076
11:21:29	0.879	0.008	47.963	-0.018	0.058
11:21:44	0.660	-0.065	48.026	-0.002	0.063
11:21:59	0.464	-0.166	48.073	-0.012	0.045
11:22:14	0.228	-0.090	48.028	2.002	1.577

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 11:54
North Broward Stop time 12:21
Unit 1 FF Outlet

REFERENCE METHOD RUN 7

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	-0.168	-0.711	-0.366	-0.006	0.055
C_{ui}	Initial upscale	222.187	42.764	48.042	13.963	6.013
C_{of}	Final zero	-0.345	-0.669	-0.366	-0.010	0.052
C_{uf}	Final upscale	221.525	42.343	48.024	13.935	5.993
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	174.466	22.723	5.238	8.360	11.039
C_{Gas}	**Bias adjusted**	**178.646**	**23.812**	**5.575**	**8.405**	**11.179**

Clock Time (at end of sample period)

040309 110517

11:55	158.726	19.547	6.288	8.100	11.331
11:56	162.149	18.548	5.905	8.801	10.669
11:57	165.698	20.898	5.909	8.130	11.314
11:58	171.099	21.442	4.436	8.618	10.817
11:59	171.414	22.658	5.553	8.032	11.346
12:00	173.158	21.133	5.873	8.439	10.997
12:01	179.735	21.735	5.734	7.882	11.515
12:02	177.507	20.020	4.171	8.672	10.780
12:03	168.356	25.403	5.122	7.960	11.403
12:04	180.307	26.697	5.672	8.532	10.945
12:05	169.609	25.070	5.242	8.277	11.103
12:06	187.161	24.325	5.783	8.073	11.348
12:07	183.113	21.022	4.929	8.366	11.026
12:08	182.617	23.240	6.488	7.968	11.439
12:09	181.514	20.964	5.156	8.889	10.566
12:10	178.763	24.825	5.516	8.319	11.107
12:11	178.858	27.731	5.304	8.495	10.932
12:12	174.731	31.853	6.173	8.413	11.048
12:13	170.952	28.055	4.800	8.844	10.570
12:14	180.006	28.443	5.506	7.951	11.407
12:15	184.540	23.103	4.372	8.785	10.603
12:16	168.925	19.798	4.474	8.564	10.762
12:17	177.808	19.071	5.434	8.450	10.901
12:18	174.343	17.243	4.659	8.586	10.723
12:19	173.431	20.339	4.652	8.009	11.305
12:20	170.240	19.370	3.862	8.450	10.893
12:21	165.824	20.996	4.413	8.109	11.208

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 12:22
Stop Time 12:32

CALIBRATION BIAS 07

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	-0.345	-0.669	-0.366	-0.010	0.052
C_{uf} Upscale gas	221.525	42.343	48.024	13.935	5.993
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce} Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)					
	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.0%	-0.3%	0.2%	0.2%	0.4%
Upscale gas	-1.4%	-1.4%	-0.3%	-0.8%	-0.3%
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	-0.168	-0.711	-0.366	-0.006	0.055
C_{ui} Upscale gas	222.187	42.764	48.042	13.963	6.013
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.0%	0.0%	0.0%
Upscale gas	-0.1%	-0.5%	0.0%	-0.2%	-0.1%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 110517

12:22:17	170.891	9.234	8.760	1.808	1.334
12:22:32	125.649	3.955	21.229	11.581	4.609
12:22:47	55.987	1.626	27.298	13.780	5.891
12:23:02	10.200	0.488	17.584	13.906	5.991
12:23:17	3.061	0.000	7.551	13.935	6.002
12:23:32	1.034	-0.226	1.621	13.940	6.009
12:23:47	0.513	-0.373	0.278	13.946	6.011
12:24:02	0.399	-0.513	0.057	13.949	6.015
12:24:17	0.228	-0.536	0.059	13.952	6.010
12:24:32	-0.138	-0.593	0.060	13.931	5.994
12:24:47	-0.521	-0.650	0.016	13.932	5.986
12:25:02	-0.375	-0.669	0.000	13.942	6.000
12:25:17	0.057	-0.688	0.075	12.164	6.274
12:25:32	0.040	8.233	0.039	1.838	9.238
12:25:47	27.773	30.072	0.080	0.162	9.949
12:26:02	123.460	38.045	0.002	0.032	10.023
12:26:17	194.929	40.293	-0.153	0.020	10.036
12:26:32	216.557	41.276	-0.324	0.010	10.049
12:26:47	219.438	41.688	-0.358	-0.010	10.055
12:27:02	220.424	41.976	-0.366	-0.010	10.057
12:27:17	220.798	42.149	-0.366	-0.014	10.061
12:27:32	221.058	42.269	-0.366	-0.005	10.064
12:27:47	221.245	42.345	-0.366	-0.006	10.067
12:28:02	221.449	42.414	-0.366	-0.002	10.069
12:28:17	221.563	41.784	-0.366	0.006	7.956
12:28:32	221.563	23.738	2.406	0.009	1.108
12:28:47	191.934	7.349	11.783	-0.013	0.246
12:29:02	90.509	2.764	31.209	0.000	0.165

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 12:22
Stop Time 12:32

CALIBRATION BIAS 07

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
12:29:17	19.072	1.236	42.071	-0.008	0.128
12:29:32	3.085	0.604	47.073	-0.014	0.110
12:29:47	1.148	0.187	47.850	-0.008	0.096
12:30:02	0.611	-0.015	47.971	-0.009	0.080
12:30:17	0.513	-0.114	47.988	-0.003	0.052
12:30:32	0.472	-0.218	48.054	-0.010	0.024
12:30:47	0.464	-0.278	48.030	0.723	0.384
12:31:02	2.060	5.244	46.830	7.378	7.699
12:31:17	13.244	18.424	40.467	8.301	10.646
12:31:32	66.023	23.469	25.783	8.249	11.020
12:31:47	133.496	24.833	15.560	8.522	10.828
12:32:02	173.504	23.819	9.085	8.766	10.639
12:32:17	175.677	22.870	7.084	9.009	10.403
12:32:32	173.065	22.426	6.138	9.307	10.150
12:32:47	168.970	22.672	5.793	9.084	10.309

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 12:35
North Broward Stop time 13:02
Unit 1 FF Outlet **REFERENCE METHOD RUN 8**

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	-0.345	-0.669	-0.366	-0.010	0.052
C_{ui}	Initial upscale	221.525	42.343	48.024	13.935	5.993
C_{of}	Final zero	0.135	-0.707	-0.380	-0.056	0.050
C_{uf}	Final upscale	221.145	42.378	48.008	13.948	6.005
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	174.580	15.144	6.573	8.797	10.631
C_{Gas}	**Bias adjusted**	**179.150**	**16.174**	**6.912**	**8.859**	**10.768**

Clock Time (at end of sample period)

040309 1105.iz

12:36	175.397	19.027	7.467	9.001	10.443
12:37	168.207	14.188	6.959	8.482	10.920
12:38	179.916	10.589	6.885	9.138	10.306
12:39	174.426	10.604	6.984	8.613	10.780
12:40	181.172	17.682	6.801	8.534	10.832
12:41	182.725	24.289	6.849	8.571	10.845
12:42	179.473	18.759	6.332	8.894	10.517
12:43	175.297	15.748	6.880	8.628	10.787
12:44	173.854	12.702	5.505	8.453	10.934
12:45	184.935	14.500	6.305	8.768	10.683
12:46	178.435	15.592	6.120	9.441	10.037
12:47	171.964	14.045	6.632	9.341	10.109
12:48	170.155	12.868	6.547	8.910	10.504
12:49	173.533	13.649	7.049	8.774	10.683
12:50	174.448	14.794	6.650	9.169	10.304
12:51	175.181	15.286	5.938	8.843	10.614
12:52	180.362	15.860	6.645	8.279	11.140
12:53	176.746	14.276	5.893	8.880	10.551
12:54	169.137	14.279	6.528	8.620	10.788
12:55	162.306	13.877	5.624	8.845	10.566
12:56	167.224	13.869	5.974	8.930	10.526
12:57	167.391	15.177	6.445	8.553	10.881
12:58	173.852	14.628	7.377	9.015	10.434
12:59	176.229	16.345	6.860	8.694	10.717
13:00	182.845	17.489	7.773	8.165	11.242
13:01	170.446	14.522	5.984	8.879	10.545
13:02	168.012	14.236	6.470	9.113	10.348

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 13:05
Stop Time 13:14

CALIBRATION BIAS 08

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	0.135	-0.707	-0.380	-0.056	0.050
C_{uf} Upscale gas	221.145	42.378	48.008	13.948	6.005
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce} Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)					
	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.4%	0.2%	-0.1%	0.4%
Upscale gas	-1.5%	-1.4%	-0.3%	-0.7%	-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	-0.345	-0.669	-0.366	-0.010	0.052
C_{ul} Upscale gas	221.525	42.343	48.024	13.935	5.993
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.1%	0.0%	0.0%	-0.3%	0.0%
Upscale gas	-0.1%	0.0%	0.0%	0.1%	0.1%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 110517

13:05:30	144.062	6.457	14.317	3.829	1.579
13:05:45	89.239	2.797	24.904	12.835	5.293
13:06:00	32.422	1.110	26.040	13.835	5.926
13:06:15	9.711	0.264	15.160	13.895	5.986
13:06:30	2.027	-0.083	5.337	13.916	5.995
13:06:45	0.684	-0.288	1.251	13.930	5.999
13:07:00	0.619	-0.453	0.273	13.935	5.999
13:07:15	0.513	-0.516	0.037	13.940	6.002
13:07:30	0.505	-0.643	0.078	13.947	6.006
13:07:45	0.065	-0.589	0.030	13.946	6.006
13:08:00	0.276	-0.637	0.054	13.949	6.004
13:08:15	0.065	-0.705	0.031	13.950	6.006
13:08:30	0.154	-0.780	0.015	12.126	6.277
13:08:45	1.807	7.188	0.065	1.814	9.248
13:09:00	17.216	29.496	0.089	0.154	9.943
13:09:15	85.584	37.893	-0.050	0.029	9.995
13:09:30	184.281	40.246	-0.195	0.012	10.025
13:09:45	216.573	41.084	-0.343	0.007	10.037
13:10:00	219.007	41.465	-0.388	0.002	10.044
13:10:15	219.414	41.848	-0.391	-0.018	10.051
13:10:30	219.756	42.068	-0.369	-0.011	10.053
13:10:45	220.334	42.157	-0.379	-0.006	10.056
13:11:00	220.741	42.224	-0.391	-0.001	10.058
13:11:15	220.952	42.357	-0.391	-0.009	10.060
13:11:30	221.180	42.553	-0.374	-0.005	10.053
13:11:45	221.302	37.761	0.065	-0.001	4.303
13:12:00	212.455	16.036	5.820	-0.003	0.476
13:12:15	147.521	5.387	20.109	0.003	0.189

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 13:05
Stop Time 13:14

CALIBRATION BIAS 08

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
13:12:30	44.803	2.250	36.811	-0.020	0.137
13:12:45	7.131	1.047	45.229	-0.019	0.112
13:13:00	1.954	0.524	47.529	-0.033	0.107
13:13:15	1.001	0.108	47.852	-0.082	0.086
13:13:30	0.814	-0.041	47.981	-0.053	0.053
13:13:45	0.537	-0.114	48.021	-0.014	0.042
13:14:00	0.562	-0.207	48.021	-0.002	0.055
13:14:15	0.212	0.075	47.950	3.409	3.279
13:14:30	4.811	9.286	44.339	8.261	9.905

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 13:16
North Broward Stop time 13:43
Unit 1 FF Outlet

REFERENCE METHOD RUN 9

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.135	-0.707	-0.380	-0.056	0.050
C_{ui}	Initial upscale	221.145	42.378	48.008	13.948	6.005
C_{of}	Final zero	-0.003	-0.661	-0.391	-0.011	0.036
C_{uf}	Final upscale	220.426	42.390	48.069	13.935	5.999
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	169.301	17.725	5.955	8.643	10.770
C_{Gas}	**Bias adjusted**	**174.127**	**18.799**	**6.305**	**8.704**	**10.898**

Clock Time (at end of sample period)

0:10209 110517					
13:17	153.352	16.863	6.359	8.711	10.707
13:18	157.356	16.536	6.317	8.553	10.834
13:19	172.145	16.748	5.845	8.748	10.680
13:20	165.464	16.578	4.733	8.544	10.872
13:21	161.201	15.324	4.183	9.313	10.167
13:22	156.791	17.491	4.495	9.242	10.228
13:23	163.311	19.858	5.268	8.646	10.770
13:24	169.795	19.905	6.011	8.365	11.040
13:25	174.801	17.819	5.444	8.726	10.712
13:26	174.577	16.149	5.340	8.943	10.498
13:27	173.341	24.678	5.156	8.556	10.840
13:28	179.864	16.693	5.342	7.969	11.298
13:29	175.289	10.195	5.446	8.608	10.798
13:30	172.969	7.644	5.744	9.067	10.369
13:31	167.823	14.699	6.187	8.999	10.399
13:32	168.907	26.238	6.866	8.180	11.190
13:33	181.760	22.083	6.608	8.563	10.854
13:34	182.739	14.954	6.600	8.738	10.705
13:35	182.299	11.707	6.698	8.615	10.784
13:36	172.672	14.216	7.074	8.478	10.901
13:37	169.343	14.957	6.424	8.440	10.960
13:38	170.434	19.783	6.010	8.142	11.230
13:39	172.350	23.682	6.649	8.968	10.461
13:40	161.766	25.021	5.891	8.953	10.483
13:41	159.204	24.517	5.736	8.584	10.845
13:42	160.084	19.206	6.474	8.301	11.118
13:43	171.500	15.025	7.885	8.407	11.042

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 13:44
Stop Time 13:54

CALIBRATION BIAS 09

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	-0.003	-0.661	-0.391	-0.011	0.036
C_{uf} Upscale gas	220.426	42.390	48.069	13.935	5.999
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce} Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.3%	0.1%	0.2%	0.3%
Upscale gas	-1.6%	-1.4%	-0.2%	-0.8%	-0.3%
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	0.135	-0.707	-0.380	-0.056	0.050
C_{ui} Upscale gas	221.145	42.378	48.008	13.948	6.005
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.1%	0.0%	0.3%	-0.1%
Upscale gas	-0.2%	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

040309 110517

13:44:57	175.401	12.295	8.376	1.157	1.791
13:45:12	137.412	4.655	18.413	8.600	3.220
13:45:27	70.086	1.823	27.136	13.577	5.753
13:45:42	18.038	0.545	21.530	13.874	5.956
13:45:57	4.802	0.015	10.545	13.901	5.984
13:46:12	0.960	-0.212	2.520	13.900	5.990
13:46:27	0.513	-0.361	0.534	13.917	5.994
13:46:42	0.424	-0.534	0.052	13.927	5.996
13:46:57	0.098	-0.563	0.033	13.921	5.997
13:47:12	0.065	-0.610	0.054	13.935	5.997
13:47:27	-0.041	-0.697	0.054	13.933	5.999
13:47:42	0.171	-0.632	0.046	13.938	6.000
13:47:57	-0.139	-0.654	0.027	13.943	6.002
13:48:12	0.260	-0.614	0.077	13.920	6.003
13:48:27	-0.171	1.463	0.077	5.616	7.941
13:48:42	12.299	22.992	0.010	0.384	9.845
13:48:57	80.553	36.656	0.036	0.046	9.975
13:49:12	176.736	40.055	-0.122	0.014	10.007
13:49:27	210.232	41.180	-0.285	0.006	10.014
13:49:42	218.584	41.682	-0.374	0.005	10.030
13:49:57	219.276	41.962	-0.391	-0.003	10.039
13:50:12	219.503	42.172	-0.374	-0.017	10.045
13:50:27	219.935	42.286	-0.391	-0.021	10.045
13:50:42	220.277	42.393	-0.391	-0.001	10.049
13:50:57	220.399	42.492	-0.391	-0.002	10.051
13:51:12	220.602	39.168	-0.008	-0.017	5.423
13:51:27	202.043	17.302	3.814	0.001	0.571
13:51:42	133.366	5.294	18.838	-0.005	0.196

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 13:44
Stop Time 13:54

CALIBRATION BIAS 09

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
13:51:57	59.772	1.994	34.448	-0.013	0.140
13:52:12	12.291	0.897	44.995	-0.012	0.112
13:52:27	2.206	0.410	47.380	-0.009	0.102
13:52:42	0.977	0.059	47.938	-0.009	0.081
13:52:57	0.668	-0.029	47.984	0.002	0.068
13:53:12	0.375	-0.151	48.067	-0.017	0.047
13:53:27	0.692	-0.230	48.081	-0.004	0.028
13:53:42	0.432	-0.285	48.062	-0.005	0.033
13:53:57	0.521	0.690	48.065	3.946	3.709
13:54:12	3.012	13.573	43.879	8.213	10.003

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 13:56
North Broward Stop time 14:23
Unit 1 FF Outlet **REFERENCE METHOD RUN 10**

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
Calibration Checks						
C_{ai}	Initial zero	-0.003	-0.661	-0.391	-0.011	0.036
C_{ui}	Initial upscale	220.426	42.390	48.069	13.935	5.999
C_{af}	Final zero	-0.027	-0.682	-0.366	-0.014	0.051
C_{uf}	Final upscale	220.830	42.795	48.039	13.932	5.995
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	164.583	20.000	6.672	8.676	10.685
C_{Gas}	**Bias adjusted**	**169.415**	**21.013**	**7.009**	**8.734**	**10.822**

Clock Time (at end of sample period)					
040309 1,10517					
13:57	166.522	17.233	7.733	9.100	10.291
13:58	156.294	16.168	8.374	8.936	10.460
13:59	154.011	18.582	8.628	8.591	10.797
14:00	154.990	21.564	8.914	8.454	10.918
14:01	160.973	24.111	9.083	8.272	11.089
14:02	153.866	18.960	7.197	8.770	10.614
14:03	157.904	15.258	6.602	9.162	10.268
14:04	155.291	17.545	7.029	8.741	10.623
14:05	163.653	24.007	6.735	7.941	11.355
14:06	171.282	21.789	5.506	8.422	10.853
14:07	181.449	16.959	6.728	8.076	11.212
14:08	181.510	15.273	6.987	8.862	10.463
14:09	175.179	22.742	6.379	8.435	10.903
14:10	170.944	28.981	4.761	8.914	10.428
14:11	163.891	26.777	5.193	8.914	10.396
14:12	161.469	23.993	5.740	8.574	10.770
14:13	168.665	20.688	5.954	8.169	11.152
14:14	169.009	18.265	5.568	8.654	10.702
14:15	163.931	17.989	5.795	8.999	10.396
14:16	159.854	20.934	6.224	8.650	10.710
14:17	168.144	23.045	7.594	8.463	10.876
14:18	169.860	21.122	6.256	8.860	10.548
14:19	153.677	18.869	6.076	9.013	10.373
14:20	156.620	20.595	6.012	9.211	10.208
14:21	161.131	15.418	6.544	8.690	10.668
14:22	172.436	13.147	6.307	8.553	10.826
14:23	171.182	19.977	6.216	8.820	10.603

QA/QC_____
Date_____

Wheelabrator March 11, 2009
CleanAir Project No. 10735 Start Time 14:25
North Broward Stop Time 14:35
Unit 1 FF Outlet

CALIBRATION BIAS 10

		Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
System Response to Calibration Gasses (C_s)						
C_{of}	Zero gas	-0.027	-0.682	-0.366	-0.014	0.051
C_{uf}	Upscale gas	220.830	42.795	48.039	13.932	5.995
Analyzer Calibration Error Reponses (C_{dir})						
C_{oce}	Zero gas	-0.282	-0.371	-0.534	-0.041	-0.007
C_{mce}	Upscale gas	227.796	43.582	48.280	14.041	6.034
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	-0.4%	0.2%	0.2%	0.4%
	Upscale gas	-1.5%	-0.9%	-0.3%	-0.8%	-0.3%
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	-0.003	-0.661	-0.391	-0.011	0.036
C_{ui}	Upscale gas	220.426	42.390	48.069	13.935	5.999
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	0.0%	0.0%	0.0%	0.0%	0.1%
	Upscale gas	0.1%	0.5%	0.0%	0.0%	0.0%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

090309 110517

14:25:06	76.719	2.509	26.838	13.142	5.534
14:25:21	21.946	0.894	24.682	13.850	5.919
14:25:36	6.203	0.213	13.104	13.886	5.975
14:25:51	1.571	-0.109	3.907	13.910	5.983
14:26:06	0.407	-0.272	0.910	13.914	5.990
14:26:21	0.342	-0.443	0.132	13.910	5.995
14:26:36	0.562	-0.474	0.065	13.927	5.995
14:26:51	0.382	-0.619	0.033	13.929	5.995
14:27:06	0.382	-0.651	0.013	13.933	5.995
14:27:21	0.447	-0.607	0.070	13.935	5.995
14:27:36	0.366	-0.658	0.000	13.926	5.996
14:27:51	0.130	-0.648	0.052	13.916	5.990
14:28:06	0.032	-0.741	0.016	13.932	5.995
14:28:21	-0.033	-0.500	0.031	9.359	6.915
14:28:36	-0.082	14.826	0.070	0.829	9.637
14:28:51	53.789	34.160	-0.010	0.099	9.955
14:29:06	141.847	39.588	-0.029	0.025	10.001
14:29:21	208.401	41.006	-0.233	-0.011	10.012
14:29:36	217.070	41.563	-0.330	-0.004	10.011
14:29:51	218.861	41.934	-0.364	-0.005	10.019
14:30:06	219.284	42.157	-0.366	-0.002	10.037
14:30:21	219.666	42.232	-0.366	-0.005	10.041
14:30:36	220.057	42.366	-0.366	-0.012	10.043
14:30:51	220.277	42.546	-0.366	-0.002	10.045
14:31:06	220.375	42.647	-0.366	-0.006	10.047
14:31:21	220.586	42.717	-0.366	-0.010	10.050
14:31:36	220.651	42.789	-0.366	-0.008	10.054
14:31:51	220.879	42.880	-0.383	-0.007	10.044

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 1 FF Outlet

March 11, 2009
Start Time 14:25
Stop Time 14:35

CALIBRATION BIAS 10

	Channel 1 NOX Unit 1 FF Outlet ppmdv	Channel 2 SO2 Unit 1 FF Outlet ppmdv	Channel 3 CO Unit 1 FF Outlet ppmdv	Channel 4 O2 Unit 1 FF Outlet %dv	Channel 5 CO2 Unit 1 FF Outlet %dv
14:32:06	220.960	37.363	-0.039	0.005	4.278
14:32:21	210.077	14.691	6.144	-0.006	0.448
14:32:36	145.536	4.532	20.062	-0.013	0.195
14:32:51	41.221	1.820	37.522	-0.017	0.147
14:33:06	9.459	0.738	45.267	-0.012	0.120
14:33:21	1.880	0.288	47.583	-0.007	0.108
14:33:36	1.042	-0.034	47.891	-0.014	0.078
14:33:51	0.952	-0.044	47.961	-0.007	0.060
14:34:06	0.668	-0.156	47.980	-0.004	0.048
14:34:21	0.652	-0.239	48.044	-0.009	0.052
14:34:36	0.220	-0.305	48.021	-0.010	0.052
14:34:51	0.407	-0.376	48.051	-0.007	0.023
14:35:06	-0.147	1.061	47.774	5.530	4.772
14:35:21	7.668	10.375	42.352	9.033	9.617

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

Date: **March 10, 2009**
Start Time 6:04
Stop Time 6:27

CALIBRATION ERROR

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
	NOX *Unit 2 FF* **Outlet ppmdv**	**SO2** *Unit 2 FF* **Outlet ppmdv**	**CO** *Unit 2 FF* **Outlet ppmdv**	**O2** *Unit 2 FF* **Outlet %dv**	**CO2** *Unit 2 FF* **Outlet %dv**
Instrument Information					
Manufacturer:	T.E.I.	Wstrn Rsrch	T.E.I.	Servomex	Servomex
Model:	42C	921NMP	48CHL	1420B	1415B
Detection:	Chemilumi.	UV Photo.	GFC/NDIR	Paramagn.	NDIR
Asset or Serial No:	205423	204168	204764	203470	203499
Calibration Span Value (CS)					
	453.900	86.890	95.480	14.020	14.000
System Response Time (seconds)					
	50	50	50	50	50
Manufacturer Certified Cylinder Value (C_v)					
Zero	0.000	0.000	0.000	0.000	0.000
Low	227.100	43.980	48.150	6.050	6.054
Mid					
High	453.900	86.890	95.480	14.020	14.000
Actual gas to be used for bias checks					
	227.100	43.980	48.150	14.020	6.054
Cylinder ID					
Zero					
Low	ALM057156	ALM057156	ALM012863	ALM045493	AAL9828
Mid					
High	ALM013846	ALM013846	ALM026936	AAL9828	ALM045493
Analyzer Calibration Response (C_{Dir})					
Zero	-0.274	0.102	-0.422	-0.040	0.000
Low	229.456	43.968	48.372	6.051	6.008
Mid					
High	455.537	87.167	95.572	14.059	14.041
Analyzer Calibration Error (ACE) (Limit = 2%, Method 25A limit = 5% of gas value)					
Zero	-0.1%	0.1%	-0.4%	-0.3%	0.0%
Low	0.5%	0.0%	0.2%	0.0%	-0.3%
Mid	N/A	N/A	N/A	N/A	N/A
High	0.4%	0.3%	0.1%	0.3%	0.3%
Calibration Error Status					
Zero	OK	OK	OK	OK	OK
Low	OK	OK	OK	OK	OK
Mid	N/A	N/A	N/A	N/A	N/A
High	OK	OK	OK	OK	OK

040309 111251

06:04:39	0.016	-0.954	0.736	14.057	5.879
06:04:54	-0.090	-1.011	0.449	14.060	5.880
06:05:09	-0.326	-1.034	0.013	14.057	5.880
06:05:24	-0.041	-1.032	-0.063	14.058	5.903
06:05:39	-0.496	-1.074	-0.127	14.060	6.003
06:05:54	-0.269	-0.928	-0.021	14.056	6.003
06:06:09	-0.155	-0.130	0.000	14.060	6.007
06:06:24	-0.041	-0.002	-0.003	14.060	6.007
06:06:39	-0.187	-0.006	-0.023	14.058	6.009
06:06:54	-0.374	0.213	-0.002	13.330	6.150
06:07:09	-0.049	0.307	-0.002	7.135	12.343
06:07:24	-0.374	0.293	-0.036	6.114	14.017
06:07:39	-0.130	0.116	-0.093	6.055	14.105

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

Date: March 10, 2009
Start Time 6:04
Stop Time 6:27

CALIBRATION ERROR

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
06:07:54	-0.399	0.082	-0.016	6.056	14.080
06:08:09	-0.260	0.147	-0.063	6.049	14.037
06:08:24	-0.269	0.079	-0.073	6.049	14.041
06:08:39	-0.293	0.103	-0.091	6.052	14.044
06:08:54	-0.627	0.742	-0.090	4.095	11.901
06:09:09	0.041	23.529	-0.021	0.294	10.031
06:09:24	32.307	72.788	-0.026	-0.008	9.990
06:09:39	189.492	85.635	-0.083	-0.022	9.993
06:09:54	374.937	88.158	-0.293	-0.024	9.980
06:10:09	436.825	88.980	-0.410	-0.026	9.983
06:10:24	451.404	89.368	-0.422	-0.026	9.989
06:10:39	453.496	89.600	-0.428	-0.030	9.992
06:10:54	454.579	89.745	-0.451	-0.025	9.983
06:11:09	452.104	87.308	-0.423	-0.026	9.967
06:11:24	454.359	87.040	-0.461	-0.029	9.996
06:11:39	454.847	87.101	-0.436	-0.029	9.987
06:11:54	455.197	87.141	-0.420	-0.026	9.991
06:12:09	455.548	87.161	-0.422	-0.029	9.987
06:12:24	455.865	87.199	-0.423	-0.028	9.983
06:12:39	456.036	67.092	-0.420	0.330	9.559
06:12:54	455.157	35.684	-0.371	-0.012	9.951
06:13:09	414.864	41.005	-0.292	-0.039	10.014
06:13:24	309.597	43.010	-0.347	-0.042	10.011
06:13:39	239.674	43.604	-0.415	-0.039	10.020
06:13:54	230.150	43.834	-0.496	-0.039	10.025
06:14:09	229.654	43.949	-0.536	-0.041	10.026
06:14:24	229.654	43.992	-0.510	-0.042	10.030
06:14:39	229.491	43.964	-0.506	-0.043	10.033
06:14:54	229.442	43.679	-0.531	0.181	9.503
06:15:09	229.434	21.957	1.539	0.160	1.595
06:15:24	212.780	4.814	16.393	-0.004	0.105
06:15:39	127.391	1.100	45.822	-0.013	0.014
06:15:54	30.802	0.498	77.196	-0.016	0.000
06:16:09	3.972	0.300	89.744	-0.016	0.000
06:16:24	0.619	0.201	93.076	-0.020	0.000
06:16:39	0.375	0.218	93.529	-0.019	0.000
06:16:54	0.358	0.056	93.747	-0.015	0.000
06:17:09	0.260	-0.018	95.545	-0.017	-0.002
06:17:24	0.366	-0.018	95.593	-0.016	-0.006
06:17:39	0.146	0.005	95.433	-0.018	-0.006
06:17:54	-0.073	-0.018	95.588	-0.017	-0.003
06:18:09	0.146	-0.046	95.695	-0.016	-0.001
06:18:24	-0.025	0.104	95.403	0.261	0.082
06:18:39	0.032	0.075	90.517	0.031	-0.011
06:18:54	0.106	-0.026	73.916	-0.013	-0.005
06:19:09	0.399	-0.078	58.388	-0.018	-0.006
06:19:24	0.431	-0.134	50.007	-0.016	-0.005
06:21:02	-0.098	-0.147	48.318	-0.017	-0.007
06:21:17	0.016	-0.135	48.366	-0.019	-0.009
06:21:32	0.114	-0.150	48.370	-0.020	-0.012
06:21:47	-0.212	-0.130	48.349	-0.015	-0.012
06:22:02	0.130	0.358	48.407	-0.016	-0.009
06:22:17	-0.098	1.319	48.361	-0.013	-0.001
06:22:32	0.016	-0.241	47.867	0.654	0.016
06:22:47	0.285	0.615	43.436	0.838	-0.010

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

Date: **March 10, 2009**
Start Time 6:04
Stop Time 6:27

CALIBRATION ERROR

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
06:23:02	4.209	0.088	25.148	0.775	-0.012
06:23:17	16.866	0.034	8.936	0.769	-0.012
06:23:32	31.925	0.068	1.485	0.767	-0.010
06:23:47	35.971	0.008	0.103	0.765	-0.008
06:24:02	37.428	-0.226	-0.070	0.753	-0.013
06:24:17	38.038	-0.676	-0.088	0.749	-0.013
06:24:32	39.592	-1.255	-0.091	0.707	-0.012
06:24:47	41.373	-1.350	-0.073	0.616	-0.012
06:25:02	42.959	0.752	-0.073	0.579	-0.007
06:25:17	44.049	0.907	-0.073	0.568	-0.012
06:25:32	44.610	1.158	-0.073	0.542	-0.014
06:25:47	44.806	1.752	-0.073	0.538	-0.012
06:26:02	45.026	1.797	-0.073	0.537	-0.012
06:26:17	45.156	1.791	-0.073	2.246	-0.011
06:26:32	45.270	1.908	-0.073	20.681	0.014
06:26:47	40.741	0.037	-0.055	20.881	0.013
06:27:02	36.565	-0.335	0.005	20.878	0.015

NOX Converter Check
Expected Value = 48.0
Average = 45.2
Efficiency = 94.1%

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 6:31
Stop Time 6:45

CALIBRATION BIAS 00

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	-0.225	-0.655	-0.255	-0.002	0.068
C_{uf} Upscale gas	225.158	42.740	46.144	13.973	5.912
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.0%	-0.9%	0.2%	0.3%	0.5%
Upscale gas	-0.9%	-1.4%	-2.3%	-0.6%	-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	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

0:10309 1:1251

06:31:38	-0.130	-0.630	0.106	13.961	5.950
06:31:53	-0.350	-0.585	0.077	13.965	5.933
06:32:08	-0.334	-0.668	0.033	13.968	5.921
06:32:23	-0.025	-0.583	-0.052	13.970	5.909
06:32:38	0.122	-0.654	0.075	13.970	5.918
06:32:53	-0.220	-0.635	0.024	13.971	5.907
06:33:08	-0.122	-0.591	0.050	13.974	5.920
06:33:23	-0.334	-0.654	0.012	13.974	5.909
06:33:38	-0.334	-0.695	0.033	17.621	3.300
06:33:53	-0.114	-0.719	-0.032	20.605	0.358
06:34:08	-0.228	-0.663	0.029	20.828	0.125
06:34:23	-0.212	-0.656	0.145	20.851	0.090
06:34:38	-0.016	-0.673	0.212	20.852	0.060
06:34:53	-0.326	-0.635	0.257	20.858	0.056
06:35:08	-0.334	-0.713	0.296	18.249	1.823
06:35:23	0.008	-0.466	0.243	12.619	5.238
06:35:38	4.973	7.671	0.243	3.446	8.186
06:35:53	71.184	26.351	0.326	2.247	8.798
06:36:08	169.044	33.504	0.049	2.229	8.836
06:36:23	208.865	35.510	-0.098	2.252	8.835
06:36:38	201.693	36.337	-0.228	2.272	8.831
06:36:53	199.512	36.856	-0.269	2.274	8.849
06:37:08	199.023	37.273	-0.269	2.293	8.838
06:37:23	198.934	37.459	-0.285	2.297	8.824
06:37:38	198.616	37.963	-0.314	2.243	8.885
06:37:53	198.706	38.287	-0.317	2.452	8.778
06:38:08	198.893	38.240	-0.317	1.774	9.028
06:38:23	198.583	39.009	-0.317	0.385	9.691

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 6:31
Stop Time 6:45

CALIBRATION BIAS 00

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
06:38:38	201.880	40.384	-0.317	0.008	9.922
06:38:53	211.339	40.974	-0.317	-0.017	9.935
06:39:08	219.796	41.317	-0.317	-0.020	9.937
06:39:23	223.907	41.520	-0.325	-0.013	9.937
06:39:38	224.542	41.828	-0.342	-0.008	9.937
06:39:53	224.721	42.001	-0.342	-0.003	9.937
06:40:08	224.778	42.155	-0.342	-0.021	9.938
06:40:23	225.047	42.219	-0.342	0.000	9.937
06:40:38	225.112	42.281	-0.342	-0.006	9.939
06:40:53	225.153	42.332	-0.342	-0.005	9.941
06:41:08	225.153	42.497	-0.342	-0.002	9.941
06:41:23	225.145	42.636	-0.342	-0.002	9.942
06:41:38	225.161	42.688	-0.325	-0.002	9.941
06:41:53	225.161	42.737	-0.342	-0.002	9.945
06:42:08	225.153	42.795	-0.342	0.000	9.897
06:42:23	224.673	32.153	0.397	0.005	3.654
06:42:38	220.155	11.134	5.757	-0.005	0.558
06:42:53	157.721	4.925	22.712	0.000	0.517
06:43:08	62.817	3.035	37.127	0.274	0.279
06:43:23	10.696	2.033	44.977	0.657	0.136
06:43:38	7.310	1.553	46.351	0.759	0.108
06:43:53	2.825	1.229	46.553	0.887	0.094
06:44:08	1.229	1.017	46.437	0.877	0.042
06:44:23	0.676	1.656	46.250	0.847	0.068
06:44:38	0.252	2.300	46.183	0.923	0.057
06:44:53	0.456	2.222	46.141	1.031	0.033
06:45:08	0.537	1.897	46.107	0.968	0.033
06:45:23	0.358	1.317	45.844	1.000	0.038
06:45:38	0.790	1.017	45.745	2.921	0.027
06:45:53	0.822	1.210	44.285	17.147	0.034

QA/QC_____
Date_____

Wheelabrator March 10, 2009
CleanAir Project No. 10735 Start Time 6:52
North Broward Stop time 7:19
Unit 2 FF Outlet **REFERENCE METHOD RUN 1**

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	-0.225	-0.655	-0.255	-0.002	0.068
C_{ui}	Initial upscale	225.158	42.740	46.144	13.973	5.912
C_{of}	Final zero	-0.038	-0.566	-0.306	0.005	0.077
C_{uf}	Final upscale	223.356	42.606	48.225	13.945	5.947
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	167.910	12.297	16.864	8.451	10.909
C_{Gas}	**Bias adjusted**	**170.072**	**13.115**	**17.392**	**8.487**	**11.201**

Clock Time (at end of sample period)						
340309 111251						
	06:53	150.965	8.953	15.966	9.955	9.573
	06:54	145.275	8.777	13.216	9.632	9.816
	06:55	153.372	12.178	16.434	8.484	10.858
	06:56	161.353	15.727	19.568	8.345	10.995
	06:57	150.938	15.086	19.869	8.388	10.966
	06:58	155.030	14.131	18.491	8.916	10.511
	06:59	151.015	12.467	17.679	9.266	10.192
	07:00	151.689	12.318	17.625	8.929	10.488
	07:01	175.079	13.879	16.384	8.089	11.263
	07:02	183.002	14.512	14.114	8.448	10.939
	07:03	171.473	13.021	13.783	9.374	10.068
	07:04	161.929	12.649	12.705	8.776	10.543
	07:05	180.134	17.368	12.951	7.671	11.581
	07:06	185.405	14.600	14.451	7.816	11.468
	07:07	180.981	14.271	15.394	8.076	11.221
	07:08	178.256	13.173	16.381	8.328	11.008
	07:09	166.984	10.690	17.185	8.591	10.758
	07:10	169.343	9.883	15.808	8.005	11.250
	07:11	181.693	12.047	17.566	7.253	11.979
	07:12	178.858	15.248	16.651	8.573	10.813
	07:13	161.962	11.648	19.733	8.842	10.563
	07:14	159.566	10.893	19.800	8.595	10.790
	07:15	166.862	10.182	19.621	8.479	10.907
	07:16	172.566	10.190	18.247	7.737	11.554
	07:17	187.163	10.034	18.096	7.364	11.902
	07:18	181.327	9.461	18.341	7.844	11.529
	07:19	171.341	8.634	19.279	8.390	11.004

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 7:21
Stop Time 7:30

CALIBRATION BIAS 01

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	-0.038	-0.566	-0.306	0.005	0.077
C_{uf} Upscale gas	223.356	42.606	48.225	13.945	5.947
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.8%	0.1%	0.3%	0.5%
Upscale gas	-1.3%	-1.6%	-0.2%	-0.8%	-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 (C_s)					
C_{of} Zero gas	-0.225	-0.655	-0.255	-0.002	0.068
C_{uf} Upscale gas	225.158	42.740	46.144	13.973	5.912
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.1%	-0.1%	0.0%	0.1%
Upscale gas	-0.4%	-0.2%	2.2%	-0.2%	0.2%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

080309 111251

07:21:04	146.203	2.657	28.327	11.120	5.090
07:21:19	79.764	1.049	28.816	13.774	5.873
07:21:34	19.406	0.324	18.795	13.912	5.941
07:21:49	3.264	-0.011	7.651	13.935	5.944
07:22:04	1.042	-0.176	1.638	13.950	5.946
07:22:19	0.603	-0.293	0.404	13.950	5.949
07:22:34	0.358	-0.363	0.186	13.954	5.948
07:22:49	0.309	-0.420	0.075	13.957	5.952
07:23:04	0.276	-0.526	0.047	13.961	5.950
07:23:19	0.040	-0.526	0.088	13.965	5.948
07:23:34	-0.196	-0.646	0.101	13.964	5.948
07:23:49	0.260	-0.590	0.080	13.967	5.949
07:24:04	-0.179	0.256	0.016	7.146	7.452
07:24:19	6.609	19.775	0.114	0.478	9.692
07:24:34	65.999	35.284	-0.002	0.082	9.901
07:24:49	163.704	39.105	-0.088	0.040	9.928
07:25:04	211.640	40.467	-0.200	0.031	9.933
07:25:19	220.928	41.138	-0.266	0.010	9.935
07:25:34	222.108	41.530	-0.291	0.001	9.935
07:25:49	222.474	41.892	-0.317	-0.007	9.940
07:26:04	222.719	42.138	-0.315	-0.002	9.944
07:26:19	222.931	42.305	-0.285	-0.011	9.947
07:26:34	223.288	42.443	-0.317	-0.004	9.949
07:26:49	223.231	42.538	-0.332	-0.009	9.953
07:27:04	223.239	42.619	-0.317	-0.005	9.953
07:27:19	223.598	42.662	-0.288	0.006	9.277
07:27:34	223.631	29.094	0.991	0.017	1.991
07:27:49	185.535	9.960	9.200	0.012	0.329

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 7:21
Stop Time 7:30

CALIBRATION BIAS 01

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
07:28:04	97.216	4.181	26.681	0.005	0.194
07:28:19	25.942	2.261	40.571	0.007	0.147
07:28:34	5.560	1.410	46.597	0.012	0.118
07:28:49	1.595	0.861	47.882	-0.006	0.111
07:29:04	0.668	0.568	48.107	0.004	0.101
07:29:19	0.505	0.278	48.154	0.004	0.079
07:29:34	0.155	0.070	48.217	0.008	0.050
07:29:49	0.497	0.016	48.230	-0.015	0.052
07:30:04	0.024	-0.026	48.228	0.001	0.039
07:30:19	0.390	1.081	48.116	2.635	2.967

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 7:42
Stop time 8:09

REFERENCE METHOD RUN 2

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	-0.038	-0.566	-0.306	0.005	0.077
C_{ui}	Initial upscale	223.356	42.606	48.225	13.945	5.947
C_{of}	Final zero	0.125	-0.117	-0.333	-0.004	0.055
C_{uf}	Final upscale	222.846	43.079	48.186	13.964	5.950
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	*Average conc.*	166.683	13.517	9.308	8.070	11.161
C_{Gas}	**Bias adjusted**	**169.660**	**14.114**	**9.553**	**8.107**	**11.419**

Clock Time (at end of sample period) 040309 111251					
07:43	165.456	11.948	11.407	7.934	11.336
07:44	159.212	11.269	11.136	7.991	11.273
07:45	166.443	11.348	10.363	7.596	11.599
07:46	186.280	11.859	9.467	7.483	11.711
07:47	185.999	12.418	8.715	7.301	11.854
07:48	185.897	12.119	9.129	7.887	11.369
07:49	175.236	12.753	9.670	7.555	11.644
07:50	174.858	12.807	9.956	8.148	11.140
07:51	165.859	12.059	8.360	7.915	11.287
07:52	175.364	12.385	7.889	8.254	11.027
07:53	163.629	11.726	6.878	8.394	10.855
07:54	171.901	11.818	7.547	8.035	11.240
07:55	170.405	12.544	5.748	8.645	10.629
07:56	164.695	14.411	7.295	8.317	10.956
07:57	163.836	13.504	9.049	8.760	10.515
07:58	164.630	13.215	11.064	8.375	10.885
07:59	161.052	13.133	9.607	8.054	11.156
08:00	160.226	14.719	9.554	8.339	10.905
08:01	154.556	15.644	9.404	7.868	11.322
08:02	161.451	15.365	9.374	8.076	11.114
08:03	157.131	16.155	9.820	7.938	11.265
08:04	158.724	15.961	10.150	8.239	10.946
08:05	159.094	14.769	9.982	8.284	10.903
08:06	158.531	19.054	10.230	7.854	11.325
08:07	164.064	19.321	10.511	7.887	11.341
08:08	164.758	11.696	9.840	8.674	10.594
08:09	161.158	10.954	9.179	8.078	11.156

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 8:10
Stop Time 8:19

CALIBRATION BIAS 02

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_S)						
C_{of}	Zero gas	0.125	-0.117	-0.333	-0.004	0.055
C_{uf}	Upscale gas	222.846	43.079	48.186	13.964	5.950
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce}	Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	-0.3%	0.1%	0.3%	0.4%
	Upscale gas	-1.5%	-1.0%	-0.2%	-0.7%	-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 (C_S)						
C_{ol}	Zero gas	-0.038	-0.566	-0.306	0.005	0.077
C_{ul}	Upscale gas	223.356	42.606	48.225	13.945	5.947
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	0.0%	0.5%	0.0%	-0.1%	-0.2%
	Upscale gas	-0.1%	0.5%	0.0%	0.1%	0.0%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

[redacted]

08:10:27	129.044	2.160	21.832	11.537	4.499
08:10:42	57.363	0.902	27.530	13.800	5.838
08:10:57	12.088	0.241	18.984	13.922	5.917
08:11:12	1.913	-0.036	7.048	13.942	5.940
08:11:27	0.782	-0.203	1.822	13.956	5.944
08:11:42	0.285	-0.098	0.335	13.907	5.919
08:11:57	0.554	-0.138	0.114	13.960	5.950
08:12:12	0.171	-0.122	0.051	13.962	5.948
08:12:27	0.171	-0.199	0.069	13.964	5.948
08:12:42	0.032	-0.129	0.073	13.964	5.949
08:12:57	0.366	-0.117	0.096	13.965	5.952
08:13:12	0.366	-0.112	0.083	13.967	5.951
08:13:27	-0.171	-0.122	0.037	13.969	5.951
08:13:42	0.146	-0.087	0.088	9.916	6.715
08:13:57	0.252	13.424	0.111	0.909	9.508
08:14:12	51.852	33.522	0.096	0.109	9.893
08:14:27	138.844	38.908	-0.011	0.055	9.929
08:14:42	207.456	40.575	-0.178	0.033	9.937
08:14:57	219.211	41.371	-0.259	0.010	9.937
08:15:12	221.832	41.900	-0.314	0.008	9.941
08:15:27	222.214	42.234	-0.317	0.010	9.945
08:15:42	222.507	42.507	-0.315	-0.001	9.947
08:15:57	222.678	42.720	-0.330	-0.003	9.951
08:16:12	222.939	42.916	-0.342	-0.012	9.951
08:16:27	222.629	43.007	-0.327	-0.002	9.953
08:16:42	222.849	43.134	-0.317	0.002	9.955
08:16:57	223.061	43.097	-0.317	-0.005	8.880
08:17:12	222.002	27.499	1.556	-0.143	1.313

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 8:10
Stop Time 8:19

CALIBRATION BIAS 02

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
08:17:27	200.684	9.921	10.089	0.007	0.297
08:17:42	99.268	4.570	28.454	-0.002	0.184
08:17:57	25.299	2.479	41.219	-0.053	0.125
08:18:12	4.534	1.794	46.850	-0.007	0.118
08:18:27	1.424	1.157	47.969	-0.016	0.062
08:18:42	0.863	0.923	48.124	0.004	0.098
08:18:57	0.464	0.736	48.125	-0.014	0.051
08:19:12	0.578	0.607	48.204	-0.021	0.061
08:19:27	0.269	0.477	48.230	-0.014	0.053
08:19:42	0.187	0.387	48.194	0.450	0.232

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 8:23
Stop time 8:50

REFERENCE METHOD RUN 3

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.125	-0.117	-0.333	-0.004	0.055
C_{ui}	Initial upscale	222.846	43.079	48.186	13.964	5.950
C_{of}	Final zero	0.103	-0.202	-0.317	-0.009	0.057
C_{uf}	Final upscale	222.505	43.232	48.158	13.956	5.946
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	160.294	9.222	10.245	9.146	10.055
C_{Gas}	**Bias adjusted**	**163.446**	**9.525**	**10.494**	**9.188**	**10.274**

Clock Time (at end of sample period)

040309 111251

08:24	163.624	10.007	8.061	8.558	10.671
08:25	165.444	9.933	8.375	8.722	10.553
08:26	159.778	9.970	8.897	8.740	10.531
08:27	168.942	12.847	8.796	8.958	10.355
08:28	170.942	16.766	10.143	8.751	10.530
08:29	172.544	17.005	9.484	9.133	10.174
08:30	172.578	17.270	9.480	8.547	10.756
08:31	169.359	15.350	9.961	9.092	10.118
08:32	161.923	13.367	10.201	9.510	9.716
08:33	158.156	12.157	13.038	9.607	9.626
08:34	151.121	11.763	11.693	8.591	10.476
08:35	158.390	11.233	11.834	8.781	10.341
08:36	154.353	9.658	11.511	8.819	10.243
08:37	156.162	8.694	10.168	9.518	9.623
08:38	148.673	7.812	8.947	9.705	9.416
08:39	145.242	6.786	9.736	9.378	9.649
08:40	145.387	6.550	8.488	8.899	10.092
08:41	148.964	6.665	9.532	8.954	10.067
08:42	148.622	6.418	9.705	9.437	9.669
08:43	144.898	5.922	10.649	9.582	9.536
08:44	150.950	5.737	10.032	9.094	9.938
08:45	158.476	5.267	8.189	9.528	9.722
08:46	161.168	4.736	10.216	9.966	9.488
08:47	166.740	4.628	12.661	9.743	9.674
08:48	173.720	4.435	13.467	9.358	9.967
08:49	175.830	4.130	12.570	8.877	10.376
08:50	175.942	3.876	10.779	9.104	10.172

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 8:51
Stop Time 9:00

CALIBRATION BIAS 03

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	0.103	-0.202	-0.317	-0.009	0.057
C_{uf} Upscale gas	222.505	43.232	48.158	13.956	5.946
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.4%	0.1%	0.2%	0.4%
Upscale gas	-1.5%	-0.8%	-0.2%	-0.7%	-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 (C_s)					
C_{ol} Zero gas	0.125	-0.117	-0.333	-0.004	0.055
C_{ul} Upscale gas	222.846	43.079	48.186	13.964	5.950
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%	0.2%	0.0%	-0.1%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

08:51:08	152.389	2.688	14.240	2.515	1.077
08:51:23	99.894	1.488	24.721	12.385	4.944
08:51:38	42.621	0.820	28.060	13.832	5.861
08:51:53	9.255	0.381	16.467	13.920	5.915
08:52:08	1.595	0.086	6.781	13.943	5.940
08:52:23	0.790	0.008	1.309	13.952	5.943
08:52:38	0.717	-0.036	0.368	13.956	5.945
08:52:53	0.350	-0.085	0.163	13.960	5.948
08:53:08	-0.025	-0.111	0.046	13.960	5.950
08:53:23	0.171	-0.129	0.082	13.966	5.952
08:53:38	0.163	-0.182	0.057	13.967	5.951
08:53:53	-0.179	-0.205	0.059	13.966	5.951
08:54:08	0.138	-0.220	0.101	13.157	6.037
08:54:23	1.620	4.770	0.088	2.714	8.799
08:54:38	12.845	28.106	0.111	0.199	9.840
08:54:53	78.519	37.621	0.020	0.065	9.925
08:55:08	172.023	40.109	-0.103	0.025	9.934
08:55:23	217.517	41.153	-0.252	0.020	9.938
08:55:38	220.578	41.729	-0.299	-0.010	9.941
08:55:53	221.416	42.125	-0.317	0.017	9.946
08:56:08	221.758	42.369	-0.317	-0.006	9.949
08:56:23	222.043	42.610	-0.317	-0.018	9.952
08:56:38	222.303	42.748	-0.317	-0.012	9.955
08:56:53	222.482	42.922	-0.317	-0.015	9.960
08:57:08	222.491	43.005	-0.317	-0.004	9.960
08:57:23	222.654	43.134	-0.342	-0.009	9.960
08:57:38	222.564	43.233	-0.342	-0.002	9.959
08:57:53	222.296	43.329	-0.317	-0.001	9.953
08:58:08	222.442	38.369	-0.128	0.002	4.860

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 8:51
Stop Time 9:00

CALIBRATION BIAS 03

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
08:58:23	208.368	16.677	5.340	-0.004	0.531
08:58:38	133.309	6.574	17.894	-0.001	0.220
08:58:53	42.589	3.587	36.703	-0.031	0.162
08:59:08	9.955	2.270	44.729	0.009	0.128
08:59:23	2.035	1.560	47.746	-0.012	0.110
08:59:38	0.912	1.211	48.055	-0.003	0.108
08:59:53	0.708	0.884	48.104	0.014	0.092
09:00:08	0.529	0.749	48.158	-0.018	0.067
09:00:23	0.652	0.599	48.165	-0.012	0.050
09:00:38	0.147	0.490	48.151	-0.006	0.054
09:00:53	0.497	2.423	47.936	3.910	4.136

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 9:52
Stop time 10:19

REFERENCE METHOD RUN 4

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.103	-0.202	-0.317	-0.009	0.057
C_{ui}	Initial upscale	222.505	43.232	48.158	13.956	5.946
C_{of}	Final zero	0.119	-0.067	-0.317	0.005	0.063
C_{uf}	Final upscale	221.859	43.384	48.198	13.960	5.959
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	170.842	8.873	16.273	8.551	10.724
C_{Gas}	**Bias adjusted**	**174.598**	**9.120**	**16.472**	**8.590**	**10.956**

Clock Time (at end of sample period)

040309 111251

09:53	182.303	4.846	16.569	7.691	11.546
09:54	177.690	4.020	16.112	7.759	11.506
09:55	181.294	3.491	15.528	8.248	11.015
09:56	177.776	2.953	14.615	8.655	10.649
09:57	168.177	2.803	13.497	8.686	10.628
09:58	169.178	3.080	13.263	8.842	10.474
09:59	173.262	3.109	15.144	9.001	10.314
10:00	173.266	2.758	15.836	8.615	10.679
10:01	183.311	2.419	15.485	8.381	10.895
10:02	176.929	2.283	13.449	7.996	11.181
10:03	180.586	2.869	13.433	8.228	11.049
10:04	175.159	5.788	12.957	8.591	10.653
10:05	172.259	9.635	15.018	8.743	10.528
10:06	167.806	9.915	14.351	8.859	10.427
10:07	166.561	7.192	16.414	8.821	10.452
10:08	174.717	5.792	17.497	9.045	10.251
10:09	168.614	6.156	18.225	8.941	10.318
10:10	168.095	7.779	18.171	8.399	10.805
10:11	178.103	8.546	17.512	8.214	11.027
10:12	170.735	9.958	17.882	7.864	11.364
10:13	169.298	12.148	19.069	8.489	10.809
10:14	156.712	9.530	20.637	9.470	9.925
10:15	148.657	8.890	18.071	9.128	10.189
10:16	155.218	21.451	18.574	7.969	11.231
10:17	173.887	31.766	17.803	7.884	11.335
10:18	166.909	30.727	16.579	9.276	10.056
10:19	156.235	19.678	17.681	9.082	10.235

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 10:20
Stop Time 10:30

CALIBRATION BIAS 04

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	0.119	-0.067	-0.317	0.005	0.063
C_{uf} Upscale gas	221.859	43.384	48.198	13.960	5.959
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.2%	0.1%	0.3%	0.4%
Upscale gas	-1.7%	-0.7%	-0.2%	-0.7%	-0.3%
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	0.103	-0.202	-0.317	-0.009	0.057
C_{ui} Upscale gas	222.505	43.232	48.158	13.956	5.946
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.2%	0.0%	0.1%	0.0%
Upscale gas	-0.1%	0.2%	0.0%	0.0%	0.1%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

10:20:49	138.885	3.352	26.144	10.369	3.899
10:21:04	65.413	1.839	30.131	13.744	5.789
10:21:19	13.439	0.993	22.302	13.908	5.933
10:21:34	2.605	0.581	8.578	13.939	5.950
10:21:49	0.554	0.306	2.663	13.947	5.956
10:22:04	0.594	0.138	0.490	13.950	5.959
10:22:19	0.725	0.072	0.199	13.951	5.958
10:22:34	0.309	-0.054	0.127	13.953	5.958
10:22:49	0.496	-0.031	0.104	13.954	5.959
10:23:04	0.073	-0.002	0.119	13.957	5.960
10:23:19	0.472	-0.029	0.121	13.958	5.961
10:23:34	-0.057	-0.072	0.096	13.960	5.962
10:23:49	0.154	-0.101	0.121	13.963	5.958
10:24:04	0.260	-0.055	0.111	9.631	6.781
10:24:19	3.931	11.324	0.168	0.880	9.524
10:24:34	56.646	31.629	0.176	0.111	9.903
10:24:49	145.796	38.346	0.041	0.037	9.930
10:25:04	203.264	40.195	-0.210	-1.800	9.885
10:25:19	217.355	41.306	-0.345	-0.034	9.912
10:25:34	219.821	41.985	-0.269	-0.014	9.949
10:25:49	220.480	42.372	-0.269	-0.020	9.956
10:26:04	220.822	42.615	-0.288	-0.012	9.959
10:26:19	221.156	42.808	-0.317	-0.016	9.962
10:26:34	221.359	42.934	-0.317	-0.017	9.963
10:26:49	221.555	43.072	-0.317	-0.008	9.956
10:27:04	221.612	43.178	-0.285	-0.011	9.958
10:27:19	221.750	43.331	-0.317	-0.006	9.947
10:27:34	221.921	43.401	-0.314	-0.002	9.957

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 10:20
Stop Time 10:30

CALIBRATION BIAS 04

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
10:27:49	221.905	43.420	-0.299	0.005	9.441
10:28:04	219.536	32.357	1.138	0.016	2.224
10:28:19	202.450	12.713	8.497	-0.007	0.356
10:28:34	134.245	5.763	26.029	0.002	0.199
10:28:49	45.918	3.337	39.614	0.010	0.151
10:29:04	4.420	2.198	46.505	0.012	0.121
10:29:19	1.945	1.581	47.938	-0.012	0.111
10:29:34	0.855	1.166	48.205	0.008	0.108
10:29:49	0.773	0.861	48.174	0.001	0.088
10:30:04	0.342	0.711	48.164	0.007	0.066
10:30:19	0.822	0.559	48.207	-0.011	0.056
10:30:34	0.472	0.457	48.222	-0.007	0.066
10:30:49	0.106	2.371	48.041	4.285	4.125

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 10:33
Stop time 11:00

REFERENCE METHOD RUN 5

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.119	-0.067	-0.317	0.005	0.063
C_{ui}	Initial upscale	221.859	43.384	48.198	13.960	5.959
C_{of}	Final zero	0.190	-0.080	-0.269	0.000	0.062
C_{uf}	Final upscale	221.517	43.166	48.185	13.957	5.956
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	156.183	14.280	15.789	9.190	10.115
C_{Gas}	**Bias adjusted**	**159.949**	**14.563**	**15.971**	**9.229**	**10.323**

Clock Time (at end of sample period)

090309 111251

10:34	155.147	18.459	11.674	8.792	10.483
10:35	153.364	18.810	12.352	9.400	9.963
10:36	146.319	29.035	13.357	9.154	10.160
10:37	148.816	15.054	14.413	8.908	10.366
10:38	155.419	9.580	13.455	8.531	10.723
10:39	167.466	9.895	12.633	8.666	10.607
10:40	161.016	9.317	12.991	9.528	9.843
10:41	149.257	7.964	12.137	9.973	9.448
10:42	148.392	9.854	12.946	9.216	10.066
10:43	152.198	15.395	17.700	8.219	11.006
10:44	166.549	20.036	19.979	8.528	10.756
10:45	157.467	18.160	20.180	10.142	9.330
10:46	143.775	14.421	20.528	10.313	9.172
10:47	141.117	12.579	18.401	9.882	9.496
10:48	147.599	12.316	20.405	9.408	9.916
10:49	148.370	10.116	20.130	9.505	9.847
10:50	144.605	7.906	19.103	9.645	9.702
10:51	145.181	7.431	15.941	9.604	9.736
10:52	152.251	11.102	16.912	8.976	10.254
10:53	173.071	16.131	17.249	8.715	10.532
10:54	172.829	17.655	18.840	9.063	10.206
10:55	162.373	16.690	18.330	8.979	10.269
10:56	164.137	14.716	16.993	8.279	10.900
10:57	169.233	12.578	13.250	8.774	10.443
10:58	163.799	15.568	12.296	9.230	10.023
10:59	164.524	18.787	12.223	9.466	9.832
11:00	162.658	16.011	11.883	9.222	10.017

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 11:01
Stop Time 11:10

CALIBRATION BIAS 05

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.190	-0.080	-0.269	0.000	0.062
C_{uf} Upscale gas	221.517	43.166	48.185	13.957	5.956
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.2%	0.2%	0.3%	0.4%
Upscale gas	-1.7%	-0.9%	-0.2%	-0.7%	-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 (C_S)					
C_{oi} Zero gas	0.119	-0.067	-0.317	0.005	0.063
C_{ui} Upscale gas	221.859	43.384	48.198	13.960	5.959
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.1%	0.0%	0.0%
Upscale gas	-0.1%	-0.3%	0.0%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

11:01:29	31.778	1.180	24.833	13.872	5.886
11:01:44	3.362	0.606	12.073	13.926	5.933
11:01:59	1.180	0.438	4.218	13.937	5.946
11:02:14	0.684	0.187	0.865	13.944	5.952
11:02:29	0.489	0.083	0.272	13.945	5.954
11:02:44	0.578	0.026	0.137	13.949	5.955
11:02:59	0.228	0.005	0.110	13.950	5.955
11:03:14	0.171	-0.011	0.081	13.954	5.955
11:03:29	0.179	-0.034	0.143	13.958	5.955
11:03:44	0.219	-0.098	0.049	13.955	5.957
11:03:59	0.138	-0.108	0.116	13.957	5.955
11:04:14	-0.065	-0.122	0.098	13.196	6.031
11:04:29	0.049	4.444	0.099	2.824	8.759
11:04:44	17.086	26.522	0.220	0.223	9.843
11:04:59	102.898	37.017	0.008	0.072	9.924
11:05:14	188.067	39.989	-0.072	0.007	9.928
11:05:29	213.488	41.008	-0.215	-0.026	9.924
11:05:44	219.357	41.747	-0.270	-0.002	9.938
11:05:59	219.984	42.120	-0.310	-0.110	9.948
11:06:14	220.489	42.473	-0.275	-0.030	9.954
11:06:29	220.879	42.728	-0.269	-0.007	9.959
11:06:44	221.066	42.924	-0.269	-0.015	9.954
11:06:59	221.302	42.981	-0.269	-0.007	9.954
11:07:14	221.449	43.150	-0.269	-0.008	9.952
11:07:29	221.490	43.148	-0.269	-0.011	9.957
11:07:44	221.612	43.201	-0.269	0.004	9.210
11:07:59	218.682	30.849	0.983	-0.019	1.920
11:08:14	178.983	12.073	9.787	-0.005	0.307

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 11:01
Stop Time 11:10

CALIBRATION BIAS 05

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
11:08:29	94.864	5.425	25.623	-0.001	0.183
11:08:44	31.730	3.090	40.913	0.003	0.145
11:08:59	5.055	1.936	46.405	-0.002	0.118
11:09:14	1.709	1.402	48.005	-0.014	0.107
11:09:29	0.716	0.946	48.146	0.001	0.096
11:09:44	0.366	0.782	48.179	0.005	0.065
11:09:59	0.651	0.624	48.130	0.000	0.072
11:10:14	0.660	0.496	48.225	-0.022	0.050
11:10:29	0.497	1.312	48.200	2.090	3.041
11:10:44	9.524	12.778	45.872	6.353	11.012
11:10:59	56.093	18.927	37.714	7.329	11.483

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 11:13
Stop time 11:40

REFERENCE METHOD RUN 6

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.190	-0.080	-0.269	0.000	0.062
C_{ui}	Initial upscale	221.517	43.166	48.185	13.957	5.956
C_{of}	Final zero	0.089	-0.138	-0.269	0.002	0.050
C_{uf}	Final upscale	221.601	43.418	48.312	13.953	5.954
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	162.411	11.296	17.413	8.745	10.444
C_{Gas}	**Bias adjusted**	**166.435**	**11.557**	**17.548**	**8.786**	**10.662**

Clock Time (at end of sample period)

040309 111251

11:14	121.557	9.737	11.646	10.794	8.653
11:15	121.349	8.460	13.152	10.719	8.631
11:16	134.111	10.068	14.426	9.144	10.037
11:17	178.176	15.875	16.995	7.398	11.651
11:18	180.279	14.480	17.674	8.072	11.097
11:19	162.393	12.174	19.731	9.675	9.694
11:20	153.987	8.776	18.991	9.725	9.612
11:21	166.050	7.273	17.429	9.335	9.949
11:22	161.726	7.734	15.390	9.109	10.127
11:23	167.293	9.469	14.982	8.078	11.059
11:24	193.948	13.279	16.807	7.885	11.262
11:25	188.620	14.955	14.746	8.624	10.567
11:26	179.723	12.297	14.755	8.855	10.298
11:27	180.236	8.885	15.700	8.767	10.416
11:28	163.978	9.484	14.361	9.067	10.149
11:29	162.275	8.775	16.541	9.017	10.167
11:30	156.746	6.407	12.879	8.431	10.720
11:31	162.800	6.546	12.479	7.953	11.154
11:32	177.061	7.421	12.176	8.182	10.936
11:33	155.765	6.987	11.960	8.787	10.414
11:34	154.941	6.017	12.114	8.545	10.600
11:35	168.635	7.643	19.547	6.899	12.030
11:36	163.873	21.360	80.893	6.378	12.526
11:37	177.686	26.909	17.413	8.578	10.618
11:38	149.255	21.069	11.806	9.656	9.642
11:39	137.008	13.713	12.045	9.414	9.822
11:40	165.637	9.206	13.506	9.034	10.155

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 11:42
Stop Time 11:51

CALIBRATION BIAS 06

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.089	-0.138	-0.269	0.002	0.050
C_{uf} Upscale gas	221.601	43.418	48.312	13.953	5.954
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.3%	0.2%	0.3%	0.4%
Upscale gas	-1.7%	-0.6%	-0.1%	-0.8%	-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 (C_S)					
C_{ol} Zero gas	0.190	-0.080	-0.269	0.000	0.062
C_{ul} Upscale gas	221.517	43.166	48.185	13.957	5.956
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%	0.3%	0.1%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

11:42:01	12.259	0.721	20.281	13.891	5.924
11:42:16	2.808	0.384	8.498	13.925	5.943
11:42:31	1.001	0.187	2.342	13.931	5.946
11:42:46	0.782	0.042	0.536	13.939	5.948
11:43:01	-0.187	-0.019	0.243	13.946	5.954
11:43:16	0.155	-0.035	0.207	13.950	5.954
11:43:31	0.285	-0.082	0.149	13.952	5.954
11:43:46	-0.041	-0.103	0.149	13.952	5.952
11:44:01	0.163	-0.124	0.127	13.954	5.952
11:44:16	0.146	-0.147	0.112	13.953	5.956
11:44:31	0.366	-0.144	0.049	13.946	5.954
11:44:46	0.260	0.615	0.115	6.378	7.653
11:45:01	8.376	18.237	0.217	0.430	9.729
11:45:16	68.807	34.439	0.101	0.085	9.911
11:45:31	168.230	39.298	-0.101	0.041	9.931
11:45:46	209.337	40.972	-0.148	0.027	9.937
11:46:01	218.462	41.812	-0.242	0.011	9.937
11:46:16	219.601	42.265	-0.269	0.004	9.943
11:46:31	220.212	42.605	-0.269	-0.005	9.945
11:46:46	220.635	42.818	-0.269	-0.026	9.951
11:47:01	220.903	42.942	-0.309	-0.007	9.955
11:47:16	221.188	43.054	-0.291	-0.011	9.957
11:47:31	221.360	43.197	-0.269	-0.007	9.959
11:47:46	221.433	43.342	-0.269	-0.006	9.958
11:48:01	221.620	43.357	-0.269	-0.004	9.957
11:48:16	221.579	43.372	-0.269	-0.007	9.959
11:48:31	221.604	43.419	-0.271	-0.002	9.960
11:48:46	221.710	43.463	-0.269	-0.021	9.555

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 11:42
Stop Time 11:51

CALIBRATION BIAS 06

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
11:49:01	218.397	33.652	0.970	0.004	2.427
11:49:16	194.131	13.602	8.350	-0.016	0.348
11:49:31	123.272	5.942	25.298	-0.005	0.186
11:49:46	48.083	3.342	39.916	-0.006	0.155
11:50:01	5.487	2.110	46.419	0.010	0.125
11:50:16	1.978	1.464	47.902	0.009	0.110
11:50:31	0.814	1.004	48.169	-0.001	0.101
11:50:46	0.684	0.752	48.217	-0.001	0.091
11:51:01	0.863	0.585	48.222	0.005	0.051
11:51:16	0.310	0.435	48.254	-0.002	0.048
11:51:31	0.367	0.233	48.344	-0.005	0.050
11:51:46	0.448	0.236	48.339	1.013	0.687

QA/QC_____
Date_____

Wheelabrator March 10, 2009
CleanAir Project No. 10735 Start Time 11:54
North Broward Stop time 12:21
Unit 2 FF Outlet **REFERENCE METHOD RUN 7**

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.089	-0.138	-0.269	0.002	0.050
C_{ui}	Initial upscale	221.601	43.418	48.312	13.953	5.954
C_{of}	Final zero	0.241	-0.207	-0.290	0.003	0.077
C_{uf}	Final upscale	220.334	43.266	48.170	13.946	5.949
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	160.484	13.311	16.578	8.712	10.467
C_{Gas}	**Bias adjusted**	**164.891**	**13.628**	**16.729**	**8.755**	**10.696**

Clock Time (at end of sample period)

040309 11:51

11:55	158.437	14.403	14.464	9.022	10.124
11:56	153.822	15.306	17.887	8.705	10.471
11:57	154.479	16.610	16.084	8.842	10.302
11:58	161.455	13.875	15.867	8.550	10.577
11:59	161.323	11.212	14.776	8.765	10.377
12:00	163.337	13.851	15.927	8.824	10.323
12:01	164.117	18.410	16.481	9.456	9.791
12:02	154.369	18.616	15.153	9.387	9.868
12:03	150.356	15.661	16.473	9.681	9.614
12:04	145.678	12.515	15.792	9.430	9.803
12:05	151.925	12.523	16.024	8.020	11.055
12:06	166.296	19.386	16.130	8.215	10.964
12:07	163.417	19.437	15.744	9.300	9.949
12:08	160.614	13.530	19.971	8.990	10.231
12:09	157.641	9.064	16.623	9.313	9.947
12:10	153.197	8.963	17.850	9.868	9.490
12:11	144.579	11.063	19.804	8.910	10.249
12:12	167.186	12.173	20.042	6.451	12.441
12:13	183.982	10.020	15.252	8.214	10.931
12:14	163.488	8.899	15.054	8.697	10.449
12:15	167.928	10.730	18.397	7.929	11.208
12:16	159.736	10.011	15.981	8.971	10.277
12:17	144.510	11.119	16.771	8.794	10.396
12:18	161.357	12.864	16.073	8.198	10.940
12:19	175.853	12.967	17.129	8.033	11.120
12:20	171.598	10.929	16.012	8.047	11.087
12:21	172.389	15.261	15.849	8.606	10.612

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 12:22
Stop Time 12:31

CALIBRATION BIAS 07

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)						
C_{of}	Zero gas	0.241	-0.207	-0.290	0.003	0.077
C_{uf}	Upscale gas	220.334	43.266	48.170	13.946	5.949
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce}	Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	-0.4%	0.1%	0.3%	0.5%
	Upscale gas	-2.0%	-0.8%	-0.2%	-0.8%	-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 (C_s)						
C_{oi}	Zero gas	0.089	-0.138	-0.269	0.002	0.050
C_{ui}	Upscale gas	221.601	43.418	48.312	13.953	5.954
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	0.0%	-0.1%	0.0%	0.0%	0.2%
	Upscale gas	-0.3%	-0.2%	-0.1%	-0.1%	0.0%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

C40309 111251

12:22:46	36.980	1.040	25.885	13.863	5.891
12:23:01	4.428	0.554	13.050	13.896	5.939
12:23:16	1.018	0.251	4.218	13.901	5.946
12:23:31	0.488	0.049	0.949	13.924	5.946
12:23:46	0.301	-0.012	0.281	13.934	5.949
12:24:01	0.513	-0.024	0.155	13.935	5.952
12:24:16	0.065	-0.083	0.070	13.943	5.950
12:24:31	0.276	-0.112	0.104	13.946	5.950
12:24:46	0.285	-0.157	0.149	13.945	5.948
12:25:01	0.163	-0.192	0.127	13.946	5.950
12:25:16	-0.285	-0.193	0.085	13.947	5.951
12:25:31	-0.065	-0.213	0.075	13.948	5.951
12:25:46	0.146	-0.213	0.195	11.568	6.331
12:26:01	4.965	7.720	0.225	1.488	9.279
12:26:16	40.757	29.385	0.212	0.149	9.866
12:26:31	120.399	37.812	0.041	0.060	9.915
12:26:46	184.583	40.345	-0.090	0.020	9.928
12:27:01	216.077	41.473	-0.213	0.006	9.928
12:27:16	218.510	42.066	-0.257	0.009	9.933
12:27:31	218.909	42.468	-0.269	0.005	9.942
12:27:46	219.495	42.753	-0.269	0.012	9.943
12:28:01	219.682	42.953	-0.279	-0.021	9.946
12:28:16	220.065	43.170	-0.317	-0.002	9.951
12:28:31	220.415	43.282	-0.275	-0.014	9.952
12:28:46	220.521	43.346	-0.269	-0.027	9.943
12:29:01	219.927	38.709	0.274	0.016	4.444
12:29:16	215.458	17.789	5.519	-0.004	0.499
12:29:31	160.798	7.199	20.427	0.007	0.213

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 12:22
Stop Time 12:31

CALIBRATION BIAS 07

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
12:29:46	68.897	3.759	36.653	0.000	0.164
12:30:01	8.246	2.307	45.280	-0.001	0.130
12:30:16	2.214	1.477	47.702	-0.018	0.111
12:30:31	0.814	1.013	48.088	-0.001	0.110
12:30:46	0.798	0.798	48.184	0.012	0.102
12:31:01	0.830	0.601	48.197	-0.003	0.083
12:31:16	0.285	0.467	48.130	-0.003	0.045
12:31:31	0.342	0.330	48.220	0.629	0.337

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 12:34
Stop time 13:01

REFERENCE METHOD RUN 8

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.241	-0.207	-0.290	0.003	0.077
C_{ui}	Initial upscale	220.334	43.266	48.170	13.946	5.949
C_{of}	Final zero	0.152	-0.176	-0.269	-0.003	0.067
C_{uf}	Final upscale	220.621	43.363	48.244	13.942	5.947
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	165.615	10.378	9.800	8.202	10.997
C_{Gas}	**Bias adjusted**	**170.540**	**10.685**	**10.009**	**8.247**	**11.256**

Clock Time (at end of sample period)

040309 111251

12:35	185.889	15.235	14.449	8.345	10.841
12:36	177.692	11.704	14.832	8.055	11.103
12:37	173.889	7.742	13.587	8.026	11.116
12:38	173.708	6.657	12.019	7.941	11.199
12:39	170.433	6.662	12.773	8.614	10.615
12:40	163.816	6.315	11.042	9.324	9.991
12:41	153.598	7.624	10.003	9.103	10.165
12:42	159.990	9.621	10.214	7.797	11.350
12:43	169.381	9.247	10.811	7.636	11.547
12:44	168.639	8.706	11.259	7.232	11.881
12:45	170.670	9.651	11.430	8.249	10.964
12:46	163.944	14.327	9.254	9.068	10.229
12:47	152.558	12.311	8.035	9.240	9.998
12:48	150.584	8.188	8.121	9.082	10.189
12:49	160.474	7.725	9.933	7.863	11.285
12:50	170.163	9.982	8.981	7.190	11.928
12:51	169.705	12.335	8.168	8.270	10.986
12:52	172.639	15.189	8.512	7.932	11.229
12:53	173.209	18.297	9.655	7.466	11.697
12:54	171.125	11.557	8.430	8.849	10.420
12:55	165.470	9.113	8.306	7.915	11.290
12:56	163.443	10.764	7.358	8.721	10.558
12:57	154.544	11.977	7.276	7.351	11.746
12:58	160.635	12.687	7.419	7.679	11.510
12:59	158.580	10.978	6.992	8.521	10.726
13:00	152.072	8.241	6.854	8.147	11.000
13:01	164.768	7.385	8.877	7.831	11.364

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 13:03
Stop Time 13:13

CALIBRATION BIAS 08

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	0.152	-0.176	-0.269	-0.003	0.067
C_{uf} Upscale gas	220.621	43.363	48.244	13.942	5.947
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.3%	0.2%	0.3%	0.5%
Upscale gas	-1.9%	-0.7%	-0.1%	-0.8%	-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 (C_s)					
C_{oi} Zero gas	0.241	-0.207	-0.290	0.003	0.077
C_{ui} Upscale gas	220.334	43.266	48.170	13.946	5.949
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.0%	0.0%	-0.1%
Upscale gas	0.1%	0.1%	0.1%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

13:03:50	29.720	1.289	24.871	13.844	5.904
13:04:05	4.648	0.671	13.402	13.902	5.932
13:04:20	0.912	0.358	4.692	13.911	5.942
13:04:35	0.717	0.088	1.037	13.902	5.945
13:04:50	0.244	0.018	0.309	13.926	5.947
13:05:05	0.456	-0.023	0.148	13.922	5.950
13:05:20	0.179	-0.078	0.127	13.938	5.946
13:05:35	0.276	-0.135	0.104	13.938	5.946
13:05:50	0.455	-0.147	0.058	13.942	5.947
13:06:05	-0.057	-0.187	0.127	13.941	5.948
13:06:20	0.366	-0.193	0.172	13.942	5.950
13:06:35	0.146	-0.112	0.149	9.405	6.874
13:06:50	2.043	11.780	0.127	0.827	9.555
13:07:05	26.032	32.221	0.161	0.116	9.891
13:07:20	121.889	38.908	0.011	0.036	9.923
13:07:35	198.454	40.941	-0.138	0.029	9.927
13:07:50	216.923	41.698	-0.237	0.003	9.927
13:08:05	218.640	42.165	-0.244	-0.004	9.929
13:08:20	218.926	42.476	-0.261	-0.009	9.935
13:08:35	219.072	42.707	-0.244	-0.007	9.939
13:08:50	219.503	42.901	-0.264	-0.004	9.941
13:09:05	219.780	43.061	-0.269	-0.009	9.946
13:09:20	220.073	43.116	-0.269	-0.005	9.945
13:09:35	220.480	43.289	-0.269	-0.007	9.947
13:09:50	220.692	43.386	-0.269	-0.001	9.950
13:10:05	220.692	43.414	-0.269	-0.010	9.075
13:10:20	215.881	32.203	1.177	0.000	1.806
13:10:35	179.487	12.778	9.483	-0.001	0.327

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 13:03
Stop Time 13:13

CALIBRATION BIAS 08

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
13:10:50	99.756	5.470	26.786	-0.002	0.179
13:11:05	36.166	2.937	41.070	-0.014	0.148
13:11:20	4.453	1.846	46.626	0.009	0.123
13:11:35	1.766	1.252	48.030	-0.003	0.110
13:11:50	0.928	0.837	48.197	-0.005	0.099
13:12:05	0.684	0.694	48.241	0.000	0.073
13:12:20	0.489	0.500	48.238	0.010	0.046
13:12:35	0.415	0.383	48.254	0.032	0.081
13:12:50	0.350	2.336	47.945	4.971	5.829
13:13:05	12.471	11.521	43.683	8.000	10.505
13:13:20	70.020	13.970	32.879	8.360	10.685
13:13:35	126.976	13.420	20.936	8.610	10.514

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 13:16
Stop time 13:43

REFERENCE METHOD RUN 9

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.152	-0.176	-0.269	-0.003	0.067
C_{ui}	Initial upscale	220.621	43.363	48.244	13.942	5.947
C_{of}	Final zero	-0.035	-0.172	-0.269	0.000	0.061
C_{uf}	Final upscale	220.849	43.531	48.315	13.935	5.943
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	152.525	12.703	12.917	8.761	10.544
C_{Gas}	**Bias adjusted**	**156.904**	**12.983**	**13.078**	**8.813**	**10.788**

Clock Time (at end of sample period)					
240309 111251					
13:17	158.582	17.542	12.508	7.723	11.443
13:18	163.500	15.101	10.828	8.896	10.394
13:19	148.018	15.361	11.759	8.853	10.412
13:20	142.485	13.610	13.519	7.883	11.309
13:21	147.784	29.531	13.911	7.301	11.888
13:22	143.614	23.096	12.206	8.808	10.539
13:23	132.444	16.523	11.217	9.549	9.720
13:24	135.619	11.784	11.457	9.760	9.678
13:25	142.212	9.548	10.236	9.564	9.834
13:26	148.822	9.172	10.715	8.894	10.426
13:27	157.812	10.158	12.070	7.395	11.735
13:28	177.599	16.821	12.993	6.318	12.684
13:29	178.726	15.939	10.177	8.462	10.828
13:30	170.277	12.971	8.751	9.401	9.970
13:31	160.041	9.343	8.047	9.468	9.905
13:32	148.048	6.965	9.589	9.994	9.450
13:33	135.629	7.663	10.920	9.340	9.994
13:34	145.792	10.356	11.749	8.280	10.979
13:35	162.979	11.988	12.296	7.737	11.540
13:36	161.732	10.438	12.439	8.718	10.666
13:37	153.075	8.077	12.617	8.736	10.571
13:38	155.283	10.858	15.583	9.045	10.316
13:39	148.431	12.825	15.607	8.988	10.306
13:40	153.028	13.091	19.200	8.418	10.838
13:41	150.765	9.805	16.713	9.676	9.749
13:42	149.888	7.616	19.606	9.449	9.946
13:43	145.985	6.795	22.044	9.900	9.556

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 13:46
Stop Time 13:56

CALIBRATION BIAS 09

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	-0.035	-0.172	-0.269	0.000	0.061
C_{uf} Upscale gas	220.849	43.531	48.315	13.935	5.943
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.3%	0.2%	0.3%	0.4%
Upscale gas	-1.9%	-0.5%	-0.1%	-0.9%	-0.5%
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	0.152	-0.176	-0.269	-0.003	0.067
C_{ui} Upscale gas	220.621	43.363	48.244	13.942	5.947
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.0%	0.0%	0.0%
Upscale gas	0.1%	0.2%	0.1%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

13:46:02	0.244	0.021	1.234	13.902	5.939
13:46:17	0.277	-0.005	0.390	13.917	5.940
13:46:32	0.391	-0.032	0.182	13.927	5.940
13:46:47	0.399	-0.098	0.106	13.923	5.941
13:47:02	0.390	-0.117	0.191	13.920	5.940
13:47:17	0.179	-0.130	0.149	13.922	5.943
13:47:32	-0.196	-0.160	0.149	13.935	5.943
13:47:47	0.040	-0.161	0.119	13.933	5.942
13:48:02	0.049	-0.195	0.083	13.937	5.940
13:48:17	0.293	0.046	0.127	9.142	6.919
13:48:32	0.920	14.375	0.196	0.798	9.558
13:48:47	30.892	33.258	0.137	0.101	9.879
13:49:02	131.420	39.013	0.032	0.052	9.913
13:49:17	200.969	40.842	-0.112	0.028	9.925
13:49:32	216.777	41.664	-0.223	0.008	9.925
13:49:47	218.502	42.133	-0.244	0.010	9.927
13:50:02	218.885	42.506	-0.251	0.002	9.928
13:50:17	218.690	42.755	-0.269	0.003	9.932
13:50:32	219.634	42.893	-0.269	-0.002	9.936
13:50:47	219.902	42.930	-0.269	-0.004	9.937
13:51:02	219.731	43.028	-0.269	-0.005	9.942
13:51:17	220.204	43.122	-0.269	-0.013	9.944
13:51:32	220.367	43.256	-0.252	-0.002	9.943
13:51:47	220.480	43.338	-0.269	-0.008	9.945
13:52:02	220.529	43.408	-0.298	-0.005	9.947
13:52:17	220.627	43.438	-0.269	-0.006	9.949
13:52:32	220.741	43.484	-0.269	-0.006	9.951
13:52:47	220.879	43.536	-0.269	-0.006	9.950

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 13:46
Stop Time 13:56

CALIBRATION BIAS 09

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
13:53:02	220.928	43.572	-0.262	-0.012	9.597
13:53:17	219.479	33.013	0.606	0.014	2.497
13:53:32	179.625	12.742	8.479	0.002	0.371
13:53:47	105.681	5.312	23.616	0.012	0.198
13:54:02	32.943	2.893	39.717	-0.006	0.160
13:54:17	6.960	1.887	46.090	-0.006	0.130
13:54:32	1.783	1.278	47.850	-0.025	0.104
13:54:47	0.782	0.783	48.151	-0.041	0.092
13:55:02	0.928	0.729	48.275	-0.019	0.096
13:55:17	0.432	0.558	48.254	-0.010	0.081
13:55:32	0.513	0.425	48.272	-0.013	0.064
13:55:47	0.383	0.215	48.339	-0.003	0.061
13:56:02	0.692	0.191	48.334	0.074	0.059
13:56:17	0.733	3.990	48.133	5.805	5.560
13:56:32	13.521	13.239	44.212	8.417	10.078

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 14:28
Stop time 14:55

REFERENCE METHOD RUN 10

		Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	-0.035	-0.172	-0.269	0.000	0.061
C_{ui}	Initial upscale	220.849	43.531	48.315	13.935	5.943
C_{of}	Final zero	0.108	-0.099	-0.269	0.007	0.070
C_{uf}	Final upscale	219.563	43.068	48.291	13.921	5.936
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	160.450	11.657	11.951	8.771	10.468
C_{Gas}	**Bias adjusted**	**165.463**	**11.941**	**12.114**	**8.828**	**10.722**

Clock Time (at end of sample period)

040309 111251

14:29	151.009	10.758	14.758	9.411	9.937
14:30	152.790	10.308	18.842	8.784	10.490
14:31	156.701	9.508	20.237	8.662	10.542
14:32	156.282	9.003	18.398	8.699	10.561
14:33	155.440	9.865	16.004	9.319	9.877
14:34	149.864	9.114	13.396	9.373	9.921
14:35	153.360	8.236	11.442	8.591	10.603
14:36	164.507	8.265	10.896	8.594	10.650
14:37	163.176	8.426	10.327	8.757	10.492
14:38	155.787	9.253	10.543	8.720	10.523
14:39	156.093	10.130	10.993	8.844	10.432
14:40	156.665	11.325	11.649	9.146	10.151
14:41	155.366	12.219	11.797	8.361	10.819
14:42	164.432	15.412	12.634	7.564	11.585
14:43	167.127	14.878	10.177	8.675	10.560
14:44	164.717	15.777	10.411	8.380	10.818
14:45	169.776	11.852	7.367	9.019	10.198
14:46	166.998	8.474	6.932	8.831	10.416
14:47	158.590	6.518	6.684	9.584	9.740
14:48	156.807	8.005	8.154	8.462	10.720
14:49	169.129	14.697	12.253	7.353	11.736
14:50	179.906	17.775	13.146	6.631	12.360
14:51	177.529	13.427	12.849	8.165	11.028
14:52	166.194	11.888	11.750	9.564	9.761
14:53	159.253	20.716	11.696	8.986	10.230
14:54	161.400	17.657	10.436	10.271	9.179
14:55	143.262	11.261	8.903	10.066	9.308

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 14:57
Stop Time 15:06

CALIBRATION BIAS 10

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.108	-0.099	-0.269	0.007	0.070
C_{uf} Upscale gas	219.563	43.068	48.291	13.921	5.936
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.274	0.102	-0.422	-0.040	0.000
C_{mce} Upscale gas	229.456	43.968	48.372	14.059	6.008
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.2%	0.2%	0.3%	0.5%
Upscale gas	-2.2%	-1.0%	-0.1%	-1.0%	-0.5%
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	-0.035	-0.172	-0.269	0.000	0.061
C_{ui} Upscale gas	220.849	43.531	48.315	13.935	5.943
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.1%	0.0%	0.0%	0.1%
Upscale gas	-0.3%	-0.5%	0.0%	-0.1%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

14:57:18	149.898	7.712	24.241	3.350	4.818
14:57:33	138.291	4.804	28.163	2.361	1.871
14:57:48	102.027	3.883	32.951	12.124	5.502
14:58:03	48.067	3.155	29.083	13.787	5.891
14:58:18	14.668	1.563	16.905	13.875	5.917
14:58:33	5.527	0.726	5.162	13.896	5.934
14:58:48	2.117	0.345	1.352	13.895	5.936
14:59:03	0.676	0.070	0.358	13.903	5.940
14:59:18	0.481	0.049	0.161	13.911	5.939
14:59:33	0.472	-0.036	0.166	13.922	5.940
14:59:48	0.065	-0.013	0.172	13.917	5.938
15:00:03	-0.041	-0.052	0.149	13.923	5.939
15:00:18	0.073	-0.117	0.172	13.917	5.940
15:00:33	0.138	-0.127	0.104	12.266	6.214
15:00:48	0.114	7.619	0.153	1.908	9.139
15:01:03	16.704	29.765	0.042	0.167	9.835
15:01:18	97.843	38.408	0.012	0.060	9.906
15:01:33	189.654	40.741	-0.129	0.020	9.924
15:01:48	214.334	41.665	-0.228	0.005	9.928
15:02:03	218.226	42.164	-0.252	0.014	9.932
15:02:18	218.714	42.497	-0.269	0.010	9.933
15:02:33	218.853	42.750	-0.269	-0.013	9.933
15:02:48	219.072	42.891	-0.269	0.000	9.933
15:03:03	219.219	42.942	-0.261	-0.021	9.933
15:03:18	219.520	43.096	-0.261	-0.004	9.933
15:03:33	219.601	43.166	-0.271	-0.010	9.421
15:03:48	219.568	32.364	0.581	0.016	2.226
15:04:03	203.817	12.290	9.251	0.013	0.347

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 14:57
Stop Time 15:06

CALIBRATION BIAS 10

	Channel 1 NOX Unit 2 FF Outlet ppmdv	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 3 CO Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	Channel 5 CO2 Unit 2 FF Outlet %dv
15:04:18	122.548	5.076	24.257	-0.005	0.193
15:04:33	30.696	2.616	40.694	0.011	0.154
15:04:48	5.299	1.602	46.300	0.001	0.124
15:05:03	1.620	1.146	48.021	-0.015	0.110
15:05:18	1.205	0.832	48.197	0.001	0.109
15:05:33	0.480	0.638	48.254	0.000	0.094
15:05:48	0.627	0.464	48.285	-0.004	0.067
15:06:03	0.424	0.361	48.296	-0.005	0.049
15:06:18	0.416	0.283	48.293	0.712	0.428
15:06:33	0.350	4.625	47.468	7.399	7.650

QA/QC_____
Date_____

Wheelabrator March 10, 2009
CleanAir Project No. 10735 Start Time 15:08
North Broward Stop time 15:35
Unit 2 FF Outlet

REFERENCE METHOD RUN 11

		NOX	Channel 2 SO2 Unit 2 FF Outlet	Channel 4 O2 Unit 2 FF Outlet
		ppmdv	ppmdv	%dv
Calibration Checks				
C_{oi}	Initial zero		-0.099	0.007
C_{ui}	Initial upscale		43.068	13.921
C_{of}	Final zero		-0.162	-0.007
C_{uf}	Final upscale		42.940	13.915
C_{ma}	Actual gas value		43.980	14.020
Analyzer Averages (concentrations)				
C_{Avg}	Average conc.		7.522	8.879
C_{Gas}	**Bias adjusted**		**7.802**	**8.945**

Clock Time (at end of sample period)

040309 11:1251

15:09	9.811	7.590
15:10	7.318	9.001
15:11	6.713	9.175
15:12	8.199	9.346
15:13	8.449	9.231
15:14	6.646	9.937
15:15	5.460	8.493
15:16	5.585	7.814
15:17	7.801	9.242
15:18	11.409	9.793
15:19	11.713	10.072
15:20	10.073	10.273
15:21	8.471	8.191
15:22	8.259	8.516
15:23	8.702	9.027
15:24	8.509	9.503
15:25	9.045	9.542
15:26	8.193	9.173
15:27	7.750	8.851
15:28	8.131	8.970
15:29	6.698	9.049
15:30	6.279	7.729
15:31	5.182	7.513
15:32	4.108	8.039
15:33	3.729	8.391
15:34	4.352	8.603
15:35	6.499	8.681

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 15:36
Stop Time 15:42

CALIBRATION BIAS 11

		Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)			
C_{of}	Zero gas	-0.162	-0.007
C_{uf}	Upscale gas	42.940	13.915
Analyzer Calibration Error Reponses (C_{Dir})			
C_{oce}	Zero gas	0.102	-0.040
C_{mce}	Upscale gas	43.968	14.059
Actual Upscale Gas Value (C_{MA})			
C_{ma}	Upscale gas	43.980	14.020
Calibration Span Value (CS)			
		86.890	14.020
System Bias as Percent of Calibration Span Value (SB) (5%)			
	Zero gas	-0.3%	0.2%
	Upscale gas	-1.2%	-1.0%
System Bias Status			
	Zero gas	OK	OK
	Upscale gas	OK	OK
Previous System Response to Calibration Gases (C_s)			
C_{oi}	Zero gas	-0.099	0.007
C_{ui}	Upscale gas	43.068	13.921
Drift Assessment as Percent of Calibration Span Value (D) (3%)			
	Zero gas	-0.1%	-0.1%
	Upscale gas	-0.1%	0.0%
Drift Assessment Status			
	Zero gas	OK	OK
	Upscale gas	OK	OK

040309 111251

15:36:42	3.249	9.395
15:36:57	1.591	13.645
15:37:12	0.736	13.867
15:37:27	0.342	13.875
15:37:42	0.021	13.896
15:37:57	-0.011	13.903
15:38:12	-0.021	13.904
15:38:27	-0.082	13.922
15:38:42	-0.137	13.920
15:38:57	-0.161	13.917
15:39:12	-0.187	12.963
15:39:27	5.636	2.524
15:39:42	27.992	0.195
15:39:57	37.729	0.031
15:40:12	40.409	0.015
15:40:27	41.379	0.015
15:40:42	41.906	0.001
15:40:57	42.235	-0.011
15:41:12	42.553	-0.003
15:41:27	42.741	-0.013
15:41:42	42.867	-0.006
15:41:57	42.919	0.000
15:42:12	43.033	0.068
15:42:27	44.609	5.783

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 15:44
Stop time 16:11

REFERENCE METHOD RUN 12

		Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv
Calibration Checks			
C_{oi}	Initial zero	-0.162	-0.007
C_{ui}	Initial upscale	42.940	13.915
C_{of}	Final zero	-0.060	-0.006
C_{uf}	Final upscale	43.042	13.932
C_{ma}	Actual gas value	43.980	14.020
Analyzer Averages (concentrations)			
C_{Avg}	Average conc.	8.394	9.100
C_{Gas}	**Bias adjusted**	**8.678**	**9.165**

Clock Time (at end of sample period)		
090309 111251		
15:45	11.781	8.865
15:46	14.577	9.419
15:47	14.564	9.418
15:48	11.696	9.150
15:49	11.988	9.136
15:50	8.793	8.544
15:51	7.776	8.781
15:52	10.094	9.130
15:53	10.890	9.531
15:54	8.913	9.504
15:55	7.330	9.146
15:56	6.832	9.034
15:57	6.486	8.768
15:58	6.316	9.275
15:59	6.149	9.430
16:00	5.677	9.277
16:01	5.404	8.817
16:02	5.640	9.005
16:03	5.682	9.860
16:04	6.727	8.599
16:05	7.391	7.941
16:06	6.115	9.255
16:07	4.993	9.687
16:08	5.282	9.054
16:09	8.015	9.223
16:10	11.096	8.792
16:11	10.420	9.053

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 16:13
Stop Time 16:19

CALIBRATION BIAS 12

		Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv
System Response to Calibration Gasses (C_s)			
C_{of}	Zero gas	-0.060	-0.006
C_{uf}	Upscale gas	43.042	13.932
Analyzer Calibration Error Reponses (C_{Dir})			
C_{oce}	Zero gas	0.102	-0.040
C_{mce}	Upscale gas	43.968	14.059
Actual Upscale Gas Value (C_{MA})			
C_{ma}	Upscale gas	43.980	14.020
Calibration Span Value (CS)			
		86.890	14.020
System Bias as Percent of Calibration Span Value (SB) (5%)			
	Zero gas	-0.2%	0.2%
	Upscale gas	-1.1%	-0.9%
System Bias Status			
	Zero gas	OK	OK
	Upscale gas	OK	OK
Previous System Response to Calibration Gases (C_s)			
C_{ol}	Zero gas	-0.162	-0.007
C_{ul}	Upscale gas	42.940	13.915
Drift Assessment as Percent of Calibration Span Value (D) (3%)			
	Zero gas	0.1%	0.0%
	Upscale gas	0.1%	0.1%
Drift Assessment Status			
	Zero gas	OK	OK
	Upscale gas	OK	OK

040309 111251

16:13:58	0.946	13.900
16:14:13	0.597	13.909
16:14:28	0.399	13.910
16:14:43	0.220	13.923
16:14:58	0.099	13.932
16:15:13	0.008	13.927
16:15:28	-0.014	13.935
16:15:43	-0.006	13.934
16:15:58	-0.031	13.927
16:16:13	-0.082	13.934
16:16:28	-0.069	10.669
16:16:43	9.586	1.133
16:16:58	30.759	0.123
16:17:13	38.569	0.056
16:17:28	40.838	0.024
16:17:43	41.698	0.014
16:17:58	42.149	0.016
16:18:13	42.499	0.016
16:18:28	42.771	-0.005
16:18:43	42.914	-0.001
16:18:58	43.023	-0.011
16:19:13	43.188	0.786
16:19:28	42.913	7.837

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 16:21
Stop time 16:48

REFERENCE METHOD RUN 13

		Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv
Calibration Checks			
C_{oi}	Initial zero	-0.060	-0.006
C_{ui}	Initial upscale	43.042	13.932
C_{of}	Final zero	-0.002	-0.010
C_{uf}	Final upscale	43.187	13.936
C_{ma}	Actual gas value	43.980	14.020
Analyzer Averages (concentrations)			
C_{Avg}	Average conc.	13.242	9.124
C_{Gas}	**Bias adjusted**	**13.530**	**9.183**

Clock Time (at end of sample period) 040309 111251		
16:22	7.110	8.498
16:23	6.139	8.662
16:24	9.648	8.971
16:25	16.729	8.831
16:26	13.361	10.071
16:27	9.156	10.003
16:28	7.878	9.145
16:29	7.677	8.060
16:30	8.752	8.483
16:31	12.569	9.413
16:32	15.803	9.618
16:33	13.270	9.453
16:34	10.997	9.164
16:35	14.063	9.415
16:36	15.185	10.041
16:37	14.625	10.000
16:38	18.760	9.083
16:39	22.613	8.242
16:40	11.703	8.277
16:41	10.794	9.001
16:42	16.298	9.712
16:43	24.397	9.719
16:44	25.880	8.351
16:45	19.385	8.277
16:46	11.507	8.131
16:47	7.364	9.467
16:48	5.880	10.252

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 16:48
Stop Time 16:55

CALIBRATION BIAS 13

		Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv	
System Response to Calibration Gasses (C_s)				
C_{of}	Zero gas	-0.002	-0.010	
C_{uf}	Upscale gas	43.187	13.936	
Analyzer Calibration Error Reponses (C_{Dir})				
C_{oce}	Zero gas	0.102	-0.040	
C_{mce}	Upscale gas	43.968	14.059	
Actual Upscale Gas Value (C_{MA})				
C_{ma}	Upscale gas	43.980	14.020	
Calibration Span Value (CS)		86.890	14.020	
System Bias as Percent of Calibration Span Value (SB) (5%)				
	Zero gas	-0.1%	0.2%	
	Upscale gas	-0.9%	-0.9%	
System Bias Status				
	Zero gas	OK	OK	
	Upscale gas	OK	OK	
Previous System Response to Calibration Gases (C_s)				
C_{oi}	Zero gas	-0.060	-0.006	
C_{ui}	Upscale gas	43.042	13.932	
Drift Assessment as Percent of Calibration Span Value (D) (3%)				
	Zero gas	0.1%	0.0%	
	Upscale gas	0.2%	0.0%	
Drift Assessment Status				
	Zero gas	OK	OK	
	Upscale gas	OK	OK	

040309 111251

16:48:54	9.185	5.489
16:49:09	23.087	2.051
16:49:24	24.029	11.921
16:49:39	9.949	13.784
16:49:54	3.954	13.874
16:50:09	1.805	13.893
16:50:24	1.039	13.913
16:50:39	0.661	13.899
16:50:54	0.449	13.914
16:51:09	0.189	13.929
16:51:24	0.163	13.937
16:51:39	0.065	13.936
16:51:54	0.000	13.938
16:52:09	0.041	13.936
16:52:24	-0.026	13.941
16:52:39	-0.020	13.942
16:52:54	0.068	9.600
16:53:09	11.528	0.868
16:53:24	31.596	0.113
16:53:39	38.738	0.042
16:53:54	40.949	0.032
16:54:09	41.859	0.023
16:54:24	42.390	0.014
16:54:39	42.720	0.008
16:54:54	42.885	0.001
16:55:09	43.036	-0.011
16:55:24	43.214	-0.013
16:55:39	43.311	-0.005

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 2 FF Outlet

March 10, 2009
Start Time 16:48
Stop Time 16:55

CALIBRATION BIAS 13

	Channel 2 SO2 Unit 2 FF Outlet ppmdv	Channel 4 O2 Unit 2 FF Outlet %dv
16:55:54	43.647	1.856

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

Date: March 12, 2009
Start Time 6:09
Stop Time 6:29

CALIBRATION ERROR

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Instrument Information					
Manufacturer:	T.E.I.	Wstrn Rsrch	T.E.I.	Servomex	Servomex
Model:	42C	921NMP	48CHL	1420B	1415B
Detection:	Chemilumi.	UV Photo.	GFC/NDIR	Paramagn.	NDIR
Asset or Serial No:	205423	204168	204764	203470	203499
Calibration Span Value (CS)					
	453.900	86.890	95.480	14.020	14.000
System Response Time (seconds)					
	50	50	50	50	50
Manufacturer Certified Cylinder Value (C_V)					
Zero	0.000	0.000	0.000	0.000	0.000
Low	227.100	43.980	48.150	6.050	6.054
Mid					
High	453.900	86.890	95.480	14.020	14.000
Actual gas to be used for bias checks					
	227.100	43.980	48.150	14.020	6.054
Cylinder ID					
Zero					
Low	ALM057156	ALM057156	ALM012863	ALM045493	AAL9828
Mid					
High	ALM013846	ALM013846	ALM026936	AAL9828	ALM045493
Analyzer Calibration Response (C_{Dir})					
Zero	-0.415	-0.144	-0.605	-0.042	0.033
Low	228.205	43.644	48.158	6.048	6.013
Mid					
High	454.593	87.134	95.176	14.049	14.158
Analyzer Calibration Error (ACE) (*Limit = 100%, Method 25A limit = 100% of gas value*)					
Zero	-0.1%	-0.2%	-0.6%	-0.3%	0.2%
Low	0.2%	-0.4%	0.0%	0.0%	-0.3%
Mid	N/A	N/A	N/A	N/A	N/A
High	0.2%	0.3%	-0.3%	0.2%	1.1%
Calibration Error Status					
Zero	OK	OK	OK	OK	OK
Low	OK	OK	OK	OK	OK
Mid	N/A	N/A	N/A	N/A	N/A
High	OK	OK	OK	OK	OK

040309 111251

06:09:38	-0.147	0.187	-0.090	14.048	6.013
06:09:53	-0.236	0.125	-0.100	14.048	6.013
06:10:08	-0.008	0.122	-0.098	14.050	6.013
06:10:23	-0.244	0.089	-0.098	14.048	6.013

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

Date: March 12, 2009
Start Time 6:09
Stop Time 6:29

CALIBRATION ERROR

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
06:10:38	-0.114	0.018	-0.098	12.948	6.525
06:10:53	-0.464	0.015	-0.065	6.835	12.934
06:11:08	-0.269	-0.026	-0.024	6.074	14.073
06:11:23	-0.147	-0.117	-0.039	6.047	14.148
06:11:38	-0.041	-0.135	-0.114	6.055	14.156
06:11:53	-0.277	-0.139	-0.171	6.040	14.158
06:12:08	-0.260	-0.149	-0.171	6.048	14.160
06:12:23	-0.708	-0.145	-0.195	6.052	14.163
06:12:38	-0.155	-0.055	-0.212	5.556	13.491
06:12:53	-0.163	24.798	-0.138	0.818	10.290
06:13:08	50.590	71.979	-0.032	0.012	10.100
06:13:23	229.402	83.201	-0.122	-0.025	10.088
06:13:38	376.312	85.516	-0.317	-0.026	10.088
06:13:53	435.604	86.282	-0.526	-0.029	10.088
06:14:08	447.155	86.576	-0.609	-0.027	10.087
06:14:23	448.881	86.753	-0.669	-0.030	10.089
06:14:38	450.964	86.836	-0.594	-0.030	10.088
06:14:53	453.830	87.009	-0.572	-0.032	10.087
06:15:08	454.384	87.085	-0.601	-0.031	10.088
06:15:23	454.465	87.144	-0.513	-0.032	10.088
06:15:38	454.579	87.173	-0.604	-0.032	10.091
06:15:53	454.734	87.240	-0.559	-0.031	10.089
06:16:08	454.978	68.856	-0.651	0.228	9.723
06:16:23	441.685	41.144	-0.488	-0.013	10.044
06:16:38	367.465	42.102	-0.384	-0.041	10.104
06:16:53	266.455	43.080	-0.446	-0.040	10.110
06:17:08	234.937	43.438	-0.570	-0.042	10.111
06:17:23	228.637	43.547	-0.560	-0.042	10.110
06:17:38	228.416	43.613	-0.585	-0.042	10.108
06:17:53	228.205	43.650	-0.630	-0.043	10.110
06:18:08	228.238	43.669	-0.653	-0.043	10.111
06:18:23	228.172	39.153	-0.445	0.468	7.392
06:18:38	225.901	12.886	3.411	0.068	0.723
06:18:53	169.003	2.527	24.052	-0.012	0.074
06:19:08	75.434	0.729	53.838	-0.018	-0.014
06:19:23	12.983	0.352	82.067	-0.019	-0.001
06:19:38	2.336	0.127	91.473	-0.020	-0.021
06:19:53	0.407	0.101	94.647	-0.021	-0.001
06:20:08	0.228	0.114	94.942	-0.021	-0.021
06:20:23	0.333	0.085	94.989	-0.022	-0.005
06:20:38	0.146	0.142	95.036	-0.020	-0.007
06:20:53	0.049	0.111	95.141	-0.020	-0.022
06:21:08	-0.082	0.079	95.184	-0.020	0.000
06:21:23	0.008	0.065	95.204	-0.020	0.000
06:21:38	-0.065	0.223	95.012	0.223	0.099
06:21:53	1.107	0.205	88.858	0.001	-0.001
06:22:08	2.157	-0.051	75.027	-0.022	0.000
06:22:23	1.498	-0.007	57.356	-0.036	-0.001
06:22:38	-0.041	-0.024	50.439	-0.023	-0.004
06:22:53	-0.098	-0.024	48.337	-0.022	-0.006
06:23:08	0.008	-0.063	48.128	-0.021	-0.004
06:23:23	-0.008	-0.068	48.117	-0.024	-0.001
06:23:38	-0.098	-0.065	48.120	-0.020	-0.002
06:23:53	-0.212	-0.085	48.096	-0.023	-0.005
06:24:08	0.016	-0.096	48.081	-0.023	-0.006

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

Date: **March 12, 2009**
Start Time 6:09
Stop Time 6:29

CALIBRATION ERROR

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
06:24:23	0.130	-0.083	48.119	-0.024	-0.005
06:24:38	0.008	-0.098	48.155	-0.023	-0.003
06:24:53	0.130	-0.114	48.166	-0.025	-0.002
06:25:08	0.122	-0.229	48.153	0.206	-0.006
06:25:23	0.236	0.464	46.087	0.526	-0.006
06:25:38	1.432	0.819	37.425	0.527	-0.006
06:25:53	12.837	1.037	19.910	0.525	-0.006
06:26:08	29.264	1.141	8.506	0.526	-0.006
06:26:23	39.609	1.174	1.717	0.527	-0.006
06:26:38	40.080	1.216	0.148	0.517	-0.034
06:26:53	41.044	1.219	-0.111	0.521	-0.017
06:27:08	41.847	1.218	-0.140	0.528	-0.006
06:27:23	42.888	1.146	-0.139	0.474	-0.040
06:27:38	44.010	1.146	-0.161	0.490	-0.006
06:27:53	45.084	1.101	-0.176	0.486	-0.010
06:28:08	45.190	1.125	-0.171	0.482	-0.039
06:28:23	45.214	1.169	-0.171	0.496	-0.006
06:28:38	45.198	1.716	-0.148	0.729	-0.004
06:28:53	45.158	1.944	-0.139	0.765	0.000
06:29:08	45.190	2.462	-0.135	6.455	4.975

NOX Converter Check
Expected Value = 48.0
Average = 45.2
Efficiency = 94.1%

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 6:30
Stop Time 6:40

CALIBRATION BIAS 00

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.087	-0.080	-0.412	-0.003	0.039
C_{uf} Upscale gas	223.734	42.436	47.972	13.959	5.952
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce} Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	0.1%	0.2%	0.3%	0.0%
Upscale gas	-1.0%	-1.4%	-0.2%	-0.6%	-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 (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

040309 111251

06:30:43	110.769	5.441	25.785	11.769	4.404
06:30:58	56.142	3.028	29.061	13.784	5.781
06:31:13	19.056	1.634	18.199	13.914	5.898
06:31:28	5.706	0.877	8.181	13.942	5.905
06:31:43	1.514	0.545	1.775	13.936	5.917
06:31:58	0.488	0.311	0.441	13.952	5.938
06:32:13	0.440	0.176	0.093	13.954	5.944
06:32:28	0.106	-0.042	0.037	13.954	5.946
06:32:43	-0.033	-0.012	0.050	13.954	5.945
06:32:58	-0.057	0.010	0.027	13.956	5.947
06:33:13	-0.065	-0.018	0.073	13.957	5.950
06:33:28	0.040	-0.027	0.027	13.961	5.952
06:33:43	0.138	-0.063	-0.056	13.958	5.953
06:33:58	0.081	-0.095	0.008	13.952	5.924
06:34:13	0.317	-0.083	0.047	13.925	5.953
06:34:28	0.041	1.649	0.045	5.629	7.874
06:34:43	12.080	21.851	0.019	0.391	9.732
06:34:58	79.504	35.552	-0.025	0.071	9.947
06:35:13	175.848	39.254	-0.122	0.030	9.968
06:35:28	211.689	40.586	-0.290	0.003	9.976
06:35:43	221.848	41.213	-0.378	-0.009	9.967
06:35:58	222.475	41.538	-0.396	-0.010	9.942
06:36:13	222.654	41.874	-0.391	-0.009	9.981
06:36:28	222.922	42.071	-0.417	-0.026	9.959
06:36:43	223.183	42.191	-0.425	-0.019	9.989
06:36:58	223.549	42.326	-0.407	-0.011	9.991
06:37:13	223.663	42.447	-0.420	-0.006	10.003
06:37:28	223.655	42.535	-0.409	-0.008	10.006

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 6:30
Stop Time 6:40

CALIBRATION BIAS 00

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
06:37:43	223.883	37.882	0.018	0.006	4.909
06:37:58	221.237	16.723	3.984	-0.004	0.520
06:38:13	161.880	6.123	18.918	-0.002	0.156
06:38:28	66.073	2.978	33.967	-0.007	0.092
06:38:43	7.953	1.840	44.552	0.000	0.101
06:38:58	2.076	1.242	47.204	0.002	0.052
06:39:13	0.887	0.830	47.756	-0.007	0.060
06:39:28	1.001	0.674	47.785	-0.008	0.043
06:39:43	0.529	0.524	47.925	0.009	0.041
06:39:58	0.554	0.420	47.982	-0.010	0.033
06:40:13	0.293	0.337	48.010	0.002	0.010
06:40:28	-0.033	0.323	47.998	1.916	1.955

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 6:48
Stop time 7:15

REFERENCE METHOD RUN 1

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.087	-0.080	-0.412	-0.003	0.039
C_{ui}	Initial upscale	223.734	42.436	47.972	13.959	5.952
C_{of}	Final zero	0.087	-0.152	-0.391	-0.010	0.049
C_{uf}	Final upscale	223.549	42.453	47.937	13.946	5.985
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	182.546	14.325	7.116	8.084	11.245
C_{Gas}	**Bias adjusted**	**185.353**	**14.922**	**7.485**	**8.126**	**11.446**

Clock Time (at end of sample period) 040309 111251					
06:49	179.459	9.205	8.198	7.665	11.598
06:50	184.890	8.276	7.436	8.519	10.835
06:51	182.214	9.407	7.193	7.397	11.806
06:52	206.453	11.716	6.814	7.571	11.705
06:53	186.443	10.402	5.669	8.279	11.007
06:54	183.229	12.928	6.248	6.772	12.362
06:55	186.333	11.826	5.722	8.295	11.063
06:56	173.199	10.476	6.172	8.196	11.095
06:57	185.067	12.558	6.971	7.671	11.622
06:58	178.948	11.281	5.488	8.563	10.806
06:59	171.064	12.750	7.124	7.892	11.386
07:00	185.252	13.065	8.475	8.209	11.119
07:01	178.775	13.348	6.744	8.253	11.029
07:02	191.333	15.422	7.857	7.773	11.535
07:03	194.483	14.323	6.655	8.441	10.902
07:04	189.677	16.788	7.551	7.630	11.681
07:05	188.673	14.987	6.931	8.446	10.941
07:06	176.880	16.176	8.090	7.983	11.381
07:07	184.473	15.306	7.713	8.573	10.830
07:08	175.458	17.499	8.781	8.135	11.247
07:09	179.473	18.383	7.679	8.499	10.885
07:10	180.161	20.819	8.356	8.161	11.226
07:11	174.613	20.501	7.963	7.993	11.351
07:12	186.524	20.432	7.659	8.008	11.371
07:13	178.266	18.208	5.759	8.356	11.034
07:14	180.371	16.596	7.014	8.387	11.022
07:15	167.033	14.083	5.861	8.599	10.776

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 7:17
Stop Time 7:26

CALIBRATION BIAS 01

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_s)						
C_{of}	Zero gas	0.087	-0.152	-0.391	-0.010	0.049
C_{uf}	Upscale gas	223.549	42.453	47.937	13.946	5.985
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce}	Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	0.0%	0.2%	0.2%	0.1%
	Upscale gas	-1.0%	-1.4%	-0.2%	-0.7%	-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_{ol}	Zero gas	0.087	-0.080	-0.412	-0.003	0.039
C_{ul}	Upscale gas	223.734	42.436	47.972	13.959	5.952
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%	-0.1%	0.2%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

040309 111251

07:17:31	22.833	0.895	23.186	13.869	5.933
07:17:46	3.875	0.397	11.705	13.887	5.971
07:18:01	0.725	0.044	3.710	13.916	5.977
07:18:16	0.546	0.026	0.802	13.932	5.981
07:18:31	0.464	-0.012	0.147	13.931	5.983
07:18:46	0.456	-0.054	0.023	13.939	5.984
07:19:01	0.171	-0.103	-0.011	13.942	5.986
07:19:16	-0.130	-0.135	0.016	13.945	5.985
07:19:31	0.366	-0.147	0.005	13.945	5.984
07:19:46	0.024	-0.147	-0.018	13.948	5.986
07:20:01	-0.196	-0.163	0.027	13.347	6.041
07:20:16	0.032	6.641	-0.028	3.138	8.706
07:20:31	33.675	28.669	0.070	0.227	9.888
07:20:46	103.883	37.542	-0.010	0.036	9.963
07:21:01	181.775	40.194	-0.137	0.010	9.998
07:21:16	214.327	41.182	-0.296	0.020	10.002
07:21:31	221.604	41.615	-0.368	-0.016	9.997
07:21:46	222.377	41.955	-0.391	-0.016	10.005
07:22:01	222.727	42.123	-0.391	-0.002	10.005
07:22:16	222.979	42.261	-0.391	0.000	10.006
07:22:31	223.191	42.294	-0.391	-0.006	10.018
07:22:46	223.532	42.484	-0.393	-0.007	10.032
07:23:01	223.281	42.581	-0.394	-0.011	10.026
07:23:16	223.834	40.677	-0.352	-0.002	7.125
07:23:31	220.277	20.106	2.909	0.001	0.886
07:23:46	193.650	6.608	13.709	-0.012	0.239
07:24:01	96.329	2.979	31.354	-0.008	0.153
07:24:16	21.335	1.615	42.765	-0.009	0.124

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 7:17
Stop Time 7:26

CALIBRATION BIAS 01

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
07:24:31	3.248	1.044	46.842	-0.003	0.104
07:24:46	1.066	0.690	47.717	-0.004	0.061
07:25:01	0.879	0.503	47.868	-0.011	0.054
07:25:16	0.749	0.373	47.894	-0.022	0.050
07:25:31	0.464	0.148	47.969	0.004	0.049
07:25:46	0.146	0.065	47.948	-0.006	0.048
07:26:01	0.187	0.503	47.923	1.731	1.494

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 7:29
Stop time 7:56

REFERENCE METHOD RUN 2

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.087	-0.152	-0.391	-0.010	0.049
C_{ui}	Initial upscale	223.549	42.453	47.937	13.946	5.985
C_{of}	Final zero	0.198	-0.281	-0.393	-0.013	0.062
C_{uf}	Final upscale	222.458	42.233	47.864	13.948	5.993
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	179.145	13.151	7.792	8.152	11.147
C_{Gas}	**Bias adjusted**	**182.407**	**13.814**	**8.159**	**8.200**	**11.317**

Clock Time (at end of sample period)

040309 111251

07:30	175.041	16.995	8.827	8.045	11.317
07:31	176.382	15.495	11.511	8.432	10.976
07:32	171.429	14.000	10.973	8.425	10.971
07:33	168.409	13.509	10.418	8.572	10.817
07:34	175.781	15.277	10.339	8.119	11.245
07:35	185.435	15.468	9.847	8.036	11.314
07:36	176.648	13.717	9.296	8.589	10.772
07:37	172.910	12.756	8.961	8.662	10.682
07:38	179.377	13.663	9.265	8.378	10.950
07:39	181.168	15.302	8.124	7.763	11.517
07:40	179.178	12.743	7.051	8.626	10.721
07:41	169.467	11.333	7.593	8.718	10.629
07:42	173.368	11.885	8.157	8.214	11.086
07:43	190.059	11.403	7.369	8.132	11.158
07:44	196.378	12.419	6.040	7.756	11.483
07:45	197.878	11.327	6.197	8.457	10.827
07:46	195.517	11.519	6.155	7.548	11.625
07:47	194.674	11.809	5.843	8.130	11.116
07:48	185.010	14.101	6.275	7.624	11.561
07:49	183.518	12.958	6.441	8.092	11.177
07:50	172.007	12.950	5.379	7.675	11.508
07:51	175.263	14.113	6.082	7.752	11.515
07:52	167.375	11.889	5.212	8.192	11.076
07:53	168.337	12.421	8.003	7.895	11.391
07:54	171.595	11.860	6.937	8.058	11.204
07:55	178.736	12.839	7.217	7.823	11.453
07:56	175.965	11.320	6.863	8.400	10.890

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 7:58
Stop Time 8:06

CALIBRATION BIAS 02

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.198	-0.281	-0.393	-0.013	0.062
C_{uf} Upscale gas	222.458	42.233	47.864	13.948	5.993
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce} Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.2%	0.2%	0.2%	0.2%
Upscale gas	-1.3%	-1.6%	-0.3%	-0.7%	-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	0.087	-0.152	-0.391	-0.010	0.049
C_{ui} Upscale gas	223.549	42.453	47.937	13.946	5.985
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	-0.1%	0.0%	0.0%	0.1%
Upscale gas	-0.2%	-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

040308 111251

07:58:09	29.198	0.905	24.928	13.855	5.919
07:58:24	4.103	0.399	12.376	13.900	5.973
07:58:39	1.522	0.109	4.391	13.927	5.986
07:58:54	0.008	-0.031	0.855	13.927	5.988
07:59:09	0.375	-0.044	0.173	13.936	5.990
07:59:24	0.480	-0.124	0.034	13.942	5.990
07:59:39	0.244	-0.199	0.031	13.942	5.987
07:59:54	-0.041	-0.228	0.088	13.948	5.993
08:00:09	0.179	-0.244	0.073	13.946	5.993
08:00:24	0.154	-0.254	0.027	13.951	5.993
08:00:39	0.260	-0.321	0.027	13.949	5.992
08:00:54	-0.082	-0.269	0.050	13.951	5.991
08:01:09	0.252	-0.262	0.029	11.513	6.393
08:01:24	5.266	10.745	0.033	1.537	9.341
08:01:39	34.367	31.437	0.042	0.139	9.938
08:01:54	107.448	38.183	-0.031	0.041	9.960
08:02:09	184.502	40.197	-0.189	0.013	9.997
08:02:24	218.942	41.050	-0.352	0.002	9.997
08:02:39	221.140	41.488	-0.384	-0.018	10.012
08:02:54	221.807	41.802	-0.391	0.001	10.029
08:03:09	222.067	42.025	-0.396	-0.003	10.028
08:03:24	222.279	42.170	-0.391	-0.005	10.036
08:03:39	222.491	42.193	-0.393	-0.002	10.037
08:03:54	222.605	42.336	-0.391	-0.010	9.823
08:04:09	222.450	32.873	0.495	-0.004	2.865
08:04:24	207.220	12.312	7.902	-0.018	0.381
08:04:39	126.887	4.633	22.724	-0.007	0.180
08:04:54	34.107	2.328	38.833	-0.016	0.132

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 7:58
Stop Time 8:06

CALIBRATION BIAS 02

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
08:05:09	6.537	1.348	45.351	-0.016	0.117
08:05:24	1.205	0.869	47.573	0.006	0.090
08:05:39	1.156	0.596	47.787	0.001	0.076
08:05:54	0.570	0.391	47.912	0.006	0.053
08:06:09	0.594	0.148	47.894	-0.023	0.057
08:06:24	0.367	0.135	47.951	-0.005	0.035

QA/QC_____
Date_____

Wheelabrator March 12, 2009
CleanAir Project No. 10735 Start Time 8:09
North Broward Stop time 8:36
Unit 3 FF Outlet **REFERENCE METHOD RUN 3**

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.198	-0.281	-0.393	-0.013	0.062
C_{ui}	Initial upscale	222.458	42.233	47.864	13.948	5.993
C_{of}	Final zero	0.022	-0.276	-0.391	-0.003	0.063
C_{uf}	Final upscale	222.719	42.183	47.835	13.943	5.992
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	180.375	11.381	7.515	8.365	10.991
C_{Gas}	**Bias adjusted**	**184.010**	**12.069**	**7.892**	**8.412**	**11.156**

Clock Time (at end of sample period)

040309 111251					
08:10	194.385	12.890	11.209	8.239	11.070
08:11	183.899	8.848	9.912	8.451	10.850
08:12	194.469	8.963	9.901	8.134	11.188
08:13	189.896	12.567	8.364	7.632	11.624
08:14	199.764	15.765	7.373	8.324	11.046
08:15	175.551	12.862	6.459	9.209	10.165
08:16	169.107	11.740	7.684	8.618	10.719
08:17	170.952	11.316	6.476	8.946	10.412
08:18	171.945	15.649	7.871	8.031	11.274
08:19	191.589	9.205	7.574	8.724	10.625
08:20	184.139	8.306	6.102	8.183	11.087
08:21	199.017	9.988	7.338	7.990	11.315
08:22	194.607	10.250	6.375	8.766	10.571
08:23	191.162	13.034	8.101	7.850	11.446
08:24	189.868	11.833	6.380	8.670	10.709
08:25	177.489	12.961	7.191	7.880	11.435
08:26	186.522	12.330	7.623	8.260	11.110
08:27	170.643	11.186	6.861	8.590	10.787
08:28	173.189	12.582	8.380	7.804	11.539
08:29	171.939	11.049	7.315	8.938	10.515
08:30	160.193	10.787	7.297	8.259	11.116
08:31	172.552	11.140	6.729	8.486	10.961
08:32	162.424	10.748	6.918	8.160	11.204
08:33	179.093	11.822	7.362	7.880	11.498
08:34	171.927	10.022	6.245	9.075	10.383
08:35	167.519	9.767	7.261	8.124	11.265
08:36	176.286	9.679	6.592	8.623	10.835

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 8:37
Stop Time 8:46

CALIBRATION BIAS 03

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_s)						
C_{of}	Zero gas	0.022	-0.276	-0.391	-0.003	0.063
C_{uf}	Upscale gas	222.719	42.183	47.835	13.943	5.992
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce}	Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	-0.2%	0.2%	0.3%	0.2%
	Upscale gas	-1.2%	-1.7%	-0.3%	-0.8%	-0.1%
System Bias Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK
Previous System Response to Calibration Gases (C_s)						
C_{oi}	Zero gas	0.198	-0.281	-0.393	-0.013	0.062
C_{ui}	Upscale gas	222.458	42.233	47.864	13.948	5.993
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	0.0%	0.0%	0.0%	0.1%	0.0%
	Upscale gas	0.1%	-0.1%	0.0%	0.0%	0.0%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

040309 111251

08:37:22	157.370	5.268	14.413	1.798	1.347
08:37:37	111.241	2.595	24.257	11.657	5.137
08:37:52	36.386	1.247	27.577	13.755	5.902
08:38:07	9.882	0.604	18.094	13.891	5.971
08:38:22	1.775	0.234	6.683	13.908	5.984
08:38:37	0.724	0.023	1.791	13.928	5.989
08:38:52	0.562	-0.067	0.296	13.930	5.989
08:39:07	0.130	-0.142	0.059	13.936	5.991
08:39:22	0.179	-0.182	0.013	13.940	5.992
08:39:37	-0.244	-0.217	0.077	13.944	5.993
08:39:52	0.049	-0.241	0.056	13.944	5.993
08:40:07	0.366	-0.254	-0.052	13.946	5.991
08:40:22	0.146	-0.274	0.050	13.948	5.991
08:40:37	0.049	-0.299	-0.041	12.180	6.270
08:40:52	-0.497	7.658	0.050	1.910	9.197
08:41:07	21.604	29.385	-0.043	0.167	9.923
08:41:22	120.383	37.381	-0.072	0.024	9.981
08:41:37	193.553	39.681	-0.204	0.000	9.997
08:41:52	217.566	40.684	-0.342	0.006	10.014
08:42:07	221.140	41.237	-0.366	-0.017	10.022
08:42:22	221.742	41.493	-0.373	-0.012	10.028

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 8:37
Stop Time 8:46

CALIBRATION BIAS 03

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
08:42:37	222.051	41.778	-0.391	-0.032	10.035
08:42:52	222.393	41.999	-0.391	-0.011	10.038
08:43:07	222.499	42.113	-0.391	-0.002	10.039
08:43:22	222.605	42.154	-0.391	-0.008	10.041
08:43:37	222.727	42.281	-0.391	-0.003	10.042
08:43:52	222.825	38.025	0.121	-0.006	4.807
08:44:07	205.063	17.338	4.762	0.006	0.526
08:44:22	122.621	6.291	19.606	-0.007	0.191
08:44:37	49.654	2.961	35.127	-0.002	0.141
08:44:52	10.126	1.675	44.654	-0.009	0.121
08:45:07	2.141	0.993	47.259	-0.005	0.110
08:45:22	0.806	0.664	47.727	-0.010	0.081
08:45:37	0.912	0.484	47.806	-0.017	0.055
08:45:52	0.114	0.257	47.813	-0.001	0.052
08:46:07	0.383	0.156	47.886	0.116	0.076

QA/QC_____
Date_____

Wheelabrator March 12, 2009
CleanAir Project No. 10735 Start Time 8:48
North Broward Stop time 9:15
Unit 3 FF Outlet **REFERENCE METHOD RUN 4**

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.022	-0.276	-0.391	-0.003	0.063
C_{ui}	Initial upscale	222.719	42.183	47.835	13.943	5.992
C_{of}	Final zero	0.089	-0.245	-0.393	-0.003	0.033
C_{uf}	Final upscale	222.678	42.327	48.008	13.943	5.993
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	175.341	9.456	9.726	8.512	10.922
C_{Gas}	**Bias adjusted**	**178.795**	**10.051**	**10.084**	**8.560**	**11.074**

Clock Time (at end of sample period)

040309 111251

08:49	177.749	6.417	6.907	8.756	10.655
08:50	168.130	6.221	8.121	8.417	10.964
08:51	167.851	6.220	8.630	8.830	10.587
08:52	161.302	7.264	10.530	8.885	10.564
08:53	162.086	7.789	10.456	8.645	10.790
08:54	164.601	7.641	10.463	8.652	10.770
08:55	166.199	7.558	10.206	8.800	10.663
08:56	158.993	7.992	9.844	8.690	10.777
08:57	158.175	8.024	9.821	8.594	10.832
08:58	170.726	8.662	10.718	8.184	11.261
08:59	173.443	8.162	8.636	8.862	10.588
09:00	173.816	8.509	9.731	8.684	10.797
09:01	175.244	10.381	10.339	8.033	11.396
09:02	178.767	10.758	11.558	8.492	10.959
09:03	174.074	10.872	12.724	8.706	10.764
09:04	169.984	10.896	12.656	8.562	10.893
09:05	174.900	11.482	11.731	8.396	11.035
09:06	181.416	11.765	10.384	8.505	10.946
09:07	175.912	15.974	10.324	8.696	10.753
09:08	176.099	16.287	10.008	8.905	10.575
09:09	178.315	8.642	10.712	8.677	10.771
09:10	187.157	7.139	10.072	8.222	11.161
09:11	191.490	7.067	9.128	7.912	11.489
09:12	190.684	7.623	7.539	8.628	10.809
09:13	192.300	9.971	8.181	8.071	11.329
09:14	195.712	12.601	6.421	8.335	11.071
09:15	189.092	13.401	6.758	7.686	11.684

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 9:16
Stop Time 9:25

CALIBRATION BIAS 04

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gases (C_S)					
C_{of} Zero gas	0.089	-0.245	-0.393	-0.003	0.033
C_{uf} Upscale gas	222.678	42.327	48.008	13.943	5.993
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce} Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.1%	0.2%	0.3%	0.0%
Upscale gas	-1.2%	-1.5%	-0.2%	-0.8%	-0.1%
System Bias Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK
Previous System Response to Calibration Gases (C_S)					
C_{ol} Zero gas	0.022	-0.276	-0.391	-0.003	0.063
C_{ul} Upscale gas	222.719	42.183	47.835	13.943	5.992
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.0%	0.0%	-0.2%
Upscale gas	0.0%	0.2%	0.2%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040300 111251

09:16:55	159.031	4.293	13.661	3.370	1.400
09:17:10	103.272	2.050	24.350	12.635	5.163
09:17:25	41.718	0.933	26.619	13.805	5.905
09:17:40	7.229	0.430	16.055	13.901	5.973
09:17:55	1.628	0.081	5.670	13.911	5.984
09:18:10	0.741	-0.020	1.527	13.927	5.992
09:18:25	0.505	-0.104	0.296	13.925	5.993
09:18:40	0.481	-0.182	0.134	13.941	5.994
09:18:55	0.252	-0.202	-0.011	13.944	5.995
09:19:10	-0.041	-0.225	0.077	13.944	5.994
09:19:25	0.285	-0.242	0.012	13.948	5.988
09:19:40	0.171	-0.269	0.056	13.952	5.995
09:19:55	-0.187	-0.209	0.077	10.540	6.627
09:20:10	1.457	12.321	0.034	1.166	9.499
09:20:25	22.100	32.107	0.059	0.120	9.959
09:20:40	110.850	38.284	-0.013	0.004	9.987
09:20:55	196.076	40.153	-0.226	0.017	9.999
09:21:10	218.380	40.974	-0.331	0.009	10.025
09:21:25	221.172	41.448	-0.395	-0.010	10.032
09:21:40	221.645	41.654	-0.374	-0.016	10.037
09:21:55	222.059	41.991	-0.394	-0.002	10.038
09:22:10	222.279	42.141	-0.394	-0.028	10.038
09:22:25	222.417	42.230	-0.391	-0.004	10.043
09:22:40	222.621	42.279	-0.371	-0.013	10.047
09:22:55	222.686	42.471	-0.378	-0.006	9.953

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 9:16
Stop Time 9:25

CALIBRATION BIAS 04

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
09:23:10	222.727	35.145	0.309	-0.009	3.383
09:23:25	206.007	14.007	6.733	-0.005	0.414
09:23:40	122.247	5.125	21.688	-0.026	0.183
09:23:55	36.679	2.434	37.724	0.005	0.129
09:24:10	7.814	1.395	45.208	-0.012	0.115
09:24:25	1.530	0.871	47.474	-0.002	0.094
09:24:40	0.920	0.583	47.839	-0.009	0.071
09:24:55	0.635	0.365	47.948	-0.009	0.056
09:25:10	0.594	0.200	48.010	-0.013	0.042
09:25:25	0.456	0.121	48.008	-0.014	0.022
09:25:40	0.293	-0.015	48.005	-0.010	0.036
09:25:55	0.382	0.031	48.011	1.396	0.932

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 9:29
Stop time 9:56

REFERENCE METHOD RUN 5

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.089	-0.245	-0.393	-0.003	0.033
C_{ui}	Initial upscale	222.678	42.327	48.008	13.943	5.993
C_{of}	Final zero	0.032	-0.255	-0.366	-0.013	0.038
C_{uf}	Final upscale	222.779	42.225	47.952	13.954	5.995
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	170.970	15.482	6.650	8.560	10.844
C_{Gas}	**Bias adjusted**	**174.311**	**16.270**	**6.999**	**8.607**	**10.982**

Clock Time (at end of sample period)

040309 111251					
09:30	165.515	15.955	6.901	8.578	10.834
09:31	168.032	15.812	6.948	7.883	11.397
09:32	180.645	16.024	6.486	7.960	11.384
09:33	173.815	14.094	5.114	9.091	10.355
09:34	167.601	17.918	7.624	8.781	10.655
09:35	172.285	18.450	6.974	8.745	10.647
09:36	174.794	18.085	7.129	8.290	11.126
09:37	173.964	13.589	5.759	9.209	10.230
09:38	174.296	15.502	7.502	8.743	10.688
09:39	170.541	19.518	7.548	8.260	11.090
09:40	177.564	19.302	7.228	8.323	11.123
09:41	172.826	14.648	6.093	8.875	10.554
09:42	180.706	14.300	7.234	8.631	10.807
09:43	178.775	18.488	6.629	7.954	11.397
09:44	175.727	17.396	4.953	8.622	10.808
09:45	168.846	15.160	5.442	8.350	11.039
09:46	170.568	13.071	5.352	8.749	10.670
09:47	165.973	14.157	6.136	7.881	11.445
09:48	170.472	13.770	5.998	8.873	10.569
09:49	163.734	13.400	5.995	8.828	10.567
09:50	165.501	14.746	7.007	8.800	10.625
09:51	165.136	15.356	7.132	8.423	10.947
09:52	170.201	14.288	7.170	8.819	10.606
09:53	168.181	14.170	8.010	8.151	11.226
09:54	174.180	12.975	7.612	8.743	10.700
09:55	162.013	12.627	6.691	8.796	10.617
09:56	164.294	15.221	6.878	8.756	10.680

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 9:57
Stop Time 10:06

CALIBRATION BIAS 05

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_s)					
C_{of} Zero gas	0.032	-0.255	-0.366	-0.013	0.038
C_{uf} Upscale gas	222.779	42.225	47.952	13.954	5.995
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce} Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.1%	0.3%	0.2%	0.0%
Upscale gas	-1.2%	-1.6%	-0.2%	-0.7%	-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_{of} Zero gas	0.089	-0.245	-0.393	-0.003	0.033
C_{uf} Upscale gas	222.678	42.327	48.008	13.943	5.993
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.0%	-0.1%	0.0%
Upscale gas	0.0%	-0.1%	-0.1%	0.1%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

09:57:53	10.387	0.666	18.174	13.895	5.967
09:58:08	2.255	0.259	8.178	13.918	5.982
09:58:23	0.668	-0.008	1.680	13.930	5.990
09:58:38	0.358	-0.031	0.410	13.940	5.994
09:58:53	0.261	-0.140	0.060	13.942	5.994
09:59:08	-0.033	-0.173	0.085	13.944	5.994
09:59:23	0.382	-0.198	0.054	13.950	5.995
09:59:38	0.065	-0.215	0.033	13.953	5.995
09:59:53	0.040	-0.231	0.012	13.954	5.995
10:00:08	0.032	-0.252	0.077	13.956	5.995
10:00:23	0.024	-0.282	0.036	13.806	6.001
10:00:38	0.667	2.823	0.096	4.478	8.281
10:00:53	17.900	24.775	0.028	0.318	9.864
10:01:08	67.000	36.392	0.011	0.063	9.969
10:01:23	157.835	39.528	-0.122	0.018	10.002
10:01:38	210.387	40.632	-0.283	0.004	10.020
10:01:53	220.187	41.239	-0.368	-0.011	10.022
10:02:08	221.644	41.532	-0.366	-0.016	10.038
10:02:23	222.149	41.812	-0.366	-0.009	10.044
10:02:38	222.458	41.988	-0.366	0.000	10.045
10:02:53	222.581	42.118	-0.366	-0.007	10.049
10:03:08	222.613	42.190	-0.366	-0.004	10.049
10:03:23	222.979	42.367	-0.383	-0.004	10.053
10:03:38	222.743	39.726	-0.301	-0.001	5.910
10:03:53	217.664	19.217	4.176	-0.012	0.659
10:04:08	181.335	6.646	15.401	-0.019	0.203
10:04:23	81.571	2.987	34.289	-0.009	0.140
10:04:38	15.995	1.677	43.472	-0.017	0.114

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 9:57
Stop Time 10:06

CALIBRATION BIAS 05

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
10:04:53	2.645	1.022	47.276	-0.012	0.100
10:05:08	0.765	0.726	47.806	-0.002	0.062
10:05:23	0.822	0.479	47.855	0.000	0.056
10:05:38	0.725	0.226	47.974	-0.006	0.052
10:05:53	0.530	0.120	48.026	0.002	0.036
10:06:08	0.301	0.065	47.945	-0.019	0.026
10:06:23	0.382	0.024	47.956	0.170	0.063

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 10:08
Stop time 10:35

REFERENCE METHOD RUN 6

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{ol}	Initial zero	0.032	-0.255	-0.366	-0.013	0.038
C_{ul}	Initial upscale	222.779	42.225	47.952	13.954	5.995
C_{of}	Final zero	0.068	-0.267	-0.366	-0.007	0.050
C_{uf}	Final upscale	222.404	42.388	47.970	13.957	5.999
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	159.242	12.540	9.965	9.216	10.206
C_{Gas}	**Bias adjusted**	**162.453**	**13.226**	**10.293**	**9.262**	**10.334**

Clock Time (at end of sample period)

040309 111251

10:09	157.291	16.907	8.935	9.483	9.954
10:10	152.906	18.189	13.935	9.682	9.804
10:11	149.569	16.634	15.620	9.469	9.983
10:12	153.683	13.873	14.471	9.400	10.053
10:13	158.739	12.043	12.424	9.530	9.945
10:14	156.512	11.149	11.619	9.705	9.806
10:15	156.483	11.369	11.838	9.413	10.029
10:16	154.432	10.952	12.081	9.274	10.144
10:17	152.239	9.415	10.386	9.680	9.811
10:18	156.192	9.516	9.892	9.696	9.804
10:19	158.199	10.838	11.867	8.912	10.495
10:20	165.173	10.728	10.767	9.178	10.292
10:21	162.393	9.669	8.616	9.385	10.071
10:22	156.294	9.088	9.129	9.684	9.833
10:23	155.928	10.270	10.735	9.571	9.897
10:24	160.639	12.148	10.216	9.231	10.175
10:25	163.901	12.350	10.462	9.053	10.341
10:26	161.634	11.415	10.534	8.757	10.590
10:27	171.087	9.950	7.935	9.081	10.275
10:28	171.042	10.238	6.303	8.763	10.561
10:29	171.858	12.775	6.279	8.124	11.167
10:30	173.447	12.920	5.426	8.909	10.458
10:31	169.817	14.762	5.716	8.615	10.742
10:32	159.805	14.094	6.331	9.274	10.144
10:33	152.112	16.468	8.659	8.733	10.642
10:34	148.649	15.349	8.961	9.257	10.144
10:35	149.520	15.472	9.923	8.981	10.393

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 10:36
Stop Time 10:45

CALIBRATION BIAS 06

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.068	-0.267	-0.366	-0.007	0.050
C_{uf} Upscale gas	222.404	42.388	47.970	13.957	5.999
Analyzer Calibration Error Reponses (C_{DIr})					
C_{oce} Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce} Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.1%	0.3%	0.2%	0.1%
Upscale gas	-1.3%	-1.4%	-0.2%	-0.6%	-0.1%
System Bias Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK
Previous System Response to Calibration Gases (C_S)					
C_{ol} Zero gas	0.032	-0.255	-0.366	-0.013	0.038
C_{ul} Upscale gas	222.779	42.225	47.952	13.954	5.995
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	0.0%	0.0%	0.0%	0.1%
Upscale gas	-0.1%	0.2%	0.0%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251					
10:36:59	88.164	2.252	26.549	12.977	5.366
10:37:14	26.463	1.034	26.070	13.840	5.912
10:37:29	5.796	0.547	14.955	13.892	5.974
10:37:44	0.904	0.230	4.829	13.928	5.986
10:37:59	0.505	0.023	1.206	13.939	5.993
10:38:14	0.122	-0.054	0.166	13.943	5.993
10:38:29	0.097	-0.129	0.070	13.949	5.995
10:38:44	0.171	-0.200	0.049	13.952	5.995
10:38:59	0.472	-0.228	0.098	13.952	5.997
10:39:14	0.260	-0.254	0.075	13.957	6.000
10:39:29	0.138	-0.269	0.012	13.958	6.000
10:39:44	-0.196	-0.277	0.056	13.958	5.997
10:39:59	0.163	1.083	0.034	6.917	7.573
10:40:14	3.867	20.466	0.020	0.521	9.786
10:40:29	43.875	35.020	0.010	0.072	9.968
10:40:44	141.091	39.160	-0.095	0.014	10.004
10:40:59	207.440	40.528	-0.248	0.005	10.022
10:41:14	219.186	41.229	-0.342	0.007	10.034
10:41:29	220.806	41.613	-0.360	-0.008	10.041
10:41:44	221.286	41.952	-0.376	-0.009	10.048
10:41:59	221.612	42.082	-0.373	-0.017	10.051
10:42:14	221.823	42.175	-0.366	-0.012	10.052
10:42:29	222.019	42.266	-0.366	-0.003	10.055
10:42:44	222.246	42.385	-0.366	-0.005	10.054
10:42:59	222.442	42.514	-0.366	-0.007	10.059

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 10:36
Stop Time 10:45

CALIBRATION BIAS 06

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
10:43:14	222.523	40.199	-0.187	-0.002	6.490
10:43:29	209.044	20.171	3.372	-0.003	0.763
10:43:44	161.774	7.100	16.255	-0.011	0.215
10:43:59	82.019	3.122	32.303	-0.015	0.147
10:44:14	17.477	1.783	43.707	-0.006	0.118
10:44:29	2.670	1.107	47.003	-0.007	0.111
10:44:44	1.262	0.705	47.803	-0.007	0.086
10:44:59	0.236	0.510	47.955	-0.008	0.039
10:45:14	0.350	0.326	47.951	-0.019	0.059
10:45:29	0.350	0.158	47.958	-0.009	0.052
10:45:44	0.326	0.136	48.001	0.779	0.394
10:45:59	1.905	5.560	47.002	7.892	7.221

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 10:48
Stop time 11:15

REFERENCE METHOD RUN 7

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.068	-0.267	-0.366	-0.007	0.050
C_{ui}	Initial upscale	222.404	42.388	47.970	13.957	5.999
C_{of}	Final zero	0.070	-0.185	-0.366	-0.008	0.051
C_{uf}	Final upscale	222.483	42.556	48.011	13.955	6.000
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	149.810	19.643	10.412	9.441	10.026
C_{Gas}	**Bias adjusted**	**152.923**	**20.466**	**10.732**	**9.486**	**10.151**

Clock Time (at end of sample period)

040309. 111251

10:49	150.240	20.218	7.816	9.572	9.910
10:50	149.707	17.056	8.228	9.570	9.901
10:51	152.935	18.881	9.174	9.414	10.056
10:52	147.825	15.745	8.269	9.392	10.039
10:53	145.175	19.581	8.148	9.227	10.180
10:54	149.534	16.349	8.249	9.259	10.195
10:55	143.604	11.291	6.917	9.519	9.937
10:56	146.671	14.307	8.775	9.448	10.061
10:57	141.475	21.613	8.645	9.846	9.714
10:58	146.630	31.757	10.281	9.733	9.810
10:59	147.373	30.635	11.336	9.418	10.088
11:00	145.381	23.322	9.981	9.401	10.106
11:01	143.838	15.090	10.020	9.818	9.696
11:02	144.416	15.774	12.713	9.439	10.023
11:03	152.415	18.365	13.215	9.154	10.272
11:04	156.449	19.527	11.832	9.560	9.942
11:05	154.251	19.863	12.375	9.182	10.228
11:06	156.952	20.537	12.795	8.790	10.619
11:07	150.334	17.669	9.435	9.602	9.877
11:08	148.987	18.387	8.969	9.650	9.826
11:09	147.861	25.903	10.353	9.503	9.962
11:10	150.370	28.203	12.496	9.028	10.357
11:11	152.424	19.845	11.200	9.879	9.637
11:12	148.472	17.153	12.192	9.916	9.598
11:13	154.017	20.608	13.905	9.112	10.273
11:14	157.914	19.347	12.407	9.086	10.300
11:15	159.614	13.347	11.407	9.386	10.100

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 11:18
Stop Time 11:27

CALIBRATION BIAS 07

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_s)						
C_{of}	Zero gas	0.070	-0.185	-0.366	-0.008	0.051
C_{uf}	Upscale gas	222.483	42.556	48.011	13.955	6.000
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce}	Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	0.0%	0.3%	0.2%	0.1%
	Upscale gas	-1.3%	-1.3%	-0.2%	-0.7%	-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	0.068	-0.267	-0.366	-0.007	0.050
C_{ui}	Upscale gas	222.404	42.388	47.970	13.957	5.999
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	0.0%	0.1%	0.0%	0.0%	0.0%
	Upscale gas	0.0%	0.2%	0.0%	0.0%	0.0%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

040309 111251

11:18:05	153.789	6.992	15.908	2.163	1.187
11:18:20	106.406	3.046	25.597	11.975	4.795
11:18:35	40.741	1.385	28.174	13.780	5.882
11:18:50	10.916	0.641	18.860	13.894	5.973
11:19:05	1.994	0.246	6.732	13.927	5.987
11:19:20	0.798	0.108	1.831	13.936	5.993
11:19:35	0.293	-0.005	0.326	13.943	5.997
11:19:50	0.432	-0.031	0.064	13.946	5.999
11:20:05	0.171	-0.109	0.081	13.948	6.000
11:20:20	0.358	-0.135	0.059	13.953	6.001
11:20:35	0.146	-0.152	0.112	13.956	6.000
11:20:50	0.146	-0.184	0.033	13.958	6.000
11:21:05	-0.082	-0.220	0.046	11.873	6.319
11:21:20	4.534	9.506	0.003	1.731	9.275
11:21:35	45.869	31.136	0.070	0.157	9.952
11:21:50	127.229	38.211	-0.052	0.026	9.994
11:22:05	190.322	40.179	-0.184	-0.002	10.007
11:22:20	215.979	40.996	-0.324	0.009	10.036
11:22:35	220.611	41.475	-0.366	-0.009	10.041
11:22:50	221.384	41.833	-0.364	-0.009	10.044
11:23:05	221.734	42.056	-0.352	-0.013	10.049
11:23:20	221.929	42.152	-0.366	-0.002	10.050
11:23:35	222.141	42.333	-0.366	-0.004	10.056
11:23:50	222.352	42.478	-0.366	-0.007	10.056
11:24:05	222.482	42.563	-0.376	-0.009	10.057

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 11:18
Stop Time 11:27

CALIBRATION BIAS 07

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
11:24:20	222.613	42.628	-0.374	-0.008	10.054
11:24:35	222.483	38.380	0.102	-0.007	4.768
11:24:50	201.563	16.663	5.413	-0.007	0.536
11:25:05	136.532	5.714	19.757	0.004	0.190
11:25:20	60.187	2.678	34.566	-0.004	0.140
11:25:35	12.747	1.579	44.633	-0.004	0.117
11:25:50	2.312	1.006	47.279	-0.009	0.104
11:26:05	0.814	0.707	47.818	-0.005	0.083
11:26:20	0.839	0.523	47.853	-0.021	0.064
11:26:35	0.472	0.371	47.977	-0.015	0.048
11:26:50	0.334	0.236	48.031	-0.011	0.040
11:27:05	0.024	0.104	48.024	0.358	0.210

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 11:29
Stop time 11:56

REFERENCE METHOD RUN 8

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.070	-0.185	-0.366	-0.008	0.051
C_{ui}	Initial upscale	222.483	42.556	48.011	13.955	6.000
C_{of}	Final zero	0.217	-0.257	-0.366	-0.013	0.036
C_{uf}	Final upscale	222.366	42.408	48.021	13.956	5.998
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	159.393	12.566	11.799	9.230	10.157
C_{Gas}	**Bias adjusted**	**162.702**	**13.169**	**12.106**	**9.276**	**10.281**

Clock Time (at end of sample period)

040309 111251

11:30	168.940	10.224	9.472	9.640	9.809
11:31	157.399	10.605	12.518	9.372	10.045
11:32	157.383	11.866	14.691	8.908	10.495
11:33	154.799	14.233	13.565	9.153	10.238
11:34	153.089	13.248	12.875	9.417	10.025
11:35	157.998	12.940	11.684	9.188	10.229
11:36	165.323	13.194	11.868	9.005	10.401
11:37	167.179	12.604	10.833	8.821	10.561
11:38	163.879	11.580	11.732	8.970	10.401
11:39	156.559	10.226	13.550	9.419	9.994
11:40	152.503	10.739	13.952	9.277	10.071
11:41	156.486	14.894	12.271	8.477	10.781
11:42	164.862	14.723	10.988	9.198	10.204
11:43	152.265	11.777	11.644	9.229	10.119
11:44	146.551	10.550	13.050	9.376	9.997
11:45	153.293	12.425	11.994	8.956	10.370
11:46	151.162	14.741	9.009	9.573	9.825
11:47	151.205	9.575	9.919	9.817	9.626
11:48	158.620	9.339	12.371	9.548	9.846
11:49	171.827	12.929	12.947	8.890	10.418
11:50	179.092	14.177	12.042	9.003	10.344
11:51	168.012	15.497	11.904	9.405	10.003
11:52	167.017	15.619	13.052	9.494	9.940
11:53	160.956	14.769	11.805	9.318	10.069
11:54	158.602	13.101	10.266	8.978	10.368
11:55	158.378	11.623	10.785	9.108	10.280
11:56	150.224	12.092	7.773	9.661	9.787

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 11:57
Stop Time 12:08

CALIBRATION BIAS 08

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.217	-0.257	-0.366	-0.013	0.036
C_{uf} Upscale gas	222.366	42.408	48.021	13.956	5.998
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce} Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.1%	0.3%	0.2%	0.0%
Upscale gas	-1.3%	-1.4%	-0.1%	-0.7%	-0.1%
System Bias Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK
Previous System Response to Calibration Gases (C_S)					
C_{ol} Zero gas	0.070	-0.185	-0.366	-0.008	0.051
C_{ul} Upscale gas	222.483	42.556	48.011	13.955	6.000
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%	-0.2%	0.0%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

040309 111251

11:57:19	149.817	15.552	8.288	6.442	7.636
11:57:34	150.053	10.335	11.015	1.171	1.599
11:57:49	126.813	4.303	19.518	8.442	3.116
11:58:04	63.606	2.014	28.414	13.563	5.729
11:58:19	15.946	0.933	22.974	13.888	5.954
11:58:34	3.191	0.427	10.247	13.926	5.980
11:58:49	0.936	0.068	3.302	13.934	5.987
11:59:04	0.505	-0.127	0.469	13.941	5.992
11:59:19	-0.016	-0.117	0.107	13.946	5.995
11:59:34	0.276	-0.147	0.098	13.948	5.995
11:59:49	-0.041	-0.187	0.010	13.954	5.996
12:00:04	0.317	-0.220	0.056	13.955	5.998
12:00:19	0.138	-0.241	0.033	13.956	5.999
12:00:34	0.146	-0.262	0.033	13.959	5.997
12:00:49	0.366	-0.267	0.034	13.224	6.069
12:01:04	1.270	5.224	0.034	2.929	8.812
12:01:19	11.689	27.601	0.072	0.223	9.911
12:01:34	76.329	37.223	0.057	0.032	9.989
12:01:49	170.362	39.845	-0.132	0.027	10.010
12:02:04	216.597	40.807	-0.298	0.000	10.025
12:02:19	220.350	41.330	-0.360	-0.001	10.025
12:02:34	221.148	41.709	-0.356	-0.007	10.037
12:02:49	221.612	41.991	-0.360	-0.021	10.041
12:03:04	222.035	42.165	-0.366	-0.006	10.046

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 11:57
Stop Time 12:08

CALIBRATION BIAS 08

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
12:03:19	222.084	42.232	-0.366	-0.009	10.048
12:03:34	222.214	42.348	-0.366	-0.009	10.050
12:03:49	222.328	42.411	-0.366	-0.010	10.051
12:04:04	222.401	42.466	-0.378	-0.012	10.052
12:04:19	222.368	40.526	-0.254	-0.002	6.646
12:04:34	220.765	21.019	3.585	-0.011	0.802
12:04:49	182.189	7.526	14.984	-0.006	0.222
12:05:04	83.272	3.396	33.220	-0.022	0.149
12:05:19	15.084	1.921	43.174	-0.012	0.119
12:05:34	2.865	1.221	47.181	-0.001	0.113
12:05:49	1.001	0.770	47.775	-0.014	0.079
12:06:04	0.700	0.598	47.960	-0.007	0.061
12:06:19	0.651	0.426	47.966	-0.006	0.046
12:06:34	0.432	0.280	47.935	-0.009	0.043
12:06:49	0.432	0.099	47.980	-0.007	0.051
12:07:04	0.276	0.122	48.024	-0.020	0.047
12:07:19	0.382	0.005	48.000	-0.009	0.041
12:07:34	0.333	-0.033	47.974	-0.003	0.030
12:07:49	0.032	-0.037	48.018	-0.016	0.037
12:08:04	-0.073	-0.023	48.070	-0.015	0.021

QA/QC_____
Date_____

Wheelabrator March 12, 2009
CleanAir Project No. 10735 Start Time 12:38
North Broward Stop time 13:05
Unit 3 FF Outlet **REFERENCE METHOD RUN 9**

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	0.217	-0.257	-0.366	-0.013	0.036
C_{ui}	Initial upscale	222.366	42.408	48.021	13.956	5.998
C_{of}	Final zero	-0.033	-0.225	-0.366	-0.011	0.034
C_{uf}	Final upscale	222.589	42.615	48.088	13.937	5.986
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	151.889	11.061	8.720	9.419	10.160
C_{Gas}	**Bias adjusted**	**155.015**	**11.627**	**9.035**	**9.473**	**10.291**

Clock Time (at end of sample period)

040309 111251					
12:39	163.671	12.935	8.408	8.952	10.516
12:40	155.069	7.797	6.185	9.394	10.085
12:41	154.487	6.142	6.727	9.315	10.170
12:42	156.079	7.917	7.504	9.161	10.349
12:43	157.684	12.954	6.843	9.075	10.418
12:44	160.120	14.751	6.800	9.160	10.349
12:45	164.100	13.897	6.742	9.069	10.438
12:46	159.912	12.295	8.073	9.313	10.253
12:47	148.720	9.880	7.488	9.553	10.034
12:48	146.178	8.248	7.908	9.378	10.209
12:49	148.453	7.645	8.823	9.423	10.165
12:50	146.882	8.297	9.425	9.522	10.099
12:51	141.490	10.251	9.210	9.334	10.251
12:52	143.934	10.949	8.479	8.912	10.669
12:53	151.585	10.846	7.301	9.213	10.360
12:54	154.335	9.464	8.179	9.557	10.054
12:55	149.898	8.803	7.733	9.632	9.998
12:56	145.407	9.767	9.418	9.348	10.256
12:57	146.593	11.090	9.773	9.379	10.227
12:58	151.028	10.855	9.775	9.495	10.119
12:59	148.028	11.541	11.934	9.214	10.368
13:00	154.485	12.465	11.058	9.108	10.452
13:01	156.758	11.559	8.262	9.555	10.070
13:02	146.229	10.739	7.934	10.309	9.417
13:03	144.691	12.497	11.222	10.035	9.649
13:04	149.650	15.563	11.575	10.080	9.585
13:05	155.525	19.512	12.653	9.836	9.769

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 13:06
Stop Time 13:16

CALIBRATION BIAS 09

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_S)						
C_{of}	Zero gas	-0.033	-0.225	-0.366	-0.011	0.034
C_{uf}	Upscale gas	222.589	42.615	48.088	13.937	5.986
Analyzer Calibration Error Reponses (C_{Dir})						
C_{oce}	Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mce}	Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})						
C_{ma}	Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)						
		453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)						
	Zero gas	0.1%	-0.1%	0.3%	0.2%	0.0%
	Upscale gas	-1.2%	-1.2%	-0.1%	-0.8%	-0.2%
System Bias Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK
Previous System Response to Calibration Gases (C_S)						
C_{of}	Zero gas	0.217	-0.257	-0.366	-0.013	0.036
C_{uf}	Upscale gas	222.366	42.408	48.021	13.956	5.998
Drift Assessment as Percent of Calibration Span Value (D) (3%)						
	Zero gas	-0.1%	0.0%	0.0%	0.0%	0.0%
	Upscale gas	0.0%	0.2%	0.1%	-0.1%	-0.1%
Drift Assessment Status						
	Zero gas	OK	OK	OK	OK	OK
	Upscale gas	OK	OK	OK	OK	OK

040309 111251

13:06:12	162.027	17.626	14.262	5.305	6.116
13:06:27	152.845	9.910	17.223	1.563	1.168
13:06:42	107.383	4.083	26.090	10.977	4.241
13:06:57	55.490	1.853	29.825	13.717	5.798
13:07:12	13.293	0.856	19.726	13.887	5.955
13:07:27	2.808	0.422	8.699	13.909	5.974
13:07:42	0.830	0.114	2.242	13.923	5.979
13:07:57	0.546	-0.003	0.524	13.934	5.982
13:08:12	0.179	-0.057	0.117	13.933	5.984
13:08:27	0.220	-0.125	0.016	13.942	5.990
13:08:42	0.162	-0.187	0.096	13.926	5.991
13:08:57	0.268	-0.244	0.010	13.908	5.988
13:09:12	-0.407	-0.244	0.034	13.948	5.989
13:09:27	0.040	-0.137	0.030	10.018	6.735
13:09:42	7.773	13.206	0.018	1.038	9.548
13:09:57	54.677	32.550	0.064	0.123	9.951
13:10:12	146.154	38.580	-0.098	0.035	9.982
13:10:27	196.394	40.397	-0.209	0.013	9.995
13:10:42	219.121	41.226	-0.319	-0.005	10.010
13:10:57	220.692	41.649	-0.356	0.011	10.009
13:11:12	221.408	41.954	-0.366	-0.017	10.022
13:11:27	221.742	42.133	-0.366	-0.014	10.033
13:11:42	221.929	42.255	-0.366	-0.011	10.036
13:11:57	222.141	42.344	-0.366	0.000	10.036
13:12:12	222.377	42.489	-0.366	-0.004	10.040
13:12:27	222.556	42.568	-0.366	-0.002	10.042
13:12:42	222.589	42.621	-0.360	-0.004	10.043
13:12:57	222.621	42.655	-0.342	-0.004	10.035

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 13:06
Stop Time 13:16

CALIBRATION BIAS 09

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
13:13:12	222.499	37.672	0.205	-0.008	4.365
13:13:27	204.322	16.425	5.138	-0.013	0.489
13:13:42	118.820	5.776	20.365	-0.013	0.186
13:13:57	45.966	2.660	35.723	0.003	0.142
13:14:12	9.165	1.460	44.905	0.002	0.114
13:14:27	2.157	0.884	47.355	-0.010	0.105
13:14:42	0.985	0.604	47.829	0.001	0.072
13:14:57	0.562	0.417	47.982	-0.005	0.052
13:15:12	0.464	0.204	48.051	-0.016	0.054
13:15:27	0.603	0.147	48.059	-0.012	0.029
13:15:42	0.358	0.067	48.072	-0.005	0.041
13:15:57	0.016	0.018	48.132	-0.020	0.034
13:16:12	0.285	0.930	47.823	4.831	4.120
13:16:27	10.265	7.739	44.308	8.767	9.612
13:16:42	60.033	10.821	33.027	9.100	10.103
13:16:57	112.829	11.237	21.640	9.483	9.857

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 13:20
Stop time 13:47

REFERENCE METHOD RUN 10

		Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
Calibration Checks						
C_{oi}	Initial zero	-0.033	-0.225	-0.366	-0.011	0.034
C_{ui}	Initial upscale	222.589	42.615	48.088	13.937	5.986
C_{of}	Final zero	0.176	-0.341	-0.366	-0.014	0.010
C_{uf}	Final upscale	221.381	42.466	48.068	13.942	5.986
C_{ma}	Actual gas value	227.100	43.980	48.150	14.020	6.054
Analyzer Averages (concentrations)						
C_{Avg}	Average conc.	167.531	7.071	10.596	9.316	10.072
C_{Gas}	**Bias adjusted**	**171.373**	**7.552**	**10.895**	**9.374**	**10.202**

Clock Time (at end of sample period)

040309 111251

13:21	158.895	8.385	9.173	9.793	9.655
13:22	152.644	8.719	11.442	9.801	9.658
13:23	156.180	9.117	13.616	9.926	9.576
13:24	158.160	8.662	14.336	10.313	9.236
13:25	165.224	9.618	14.382	9.516	9.894
13:26	169.007	9.065	14.307	9.276	10.107
13:27	162.452	9.672	12.827	9.876	9.585
13:28	154.949	8.151	12.697	9.816	9.614
13:29	150.148	4.983	11.936	9.909	9.541
13:30	156.412	3.813	12.355	9.636	9.754
13:31	168.982	4.865	11.180	9.244	10.089
13:32	163.960	6.409	8.609	9.363	10.017
13:33	162.304	6.761	7.456	9.751	9.695
13:34	158.991	6.613	8.677	10.002	9.488
13:35	153.366	6.922	12.401	9.721	9.726
13:36	161.687	7.185	13.370	9.400	9.981
13:37	160.293	7.120	13.012	8.562	10.724
13:38	175.191	5.972	11.062	9.257	10.123
13:39	175.741	4.874	7.808	9.325	10.047
13:40	179.575	5.165	8.513	9.098	10.221
13:41	184.115	6.610	9.711	8.818	10.486
13:42	186.074	7.647	9.580	8.572	10.747
13:43	183.533	6.953	9.604	8.457	10.861
13:44	186.652	6.443	8.487	8.038	11.210
13:45	186.713	6.630	6.804	8.481	10.842
13:46	178.671	6.892	6.261	8.761	10.555
13:47	173.419	7.665	6.481	8.817	10.502

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 13:49
Stop Time 14:01

CALIBRATION BIAS 10

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
System Response to Calibration Gasses (C_S)					
C_{of} Zero gas	0.176	-0.341	-0.366	-0.014	0.010
C_{uf} Upscale gas	221.381	42.466	48.068	13.942	5.986
Analyzer Calibration Error Reponses (C_{Dir})					
C_{oce} Zero gas	-0.415	-0.144	-0.605	-0.042	0.033
C_{mca} Upscale gas	228.205	43.644	48.158	14.049	6.013
Actual Upscale Gas Value (C_{MA})					
C_{ma} Upscale gas	227.100	43.980	48.150	14.020	6.054
Calibration Span Value (CS)					
	453.900	86.890	95.480	14.020	14.000
System Bias as Percent of Calibration Span Value (SB) (5%)					
Zero gas	0.1%	-0.2%	0.3%	0.2%	-0.2%
Upscale gas	-1.5%	-1.4%	-0.1%	-0.8%	-0.2%
System Bias Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK
Previous System Response to Calibration Gases (C_S)					
C_{oi} Zero gas	-0.033	-0.225	-0.366	-0.011	0.034
C_{ui} Upscale gas	222.589	42.615	48.088	13.937	5.986
Drift Assessment as Percent of Calibration Span Value (D) (3%)					
Zero gas	0.0%	-0.1%	0.0%	0.0%	-0.2%
Upscale gas	-0.3%	-0.2%	0.0%	0.0%	0.0%
Drift Assessment Status					
Zero gas	OK	OK	OK	OK	OK
Upscale gas	OK	OK	OK	OK	OK

0403C9 111251

13:49:54	1.164	-0.008	4.132	13.915	5.977
13:50:09	0.863	-0.068	1.094	13.909	5.983
13:50:24	0.424	-0.166	0.173	13.921	5.985
13:50:39	0.310	-0.259	0.132	13.892	5.985
13:50:54	0.374	-0.273	0.013	13.905	5.984
13:51:09	0.382	-0.285	0.078	13.929	5.985
13:51:24	0.211	-0.291	0.049	13.934	5.986
13:51:39	0.260	-0.322	0.034	13.939	5.987
13:51:54	0.040	-0.327	0.052	13.937	5.989
13:52:09	-0.399	-0.335	0.098	13.938	5.988
13:52:24	0.032	-0.340	0.054	13.942	5.990
13:52:39	0.146	-0.342	-0.008	13.940	5.989
13:52:54	0.252	-0.339	0.033	13.944	5.991
13:53:09	0.130	-0.342	0.054	13.942	5.990
13:53:24	0.016	-0.127	0.056	9.547	6.866
13:53:39	3.964	14.037	0.094	0.930	9.594
13:53:54	57.208	32.894	0.081	0.106	9.950
13:54:09	147.041	38.782	-0.015	0.048	9.970
13:54:24	204.152	40.598	-0.210	0.005	9.993
13:54:39	217.526	41.299	-0.323	0.006	10.005
13:54:54	219.919	41.678	-0.352	-0.007	10.002
13:55:09	220.554	41.975	-0.366	0.002	10.025
13:55:24	220.952	42.162	-0.366	-0.004	10.021
13:55:39	221.164	42.252	-0.366	0.000	10.033

QA/QC_____
Date_____

Wheelabrator
CleanAir Project No. 10735
North Broward
Unit 3 FF Outlet

March 12, 2009
Start Time 13:49
Stop Time 14:01

CALIBRATION BIAS 10

	Channel 1 NOX Unit 3 FF Outlet ppmdv	Channel 2 SO2 Unit 3 FF Outlet ppmdv	Channel 3 CO Unit 3 FF Outlet ppmdv	Channel 4 O2 Unit 3 FF Outlet %dv	Channel 5 CO2 Unit 3 FF Outlet %dv
13:55:54	221.384	42.347	-0.366	-0.002	10.036
13:56:09	221.579	42.470	-0.364	-0.003	10.037
13:56:24	221.685	42.580	-0.342	-0.002	10.030
13:56:39	220.879	37.755	0.034	-0.003	4.555
13:56:54	208.986	16.583	5.520	-0.002	0.501
13:57:09	159.927	5.944	18.831	-0.001	0.191
13:57:24	68.376	2.754	36.316	0.002	0.135
13:57:39	11.217	1.556	44.570	-0.009	0.111
13:57:54	2.141	0.951	47.482	-0.010	0.099
13:58:09	0.993	0.653	47.800	-0.004	0.071
13:58:24	0.602	0.440	47.956	0.007	0.069
13:58:39	0.171	0.251	47.997	0.004	0.036
13:58:54	0.187	0.169	47.976	-0.018	0.040
13:59:09	0.228	0.008	47.958	-0.010	0.039
13:59:24	0.187	-0.034	48.021	-0.007	0.032
13:59:39	0.073	-0.015	48.059	-0.014	0.016
13:59:54	0.276	-0.072	48.046	-0.014	0.012
14:00:09	0.390	-0.116	48.073	-0.013	0.003
14:00:24	0.154	-0.155	48.097	-0.003	-0.005
14:00:39	-0.179	0.247	48.034	3.171	2.192
14:00:54	0.097	7.552	45.639	9.451	8.430
14:01:09	25.259	12.641	37.303	10.357	9.038
14:01:24	93.887	13.394	24.518	10.270	9.232
14:01:39	143.492	13.568	16.661	10.117	9.377

QA/QC_____
Date_____

CEM MONITOR AND PROCESS DATA

F

This Page Intentionally Left Blank

Plant Name: NBWD

General Average Report

Reporting Period: 03/11/2009 to 03/11/2009

Site Name: UNIT1

Data Averaging Type: 1m

Time of Report: 03/11/09 07:54

Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	07:14	21.7	152.6	9.7	8.6	19.2	135.2	8.6	183.3
	07:15	14.4	153.3	11.1	8.9	12.4	132.4	9.5	182.2
	07:16	15.1	157.6	12.3	9.1	12.9	134.1	10.4	182.4
	07:17	21.7	152.5	11.1	9.0	18.5	130.1	9.4	184.0
	07:18	25.7	149.2	10.6	8.7	22.5	131.0	9.3	186.1
	07:19	21.0	144.1	21.0	8.5	18.7	128.2	18.7	184.2
	07:20	16.5	144.7	12.2	8.7	14.5	127.3	10.7	180.9
	07:21	25.8	156.5	9.5	9.2	21.6	131.3	8.0	180.2
	07:22	36.1	155.6	12.3	9.5	29.5	127.3	10.1	182.5
	07:23	31.8	161.2	9.4	9.0	27.3	138.5	8.0	183.5
	07:24	16.4	156.7	7.1	8.7	14.4	138.0	6.2	183.6
	07:25	10.9	153.6	6.7	8.7	9.6	134.7	5.8	182.9
	07:26	13.4	152.0	7.4	8.9	11.6	130.9	6.4	183.3
	07:27	23.4	158.7	6.6	8.9	20.2	137.2	5.7	183.9
	07:28	24.3	161.5	4.4	8.5	21.7	143.9	3.9	184.0
	07:29	18.8	163.9	4.0	8.5	16.7	146.1	3.6	183.5
	07:30	15.3	173.5	2.7	8.5	13.7	154.5	2.4	184.6
	07:31	12.7	177.4	2.9	8.4	11.4	159.2	2.6	187.0
	07:32	13.2	176.9	2.5	8.0	12.3	164.5	2.4	186.0
	07:33	15.4	181.4	2.2	8.0	14.3	168.8	2.0	184.6
	07:34	24.5	193.3	2.3	8.6	21.7	171.3	2.0	184.6
	07:35	28.6	182.2	1.8	8.4	25.8	164.3	1.6	184.4
	07:36	28.1	183.6	2.5	8.3	25.3	165.8	2.3	184.4
	07:37	26.0	184.4	3.1	8.5	23.3	165.0	2.7	185.1
	07:38	26.5	173.5	3.1	8.2	24.2	158.4	2.9	185.4
	07:39	24.4	176.4	2.4	8.1	22.4	161.9	2.2	185.5
	07:40	22.1	173.6	3.1	8.2	20.2	158.3	2.8	184.7
Average =		21.2	164.8	6.8	8.6	18.7	145.9	5.9	184.0
Geometric Avg. =		20.3	164.3	5.4	8.6	17.9	145.1	4.8	183.9
Maximum =		36.1	193.3	21.0	9.5	29.5	171.3	18.7	187.0
Minimum =		10.9	144.1	1.8	8.0	9.6	127.3	1.6	180.2
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		573.7	4450.0	183.9	232.7	505.9	3938.1	160.5	4966.7

* - 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
Reporting Period: 03/11/2009 to 03/11/2009

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/11/09 08:34
Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	07:54	11.7	165.9	4.1	8.4	10.5	149.2	3.7	186.6
	07:55	25.4	159.7	3.7	8.2	23.3	146.3	3.4	185.1
	07:56	22.7	171.3	4.5	8.8	19.8	149.7	3.9	184.6
	07:57	9.2	162.0	4.0	8.5	8.2	144.7	3.5	185.1
	07:58	15.5	161.1	5.1	8.4	13.9	144.8	4.6	184.8
	07:59	28.8	167.0	4.5	8.2	26.4	153.0	4.1	187.8
	08:00	34.1	172.7	3.8	7.9	31.8	161.3	3.5	184.9
	08:01	19.6	165.3	2.7	8.2	17.9	151.1	2.5	185.3
	08:02	11.8	174.6	3.5	8.5	10.5	156.0	3.2	185.7
	08:03	17.8	165.6	4.1	8.2	16.3	151.4	3.7	187.9
	08:04	28.0	164.5	3.8	7.8	26.4	155.1	3.6	185.5
	08:05	15.9	158.3	2.8	8.3	14.4	143.5	2.6	186.5
	08:06	12.8	165.3	2.4	8.3	11.6	150.4	2.2	186.2
	08:07	15.0	159.6	1.4	8.0	13.9	147.7	1.3	186.2
	08:08	21.4	169.0	3.3	8.4	19.3	152.3	3.0	186.1
	08:09	21.9	168.5	3.0	8.1	20.2	155.5	2.8	184.5
	08:10	17.4	163.7	5.0	8.6	15.4	144.6	4.4	184.6
	08:11	15.3	163.6	3.8	8.5	13.7	146.3	3.4	184.9
	08:12	16.9	167.0	3.6	8.4	15.2	149.7	3.2	184.5
	08:13	14.9	154.7	3.0	8.1	13.6	141.9	2.7	185.2
	08:14	13.5	166.1	3.4	8.3	12.2	150.5	3.1	184.2
	08:15	11.7	164.0	2.4	8.2	10.7	149.5	2.2	184.5
	08:16	15.0	163.5	3.2	8.3	13.6	148.6	2.9	184.4
	08:17	16.2	162.0	3.7	8.4	14.5	145.2	3.4	185.2
	08:18	12.7	169.1	3.1	8.2	11.6	154.4	2.8	184.2
	08:19	14.4	177.4	3.4	8.5	12.9	158.8	3.1	183.6
	08:20	17.4	173.7	3.0	8.5	15.5	155.3	2.7	184.9
Average =		17.7	165.7	3.5	8.3	16.1	150.2	3.2	185.3
Geometric Avg. =		16.8	165.7	3.4	8.3	15.3	150.2	3.1	185.3
Maximum =		34.1	177.4	5.1	8.8	31.8	161.3	4.6	187.9
Minimum =		9.2	154.7	1.4	7.8	8.2	141.9	1.3	183.6
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		477.2	4475.1	94.4	224.1	433.7	4056.7	85.5	5002.7

* - 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

Reporting Period: 03/11/2009 to 03/11/2009

Site Name: UNIT1

Data Averaging Type: 1m

Time of Report: 03/11/09 09:17

Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	08:34	18.3	167.5	5.3	8.6	16.2	148.1	4.7	187.6
	08:35	15.3	163.9	4.4	8.2	14.0	149.7	4.1	183.1
	08:36	12.5	173.7	5.0	9.0	10.7	148.6	4.3	184.4
	08:37	15.1	172.5	6.0	8.8	13.2	150.3	5.3	184.5
	08:38	17.2	152.5	6.4	8.5	15.3	135.7	5.7	185.6
	08:39	17.1	156.5	5.3	8.5	15.3	139.9	4.7	183.9
	08:40	14.5	159.0	5.2	8.8	12.6	138.9	4.6	184.7
	08:41	12.5	153.3	4.0	8.6	11.1	135.7	3.6	183.4
	08:42	13.0	151.8	5.0	8.9	11.2	130.7	4.3	184.4
	08:43	14.0	158.7	5.4	8.6	12.4	140.4	4.7	184.9
	08:44	11.3	158.9	6.3	8.6	10.0	140.7	5.6	183.2
	08:45	11.8	160.8	4.5	8.6	10.4	142.1	4.0	181.1
	08:46	26.3	168.8	5.4	9.1	22.4	143.7	4.6	183.3
	08:47	25.9	183.8	5.5	8.8	22.6	160.5	4.8	184.3
	08:48	14.1	184.3	4.4	8.1	13.0	170.2	4.1	187.6
	08:49	7.5	188.6	3.5	7.6	7.1	179.9	3.3	185.8
	08:50	4.6	180.9	1.2	7.8	4.3	170.0	1.1	185.1
	08:51	9.0	184.4	3.1	8.7	7.9	162.3	2.8	184.0
	08:52	13.9	174.4	3.1	8.5	12.4	155.7	2.8	185.9
	08:53	19.2	189.4	3.6	8.4	17.3	171.0	3.3	186.7
	08:54	14.7	177.7	1.9	7.7	13.9	168.1	1.8	185.1
	08:55	13.4	166.6	1.3	8.3	12.1	150.7	1.2	184.6
	08:56	16.7	166.1	2.3	8.5	15.0	148.5	2.1	184.6
	08:57	25.3	158.7	4.1	8.4	22.7	142.8	3.7	187.2
	08:58	35.9	152.8	5.5	8.2	32.7	139.3	5.0	186.1
	08:59	30.2	156.1	4.4	8.5	27.0	139.6	3.9	184.7
	09:00	19.2	168.8	5.5	9.0	16.5	144.6	4.7	184.2
Average =		16.6	167.8	4.4	8.5	14.8	149.9	3.9	184.8
Geometric Avg. =		15.3	167.4	4.0	8.5	13.6	149.4	3.6	184.8
Maximum =		35.9	189.4	6.4	9.1	32.7	179.9	5.7	187.6
Minimum =		4.6	151.8	1.2	7.6	4.3	130.7	1.1	181.1
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		448.4	4530.7	117.6	229.2	399.3	4047.9	104.5	4990.2

* - 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

Reporting Period: 03/11/2009 to 03/11/2009

Site Name: UNIT1

Time of Report: 03/11/09 10:05

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	09:23	19.7	157.4	5.4	8.1	18.2	145.0	4.9	183.9
	09:24	21.8	154.1	6.9	8.6	19.3	136.3	6.1	182.3
	09:25	24.8	155.1	6.3	8.7	21.8	136.4	5.5	181.1
	09:26	27.9	162.5	7.8	9.1	23.8	138.4	6.7	182.3
	09:27	29.3	167.8	8.8	8.8	25.4	145.5	7.6	183.2
	09:28	28.7	169.5	5.8	8.5	25.6	151.2	5.2	185.2
	09:29	30.0	173.8	5.3	8.3	27.2	157.8	4.8	184.0
	09:30	24.1	173.3	7.0	8.6	21.4	153.6	6.2	183.3
	09:31	24.7	178.9	7.0	9.1	21.0	152.3	6.0	183.3
	09:32	29.5	186.8	7.4	9.2	24.8	157.4	6.2	184.4
	09:33	25.5	181.5	6.5	8.7	22.4	159.8	5.7	182.3
	09:34	20.6	186.4	7.7	9.2	17.4	157.3	6.5	183.6
	09:35	18.4	179.4	6.4	8.9	15.9	155.1	5.5	186.2
	09:36	16.1	177.9	4.5	8.3	14.6	161.4	4.1	184.5
	09:37	6.4	179.5	3.7	8.5	5.7	160.0	3.3	185.5
	09:38	8.1	185.8	4.7	8.6	7.2	164.9	4.2	183.8
	09:39	13.4	182.3	4.5	8.5	11.9	162.0	4.0	187.5
	09:40	16.0	177.0	3.3	8.0	14.9	164.6	3.1	184.2
	09:41	12.1	167.9	3.7	8.1	11.1	154.4	3.4	184.6
	09:42	12.9	173.9	6.0	8.6	11.4	153.5	5.3	183.8
	09:43	12.7	165.1	6.2	8.3	11.5	149.5	5.6	187.2
	09:44	20.1	162.9	7.6	7.9	18.7	151.7	7.1	186.4
	09:45	15.9	158.6	4.7	7.8	15.0	149.8	4.5	182.5
	09:46	16.9	160.3	6.8	9.0	14.4	136.9	5.8	181.9
	09:47	21.0	166.5	8.8	9.0	18.0	142.5	7.6	186.0
	09:48	21.5	173.6	9.3	8.1	19.8	159.9	8.6	184.6
	09:49	26.2	165.5	7.6	8.1	24.2	152.7	7.0	186.6
	09:50	50.0	172.3	8.6	8.3	45.3	156.0	7.8	186.7
Average =		21.2	171.3	6.4	8.5	18.9	152.4	5.6	184.3
Geometric Avg. =		19.6	171.0	6.1	8.5	17.4	152.1	5.5	184.3
Maximum =		50.0	186.8	9.3	9.2	45.3	164.9	8.6	187.5
Minimum =		6.4	154.1	3.3	7.8	5.7	136.3	3.1	181.1
Possible Values =		28	28	28	28	28	28	28	28
Included Values =		28	28	28	28	28	28	28	28
Total =		594.4	4795.3	178.3	238.8	528.0	4266.1	158.2	5161.1

* - 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: 03/11/2009 to 03/11/2009

Site Name: UNIT1

Data Averaging Type: 1m

Time of Report: 03/11/09 10:44

Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	10:05	19.8	165.2	3.8	8.4	17.7	148.1	3.4	183.2
	10:06	21.2	170.0	3.8	8.9	18.3	147.0	3.3	182.7
	10:07	20.3	170.5	4.0	8.7	17.7	149.1	3.5	184.3
	10:08	20.7	178.1	5.5	8.8	18.0	155.3	4.8	184.0
	10:09	17.3	171.3	4.5	8.5	15.5	153.1	4.0	184.5
	10:10	15.8	177.2	5.9	8.7	13.8	155.3	5.1	182.9
	10:11	15.8	175.1	6.2	8.6	14.0	155.3	5.5	182.6
	10:12	18.2	174.6	7.7	8.6	16.0	154.0	6.8	182.7
	10:13	23.8	173.8	8.3	8.9	20.6	150.5	7.1	183.0
	10:14	22.4	170.6	7.5	8.9	19.4	147.5	6.5	183.0
	10:15	18.7	164.0	8.7	9.0	16.0	140.6	7.5	182.9
	10:16	15.0	164.7	8.5	9.0	12.8	140.7	7.3	183.8
	10:17	14.6	162.4	8.2	8.6	12.9	143.2	7.2	184.8
	10:18	21.1	165.9	8.2	8.7	18.4	145.2	7.2	184.7
	10:19	22.2	159.4	5.0	8.4	20.1	143.9	4.5	183.5
	10:20	22.4	162.8	6.0	8.8	19.5	141.4	5.2	183.4
	10:21	16.7	152.4	5.5	8.6	14.8	135.1	4.8	184.1
	10:22	18.3	159.8	4.7	8.4	16.5	143.9	4.2	184.0
	10:23	22.1	153.1	3.7	8.4	19.9	138.3	3.4	184.0
	10:24	23.7	152.9	4.1	8.5	21.1	136.4	3.6	183.6
	10:25	20.0	159.2	4.6	8.5	17.8	141.7	4.1	187.6
	10:26	18.1	170.9	6.4	8.1	16.7	157.6	5.9	187.5
	10:27	19.0	161.8	4.1	7.8	17.8	152.0	3.8	182.8
	10:28	22.7	167.4	4.8	9.1	19.3	142.1	4.1	183.9
	10:29	27.3	169.8	5.3	8.7	23.9	148.4	4.6	184.3
	10:30	28.0	163.6	6.1	8.5	25.0	146.0	5.4	185.2
	10:31	25.7	165.6	5.2	8.3	23.4	150.6	4.7	183.4
Average =		20.4	166.0	5.8	8.6	18.0	146.8	5.1	183.9
Geometric Avg. =		20.1	165.8	5.6	8.6	17.8	146.6	4.9	183.9
Maximum =		28.0	178.1	8.7	9.1	25.0	157.6	7.5	187.6
Minimum =		14.6	152.4	3.7	7.8	12.8	135.1	3.3	182.6
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		550.7	4481.9	156.2	232.4	487.0	3962.4	137.7	4966.3

* - 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: 03/11/2009 to 03/11/2009

Site Name: UNIT1

Time of Report: 03/11/09 11:31

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	10:44	19.7	177.1	3.5	7.9	18.4	165.3	3.3	184.7
	10:45	17.2	165.4	3.1	8.4	15.5	148.7	2.8	183.7
	10:46	14.0	164.4	3.5	8.8	12.2	143.4	3.0	182.7
	10:47	23.7	165.2	4.4	8.6	21.0	146.4	3.9	185.7
	10:48	32.9	170.7	4.1	8.0	30.5	157.9	3.8	184.4
	10:49	18.7	159.0	1.9	8.0	17.4	147.5	1.7	185.6
	10:50	17.2	164.8	2.9	8.5	15.3	146.5	2.6	185.3
	10:51	19.4	152.3	1.9	8.4	17.4	136.5	1.7	184.4
	10:52	25.6	162.3	3.8	8.8	22.3	141.4	3.3	185.8
	10:53	23.4	154.7	2.6	8.3	21.2	140.6	2.4	183.6
	10:54	17.8	152.8	1.5	8.6	15.7	135.2	1.3	184.9
	10:55	16.7	158.3	3.7	8.5	14.9	141.0	3.3	182.7
	10:56	18.6	158.2	2.4	8.5	16.6	140.8	2.2	184.1
	10:57	23.4	161.4	2.9	8.5	20.9	144.0	2.6	182.9
	10:58	22.1	153.8	2.8	8.4	20.0	138.8	2.5	184.4
	10:59	19.5	159.0	3.8	8.5	17.4	141.9	3.4	182.4
	11:00	18.1	154.3	4.3	8.6	16.0	136.7	3.8	183.3
	11:01	20.0	158.8	5.7	8.6	17.7	140.5	5.0	182.2
	11:02	22.3	160.6	6.8	8.6	19.7	141.9	6.0	182.7
	11:03	19.4	159.9	7.0	8.5	17.3	142.7	6.2	183.6
	11:04	17.0	169.2	7.4	8.6	15.0	149.6	6.6	182.7
	11:05	16.4	159.1	5.6	8.7	14.4	140.2	5.0	182.6
	11:06	18.7	153.9	4.8	8.9	16.2	132.8	4.2	181.9
	11:07	20.5	151.5	5.9	9.1	17.4	128.7	5.0	182.2
	11:08	21.5	161.2	6.9	9.0	18.4	137.9	5.9	183.3
	11:09	23.7	163.7	7.5	8.6	20.9	144.6	6.6	181.8
	11:10	21.1	156.1	8.0	8.9	18.2	134.3	6.9	181.4
Average =		20.3	160.3	4.4	8.6	18.1	142.4	3.9	183.5
Geometric Avg. =		20.0	160.2	4.0	8.5	17.8	142.3	3.5	183.5
Maximum =		32.9	177.1	8.0	9.1	30.5	165.3	6.9	185.8
Minimum =		14.0	151.5	1.5	7.9	12.2	128.7	1.3	181.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		548.5	4327.5	118.8	230.9	487.7	3845.7	105.0	4954.9

* - 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: 03/11/2009 to 03/11/2009

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/11/09 12:36
Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	11:55	21.8	176.4	4.3	8.4	19.5	158.1	3.9	183.5
	11:56	21.8	171.2	2.6	8.2	19.9	156.1	2.3	184.4
	11:57	23.6	178.2	4.3	8.3	21.4	161.7	3.9	183.7
	11:58	22.3	175.6	3.5	8.2	20.3	160.3	3.2	185.7
	11:59	21.3	181.4	2.8	8.1	19.6	166.8	2.6	185.3
	12:00	18.4	173.4	1.5	8.0	17.1	161.3	1.4	185.0
	12:01	25.2	177.9	4.0	8.4	22.6	159.5	3.5	185.7
	12:02	28.1	176.5	3.4	8.0	26.0	163.9	3.1	183.6
	12:03	27.8	178.8	4.1	8.5	24.8	159.8	3.7	185.5
	12:04	25.5	191.7	2.8	8.0	23.6	177.3	2.5	184.3
	12:05	22.0	184.0	3.2	8.2	20.2	168.7	2.9	186.6
	12:06	23.7	184.9	4.6	8.0	21.9	171.0	4.2	184.5
	12:07	21.9	183.1	3.6	8.1	20.1	168.0	3.3	184.2
	12:08	26.4	191.9	4.4	8.6	23.4	170.3	3.9	183.0
	12:09	29.7	183.6	4.1	8.4	26.8	165.7	3.7	184.9
	12:10	35.1	178.7	3.5	8.3	31.9	162.1	3.2	183.4
	12:11	33.0	175.7	2.8	8.5	29.4	156.1	2.5	185.6
	12:12	31.6	191.9	3.6	8.4	28.4	172.6	3.3	185.6
	12:13	25.5	184.5	2.5	8.1	23.5	170.0	2.3	184.7
	12:14	23.4	179.0	3.2	8.7	20.5	156.6	2.8	185.7
	12:15	20.4	181.6	2.8	8.4	18.4	164.0	2.5	183.7
	12:16	19.1	178.3	3.3	8.5	17.0	159.1	2.9	185.3
	12:17	21.5	177.4	3.0	8.2	19.6	161.6	2.7	185.4
	12:18	20.3	167.4	2.3	8.1	18.7	154.5	2.1	185.0
	12:19	22.4	169.1	3.0	8.3	20.3	152.9	2.7	185.8
	12:20	23.3	172.9	2.5	8.1	21.5	159.5	2.3	183.7
	12:21	25.2	172.7	2.8	8.4	22.6	154.8	2.5	186.3
Average =		24.5	179.2	3.3	8.3	22.2	162.7	3.0	184.8
Geometric Avg. =		24.1	179.1	3.2	8.3	21.9	162.6	2.9	184.8
Maximum =		35.1	191.9	4.6	8.7	31.9	177.3	4.2	186.6
Minimum =		18.4	167.4	1.5	8.0	17.0	152.9	1.4	183.0
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		660.3	4837.8	88.3	223.6	599.1	4392.2	80.1	4990.3

* - 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: 03/11/2009 to 03/11/2009

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/11/09 13:17
Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	12:36	7.5	182.0	3.9	8.6	6.7	161.0	3.5	182.9
	12:37	7.8	187.5	5.7	8.8	6.8	163.2	4.9	183.5
	12:38	16.4	188.0	5.5	8.5	14.7	167.7	4.9	184.8
	12:39	25.7	189.0	4.6	8.4	23.1	170.3	4.2	183.7
	12:40	21.0	190.5	4.8	8.7	18.4	166.9	4.2	183.9
	12:41	14.6	183.8	4.3	8.6	12.9	162.7	3.8	183.9
	12:42	10.2	180.2	3.3	8.5	9.1	160.8	3.0	185.5
	12:43	12.1	186.5	3.3	8.3	10.9	168.7	3.0	183.5
	12:44	17.4	186.6	4.6	9.0	14.9	159.8	4.0	182.0
	12:45	15.7	190.4	4.8	9.2	13.1	159.7	4.0	181.8
	12:46	11.9	184.8	5.7	9.1	10.2	157.3	4.9	181.9
	12:47	12.4	184.8	5.4	8.8	10.8	161.1	4.7	181.5
	12:48	14.8	184.0	5.0	8.8	12.9	160.0	4.3	181.8
	12:49	15.0	191.2	4.2	8.9	13.0	165.2	3.6	183.8
	12:50	13.5	189.9	4.7	8.5	12.0	169.1	4.2	183.5
	12:51	12.8	178.2	3.7	8.5	11.5	159.3	3.3	184.2
	12:52	13.1	176.5	4.7	8.6	11.6	156.1	4.2	182.6
	12:53	12.6	170.3	3.9	8.7	11.0	149.0	3.4	183.4
	12:54	12.3	175.3	2.9	8.7	10.9	154.5	2.5	184.0
	12:55	13.9	177.0	4.9	8.7	12.2	155.2	4.3	182.4
	12:56	14.0	178.9	5.1	8.7	12.3	157.5	4.5	182.0
	12:57	16.4	192.1	4.7	8.8	14.3	167.4	4.1	184.5
	12:58	16.6	191.2	5.0	8.3	15.1	173.5	4.5	183.5
	12:59	14.4	172.4	3.9	8.4	12.9	154.7	3.5	185.0
	13:00	13.2	178.7	4.9	8.6	11.7	158.2	4.3	183.3
	13:01	13.3	173.4	5.1	8.8	11.7	151.4	4.4	182.6
	13:02	16.3	180.2	4.8	8.9	14.0	155.4	4.1	181.5
Average =		14.3	183.1	4.6	8.7	12.5	160.9	4.0	183.2
Geometric Avg. =		13.8	183.0	4.5	8.7	12.2	160.8	4.0	183.2
Maximum =		25.7	192.1	5.7	9.2	23.1	173.5	4.9	185.5
Minimum =		7.5	170.3	2.9	8.3	6.7	149.0	2.5	181.5
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		384.9	4943.2	123.4	234.4	338.5	4345.6	108.4	4947.0

* - 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

Plant Name: NBWD
General Average Report
Reporting Period: 03/11/2009 to 03/11/2009

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/11/09 13:59
Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	13:17	17.5	174.1	4.5	8.6	15.4	153.6	3.9	183.6
	13:18	16.8	176.1	2.5	8.5	15.0	157.4	2.2	184.3
	13:19	16.4	170.7	2.2	8.6	14.6	151.6	2.0	182.3
	13:20	16.4	165.4	1.6	8.9	14.2	143.1	1.3	181.1
	13:21	21.8	176.0	3.2	9.1	18.4	148.9	2.7	182.2
	13:22	21.8	176.9	3.9	8.7	19.0	154.7	3.4	183.4
	13:23	19.7	177.1	3.3	8.4	17.7	159.3	2.9	182.9
	13:24	15.3	177.9	3.3	8.4	13.7	159.6	2.9	181.2
	13:25	17.8	180.4	3.5	8.7	15.6	158.5	3.1	182.2
	13:26	25.4	190.1	3.5	8.6	22.5	168.4	3.1	184.2
	13:27	11.2	182.9	3.7	8.2	10.3	167.3	3.4	183.8
	13:28	5.2	170.6	3.1	8.2	4.7	155.6	2.9	182.4
	13:29	5.9	175.4	3.5	8.7	5.2	154.0	3.1	180.8
	13:30	19.8	180.9	5.5	8.9	17.0	155.5	4.7	183.3
	13:31	28.7	185.3	5.8	8.5	25.6	165.7	5.2	183.3
	13:32	20.1	183.2	4.4	8.3	18.3	166.7	4.0	182.8
	13:33	11.5	189.1	4.4	8.5	10.3	168.4	3.9	182.3
	13:34	9.8	189.1	4.9	8.7	8.6	166.2	4.3	182.4
	13:35	12.0	174.8	4.0	8.4	10.8	157.0	3.6	183.6
	13:36	12.6	173.4	3.1	8.3	11.4	157.1	2.8	184.9
	13:37	20.3	175.3	4.3	8.2	18.5	160.2	3.9	183.1
	13:38	25.9	168.3	3.9	8.5	23.1	149.8	3.5	182.1
	13:39	29.0	169.0	3.5	8.8	25.2	146.9	3.0	183.0
	13:40	26.3	162.7	3.8	8.6	23.2	143.6	3.4	184.6
	13:41	16.4	167.1	5.5	8.4	14.8	150.4	5.0	184.3
	13:42	11.5	168.8	4.2	8.2	10.5	154.5	3.8	184.8
	13:43	19.3	178.7	2.9	8.4	17.4	161.2	2.6	183.1
Average =		17.6	176.3	3.8	8.5	15.6	156.9	3.4	183.0
Geometric Avg. =		16.3	176.1	3.6	8.5	14.5	156.7	3.2	183.0
Maximum =		29.0	190.1	5.8	9.1	25.6	168.4	5.2	184.9
Minimum =		5.2	162.7	1.6	8.2	4.7	143.1	1.3	180.8
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		474.4	4759.3	102.0	230.3	421.2	4235.2	90.8	4942.0

* - 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

Plant Name: NBWD
General Average Report
Reporting Period: 03/11/2009 to 03/11/2009

Site Name: UNIT1
Data Averaging Type: 1m

Time of Report: 03/11/09 14:38
Rolling Average Interval: 1

Date	Time	SO2ORPT1 (PPMDC)	NOXRPT_1 (PPMDC)	CORPT_1 (PPMDC)	O2OUT_1 (PERCENTD)	SO2OUT_1 (PPMD)	NOXPPM_1 (PPMD)	COPPM_1 (PPMD)	STMRPT_1 (KLB/HR)
03/11/09	13:57	19.9	162.5	7.6	8.8	17.3	141.2	6.6	182.0
	13:58	23.5	155.6	8.1	8.5	20.9	138.5	7.2	184.4
	13:59	26.9	159.7	6.7	8.3	24.4	145.0	6.1	184.3
	14:00	21.9	153.4	4.8	8.3	19.9	139.0	4.4	182.7
	14:01	16.2	163.1	5.1	8.7	14.3	143.6	4.5	181.7
	14:02	16.6	166.8	5.5	9.0	14.2	143.2	4.8	184.4
	14:03	23.1	172.3	4.8	8.5	20.6	153.8	4.2	184.5
	14:04	22.0	168.4	3.5	8.0	20.4	155.7	3.2	186.2
	14:05	16.5	188.0	4.2	8.2	15.0	171.6	3.9	185.2
	14:06	11.1	180.4	4.5	8.2	10.1	165.3	4.1	185.2
	14:07	20.5	183.4	4.5	8.6	18.1	162.6	4.0	183.4
	14:08	29.5	176.4	2.7	8.5	26.3	157.2	2.4	182.5
	14:09	32.6	174.0	3.4	8.8	28.4	151.6	3.0	182.8
	14:10	28.5	171.9	3.9	8.7	24.9	150.3	3.4	183.6
	14:11	21.9	177.5	3.9	8.4	19.7	159.2	3.5	184.6
	14:12	17.8	168.3	4.0	8.2	16.2	153.4	3.7	183.6
	14:13	17.7	164.4	4.0	8.5	15.7	146.4	3.6	182.3
	14:14	22.2	171.2	4.7	8.9	19.3	148.4	4.0	183.5
	14:15	24.8	176.6	5.6	8.6	22.0	156.8	5.0	185.2
	14:16	23.8	171.6	3.8	8.4	21.5	154.4	3.4	183.5
	14:17	21.0	162.5	4.2	8.8	18.3	141.8	3.7	182.4
	14:18	24.1	165.0	4.5	9.0	20.6	141.1	3.9	181.8
	14:19	18.9	173.5	5.3	9.0	16.1	148.0	4.5	183.6
	14:20	11.0	175.8	4.2	8.6	9.7	156.0	3.7	184.2
	14:21	14.1	171.6	3.6	8.4	12.6	153.9	3.3	183.0
	14:22	25.7	171.7	5.5	8.8	22.3	149.0	4.8	182.8
	14:23	28.6	176.8	6.4	9.1	24.2	149.6	5.4	185.3
Average =		21.5	170.5	4.8	8.6	19.0	151.0	4.2	183.7
Geometric Avg. =		20.8	170.3	4.6	8.6	18.4	150.8	4.1	183.6
Maximum =		32.6	188.0	8.1	9.1	28.4	171.6	7.2	186.2
Minimum =		11.0	153.4	2.7	8.0	9.7	138.5	2.4	181.7
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		580.2	4602.4	129.3	231.9	513.1	4076.8	114.4	4958.6

* - 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

Plant Name: NBWD

General Average Report

Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Data Averaging Type: 1m

Time of Report: 03/10/09 07:33

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	06:53	9.5	187.7	18.4	9.3	7.9	157.3	15.4	180.3
	06:54	14.6	181.9	19.9	8.4	13.1	163.4	17.9	182.1
	06:55	16.4	171.5	19.1	8.4	14.8	154.6	17.2	182.8
	06:56	14.7	174.9	17.2	8.4	13.1	156.7	15.4	181.2
	06:57	14.4	179.8	17.7	9.0	12.3	153.7	15.1	180.1
	06:58	11.9	185.5	18.1	9.3	9.9	155.3	15.2	181.4
	06:59	11.3	201.4	13.9	8.6	10.0	177.9	12.3	183.6
	07:00	10.7	202.2	11.2	8.1	9.9	186.3	10.3	182.5
	07:01	11.9	204.9	10.3	8.8	10.4	179.0	9.0	178.9
	07:02	11.3	203.0	12.1	9.4	9.4	168.6	10.0	180.4
	07:03	12.7	209.0	12.6	8.3	11.5	189.6	11.5	183.2
	07:04	11.1	205.1	14.0	7.7	10.6	195.2	13.3	184.1
	07:05	9.2	199.5	14.1	8.0	8.6	185.0	13.1	185.5
	07:06	10.3	192.4	13.8	8.0	9.6	179.0	12.9	184.5
	07:07	7.5	190.5	15.3	8.5	6.7	169.6	13.6	183.0
	07:08	5.1	190.9	11.5	8.5	4.6	170.5	10.3	185.6
	07:09	4.6	197.9	14.8	7.5	4.5	190.7	14.3	186.1
	07:10	8.5	194.4	12.9	7.7	8.1	185.3	12.3	183.3
	07:11	9.5	190.1	18.7	8.6	8.4	168.1	16.5	180.8
	07:12	7.2	186.8	20.2	8.9	6.2	161.6	17.4	180.3
	07:13	6.8	189.9	18.7	8.6	6.0	168.7	16.6	180.1
	07:14	5.3	196.7	18.9	8.3	4.8	177.8	17.1	182.9
	07:15	3.6	198.0	16.5	7.5	3.5	191.3	15.9	184.3
	07:16	3.3	199.1	14.6	7.4	3.2	192.8	14.2	183.8
	07:17	3.3	196.2	17.2	8.0	3.1	181.8	16.0	182.5
	07:18	3.3	194.9	20.1	8.4	2.9	174.7	18.0	183.9
	07:19	4.2	199.4	19.6	7.8	4.0	187.7	18.5	186.0
Average =		9.0	193.5	16.0	8.3	8.0	174.9	14.4	182.7
Geometric Avg. =		8.0	193.2	15.7	8.3	7.2	174.4	14.2	182.7
Maximum =		16.4	209.0	20.2	9.4	14.8	195.2	18.5	186.1
Minimum =		3.3	171.5	10.3	7.4	2.9	153.7	9.0	178.9
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		242.3	5223.4	431.6	225.2	217.1	4722.3	389.4	4933.4

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD

General Average Report

Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Time of Report: 03/10/09 08:25

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	07:43	5.7	190.7	7.6	7.8	5.4	180.4	7.2	184.8
	07:44	7.4	197.9	4.8	7.4	7.2	192.2	4.7	185.8
	07:45	7.1	200.5	4.9	7.3	6.9	195.5	4.8	186.1
	07:46	6.1	200.4	6.1	7.7	5.8	190.4	5.8	186.2
	07:47	7.6	192.6	7.5	7.7	7.2	183.4	7.1	186.5
	07:48	6.9	191.8	4.9	7.9	6.5	179.8	4.6	185.9
	07:49	6.1	192.0	6.7	8.1	5.6	176.2	6.2	187.0
	07:50	6.5	192.0	3.4	8.0	6.0	178.6	3.1	185.8
	07:51	7.4	198.3	7.6	8.6	6.6	175.5	6.7	186.8
	07:52	5.1	197.4	3.0	8.0	4.8	183.8	2.8	185.6
	07:53	7.3	189.0	3.3	8.6	6.4	167.4	2.9	186.1
	07:54	11.5	187.6	6.4	8.3	10.4	170.1	5.8	184.5
	07:55	10.5	190.5	10.0	8.8	9.1	165.3	8.7	184.5
	07:56	10.3	190.7	7.8	8.3	9.3	172.2	7.0	184.5
	07:57	9.2	188.2	8.1	8.2	8.4	171.6	7.4	184.8
	07:58	10.4	179.8	7.6	8.2	9.5	164.3	6.9	185.6
	07:59	12.9	176.2	6.9	8.0	12.0	163.3	6.4	185.7
	08:00	11.4	180.5	7.6	8.0	10.6	167.3	7.1	186.1
	08:01	12.6	176.5	8.0	7.9	11.7	164.7	7.5	185.7
	08:02	13.0	180.5	6.8	8.2	11.9	164.7	6.2	185.2
	08:03	12.5	181.5	7.8	8.4	11.3	163.7	7.0	185.5
	08:04	14.9	180.1	9.3	8.1	13.7	166.3	8.6	187.1
	08:05	17.0	178.6	7.3	7.7	16.2	170.1	7.0	185.4
	08:06	8.1	185.7	7.1	8.6	7.2	164.9	6.3	186.0
	08:07	6.6	184.6	6.2	8.2	6.1	168.8	5.7	184.1
	08:08	6.3	188.5	8.2	8.6	5.6	166.5	7.3	183.9
	08:09	6.2	189.7	8.6	8.5	5.5	169.8	7.7	183.5
Average =		9.1	188.2	6.8	8.1	8.4	173.2	6.2	185.5
Geometric Avg. =		8.7	188.1	6.5	8.1	8.0	173.0	6.0	185.5
Maximum =		17.0	200.5	10.0	8.8	16.2	195.5	8.7	187.1
Minimum =		5.1	176.2	3.0	7.3	4.8	163.3	2.8	183.5
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		246.6	5082.0	183.7	219.0	226.9	4677.0	168.5	5008.8

* - 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: 03/10/2009 to 03/10/2009

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/10/09 09:04
Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	08:24	6.9	197.0	7.5	8.8	6.0	171.4	6.5	184.2
	08:25	10.3	208.6	9.4	8.9	8.9	180.3	8.1	184.7
	08:26	14.7	205.9	7.7	8.8	12.8	179.7	6.7	184.0
	08:27	15.7	208.4	8.9	9.1	13.3	176.6	7.5	186.3
	08:28	15.1	204.9	6.7	8.5	13.5	182.8	6.0	186.7
	08:29	13.7	198.9	9.9	9.0	11.8	170.4	8.5	185.9
	08:30	12.5	197.5	13.3	9.4	10.4	163.6	11.0	184.3
	08:31	10.4	197.1	11.1	9.5	8.6	161.6	9.1	185.0
	08:32	9.0	192.8	12.3	8.8	7.8	167.7	10.7	186.2
	08:33	5.0	183.1	8.9	8.6	4.4	162.0	7.9	186.2
	08:34	3.1	186.2	9.0	8.9	2.7	161.3	7.8	185.2
	08:35	2.9	183.9	7.2	9.3	2.4	153.8	6.0	183.1
	08:36	3.4	193.5	8.7	9.7	2.7	155.9	7.0	182.6
	08:37	2.1	185.9	7.7	9.5	1.8	152.7	6.3	183.8
	08:38	0.4	181.3	8.4	9.0	0.4	154.8	7.2	185.4
	08:39	0.3	182.1	8.6	8.8	0.2	158.3	7.5	184.5
	08:40	0.3	188.0	10.3	9.4	0.3	156.1	8.5	182.7
	08:41	1.9	185.5	9.5	9.6	1.5	150.5	7.7	183.6
	08:42	0.5	191.6	6.1	9.2	0.4	161.4	5.2	183.6
	08:43	0.0	195.3	7.1	9.3	0.0	163.6	6.0	181.7
	08:44	0.0	210.2	13.2	9.9	0.0	166.0	10.4	181.1
	08:45	0.0	217.3	13.9	9.8	0.0	173.9	11.1	181.7
	08:46	0.0	221.5	13.5	9.4	0.0	182.9	11.2	183.3
	08:47	0.0	211.1	9.4	8.9	0.0	181.6	8.1	184.6
	08:48	0.0	204.0	7.3	8.9	0.0	175.6	6.3	184.8
	08:49	0.0	206.5	8.2	9.1	0.0	175.3	7.0	185.3
	08:50	0.0	204.3	8.7	9.2	0.0	172.2	7.3	185.8
Average =		4.8	197.9	9.4	9.2	4.1	167.1	7.9	184.3
Geometric Avg. =		0.2	197.6	9.1	9.1	3.1	166.8	7.7	184.3
Maximum =		15.7	221.5	13.9	9.9	13.5	182.9	11.2	186.7
Minimum =		0.0	181.3	6.1	8.5	0.0	150.5	5.2	181.1
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		128.5	5342.3	252.5	247.2	110.0	4512.2	212.6	4976.3

* - 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: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Time of Report: 03/10/09 10:34

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	09:53	0.0	200.3	9.5	8.0	0.0	185.7	8.8	184.0
	09:54	0.0	200.6	11.2	8.4	0.0	180.8	10.1	183.9
	09:55	0.0	197.2	10.9	8.7	0.0	173.2	9.6	183.6
	09:56	0.0	202.2	13.4	8.8	0.0	175.9	11.7	182.8
	09:57	0.1	202.9	14.8	8.9	0.1	175.5	12.8	182.6
	09:58	0.6	209.2	14.6	8.7	0.6	183.8	12.8	183.4
	09:59	0.0	206.8	12.1	8.3	0.0	187.1	11.0	184.4
	10:00	0.0	195.6	11.8	8.2	0.0	179.3	10.8	186.7
	10:01	0.5	196.4	9.8	8.0	0.5	182.3	9.1	186.3
	10:02	5.0	205.7	13.1	8.6	4.4	181.7	11.6	186.9
	10:03	9.3	202.2	11.5	8.5	8.3	180.1	10.3	186.4
	10:04	12.1	204.5	15.0	8.9	10.5	177.2	13.0	185.7
	10:05	9.0	208.7	17.2	8.9	7.8	180.4	14.8	184.9
	10:06	5.6	211.9	16.3	8.8	4.9	184.1	14.2	183.7
	10:07	5.0	204.9	18.7	9.0	4.3	176.0	16.0	183.8
	10:08	8.2	207.3	18.8	8.7	7.2	181.7	16.5	184.3
	10:09	7.8	199.0	16.9	8.1	7.2	183.2	15.6	185.9
	10:10	10.0	189.0	15.4	7.9	9.3	177.2	14.4	185.9
	10:11	12.1	191.6	20.3	8.2	11.0	174.5	18.5	183.7
	10:12	11.3	184.8	18.8	9.1	9.6	157.0	16.0	181.4
	10:13	12.1	183.8	19.1	9.2	10.1	154.0	16.0	183.1
	10:14	24.3	187.7	19.9	8.4	21.8	169.1	18.0	186.7
	10:15	36.3	190.8	14.1	7.6	34.7	182.2	13.4	185.4
	10:16	39.3	186.1	16.8	8.9	34.1	161.3	14.6	183.6
	10:17	25.5	186.7	15.0	9.0	21.8	159.4	12.8	182.8
	10:18	16.6	199.9	18.1	9.0	14.3	171.6	15.5	182.9
	10:19	8.4	198.0	18.8	8.7	7.3	173.7	16.5	184.0
Average =		9.6	198.3	15.3	8.6	8.5	175.9	13.5	184.4
Geometric Avg. =		0.6	198.1	14.9	8.6	6.1	175.6	13.2	184.4
Maximum =		39.3	211.9	20.3	9.2	34.7	187.1	18.5	186.9
Minimum =		0.0	183.8	9.5	7.6	0.0	154.0	8.8	181.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		259.2	5353.7	411.9	231.4	229.8	4748.1	364.3	4978.7

* - 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
Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/10/09 11:15
Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	10:34	35.3	185.5	15.1	9.2	29.6	155.5	12.6	182.4
	10:35	17.9	183.9	13.4	9.0	15.3	157.9	11.5	183.9
	10:36	10.4	197.6	10.8	8.6	9.2	175.3	9.6	185.1
	10:37	10.5	201.1	10.2	8.7	9.3	176.9	9.0	183.0
	10:38	9.7	191.6	9.3	9.4	8.0	158.2	7.7	178.8
	10:39	9.6	199.8	13.6	10.0	7.5	156.6	10.7	178.4
	10:40	14.4	194.9	20.7	9.4	11.9	160.8	17.1	183.0
	10:41	19.7	183.1	20.2	8.4	17.7	165.1	18.2	187.3
	10:42	22.7	192.6	19.8	8.3	20.5	174.1	17.9	186.0
	10:43	23.1	201.2	21.6	9.9	18.3	159.9	17.2	183.3
	10:44	21.3	194.0	19.6	10.3	16.2	148.0	15.0	182.0
	10:45	18.0	194.1	24.7	10.0	14.1	151.9	19.3	183.2
	10:46	14.5	186.5	22.0	9.4	12.0	154.3	18.2	182.9
	10:47	11.1	188.9	21.0	9.4	9.1	155.9	17.3	181.0
	10:48	7.9	186.7	17.4	9.6	6.4	151.5	14.1	179.9
	10:49	7.4	186.7	17.7	9.6	6.0	152.0	14.4	180.2
	10:50	13.7	199.0	18.9	9.1	11.6	168.9	16.1	181.9
	10:51	20.6	209.3	18.5	8.6	18.2	184.6	16.4	182.5
	10:52	21.3	203.2	19.5	9.0	18.3	174.6	16.8	182.1
	10:53	19.6	199.1	19.6	9.0	16.7	170.0	16.7	184.7
	10:54	15.0	196.2	11.6	8.3	13.5	177.4	10.5	186.0
	10:55	11.4	196.3	9.8	8.6	10.1	173.6	8.7	185.6
	10:56	18.1	201.8	11.1	9.2	15.3	170.3	9.4	183.5
	10:57	21.4	206.7	11.0	9.4	17.7	171.4	9.1	182.7
	10:58	17.4	204.8	10.0	9.2	14.7	172.1	8.4	182.9
	10:59	13.6	207.9	13.5	9.1	11.5	175.8	11.4	182.7
	11:00	9.2	210.2	14.7	9.2	7.7	176.7	12.4	182.3
Average =		16.1	196.4	16.1	9.2	13.6	165.5	13.5	182.9
Geometric Avg. =		15.0	196.2	15.5	9.2	12.6	165.2	13.0	182.9
Maximum =		35.3	210.2	24.7	10.3	29.6	184.6	19.3	187.3
Minimum =		7.4	183.1	9.3	8.3	6.0	148.0	7.7	178.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		434.7	5302.7	435.4	248.0	366.7	4469.3	365.5	4937.5

* - 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

Plant Name: NBWD

General Average Report

Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Time of Report: 03/10/09 12:04

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	11:14	12.6	191.0	17.9	10.3	9.6	145.3	13.6	181.1
	11:15	16.3	200.0	14.7	7.9	15.2	186.4	13.7	184.1
	11:16	16.0	194.5	16.4	7.6	15.4	186.3	15.7	182.5
	11:17	13.5	190.0	16.4	8.7	11.8	166.4	14.3	178.1
	11:18	11.8	206.7	20.9	9.8	9.4	164.9	16.7	177.7
	11:19	8.0	209.9	15.0	9.4	6.6	173.6	12.4	177.3
	11:20	5.4	201.8	14.5	9.3	4.5	168.6	12.1	179.3
	11:21	8.3	204.4	15.7	8.8	7.3	178.5	13.7	184.9
	11:22	12.3	215.6	12.5	7.7	11.7	205.1	11.9	186.7
	11:23	14.6	215.1	13.1	8.2	13.4	196.5	12.0	186.0
	11:24	15.0	221.4	13.6	8.8	13.0	192.7	11.8	186.9
	11:25	7.0	211.8	12.0	8.5	6.2	188.3	10.7	185.0
	11:26	7.8	200.5	15.0	9.0	6.7	171.2	12.8	184.7
	11:27	10.1	196.7	13.6	8.9	8.7	169.5	11.7	183.6
	11:28	5.0	184.2	10.5	8.7	4.4	161.5	9.2	183.9
	11:29	2.0	193.8	10.0	8.3	1.8	176.0	9.0	185.7
	11:30	2.1	197.6	8.4	7.8	2.0	186.1	7.9	184.2
	11:31	2.9	187.4	10.6	8.5	2.6	167.8	9.5	182.3
	11:32	2.4	188.2	11.5	8.8	2.1	163.8	10.1	183.5
	11:33	4.0	197.5	67.5	8.1	3.7	182.4	62.4	190.7
	11:34	14.2	165.6	45.2	6.2	15.0	175.4	47.9	192.5
	11:35	26.4	178.7	8.0	7.2	26.1	176.7	7.9	189.3
	11:36	28.7	177.4	10.3	9.2	24.2	149.6	8.7	185.4
	11:37	18.8	177.7	12.2	9.7	15.1	142.9	9.8	184.0
	11:38	10.5	201.9	9.9	9.1	9.0	171.9	8.4	183.6
	11:39	6.0	216.2	14.9	8.6	5.3	191.0	13.2	186.8
	11:40	7.3	213.0	12.3	7.4	7.1	206.8	11.9	185.7
Average =		10.7	197.7	16.4	8.5	9.6	175.8	14.8	184.3
Geometric Avg. =		8.6	197.2	14.3	8.5	7.6	175.0	12.7	184.2
Maximum =		28.7	221.4	67.5	10.3	26.1	206.8	62.4	192.5
Minimum =		2.0	165.6	8.0	6.2	1.8	142.9	7.9	177.3
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		289.2	5338.6	442.5	230.5	257.9	4745.4	399.0	4975.4

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/10/09 12:48
Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	11:55	19.2	191.4	15.5	9.0	16.5	164.3	13.3	184.7
	11:56	15.4	194.7	11.8	8.5	13.8	173.8	10.5	185.3
	11:57	11.8	191.5	13.9	8.7	10.4	168.7	12.2	185.2
	11:58	16.2	195.8	18.1	8.8	14.1	170.2	15.7	183.6
	11:59	22.8	199.6	14.6	9.2	19.1	167.3	12.2	183.2
	12:00	23.1	193.8	14.9	9.4	19.1	160.9	12.4	181.3
	12:01	19.5	192.2	18.4	9.7	15.8	155.1	14.9	179.4
	12:02	14.4	188.6	16.3	9.5	11.7	154.3	13.3	181.4
	12:03	12.1	188.5	14.9	8.6	10.8	167.2	13.2	185.8
	12:04	18.9	186.1	12.8	7.8	17.8	175.1	12.1	184.4
	12:05	22.5	196.3	19.6	9.1	19.1	166.7	16.7	184.1
	12:06	14.6	196.2	16.2	9.0	12.5	168.0	13.9	181.9
	12:07	8.1	193.1	18.4	9.2	6.8	162.1	15.5	179.6
	12:08	10.8	188.3	21.1	9.7	8.7	151.6	17.0	178.4
	12:09	14.4	197.4	24.2	9.4	11.9	162.7	19.9	186.3
	12:10	10.6	192.1	11.0	6.8	10.8	194.7	11.1	187.0
	12:11	5.4	186.0	11.9	7.5	5.2	179.4	11.5	184.7
	12:12	7.7	193.5	18.8	8.8	6.7	169.0	16.5	186.4
	12:13	8.6	184.7	14.0	8.0	7.9	171.4	13.0	185.0
	12:14	9.0	171.1	14.0	8.5	8.0	152.0	12.5	182.9
	12:15	12.7	190.2	17.9	9.0	10.8	162.7	15.3	183.1
	12:16	13.1	196.3	16.1	8.4	11.8	176.8	14.5	184.9
	12:17	10.7	194.5	13.5	7.9	10.0	182.5	12.7	184.8
	12:18	10.2	194.8	16.7	8.2	9.4	178.7	15.3	184.0
	12:19	14.2	189.6	12.6	8.1	13.0	174.3	11.6	181.9
	12:20	10.1	193.4	15.0	9.0	8.7	166.0	12.8	181.4
	12:21	15.1	185.4	18.0	8.7	13.3	162.3	15.7	182.6
Average =		13.8	191.3	15.9	8.7	12.0	168.1	13.9	183.5
Geometric Avg. =		13.0	191.2	15.7	8.7	11.4	167.8	13.7	183.4
Maximum =		23.1	199.6	24.2	9.7	19.1	194.7	19.9	187.0
Minimum =		5.4	171.1	11.0	6.8	5.2	151.6	10.5	178.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		371.5	5165.2	430.2	234.5	323.9	4537.9	375.3	4953.2

* - 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

Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Time of Report: 03/10/09 13:21

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	12:35	10.1	207.6	11.3	8.0	9.4	192.3	10.5	186.0
	12:36	4.4	195.0	9.4	8.0	4.1	180.3	8.7	186.9
	12:37	3.5	193.8	11.0	7.9	3.3	180.7	10.2	186.2
	12:38	2.9	190.3	8.8	8.4	2.6	171.4	7.9	182.2
	12:39	4.9	190.4	9.0	9.2	4.1	160.0	7.5	179.8
	12:40	8.1	194.5	9.7	9.3	6.7	162.4	8.1	182.7
	12:41	7.3	183.8	8.5	8.0	6.8	171.2	7.9	185.1
	12:42	6.3	184.1	7.6	7.6	6.1	176.0	7.3	188.5
	12:43	5.7	178.9	9.1	7.2	5.6	175.9	9.0	188.0
	12:44	9.6	188.3	7.7	8.0	8.9	174.1	7.1	185.6
	12:45	16.9	185.5	6.1	8.9	14.6	160.6	5.3	182.9
	12:46	13.7	189.7	6.2	9.3	11.4	158.6	5.2	181.0
	12:47	8.0	188.6	9.4	9.2	6.8	158.9	7.9	183.2
	12:48	6.7	192.4	6.8	8.0	6.2	178.1	6.3	186.4
	12:49	9.3	180.8	4.4	7.1	9.3	179.0	4.4	185.6
	12:50	12.4	191.6	6.6	8.0	11.5	177.2	6.1	186.0
	12:51	18.5	204.0	6.9	8.1	17.0	187.9	6.4	187.7
	12:52	18.5	190.0	5.0	7.3	18.1	185.6	4.9	184.3
	12:53	9.9	198.8	7.3	8.7	8.7	174.9	6.4	185.2
	12:54	8.7	190.0	5.1	8.0	8.0	175.6	4.7	183.5
	12:55	9.5	181.4	4.3	8.6	8.5	161.0	3.8	185.9
	12:56	10.9	177.9	4.7	7.6	10.4	169.7	4.5	186.7
	12:57	10.2	170.6	4.0	7.5	9.8	164.1	3.8	185.5
	12:58	9.3	173.3	4.2	8.3	8.4	156.6	3.8	185.8
	12:59	7.0	184.3	7.8	8.3	6.3	166.7	7.0	187.2
	13:00	4.9	180.7	6.1	7.7	4.6	171.1	5.8	184.6
	13:01	11.7	185.8	6.8	8.5	10.4	165.4	6.0	186.0
Average =		9.2	187.9	7.2	8.2	8.4	171.7	6.5	185.1
Geometric Avg. =		8.3	187.7	6.9	8.2	7.6	171.4	6.3	185.1
Maximum =		18.5	207.6	11.3	9.3	18.1	192.3	10.5	188.5
Minimum =		2.9	170.6	4.0	7.1	2.6	156.6	3.8	179.8
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		248.7	5072.1	193.5	221.1	227.3	4635.3	176.3	4998.7

* - 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

Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Data Averaging Type: 1m

Time of Report: 03/10/09 14:18

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	13:17	25.0	209.2	14.6	8.9	21.6	180.8	12.6	181.9
	13:18	16.4	177.6	13.2	8.6	14.5	157.1	11.7	186.1
	13:19	23.2	161.0	10.5	7.4	22.5	156.2	10.2	187.3
	13:20	28.5	158.0	7.5	7.8	27.0	149.4	7.1	184.1
	13:21	24.2	167.2	10.4	9.5	19.9	137.6	8.6	181.8
	13:22	16.6	174.0	9.6	9.6	13.5	141.7	7.8	179.0
	13:23	11.8	181.3	10.5	9.7	9.5	145.5	8.4	177.8
	13:24	11.0	194.1	11.9	9.4	9.1	160.6	9.8	179.7
	13:25	9.4	195.0	13.5	8.5	8.3	173.5	12.0	187.3
	13:26	12.8	191.1	8.7	6.6	13.1	196.3	9.0	189.3
	13:27	14.9	181.3	4.5	7.2	14.7	178.3	4.4	186.9
	13:28	13.7	202.8	5.7	9.0	11.7	174.3	4.9	183.6
	13:29	12.1	203.4	7.5	9.5	9.9	166.3	6.1	180.7
	13:30	6.9	191.6	8.3	9.7	5.6	154.5	6.7	178.4
	13:31	7.0	181.6	9.6	9.8	5.6	144.8	7.7	178.3
	13:32	10.8	180.6	11.3	9.0	9.3	155.0	9.7	182.5
	13:33	11.6	184.4	10.3	8.0	10.8	171.7	9.6	184.9
	13:34	10.6	187.7	10.7	8.1	9.7	173.1	9.9	184.0
	13:35	8.9	185.1	13.9	9.0	7.6	158.5	11.9	185.5
	13:36	10.6	181.7	14.0	8.6	9.4	160.5	12.4	183.5
	13:37	15.5	186.8	18.9	9.3	12.9	155.3	15.7	186.0
	13:38	14.9	187.2	16.7	8.4	13.4	168.1	15.0	184.5
	13:39	9.7	181.4	18.6	9.0	8.3	155.2	15.9	181.5
	13:40	9.7	195.4	24.4	9.6	7.9	159.4	19.9	179.2
	13:41	7.5	183.7	25.4	9.7	6.1	148.5	20.6	176.4
	13:42	8.8	180.9	26.6	9.8	7.0	144.3	21.2	177.7
	13:43	10.4	187.5	19.4	8.7	9.1	164.3	17.0	181.5
Average =		13.4	184.9	13.2	8.8	11.8	160.4	11.3	182.6
Geometric Avg. =		12.5	184.5	12.1	8.8	10.8	159.9	10.4	182.6
Maximum =		28.5	209.2	26.6	9.8	27.0	196.3	21.2	189.3
Minimum =		6.9	158.0	4.5	6.6	5.6	137.6	4.4	176.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		362.6	4991.6	356.4	238.4	318.1	4330.9	305.9	4929.8

* - 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: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Time of Report: 03/10/09 15:09

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	14:29	8.9	192.4	20.6	8.8	7.7	167.9	17.9	182.9
	14:30	8.7	189.8	16.5	8.7	7.6	166.2	14.5	183.9
	14:31	8.8	185.1	15.5	8.7	7.7	162.0	13.5	183.1
	14:32	10.1	189.0	12.9	9.4	8.4	156.6	10.7	181.1
	14:33	7.8	193.5	9.3	9.3	6.5	160.8	7.7	183.1
	14:34	6.1	189.4	7.7	8.6	5.4	167.9	6.8	183.6
	14:35	6.0	195.2	9.6	8.6	5.3	172.7	8.5	183.4
	14:36	8.2	195.2	9.8	8.7	7.2	170.6	8.6	183.6
	14:37	8.3	188.0	9.1	8.7	7.3	165.1	8.0	183.2
	14:38	7.7	187.0	9.3	8.8	6.7	162.8	8.1	181.6
	14:39	10.5	191.7	10.0	9.1	8.9	162.4	8.5	183.3
	14:40	13.4	198.0	12.9	8.4	12.1	178.4	11.6	186.4
	14:41	13.8	188.6	6.1	7.6	13.2	180.0	5.8	185.8
	14:42	13.6	196.5	9.0	8.6	12.1	174.5	8.0	186.3
	14:43	13.6	198.0	4.4	8.4	12.2	178.0	3.9	184.6
	14:44	9.4	197.1	5.3	8.9	8.1	170.3	4.6	182.6
	14:45	4.4	193.2	4.2	8.8	3.8	168.1	3.6	178.4
	14:46	4.5	199.7	5.8	9.5	3.7	164.5	4.8	179.7
	14:47	9.0	199.5	10.5	8.5	8.1	178.4	9.4	183.5
	14:48	17.2	188.8	10.3	7.3	16.8	184.5	10.0	188.8
	14:49	15.0	178.2	8.3	6.7	15.4	182.5	8.5	189.4
	14:50	11.1	189.7	8.3	8.2	10.1	173.7	7.6	186.3
	14:51	14.9	204.8	10.6	9.5	12.3	168.0	8.7	185.6
	14:52	25.0	205.3	9.8	9.0	21.4	175.3	8.3	179.7
	14:53	19.2	205.3	8.4	10.2	14.8	157.7	6.5	176.6
	14:54	13.0	194.9	19.6	10.1	10.1	151.9	15.3	179.4
	14:55	8.7	176.2	24.9	8.7	7.7	154.9	21.9	182.6
Average =		11.0	193.0	10.7	8.7	9.7	168.7	9.3	183.3
Geometric Avg. =		10.1	192.8	9.7	8.7	8.9	168.5	8.5	183.3
Maximum =		25.0	205.3	24.9	10.2	21.4	184.5	21.9	189.4
Minimum =		4.4	176.2	4.2	6.7	3.7	151.9	3.6	176.6
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		297.1	5210.0	288.6	235.7	260.6	4555.7	251.4	4948.8

* - 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: 03/10/2009 to 03/10/2009

Site Name: UNIT2
Data Averaging Type: 1m

Time of Report: 03/10/09 15:46
Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	15:09	4.8	196.8	13.6	9.0	4.1	168.0	11.6	182.4
	15:10	7.1	198.1	17.0	9.3	5.9	164.8	14.2	181.2
	15:11	7.6	198.7	16.8	9.2	6.4	166.9	14.1	179.5
	15:12	3.7	196.8	13.9	9.4	3.1	162.8	11.5	176.7
	15:13	2.9	199.0	16.4	9.6	2.4	162.2	13.3	181.4
	15:14	4.3	194.1	19.3	8.1	3.9	178.3	17.7	185.1
	15:15	5.3	183.7	15.5	8.2	4.8	167.6	14.2	183.6
	15:16	10.7	186.9	19.3	9.3	9.0	156.2	16.2	181.3
	15:17	13.0	189.9	20.3	9.9	10.3	150.8	16.1	179.2
	15:18	12.5	198.3	18.0	10.3	9.5	150.7	13.7	178.3
	15:19	9.2	206.8	19.6	9.8	7.3	165.1	15.7	184.0
	15:20	5.1	181.9	8.7	8.0	4.8	168.7	8.1	185.4
	15:21	6.3	193.9	11.4	8.7	5.6	170.1	10.0	185.0
	15:22	7.0	203.6	10.6	9.3	5.9	169.7	8.8	184.3
	15:23	7.6	199.9	10.7	9.3	6.4	166.8	8.9	183.2
	15:24	7.9	204.1	15.4	9.5	6.5	168.1	12.7	183.1
	15:25	5.4	205.7	10.4	9.2	4.6	173.8	8.8	183.7
	15:26	5.5	199.0	9.3	8.7	4.8	174.5	8.1	181.7
	15:27	4.1	199.7	6.5	9.1	3.4	169.6	5.5	181.3
	15:28	2.1	213.2	5.9	8.6	1.8	188.6	5.2	184.9
	15:29	1.2	201.1	5.2	7.5	1.2	193.5	5.0	186.3
	15:30	0.1	192.4	4.4	7.7	0.1	182.4	4.2	187.0
	15:31	0.2	192.5	5.4	7.9	0.2	180.7	5.0	185.0
	15:32	0.4	192.2	6.1	8.8	0.3	167.7	5.3	185.1
	15:33	2.7	187.1	4.3	8.4	2.4	168.5	3.8	184.4
	15:34	5.2	177.4	6.5	8.5	4.6	158.1	5.8	184.6
	15:35	4.8	184.9	7.5	8.4	4.3	165.7	6.7	184.5
Average =		5.4	195.5	11.8	8.9	4.6	168.9	10.0	183.0
Geometric Avg. =		3.6	195.3	10.5	8.9	3.1	168.6	9.1	183.0
Maximum =		13.0	213.2	20.3	10.3	10.3	193.5	17.7	187.0
Minimum =		0.1	177.4	4.3	7.5	0.1	150.7	3.8	176.7
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		146.8	5277.6	318.0	239.8	123.6	4559.8	270.3	4942.2

* - 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

Reporting Period: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Time of Report: 03/10/09 16:22

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	15:45	17.0	191.1	8.5	9.4	14.1	158.2	7.0	181.1
	15:46	15.9	197.8	6.8	9.4	13.2	163.7	5.6	180.2
	15:47	13.4	203.6	6.2	9.1	11.3	172.1	5.2	179.7
	15:48	11.4	197.7	8.5	9.1	9.7	168.0	7.2	181.8
	15:49	5.6	183.2	9.7	8.5	5.0	163.0	8.6	183.2
	15:50	8.4	176.1	8.4	8.8	7.4	153.8	7.3	183.1
	15:51	11.1	182.2	8.5	9.2	9.4	153.7	7.2	182.0
	15:52	12.9	183.5	10.3	9.5	10.5	150.1	8.4	181.7
	15:53	8.2	177.9	11.7	9.4	6.7	146.6	9.6	182.0
	15:54	5.1	173.4	11.8	9.2	4.3	146.4	10.0	182.7
	15:55	4.9	185.2	9.5	8.9	4.2	159.3	8.2	183.8
	15:56	3.0	176.8	8.4	8.8	2.6	154.2	7.3	182.5
	15:57	4.4	191.0	9.7	9.3	3.7	159.7	8.1	181.4
	15:58	5.1	201.1	12.7	9.4	4.2	166.1	10.4	180.4
	15:59	3.0	192.6	12.9	9.3	2.5	161.0	10.8	181.6
	16:00	3.0	201.7	9.9	8.7	2.6	176.6	8.6	181.7
	16:01	4.0	199.8	10.3	9.1	3.4	169.8	8.7	179.1
	16:02	7.9	202.0	14.0	9.8	6.3	161.1	11.2	182.5
	16:03	5.7	198.0	13.4	8.6	5.1	174.8	11.8	187.0
	16:04	4.4	197.5	8.6	8.0	4.1	182.7	8.0	185.6
	16:05	2.8	197.3	9.9	9.3	2.4	165.0	8.3	183.7
	16:06	4.6	197.6	9.0	9.8	3.7	158.4	7.2	183.9
	16:07	6.2	189.0	8.6	9.1	5.2	160.0	7.3	183.3
	16:08	10.7	191.4	8.9	9.2	9.0	161.0	7.4	184.6
	16:09	12.5	195.9	5.4	8.8	10.8	170.2	4.7	184.8
	16:10	8.7	195.6	6.0	9.1	7.4	166.4	5.1	182.9
	16:11	4.9	193.5	6.5	9.5	4.0	159.3	5.3	181.6
Average =		7.6	191.6	9.4	9.1	6.4	162.3	8.0	182.5
Geometric Avg. =		6.6	191.4	9.1	9.1	5.6	162.0	7.7	182.5
Maximum =		17.0	203.6	14.0	9.8	14.1	182.7	11.8	187.0
Minimum =		2.8	173.4	5.4	8.0	2.4	146.4	4.7	179.1
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		204.6	5172.6	253.7	246.4	172.6	4381.4	214.7	4927.8

* - 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: 03/10/2009 to 03/10/2009

Site Name: UNIT2

Time of Report: 03/10/09 17:07

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT2 (PPMDC)	NOXRPT_2 (PPMDC)	CORPT_2 (PPMDC)	O2OUT_2 (PERCENTD)	SO2OUT_2 (PPMD)	NOXPPM_2 (PPMD)	COPPM_2 (PPMD)	STMRPT_2 (KLB/HR)
03/10/09	16:22	11.4	198.8	9.8	8.9	9.9	171.5	8.5	186.4
	16:23	18.0	192.4	4.9	8.8	15.7	168.2	4.2	182.3
	16:24	15.3	189.6	5.8	9.9	12.1	149.5	4.6	178.5
	16:25	9.5	185.6	10.0	10.0	7.4	144.9	7.8	178.6
	16:26	7.3	181.1	11.2	9.4	6.0	150.1	9.3	182.6
	16:27	5.2	183.3	9.0	8.2	4.7	167.1	8.2	184.8
	16:28	8.1	182.2	8.6	8.4	7.3	164.3	7.8	184.4
	16:29	13.6	188.2	9.3	9.1	11.5	159.3	7.9	182.1
	16:30	19.7	201.6	13.5	9.6	16.0	163.4	10.9	181.0
	16:31	15.1	204.0	10.9	9.5	12.4	167.2	8.9	182.4
	16:32	11.5	200.2	14.3	9.3	9.7	167.5	12.0	183.6
	16:33	15.9	199.4	12.9	9.3	13.2	166.2	10.7	180.8
	16:34	18.8	199.9	12.0	10.0	14.8	157.4	9.4	179.1
	16:35	18.8	201.0	14.2	10.1	14.7	156.7	11.1	180.0
	16:36	25.1	205.4	16.5	9.3	20.9	171.1	13.8	183.8
	16:37	22.6	196.8	14.0	8.4	20.3	177.3	12.6	186.1
	16:38	7.9	203.3	10.7	8.1	7.3	186.8	9.8	185.9
	16:39	10.7	208.6	12.9	8.9	9.2	179.8	11.1	183.5
	16:40	18.8	199.3	11.7	9.6	15.3	162.0	9.5	180.9
	16:41	30.8	188.0	14.4	9.8	24.7	150.6	11.5	182.4
	16:42	28.8	189.9	16.5	8.7	25.2	166.6	14.5	185.9
	16:43	16.2	186.0	10.7	8.1	14.9	171.2	9.8	188.0
	16:44	7.3	187.6	9.3	8.1	6.7	172.3	8.5	186.3
	16:45	3.1	196.3	12.2	9.2	2.6	164.8	10.3	182.8
	16:46	5.2	210.5	11.6	10.1	4.0	164.1	9.0	178.4
	16:47	9.7	211.3	13.2	10.3	7.4	161.1	10.1	181.6
	16:48	16.1	191.4	13.5	8.5	14.4	171.0	12.0	186.9
Average =		14.5	195.6	11.6	9.2	12.2	164.9	9.8	182.9
Geometric Avg. =		12.6	195.4	11.2	9.1	10.7	164.6	9.5	182.9
Maximum =		30.8	211.3	16.5	10.3	25.2	186.8	14.5	188.0
Minimum =		3.1	181.1	4.9	8.1	2.6	144.9	4.2	178.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		390.5	5281.8	313.7	247.6	328.3	4451.9	264.1	4939.0

* - 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

Plant Name: NBWD

General Average Report

Reporting Period: 03/12/2009 to 03/12/2009

Site Name: UNIT3

Time of Report: 03/12/09 07:35

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	06:49	8.4	191.1	5.9	7.8	8.0	180.7	5.6	184.9
	06:50	11.5	213.5	7.0	7.9	10.8	200.2	6.5	185.9
	06:51	10.9	197.5	4.7	7.0	10.9	197.8	4.7	183.6
	06:52	11.2	192.3	5.6	7.8	10.6	181.6	5.2	188.5
	06:53	12.9	192.5	5.5	7.1	12.8	190.6	5.5	185.0
	06:54	11.2	177.1	4.5	7.2	11.1	175.0	4.4	184.2
	06:55	13.7	195.4	6.5	8.2	12.5	179.0	6.0	185.9
	06:56	13.3	192.8	5.1	7.4	12.9	186.7	4.9	183.7
	06:57	12.8	181.6	5.4	7.9	12.0	170.2	5.1	185.5
	06:58	15.4	192.9	8.4	8.1	14.2	178.3	7.8	184.4
	06:59	14.8	190.6	6.8	7.6	14.2	182.0	6.5	183.7
	07:00	17.3	198.8	7.3	8.1	15.9	182.7	6.7	184.6
	07:01	17.4	207.8	6.6	7.5	16.8	199.7	6.4	182.5
	07:02	17.3	202.6	6.8	7.9	16.2	189.2	6.4	184.4
	07:03	19.3	205.2	7.1	7.7	18.3	194.8	6.7	182.2
	07:04	17.7	188.8	7.0	7.8	16.7	178.1	6.6	183.7
	07:05	18.8	199.1	7.5	8.0	17.5	185.1	7.0	182.1
	07:06	18.4	192.6	7.4	8.0	17.1	178.5	6.8	182.3
	07:07	21.6	194.8	7.9	8.1	19.9	179.3	7.3	181.1
	07:08	22.6	194.6	7.1	8.2	20.7	178.3	6.5	181.9
	07:09	24.8	195.5	7.4	8.0	23.0	181.4	6.8	183.0
	07:10	25.0	194.8	7.3	8.0	23.3	181.2	6.8	183.8
	07:11	23.1	194.4	5.2	7.6	22.1	185.6	5.0	183.5
	07:12	21.5	192.7	5.9	8.1	19.8	177.7	5.4	183.0
	07:13	17.6	188.4	5.0	8.0	16.4	175.2	4.7	181.5
	07:14	17.3	187.8	6.1	8.4	15.5	168.4	5.5	183.1
	07:15	18.2	192.4	5.2	8.0	16.9	178.9	4.8	183.5
Average =		16.8	194.4	6.4	7.8	15.8	182.8	6.0	183.8
Geometric Avg. =		16.2	194.2	6.3	7.8	15.3	182.6	5.9	183.7
Maximum =		25.0	213.5	8.4	8.4	23.3	200.2	7.8	188.5
Minimum =		8.4	177.1	4.5	7.0	8.0	168.4	4.4	181.1
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		454.1	5247.6	172.0	211.3	425.8	4935.9	161.4	4961.4

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: NBWD
General Average Report
Reporting Period: 03/12/2009 to 03/12/2009

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/12/09 08:09
Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	07:30	16.7	182.3	9.8	7.9	15.6	170.0	9.1	180.7
	07:31	15.6	187.1	9.7	8.2	14.2	170.6	8.9	179.9
	07:32	16.1	188.0	10.2	8.3	14.6	170.1	9.2	181.9
	07:33	16.7	198.9	9.1	8.0	15.5	185.0	8.5	182.6
	07:34	15.0	191.1	8.7	7.7	14.2	181.0	8.2	180.8
	07:35	14.9	187.4	8.6	8.2	13.6	171.1	7.8	180.2
	07:36	15.2	193.7	8.5	8.4	13.7	174.8	7.7	181.2
	07:37	16.3	202.1	8.2	8.2	15.0	185.1	7.6	184.3
	07:38	15.2	189.3	6.6	7.7	14.4	179.9	6.3	181.9
	07:39	12.5	184.4	6.5	8.0	11.6	170.7	6.0	181.0
	07:40	12.6	190.8	8.1	8.5	11.3	170.6	7.3	183.0
	07:41	13.3	207.2	7.1	8.2	12.1	189.3	6.4	183.0
	07:42	11.3	205.3	4.9	7.7	10.7	194.3	4.6	185.0
	07:43	11.8	210.5	5.0	7.6	11.3	201.2	4.8	183.1
	07:44	11.3	211.2	5.1	7.9	10.5	197.1	4.8	185.3
	07:45	11.8	206.8	4.8	7.6	11.3	197.9	4.6	183.5
	07:46	12.3	195.8	4.9	7.6	11.7	187.2	4.7	185.1
	07:47	14.9	197.2	5.9	7.6	14.3	188.5	5.6	183.3
	07:48	12.3	181.2	3.9	7.6	11.8	173.4	3.7	185.4
	07:49	15.3	182.5	5.1	7.7	14.5	173.6	4.9	184.2
	07:50	14.2	174.9	3.9	7.3	13.9	170.7	3.8	184.1
	07:51	14.2	179.1	7.0	8.0	13.2	166.8	6.5	183.6
	07:52	13.1	175.4	6.0	7.6	12.5	167.6	5.7	184.3
	07:53	13.9	187.3	6.2	7.9	13.0	175.3	5.8	184.2
	07:54	13.0	183.9	5.4	7.6	12.5	176.5	5.1	183.4
	07:55	13.2	190.2	7.9	8.0	12.2	176.1	7.3	184.0
	07:56	13.4	195.1	6.6	7.8	12.6	183.7	6.2	183.8
Average =		13.9	191.8	6.8	7.9	13.0	179.6	6.3	183.1
Geometric Avg. =		13.8	191.5	6.6	7.9	12.9	179.3	6.1	183.1
Maximum =		16.7	211.2	10.2	8.5	15.6	201.2	9.2	185.4
Minimum =		11.3	174.9	3.9	7.3	10.5	166.8	3.7	179.9
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		376.1	5178.9	183.8	212.9	351.8	4848.1	171.3	4942.8

* - 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: 03/12/2009 to 03/12/2009

Site Name: UNIT3

Data Averaging Type: 1m

Time of Report: 03/12/09 08:49

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	08:10	9.9	207.2	8.3	7.9	9.2	193.5	7.7	184.0
	08:11	14.5	206.8	7.3	7.7	13.7	195.7	6.9	185.6
	08:12	17.2	199.7	5.7	7.5	16.6	193.0	5.5	183.1
	08:13	15.8	187.4	6.5	8.6	14.0	166.1	5.8	183.6
	08:14	14.0	194.9	6.8	8.6	12.4	172.7	6.0	183.0
	08:15	14.4	189.2	6.3	8.5	12.8	168.1	5.6	185.9
	08:16	18.3	206.1	8.0	8.2	16.7	187.7	7.3	184.1
	08:17	9.8	203.3	5.4	8.0	9.1	188.4	5.0	184.5
	08:18	10.2	214.4	6.2	8.3	9.2	193.8	5.6	186.4
	08:19	10.7	212.0	5.7	7.6	10.2	202.5	5.5	183.2
	08:20	11.1	205.2	6.4	8.1	10.2	188.6	5.9	185.3
	08:21	14.8	213.4	6.8	8.0	13.8	198.5	6.3	183.1
	08:22	13.5	195.1	5.9	7.9	12.6	182.7	5.6	184.8
	08:23	14.8	200.2	7.7	8.1	13.6	183.9	7.1	185.1
	08:24	13.1	191.4	5.7	7.7	12.5	182.2	5.4	183.4
	08:25	13.7	186.1	6.9	8.3	12.4	169.4	6.3	185.9
	08:26	14.1	190.2	7.3	7.8	13.3	178.8	6.9	183.1
	08:27	12.2	175.5	6.2	8.0	11.3	163.0	5.7	183.9
	08:28	13.5	189.0	7.2	8.4	12.1	169.3	6.4	183.9
	08:29	12.4	181.9	5.8	8.0	11.5	168.8	5.3	184.4
	08:30	12.8	185.0	6.8	8.2	11.7	168.9	6.2	186.9
	08:31	12.6	189.0	5.7	7.6	12.1	181.0	5.4	183.2
	08:32	11.0	178.6	5.8	8.2	10.1	163.8	5.3	183.9
	08:33	11.7	196.3	6.5	8.4	10.5	175.9	5.8	183.1
	08:34	10.6	184.7	5.2	8.1	9.8	170.6	4.8	184.1
	08:35	12.4	181.8	7.1	8.4	11.2	163.9	6.4	183.1
	08:36	11.9	171.1	7.6	8.2	10.9	155.8	6.9	183.0
Average =		13.0	193.9	6.5	8.1	12.0	178.8	6.0	184.2
Geometric Avg. =		12.8	193.6	6.5	8.1	11.8	178.3	6.0	184.2
Maximum =		18.3	214.4	8.3	8.6	16.7	202.5	7.7	186.9
Minimum =		9.8	171.1	5.2	7.5	9.1	155.8	4.8	183.0
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		351.2	5235.3	176.7	218.4	323.6	4826.4	162.7	4973.6

* - 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

Plant Name: NBWD
General Average Report
Reporting Period: 03/12/2009 to 03/12/2009

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/12/09 09:30
Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	08:49	6.1	185.5	7.7	8.3	5.6	168.6	7.0	181.7
	08:50	7.3	178.2	10.0	8.5	6.5	159.3	9.0	181.7
	08:51	8.8	181.8	10.3	8.6	7.8	161.4	9.1	182.1
	08:52	8.6	184.4	10.5	8.4	7.7	165.3	9.4	183.4
	08:53	9.0	185.6	10.3	8.4	8.1	166.7	9.3	182.7
	08:54	8.7	177.4	9.4	8.4	7.8	159.7	8.5	182.3
	08:55	9.4	177.2	9.9	8.5	8.4	158.1	8.9	184.4
	08:56	10.0	184.3	10.5	8.4	9.0	165.9	9.4	183.6
	08:57	8.4	185.7	7.9	7.9	7.8	173.2	7.4	182.8
	08:58	9.8	196.0	9.8	8.5	8.7	174.4	8.7	181.8
	08:59	10.9	194.3	9.5	8.4	9.8	175.4	8.6	182.5
	09:00	12.4	194.2	11.1	8.0	11.5	180.6	10.3	182.1
	09:01	13.4	188.5	12.1	8.1	12.3	173.7	11.2	181.4
	09:02	13.0	188.8	12.4	8.3	11.8	170.9	11.2	181.8
	09:03	13.1	192.3	11.9	8.4	11.8	173.4	10.7	183.0
	09:04	13.8	197.6	10.3	8.2	12.6	180.2	9.4	183.5
	09:05	14.5	193.7	9.6	8.2	13.3	177.5	8.8	183.4
	09:06	22.0	195.7	9.5	8.4	19.8	176.2	8.6	182.5
	09:07	15.6	203.5	10.6	8.6	13.8	180.8	9.4	182.8
	09:08	8.4	208.4	10.8	8.5	7.5	186.3	9.7	184.1
	09:09	7.0	209.1	8.6	8.1	6.5	193.0	8.0	184.8
	09:10	6.4	198.5	6.3	7.6	6.2	189.9	6.0	183.6
	09:11	9.0	210.9	7.7	8.2	8.3	192.9	7.0	184.2
	09:12	11.7	210.1	6.0	8.0	10.9	195.7	5.6	185.0
	09:13	14.6	207.3	5.9	8.0	13.6	192.9	5.5	186.6
	09:14	13.7	192.4	6.1	7.6	13.1	184.4	5.8	184.9
	09:15	11.3	195.9	7.1	8.0	10.4	181.7	6.6	185.6
Average =		11.0	193.2	9.3	8.2	10.0	176.2	8.5	183.3
Geometric Avg. =		10.5	193.0	9.1	8.2	9.6	175.9	8.3	183.3
Maximum =		22.0	210.9	12.4	8.6	19.8	195.7	11.2	186.6
Minimum =		6.1	177.2	5.9	7.6	5.6	158.1	5.5	181.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		296.9	5217.3	251.7	222.2	270.7	4757.9	228.8	4948.2

* - 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: 03/12/2009 to 03/12/2009

Site Name: UNIT3

Time of Report: 03/12/09 10:14

Data Averaging Type: 1m

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	09:30	17.9	190.1	4.5	7.5	17.2	182.9	4.4	183.1
	09:31	16.7	182.8	5.2	8.2	15.3	167.6	4.8	184.1
	09:32	22.5	192.6	7.4	8.7	19.8	169.6	6.5	183.3
	09:33	23.7	196.8	6.7	8.6	21.0	174.5	5.9	186.1
	09:34	22.5	195.1	6.1	8.2	20.5	178.2	5.6	182.3
	09:35	16.9	189.5	5.3	8.4	15.2	170.7	4.8	182.5
	09:36	19.6	200.7	6.7	8.7	17.2	176.4	5.9	183.1
	09:37	24.9	195.9	7.1	8.5	22.3	175.3	6.4	185.3
	09:38	23.5	191.7	5.7	7.9	22.0	179.6	5.3	182.7
	09:39	18.1	187.8	6.0	8.3	16.4	170.2	5.5	182.3
	09:40	17.5	204.8	6.6	8.4	15.7	184.0	5.9	183.5
	09:41	20.9	199.2	5.9	8.2	19.1	182.7	5.4	183.7
	09:42	20.4	184.6	3.8	7.8	19.2	174.0	3.6	183.5
	09:43	18.9	188.9	4.8	8.3	17.2	171.8	4.4	183.6
	09:44	15.8	184.5	4.4	8.2	14.5	169.1	4.1	185.9
	09:45	17.1	186.4	5.8	8.2	15.6	170.3	5.3	186.1
	09:46	16.1	178.4	4.5	7.8	15.1	168.1	4.2	183.0
	09:47	17.0	188.3	6.2	8.7	15.0	165.4	5.4	183.2
	09:48	18.4	186.1	5.7	8.4	16.6	167.4	5.1	183.0
	09:49	18.8	189.7	7.0	8.5	16.8	169.9	6.2	183.0
	09:50	17.7	185.8	6.3	8.2	16.2	170.0	5.8	184.2
	09:51	17.4	194.7	8.2	8.4	15.6	175.3	7.4	185.0
	09:52	15.0	182.3	6.2	8.0	13.9	169.8	5.8	183.7
	09:53	15.7	181.9	7.0	8.6	14.0	161.4	6.2	184.7
	09:54	18.0	183.1	5.8	8.4	16.2	164.9	5.3	183.6
	09:55	19.3	176.8	5.6	8.5	17.2	157.7	5.0	183.3
	09:56	20.4	170.6	6.1	8.4	18.3	152.8	5.4	181.3
Average =		18.9	188.5	6.0	8.3	17.2	171.1	5.4	183.7
Geometric Avg. =		18.7	188.3	5.9	8.3	17.0	170.9	5.3	183.7
Maximum =		24.9	204.8	8.2	8.7	22.3	184.0	7.4	186.1
Minimum =		15.0	170.6	3.8	7.5	13.9	152.8	3.6	181.3
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		510.6	5089.3	160.8	223.6	463.3	4619.6	145.6	4958.9

* - 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: 03/12/2009 to 03/12/2009

Site Name: UNIT3

Data Averaging Type: 1m

Time of Report: 03/12/09 11:30

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	10:09	24.8	182.2	16.9	9.4	20.5	150.5	14.0	180.3
	10:10	20.6	186.0	16.2	9.3	17.2	155.0	13.5	180.1
	10:11	17.6	190.9	13.7	9.2	14.8	160.2	11.5	179.4
	10:12	15.7	190.6	12.7	9.3	13.0	158.5	10.6	179.3
	10:13	14.9	189.8	12.3	9.5	12.2	156.2	10.1	180.9
	10:14	15.3	187.4	12.4	9.3	12.7	156.5	10.4	181.6
	10:15	13.8	177.6	10.7	9.1	11.7	151.1	9.1	179.6
	10:16	12.8	184.8	9.9	9.4	10.6	153.1	8.2	179.6
	10:17	14.0	194.7	12.2	9.5	11.5	159.7	10.0	182.8
	10:18	15.2	192.3	11.1	8.9	13.1	166.1	9.6	181.7
	10:19	12.9	189.7	8.1	8.8	11.2	164.9	7.1	181.3
	10:20	12.6	186.7	9.1	9.2	10.6	157.1	7.7	180.2
	10:21	13.2	187.0	10.7	9.4	10.9	154.5	8.8	180.7
	10:22	16.1	194.9	10.5	9.4	13.4	161.5	8.7	182.1
	10:23	17.1	195.9	10.6	9.1	14.6	166.6	9.0	183.3
	10:24	15.6	189.6	10.4	8.8	13.6	165.0	9.0	184.0
	10:25	12.8	193.7	8.6	8.6	11.3	171.1	7.6	182.7
	10:26	12.2	198.1	6.5	8.8	10.7	172.6	5.7	183.5
	10:27	13.7	195.0	5.3	8.5	12.2	173.7	4.7	185.3
	10:28	15.0	187.3	4.8	8.0	13.9	173.2	4.5	184.1
	10:29	16.5	190.8	4.5	8.4	14.8	171.6	4.1	184.9
	10:30	18.0	184.7	5.1	8.5	16.0	165.0	4.5	183.0
	10:31	19.3	177.4	7.9	8.9	16.8	153.8	6.8	184.3
	10:32	20.2	169.9	8.6	8.6	17.8	149.9	7.6	184.1
	10:33	20.0	170.1	10.1	8.9	17.2	146.5	8.7	183.5
	10:34	18.4	171.2	8.4	8.8	16.1	149.7	7.4	183.2
	10:35	18.4	179.8	8.8	9.0	15.8	154.5	7.5	183.3
Average =		16.2	186.6	9.9	9.0	13.9	159.9	8.4	182.2
Geometric Avg. =		15.9	186.4	9.3	9.0	13.6	159.7	8.0	182.2
Maximum =		24.8	198.1	16.9	9.5	20.5	173.7	14.0	185.3
Minimum =		12.2	169.9	4.5	8.0	10.6	146.5	4.1	179.3
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		436.8	5037.9	266.1	242.6	374.4	4318.0	226.2	4918.9

* - 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: 03/12/2009 to 03/12/2009

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/12/09 11:31
Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	10:49	25.5	183.5	9.2	9.2	21.5	154.5	7.8	183.7
	10:50	22.6	177.0	7.9	9.1	19.1	149.7	6.7	183.7
	10:51	24.2	173.4	8.3	9.1	20.4	146.6	7.0	186.3
	10:52	24.4	173.6	7.1	8.9	21.1	150.0	6.1	184.2
	10:53	15.0	168.4	7.0	9.2	12.7	142.2	5.9	185.7
	10:54	18.3	172.2	8.4	9.1	15.5	145.8	7.1	182.8
	10:55	25.8	170.2	9.1	9.3	21.5	141.9	7.6	181.8
	10:56	39.9	180.1	11.7	9.6	32.4	146.3	9.5	182.4
	10:57	43.1	181.3	11.9	9.4	35.7	150.2	9.8	182.5
	10:58	32.8	174.2	9.8	9.2	27.7	147.1	8.3	181.1
	10:59	22.2	173.5	10.8	9.4	18.4	144.1	9.0	180.2
	11:00	21.2	180.2	14.5	9.6	17.3	146.8	11.8	181.6
	11:01	23.0	181.9	13.3	9.2	19.4	153.4	11.2	182.1
	11:02	24.7	181.1	11.6	9.0	21.2	155.3	10.0	181.6
	11:03	26.0	185.3	13.6	9.3	21.8	155.0	11.4	185.5
	11:04	25.7	184.2	11.9	8.8	22.4	160.3	10.3	183.6
	11:05	22.2	172.0	8.7	8.8	19.2	149.2	7.5	181.6
	11:06	24.1	179.0	9.3	9.4	19.9	148.1	7.7	182.1
	11:07	31.8	179.1	11.0	9.3	26.5	148.9	9.1	184.1
	11:08	36.8	180.9	12.8	9.1	31.1	153.1	10.8	182.8
	11:09	27.7	177.8	11.2	9.1	23.6	151.4	9.5	180.4
	11:10	23.4	184.4	13.8	9.7	18.8	148.4	11.1	181.0
	11:11	26.6	192.3	15.6	9.5	21.7	157.2	12.8	183.5
	11:12	24.5	181.6	11.6	8.8	21.2	157.4	10.1	183.4
	11:13	18.8	179.2	10.5	8.9	16.2	155.2	9.1	183.5
	11:14	15.9	184.8	11.1	9.0	13.7	158.5	9.5	183.7
	11:15	16.1	187.5	10.7	8.9	13.9	161.4	9.2	186.5
Average =		25.3	179.2	10.8	9.2	21.3	151.0	9.1	183.0
Geometric Avg. =		24.5	179.1	10.6	9.2	20.6	150.9	8.9	183.0
Maximum =		43.1	192.3	15.6	9.7	35.7	161.4	12.8	186.5
Minimum =		15.0	168.4	7.0	8.8	12.7	141.9	5.9	180.2
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		682.0	4838.4	292.5	247.9	573.8	4078.0	246.1	4941.3

* - 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: 03/12/2009 to 03/12/2009

Site Name: UNIT3

Data Averaging Type: 1m

Time of Report: 03/12/09 13:25

Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	11:30	15.2	187.1	15.4	9.1	12.9	158.6	13.1	183.5
	11:31	16.5	178.9	13.6	8.7	14.5	156.7	11.9	182.8
	11:32	17.9	176.8	13.2	8.9	15.5	152.3	11.4	181.9
	11:33	17.0	183.5	11.9	9.1	14.4	155.9	10.1	182.1
	11:34	16.5	193.6	11.4	8.9	14.2	166.5	9.8	182.5
	11:35	15.6	196.0	10.7	8.8	13.7	171.3	9.3	183.3
	11:36	14.5	189.6	11.3	8.6	12.8	167.4	10.0	184.5
	11:37	13.0	181.1	13.2	8.7	11.4	158.8	11.6	183.3
	11:38	12.5	179.6	14.1	9.0	10.7	153.6	12.1	183.3
	11:39	16.1	185.9	13.3	9.1	13.7	158.1	11.3	186.8
	11:40	19.0	185.6	10.4	8.4	17.1	166.5	9.4	184.2
	11:41	15.3	175.7	11.0	8.7	13.5	154.7	9.7	183.8
	11:42	14.2	173.0	13.6	9.1	12.1	147.5	11.6	184.0
	11:43	14.2	178.7	12.3	9.1	12.1	152.0	10.5	183.9
	11:44	17.7	175.0	8.8	8.8	15.5	152.5	7.6	181.2
	11:45	16.7	180.4	10.2	9.3	13.9	150.8	8.5	179.2
	11:46	12.2	192.8	12.9	9.5	10.0	157.4	10.5	180.4
	11:47	14.2	205.4	13.9	9.4	11.7	170.5	11.5	183.0
	11:48	16.6	208.7	11.8	8.8	14.5	181.7	10.3	182.6
	11:49	17.5	191.7	11.3	8.7	15.3	168.4	9.9	182.8
	11:50	19.1	195.2	13.3	9.1	16.2	165.5	11.3	182.5
	11:51	19.7	195.2	12.2	9.3	16.4	163.0	10.2	183.0
	11:52	17.4	188.6	10.4	9.2	14.7	159.2	8.8	185.3
	11:53	14.7	184.7	10.2	8.8	12.8	160.3	8.8	184.0
	11:54	13.4	172.4	6.9	8.8	11.7	150.6	6.1	181.6
	11:55	17.3	178.4	8.2	9.4	14.3	147.8	6.8	182.0
	11:56	21.2	181.6	8.9	9.2	17.8	152.7	7.5	181.2
Average =		16.1	185.7	11.7	9.0	13.8	159.3	10.0	182.9
Geometric Avg. =		16.0	185.5	11.5	9.0	13.7	159.1	9.8	182.9
Maximum =		21.2	208.7	15.4	9.5	17.8	181.7	13.1	186.8
Minimum =		12.2	172.4	6.9	8.4	10.0	147.5	6.1	179.2
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		435.2	5015.2	314.6	242.5	373.2	4300.0	269.6	4938.8

* - 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: 03/12/2009 to 03/12/2009

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/12/09 13:26
Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	12:39	7.6	186.5	6.2	9.2	6.5	157.6	5.3	183.6
	12:40	8.9	184.9	7.1	9.0	7.6	157.8	6.1	183.4
	12:41	14.3	183.2	6.8	8.9	12.3	157.8	5.8	182.9
	12:42	18.8	187.5	6.5	9.0	16.2	161.2	5.6	183.8
	12:43	18.3	191.3	6.4	8.9	15.8	165.0	5.5	184.2
	12:44	16.3	184.7	7.4	8.8	14.2	160.7	6.5	182.7
	12:45	13.9	178.3	7.5	9.1	11.8	151.2	6.4	182.8
	12:46	11.5	177.9	8.3	9.3	9.5	147.9	6.9	183.4
	12:47	9.9	175.3	9.0	9.2	8.3	148.0	7.6	182.7
	12:48	10.2	173.5	9.5	9.2	8.6	146.5	8.0	181.9
	12:49	13.2	170.8	9.8	9.3	11.0	143.1	8.2	183.8
	12:50	14.8	170.9	8.3	9.1	12.6	145.7	7.1	184.0
	12:51	14.4	173.0	6.9	8.8	12.5	150.3	6.0	184.2
	12:52	13.0	177.4	7.5	9.0	11.1	152.2	6.4	182.8
	12:53	11.7	178.5	7.5	9.2	9.8	149.9	6.3	182.2
	12:54	12.6	175.3	9.9	9.4	10.5	145.6	8.2	182.4
	12:55	14.4	174.3	10.1	9.2	12.1	147.1	8.5	181.6
	12:56	14.3	179.5	10.3	9.2	12.0	151.1	8.7	181.6
	12:57	15.3	177.6	12.4	9.3	12.8	148.5	10.4	183.7
	12:58	16.3	180.9	10.9	9.0	13.9	155.0	9.3	184.4
	12:59	15.3	179.6	8.2	8.8	13.2	155.8	7.1	181.5
	13:00	14.4	175.5	8.3	9.4	11.9	145.6	6.8	179.5
	13:01	16.3	186.7	12.5	10.0	12.7	146.3	9.8	178.7
	13:02	20.2	189.0	12.9	9.9	16.0	149.7	10.3	178.7
	13:03	24.8	198.7	14.9	9.9	19.6	157.6	11.8	180.6
	13:04	27.0	203.3	15.3	9.6	22.0	165.2	12.5	182.1
	13:05	23.2	205.4	16.1	9.4	19.2	170.6	13.4	180.4
Average =		15.2	182.2	9.5	9.2	12.7	153.1	7.9	182.4
Geometric Avg. =		14.6	182.0	9.1	9.2	12.3	152.9	7.7	182.3
Maximum =		27.0	205.4	16.1	10.0	22.0	170.6	13.4	184.4
Minimum =		7.6	170.8	6.2	8.8	6.5	143.1	5.3	178.7
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		410.6	4919.5	256.7	248.8	344.0	4133.1	214.5	4923.6

* - 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

Plant Name: NBWD
General Average Report
Reporting Period: 03/12/2009 to 03/12/2009

Site Name: UNIT3
Data Averaging Type: 1m

Time of Report: 03/12/09 14:04
Rolling Average Interval: 1

Date	Time	SO2ORPT3 (PPMDC)	NOXRPT_3 (PPMDC)	CORPT_3 (PPMDC)	O2OUT_3 (PERCENTD)	SO2OUT_3 (PPMD)	NOXPPM_3 (PPMD)	COPPM_3 (PPMD)	STMRPT_3 (KLB/HR)
03/12/09	13:21	8.7	186.0	13.4	9.7	7.0	149.3	10.7	181.4
	13:22	3.3	215.0	18.9	10.3	2.5	163.3	14.3	179.4
	13:23	12.1	214.7	16.9	10.1	9.3	166.0	13.1	182.4
	13:24	12.2	208.1	16.0	9.4	10.1	171.7	13.2	184.0
	13:25	9.8	192.0	13.6	9.1	8.4	163.2	11.6	181.9
	13:26	11.9	193.9	13.6	9.6	9.7	158.3	11.1	181.2
	13:27	7.7	190.5	13.1	9.7	6.2	154.1	10.6	180.3
	13:28	5.0	189.1	13.3	9.6	4.0	153.3	10.7	181.9
	13:29	4.2	205.8	12.1	9.5	3.5	169.4	10.0	184.5
	13:30	5.7	196.4	9.0	9.1	4.8	167.1	7.7	184.0
	13:31	6.0	192.9	6.9	9.1	5.1	163.4	5.8	182.0
	13:32	7.3	196.7	8.1	9.5	5.9	160.8	6.6	181.2
	13:33	8.4	193.8	13.1	9.8	6.7	155.3	10.5	181.7
	13:34	8.7	198.1	13.9	9.6	7.1	161.2	11.3	183.4
	13:35	8.4	198.4	13.4	9.3	7.0	166.0	11.2	187.1
	13:36	6.9	194.5	11.4	8.6	6.1	172.7	10.1	184.6
	13:37	4.8	202.8	7.9	8.8	4.1	176.4	6.8	182.5
	13:38	4.6	212.7	8.2	9.1	3.9	180.7	7.0	182.6
	13:39	5.5	213.8	9.5	8.9	4.7	184.6	8.2	183.3
	13:40	7.2	211.3	8.9	8.6	6.4	186.6	7.9	184.6
	13:41	6.3	207.4	9.0	8.4	5.6	186.9	8.1	184.9
	13:42	5.9	206.4	7.6	8.3	5.4	187.6	6.9	188.1
	13:43	5.5	200.7	5.8	7.9	5.1	187.8	5.4	186.9
	13:44	5.4	192.5	4.8	8.0	5.0	178.6	4.5	185.3
	13:45	7.1	198.0	6.2	8.5	6.3	176.0	5.5	185.9
	13:46	8.7	191.9	7.5	8.6	7.7	169.9	6.7	185.3
	13:47	8.5	190.4	6.9	8.5	7.5	169.6	6.1	184.7
Average =		7.2	199.8	10.7	9.1	6.1	169.6	9.0	183.5
Geometric Avg. =		6.9	199.6	10.1	9.1	5.8	169.3	8.6	183.5
Maximum =		12.2	215.0	18.9	10.3	10.1	187.8	14.3	188.1
Minimum =		3.3	186.0	4.8	7.9	2.5	149.3	4.5	179.4
Possible Values =		27	27	27	27	27	27	27	27
Included Values =		27	27	27	27	27	27	27	27
Total =		195.6	5393.7	289.0	245.6	165.4	4579.8	241.8	4955.1

* - 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

This Page Intentionally Left Blank