GULF POWER
A SOUTHERN COMPANY

April 11, 2013

Mr. Andrew Joslyn
Florida Department of Environmental Protection
Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

RE: SCHOLZ ELECTRIC GENERATING PLANT
UNIT 1 & 2: RELATIVE ACCURACY TEST AUDIT REPORT
TITLE V PERMIT NO. 0630014-005-AV

Mr. Joslyn.

Enclosed please find a copy of the Relative Accuracy Test Audit Report for Plant Scholz Units 1 and 2 as required under the Title V Permitting Program. Also enclosed is the SO2 emission test for unit 1 and certification statement for the Responsible Official.

RA SO2 = 0.28 BAF=1.00
RA CO2 = 0.67 BAF=1.00
RA NOX = 0.58 BAF=1.00

RA LOW A =9.40 BAF =1.000
RA LOW B =5.47 BAF=1.00
RA LOW A/B =3.71 BAF=1.000

SO2 reference method : 3.48 lb/mmbtu
SO2 allowable: : 6.71 lb/mmbtu
Note: Unit 1 was the only unit online.

The results of these tests demonstrate that the Scholz generating, CEM systems are operating in compliance with the requirements of 40 CFR 60 and 75.

GULF POWER
A SOUTHERN COMPANY

Should you have any questions concerning these reports, please call me at (850) 444-6091.

Sincerely,

John B. Rampulla
Environmental Affairs

Enclosures

Cc: R. Danley, Gulf Power
Syed Arif, FDEP Tallahassee

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DIVISION OF AIR
RESOURCE MANAGEMENT

GULF POWER
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Scholz RATA/compliance

CERTIFICATION BY RESPONSIBLE OFFICIAL

"I, the undersigned, am the responsible official, as defined in Chapter 62-210.200, F.A.C., for the Title V source for which this report is being submitted. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made and data contained in this report are true, accurate and complete."

Responsible Official Signature:

Michael L. Burroughs

Michael L. Burroughs
Vice-President and Senior Production Officer

April 15, 2013
Date:

Relative Accuracy Test Audit Report

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DIVISION OF AIR
RESOURCE MANAGEMENT

March 4-5, 2013

Gulf Power Company

Plant Scholz
Unit CS001
Stack ID: CS001

Report by:

GULF POWER
A SOUTHERN COMPANY

Gulf Power Company
Plant Scholz
Unit CS001
Stack ID: CS001

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Gulf Power Company
Plant Scholz
Unit CS001
Stack ID: CS0001

Introduction

Gulf Power Company performed all necessary reference method tests required for annual testing of a continuous emission monitoring system. The tests were performed on the continuous emission monitoring system that measures emissions from the stack for Plant Scholz CS001. The sulfur dioxide monitor, the carbon dioxide monitor, and the nitrogen oxides monitoring system were tested on Tuesday, and Wednesday March 4 and 5, 2013 in accordance with the regulations set forth in the Code of Federal Regulations, Title 40, Part 60 and 75. John Rampulla with Gulf Power performed the reference method testing for the gas monitors. During this testing, Sanders Engineering and Analytical Services were on-site, and performed the reference method testing for the flow monitors associated with Unit CS001.

Summary of Results

Results of the certification testing performed on Gulf Power Plant Scholz CS001 are presented in the following tables. The complete report of the flow RATA conducted by General Electric Field Service is included as Appendix H of this report. These results are based on test data obtained from the facility during normal operation of the boiler. These test results show the Continuous Emission Monitoring Systems installed on Plant Scholz CS001 are in compliance with the requirements of 40 CFR 60 and 75.

Table I. RATA Results CEMS

MONITOR	RELATIVE ACCURACY	BAF
SO_2	0.28	1.000
CO_2	0.61	N/A
NO_X	0.58	1.000

Table II. RATA Results Flow

MONITOR	RELATIVE ACCURACY	BAF
A low	9.40	1.000
B low	5.47	1.000
A/B low	3.71	1.000

System Summary

CEMS

The Model 300 is a dedicated continuous emission monitoring system using dilution sampling technology and low level pollutant analyzers to measure NO_X, SO_2, CO_2, volumetric flow, and opacity in accordance with the established regulations (Figure 3-1). Each phase of the sampling and analysis process is performed to maintain source compliance, while maximizing sensor reliability and equipment accuracy. The Model 300 network is composed of four subsystems -- sample acquisition, sample analysis, sample control, and sample support.

The sample acquisition subsystem includes the dilution probe, probe controller, sample transport and dilution air clean-up equipment. The stack dilution probe is an M & C SP2000H (there are also existing EPM dilution probes on the ducts). Constructed of stainless steel, the probe is mounted externally to a flange on the side of the common stack. This configuration is designed to withstand high operating temperatures. A filter for coarse particulate is mounted in the heated, "out-of-stack" dilution unit.

The sample transport umbilical contains Teflon lines that are either 1/4" or 3/8" in diameter. They include diluted sample, calibration/backpurge, vacuum, dilution air and bypass eductor air lines, as well as spare lines. All umbilical lines are encased in an outer polyurethane or PVC jacket for protection. All umbilical compression fittings and interconnects are of either Swagelok or Parker construction. The umbilical should be periodically checked for cracking and particulate contamination and cleaned as necessary with water and air-dried.

The dilution air clean-up system uses dual Parker Filtration FT-IR 75-62 Purge Gas Generators. Using the plant compressed air supply, the dryers remove CO_2, NO_X, H_2O, hydrocarbons, and particulate to provide dry, purified air for dilution. Backup air in the event of a plant air supply failure is provided by a Powerex Scroll Enclosure Air Compressor. The dilution air supply is routed and stored in a 10.5 gallon clean air storage tank mounted in the CEMS shelter.

Spectrum Systems' WM364 Probe Controller panel monitors operation of the dilution probe, using a system of gauges, regulators, flowmeters and control devices. The SpectraPak™ data acquisition and control module handles sampling, purging, and calibration cycles for the dilution system. The dilution air clean-up system provides scrubbed, dry air for the dilution and purging cycles. Calibration gas cylinders are connected to the CEMS system to provide the gases needed for daily zero and span calibration checks.

The sample analysis subsystem of the Model 300 uses proven low level measurement technology to monitor NO_x, SO_2, CO_2, volumetric flow, and opacity. The Thermo Environmental Model 42 (C or i-level) measures NO_x, the Thermo Environmental Model 43 (C or i-level) measures SO_2, and the Siemens Ultramat 6E measures CO_2. The Monitor Labs Ultraflow 150 measures volumetric gas flow.

Sample control subsystem functions for the Model 300 Dilution System are handled by SpectraPak data acquisition and control modules. The SpectraPak microprocessor integrates, controls and monitors all system functions including automatic calibrations and purges, fault/status monitoring, and cycle sequencing. The SpectraPak also interfaces with the data acquisition and handling system used in conjunction with the Model 300. The configuration software in the SpectraPak allows set-up of the sequence tables from an external personal computer when required.

The sample support subsystem of the Model 300 includes an aluminum CEMS shelter, environmental controls, electrical distribution, uninterruptible power supply (UPS), and other components that provide the necessary operational environment for the system. The CEMS equipment is mounted in an analysis rack inside the CEMS shelter.

An Uninterruptible Power Supply (UPS) provides backup power to support the CEMS equipment for a minimum of 30 minutes in the event of a primary power failure.

THERMO ENVIRONMENTAL INSTRUMENTS MODEL 42 NO_X ANALYZERS (C- or i-level)

The Model 42 NO_X Analyzer, from Thermo Environmental Instruments, Inc., and modified by Spectrum Systems, uses chemiluminescence to provide continuous, real-time measurement of nitrogen oxides.

Principle of Operation: The gas phase reaction of NO and ozone (O_3) produces a characteristic luminescence with an intensity proportional to the concentration of NO according to the following:

$$NO + O_3 \rightarrow NO_2 + O_2 + h\nu$$

Light emission occurs when electronically excited NO_2 molecules decay to lower energy states.

Sample gas enters the Model 42 through a single flow capillary and is directed to a solenoid valve. One part of the sample is combined with O_3 in the reaction chamber to measure NO. The other part of the sample is directed through a converter, because NO_2 must first be converted to NO before it can be measured.

Nitrogen dioxide (NO_2) must first be transformed into NO before it can be measured using the chemiluminescent reaction. NO_2 is converted to NO by a molybdenum NO_2-to-NO converter heated to about 325 °C (the optional stainless steel converter is heated to 625 °C). When sample is flowing through the converter, the reaction chemiluminescence in the reaction chamber represents the NO_X concentration in the sample (NO_x mode). When the sample is flowing around the converter, only NO is measured (NO mode). The signals measured in both modes are stored and held in memory where the difference between the two can be used to calculate the NO_2 concentration in the sample.

THERMO ENVIRONMENTAL INSTRUMENTS MODEL 43 SO_2 ANALYZERS (C- or i-level)

The Model 43 SO_2 Analyzer, from Thermo Environmental Instruments, Inc., and modified by Spectrum Systems, is an EPA-designated Equivalent Method, using pulsed fluorescence to provide continuous, real-time measurements of SO_2.

Principle of Operation: Pulsating UV (ultraviolet) light is bandpass-filtered and focused into a fluorescent chamber containing the sample gas. SO_2 molecules in the sample are excited into higher energy states. As the states decay, the SO_2 molecules emit a characteristic radiation. A second filter allows only that radiation to fall on a photomultiplier tube (PMT) that converts the radiation into an electrical signal. The filtered and amplified signal is linearly proportional to the SO_2 concentration in the sample.

SIEMENS ULTRAMAT 6E CO_2 ANALYZER

The Ultramat 6E channel operates using nondispersive infrared (NDIR) radiation and a double-beam, alternating-light principle of operation. A chopper rotates between the beam divider and the sample and reference cells, interrupting the two beams alternately and periodically. If absorption takes place in either cell, a pulsating current is generated and is converted by the microflow sensor into an electric current. An optical coupler lengthens the receiver chamber optically, and the infrared absorption in the second detector layer is varied by changing the position of an adjustable slider. This allows for minimization of the influence of interfering compounds.

Principle of Operation: The radiation from a heated IR (infrared) source is divided into two beams -- a measuring beam and a reference beam. The measuring beam passes through the sample cell where the radiation is reduced to a lower energy state dependent on the concentration of the sample gas in the cell. The reference beam passes through the reference cell which is filled with N_2. The difference between these two beams is used to determine the CO or CO_2 concentration in the sample gas.

MONITOR LABS ULTRAFLOW 150 VOLUMETRIC FLOW MONITOR

The Ultraflow Model 150, from Monitor Labs, is a non-contacting, ultrasonic flow and temperature monitor that features digital signal processing, high resolution, automatic in-stack zero and span checks, plus a microprocessor based remote panel. The system is made up of four basic assemblies - the transducers, stack electronics, purge system, and the remote panel.

Principle of Operation: The two transducers in the system are mounted across a stack or duct from one another, with one mounted upstream of the other. Each transducer acts alternately as a transmitter or receiver. When a tone burst is sent between the transducers, the movement of the gas stream alters the time required to cross the distance. If the tone is traveling with the stream, the crossing time is reduced. if the tone is traveling against the stream, the crossing time is increased. If there is no gas flow (stream), the time required to cross between transducers is the same in either direction. The Ultraflow 150 measures the time required by the tone bursts to cross the gas stream in both directions. Flow velocity is directly related to the difference in time required for the bursts to travel with and against the gas stream. Based on the cross sectional area of the stack or duct, flow velocity is converted to volumetric flow.

Because the speed of sound is influenced by temperature, the temperature of the gas stream can be calculated from the time it takes the tone bursts to cross the stack or duct. Stack-mounted electric ring compressors are used as purge air blowers for the flow monitors.

Source Description

Plant Scholz Units 1 and 2 are coal fired boilers that produces steam used to generate electricity. Bituminous coal is the primary fuel for the boiler. The exhaust gas passes through a superheater and economizer section and exits the boiler in separate ducts. The gases then pass through an air preheater, and through an electrostatic precipitator which removes the particulates. The gas streams are directed to a common stack that delivers the gas to the atmosphere. The CEM system gas probes and flow transducers are located on the common stack. The probe locations meet all of the siting criteria specified in 40 CFR Part 75, Appendix A. The CEM system monitors, controllers, and data acquisition system are located in an environmentally controlled shelter located near the base of the stack

Reference Method Equipment

The reference method testing equipment is housed in a mobile continuous emission monitoring system. This trailer utilizes dilution extractive technology to analyze the stack emission concentrations.

The CO_2 is measured using a Siemens Ultramat 6 Analyzer. This monitor is a selective nondispersive infrared radiation (NDIR) gas analyzer that operates on the infrared double-beam, alternating light principle. The serial number for the CO_2 analyzer is N5-672.

A Thermo Environmental Model 42C Nitrogen Oxides Gas Analyzer determines the NO_x levels in the gas stream. The monitor operates on the principle of chemiluminescence. This monitor has a converter that converts NO_2 to NO to enable it to accurately measure the NO_x in the sample streamThe serial number for the NO_x monitor is 42C-70201-365.

The SO_2 is determined by a Thermo Environmental Model 43C Analyzer. This monitor works on the principle of pulsed fluorescence. . The serial number for the SO_2 monitor is 43C-72790-372.

PARAMETER	SPAN CONCENTRATION
CO_2	14.59%
NO_X	1584 PPM
SO_2	473.1 PPM

Any additional information regarding instrument operation or capabilities can be obtained from the manufacturer or from Gulf Power Company by request.

The in-stack dilution probe is an EPM Environmental Model 797, and is constructed of Inconel, with a 316L stainless steel extension. The probe length is 10 feet. The probe extracts and dilutes the sample from the duct by creating an internal vacuum with respect to the flue gas. The sample is drawn through a glass critical orifice and mixed with clean dilution air that is provided by the trailer. This mixture is then delivered to the trailer to be analyzed by each instrument. The dilution ratio for this system is 100:1.

The sample system is controlled via personal computer using the Spectrum Systems SpectraTest Software to interface with a SpectraPak Ioplexer controller. This interface enables the tester to manually initiate calibration gases to the probe, blowback of the system, and start all data collection.

The trailer is equipped with two separate data collection systems. Each system is totally independent. Both systems contain the identical gas measuring instruments and data collection systems.

All calibration gases that are used in the certification process are Certified Protocol 1 Calibration Gases. All certificates are included in Appendix E.

Test Procedures

All tests used in the certification process are performed in accordance with EPA Methods 1, 2, 3A, 6C, and 7E. The Methods are found in 40 CFR Part 60.

The volumetric flow is determined using EPA Methods 1, 2 and the wet bulb-dry bulb method for moisture determination. The diluent concentrations are determined by Method 3A. These methods determine the location of the sample ports and the sample traverse depths, volumetric flow rates, and the fractional moisture content of the stack gas.

The CO_2, SO_2, and NO_x pollutant concentrations were determined by EPA Methods 3A, 6C, and 7E. These methods require that the tester: 1) select appropriate apparatus meeting the applicable equipment specifications of the methods; 2) conduct an interference response test prior to the testing program; and 3) conduct various measurements during the testing program to demonstrate conformance with the measurement system performance specifications. One variance from the standard Method 6C steps occurs when using a dilution extractive reference method testing system. There is no direct analyzer calibration step available when using this system because the calibration gases must be diluted before being introduced to the ambient level analyzers. Therefore, the system bias check doubles as the system calibration. The system calibration error is limited to +/- 2%.

The following is a brief outline of the procedures followed during the gas testing. Initially, the measurement system was calibrated. Next, a zero, mid, and high level gas was introduced to determine the system calibration error. After allowing twice the system response time, twenty-one (21) minutes of stack gas data was collected. At the conclusion of the run data collection, a zero and upscale calibration gas for each analyzer was introduced. The upscale gas that most closely approximated the stack gas was used to perform the system bias checks and system drifts. As long as no significant drifts occurred, the calibration checks between runs served as both the post check for the previous run and the pre check for the next run. A summary of the drifts and biases are included in the appendices. The gas averages for each run were adjusted to correct for any drift that occurred. The data comparison to determine the relative accuracy and bias for each pollutant monitor or monitoring system was performed according to 40 CFR 75, Appendix A, paragraphs 3.4, 6.5, and 7.6. This data is summarized in Appendix A. The system response time was checked during the setup to insure that it has not changed from its initial certified values. The system's recovery time was set to be in excess of twice the established response time for the slowest instrument. This data is summarized in Appendix D.

A stratification test was performed before sampling began. Results for the stratification study are located in Appendix D

The CEM system data used to compare with the reference method data was taken from the one-minute averages produced from the Data Acquisition System.

The engineering units for data collection are as follows: the SO_2 and NO_x are in parts per million (ppm) and the CO_2 is in percent (%). The flow rate is captured in thousand standard cubic feet per minute (KCFM) and converted to standard cubic feet per hour (SCFH). The times presented in the appendices should be interpreted as hour-minute-second format. The format is varied from appendix to appendix due to some times being collected either by the reference method data collection system or manually recorded by the testing personnel. The relative accuracy determination for the NO_x emissions is in pounds per million Btu (lbs/mmBtu) or (#/mmBtu). The times for both the CEM system and the reference method tests are in Central Standard Time.

All data used to compile this report is supplied in the applicable appendix. Any questions should be forwarded to Gulf Power Environmental Affairs Department.

No problems are associated with the testing.

Figure I. Sample Traverse Points and Sample Location

Circular Duct Traverse Point Location
Gulf Power Company
Plant Scholz
CS001
Tuesday, March 05, 2013

# of ports	4	
Diameter	162.00	inches
# of points/port	8	
Port Extension	33.80	inches
AREA	**143.139**	**Square Feet**

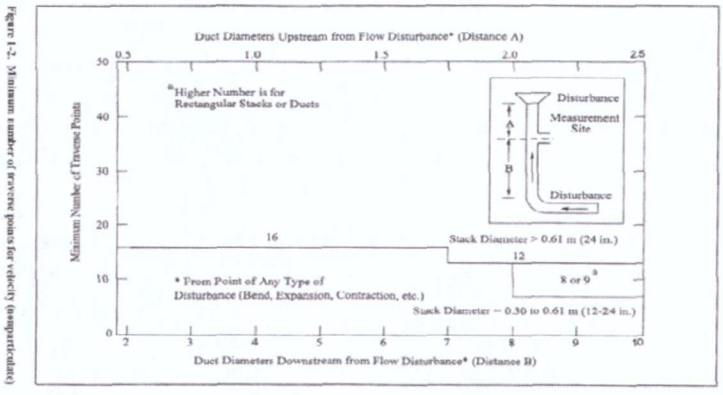
Traverse point #	distance from stack wall (in.)	Percent of diameter	Probe Markings (in.)	number of points 2	4	6	8	10	12	14	16	18	20	22	24
1	5.18	3.2	38.98	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	17.01	10.5	50.81	85.4	25	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	31.43	19.4	65.23		75	29.3	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6	5.5
4	52.16	32.2	85.96		93.3	70.4	32.2	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9

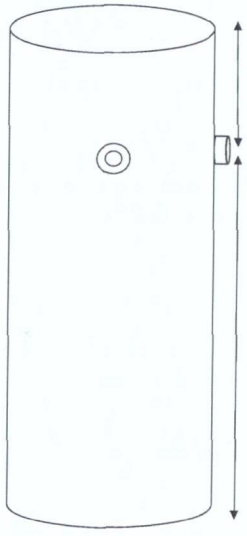
Distance from sample ports to disturbances

Distance upstream (A) =	300	inches
Diameters upstream (A_d) =	1.85	
Distance downstream (B) =	936	inches
Diameters downstream (Bd) =	5.78	

Minimum number of traverse points

Calculated from upstream duct diameters distance=	12
Calculated from downstream duct diameters distance=	12
number of sample traverse points =	12

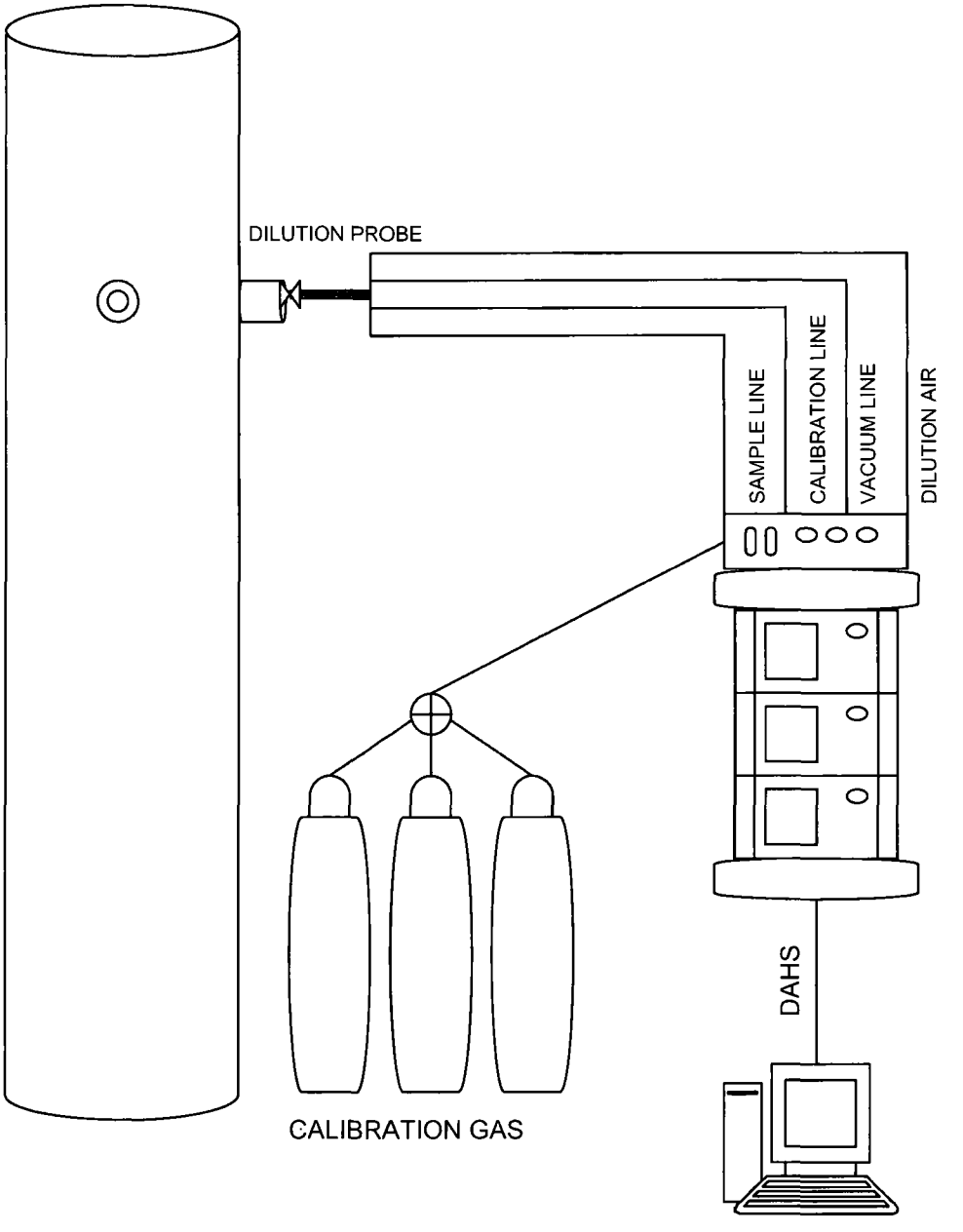




Upstream
300.00 inches
25.00 Feet

Down Stream
936.00 inches
78.00 Feet

Figure II. Sample System Configuration



Sample Calculations

SAMPLE CALCULATIONS, RUN 1
Gulf Power Company
Plant Scholz
CS001
Tuesday, March 05, 2013

Corrected effluent gas concentration NO_x emissions

$$C_{gas} = (\overline{C} - C_o)\frac{C_{ma}}{C_m - C_o}$$

Cgas = effluent concentration, ppm		=	230.25
$\overline{C}$ =Aveerge gas concentration indicated by gas analyzer, ppm		=	231.02
Co = Average of initial and final system calibration bias response for the zero gas, ppm		=	-0.55
Cm = Average of initial and final system calibration bias check response for the upscale calibration gas, ppm		=	264.16
Cma = Actual concentration of the upscale callbration gas ,ppm		=	263.20
Mean refrence method value for NOx from run	1	c =	231.02

Corrected effluent gas concentration SO_2 emissions

$$C_{gas} = (\overline{C} - C_o)\frac{C_{ma}}{C_m - C_o}$$

Cgas = effluent concentration, ppm		=	1356.33
$\overline{C}$ =Average gas concentration indicated by gas analyzer, ppm		=	1376.42
Co = Average of initial and final system calibration bias response for the zero gas, ppm		=	0.98
Cm = Average of initial and final system calibration bias check response for the upscale calibration gas, ppm		=	946.72
Cma = Actual concentration of the upscale callbration gas ,ppm		=	932.60
Mean refrence method value for SO2 from run	1	c =	1376.42

SAMPLE CALCULATIONS, RUN 1
Gulf Power Company
Plant Scholz
CS001
Tuesday, March 05, 2013

Corrected effluent gas concentration CO_2 emissions

$$C_{gas} = (\overline{C} - C_o)\frac{C_{ma}}{C_m - C_o}$$

Cgas = effluent concentration, %		=	10.72
$\overline{C}$ =Aveerge gas concentration indicated by gas analyzer, %		=	10.58
Co = Average of initial and final system calibration bias response for the zero gas, %		=	0.07
Cm = Average of initial and final system calibration bias check response for the upscale calibration gas, %		=	8.05
Cma = Actual concentration of the upscale callbration gas ,%		=	8.14
Mean refrence method value for CO2 from run	1	c =	10.58

Nitrogen Oxides Emissions Pounds Per Million Btu
(EPA Carbon Dioxide F Factor)

$$E_{CO2} = \frac{MW_x}{385,000,000} C_{ppm} F_{CO2}\left(\frac{100}{\%CO_2}\right)$$

x = Compound of interest (SO2 NOx CO VOC TRS etc) =	NOx
MWx = Molecular weight of compound (lb/lb mole) =	46.01
Cppmx = Pollutant Concentration (parts per million, WET basis) =	230.25
F_{CO2} = Carbon Dioxide based F factor (SDCF/mmBtu) =	1,800
$\%CO_2$ = Number percent by volume (WET basis from gas analysis) =	10.72
E_{CO2} =	0.462

Sulfur Dioxide Emissions Pounds Per Million Btu
(EPA Carbon Dioxide F Factor)

$$E_{CO2} = \frac{MW_x}{385,000,000} C_{ppm} F_{CO2}\left(\frac{100}{\%CO_2}\right)$$

x = Compound of interest (SO2 NOx CO VOC TRS etc) =	SO2
MWx = Molecular weight of compound (lb/lb mole) =	64.06
Cppmx = Pollutant Concentration (parts per million, WET basis) =	1,356.33
F_{CO2} = Carbon Dioxide based F factor (SDCF/mmBtu) =	1,800
$\%CO_2$ = Number percent by volume (WET basis from gas analysis) =	10.72
E_{CO2} =	3.781

Statement of Authenticity

All field data collection and subsequent data reduction was done by the following personnel. We certify that the details and results presented in this report are authentic and accurate to the best of our knowledge.

Date: 4-11-13 Signature: _____

John B. Rampulla
Environmental Affairs
QSTI: I, III Application No.2008-120
Expire: 05/27/2013
AETB: Gulf Power field Services

Digital Signature: _____

Appendix A. Relative Accuracy Test Audit

RELATIVE ACCURACY TESTS

Relative accuracy tests were conducted in accordance with 40CFR75, Appendix A, paragraph 6.5 for the SO_2, NO_x, CO_2, and volumetric flow monitors

Relative accuracy is defined in the Federal Register as "the degree of correctness with which the CEMS or pollutant analyzer yields the value of a sample relative to the value given by a defined reference method." The defined reference methods used in conducting these RATA's are as follows:

Sulfur Dioxide	RM 6C
Nitrogen Oxides	RM 7E
Carbon Dioxides	RM 3A and RM 3
Volumetric Flow	RM 1 and RM 2
Moisture	Wet Bulb / Dry Bulb

The relative accuracy is calculated as follows:

$$RA = \frac{(A)+(B)}{(C)} * 100$$

Where,
A = The absolute value of the mean difference between the Reference Method values and the CEM values
B = The absolute value of the confidence coefficient
C = The arithmetic mean of the Reference Method values

40 CFR Part 75 limits the relative accuracy of the SO_2 and NO_x monitors to ten percent at each required operating load. Unless, the RATA is to be done on an annual basis rather than every two successive QA operation quarters in which case the relative accuracy is limited to 7.5%.

The relative accuracy of the flow monitor was conducted at the required operating loads as prescribed in 40CFR75, Appendix A, paragraph 6.5.2 (d)

BIAS TEST

The bias test was applied to all sets of relative accuracy data in accordance with 40 CFR75, Appendix A, paragraph 3.4. The bias was calculated using the criteria of 40 CFR75, Appendix A, paragraph 7.6. It states that if the mean difference of the reference method and monitor or system is greater than the confidence coefficient, then the monitor system has failed the bias test.

If a monitor fails the bias test and the mean of the monitor data is greater than the mean of the reference method data, then the bias is positive and no bias factor will be applied. However, corrective action may be taken to correct the positive bias and the relative accuracy test repeated. If the mean of the monitor data is less than the reference method data, then the problem is to be corrected and the relative accuracy test repeated, or a bias adjustment factor should be applied to all subsequent data as defined below:

$$BAF = 1 + \frac{d}{(CEM)}$$

Where,
BAF= Bias Adjustment Factor
d= Absolute value of the arithmetic mean of the difference between the reference method and CEM data
CEM= Mean of the data provided from the monitor or system

CEM adjusted = CEM measured * BAF

Where,
CEM adjusted = data adjusted for the bias factor
CEM measured = measured value from the monitor

The bias adjustment factors are found on the same pages as the relative accuracy.

Relative Accuracy and Bias Test Results

Relative Accuracy and Bias Determination

Performed By: **Gulf Power Company**
Pensacola, Florida

Date Performed: 05-Mar-2013
Test Number: 1

Performed For: **Gulf Power Company**
Scholz, Unit cs0001
Sneads, Florida

SO2 Monitor PPM **SO2/A DILUTION**
System ID:

Run Number	Time Started	Time Stopped	Unit Load	RM-6C ppm	CEMS ppm	Difference ppm
1	3/5 12:11	3/5 12:32	48	1356.330	1354.300	2.030
2	3/5 12:46	3/5 13:07	48	1384.440	1383.800	0.640
3	3/5 13:20	3/5 13:41	48	1383.110	1382.120	0.990
4	3/5 13:52	3/5 14:13	48	1372.190	1376.950	-4.760
5	3/5 14:28	3/5 14:49	48	1387.810	1387.120	0.690
6	3/5 15:29	3/5 15:50	48	1362.450	1359.980	2.470
7	3/5 16:05	3/5 16:26	48	1337.070	1333.550	3.520
8	3/5 16:40	3/5 17:01	48	1330.880	1331.810	-0.930
9	3/5 17:16	3/5 17:37	48	1358.150	1351.090	7.060
Average			48	1363.603	1362.302	1.301
Standard Deviation						3.213
Confidence Coefficient:						2.470
Relative Accuracy:						0.28

T-Factor: 2.306

Bias Test (pass/fail): Passed
Bias Adjustment Factor: 1.000

Relative Accuracy and Bias Determination

Performed By: **Gulf Power Company**
Pensacola, Florida

Date Performed: 05-Mar-2013
Test Number: 1

Performed For: **Gulf Power Company**
Scholz, Unit cs0001
Sneads, Florida

CO2 Monitor System ID: **CO2/A DILUTION**

Run Number	Time Started	Time Stopped	Unit Load	RM-3A %	CEMS %	Difference %
1	3/5 12:11	3/5 12:32	48	10.720	10.610	0.110
2	3/5 12:46	3/5 13:07	48	10.630	10.610	0.020
3	3/5 13:20	3/5 13:41	48	10.610	10.590	0.020
4	3/5 13:52	3/5 14:13	48	10.570	10.590	-0.020
5	3/5 14:28	3/5 14:49	48	10.600	10.560	0.040
6	3/5 15:29	3/5 15:50	48	10.650	10.590	0.060
7	3/5 16:05	3/5 16:26	48	10.520	10.480	0.040
8	3/5 16:40	3/5 17:01	48	10.610	10.590	0.020
9	3/5 17:16	3/5 17:37	48	10.650	10.600	0.050
Average			48	10.618	10.580	0.038
Standard Deviation						0.036
Confidence Coefficient:						0.027
Relative Accuracy:						0.61
T-Factor:			2.306			

Relative Accuracy and Bias Determination

Performed By: **Gulf Power Company**
Pensacola, Florida

Date Performed: 05-Mar-2013
Test Number: 1

Performed For: **Gulf Power Company**
Scholz, Unit cs0001
Sneads, Florida

NOx CEMS LBS/MMBTU **NOx/A DILUTION**
System ID:

Run Number	Time Started	Time Stopped	Unit Load	RM-7E lbs/mmBtu	CEMS lbs/mmBtu	Difference lbs/mmBtu
1	3/5 12:11	3/5 12:32	48	0.462	0.464	-0.002
2	3/5 12:46	3/5 13:07	48	0.458	0.460	-0.002
3	3/5 13:20	3/5 13:41	48	0.458	0.459	-0.001
4	3/5 13:52	3/5 14:13	48	0.454	0.455	-0.001
5	3/5 14:28	3/5 14:49	48	0.451	0.453	-0.002
6	3/5 15:29	3/5 15:50	48	0.525	0.529	-0.004
7	3/5 16:05	3/5 16:26	48	0.528	0.531	-0.003
8	3/5 16:40	3/5 17:01	48	0.516	0.518	-0.002
9	3/5 17:16	3/5 17:37	48	0.522	0.524	-0.002

Average	48	0.486	0.488	-0.002
Standard Deviation				0.001
Confidence Coefficient:				0.001
Relative Accuracy:				0.58

T-Factor: 2.306

Bias Test (pass/fail): Passed
Bias Adjustment Factor: 1.000

Calibration Error Results

Analyzer Calibration Error

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	1 12:11:00 12:32:00

Sulfur Dioxide Monitor

SO2/A DILUTION

Span: 1584.0

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference (ppm SO2)	Calibration Error
PURE AIR	0.00	-1.95	1.95	0.12%
CC162428	932.60	947.50	-14.90	-0.94%
XC022975B	1584.00	1584.76	-0.76	-0.05%

Nitrogen Oxides Monitor

NOx/A DILUTION

Span: 473.1

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference (ppm NOx)	Calibration Error
PURE AIR	0.00	-0.73	0.73	0.15%
CC162428	263.20	261.42	1.78	0.38%
XC022975B	473.10	466.79	6.31	1.33%

Carbon Dioxide Monitor

CO2/A DILUTION

Span: 14.59

Cylinder Number	Reference Gas Concentration	Analyzer Response	Difference (% CO2)	Calibration Error
PURE AIR	0.00	-0.01	0.01	0.07%
CC162428	8.14	8.01	0.13	0.87%
XC022975B	14.59	14.74	-0.16	-1.07%

Calculation of Average Emissions

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	1 12:11:00 12:32:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	-1.95	3.91	0.98
MID	932.60 ppm	947.50	945.93	946.72
NOx/A DILUTION				
ZERO	0.00 ppm	-0.73	-0.37	-0.55
MID	263.20 ppm	261.42	266.91	264.16
CO2				
ZERO	0.00 percent	-0.01	0.16	0.07
MID	8.14 percent	8.01	8.09	8.05

Mean Reference Values:

1376.42 ppm SO2/A DILUTION
231.02 ppm NOx/A DILUTION
10.58 percent CO2

Corrected Results:

1356.33 ppm SO2/A DILUTION
230.25 ppm NOx/A DILUTION
10.72 percent CO2

Emission Calculations

3.781 lbs/mmBtu SO2/A DILUTION
0.462 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	2 12:46:00 13:07:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	3.91	4.69	4.30
MID	932.60 ppm	945.93	942.42	944.18
NOx/A DILUTION				
ZERO	0.00 ppm	-0.37	-0.12	-0.24
MID	263.20 ppm	266.91	266.91	266.91
CO2				
ZERO	0.00 percent	0.16	0.15	0.15
MID	8.14 percent	8.09	8.13	8.11

Mean Reference Values:

1399.55 ppm SO2/A DILUTION
229.93 ppm NOx/A DILUTION
10.55 percent CO2

Corrected Results:

1384.44 ppm SO2/A DILUTION
226.77 ppm NOx/A DILUTION
10.63 percent CO2

Emission Calculations

3.892 lbs/mmBtu SO2/A DILUTION
0.458 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	3 13:20:00 13:41:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	4.69	3.13	3.91
MID	932.60 ppm	942.42	946.32	944.37
NOx/A DILUTION				
ZERO	0.00 ppm	-0.12	-0.12	-0.12
MID	263.20 ppm	266.91	266.06	266.48
CO2				
ZERO	0.00 percent	0.15	0.21	0.18
MID	8.14 percent	8.13	8.05	8.09

Mean Reference Values:

1398.68 ppm SO2/A DILUTION
229.00 ppm NOx/A DILUTION
10.49 percent CO2

Corrected Results:

1383.11 ppm SO2/A DILUTION
226.20 ppm NOx/A DILUTION
10.61 percent CO2

Emission Calculations

3.895 lbs/mmBtu SO2/A DILUTION
0.458 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	4 13:52:00 14:13:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	3.13	3.91	3.52
MID	932.60 ppm	946.32	947.89	947.11
NOx/A DILUTION				
ZERO	0.00 ppm	-0.12	-0.85	-0.49
MID	263.20 ppm	266.06	265.69	265.87
CO2				
ZERO	0.00 percent	0.21	0.16	0.18
MID	8.14 percent	8.05	8.11	8.08

Mean Reference Values:

1391.88 ppm SO2/A DILUTION
225.64 ppm NOx/A DILUTION
10.44 percent CO2

Corrected Results:

1372.19 ppm SO2/A DILUTION
223.45 ppm NOx/A DILUTION
10.57 percent CO2

Emission Calculations

3.879 lbs/mmBtu SO2/A DILUTION
0.454 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	5 14:28:00 14:49:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	3.91	3.91	3.91
MID	932.60 ppm	947.89	948.28	948.08
NOx/A DILUTION				
ZERO	0.00 ppm	-0.85	-0.61	-0.73
MID	263.20 ppm	265.69	265.69	265.69
CO2				
ZERO	0.00 percent	0.16	0.21	0.18
MID	8.14 percent	8.11	8.08	8.09

Mean Reference Values:

1408.94 ppm SO2/A DILUTION
224.53 ppm NOx/A DILUTION
10.48 percent CO2

Corrected Results:

1387.81 ppm SO2/A DILUTION
222.54 ppm NOx/A DILUTION
10.60 percent CO2

Emission Calculations

3.912 lbs/mmBtu SO2/A DILUTION
0.451 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	6 15:29:00 15:50:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	3.91	3.91	3.91
MID	932.60 ppm	948.28	948.28	948.28
NOx/A DILUTION				
ZERO	0.00 ppm	-0.61	-0.37	-0.49
MID	263.20 ppm	265.69	265.69	265.69
CO2				
ZERO	0.00 percent	0.21	0.13	0.17
MID	8.14 percent	8.08	8.02	8.05

Mean Reference Values:

1383.55 ppm SO2/A DILUTION
262.42 ppm NOx/A DILUTION
10.48 percent CO2

Corrected Results:

1362.45 ppm SO2/A DILUTION
259.97 ppm NOx/A DILUTION
10.65 percent CO2

Emission Calculations

3.823 lbs/mmBtu SO2/A DILUTION
0.525 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	7 16:05:00 16:26:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	3.91	3.13	3.52
MID	932.60 ppm	948.28	944.37	946.32
NOx/A DILUTION				
ZERO	0.00 ppm	-0.37	-0.24	-0.31
MID	263.20 ppm	265.69	266.18	265.93
CO2				
ZERO	0.00 percent	0.13	0.17	0.15
MID	8.14 percent	8.02	8.02	8.02

Mean Reference Values:

1355.21 ppm SO2/A DILUTION
261.14 ppm NOx/A DILUTION
10.32 percent CO2

Corrected Results:

1337.07 ppm SO2/A DILUTION
258.46 ppm NOx/A DILUTION
10.52 percent CO2

Emission Calculations

3.798 lbs/mmBtu SO2/A DILUTION
0.528 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	8 16:40:00 17:01:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	3.13	3.91	3.52
MID	932.60 ppm	944.37	943.20	943.79
NOx/A DILUTION				
ZERO	0.00 ppm	-0.24	-0.37	-0.31
MID	263.20 ppm	266.18	264.84	265.51
CO2				
ZERO	0.00 percent	0.17	0.19	0.18
MID	8.14 percent	8.02	7.99	8.00

Mean Reference Values:

1345.35 ppm SO2/A DILUTION
257.17 ppm NOx/A DILUTION
10.38 percent CO2

Corrected Results:

1330.88 ppm SO2/A DILUTION
254.94 ppm NOx/A DILUTION
10.61 percent CO2

Emission Calculations

3.748 lbs/mmBtu SO2/A DILUTION
0.516 lbs/mmBtu NOx/A DILUTION

Calculation of Average Emissions

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	9 17:16:00 17:37:00

Calibration Gas Value		Initial Calibration	Final Calibration	Average
SO2/A DILUTION				
ZERO	0.00 ppm	3.91	3.91	3.91
MID	932.60 ppm	943.20	938.90	941.05
NOx/A DILUTION				
ZERO	0.00 ppm	-0.37	-0.73	-0.55
MID	263.20 ppm	264.84	266.30	265.57
CO2				
ZERO	0.00 percent	0.19	0.17	0.18
MID	8.14 percent	7.99	7.99	7.99

Mean Reference Values:

1368.67 ppm SO2/A DILUTION
261.07 ppm NOx/A DILUTION
10.40 percent CO2

Corrected Results:

1358.15 ppm SO2/A DILUTION
258.75 ppm NOx/A DILUTION
10.65 percent CO2

Emission Calculations

3.810 lbs/mmBtu SO2/A DILUTION
0.522 lbs/mmBtu NOx/A DILUTION

Sampling System Bias and Drift

Sampling System Bias and Drift

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	1 12:11:00 12:32:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	-1.95	0.00	3.91	0.00	-0.37%
MID	947.50	947.50	0.00	945.93	0.00	0.10%
NOx/A DILUTION						
ZERO	-0.73	-0.73	0.00	-0.37	0.00	-0.08%
MID	261.42	261.42	0.00	266.91	0.01	-1.16%
CO2/A DILUTION						
ZERO	-0.01	-0.01	0.00	0.16	0.01	-1.14%
MID	8.01	8.01	0.00	8.09	0.01	-0.54%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company**	Date Performed:	05-Mar-2013
	Pensacola, Florida	Test Number:	1
Performed For:	**Gulf Power Company**	Run Number:	2
	Scholz, Unit cs0001	Start Time:	12:46:00
	Sneads, Florida	Stop Time:	13:07:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	3.91	0.00	4.69	0.00	-0.05%
MID	947.50	945.93	0.00	942.42	0.00	0.22%
NOx/A DILUTION						
ZERO	-0.73	-0.37	0.00	-0.12	0.00	-0.05%
MID	261.42	266.91	0.01	266.91	0.01	0.00%
CO2/A DILUTION						
ZERO	-0.01	0.16	0.01	0.15	0.01	0.07%
MID	8.01	8.09	0.01	8.13	0.01	-0.30%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company**	Date Performed:	05-Mar-2013
	Pensacola, Florida	Test Number:	1
Performed For:	**Gulf Power Company**	Run Number:	3
	Scholz, Unit cs0001	Start Time:	13:20:00
	Sneads, Florida	Stop Time:	13:41:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	4.69	0.00	3.13	0.00	0.10%
MID	947.50	942.42	0.00	946.32	0.00	-0.25%
NOx/A DILUTION						
ZERO	-0.73	-0.12	0.00	-0.12	0.00	0.00%
MID	261.42	266.91	0.01	266.06	0.01	0.18%
CO2/A DILUTION						
ZERO	-0.01	0.15	0.01	0.21	0.01	-0.40%
MID	8.01	8.13	0.01	8.05	0.00	0.57%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	4 13:52:00 14:13:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	3.13	0.00	3.91	0.00	-0.05%
MID	947.50	946.32	0.00	947.89	0.00	-0.10%
NOx/A DILUTION						
ZERO	-0.73	-0.12	0.00	-0.85	0.00	0.15%
MID	261.42	266.06	0.01	265.69	0.01	0.08%
CO2/A DILUTION						
ZERO	-0.01	0.21	0.01	0.16	0.01	0.30%
MID	8.01	8.05	0.00	8.11	0.01	-0.40%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	5 14:28:00 14:49:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	3.91	0.00	3.91	0.00	0.00%
MID	947.50	947.89	0.00	948.28	0.00	-0.02%
NOx/A DILUTION						
ZERO	-0.73	-0.85	0.00	-0.61	0.00	-0.05%
MID	261.42	265.69	0.01	265.69	0.01	0.00%
CO2/A DILUTION						
ZERO	-0.01	0.16	0.01	0.21	0.01	-0.30%
MID	8.01	8.11	0.01	8.08	0.00	0.20%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	6 15:29:00 15:50:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	3.91	0.00	3.91	0.00	0.00%
MID	947.50	948.28	0.00	948.28	0.00	0.00%
NOx/A DILUTION						
ZERO	-0.73	-0.61	0.00	-0.37	0.00	-0.05%
MID	261.42	265.69	0.01	265.69	0.01	0.00%
CO2/A DILUTION						
ZERO	-0.01	0.21	0.01	0.13	0.01	0.54%
MID	8.01	8.08	0.00	8.02	0.00	0.37%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	7 16:05:00 16:26:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	3.91	0.00	3.13	0.00	0.05%
MID	947.50	948.28	0.00	944.37	0.00	0.25%
NOx/A DILUTION						
ZERO	-0.73	-0.37	0.00	-0.24	0.00	-0.03%
MID	261.42	265.69	0.01	266.18	0.01	-0.10%
CO2/A DILUTION						
ZERO	-0.01	0.13	0.01	0.17	0.01	-0.27%
MID	8.01	8.02	0.00	8.02	0.00	0.03%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	8 16:40:00 17:01:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	3.13	0.00	3.91	0.00	-0.05%
MID	947.50	944.37	0.00	943.20	0.00	0.07%
NOx/A DILUTION						
ZERO	-0.73	-0.24	0.00	-0.37	0.00	0.03%
MID	261.42	266.18	0.01	264.84	0.01	0.28%
CO2/A DILUTION						
ZERO	-0.01	0.17	0.01	0.19	0.01	-0.17%
MID	8.01	8.02	0.00	7.99	0.00	0.23%

Sampling System Bias and Drift

Performed By:	**Gulf Power Company** Pensacola, Florida	Date Performed: Test Number:	05-Mar-2013 1
Performed For:	**Gulf Power Company** Scholz, Unit cs0001 Sneads, Florida	Run Number: Start Time: Stop Time:	9 17:16:00 17:37:00

Monitor Type	Analyzer Cal Response	Initial Cal Value	Calculated Bias	Final Cal Value	Calculated Bias	Calculated Drift
SO2/A DILUTION						
ZERO	-1.95	3.91	0.00	3.91	0.00	0.00%
MID	947.50	943.20	0.00	938.90	-0.01	0.27%
NOx/A DILUTION						
ZERO	-0.73	-0.37	0.00	-0.73	0.00	0.08%
MID	261.42	264.84	0.01	266.30	0.01	-0.31%
CO2/A DILUTION						
ZERO	-0.01	0.19	0.01	0.17	0.01	0.17%
MID	8.01	7.99	0.00	7.99	0.00	0.00%

One Minute Averages

Run #1

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 12:11	10.383	232.9	1330.9
2	3/5/2013 12:12	10.461	226.9	1359.5
3	3/5/2013 12:13	10.475	226.1	1357.0
4	3/5/2013 12:14	10.512	231.3	1372.0
5	3/5/2013 12:15	10.539	224.7	1375.3
6	3/5/2013 12:16	10.545	226.5	1366.1
7	3/5/2013 12:17	10.549	228.6	1361.5
8	3/5/2013 12:18	10.427	234.2	1335.7
9	3/5/2013 12:19	10.409	226.6	1347.6
10	3/5/2013 12:20	10.595	227.7	1393.2
11	3/5/2013 12:21	10.647	237.8	1385.4
12	3/5/2013 12:22	10.681	231.4	1386.8
13	3/5/2013 12:23	10.588	233.7	1377.2
14	3/5/2013 12:24	10.672	231.9	1398.5
15	3/5/2013 12:25	10.694	225.9	1405.6
16	3/5/2013 12:26	10.646	232.7	1385.6
17	3/5/2013 12:27	10.637	233.9	1379.6
18	3/5/2013 12:28	10.637	238.9	1384.1
19	3/5/2013 12:29	10.702	236.1	1402.1
20	3/5/2013 12:30	10.638	233.3	1402.6
21	3/5/2013 12:31	10.652	230.2	1398.5
Average		**10.576**	**231.0**	**1376.4**

Run #2

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 12:46	10.474	233.8	1375.9
2	3/5/2013 12:47	10.521	234.7	1386.5
3	3/5/2013 12:48	10.509	234.3	1390.7
4	3/5/2013 12:49	10.603	230.0	1405.3
5	3/5/2013 12:50	10.565	229.0	1400.9
6	3/5/2013 12:51	10.513	237.8	1391.6
7	3/5/2013 12:52	10.502	236.9	1391.4
8	3/5/2013 12:53	10.567	230.3	1409.8
9	3/5/2013 12:54	10.574	233.7	1400.0
10	3/5/2013 12:55	10.530	234.3	1393.7
11	3/5/2013 12:56	10.552	227.1	1409.8
12	3/5/2013 12:57	10.584	230.0	1405.4
13	3/5/2013 12:58	10.503	232.2	1396.7
14	3/5/2013 12:59	10.615	227.2	1405.3
15	3/5/2013 13:00	10.546	224.0	1408.7
16	3/5/2013 13:01	10.523	231.8	1401.4
17	3/5/2013 13:02	10.501	226.3	1392.6
18	3/5/2013 13:03	10.530	217.2	1415.8
19	3/5/2013 13:04	10.587	224.6	1405.0
20	3/5/2013 13:05	10.650	229.0	1401.7
21	3/5/2013 13:06	10.580	224.4	1402.4
Average		**10.549**	**229.9**	**1399.5**

Run #3

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 13:20	10.400	221.8	1408.9
2	3/5/2013 13:21	10.437	228.0	1395.8
3	3/5/2013 13:22	10.417	231.5	1391.7
4	3/5/2013 13:23	10.500	237.9	1386.5
5	3/5/2013 13:24	10.470	238.8	1379.9
6	3/5/2013 13:25	10.490	239.5	1388.5
7	3/5/2013 13:26	10.484	227.5	1406.8
8	3/5/2013 13:27	10.524	227.9	1411.4
9	3/5/2013 13:28	10.460	233.6	1387.8
10	3/5/2013 13:29	10.503	235.9	1395.8
11	3/5/2013 13:30	10.601	227.3	1412.8
12	3/5/2013 13:31	10.567	224.0	1407.5
13	3/5/2013 13:32	10.528	225.1	1407.2
14	3/5/2013 13:33	10.522	223.2	1410.0
15	3/5/2013 13:34	10.479	220.9	1410.0
16	3/5/2013 13:35	10.519	225.4	1405.9
17	3/5/2013 13:36	10.498	228.7	1390.8
18	3/5/2013 13:37	10.431	225.8	1376.8
19	3/5/2013 13:38	10.361	226.9	1370.8
20	3/5/2013 13:39	10.463	230.1	1401.4
21	3/5/2013 13:40	10.585	229.3	1426.0
Average		**10.488**	**229.0**	**1398.7**

Run #4

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 13:52	10.234	231.4	1359.2
2	3/5/2013 13:53	10.426	233.9	1383.3
3	3/5/2013 13:54	10.457	231.5	1382.9
4	3/5/2013 13:55	10.470	230.2	1383.4
5	3/5/2013 13:56	10.440	227.8	1387.6
6	3/5/2013 13:57	10.456	228.2	1388.9
7	3/5/2013 13:58	10.517	228.8	1392.7
8	3/5/2013 13:59	10.437	223.0	1387.7
9	3/5/2013 14:00	10.433	225.1	1388.1
10	3/5/2013 14:01	10.407	224.3	1384.4
11	3/5/2013 14:02	10.498	229.6	1406.7
12	3/5/2013 14:03	10.473	219.1	1421.2
13	3/5/2013 14:04	10.427	222.6	1407.3
14	3/5/2013 14:05	10.488	221.6	1400.4
15	3/5/2013 14:06	10.490	222.2	1405.7
16	3/5/2013 14:07	10.449	227.3	1379.6
17	3/5/2013 14:08	10.334	223.9	1374.9
18	3/5/2013 14:09	10.446	222.0	1398.7
19	3/5/2013 14:10	10.503	223.5	1406.7
20	3/5/2013 14:11	10.453	220.1	1396.0
21	3/5/2013 14:12	10.386	222.1	1394.0
Average		**10.439**	**225.6**	**1391.9**

Run #5

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 14:28	10.562	231.6	1413.8
2	3/5/2013 14:29	10.606	227.6	1424.1
3	3/5/2013 14:30	10.539	228.6	1417.5
4	3/5/2013 14:31	10.517	224.4	1416.3
5	3/5/2013 14:32	10.421	221.0	1409.1
6	3/5/2013 14:33	10.557	228.2	1420.7
7	3/5/2013 14:34	10.501	226.7	1411.0
8	3/5/2013 14:35	10.567	226.5	1409.2
9	3/5/2013 14:36	10.505	229.7	1399.4
10	3/5/2013 14:37	10.517	235.5	1403.8
11	3/5/2013 14:38	10.548	227.7	1423.6
12	3/5/2013 14:39	10.464	225.1	1397.6
13	3/5/2013 14:40	10.348	231.1	1379.8
14	3/5/2013 14:41	10.274	220.5	1377.2
15	3/5/2013 14:42	10.350	214.3	1410.0
16	3/5/2013 14:43	10.450	217.0	1417.2
17	3/5/2013 14:44	10.406	213.7	1416.1
18	3/5/2013 14:45	10.480	216.0	1426.7
19	3/5/2013 14:46	10.444	219.7	1408.5
20	3/5/2013 14:47	10.507	224.3	1408.1
21	3/5/2013 14:48	10.430	225.8	1398.0
Average		**10.476**	**224.5**	**1408.9**

Run #6

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 15:29	10.409	270.8	1368.0
2	3/5/2013 15:30	10.378	261.8	1370.8
3	3/5/2013 15:31	10.527	257.6	1399.6
4	3/5/2013 15:32	10.623	268.8	1399.8
5	3/5/2013 15:33	10.562	267.1	1395.8
6	3/5/2013 15:34	10.455	255.8	1396.8
7	3/5/2013 15:35	10.527	251.7	1411.7
8	3/5/2013 15:36	10.411	251.7	1390.4
9	3/5/2013 15:37	10.457	255.5	1387.8
10	3/5/2013 15:38	10.447	260.9	1380.0
11	3/5/2013 15:39	10.561	260.6	1399.0
12	3/5/2013 15:40	10.484	264.1	1382.7
13	3/5/2013 15:41	10.461	268.5	1377.2
14	3/5/2013 15:42	10.451	264.9	1376.3
15	3/5/2013 15:43	10.510	261.6	1374.9
16	3/5/2013 15:44	10.466	261.3	1367.6
17	3/5/2013 15:45	10.483	265.1	1376.6
18	3/5/2013 15:46	10.562	263.4	1397.7
19	3/5/2013 15:47	10.540	260.1	1382.9
20	3/5/2013 15:48	10.401	267.6	1358.6
21	3/5/2013 15:49	10.467	272.0	1360.2
Average		**10.485**	**262.4**	**1383.5**

Run #7

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 16:05	10.396	268.6	1347.0
2	3/5/2013 16:06	10.363	270.7	1345.1
3	3/5/2013 16:07	10.204	262.7	1319.2
4	3/5/2013 16:08	10.223	262.0	1333.1
5	3/5/2013 16:09	10.248	253.5	1338.9
6	3/5/2013 16:10	10.457	258.4	1367.7
7	3/5/2013 16:11	10.456	257.1	1365.2
8	3/5/2013 16:12	10.348	264.0	1356.8
9	3/5/2013 16:13	10.442	261.4	1373.1
10	3/5/2013 16:14	10.379	262.6	1359.7
11	3/5/2013 16:15	10.202	266.2	1340.8
12	3/5/2013 16:16	10.287	260.6	1356.0
13	3/5/2013 16:17	10.364	258.9	1357.5
14	3/5/2013 16:18	10.302	260.1	1347.4
15	3/5/2013 16:19	10.383	266.9	1370.1
16	3/5/2013 16:20	10.400	261.2	1380.5
17	3/5/2013 16:21	10.286	261.4	1367.5
18	3/5/2013 16:22	10.340	255.8	1369.5
19	3/5/2013 16:23	10.225	252.3	1349.0
20	3/5/2013 16:24	10.173	259.7	1339.4
21	3/5/2013 16:25	10.345	259.6	1376.1
Average		**10.325**	**261.1**	**1355.2**

Run #8

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 16:40	10.452	253.1	1372.4
2	3/5/2013 16:41	10.433	251.3	1363.9
3	3/5/2013 16:42	10.385	254.8	1345.8
4	3/5/2013 16:43	10.323	253.2	1339.5
5	3/5/2013 16:44	10.392	257.6	1352.2
6	3/5/2013 16:45	10.331	260.2	1344.8
7	3/5/2013 16:46	10.370	260.0	1354.4
8	3/5/2013 16:47	10.346	259.4	1353.2
9	3/5/2013 16:48	10.353	255.1	1351.7
10	3/5/2013 16:49	10.389	248.5	1365.6
11	3/5/2013 16:50	10.383	247.5	1363.0
12	3/5/2013 16:51	10.320	254.8	1340.4
13	3/5/2013 16:52	10.323	260.6	1329.9
14	3/5/2013 16:53	10.344	256.7	1331.8
15	3/5/2013 16:54	10.431	257.2	1349.0
16	3/5/2013 16:55	10.488	256.9	1351.4
17	3/5/2013 16:56	10.405	260.6	1337.2
18	3/5/2013 16:57	10.384	260.8	1333.7
19	3/5/2013 16:58	10.344	261.0	1325.3
20	3/5/2013 16:59	10.324	265.6	1325.6
21	3/5/2013 17:00	10.380	265.5	1321.5
Average		**10.376**	**257.2**	**1345.3**

Run #9

#	Date/Time	CO2/A DILUTION	NOx/A DILUTION	SO2/A DILUTION
1	3/5/2013 17:16	10.328	263.4	1356.1
2	3/5/2013 17:17	10.419	264.8	1370.3
3	3/5/2013 17:18	10.347	267.4	1353.5
4	3/5/2013 17:19	10.396	260.4	1359.2
5	3/5/2013 17:20	10.458	265.0	1368.4
6	3/5/2013 17:21	10.437	260.5	1374.1
7	3/5/2013 17:22	10.381	263.6	1368.2
8	3/5/2013 17:23	10.378	264.5	1366.2
9	3/5/2013 17:24	10.426	258.8	1372.7
10	3/5/2013 17:25	10.387	261.9	1369.8
11	3/5/2013 17:26	10.470	261.7	1391.6
12	3/5/2013 17:27	10.487	259.3	1384.6
13	3/5/2013 17:28	10.432	262.2	1376.9
14	3/5/2013 17:29	10.440	262.9	1369.2
15	3/5/2013 17:30	10.423	256.9	1370.8
16	3/5/2013 17:31	10.452	257.3	1375.5
17	3/5/2013 17:32	10.357	259.5	1353.8
18	3/5/2013 17:33	10.303	254.9	1364.7
19	3/5/2013 17:34	10.378	257.8	1376.2
20	3/5/2013 17:35	10.362	258.0	1364.9
21	3/5/2013 17:36	10.364	261.8	1355.5
Average		**10.401**	**261.1**	**1368.7**

Appendix B. Relative Accuracy Test Audit for the Flow Monitors

Plant Scholz CS001 Annual Flow Relative Accuracy Test Audit RATA

Plant	Scholz	Test Number:	1	Side A
Unit	CS001	System ID:	S13	
Load	L	Reason for Test:	Q	

Results: 9.40 % Relative Accuracy
1.000 Bias Adjustment Factor

RUN#	LOAD gross MW	START DATE mm/dd/yy	START TIME hh:mm	END DATE mm/dd/yy	END TIME hh:mm	RM SCFM	CEM SCFM	DIFF SCFM	DIFF %	RATA STATUS FLAG *
1	48	03/04/13	14:58	03/04/13	15:04	152575	178009	-25434	-16.7%	0
2	48	03/04/13	15:05	03/04/13	15:11	169300	182943	-13643	-8.1%	1
3	48	03/04/13	15:12	03/04/13	15:17	169909	182782	-12873	-7.6%	1
4	48	03/04/13	15:25	03/04/13	15:30	166748	180873	-14125	-8.5%	1
5	48	03/04/13	15:31	03/04/13	15:36	161809	182088	-20279	-12.5%	1
6	48	03/04/13	15:37	03/04/13	15:43	152180	181344	-29164	-19.2%	0
7	48	03/04/13	15:44	03/04/13	15:52	167108	182300	-15192	-9.1%	1
8	48	03/04/13	16:01	03/04/13	16:07	168227	182396	-14169	-8.4%	1
9	47	03/04/13	16:08	03/04/13	16:13	179927	180170	-243	-0.1%	1
10	48	03/04/13	16:14	03/04/13	16:19	152976	183127	-30151	-19.7%	0
11	48	03/04/13	16:20	03/04/13	16:25	176781	181915	-5134	-2.9%	1
12	48	03/04/13	16:26	03/04/13	16:32	181125	181180	-55	0.0%	1
AVG	48					166555	181594	-15038	-9.0%	9 runs used

Note: Averages above include ALL test runs.

* 0=run not used, 1=run used, 9=RATA not used

Plant Scholz CS001 Annual Flow Relative Accuracy Test Audit RATA

Plant	Scholz	Test Number:	1	Side B
Unit	CS001	System ID:	S14	
Load	L	Reason for Test:	Q	

Results: 5.47 % Relative Accuracy
1.000 Bias Adjustment Factor

RUN#	LOAD gross MW	START DATE mm/dd/yy	START TIME hh:mm	END DATE mm/dd/yy	END TIME hh:mm	RM SCFM	CEM SCFM	DIFF SCFM	DIFF %	RATA STATUS FLAG *
1	48	03/04/13	14:58	03/04/13	15:04	152575	157766	-5191	-3.4%	1
2	48	03/04/13	15:05	03/04/13	15:11	169300	157960	11340	6.7%	1
3	48	03/04/13	15:12	03/04/13	15:17	169909	159695	10214	6.0%	1
4	48	03/04/13	15:25	03/04/13	15:30	166748	159237	7511	4.5%	1
5	48	03/04/13	15:31	03/04/13	15:36	161809	160470	1339	0.8%	1
6	48	03/04/13	15:37	03/04/13	15:43	152180	157026	-4846	-3.2%	1
7	48	03/04/13	15:44	03/04/13	15:52	167108	159389	7719	4.6%	1
8	48	03/04/13	16:01	03/04/13	16:07	168227	159609	8618	5.1%	1
9	47	03/04/13	16:08	03/04/13	16:13	179927	156163	23764	13.2%	0
10	48	03/04/13	16:14	03/04/13	16:19	152976	156627	-3651	-2.4%	1
11	48	03/04/13	16:20	03/04/13	16:25	176781	157225	19556	11.1%	0
12	48	03/04/13	16:26	03/04/13	16:32	181125	160526	20599	11.4%	0
AVG	48					166555	158474	8081	4.9%	9 runs used

Note: Averages above include ALL test runs.

* 0=run not used, 1=run used, 9=RATA not used

Plant Scholz CS001 Annual Flow Relative Accuracy Test Audit RATA

Plant	Scholz	Test Number:	1	A/B
Unit	CS001	System ID:	S15	
Load	L	Reason for Test:	Q	

Results: **3.71** **% Relative Accuracy**
1.000 **Bias Adjustment Factor**

RUN#	LOAD gross MW	START DATE mm/dd/yy	START TIME hh:mm	END DATE mm/dd/yy	END TIME hh:mm	RM SCFM	CEM SCFM	DIFF SCFM	DIFF %	RATA STATUS FLAG *
1	48	03/04/13	14:58	03/04/13	15:04	152575	167900	-15325	-10.0%	0
2	48	03/04/13	15:05	03/04/13	15:11	169300	170500	-1200	-0.7%	1
3	48	03/04/13	15:12	03/04/13	15:17	169909	171250	-1341	-0.8%	1
4	48	03/04/13	15:25	03/04/13	15:30	166748	170000	-3252	-2.0%	1
5	48	03/04/13	15:31	03/04/13	15:36	161809	171300	-9491	-5.9%	1
6	48	03/04/13	15:37	03/04/13	15:43	152180	169114	-16934	-11.1%	0
7	48	03/04/13	15:44	03/04/13	15:52	167108	170856	-3748	-2.2%	1
8	48	03/04/13	16:01	03/04/13	16:07	168227	171057	-2830	-1.7%	1
9	47	03/04/13	16:08	03/04/13	16:13	179927	168150	11777	6.5%	1
10	48	03/04/13	16:14	03/04/13	16:19	152976	169750	-16774	-11.0%	0
11	48	03/04/13	16:20	03/04/13	16:25	176781	169700	7081	4.0%	1
12	48	03/04/13	16:26	03/04/13	16:32	181125	170786	10339	5.7%	1
AVG	48					166555	170030	-3475	-2.1%	9 runs used

Note: Averages above include ALL test runs.

* 0=run not used, 1=run used, 9=RATA not used

Appendix C. Gas and Flow CEMS Data

CEMS Data – Gas RATA

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21		
3/5/2013 12:11	47.28	10.51	236.3	0.484	1320.9	1.19506E-07	0.483643
3/5/2013 12:12	47.53	10.44	229.1	0.472	1311.6		0.472051
3/5/2013 12:13	47.6	10.59	223.4	0.454	1346		0.453786
3/5/2013 12:14	47.74	10.55	223.8	0.456	1335.1		0.456322
3/5/2013 12:15	47.87	10.59	228.5	0.464	1348.3		0.464146
3/5/2013 12:16	47.78	10.57	220.1	0.448	1350.7		0.447929
3/5/2013 12:17	47.44	10.6	225.5	0.458	1352.7		0.45762
3/5/2013 12:18	47.38	10.53	224.4	0.458	1339		0.458415
3/5/2013 12:19	48.22	10.35	232.9	0.484	1309.1		0.484053
3/5/2013 12:20	48.33	10.59	220.4	0.448	1334.8		0.447692
3/5/2013 12:21	48.33	10.64	226.8	0.459	1376.4		0.458528
3/5/2013 12:22	48.34	10.7	237.4	0.477	1365.4		0.477266
3/5/2013 12:23	48.24	10.64	226.7	0.458	1363.4		0.458325
3/5/2013 12:24	48.33	10.61	232.8	0.472	1358.2		0.471989
3/5/2013 12:25	48.34	10.74	228.9	0.458	1380.5		0.458464
3/5/2013 12:26	48.17	10.68	223.2	0.450	1382.1		0.449559
3/5/2013 12:27	48.26	10.66	233.6	0.471	1364.3		0.471389
3/5/2013 12:28	48.22	10.65	231.2	0.467	1354.8		0.466984
3/5/2013 12:29	48.45	10.69	237.7	0.478	1362.9		0.478317
3/5/2013 12:30	48.49	10.71	232.2	0.466	1386.1		0.466377
3/5/2013 12:31	48.39	10.62	231.2	0.468	1379.8		0.468303
3/5/2013 12:32	48.41	10.7	226.2	0.455	1375.3		0.45475
	48.05	**10.61**	**228.74**	**0.464**	**1354.43**		**0.464**

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21		
3/5/2013 12:46	48.36	10.57	229.4	0.467	1372.3	1.2E-07	0.466855
3/5/2013 12:47	48.3	10.63	229.6	0.465	1367		0.464625
3/5/2013 12:48	48.27	10.58	230.6	0.469	1373.3		0.468854
3/5/2013 12:49	48.48	10.69	231.4	0.466	1371.3		0.465639
3/5/2013 12:50	48.38	10.68	225.5	0.454	1393.3		0.454192
3/5/2013 12:51	48.01	10.55	224.9	0.459	1392.5		0.458565
3/5/2013 12:52	48.11	10.61	237	0.481	1379.4		0.480504
3/5/2013 12:53	48.4	10.65	232.1	0.469	1379.6		0.468802
3/5/2013 12:54	48.27	10.7	226.7	0.456	1400		0.455755
3/5/2013 12:55	48.28	10.57	231.9	0.472	1387.6		0.471943
3/5/2013 12:56	48.28	10.64	233.2	0.471	1382.6		0.471467
3/5/2013 12:57	48.28	10.61	222.6	0.451	1396.9		0.451309
3/5/2013 12:58	48.29	10.55	230.3	0.470	1388.8		0.469576
3/5/2013 12:59	48.17	10.69	229.5	0.462	1378.1		0.461816
3/5/2013 13:00	48.17	10.58	224.7	0.457	1389.3		0.456858
3/5/2013 13:01	48.15	10.57	221.1	0.450	1399.8		0.449964
3/5/2013 13:02	48.27	10.51	231.3	0.473	1377.2		0.473409
3/5/2013 13:03	48.47	10.5	220.2	0.451	1369.6		0.45112
3/5/2013 13:04	48.42	10.62	213.4	0.432	1397.6		0.432249
3/5/2013 13:05	48.54	10.7	225.2	0.453	1384.3		0.45274
3/5/2013 13:06	48.52	10.63	227.2	0.460	1383.3		0.459768
3/5/2013 13:07	48.5	10.69	220.3	0.443	1379.9		0.443303
	48.31	**10.61**	**227.19**	**0.460**	**1383.80**		**0.460**

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21		
3/5/2013 13:20	48.81	10.57	214.2	0.436	1390.9	1.2E-07	0.435922
3/5/2013 13:21	48.47	10.61	218.9	0.444	1398		0.443807
3/5/2013 13:22	48.2	10.54	225.1	0.459	1379.3		0.459408
3/5/2013 13:23	48.03	10.6	229.6	0.466	1370.2		0.46594
3/5/2013 13:24	48.05	10.59	237.2	0.482	1370.2		0.481818
3/5/2013 13:25	48.42	10.51	236.5	0.484	1362.9		0.484052
3/5/2013 13:26	48.57	10.61	236.1	0.479	1375.9		0.478679
3/5/2013 13:27	48.51	10.63	222	0.449	1394.9		0.449245
3/5/2013 13:28	48.23	10.56	226.2	0.461	1391.5		0.460779
3/5/2013 13:29	48.19	10.58	233.1	0.474	1369.5		0.473937
3/5/2013 13:30	48.28	10.65	233.2	0.471	1378.8		0.471024
3/5/2013 13:31	48.6	10.66	222.9	0.450	1397.3		0.449797
3/5/2013 13:32	48.67	10.56	220.6	0.449	1390.8		0.449372
3/5/2013 13:33	48.65	10.62	223.3	0.452	1386.5		0.452302
3/5/2013 13:34	48.59	10.58	219.7	0.447	1393.4		0.446692
3/5/2013 13:35	48.22	10.58	217.4	0.442	1393.2		0.442016
3/5/2013 13:36	48.17	10.61	226	0.458	1383.4		0.458202
3/5/2013 13:37	48.22	10.56	226	0.460	1369.5		0.460372
3/5/2013 13:38	48.42	10.41	223.9	0.463	1357.1		0.462666
3/5/2013 13:39	48.61	10.52	225.6	0.461	1351.9		0.461304
3/5/2013 13:40	48.68	10.64	228.5	0.462	1387.6		0.461964
3/5/2013 13:41	48.64	10.69	225.8	0.454	1413.9		0.454371
	48.42	**10.59**	**225.99**	**0.459**	**1382.12**		**0.459**

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21		
3/5/2013 13:52	48.11	10.63	224.6	0.455	1393.3	1.2E-07	0.454507
3/5/2013 13:53	48.16	10.61	229.9	0.466	1367.3		0.466109
3/5/2013 13:54	48.23	10.68	229.1	0.461	1380.7		0.461443
3/5/2013 13:55	48.17	10.58	229	0.466	1370		0.465601
3/5/2013 13:56	48.17	10.6	224.2	0.455	1371.8		0.454982
3/5/2013 13:57	48.16	10.54	224.7	0.459	1376		0.458592
3/5/2013 13:58	48.17	10.66	226.7	0.457	1371.2		0.457465
3/5/2013 13:59	48.24	10.57	226.1	0.460	1369.7		0.46014
3/5/2013 14:00	48.24	10.5	219.3	0.449	1366.8		0.449276
3/5/2013 14:01	48.28	10.51	222.9	0.456	1372.8		0.456217
3/5/2013 14:02	48.15	10.57	222.3	0.452	1367.2		0.452406
3/5/2013 14:03	48.28	10.64	227	0.459	1392.5		0.458932
3/5/2013 14:04	48.28	10.48	214.7	0.441	1411		0.440692
3/5/2013 14:05	48.39	10.59	222.7	0.452	1391.2		0.452364
3/5/2013 14:06	48.18	10.53	218.1	0.446	1382.7		0.445545
3/5/2013 14:07	47.84	10.53	222.2	0.454	1386.5		0.45392
3/5/2013 14:08	47.98	10.41	225.6	0.466	1353.2		0.466179
3/5/2013 14:09	48.03	10.48	220.7	0.453	1352.4		0.453007
3/5/2013 14:10	48.17	10.6	220.8	0.448	1381.9		0.448082
3/5/2013 14:11	48.14	10.59	221.6	0.450	1388.3		0.45013
3/5/2013 14:12	48.18	10.46	218.6	0.450	1375		0.449555
3/5/2013 14:13	48.16	10.54	220.7	0.450	1371.5		0.450428
	48.17	**10.56**	**223.25**	**0.455**	**1376.95**		**0.455**

Date Time	CO21	GEN1	NOX1	NOXRT1	SO21		
3/5/2013 14:28	10.63	48.23	221.4	0.448	1395	1.2E-07	0.448031
3/5/2013 14:29	10.81	48.3	231.1	0.460	1395.1		0.459873
3/5/2013 14:30	10.63	48.49	224	0.453	1403.4		0.453293
3/5/2013 14:31	10.58	48.43	226	0.460	1397.8		0.459501
3/5/2013 14:32	10.5	48.34	219	0.449	1397.3		0.448662
3/5/2013 14:33	10.64	48.35	221.2	0.447	1391.9		0.447206
3/5/2013 14:34	10.61	48.43	226.8	0.460	1398.5		0.459824
3/5/2013 14:35	10.69	48.44	226.8	0.456	1384.4		0.456383
3/5/2013 14:36	10.58	48.43	223.2	0.454	1380.9		0.453808
3/5/2013 14:37	10.66	48.23	231.2	0.467	1376.1		0.466546
3/5/2013 14:38	10.64	48.05	233.7	0.472	1387.2		0.472477
3/5/2013 14:39	10.57	47.89	225.3	0.459	1403.3		0.458511
3/5/2013 14:40	10.48	47.88	225.3	0.462	1380.8		0.462449
3/5/2013 14:41	10.22	48.24	228.1	0.480	1347		0.480107
3/5/2013 14:42	10.44	48.27	213.8	0.441	1360.3		0.440526
3/5/2013 14:43	10.52	48.42	212.9	0.435	1385.2		0.435335
3/5/2013 14:44	10.43	48.56	213.9	0.441	1391.8		0.441154
3/5/2013 14:45	10.59	48.4	210.3	0.427	1395.6		0.427176
3/5/2013 14:46	10.52	48.22	217.1	0.444	1401.1		0.443923
3/5/2013 14:47	10.57	47.91	217.8	0.443	1385.4		0.443248
3/5/2013 14:48	10.6	47.83	225.3	0.457	1382.2		0.457214
3/5/2013 14:49	10.49	47.99	222.2	0.456	1376.4		0.455651
	10.56	**48.24**	**222.56**	**0.453**	**1387.12**		**0.453**

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21
3/5/2013 15:29	47.95	10.53	265.1	0.537	1367.4
3/5/2013 15:30	48.26	10.48	269.5	0.554	1337.3
3/5/2013 15:31	48.48	10.6	252.3	0.515	1356.2
3/5/2013 15:32	48.63	10.71	260.4	0.519	1376.8
3/5/2013 15:33	48.56	10.68	267.9	0.539	1373.9
3/5/2013 15:34	48.53	10.58	264	0.539	1372.8
3/5/2013 15:35	48.57	10.65	250.2	0.506	1373.3
3/5/2013 15:36	48.46	10.48	247.8	0.506	1383.8
3/5/2013 15:37	48.28	10.58	251.7	0.511	1367.4
3/5/2013 15:38	48.3	10.55	254.8	0.516	1361.6
3/5/2013 15:39	48.65	10.63	262.8	0.531	1361.7
3/5/2013 15:40	48.73	10.6	256.6	0.519	1375.5
3/5/2013 15:41	48.58	10.59	265.4	0.540	1354.8
3/5/2013 15:42	48.55	10.53	268.3	0.549	1352.4
3/5/2013 15:43	48.82	10.64	260.6	0.527	1353
3/5/2013 15:44	48.83	10.58	257.5	0.525	1351.4
3/5/2013 15:45	48.88	10.55	261.2	0.531	1344.1
3/5/2013 15:46	48.82	10.66	264.2	0.533	1359.8
3/5/2013 15:47	48.7	10.69	259.4	0.521	1376.3
3/5/2013 15:48	48.37	10.46	258.3	0.528	1350
3/5/2013 15:49	48.34	10.56	270.7	0.551	1332.2
3/5/2013 15:50	48.51	10.6	266.3	0.542	1337.9
	48.54	**10.59**	**260.68**	**0.529**	**1359.98**

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21
3/5/2013 16:05	47.67	10.54	266	0.539	1340
3/5/2013 16:06	47.47	10.56	266.3	0.542	1336.8
3/5/2013 16:07	47.54	10.51	269.7	0.551	1327
3/5/2013 16:08	47.81	10.31	256.9	0.538	1296.6
3/5/2013 16:09	48.18	10.42	259.8	0.536	1309.2
3/5/2013 16:10	48.5	10.52	249.9	0.512	1313.4
3/5/2013 16:11	48.38	10.67	256.4	0.517	1345.9
3/5/2013 16:12	48.4	10.42	253.9	0.523	1345.6
3/5/2013 16:13	48.43	10.55	263.4	0.538	1328.7
3/5/2013 16:14	48.05	10.61	258.7	0.524	1351.8
3/5/2013 16:15	47.74	10.39	261	0.540	1340.9
3/5/2013 16:16	47.95	10.36	263.4	0.548	1311
3/5/2013 16:17	48.12	10.52	256	0.526	1333.2
3/5/2013 16:18	48.39	10.43	258.3	0.528	1337.5
3/5/2013 16:19	48.31	10.47	257.8	0.533	1321.2
3/5/2013 16:20	48.15	10.59	265.5	0.536	1353.2
3/5/2013 16:21	47.79	10.45	258.3	0.530	1361.6
3/5/2013 16:22	47.37	10.42	259.5	0.536	1340.8
3/5/2013 16:23	47.39	10.47	253.5	0.521	1349.6
3/5/2013 16:24	47.92	10.33	250.6	0.517	1325.8
3/5/2013 16:25	48.63	10.33	257.4	0.538	1314.8
3/5/2013 16:26	48.7	10.7	257.9	0.517	1353.4
	48.04	**10.48**	**259.10**	**0.531**	**1333.55**

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21
3/5/2013 16:40	48.5	10.68	256.2	0.520	1345.6
3/5/2013 16:41	48.39	10.69	248.4	0.500	1365
3/5/2013 16:42	48.2	10.7	248.1	0.497	1352.4
3/5/2013 16:43	48.25	10.56	252.2	0.514	1337.8
3/5/2013 16:44	48.19	10.57	250.7	0.510	1324.1
3/5/2013 16:45	48.16	10.57	256.7	0.520	1345.8
3/5/2013 16:46	48.2	10.52	257.5	0.530	1333
3/5/2013 16:47	48.41	10.56	258.1	0.523	1341
3/5/2013 16:48	48.42	10.55	255.9	0.522	1337.8
3/5/2013 16:49	48.57	10.55	251.6	0.514	1336.6
3/5/2013 16:50	48.57	10.61	244.8	0.497	1346.8
3/5/2013 16:51	48.47	10.54	246	0.499	1347.2
3/5/2013 16:52	48.45	10.52	254.4	0.520	1323.1
3/5/2013 16:53	48.4	10.56	259.7	0.530	1315.4
3/5/2013 16:54	48.33	10.55	253.4	0.518	1316.5
3/5/2013 16:55	48.13	10.76	255.7	0.511	1333.2
3/5/2013 16:56	47.98	10.64	255.3	0.514	1337
3/5/2013 16:57	47.89	10.64	260.3	0.526	1312.3
3/5/2013 16:58	47.97	10.6	260.5	0.531	1319.5
3/5/2013 16:59	48.02	10.47	259.6	0.534	1310.4
3/5/2013 17:00	47.98	10.59	265.3	0.537	1313.3
3/5/2013 17:01	48	10.57	263.4	0.537	1306.1
	48.25	**10.59**	**255.17**	**0.518**	**1331.81**

Date Time	GEN1	CO21	NOX1	NOXRT1	SO21
3/5/2013 17:16	48.24	10.49	259.3	0.532	1332.3
3/5/2013 17:17	48.37	10.67	260.7	0.526	1343.8
3/5/2013 17:18	48.36	10.55	263.4	0.533	1356.3
3/5/2013 17:19	48.17	10.61	262.6	0.537	1333.8
3/5/2013 17:20	48.24	10.69	259.1	0.519	1339.9
3/5/2013 17:21	48.24	10.68	261.1	0.527	1351.5
3/5/2013 17:22	48.22	10.52	255.8	0.521	1354.3
3/5/2013 17:23	48.19	10.58	263	0.534	1345.6
3/5/2013 17:24	48.29	10.62	260.6	0.529	1349.6
3/5/2013 17:25	48.49	10.59	255.2	0.517	1352.8
3/5/2013 17:26	48.53	10.62	260.7	0.528	1356.3
3/5/2013 17:27	48.43	10.69	256.4	0.516	1381
3/5/2013 17:28	48.37	10.64	257	0.518	1372
3/5/2013 17:29	48.24	10.64	259.2	0.525	1357.2
3/5/2013 17:30	48.31	10.6	259.6	0.526	1351.4
3/5/2013 17:31	48.27	10.63	252.1	0.511	1356.7
3/5/2013 17:32	47.97	10.63	253.8	0.514	1358.6
3/5/2013 17:33	48.21	10.47	258.3	0.530	1336.6
3/5/2013 17:34	48.3	10.56	251.2	0.511	1346.8
3/5/2013 17:35	48.4	10.53	255.8	0.523	1359.5
3/5/2013 17:36	48.33	10.59	255.3	0.519	1347.9
3/5/2013 17:37	48.19	10.56	261.1	0.528	1340
	48.29	**10.60**	**258.24**	**0.524**	**1351.09**

CEMS Data – Low Load Flow RATA

	Date Time	FLO1	FLO2	FLOW	GEN1
		181.29	155.42	168.2	48.39
	3/4/2013 14:50	180.86	157.11	169	48.25
	3/4/2013 14:51	178.71	158	168.4	48.21
	3/4/2013 14:52	177.82	157.16	167.7	48.1
	3/4/2013 14:53	178.26	155.71	167	48.16
	3/4/2013 14:54	179.2	155.54	167.3	48.25
	3/4/2013 14:55	181.63	155.64	168.5	48.27
	3/4/2013 14:56	183.24	155.09	169.1	48.12
		182.77	154.75	168.8	48.01
3/4/2013 14:49	3/4/2013 14:57	180.420	156.047	168.222	48.2
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		179.95	156.43	168.3	48.03
	3/4/2013 14:59	176.71	159	167.9	47.83
	3/4/2013 15:00	176.98	160.1	168.5	47.86
	3/4/2013 15:01	177.86	159.97	168.9	48.13
	3/4/2013 15:02	177.32	158.05	168	48.07
	3/4/2013 15:03	177.5	155.63	166.6	48.03
		179.74	155.18	167.1	48.05
3/4/2013 14:58	3/4/2013 15:04	178.009	157.766	167.900	48.0
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		186.66	157.43	171.7	47.96
	3/4/2013 15:06	188.46	159.61	174.1	47.81
	3/4/2013 15:07	182.1	158.96	171.4	47.76
	3/4/2013 15:08	178.06	157.36	167.9	47.77
	3/4/2013 15:09	179.43	156.84	168	47.97
	3/4/2013 15:10	181.95	157.37	169.5	47.97
		183.94	158.15	170.9	47.88
3/4/2013 15:05	3/4/2013 15:11	182.943	157.960	170.500	47.9
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		182.87	159.15	171.1	47.78
	3/4/2013 15:13	179.31	161.1	170.3	47.62
	3/4/2013 15:14	181.96	161.37	171.4	47.8
	3/4/2013 15:15	185.69	159.72	172.7	47.89
	3/4/2013 15:16	184	158.15	171.4	47.95
		182.86	158.68	170.6	48.02
3/4/2013 15:12	3/4/2013 15:17	182.782	159.695	171.250	47.8

	Date Time	FLO1	FLO2	FLOW	GEN1
		179.98	155.09	167.4	48.25
	3/4/2013 15:26	179.17	157.61	168.2	48.17
	3/4/2013 15:27	179.52	161.07	170	48.09
	3/4/2013 15:28	181.6	162.17	171.8	48.04
	3/4/2013 15:29	182.43	160.93	171.8	48.1
		182.54	158.55	170.8	48.09
3/4/2013 15:25	3/4/2013 15:30	180.873	159.237	170.000	48.1
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		182.06	156.34	169.4	48.01
	3/4/2013 15:32	181.85	156.75	169.2	47.86
	3/4/2013 15:33	183.34	163.13	172.6	47.93
	3/4/2013 15:34	183.01	165.09	174	48.03
	3/4/2013 15:35	181.01	161.96	172	48.09
		181.26	159.55	170.6	48.12
3/4/2013 15:31	3/4/2013 15:36	182.088	160.470	171.300	48.0
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		182.48	155.81	169.4	48.28
	3/4/2013 15:38	183.43	154.18	168.7	48.31
	3/4/2013 15:39	182.47	155.58	168.9	48.4
	3/4/2013 15:40	180.04	156.85	168.6	48.22
	3/4/2013 15:41	179.22	156.96	168.1	48.04
	3/4/2013 15:42	180.25	158.73	169.1	48.07
		181.52	161.07	171	48.14
3/4/2013 15:37	3/4/2013 15:43	181.344	157.026	169.114	48.2
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		182.22	160.45	171.5	48.05
	3/4/2013 15:45	182.12	158.94	170.7	48.06
	3/4/2013 15:46	181.44	158.54	170	48.19
	3/4/2013 15:47	181.76	159.11	170.4	48.45
	3/4/2013 15:48	181.9	158.39	170.2	48.43
	3/4/2013 15:49	182.02	157.27	169.7	48.37
	3/4/2013 15:50	183.14	158.27	170.4	48.21
	3/4/2013 15:51	183.3	161.24	172.1	47.99
		182.8	162.29	172.7	48.06
3/4/2013 15:44	3/4/2013 15:52	182.300	159.389	170.856	48.2

	Date Time	FLO1	FLO2	FLOW	GEN1
		182.35	157.75	169.5	47.69
	3/4/2013 16:02	182.5	160.64	171.6	47.62
	3/4/2013 16:03	182.5	161.37	171.9	47.73
	3/4/2013 16:04	184.13	161.06	172.5	47.91
	3/4/2013 16:05	184.48	160.49	172.6	47.52
	3/4/2013 16:06	181.98	159.16	171.1	47.13
		178.83	156.79	168.2	47.12
3/4/2013 16:01	3/4/2013 16:07	182.396	159.609	171.057	47.5
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		177.86	154.84	166.3	47.2
	3/4/2013 16:09	179.34	154.55	166.9	47.11
	3/4/2013 16:10	180.76	156.66	168.4	47.22
	3/4/2013 16:11	181.04	158.66	169.7	47.36
	3/4/2013 16:12	181.14	157.55	169.6	47.46
		180.88	154.72	168	47.62
3/4/2013 16:08	3/4/2013 16:13	180.170	156.163	168.150	47.3
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		181.56	154.81	168	47.76
	3/4/2013 16:15	182.3	156.45	169.3	47.95
	3/4/2013 16:16	181.93	156.43	169.3	48.03
	3/4/2013 16:17	182.84	155.91	169.2	47.88
	3/4/2013 16:18	184.47	157.38	170.6	48.08
		185.66	158.78	172.1	48.23
3/4/2013 16:14	3/4/2013 16:19	183.127	156.627	169.750	48.0
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		186.05	158.85	172.5	48.28
	3/4/2013 16:21	184.78	158.1	171.7	48.06
	3/4/2013 16:22	182.1	157.04	169.8	47.96
	3/4/2013 16:23	180.29	156.66	168.6	47.87
	3/4/2013 16:24	179.28	156.26	167.9	47.88
		178.99	156.44	167.7	48.02
3/4/2013 16:20	3/4/2013 16:25	181.915	157.225	169.700	48.0
	Date Time	**FLO1**	**FLO2**	**FLOW**	**GEN1**
		179.53	158.54	168.7	47.87
	3/4/2013 16:27	179.14	161.3	170.2	47.75
	3/4/2013 16:28	178.58	162.38	170.5	47.7
	3/4/2013 16:29	179.67	161.55	170.6	47.65
	3/4/2013 16:30	182.65	160.6	171.4	47.71
	3/4/2013 16:31	184.57	160.1	172.2	47.74
		184.12	159.21	171.9	47.83
3/4/2013 16:26	3/4/2013 16:32	181.180	160.526	170.786	47.8

Appendix D. Reference Method Analyzer Performance Results

INTERFERNCE RESPONSE TEST
AUDIT TRAILER INSTRUMENT BAY A
REPLACEMENT NO_X, RECHECKED SO_2 AND CO_2 ANALYZER

DATE 1/4/2006
PARAMETER NO_X
ANALYZER SER. NUMBER 525912431
ANALYST JOHN MCPHERSON

PARAMETER	CONCENTRATION	CYLINDER NUMBER	RESPONSE	% OF SPAN
CO	*504 PPM*	*ALM010287*	*0.00*	*0.00*
CO_2	*9.06%*	*ALM053933*	*0.20*	*0.05*
SO_2	*203.0 PPM*	*ALM034735*	*0.00*	*0.00*
O_2	*20.90%*	*AMBIENT*	*0.00*	*0.00*

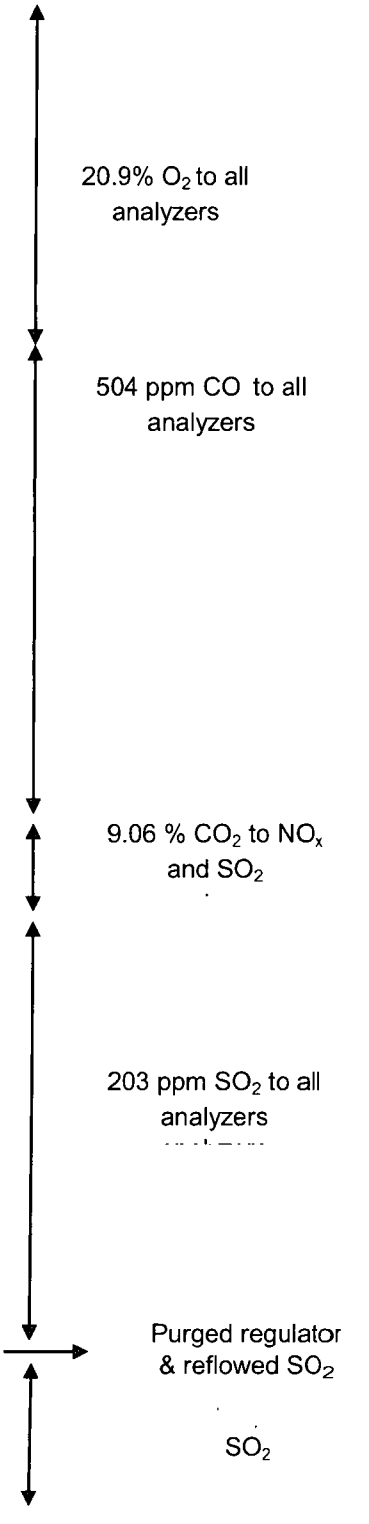
DATE 1/4/2006
PARAMETER SO_2
ANALYZER SER. NUMBER 43C-72790-372
ANALYST JOHN MCPHERSON

PARAMETER	CONCENTRATION	CYLINDER NUMBER	RESPONSE	% OF SPAN
CO	*504 PPM*	*ALM010287*	*0.00*	*0.00*
CO_2	*9.06%*	*ALM053933*	*0.00*	*0.00*
SO_2	*203.0 PPM*	*ALM034735*	*NA*	*NA*
O_2	*20.90%*	*AMBIENT*	*0.00*	*0.00*

DATE 1/4/2006
PARAMETER CO_2
ANALYZER SER. NUMBER N5-672
ANALYST JOHN MCPHERSON

PARAMETER	CONCENTRATION	CYLINDER NUMBER	RESPONSE	% OF SPAN
CO	*504 PPM*	*ALM010287*	*0.055*	*0.010*
CO_2	*9.06%*	*ALM053933*	*NA*	*NA*
SO_2	*203.0 PPM*	*ALM034735*	*0.021*	*0.030*
O_2	*20.90%*	*AMBIENT*	*NA*	*NA*

#	Date/Time	NOx/A	SO2/A	CO2/A
1	1/4/2006 9:07	0.0	0.0	0.056
2	1/4/2006 9:08	0.0	0.0	0.056
3	1/4/2006 9:09	0.0	0.0	0.056
4	1/4/2006 9:10	0.0	0.0	0.056
5	1/4/2006 9:11	0.0	0.0	0.056
6	1/4/2006 9:12	0.0	0.0	0.055
7	1/4/2006 9:13	0.0	0.0	0.055
8	1/4/2006 9:14	0.0	0.0	0.055
9	1/4/2006 9:15	0.0	0.0	0.055
10	1/4/2006 9:16	0.0	0.0	0.055
11	1/4/2006 9:17	0.0	0.0	0.053
12	1/4/2006 9:18	0.0	0.0	0.053
13	1/4/2006 9:19	0.0	0.0	0.055
14	1/4/2006 9:20	0.0	0.0	0.054
15	1/4/2006 9:21	0.0	0.0	0.055
16	1/4/2006 9:22	0.0	0.0	0.056
17	1/4/2006 9:23	0.0	0.0	0.056
18	1/4/2006 9:24	0.0	0.0	0.054
19	1/4/2006 9:25	0.0	0.0	0.054
20	1/4/2006 9:26	0.0	0.0	0.055
21	1/4/2006 9:27	0.0	0.0	0.056
22	1/4/2006 9:28	0.0	0.0	0.056
23	1/4/2006 9:29	0.0	0.0	0.072
24	1/4/2006 9:30	0.0	0.0	0.082
25	1/4/2006 9:31	0.0	0.0	0.082
26	1/4/2006 9:32	0.0	0.0	0.082
27	1/4/2006 9:33	0.2	0.2	0.081
28	1/4/2006 9:34	2.0	4.4	0.058
29	1/4/2006 9:35	0.8	4.8	0.054
30	1/4/2006 9:36	0.0	3.7	0.045
31	1/4/2006 9:37	1.2	3.5	0.011
32	1/4/2006 9:38	2.1	4.8	0.015
33	1/4/2006 9:39	2.1	4.8	0.039
34	1/4/2006 9:40	0.7	4.8	0.021
35	1/4/2006 9:41	1.9	4.8	0.015
36	1/4/2006 9:42	1.7	4.8	0.043
37	1/4/2006 9:43	0.0	4.8	0.051
38	1/4/2006 9:44	0.1	2.8	0.037
39	1/4/2006 9:45	1.4	4.0	0.017
40	1/4/2006 9:46	1.9	4.8	0.047
41	1/4/2006 9:47	0.1	4.8	0.057
42	1/4/2006 9:48	0.0	3.8	0.053
43	1/4/2006 9:49	0.0	2.6	0.029
44	1/4/2006 9:50	0.0	4.8	0.025
45	1/4/2006 9:51	0.0	4.8	0.025
46	1/4/2006 9:52	0.0	4.8	0.025
	Average	0.4	1.8	0.050



Response Time Test

Analyzer Response Time
Gulf Power Company
Plant Scholz
CS001
Tuesday, March 05, 2013

Monitor : NO_x
Serial Number : 525912431
Span Gas Concentration : 473.1
Monitor Span : 473.1

	Upscale Response Time Seconds		Downscale Response Time Seconds
RUN 1	200	RUN 1	200
RUN 2	200	RUN 2	200
RUN 3	200	RUN 3	200
Average	200.0	**Average**	200.0

System Reponse Time 200.00 seconds
3.33 minutes

Monitor : SO_2
Serial Number : 43C-72790-372
Span Gas Concentration : 1584
Monitor Span : 1584

	Upscale Response Time Seconds		Downscale Response Time Seconds
RUN 1	200	RUN 1	200
RUN 2	200	RUN 2	200
RUN 3	200	RUN 3	200
Average	200.0	**Average**	200.0

System Reponse Time 200.00 seconds
3.33 minutes

Monitor : CO_2
Serial Number : N1-N5-0672
Span Gas Concentration : 14.59%
Monitor Span : 14.59%

	Upscale Response Time Seconds		Downscale Response Time Seconds
RUN 1	200	RUN 1	200
RUN 2	200	RUN 2	200
RUN 3	200	RUN 3	200
Average	200.0	**Average**	200.0

System Reponse Time 200.0 seconds
3.33 minutes
Slower Response Time 3.33 minutes

NO_x Converter Check

Gulf Power Company
Plant Scholz
CS001
Tuesday, March 05, 2013

Nox Converter Efficiency Check

8.2.4.1 Introduce a concentration of 40 to 60 ppmv NO_2 to the analyzer in direct calibration mode and record the Nox concentration displayed by the analyzer. If a dilution probe is used, introduce the NO_2 calibration gas at a point before the dilution takes place. Calculate the converter efficiency using equation 7E-7 in section 12.7. The specification for converter efficiency in section 13.5 must be met. The NO2 must be prepared according to the EPA Traceability Protocol and have an accuracy within 2.0 percent.

13.5 NO2 to NO Conversion Efficiency Test (as applicable).
The NO2 to NO conversion efficiency, calculated according to equation 7E-7 must be greater than or equal to 90 percent

$$Eff_{NO\ 2} = \frac{C_{Dir}}{C_v} \times 100$$

Eff_{NO2} = NO2 to NO converter efficiency, percent (%) = 99.2%

C_{dir} = Measured concentration a calibration gas = 47.7
(low, mid, high) when introduced in direct calibration mode, ppmv.
In this case the measured concentration of NO2, ppmv.

C_v = Manufacturer certified concentration of a calibration gas (low, mid, high), ppmv. = 48.1
In this case the certified concentration of NO2, ppmv.

Cylinder Number = cc317706
Expiration Date = 5/2/2015

#	Date/Time	NOx/A DILUTION
1	3/5/2013 17:48	47.3
2	3/5/2013 17:48	47.7
3	3/5/2013 17:48	47.7
4	3/5/2013 17:48	47
5	3/5/2013 17:48	47.4
6	3/5/2013 17:48	47.7
7	3/5/2013 17:49	47.9
8	3/5/2013 17:49	47.5
9	3/5/2013 17:49	47.3
10	3/5/2013 17:49	46.9
11	3/5/2013 17:49	47.9
12	3/5/2013 17:49	48.1
13	3/5/2013 17:50	47.9
14	3/5/2013 17:50	47.9
15	3/5/2013 17:50	48.1
16	3/5/2013 17:50	47.3
17	3/5/2013 17:50	48.5
18	3/5/2013 17:50	48.4
	AVERAGE	47.7
	CERTIFIED NO	48.1
	% Efficiency	99.2%

Stratification Test Results

40 CFR Part 75 Stratification Test Results
Gulf Power Company
Plant Scholz
CS001
Tuesday, March 05, 2013

start time	stop time	point	polluant NO_X ppm	% dif from mean allowed +/- 5%	or	UNIT MW	% dif from mean allowed +/- 3%	
3/5/13 10:37 AM	3/5/13 10:38 AM	1	236.0	-0.6%	PASS	48.0	0.0%	PASS
3/5/13 10:39 AM	3/5/13 10:40 AM	2	235.7	-0.5%	PASS	48.0	0.0%	PASS
3/5/13 10:41 AM	3/5/13 10:42 AM	3	233.9	0.3%	PASS	48.0	0.0%	PASS
3/5/13 10:43 AM	3/5/13 10:44 AM	4	238.8	-1.8%	PASS	48.0	0.0%	PASS
3/5/13 10:56 AM	3/5/13 10:57 AM	5	234.7	0.0%	PASS	48.0	0.0%	PASS
3/5/13 10:58 AM	3/5/13 10:59 AM	6	238.6	-1.7%	PASS	48.0	0.0%	PASS
3/5/13 11:00 AM	3/5/13 11:01 AM	7	235.1	-0.2%	PASS	48.0	0.0%	PASS
3/5/13 11:02 AM	3/5/13 11:03 AM	8	238.2	-1.5%	PASS	48.0	0.0%	PASS
3/5/13 11:17 AM	3/5/13 11:18 AM	9	229.5	2.2%	PASS	48.0	0.0%	PASS
3/5/13 11:19 AM	3/5/13 11:20 AM	10	228.7	2.5%	PASS	48.0	0.0%	PASS
3/5/13 11:21 AM	3/5/13 11:22 AM	11	232.1	1.1%	PASS	48.0	0.0%	PASS
3/5/13 11:23 AM	3/5/13 11:24 AM	12	236.8	-0.9%	PASS	48.0	0.0%	PASS
3/5/13 11:33 AM	3/5/13 11:34 AM	13	229.3	2.3%	PASS	48.0	0.0%	PASS
3/5/13 11:35 AM	3/5/13 11:36 AM	14	232.7	0.8%	PASS	48.0	0.0%	PASS
3/5/13 11:37 AM	3/5/13 11:38 AM	15	234.4	0.1%	PASS	48.0	0.0%	PASS
3/5/13 11:39 AM	3/5/13 11:40 AM	16	239.2	-2.0%	PASS	48.0	0.0%	PASS
		average	234.6			48.00		

start time	stop time	point	diluent CO_2 %	% dif from mean allowed +/- 5%	or	UNIT MW	% dif from mean allowed +/- 3%	
6/6/11 4:59 PM	6/6/11 5:00 PM	1	10.6	-1.8%	PASS	48.0	0.0%	PASS
6/6/11 5:01 PM	6/6/11 5:02 PM	2	10.6	-1.7%	PASS	48.0	0.0%	PASS
6/6/11 5:03 PM	6/6/11 5:04 PM	3	10.5	-0.5%	PASS	48.0	0.0%	PASS
6/6/11 5:05 PM	6/6/11 5:06 PM	4	10.5	-0.6%	PASS	48.0	0.0%	PASS
6/6/11 5:13 PM	6/6/11 5:14 PM	5	10.3	1.1%	PASS	48.0	0.0%	PASS
6/6/11 5:15 PM	6/6/11 5:16 PM	6	10.3	0.7%	PASS	48.0	0.0%	PASS
6/6/11 5:17 PM	6/6/11 5:18 PM	7	10.4	0.6%	PASS	48.0	0.0%	PASS
6/6/11 5:19 PM	6/6/11 5:20 PM	8	10.4	0.4%	PASS	48.0	0.0%	PASS
6/6/11 5:27 PM	6/6/11 5:28 PM	9	10.4	0.1%	PASS	48.0	0.0%	PASS
6/6/11 5:29 PM	6/6/11 5:30 PM	10	10.5	-0.6%	PASS	48.0	0.0%	PASS
6/6/11 5:31 PM	6/6/11 5:32 PM	11	10.4	-0.2%	PASS	48.0	0.0%	PASS
6/6/11 5:33 PM	6/6/11 5:34 PM	12	10.4	-0.2%	PASS	48.0	0.0%	PASS
6/6/11 5:41 PM	6/6/11 5:42 PM	13	10.2	2.3%	PASS	48.0	0.0%	PASS
6/6/11 5:43 PM	6/6/11 5:44 PM	14	10.4	0.6%	PASS	48.0	0.0%	PASS
6/6/11 5:45 PM	6/6/11 5:46 PM	15	10.4	0.1%	PASS	48.0	0.0%	PASS
6/6/11 5:47 PM	6/6/11 5:48 PM	16	10.5	-0.3%	PASS	48.0	0.0%	PASS
		average	10.4			48.00		

start time	stop time	point	pollutant SO_2	% dif from mean allowed +/- 5%	or	UNIT MW	% dif from mean allowed +/- 3%	
6/6/11 4:59 PM	6/6/11 5:00 PM	1	1319.3	1.3%	PASS	48.0	0%	PASS
6/6/11 5:01 PM	6/6/11 5:02 PM	2	1315.5	1.6%	PASS	48.0	0%	PASS
6/6/11 5:03 PM	6/6/11 5:04 PM	3	1306.4	2.2%	PASS	48.0	0%	PASS
6/6/11 5:05 PM	6/6/11 5:06 PM	4	1294.5	3.1%	PASS	48.0	0%	PASS
6/6/11 5:13 PM	6/6/11 5:14 PM	5	1319.7	1.2%	PASS	48.0	0%	PASS
6/6/11 5:15 PM	6/6/11 5:16 PM	6	1316.3	1.5%	PASS	48.0	0%	PASS
6/6/11 5:17 PM	6/6/11 5:18 PM	7	1317.1	1.4%	PASS	48.0	0%	PASS
6/6/11 5:19 PM	6/6/11 5:20 PM	8	1334.6	0.1%	PASS	48.0	0%	PASS
6/6/11 5:27 PM	6/6/11 5:28 PM	9	1363.0	-2.0%	PASS	48.0	0%	PASS
6/6/11 5:29 PM	6/6/11 5:30 PM	10	1373.8	-2.8%	PASS	48.0	0%	PASS
6/6/11 5:31 PM	6/6/11 5:32 PM	11	1364.1	-2.1%	PASS	48.0	0%	PASS
6/6/11 5:33 PM	6/6/11 5:34 PM	12	1366.4	-2.3%	PASS	48.0	0%	PASS
6/6/11 5:41 PM	6/6/11 5:42 PM	13	1331.6	0.3%	PASS	48.0	0%	PASS
6/6/11 5:43 PM	6/6/11 5:44 PM	14	1350.3	-1.1%	PASS	48.0	0%	PASS
6/6/11 5:45 PM	6/6/11 5:46 PM	15	1353.3	-1.3%	PASS	48.0	0%	PASS
6/6/11 5:47 PM	6/6/11 5:48 PM	16	1353.8	-1.3%	PASS	48.0	0%	PASS
		average	1336.2			48.00		

Appendix E. Protocol 1 Calibration Gas Certification

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E04NI91E15AC111	Reference Number:	122-124328876-1
Cylinder Number:	CC162428	Cylinder Volume:	148.7 CF
Laboratory:	ASG - Durham - NC	Cylinder Pressure:	2015 PSIG
PGVP Number:	B22012	Valve Outlet:	660
Gas Code:	CO2,NO,SO2	Certification Date:	Aug 08, 2012

Expiration Date: Aug 08, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NITRIC OXIDE	265.0 PPM	263.2 PPM	G1	+/- 1% NIST Traceable	08/01/2012, 08/08/2012
SULFUR DIOXIDE	930.0 PPM	932.6 PPM	G1	+/- 1% NIST Traceable	08/01/2012, 08/08/2012
CARBON DIOXIDE	8.000 %	8.137 %	G1	+/- 1% NIST Traceable	08/01/2012, 08/08/2012
NITROGEN	Balance				
Total oxides of nitrogen		263.2 PPM		For Reference Only	

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	120619	CC367405	250.8 PPM NITRIC OXIDE/NITROGEN	+/- 0.5%	May 04, 2018
090615	090615	CC306918	996.9 PPM SULFUR DIOXIDE/NITROGEN	0.60	Sep 18, 2015
NTRM	090606	CC262356	9.921 % CARBON DIOXIDE/NITROGEN	0.50	Apr 10, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 CO2	FTIR	Jul 18, 2012
Nicolet 6700 AHR0801333 NO	FTIR	Jul 18, 2012
Nicolet 6700 AHR0801333 SO2	FTIR	Jul 18, 2012

Triad Data Available Upon Request

Notes:COMMODITY #2659308

Signature on file

Approved for Release

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number:	E04NI85E15AC111	Reference Number:	122-124335405-1
Cylinder Number:	XC022975B	Cylinder Volume:	153.2 CF
Laboratory:	ASG - Durham - NC	Cylinder Pressure:	2015 PSIG
PGVP Number:	B22012	Valve Outlet:	660
Gas Code:	CO2,NO,SO2	Certification Date:	Sep 21, 2012

Expiration Date: Sep 21, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NITRIC OXIDE	475.0 PPM	473.1 PPM	G1	+/- 1% NIST Traceable	09/14/2012, 09/21/2012
SULFUR DIOXIDE	1600 PPM	1584 PPM	G1	+/- 1% NIST Traceable	09/14/2012, 09/21/2012
CARBON DIOXIDE	14.75 %	14.59 %	G1	+/- 1% NIST Traceable	09/14/2012, 09/21/2012
NITROGEN	Balance				
Total oxides of nitrogen		473.1 PPM		For Reference Only	

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	100604	CC267661	495.6 PPM NITRIC OXIDE/NITROGEN	+/- 0.5%	Feb 01, 2016
NTRM	090615	CC306691	1978.9 PPM SULFUR DIOXIDE/NITROGEN	0.51	Sep 18, 2015
090615	090615	CC301470	996.9 PPM SULFUR DIOXIDE/NITROGEN	+/- 0.6%	Sep 18, 2015
NTRM	090606	CC262391	9.921 % CARBON DIOXIDE/NITROGEN	+/- 0.5%	Apr 10, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHRD801549 CO2	FTIR	Sep 06, 2012
Nicolet 6700 AHRD801549 NO	FTIR	Sep 06, 2012
Nicolet 6700 AHRD801549 SO2	FTIR	Sep 06, 2012

Triad Data Available Upon Request

Notes:COMMODITY #47516001475

Signature on file

Approved for Release

Appendix F. Field Notes and Miscellaneous Information

Date/Time	Cylinder	Analyzer	Gas	Class	Type	Value	Expected	Status
3/5/2013 9:28	PURE AIR	CO2/A DILUTION	CO2	BOTH	ZERO	-0.010	0.000	PASS
3/5/2013 9:28	PURE AIR	NOx/A DILUTION	NOx	BOTH	ZERO	-0.7	0.0	PASS
3/5/2013 9:28	PURE AIR	SO2/A DILUTION	SO2	BOTH	ZERO	-2.0	0.0	PASS
3/5/2013 9:34	CC162428	CO2/A DILUTION	CO2	BOTH	MID	8.010	8.137	PASS
3/5/2013 9:34	CC162428	NOx/A DILUTION	NOx	BOTH	MID	261.4	263.2	PASS
3/5/2013 9:34	CC162428	SO2/A DILUTION	SO2	BOTH	MID	947.5	932.6	PASS
3/5/2013 9:44	XC022975B	CO2/A DILUTION	CO2	BOTH	HIGH	14.745	14.589	PASS
3/5/2013 9:44	XC022975B	NOx/A DILUTION	NOx	BOTH	HIGH	466.8	473.1	PASS
3/5/2013 9:44	XC022975B	SO2/A DILUTION	SO2	BOTH	HIGH	1584.8	1584.0	PASS
3/5/2013 12:36	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.156	0.000	PASS
3/5/2013 12:36	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.4	0.0	PASS
3/5/2013 12:36	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.9	0.0	PASS
3/5/2013 12:40	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	8.088	8.137	PASS
3/5/2013 12:40	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	266.9	263.2	PASS
3/5/2013 12:40	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	945.9	932.6	PASS
3/5/2013 13:11	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.147	0.000	PASS
3/5/2013 13:11	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.1	0.0	PASS
3/5/2013 13:11	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	4.7	0.0	PASS
3/5/2013 13:15	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	8.132	8.137	PASS
3/5/2013 13:15	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	266.9	263.2	PASS
3/5/2013 13:15	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	942.4	932.6	PASS
3/5/2013 13:45	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.205	0.000	PASS
3/5/2013 13:45	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.1	0.0	PASS
3/5/2013 13:45	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.1	0.0	PASS
3/5/2013 13:49	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	8.049	8.137	PASS
3/5/2013 13:49	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	266.1	263.2	PASS
3/5/2013 13:49	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	946.3	932.6	PASS
3/5/2013 14:17	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.161	0.000	PASS
3/5/2013 14:17	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.9	0.0	PASS
3/5/2013 14:17	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.9	0.0	PASS
3/5/2013 14:21	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	8.107	8.137	PASS
3/5/2013 14:21	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	265.7	263.2	PASS
3/5/2013 14:21	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	947.9	932.6	PASS
3/5/2013 14:53	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.205	0.000	PASS
3/5/2013 14:53	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.6	0.0	PASS
3/5/2013 14:53	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.9	0.0	PASS
3/5/2013 14:57	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	8.078	8.137	PASS
3/5/2013 14:57	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	265.7	263.2	PASS
3/5/2013 14:57	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	948.3	932.6	PASS
3/5/2013 15:53	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.127	0.000	PASS
3/5/2013 15:53	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.4	0.0	PASS
3/5/2013 15:53	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.9	0.0	PASS
3/5/2013 15:58	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	8.024	8.137	PASS
3/5/2013 15:58	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	265.7	263.2	PASS
3/5/2013 15:58	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	948.3	932.6	PASS
3/5/2013 16:30	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.166	0.000	PASS
3/5/2013 16:30	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.2	0.0	PASS
3/5/2013 16:30	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.1	0.0	PASS
3/5/2013 16:34	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	8.020	8.137	PASS
3/5/2013 16:34	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	266.2	263.2	PASS
3/5/2013 16:34	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	944.4	932.6	PASS
3/5/2013 17:05	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.190	0.000	PASS
3/5/2013 17:05	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.4	0.0	PASS
3/5/2013 17:05	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.9	0.0	PASS
3/5/2013 17:09	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	7.985	8.137	PASS
3/5/2013 17:09	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	264.8	263.2	PASS
3/5/2013 17:09	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	943.2	932.6	PASS
3/5/2013 17:41	PURE AIR	CO2/A DILUTION	CO2	BIAS AND DRIFT	ZERO	0.166	0.000	PASS
3/5/2013 17:41	PURE AIR	NOx/A DILUTION	NOx	BIAS AND DRIFT	ZERO	-0.7	0.0	PASS
3/5/2013 17:41	PURE AIR	SO2/A DILUTION	SO2	BIAS AND DRIFT	ZERO	3.9	0.0	PASS
3/5/2013 17:45	CC162428	CO2/A DILUTION	CO2	BIAS AND DRIFT	MID	7.985	8.137	PASS
3/5/2013 17:45	CC162428	NOx/A DILUTION	NOx	BIAS AND DRIFT	MID	266.3	263.2	PASS
3/5/2013 17:45	CC162428	SO2/A DILUTION	SO2	BIAS AND DRIFT	MID	938.9	932.6	PASS

Appendix G. Sanders Flow Report

SANDERS ENGINEERING & ANALYTICAL SERVICES, INC.

VOLUMETRIC FLOW RATE TEST REPORT

FOR

GULF POWER COMPANY

Plant Scholz, Units 1 and 2
Sneads, Florida

March 4, 2013

2255 SCHILLINGER RD. N.
SEMMES, ALABAMA 36575-7463
(251) 633-4120
FAX: (251) 633-2285
E-MAIL: sanders@sandersengineering.com

REPORT CERTIFICATION

I have reviewed the "Volumetric Flow Rate Test Report" for the testing performed for Gulf Power Company on Units 1 and 2 located at the Plant Scholz facility located in Sneads, Florida. I hereby certify that it is authentic and accurate to the best of my knowledge.

Date: 3-8-13

Signature: Joseph C Sanders

Joseph C. Sanders
Vice President

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LIST OF TABLES

ILLUSTRATIONS

1. INTRODUCTION

Sanders Engineering & Analytical Services, Inc. (SEAS) performed volumetric flow rate testing for Gulf Power Company at Plant Scholz, Units 1 and 2, located in Sneads, Florida. The testing was conducted March 4, 2013. The testing was performed in accordance with the applicable U.S. EPA procedures specified at **40 CFR, Part 60, Appendix A, Methods 1 through 4.**

The purpose of the testing was to show the correlation of the flow monitors to the reference method. The testing was conducted by Mr. Mark Christian and Mr. Richard Reynolds of Sanders Engineering & Analytical Services, Inc., and was coordinated with Mr. John Rampulla of Gulf Power Company.

The testing was conducted in accordance with the guidelines of the Florida Department of Environmental Protection. Further discussions of the test methods are included later in the report.

2. SUMMARY AND DISCUSSION OF RESULTS

There were no unusual sampling problems experienced during the performance of the test. The results for the volumetric flow rate testing are presented in Table I. The results of the individual runs are presented in Appendix A. The sample calculations of the volumetric flow rate testing for Run 1 low load are presented in Appendix B. The quality control checks of the equipment used in the sampling program are included in Appendix C.

TABLE I. VOLUMETRIC FLOW RATE TEST RESULTS
GULF POWER COMPANY
PLANT SCHOLZ - MAIN STACK
Monday, March 4, 2013

Run #	**Stack Gas Flow Rate** Standard Wet Cubic Feet Per Minute
1	152,575
2	169,300
3	169,909
4	166,748
5	161,809
6	152,180
7	167,108
8	168,227
9	179,927
10	152,976
11	176,781
12	181,126

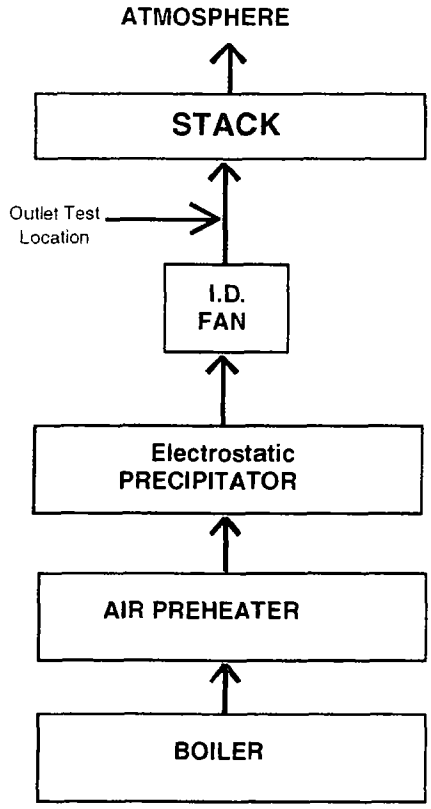
3. PROCESS DESCRIPTION

The process consists of a steam electric generating unit firing bituminous coal for the production of electric energy. The coal is received by barge and loaded directly onto the conveyor feeding the plant, or onto the stockpile, and later loaded onto the conveyor belt transporting the coal to the plant. The coal from the conveyor is loaded into bunkers capable of holding between a 36 to 48-hour supply of coal. The coal is then fed to pulverizing mills before being fired in the unit through the burners. Upon combustion of the coal in the fire box, approximately 20 percent of the ash falls to the bottom of the boiler and is removed by the ash removal system. The remaining 80 percent exits with the flue gases through the heat exchange and economizer sections of the furnace, and is collected by electrostatic precipitators.

3.1. Source Air Flow

The air flow schematic that depicts the passage of the flue gases exhausted from Plant Scholz, Units 1 and 2, is presented in Figure 1.

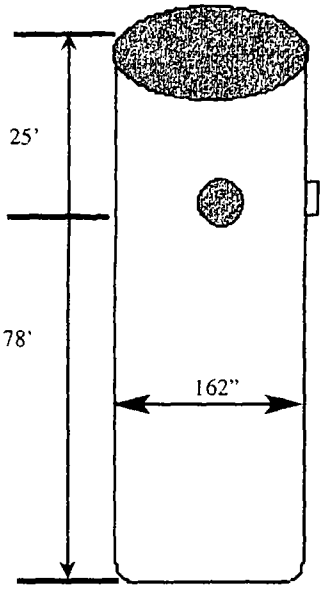
Figure 1. Air Flow Schematic



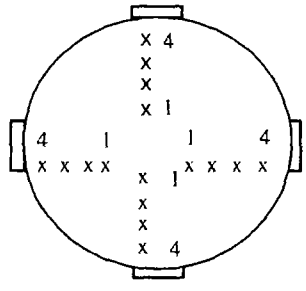
4. SAMPLE POINT LOCATION

The sample point locations and outlet duct schematic for Gulf Power Company, Plant Scholz, Units 1 and 2, are presented in Figure 2.

Figure 2. Sample Point Locations



Port Extension = 33.8"



Point Number	Distance From Stack Wall (Inches)
1	151.15
2	121.50
3	40.50
4	10.85

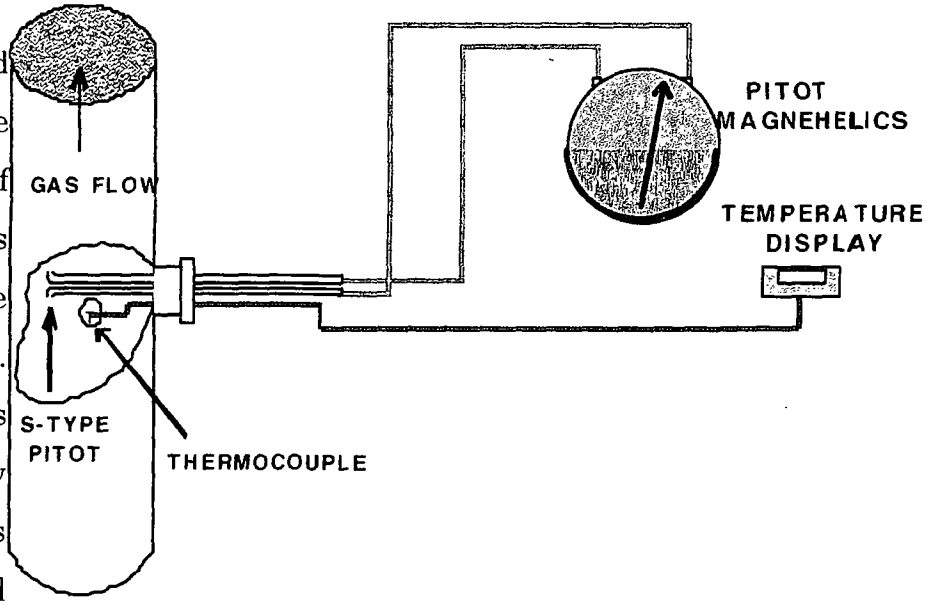
Stack Area = 143.139ft.^{2}

5. VELOCITY SAMPLING PROCEDURE (EPA Method 2)

The sampling procedure utilized is that specified in **40 CFR, Part 60, Appendix A, Method 2,** as modified by the governing regulatory agency. A brief description of this procedure is as follows:

The sampling train was assembled, as shown in the attached drawing, and leak checked by pressurizing the pitots separately to a pressure of at least 3/4 scale on the manometer or magnehelic being used. This pressure remained constant according to the gauge being used for a period of fifteen seconds.

Figure 3. Velocity Sampling Train



The inside dimensions of the stack liner were measured and recorded. The required number of sampling points was marked on the probe for easy visibility. The sampling was commenced by placing the pitot tips at the first point and recording the velocity pressure and temperature. This process was repeated until each point had been sampled.

The molecular weight of the effluent gas was determined by taking a grab sample and analyzing for carbon dioxide and oxygen using a fyrite. The moisture of the gas stream was determined by utilizing the wet bulb-dry bulb technique.

APPENDIX A INDIVIDUAL RUN VOLUMETRIC FLOW RESULTS

VOLUMETRIC FLOW RATE TEST RESULTS
HIGH LOAD VOLUMETRIC FLOW RATE TEST RESULTS
GULF POWER COMPANY
PLANT SCHOLZ UNIT 1 - MAIN STACK

Plant Load	MW	48	48	48	48	48	48	48	48	48	48	48	48
Title of Run		RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6	RUN 7	RUN 8	RUN 9	RUN 10	RUN 11	RUN 12
Date	Month/Day/Year	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013	3/4/2013
Sampling Time -Start	Military	1458	1505	1512	1525	1531	1537	1544	1601	1608	1614	1620	1626
Sampling Time -Stop	Military	1504	1511	1517	1530	1536	1543	1552	1607	1613	1619	1625	1632
Number of Ports	dimensionless	4	4	4	4	4	4	4	4	4	4	4	4
Number of Points per Port	dimensionless	4	4	4	4	4	4	4	4	4	4	4	4
Stack Static Pressure	Inches Water	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
Barometric Pressure	Inches Mercury	30.05	30.05	30.05	30.05	30.05	30.05	30.05	30.05	30.05	30.05	30.05	30.05
Oxygen Concentration	Mole Percent O2	7.50	7.50	7.00	7.00	7.00	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Carbon Dioxide Concentration	Mole Percent CO2	10.5	10.5	11.0	11.0	11.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Stack Wet Bulb Temperature	Degrees F	128	128	127	127	127	128	128	128	127	127	127	127
Area of Stack	Square Feet	143.140	143.140	143.140	143.140	143.140	143.140	143.140	143.140	143.140	143.140	143.140	143.140
Avg. Sqr. Root Velocity Pressure	Inches Water	0.3694	0.4096	0.4117	0.4038	0.3919	0.3681	0.4036	0.4067	0.4349	0.3709	0.4260	0.4372
Average Stack Temperature	Degrees F	261	260	260	259	259	260	258	259	258	262	254	256

Calculations

Standard Temperature (F) = 68		RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6	RUN 7	RUN 8	RUN 9	RUN 10	RUN 11	RUN 12	AVERAGE
Standard Pressure (inches of Hg) = 29.92														
Molecular Wt. of Stack Gas (dry)	LB/LB-MOLE	29.98	29.98	30.04	30.04	30.04	29.98	29.98	29.98	29.98	29.98	29.98	29.98	30.00
Water vapor in Stack Gas	Percent	9.0	9.1	8.7	8.7	8.7	9.1	9.1	9.1	8.7	8.6	8.9	8.8	8.9
Average Stack Gas Velocity	Feet per second	24.2	26.8	26.9	26.3	25.6	24.1	26.4	26.6	28.4	24.3	27.7	28.5	26.3
Stack Gas Flow Rate	Actual Cubic Feet Per Minute	207,611	230,033	230,755	226,248	219,619	206,705	226,354	228,271	243,768	208,355	238,134	244,703	225,880
Stack Gas Flow Rate	Standard Wet Cubic Feet Per Minute	152,575	169,300	169,909	166,748	161,809	152,180	167,108	168,227	179,927	152,976	176,781	181,126	166,555
Stack Gas Flow Rate	Standard Dry Cubic Feet Per Minute	138,809	153,956	155,190	152,259	147,764	138,374	151,818	152,917	164,218	139,847	161,064	165,170	151,782

APPENDIX B SAMPLE CALCULATIONS

SAMPLE CALCULATIONS, RUN 1
HIGH LOAD VOLUMETRIC FLOW RATE TEST RESULTS
GULF POWER COMPANY
PLANT SCHOLZ UNIT 1 - MAIN STACK

Absolute Stack Pressure (inches Mercury)

$$P_S = P_{bar} + \frac{\overline{P_g}}{13.6}$$

P_g = Stack Static Pressure (inches Water) = -0.25

P_{bar} = Barometric Pressure (inches Mercury) = 30.05

P_s = 30.03

Average Stack Gas Velocity (feet per second)

$$V_S = K_p C_p \overline{\sqrt{\Delta P}} \sqrt{\frac{\overline{T_s}}{M_s P_s}}$$

Kp = Pitot tube constant $\sqrt{\frac{(lb/lb\text{ - mole})\ (inches\ Hg)}{(°R)\ (inches\ H2O)}}$ = 85.49

C_p = Pitot tube coefficient (dimensionless) = 0.84

$\overline{\sqrt{\Delta P}}$ = Velocity head of stack gas (inches H2O) = 0.4532

Ts = Average absolute temperature of stack, degrees Rankin = 717.7

M_s = Molecular weight of stack gas; wet basis (lb/lb mole) = 28.89

P_s = Absolute stack pressure (inches Mercury) = 30.03

V_s = 29.6

Water Vapor in the Gas Stream if Saturated

proportion by volume (dimensionless)

$$B_{ws} = \frac{10\exp(6.37 - (2827/(459.67 + \overline{t_s} - 95.2)))}{Ps}$$

ts = Average temperature of stack, degrees F = 257.994

P_s = Absolute stack pressure (inches Mercury) = 30.032

B_{ws} = 0.022

Molecular Weight of Stack Gas (dry basis, lb/lb mole)

$$M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2 + \%CO)$$

$\%CO_2$ = Number percent by volume (dry basis from gas analysis) = 10.5
$\%O_2$ = Number percent by volume (dry basis from gas analysis) = 7.5
$\%N_2+\%CO$ = Number percent by volume (dry basis from gas analysis) = 82.0
M_d = 29.98

Molecular Weight of Stack Gas (wet basis, lb/lb mole)

$$M_s = M_d(1 - B_{ws}) + 18(B_{ws})$$

M_d = Molecular weight of stack gas (dry basis, lb/lb mole) = 29.98
B_{ws} = Water vapor in the gas stream (proportion by volume, dimensionless) = 0.091
M_s = 28.89

Volumetric Flow Rate (actual cubic feet per minute)

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

V_s = Average stack gas velocity (feet per second) = 29.6
A_s = Cross sectional area of stack (feet squared) = 143.1400
Q_a = 254,235

Volumetric Flow Rate (standard dry cubic feet per minute)

$$Q_s = Q_a(1 - B_{ws})\frac{(528)}{T_s}\frac{(P_s)}{29.92}$$

Q_a = Volumetric flow rate (actual cubic feet per minute) = 254,235
B_{ws} = Water vapor in the gas stream (proportion by volume, dimensionless) = 0.091
Ts = Average absolute temperature of stack, degrees Rankin = 717.7
P_s = Absolute stack pressure (inches Mercury) = 30.03
Q_s = 170,478

Volumetric Flow Rate (standard wet cubic feet per minute)

$$Q_{sw} = Q_a \frac{(528)}{T_s} \frac{(P_s)}{29.92}$$

Q_a = Volumetric flow rate (actual cubic feet per minute) = 254,235

Ts = Average absolute temperature of stack, degrees Rankin = 717.7

P_s = Absolute stack pressure (inches Mercury) = 30.03

Q_{sw} = 187,627

APPENDIX C QUALITY CONTROL

Magnehelic Calibration

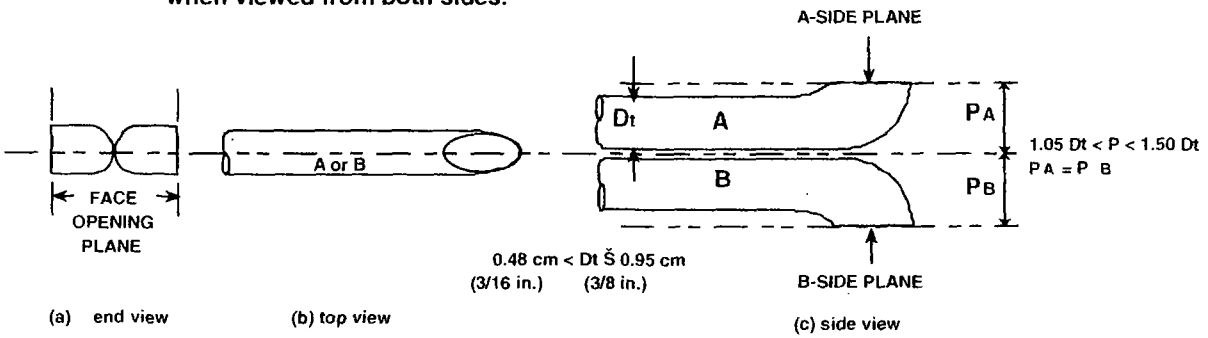
serial number	101			102A			102C			103A		
Span (in H2O)	0.25	2	25	0.25	2	25	0.25	2	25	0.25	2	10
Reference Reading @ 0% Span (in H2O)	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Device Reading (in H2O)	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Difference (Allowed = 0.05)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reference Reading @ 50% Span (in H2O)	0.120	0.95	4.73	0.125	1.00	9.64	0.131	0.90	9.30	0.12	0.95	5.15
Device Reading (in H2O)	0.122	0.96	4.90	0.126	0.98	9.75	0.129	0.88	9.00	0.12	0.92	5.20
% Difference (Allowed = 0.05)	1.67	1.05	3.59	0.80	2.00	1.14	1.53	2.22	3.23	2.56	3.16	0.97
Reference Reading @ 90% Span (in H2O)	0.220	1.88	23.50	2.32	1.85	23.30	0.250	2.00	22.80	0.248	1.91	9.50
Device Reading (in H2O)	0.222	1.83	24.20	2.300	1.90	24.00	0.243	1.97	23.30	0.240	1.95	9.20
% Difference (Allowed = 0.05)	0.91	2.66	2.98	0.86	2.70	3.00	2.80	1.50	2.19	3.23	2.09	3.16

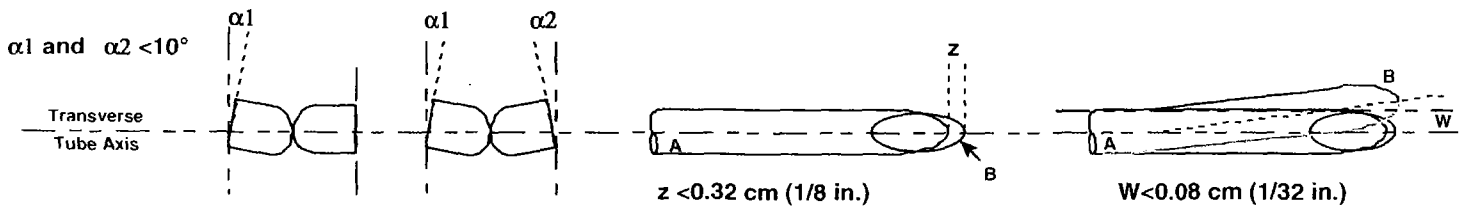
serial number	103B						104		
Span (in H2O)	0.25	0.5	1	2	5	25	0.25	2	10
Reference Reading @ 0% Span (in H2O)	0.000	0.000	0.000	0.00	0.00	0.00	0.000	0.00	0.00
Device Reading (in H2O)	0.000	0.000	0.000	0.00	0.00	0.00	0.000	0.00	0.00
% Difference (Allowed = 0.05)	0.000	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00
Reference Reading @ 50% Span (in H2O)	0.130	0.260	0.50	9.40	2.43	9.70	0.120	0.99	4.73
Device Reading (in H2O)	0.124	0.260	0.48	9.40	2.54	9.50	0.120	0.98	4.90
% Difference (Allowed = 0.05)	4.615	0.00	4.00	0.00	4.53	2.06	0.000	1.02	3.47
Reference Reading @ 90% Span (in H2O)	0.261	0.500	0.85	1.89	4.52	24.5	0.248	1.67	8.20
Device Reading (in H2O)	0.249	0.495	0.81	1.88	4.64	25.0	0.240	1.74	8.60
% Difference (Allowed = 0.05)	4.598	1.00	4.71	0.53	2.65	2.04	3.333	4.02	4.65

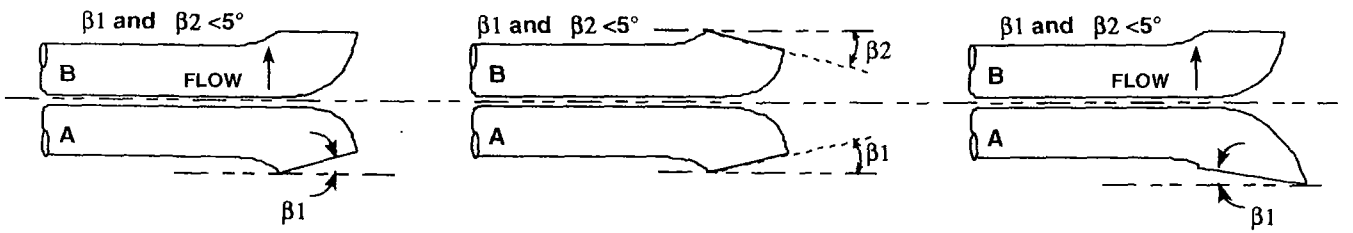
serial number	105			106		
Span (in H2O)	0.25	2	25	0.5	4	15
Reference Reading @ 0% Span (in H2O)	0.000	0.00	0.00	0.000	0.00	0.00
Device Reading (in H2O)	0.000	0.00	0.00	0.000	0.00	0.00
% Difference (Allowed = 0.05)	0.000	0.00	0.00	0.000	0.00	0.00
Reference Reading @ 50% Span (in H2O)	0.122	0.97	8.90	0.233	1.86	8.00
Device Reading (in H2O)	0.123	0.95	9.30	0.232	1.95	7.90
% Difference (Allowed = 0.05)	0.820	2.11	4.30	0.431	4.62	1.27
Reference Reading @ 90% Span (in H2O)	0.239	1.92	24.5	0.470	3.60	14.4
Device Reading (in H2O)	0.235	1.98	23.7	0.461	3.60	14.8
% Difference (Allowed = 0.05)	1.702	3.03	3.38	1.952	0.00	2.70
Calibration Date 12/30/2008 By MC						

Type S pitot tube construction details:

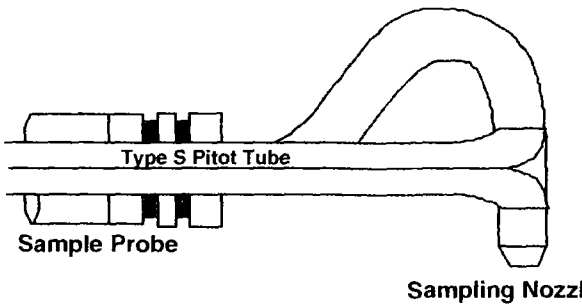
a) end view; face opening planes perpendicular to transverse axis.
b) top view; face opening planes parallel to longitudinal axis.
c) side view; both legs of equal length and centerlines coincident, when viewed from both sides.

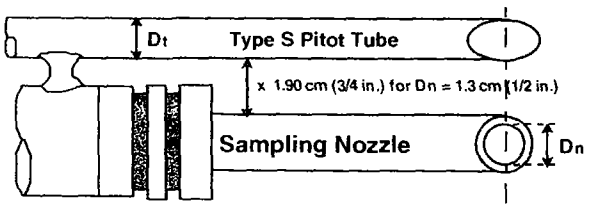


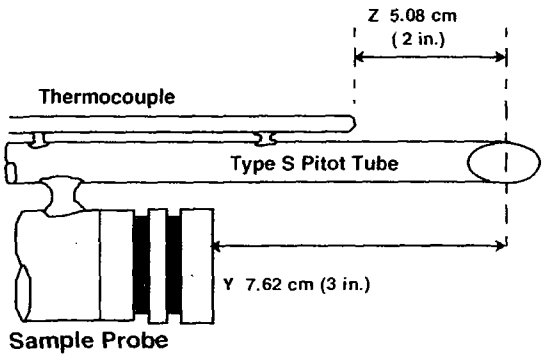




Sampling Nozzle, Thermocouple, and Probe Configuration







Wind Tunnel Pitot Calibration

S' Type Pitot ID Number: m17-8 Size (OD): 3/8 in.

Date Calibrated: 3/11/2013 Performed By: S. Edwards

A-Side Calibration

DP_{std} In. H_2O	$DP_{'s'}$ In. H_2O	$C_{p(S)}$	Deviation
0.635	0.880	0.841	0.002
0.633	0.885	0.837	0.0019
0.633	0.885	0.837	0.0019
0.235	0.325	0.842	0.003
0.230	0.320	0.839	0.000
0.233	0.325	0.838	0.001
	Average	0.839	0.002

B Side Calibration

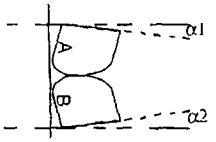
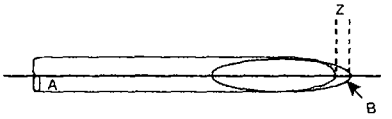
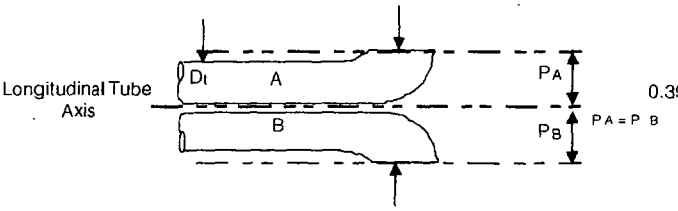
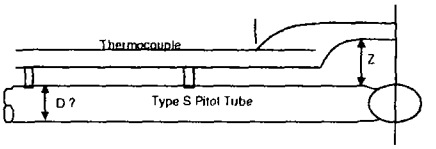
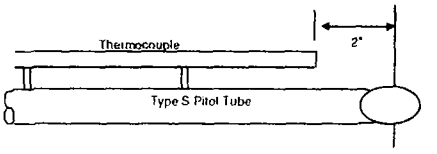
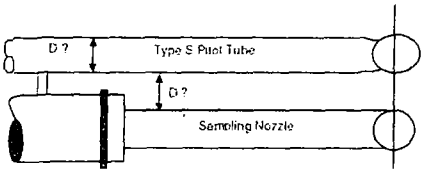
DP_{std} In. H_2O	$DP_{'s'}$ In. H_2O	$C_{p(S)}$	Deviation
0.635	0.883	0.840	0.003
0.630	0.877	0.839	0.003
0.630	0.870	0.842	0.000
0.235	0.320	0.848	0.006
0.235	0.322	0.846	0.003
0.230	0.320	0.839	0.003
	Average	0.842	0.003

Cp(std) = 0.99 $C_{p(s)}=C_{p(std)}*(DP_{std}/DP_s)^{.5}$= 0.841

DEV = $C_{p(S)}$-AVG(C_p)= Must Be less than = 0.01 Calibration: Check Ok

AVG(C_P(A))-AVG(C_P(B))= 0.003270364 (<=0.01) Calibration: Check Ok

Tube Identification: M17-8
Date Tested: 3/11/2013
For Use At: GPCo Scholz SHE

	Maximim Limit	Pretest Value	Post-Test Value
	α1 and α2 <10°	4	4
	β1 and β2 <5°	2	2
	z ≤ 0.125"	0.08	0.08
	W ≤ 0.0313"	0.015	0.015
	0.3937 ≤ P ≤ 0.5625	0.5	0.5
	Z ≥ 0.75"	N/A	N/A
	≥ 2"	3	3
	D ? ≥ 0.75"	N/A	N/A