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BUREAU OF AIR REGULATION

June 5, 2003

Ms. Trina Vielhauer
Bureau Chief
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, FL 32301

Via FedEx
Airbill No. 7922 6197 3133

Ms. Diana Lee
Chief of Air Compliance
Environmental Protection Commission
of Hillsborough County
1410 N. 21st Street
Tampa, Florida 33605

Via FedEx
Airbill No. 7903 0963 2428

Re: Tampa Electric Company
Bayside Power Station Unit 1
Initial Compliance Test and
Initial 40 CFR 60 CEMS Certification
Project No. 0570040-015-AC
Air Permit No. PSD-FL-301A

Dear Ms. Vielhauer and Ms. Lee:

As required by 40 Code of Federal Regulation (CFR) 75.63 and Condition 20 and 23.e. of permit PSD-FL-301A, TEC is required to submit the initial Compliance test and initial Continuous Emissions Monitoring System (CEMS) certification according to 40 CFR 60. Test results has to be submitted no later than 45 days after completion of the last test run. Please find enclosed in Attachment A, the Responsible Official Signature. Enclosed in Attachment B is the test report addressing the initial Compliance test and 40 CFR 60 CEMS certification of Bayside Unit 1. Enclosed in Attachment C is the manufacturer's performance curves that correct site conditions as required by Condition 10 and 14, for Bayside Unit 1A, 1B, and 1C.

If you have any questions or comments, please telephone Dru Latchman or me at (813) 641-5034.

Sincerely,

Laura R. Crouch

Laura R. Crouch
Manager - Air Programs
Environmental Affairs

EA/bmr/DNL169

c/enc: Mr. Bill Proses, FDEP SW

Golder Associates Inc.
5100 West Lemon Street
Suite 114
Tampa, FL USA 33609
Telephone: (813) 287-1717
Fax: (813) 287-1716

TRANSMITTAL LETTER

DATE: February 2, 2007

PROJECT NO.: 063-9571

TO:
Air Modeling and Data Analysis Section
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 5500
Tallahassee, Florida 32399-2400
(850) 488-0114

Attention: Mr. Thomas G. Rogers

SENT VIA: Federal Express (priority, standard, 2-day, 3-day)

QUANTITY	ITEM	DESCRIPTION
2	Report – Air Modeling Report for assessing BACT related to BART for Progress Energy Florida Crystal River Plant	2 Copies of Report 2 Copies of Air Permit Application form
REMARKS:		

Per Paola Pringle

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RESOURCES MANAGEMENT

Attachment A

Responsible Official Certification

I have reviewed the testing results in this report, and hereby certify that this test report is authentic and accurate to the best of my knowledge.

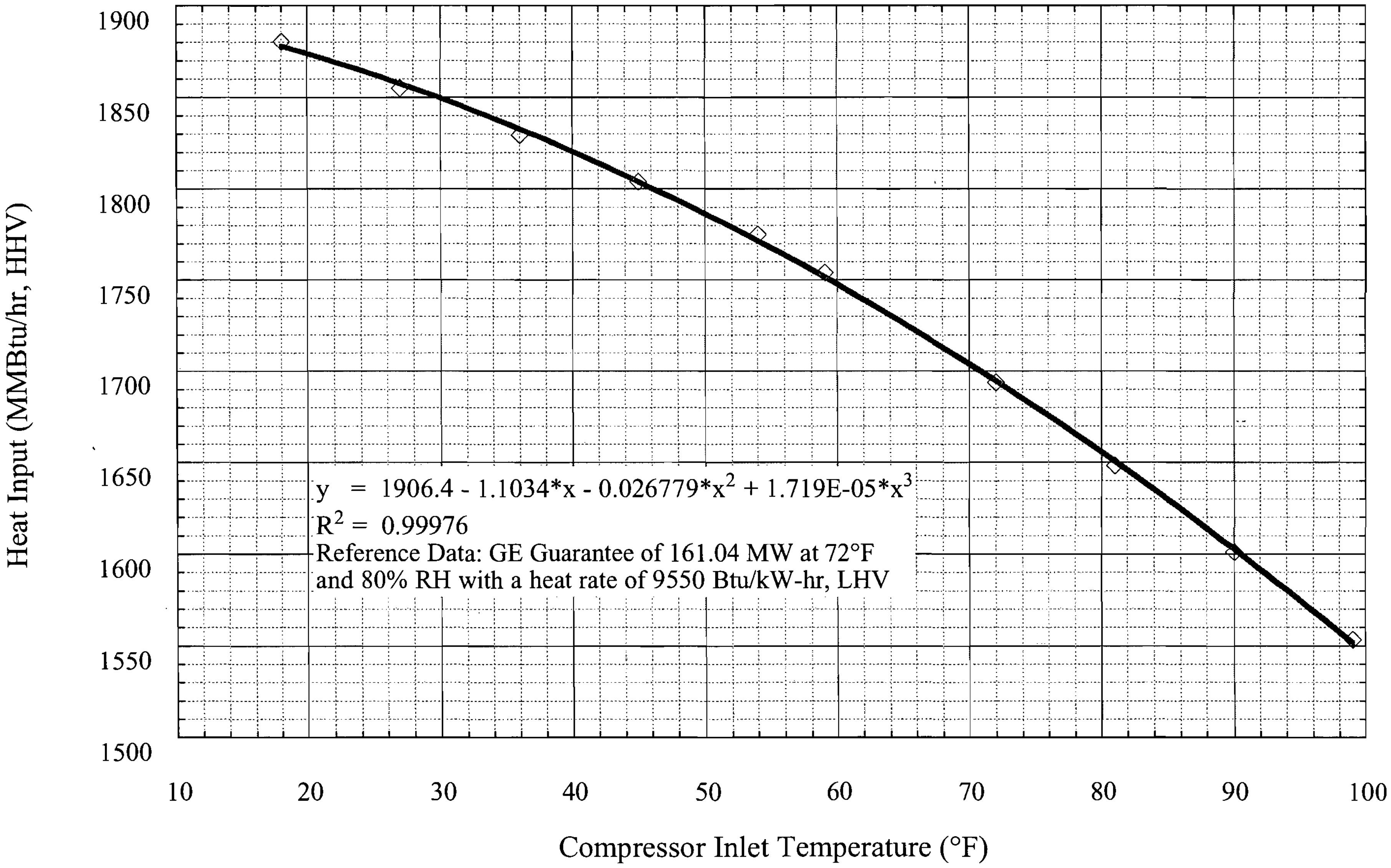
Date 6/5/03

Signature
General Manager
Bayside Power Station

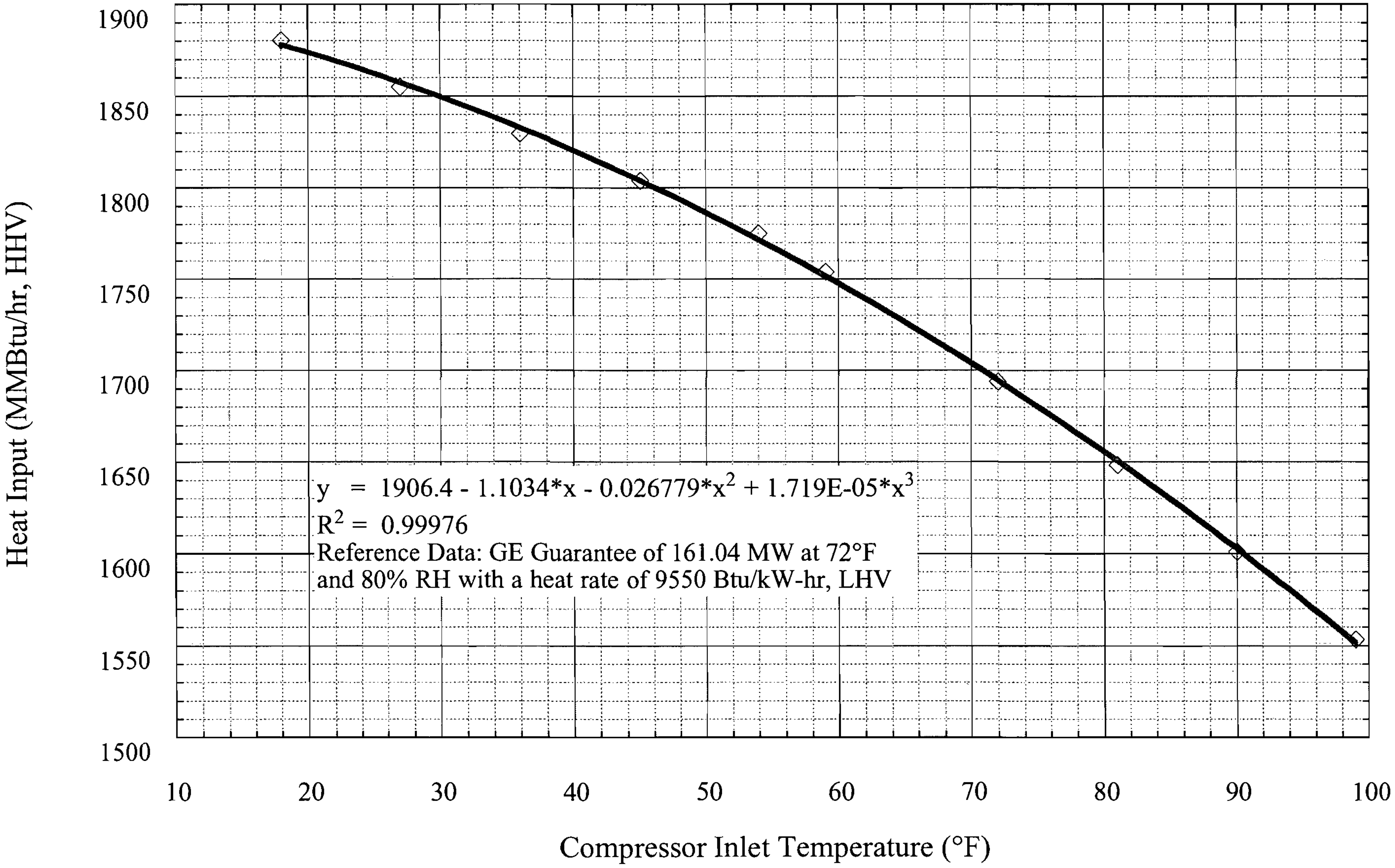
Attachment B

Attachment C

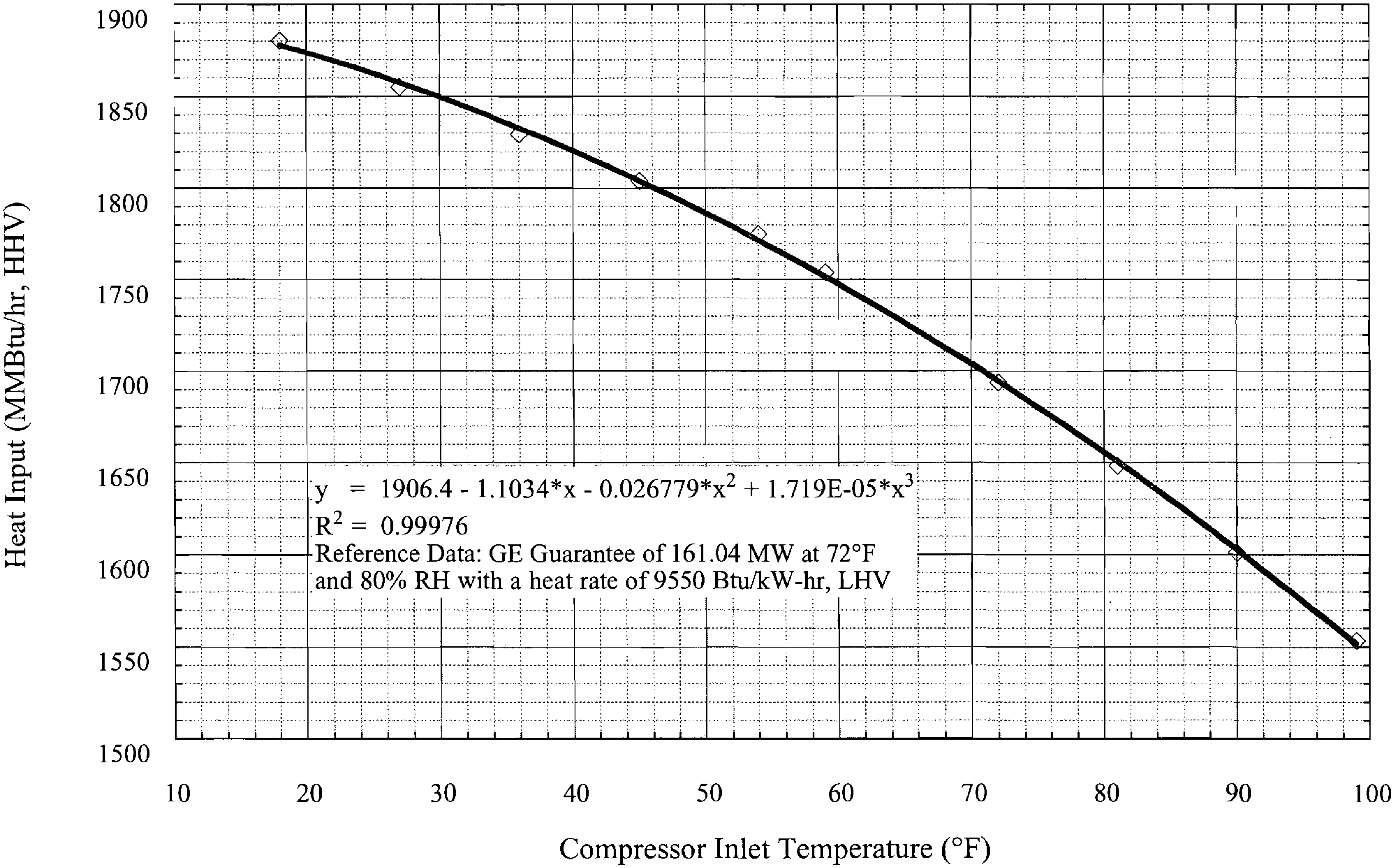
General Eletric Model PG7241(FA) Gas Turbine
Bayside Unit 1A S/N 297826
Natural Gas Performance Curve



General Eletric Model PG7241(FA) Gas Turbine
Bayside Unit 1B S/N 297827
Natural Gas Performance Curve



General Eletric Model PG7241(FA) Gas Turbine
Bayside Unit 1C S/N 297828
Natural Gas Performance Curve



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TEST REPORT

For

INITIAL COMPLIANCE AND PART 60 CEMS CERTIFICATION

From three

GENERAL ELECTRIC MODEL PG7241FA COMBUSTION GAS TURBINE GENERATOR SETS

Each with associated

SPECTRUM SYSTEMS CO AND CO_2 CONTINUOUS EMISSIONS MONITORING SYSTEMS

At the

BAYSIDE POWER STATION

Located in

TAMPA, HILLSBOROUGH COUNTY, FLORIDA

Prepared for the

TAMPA ELECTRIC COMPANY

Report Preparation Date: June 4th, 2003

Cubix Corporation Project No. 7445-FL1

Prepared by

Cubix Corporation
http://www.cubixcorp.com

CORPORATE HEADQUARTERS
9225 US Hwy. 183 South, Austin, TX 78747
(512) 243-0202 TEL (512) 243-0222 FAX

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INTRODUCTION

Emission testing was conducted on three 169-megawatt (MW) General Electric (GE) PG7241FA combustion gas turbine generator sets. Each unit consists of a combined-cycle combustion turbine directly coupled to a 60-Hertz generator fueled by natural gas exclusively. These units, used to generate power, were recently installed at the Bayside Power Station located in Tampa, Hillsborough County, Florida. Tampa Electric Company (TEC) owns and operates this facility. Cubix Corporation, Southeast Regional Office conducted these tests on April 17th through 23rd, 2003.

The purpose of this testing was to determine the status of initial compliance for the three combustion turbine (CT) units with respect to environmental standards and emission limits. The environmental limits for emissions are the permit limits set forth by the Florida Department of Environmental Protection (FDEP) Permit Number PSD-FL-301A and as set forth by US EPA Code of Federal Regulations, Title 40, Part 60 (40 CFR 60), Subpart GG, "Standards of Performance for Stationary Gas Turbines" at full load operation. Testing was also conducted to satisfy standards for initial certification of continuous emissions monitoring systems (CEMS) associated with each CT unit. The tests followed the procedures set forth in 40 CFR 60, Appendix A, Methods 1, 2, 3a, 4, 7e, 9, 10, and 19. Additionally, EPA Conditional Test Method 027 was conducted as published on August 14, 1997, see www.epa.gov/ttn/emc/ctm/ctm-027.pdf. Testing for CEMS relative accuracy and calibration drift tests followed the procedures in 40 CFR 60, Appendix B, Performance Specifications 3 and 4.

Emissions from each CT unit were analyzed for compliance at full load in the heat recovery steam generator (HRSG) stack for oxides of nitrogen (NO_X), carbon monoxide (CO), oxygen (O_2), and carbon dioxide (CO_2) using continuous instrumental monitors. Additional compliance testing consisted of collecting ammonia (NH_3) samples iso-kinetically from the stack of each CT using a manual sampling train and conducting a visible emissions (VE) test on the HRSG stack of each CT unit. Relative accuracy test audits (RATAs) were conducted on the CO and CO_2 CEMS associated with each CT. Core Laboratories, Inc. analyzed fuel samples for sulfur content, fuel composition, and fuel heating values. Atmospheric Analysis and Consulting, Inc. analyzed stack gas samples for ammonia concentration. Table 1 provides background data pertinent to these tests.

This test report has been reviewed and approved for submittal to FDEP by the following representatives:

Cubix Corporation

Tampa Electric Company

TABLE 1
BACKGROUND DATA

Owner/Operator:

Tampa Electric Company
5010 Causeway Boulevard
Tampa, Florida 33619
Attn: David A. Smith
(813) 630-7382 Phone
(813) 630-7350 Facsimile
Email: dasmith@tecoenergy.com

CEMS Manufacturer:

Spectrum Systems Inc.
3410 West 9 Mile Road
Pensacola, Florida 32526
Attn: William D. Sellers
(850) 944-3392 Ext 712 Phone
Email: bill@specsys.com

Testing Organization:

Cubix Corporation, SE Regional Office
3709 SW 42nd Avenue, Suite 2
Gainesville, Florida 32608
Attn: Leonard Brenner, Project Manager
(352) 378-0332 Phone
(352) 378-0354 Facsimile
Email: lbrenner@cubixcorp.com

Test Participants:

Tampa Electric Company
Drupatie Latchman
Elena Vance
Juan Ramirez

Hillsborough County E.P.C.
Carlos Gonzalez
Rama Iyer
Diana Lee

Cubix Corporation
Leonard Brenner
Roger Paul Osier
Jorge Trevino
Jim Hastings

Test Dates: April 17th through 23rd, 2003.

Regulatory Application: Bayside Units 1A, 1B, and 1C are operated under the State of Florida, Florida Department of Environmental Protection (FDEP) Permit Number PSD-FL-301A and federally regulated under EPA New Source Performance Standards (NSPS) 40 CFR 60, Subpart GG. In addition EPA regulations 40 CFR 60, Appendix B, Performance Specifications 3 and 4 and 40 CFR 60 apply to the initial RATAs and 7-day calibration drift tests conducted on the CO and CO_2 CEMS associated with each unit.

Facility Location:

Tampa Electric Company
Bayside Power Station
3602 Port Sutton Road
Tampa, Florida 33619-9526.
The UTM Coordinates are Zone 17; 360.00 km East; 3087.50 km North.

Source Identification:

Tampa Electric	FDEP EU ID	EPA Monitoring Plan
Bayside Unit 1A	0570040-020	Unit CT1A
Bayside Unit 1B	0570040-021	Unit CT1B
Bayside Unit 1C	0570040-022	Unit CT1C

Process Description: Bayside Units 1A, 1B, and 1C are natural gas fueled, combined-cycle combustion turbines (CTs) used to generate electrical power. Each unit, a General Electric Model PG7241 (FA) combustion gas turbine generator set, consists of a single-shaft gas combustion turbine directly connected to a 60 Hz power generator. An unfired heat recovery steam generator (HRSG) is used to recover waste heat from the combustion process for each CT. The waste heat recovered through the production of steam from all three CT/HRSG units is used to produce additional electricity in Gannon Steam Turbine No. 5. The facility is designed and permitted to provide natural gas fuel only to the combustion turbines. The turbines use dry, low-NO_X combustors for initial control of NO_X emissions. Turbine NO_X emissions are further reduced in selective catalytic reduction (SCR) units equipped with ammonia injection.

Process Description (con't):

Associated with each CT is an extractive continuous emissions monitoring system (CEMS) that consists of a sample probe, sample line, sample conditioning system, NO_X monitor, CO monitor, CO_2 monitor, and a data acquisition and handling system (DAHS). Spectrum Systems Inc. manufactured the CEMS package.

Emission Sampling Points:

Each CT exhaust stack is a circular stack located after the HRSG, approximately 150 feet tall with an internal diameter of 228 inches. Four 6-inch diameter sample ports are located perpendicular to each other in a horizontal plane of the stack at approximately 123 feet above grade; see Appendix A for a diagram. Access to the sample ports was provided through caged safety ladders to a permanently installed platform.

Test Methods:

EPA Method 1 was used to select gaseous sampling and ammonia (NH_3) traverse point locations.

EPA Method 2 was used to measure stack gas static and differential pressure measurements to determine stack gas velocity, necessary in maintaining iso-kinetics during NH_3 sampling.

EPA Method 3a was used to determine carbon dioxide (CO_2) and oxygen (O_2) concentrations.

EPA Method 4 was used for determination of stack gas moisture content.

EPA Method 7e was used for determination of oxides of nitrogen (NO_X) concentrations.

EPA Method 9 was used to determine visible emissions (VE) measurements determined as opacity from a certified observer.

EPA Method 10 was used for determination of carbon monoxide (CO) concentrations.

EPA Method 19 was used for the calculation of volumetric flow and pollutant mass emission rates of NO_X and CO emissions.

Test Methods (Continued):

EPA Conditional Test Method 027 was used to collect NH_3 samples and for ion chromatographic analysis to determine NH_3 concentrations.

40 CFR 60, Appendix B, Performance Specification 3 was used for CEMS CO_2 relative accuracy 7-day CO_2 calibration drift test determinations.

40 CFR 60, Appendix B, Performance Specification 4 was used for CEMS CO relative accuracy determinations and 7-day CO calibration drift test determinations.

American Society of Testing and Materials (ASTM) Method D3246 was used to determine the total reduced sulfur in the natural gas fuel.

Gas Processors Association (GPA) Method 2261 was used to determine the composition of the natural gas fuel.

SUMMARY OF RESULTS

Tampa Electric Company (TEC) owns and operates the Bayside Power Station in Tampa, Hillsborough County, Florida. At this facility, three newly installed General Electric (GE) combined-cycle combustion turbines, each equipped with an unfired HRSG, are used to generate electrical power. TEC has designated the combustion turbines (CTs) as Bayside Units 1A, 1B, and 1C. These CT units have CEMS installed on their HRSG exhaust stacks to monitor their emissions. Stack emissions from these units, relative accuracy test audits (RATAs) of the CO and CO_2 CEMS associated with these units, and 7-day calibration drift test monitor certification of the CO and CO_2 CEMS are the subject of this report. CEMS certification of the NO_X-diluent monitors per the EPA Acid Rain Program is reported separately.

The first step in the test matrix for each unit consisted of conducting an initial sampling traverse of the combustion turbine from the HRSG stack during which measurements of NO_X, CO, CO_2, and O_2 were continuously monitored. The purpose of this sampling traverse was to check for changes in emissions concentration (stratification) within the exhaust stack. Emissions concentrations were measured at 12 traverse points, a 4 × 3 matrix, within the HRSG stack to select appropriate sample point locations in the subsequent test runs. All subsequent tests were conducted at three traverse points from one sample port.

Following the stratification tests, compliance and RATA testing were conducted at full load operation. Unit load is expressed as the percent of the maximum heat input of the fuel to the turbine at ambient test conditions and accounting for site losses. Manufacturer load curves were not available at the time of printing this report. These tests consisted of nine 21-minute test runs for a RATA on each CEMS; each group of three test runs, i.e., test runs 1 through 3, 4 through 6, and 7 through 9, were combined to make three 63-minute gaseous compliance test runs. NO_X, CO, O_2, and CO_2 concentrations were continuously monitored throughout nine 21-minute test runs on each unit. Each gaseous test run consisted of sampling using a three-point traverse for 7 minutes per point. Three NH_3 tests were conducted with a minimum sample volume collection of 30 SCF during a 60-minute period on each unit. The gaseous tests were conducted during the NH_3 testing with O_2 and CO_2 results from three gaseous test runs combined with each NH_3 test run for use in molecular weight determination for isokinetic sampling. The exception to this test matrix was that Test Run 1A-NH3-1 failed the post test leak check. To make up for the failed NH_3 test run, an additional test run was conducted, Test Run 1A-NH3-4. During this fourth test run, emissions of O_2 and CO_2 were collected over a 60-minute test run. A one-hour visible emissions test was conducted on each CT/HRSG stack coincident with one of the NH_3 test runs.

Table 2, the executive summary, signifies the performance for the three CT units with respect to initial compliance and with respect to monitor certification requirements for the CEMS on each CT units. The compliance test results are an average of the three test runs and are compared to the permit limits set forth in FDEP Permit No. PSD-FL-301A. CEMS certification results are compared to 40 CFR 60, Appendix B, Performance Specifications 3 and 4.

TABLE 2
Executive Summary

	Unit 1A	Unit 1B	Unit 1C	
Compliance Parameter	**EU ID 0570040-020**	**EU ID 0570040-021**	**EU ID 0570040-022**	**FDEP Permit Limits**
Generator Output (MW)	159.6	160.3	163.5	-
Unit Load (MMBtu/hr, HHV)	1660.0	1657.1	1690.7	**1842 ISO†**
NO_X (ppmvd @ 15% excess O_2)	3.35	2.93	3.14	**3.5**
NO_X (lbs/hr)	20.3	17.8	19.4	**23.1**
NH_3 (ppmvd @ 15% excess O_2)	0.36	0.46	0.47	**5.0**
CO (ppmvd @ 15% excess O_2)	0.56	0.73	0.57	**7.8**
CO (lbs/hr)	2.06	2.72	2.14	**28.7**
VE (% Opacity)	0	0	0	**10**
Sulfur in Fuel (grains S/100 scf gas)	0.17	0.067	0.067	**2.0**

Unit ID	CEMS Certification Parameter	Results*	Pass/Fail	Performance Specifications*
Unit 1A	RATA - CO (ppmvd @ 15% excess O_2)	31.1%RM/2.22%AS	Pass	≤ 10% of RM or ≤ 5% of AS
Unit 1A	RATA - CO_2 (% volume)	0.03% vol CO_2 diff	Pass	≤ 1.0% vol CO_2 absolute difference
Unit 1A	7-day Low Range CO CEMS Calibration Drift	-1.5% to 4.5% span	Pass	≤ ±5% of span value for 6 of 7 days
Unit 1A	7-day Hi Range CO CEMS Calibration Drift	-0.7% to 0.2% span	Pass	≤ ±5% of span value for 6 of 7 days
Unit 1A	7-day CO_2 CEMS Calibration Drift	0.00 to 0.15% CO_2	Pass	≤ 0.5% volume CO_2
Unit 1B	RATA - CO (ppmvd @ 15% excess O_2)	25.1%RM/2.37%AS	Pass	≤ 10% of RM or ≤ 5% of AS
Unit 1B	RATA - O_2 (% volume)	0.22% vol CO_2 diff	Pass	≤ 1.0% CO_2 absolute difference
Unit 1B	7-day Low Range CO CEMS Calibration Drift	-0.5% to 2.0% span	Pass	≤ ±5% of span value for 6 of 7 days
Unit 1B	7-day Hi Range CO CEMS Calibration Drift	-0.6% to 0.3% span	Pass	≤ ±5% of span value for 6 of 7 days
Unit 1B	7-day CO_2 CEMS Calibration Drift	0.00 to 0.35% CO_2	Pass	≤ 0.5% volume CO_2
Unit 1C	RATA - CO (ppmvd @ 15% excess O_2)	25.7%RM/1.87%AS	Pass	≤ 10% of RM or ≤ 5% of AS
Unit 1C	RATA - O_2 (% volume)	0.15% vol CO_2 diff	Pass	≤ 1.0% CO_2 absolute difference
Unit 1C	7-day Low Range CO CEMS Calibration Drift	2.5% to 3.5% span	Pass	≤ ±5% of span value for 6 of 7 days
Unit 1C	7-day Hi Range CO CEMS Calibration Drift	-0.6% to 0.1% span	Pass	≤ ±5% of span value for 6 of 7 days
Unit 1C	7-day CO_2 CEMS Calibration Drift	0.00 to 0.25% CO_2	Pass	≤ 0.5% volume CO_2

†Percent load at test conditions was not determined at the time of report printing as manufacturer curves for load at ambinet conditions were not available.
* RM signifies relative accuracy based upon the mean of the reference method and AS signifies relative accuracy based upon the applicable standard.

Tables 3, 9, and 15 represent the compliance test results for gaseous and visible emissions compliance testing required in the FDEP permit for Unit 1A, Unit 1B, and Unit 1C, respectively. These tabular summaries contain all pertinent operational parameters, ambient conditions, measured emissions, corrected concentrations, and calculated emission rates. NO_X and CO emissions are reported in units of parts per million by volume (ppmv) on a dry basis and ppmv corrected to 15% excess O_2. Mass emission rates for NO_X and CO are reported in terms of pounds per hour (lbs/hr).

Tables 4, 10, and 16 represent the compliance test results for NH_3 slip compliance testing required in the FDEP permit for Unit 1A, Unit 1B, and Unit 1C, respectively. These tabular summaries contain pertinent operational parameters, manual sampling parameters and iso-kinetic data, ion chromatography lab data, and calculated emission rates. NH_3 emissions are reported in units of parts per million by volume (ppmv) on a dry basis and ppmv corrected to 15% excess O_2.

Tables 5, 11, and 17 represent the relative accuracy (RA) test results for the CO CEMS associated with Unit 1A, Unit 1B, and Unit 1C, respectively. The CO CEMS are required to meet the relative accuracy standards of 40 CFR 60, Appendix B, Performance Specification 4. To meet these standards, the relative accuracy must either be equal to or less than (≤) 10% of the mean of the reference method (RM) or less than (≤) 5% of the applicable standard (AS). The RA was determined for CO in terms of ppmv at 15% O_2 to compare the emissions against the applicable permitted standard of 7.8 ppmv CO @ 15% O_2.

Tables 6, 12, and 18 represent the relative accuracy test results for the CO_2 CEMS associated with Unit 1A, Unit 1B, and Unit 1C, respectively. The CO_2 CEMS are required to meet the relative accuracy standards of 40 CFR 60, Appendix B, Performance Specification 3. To meet these standards, the relative accuracy must be less than 1.0% volume CO_2 difference of the means of the CEMS from the mean of the RM.

Tables 7, 13, and 19 summarize the 7-day calibration drift tests for the CO CEMS associated with Unit 1A, Unit 1B, and Unit 1C, respectively. Tables 8, 14, and 20 summarize the 7-day calibration drift tests for the CO_2 CEMS associated with Unit 1A, Unit 1B, and Unit 1C, respectively. The automated calibration system was used to conduct these tests on each CO_2 CEMS and both the high range and low range of each dual-range CO CEMS over 7 consecutive days. 40 CFR 60, Performance Specification 3, Section 13.1 states that the calibration drift for CO_2 monitors shall not exceed 0.5% volume CO_2 from the reference value of the zero or upscale calibration gas. 40 CFR 60, Performance Specification 4, Section 13.1 states that the calibration error limits for CO monitors shall not deviate from the reference value of the zero or upscale calibration gas on each monitor range by more than 5% of the instrument span for 6 out of 7 test days.

Volumetric flow and mass emission rates were determined by stoichiometric calculation (EPA Method 19) based on measurements of diluent gas (O_2 or CO_2) concentrations, "F-factors" determined from fuel composition from the naphtha or distillate oil fuel, and unit fuel flow rates. Examples of iso-kinetic calculations, emission rate calculations, relative accuracy, and other calculations necessary for the presentation of the results of this section are contained in Appendix B.

The fuel analyses are contained in Appendix C of this report. Core

Laboratories of Houston, Texas conducted the analyses using ASTM and GPA test methods. Natural samples were collected and analyzed for various components. Samples were collected daily during the natural gas testing. The natural gas total sulfur content was reported in terms of ppmv weight and grains of sulfur per 100 standard cubic feet of natural gas fuel. Reports of these fuel analyses as well as fuel composition and heating value analysis sheets are in Appendix C.

An EPA Method 9 observer certified by Eastern Technical Associates of Raleigh, North Carolina, performed visible emission observations of the CT/HRSG exhaust stacks. A one-hour visible emissions test run was conducted on each unit at full load per EPA Method 9. VE were an average of 0% opacity in the highest six-minute average for each test and no VE greater than 0% opacity was observed during the tests.

Appendix A contains all field data sheets used during these tests. Appendix B contains examples of all calculations necessary for the reduction of the data presented in this report. Appendix C contains Cubix's fuel calculation worksheet, and the laboratory analysis for daily fuel samples conducted by Core Laboratories, Inc. Quality assurance activities are documented in Appendix D. Certificates of calibrations for both Cubix Corporation and Tampa Electric are contained in Appendix E of this report. Appendix F contains the records of logged data, displayed in one-minute intervals, used to record the reference method NO_X, CO, O_2, and CO_2 concentrations; it also includes a running and final average of raw data. Appendix G contains unit control system operational data, CEMS data acquisition and handling system (DAHS) RATA documents reported in one-minute intervals provided by TEC during the test runs, and CEMS DAHS daily calibration records used for calibration drift determination. Ion chromatography results from the ammonia analyses conducted by Atmospheric Analysis and Consulting, Inc. are presented in Appendix H. Appendix I contains the "Visible Emissions Observation Forms" and the observer certifications. The FDEP permit is presented in Appendix J for reference purposes.

TABLE 3
Summary of Results
Unit 1A Full Load Testing

Company: Tampa Electric Company
Plant: Bayside Power Station
Location: Tampa, Hillsborough County, Florida
Technicians: LJB, RPO, JTH, JT
Source: Unit 1A, a GE Frame 7FA Combustion Turbine

Test Number	**1A-C-1**	**1A-C-2**	**1A-C-3**		
Date	4/23/03	4/23/03	4/23/03		
Start Time (CEMS Time)	10:23	12:12	13:55		**FDEP Permit Limits**
Stop Time (CEMS Time)	11:49	13:44	15:19		
Power Turbine Operation	**Base Load**			***Averages***	
Generator Output (MW, DWATT)	161.4	159.5	157.8	***159.6***	**169**
Turbine Load (MMBtu/hr, HHV)	1673.7	1660.8	1645.6	***1660.0***	
Barometric Pressure ("Hg, AFPAP)	30.05	30.04	30.01	***30.03***	
Compressor Inlet Temperature (°F, CTIM)	74.7	78.0	80.4	***77.7***	
Air Inlet Duct Losses ("H_2O)	1.69	1.69	1.78	***1.72***	
Inlet Guide Vane Angle (degrees, CSGV)	82.00	82.00	82.00	***82.00***	
Engine Compressor Discharge Pressure (psia, CPD)	208.3	206.8	205.1	***206.7***	
Compressor Discharge Temperature (°F, CTD)	749.3	754.0	756.1	***753.1***	
Mean Turbine Exhaust Temperature (°F, TTXM)	1134.8	1137.3	1139.6	***1137.2***	
SCR Inlet Temperature (°F)	606.7	606.2	605.5	***606.1***	
NH_3 Injection Rate (lbs/hr)	15.63	15.68	13.17	***14.83***	
Turbine Fuel Data (Natural Gas)					
Fuel Heating Value (Btu/lb, Gross)	23002	23002	23002	***23002***	
Fuel Specific Gravity	0.5949	0.5949	0.5949	***0.5949***	
Sulfur in Fuel (grains S/100 scf of gas)	0.17	0.17	0.17	***0.17***	**2.0**
O_2 "F_d Factor" (DSCFex/MMBtu @ 0% excess air)	8647	8647	8647	***8647***	
CO_2 "F_c Factor" (DSCFex/MMBtu @ 0% excess air)	1032	1032	1032	***1032***	
Gas Fuel Flow (FQG, lbs/sec)	20.2122	20.0555	19.8717	***20.0465***	
Heat Input (MMBtu/hr, Higher Heating Value)	1673.7	1660.8	1645.6	***1660.0***	**1842 ISO**
Heat Input (MMBtu/hr, Lower Heating Value)	1509.2	1497.5	1483.7	***1496.8***	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.97	29.96	29.92	***29.95***	
Temperature (°F): Dry Bulb	77.8	81.0	82.4	***80.4***	
(°F): Wet Bulb	61.5	61.4	63.6	***62.2***	
Humidity (lbs moisture/lb of air)	0.0077	0.0069	0.0080	***0.0075***	
Measured Emissions					
NO_X (ppmv, dry basis)	3.96	4.00	3.97	***3.97***	
NO_X (ppmv, dry @ 15% excess O_2)	**3.32**	**3.37**	**3.34**	***3.35***	**3.5**
NO_X (ppmv @ 15% O_2, ISO Day)	3.25	3.22	3.24	***3.24***	
CO (ppmv, dry basis)	0.64	0.66	0.69	***0.66***	
CO (ppmv, dry @15% excess O_2)	**0.54**	**0.55**	**0.58**	***0.56***	**7.8**
VE (% opacity)	**0**	**-**	**-**	***0***	**10**
O_2 (% volume, dry basis)	13.87	13.91	13.90	***13.89***	
CO_2 (% volume, dry basis)	4.03	4.02	4.03	***4.03***	
F_o (fuel factor, range = 1.600-1.836 for NG)	1.74	1.74	1.74	***1.74***	
Stack Volumetric Flow Rates (via EPA Method 19)					
via O_2 "F_d Factor" (SCFH, dry basis)	4.30E+07	4.29E+07	4.25E+07	***4.28E+07***	
via CO_2 "F_c Factor" (SCFH, dry basis)	4.29E+07	4.26E+07	4.21E+07	***4.25E+07***	
Calculated Emission Rates (via M-19 O_2 or CO_2 "F-factor")					
NO_X (lbs/hr)	**20.3**	**20.5**	**20.1**	***20.3***	**23.1**
CO (lbs/hr)	**2.01**	**2.05**	**2.12**	***2.06***	**28.7**

TABLE 4
Unit 1A - Ammonia Sampling and Analysis Results

Company: Tampa Electric Company
Plant: Bayside Power Station
Location: Tampa, Hillsborough County, Florida
Technicians: LJB, RPO, JTH, JT
Source: Unit 1A, a GE Frame 7FA Combustion Turbine

Test Run Designation	**1A-NH3-2**	**1A-NH3-3**	**1A-NH3-4**		
Date	4/23/03	4/23/03	4/23/03		
Start Time (24 hour basis)	12:12	13:55	15:41		**FDEP Permit Limits**
Stop Time (24 hour basis)	13:21	15:08	16:50		
Unit Operational Data				**Averages**	
Generator Output (MW, CT generated power only)	159.5	157.8	157.7	158.3	
Heat Input (MMBtu/hr, HHV)	1660.8	1645.6	1651.7	1652.7	
Ammonia Injection Rate	15.68	13.17	7.06	11.97	
Stack Gas Sampling Data					
Box No.	E-1	E-1	E-1	-	
Atmospheric Pressure (" Hg, absolute)	29.83	29.80	29.79	29.81	
Sample Volume at STP, dry basis (SCF)	32.709	32.782	31.972	32.488	
Moisture (% volume)	8.88	8.60	8.33	8.60	
O_2 (% volume, dry basis)	13.91	13.90	13.92	13.91	
CO_2 (% volume, dry basis)	4.02	4.03	4.02	4.02	
Stack Gas Molecular Weight, wet basis (lbs./lb-mole)	28.21	28.24	28.27	28.24	
Stack Velocity (ft/sec @ stack conditions)	66.14	66.63	65.35	66.04	
Sample Run Time (minutes)	60	60	60	60	
Nozzle Area (ft^2)	0.0001983	0.0001983	0.0001983	0.000198	
% of Isokinetic Sampling	**103.0**	**102.1**	**101.3**	**102.1**	
NH_3 Ion Chromatography Analysis Data					
Probe/Impinger1 Laboratory Sample ID Number	030147-796	030147-798	030147-800	-	
Ammonium Ion Concentration (Imp-1/Probe $NH4^+$, μg/ml)	1.32	1.07	1.10	1.16	
Impinger 1 + Probe Rinse Volume, ml)	250	250	250	250	
Impinger 2 Laboratory Sample ID Number	030147-797	030147-799	030147-801	-	
Ammonium Ion Concentration (Imp-2 $NH4^+$, μg/ml)	ND	ND	ND	-	
Impinger 2 Volume, ml)	250	250	250	250	
Ammonium Ion Concentration (total $NH4^+$, mg)	0.329	0.268	0.275	0.290	
Breakthrough (Ratio of Imp-2 to Probe/Imp-1, must be <10%)	0%	0%	0%	0%	
Volume of Ammonia Gas in Sample (gaseous, liters)	0.000439	0.000357	0.000367	0.000388	
Measured Emissions					
NH_3 (ppmv, dry basis)	0.47	0.38	0.41	0.42	
NH_3 (ppmv, dry @15% excess O_2)	**0.40**	**0.32**	**0.34**	**0.36**	**5.00**

TABLE 5
Unit 1A - CO CEMS RATA Results

Date: April 23, 2003
Company: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1A a GE Frame 7FA Combustion Turbine
Technician(s): LJB, RPO, JTH, JT
Cubix Method: EPA Methods 3a and 10
Basis (wet or dry): dry basis

Applicable Standard: *7.8 ppmv**
Number of Tests: 9
t- value (97.5% confidence) 2.306
CO CEMS Type: TECO Model 48C
CO Detector Type: Non-dispersive Infrared
CO$_2$ CEMS Type: Siemens Ultramat 6E
CO$_2$ Detector Type: Infrared Detector
Basis (wet or dry): dry basis

				Reference Method Data			CEMS Data	CEMS Data	CEMS Data	CO Standard
Test Run Number	**Start Time**	**Stop Time**	**Load (MW)**	**Cubix CO** *(ppmv, dry)*	**Cubix O$_2$** *(% vol, dry)*	**Cubix CO** *(ppmv @15%O$_2$)*	**CEM (CO)** *(ppmv, dry)*	**CEM (CO$_2$)** *(%vol, dry)*	**CEM (CO)** *(ppmv @15%O$_2$)*	**Difference** *(ppmv @15%O$_2$)*
1A-RA-1	10:23	10:44	162.1	0.63	13.87	0.529	0.505	4.040	0.400	0.129
1A-RA-2	10:54	11:15	161.6	0.64	13.87	0.537	0.500	4.038	0.405	0.132
1A-RA-3	11:28	11:49	161.1	0.66	13.88	0.555	0.500	4.039	0.400	0.155
1A-RA-4	12:12	12:33	160.3	0.63	13.90	0.531	0.495	4.056	0.395	0.136
1A-RA-5	12:47	13:08	159.6	0.66	13.92	0.558	0.500	4.060	0.400	0.158
1A-RA-6	13:23	13:44	158.5	0.68	13.91	0.574	0.495	4.064	0.400	0.174
1A-RA-7	13:55	14:16	158.3	0.69	13.89	0.581	0.491	4.075	0.400	0.181
1A-RA-8	14:27	14:48	157.8	0.68	13.90	0.573	0.495	4.085	0.405	0.168
1A-RA-9	14:58	15:19	157.2	0.69	13.90	0.582	0.495	4.085	0.400	0.182
			Averages:	**0.66**	**13.89**	**0.55778**	**0.50**	**4.06**	**0.4006**	**0.157222**
			Standard Deviation:	**0.02**	**0.02**	**0.02123**	**0.00**	**0.02**	**0.003**	**0.020813**
									Confidence Coefficient:	**0.015999**

†Relative Accuracy

CO (ppmv @ 15% O$_2$): **31.1%** **(Based on Mean of Reference Method)**
CO (ppmv @ 15% O$_2$): **2.22%** **(Based on the Applicable Standard)**

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 4, Section 13.2 "Relative Accuracy" specifications state that for CO CEMS systems the relative accuracy must be ≤10% of the average of the reference method or ≤5% of the applicable standard when the average emissions during the test are less than 50% of the emission standard.

TABLE 6
Unit 1A - CO_2 CEMS RATA Results

Date: 4/23/0.3
Company: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1A, a GE Frame 7FA Combustion Turbine
Technician(s): LJB, RPO, JTH, JT
Cubix Method: EPA Method 3a
Basis (wet or dry): dry basis

Applicable Standard: *n/a*
Number of Tests: 9
t- value (97.5% confidence) 2.306
CO_2 CEMS Type: Siemens Ultramat 6E
CO_2 Detector Type: Infra-red Detector
Basis (wet or dry): dry basis

				Reference Method Data	**CEMS Data**	
Test Run Number	**Start Time**	**Stop Time**	**Load (MW)**	**Cubix CO_2 *(% volume)***	**CEM CO_2 *(% volume)***	**Difference *(% volume)***
1A-RA-1	10:23	10:44	162.0	4.03	4.040	-0.010
1A-RA-2	10:54	11:15	162.0	4.04	4.038	0.002
1A-RA-3	11:28	11:49	161.0	4.02	4.039	-0.019
1A-RA-4	12:12	12:33	160.0	4.03	4.056	-0.026
1A-RA-5	12:47	13:08	160.0	4.03	4.060	-0.030
1A-RA-6	13:23	13:44	159.0	4.01	4.064	-0.054
1A-RA-7	13:55	14:16	158.0	4.02	4.075	-0.055
1A-RA-8	14:27	14:48	158.0	4.04	4.085	-0.045
1A-RA-9	14:58	15:19	157.0	4.03	4.085	-0.055
			Averages:	**4.02778**	**4.0602**	**-0.032444**
			Standard Deviation:	**0.00972**	**0.019**	**0.021090**
					Confidence Coefficient:	**0.016211**

	†Relative Accuracy	
CO_2 (% volume):	**1.21%**	**(Based on Mean of Reference Method)**
CO_2 (% volume):	**0.03%**	**(Absolute Difference, % volume of CO_2)**

† EPA Standard, 40 CFR 60, Appendix B, Performance Specification 3: Relative Accuracy for CO_2 must be no greater than an absolute difference of 1.0 % volume of CO_2 of the average CEMS value from the average of the reference method value.

TABLE 7
Unit 1A - CEMS CO 7-day Calibration Error Test Results

Company: Tampa Electric Company
Location: Bayside Power Station
Start Date: 05/21/2003
Unit ID: CT1A
Analyzer Type: Non-Dispersive Infra-red
Manufacturer: Thermo Environmental Inst
Model # 48C
Serial # 48C-73684-374
Parameter: Carbon Monoxide, High Range
Span Value: 1000.00 ppmv
Zero-Level Gas: 0.00 ppmv
Mid-Level Gas: 557.00 ppmv

Parameter: Carbon Monoxide, Low Range
Span Value: 20.00 ppmv
Zero-Level Gas: 0.00 ppmv
Mid-Level Gas: 11.30 ppmv

Low Range Zero-Level Gas Calibrations							
			Heat Input	Reference Value	CEMS Response	Calibration Error Calibration Gas vs. CEMS	
Day #	Date	Time (Hour Only)	(MMBtu/hr)	(ppmv)	(ppmv)	(ppmv Error)	(% Cal Error)
1	05/21/2003	8:31	1319.1	0.00	0.70	0.7	3.5
2	05/22/2003	1:09	1566.8	0.00	0.60	0.6	3.0
3	05/23/2003	1:09	1331.5	0.00	0.50	0.5	2.5
4	05/24/2003	13:01	1268.4	0.00	0.90	0.9	4.5
5	05/25/2003	1:09	1428.1	0.00	0.90	0.9	4.5
6	05/26/2003	1:09	1285.8	0.00	1.10	1.1	5.5
7	05/27/2003	1:09	1249.3	0.00	0.90	0.9	4.5
					Averages	**0.8**	**3.4**

Low Range Mid-Level Gas Calibrations							
			Heat Input	Reference Value	CEMS Response	Calibration Error Calibration Gas vs. CEMS	
Day #	Date	Time (Hour Only)	(MMBtu/hr)	(ppmv)	(ppmv)	(ppmv Error)	(% Cal Error)
1	05/21/2003	8:25	1319.1	11.30	11.10	-0.2	-1.0
2	05/22/2003	1:03	1566.8	11.30	11.00	-0.3	-1.5
3	05/23/2003	1:03	1331.5	11.30	11.00	-0.3	-1.5
4	05/24/2003	12:55	1122.8	11.30	11.30	0.0	0.0
5	05/25/2003	1:03	1428.1	11.30	11.40	0.1	0.5
6	05/26/2003	1:03	1285.8	11.30	11.70	0.4	2.0
7	05/27/2003	1:03	1249.3	11.30	11.30	0.0	0.0
					Averages	**0.0**	**-0.2**

High Range Zero-Level Gas Calibrations							
			Heat Input	Reference Value	CEMS Response	Calibration Error Calibration Gas vs. CEMS	
Day #	Date	Time (Hour Only)	(MMBtu/hr)	(ppmv)	(ppmv)	(ppmv Error)	(% Cal Error)
1	05/21/2003	8:31	1319.1	0.00	0.50	0.5	0.1
2	05/22/2003	1:09	1566.8	0.00	0.20	0.2	0.0
3	05/23/2003	1:09	1331.5	0.00	-0.20	-0.2	0.0
4	05/24/2003	13:01	1268.4	0.00	0.50	0.5	0.1
5	05/25/2003	1:09	1428.1	0.00	0.50	0.5	0.1
6	05/26/2003	1:09	1285.8	0.00	0.50	0.5	0.1
7	05/27/2003	1:09	1249.3	0.00	0.50	0.5	0.1
					Averages	**0.4**	**0.0**

High Range Mid-Level Gas Calibrations							
			Heat Input	Reference Value	CEMS Response	Calibration Error Calibration Gas vs. CEMS	
Day #	Date	Time (Hour Only)	(MMBtu/hr)	(ppmv)	(ppmv)	(ppmv Error)	(% Cal Error)
1	05/21/2003	8:28	1319.1	557.00	550.00	-7.0	-0.7
2	05/22/2003	1:06	1566.8	557.00	551.80	-5.2	-0.5
3	05/23/2003	1:06	1331.5	557.00	554.40	-2.6	-0.3
4	05/24/2003	12:58	1122.8	557.00	556.40	-0.6	-0.1
5	05/25/2003	1:06	1428.1	557.00	557.50	0.5	0.1
6	05/26/2003	1:06	1285.8	557.00	558.80	1.8	0.2
7	05/27/2003	1:06	1249.3	557.00	549.80	-7.2	-0.7
					Averages	**-2.9**	**-0.3**

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 4, 7-day calibration drift specifications state that acceptable results for CO monitors are a calibration drift of ≤5% from the instrument span value in 6 out of 7 test days.

TABLE 8
Unit 1A - CEMS CO_2 7-day Calibration Error Test Results

Company:	**Tampa Electric Company**
Location:	**Bayside Power Station**
Start Date:	**05/21/2003**
Unit ID:	**CT1A**
System ID:	**113**
Component ID:	**105**
Analyzer Type:	**Infra-red**
Manufacturer:	**Siemens**
Model #	**Ultramat 6E**
Serial #	**F-Nr-N1-Nd-0876**
Parameter:	**Carbon Dioxide**

Span Value:	**10.00% vol**
Zero-Level Gas:	**0.00% vol**
Mid-Level Gas:	**5.55% vol**

High Range Zero-Level Gas Calibrations

Day #	Date	Time (Hour Only)	Heat Input (MMBtu/hr)	Reference Value (% volume)	CEMS Response (% volume)	Calibration Error Cal Gas vs. CEMS (% vol Error)
1	05/21/2003	8:28	1319.1	0.00	0.00	0.00
2	05/22/2003	1:06	1566.8	0.00	0.00	0.00
3	05/23/2003	1:06	1331.5	0.00	0.00	0.00
4	05/24/2003	12:58	1122.8	0.00	0.00	0.00
5	05/25/2003	1:06	1428.1	0.00	0.00	0.00
6	05/26/2003	1:06	1285.8	0.00	0.00	0.00
7	05/27/2003	1:06	1249.3	0.00	0.00	0.00
					Averages	**0.00**

High Range Mid-Level Gas Calibrations

Day #	Date	Time (Hour Only)	Heat Input (MMBtu/hr)	Reference Value (% volume)	CEMS Response (% volume)	Calibration Error Cal Gas vs. CEMS (% vol Error)
1	05/21/2003	8:31	1319.1	5.55	5.60	0.05
2	05/22/2003	1:09	1566.8	5.55	5.60	0.05
3	05/23/2003	1:09	1331.5	5.55	5.60	0.05
4	05/24/2003	13:01	1268.4	5.55	5.60	0.05
5	05/25/2003	1:09	1428.1	5.55	5.70	0.15
6	05/26/2003	1:09	1285.8	5.55	5.60	0.05
7	05/27/2003	1:09	1249.3	5.55	5.60	0.05
					Averages	**0.06**

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 3, 7-day calibration drift specifications state that acceptable results for CO_2 or O_2 monitors are an absolute difference from the reference value of ≤ 0.5% in concentration

TABLE 9
Summary of Results
Unit 1B Full Load Testing

Company: Tampa Electric Company
Plant: Bayside Power Station
Location: Tampa, Hillsborough County, Florida
Technicians: LJB, RPO, JTH, JT
Source: Unit 1B, a GE Frame 7FA Combustion Turbine

Test Number	**1B-C-1**	**1B-C-2**	**1B-C-3**		**FDEP Permit Limits**
Date	4/17/03	4/17/03	4/17/03		
Start Time (CEMS Time)	7:02	8:50	10:35		
Stop Time (CEMS Time)	8:30	10:21	12:09		
Power Turbine Operation	**Base Load**			*Averages*	
Generator Output (MW, DWATT)	163.0	160.0	157.9	***160.3***	**169**
Turbine Load (MMBtu/hr, HHV)	1677.0	1655.5	1638.7	***1657.1***	
Barometric Pressure ("Hg, AFPAP)	29.98	29.99	29.97	***29.98***	
Compressor Inlet Temperature (°F, CTIM)	70.1	75.7	78.9	***74.9***	
Air Inlet Duct Losses ("H_2O)	1.70	1.72	1.73	***1.72***	
Inlet Guide Vane Angle (degrees, CSGV)	82.00	82.00	82.00	***82.00***	
Engine Compressor Discharge Pressure (psia, CPD)	208.9	206.3	204.4	***206.5***	
Compressor Discharge Temperature (°F, CTD)	734.8	742.0	746.0	***741.0***	
Mean Turbine Exhaust Temperature (°F, TTXM)	1132.2	1137.5	1140.4	***1136.7***	
SCR Inlet Temperature (°F)	568.3	567.7	567.2	***567.7***	
NH_3 Injection Rate (lbs/hr)	7.21	7.51	7.48	***7.40***	
Turbine Fuel Data (Natural Gas)					
Fuel Heating Value (Btu/lb, Gross)	22914	22914	22914	***22914***	
Fuel Specific Gravity	0.5978	0.5978	0.5978	***0.5978***	
Sulfur in Fuel (grains S/100 scf of gas)	0.067	0.067	0.067	***0.067***	**2.0**
O_2 "F_d Factor" (DSCFex/MMBtu @ 0% excess air)	8649	8649	8649	***8649***	
CO_2 "F_c Factor" (DSCFex/MMBtu @ 0% excess air)	1034	1034	1034	***1034***	
Gas Fuel Flow (FQG, lbs/sec)	20.3299	20.0692	19.8649	***20.0880***	
Heat Input (MMBtu/hr, Higher Heating Value)	1677.0	1655.5	1638.7	***1657.1***	**1842 ISO**
Heat Input (MMBtu/hr, Lower Heating Value)	1512.1	1492.7	1477.5	***1494.1***	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.92	29.93	29.91	***29.92***	
Temperature (°F): Dry Bulb	70.0	74.4	79.2	***74.6***	
(°F): Wet Bulb	66.8	67.7	70.3	***68.3***	
Humidity (lbs moisture/lb of air)	0.0131	0.0127	0.0135	***0.0131***	
Measured Emissions					
NO_X (ppmv, dry basis)	3.55	3.55	3.53	***3.54***	
NO_X (ppmv, dry @ 15% excess O_2)	**2.93**	**2.94**	**2.93**	***2.93***	**3.5**
NO_X (ppmv @ 15% O_2, ISO Day)	3.23	3.16	3.17	***3.18***	
CO (ppmv, dry basis)	0.89	0.86	0.93	***0.89***	
CO (ppmv, dry @15% excess O_2)	**0.71**	**0.71**	**0.77**	***0.73***	**7.8**
VE (% opacity)	**0**	**-**	**-**	***0***	**10**
O_2 (% volume, dry basis)	13.75	13.77	13.78	***13.77***	
CO_2 (% volume, dry basis)	4.13	4.13	4.10	***4.12***	
F_o (fuel factor, range = 1.600-1.836 for NG)	1.73	1.73	1.74	***1.73***	
Stack Volumetric Flow Rates (via EPA Method 19)					
via O_2 "F_d Factor" (SCFH, dry basis)	4.24E+07	4.20E+07	4.16E+07	***4.20E+07***	
via CO_2 "F_c Factor" (SCFH, dry basis)	4.20E+07	4.14E+07	4.13E+07	***4.16E+07***	
Calculated Emission Rates (via M-19 O_2 or CO_2 "F-factor")					
NO_X (lbs/hr)	**18.0**	**17.8**	**17.5**	***17.8***	**23.1**
CO (lbs/hr)	**2.73**	**2.61**	**2.80**	***2.72***	**28.7**

TABLE 10
Unit 1B - Ammonia Sampling and Analysis Results

Company: Tampa Electric Company
Plant: Bayside Power Station
Location: Tampa, Hillsborough County, Florida
Technicians: LJB, RPO, JTH, JT
Source: Unit 1B, a GE Frame 7FA Combustion Turbine

Test Run Designation	**1B-NH3-1**	**1B-NH3-2**	**1B-NH3-3**		
Date	4/17/03	4/17/03	4/17/03		
Start Time (24 hour basis)	07:02	08:50	10:35		**FDEP Permit Limits**
Stop Time (24 hour basis)	08:14	10:02	11:48		
Unit Operational Data				**Averages**	
Generator Output (MW, CT generated power only)	163.0	160.0	157.9	160.3	
Heat Input (MMBtu/hr, HHV)	1677.0	1655.5	1638.7	1657.1	
Ammonia Injection Rate	7.21	7.51	7.48	7.40	
Stack Gas Sampling Data					
Box No.	E-2	E-2	E-2	-	
Atmospheric Pressure (" Hg, absolute)	29.80	29.80	29.79	29.80	
Sample Volume at STP, dry basis (SCF)	32.337	32.756	31.901	32.331	
Moisture (% volume)	9.17	9.28	9.73	9.39	
O_2 (% volume, dry basis)	13.75	13.77	13.78	13.77	
CO_2 (% volume, dry basis)	4.13	4.13	4.10	4.12	
Stack Gas Molecular Weight, wet basis (lbs./lb-mole)	28.18	28.17	28.12	28.16	
Stack Velocity (ft/sec @ stack conditions)	66.65	67.28	65.59	66.51	
Sample Run Time (minutes)	60	60	60	60	
Nozzle Area (ft^2)	0.0001983	0.0001983	0.0001983	0.000198	
% of Isokinetic Sampling	**99.2**	**99.9**	**100.3**	**99.8**	
NH_3 Ion Chromatography Analysis Data					
Probe/Impinger1 Laboratory Sample ID Number	030145-782	030145-784	030145-786	-	
Ammonium Ion Concentration (Imp-1/Probe $NH4^+$, μg/ml)	1.68	1.44	1.45	1.52	
Impinger 1 + Probe Rinse Volume, ml)	250	250	250	250	
Impinger 2 Laboratory Sample ID Number	030145-783	030145-785	030145-787	-	
Ammonium Ion Concentration (Imp-2 $NH4^+$, μg/ml)	ND	ND	ND	-	
Impinger 2 Volume, ml)	250	250	250	250	
Ammonium Ion Concentration (total $NH4^+$, mg)	0.420	0.359	0.361	0.380	
Breakthrough (Ratio of Imp-2 to Probe/Imp-1, must be <10%)	0%	0%	0%	0%	
Volume of Ammonia Gas in Sample (gaseous, liters)	0.000561	0.000479	0.000482	0.000508	
Measured Emissions					
NH_3 (ppmv, dry basis)	**0.61**	**0.52**	**0.53**	**0.55**	
NH_3 (ppmv, dry @15% excess O_2)	**0.51**	**0.43**	**0.44**	***0.46***	**5.00**

Testing by Cubix Corporation - Gainesville, Florida

TABLE 11
Unit 1B - CO CEMS RATA Results

Date: April 17, 2003
Company: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1B, a GE Frame 7FA Combustion Turbine
Technician(s): LJB, RPO, JTH, JT
Cubix Method: EPA Methods 3a and 10
Basis (wet or dry): dry basis

Applicable Standard: *7.8 ppmv**
Number of Tests: 9
t- value (97.5% confidence) 2.306
CO CEMS Type: TECO Model 48C
CO Detector Type: Non-dispersive Infrared
CO_2 CEMS Type: Siemens Ultramat 6E
CO_2 Detector Type: Infrared Detector
Basis (wet or dry): dry basis

				Reference Method Data			CEMS Data	CEMS Data	CEMS Data	CO Standard Difference
Test Run Number	**Start Time**	**Stop Time**	**Load (MW)**	**Cubix CO** *(ppmv, dry)*	**Cubix O_2** *(% vol, dry)*	**Cubix CO** *(ppmv @15%O_2)*	**CEM (CO)** *(ppmv, dry)*	**CEM (CO_2)** *(%vol, dry)*	**CEM (CO)** *(ppmv @15%O_2)*	*(ppmv@15%O_2)*
1B-RA-1	07:02	07:23	164.3	0.90	13.76	0.744	0.809	4.370	0.609	0.135
1B-RA-2	07:36	07:57	162.9	0.90	13.74	0.742	0.800	4.365	0.600	0.142
1B-RA-3	08:09	08:30	161.8	0.86	13.75	0.710	0.777	4.358	0.577	0.133
1B-RA-4	08:50	09:11	160.5	0.80	13.77	0.662	0.727	4.347	0.523	0.139
1B-RA-5	09:23	09:44	160.1	0.90	13.77	0.745	0.791	4.352	0.595	0.150
1B-RA-6	10:00	10:21	159.2	0.87	13.77	0.720	0.750	4.331	0.541	0.179
1B-RA-7	10:35	10:56	158.4	0.90	13.77	0.745	0.759	4.320	0.559	0.186
1B-RA-8	11:16	11:37	157.4	0.94	13.78	0.779	0.782	4.301	0.573	0.206
1B-RA-9	11:48	12:09	157.1	0.94	13.79	0.780	0.777	4.300	0.586	0.194
			Averages:	**0.89**	**13.77**	**0.73633**	**0.775**	**4.338**	**0.57367**	**0.162667**
			Standard Deviation:	**0.04**	**0.02**	**0.03615**	**0.03**	**0.03**	**0.028**	**0.028425**
									Confidence Coefficient:	**0.021850**

†Relative Accuracy

CO (ppmv @ 15% O_2): 25.1% (Based on Mean of Reference Method)
CO (ppmv @ 15% O_2): 2.37% (Based on the Applicable Standard)

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 4, Section 13.2 "Relative Accuracy" specifications state that for CO CEMS systems the relative accuracy must be ≤10% of the average of the reference method or ≤5% of the applicable standard when the average emissions during the test are less than 50% of the emission standard.

TABLE 12
Unit 1B - CO_2 CEMS RATA Results

Date: April 17, 2003
Company: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1B, a GE Frame 7FA Combustion Turbine
Technician(s): LJB, RPO, JTH, JT
Cubix Method: EPA Method 3a
Basis (wet or dry): dry basis

Applicable Standard: *n/a*
Number of Tests: 9
t- value (97.5% confidence) 2.306
CO_2 CEMS Type: Siemens Ultramat 6E
CO_2 Detector Type: Infra-red Detector
Basis (wet or dry): dry basis

				Reference Method Data	CEMS Data	
Test Run Number	**Start Time**	**Stop Time**	**Load (MW)**	**Cubix CO_2 *(% volume)***	**CEM CO_2 *(% volume)***	**Difference *(% volume)***
1B-RA-1	07:02	07:23	164.3	4.16	4.370	-0.210
1B-RA-2	07:36	07:57	162.9	4.10	4.365	-0.265
1B-RA-3	08:09	08:30	161.8	4.12	4.358	-0.238
1B-RA-4	08:50	09:11	160.5	4.13	4.347	-0.217
1B-RA-5	09:23	09:44	160.1	4.12	4.352	-0.232
1B-RA-6	10:00	10:21	159.2	4.15	4.331	-0.181
1B-RA-7	10:35	10:56	158.4	4.10	4.320	-0.220
1B-RA-8	11:16	11:37	157.4	4.09	4.301	-0.211
1B-RA-9	11:48	12:09	157.1	4.11	4.300	-0.190
			Averages:	**4.12000**	**4.3382**	**-0.218222**
			Standard Deviation:	**0.02345**	**0.026**	**0.025188**
					Confidence Coefficient:	**0.019361**

	†Relative Accuracy	
CO_2 (% volume):	**5.77%**	**(Based on Mean of Reference Method)**
CO_2 (% volume):	**0.22%**	**(Absolute Difference, % volume CO_2)**

† EPA Standard, 40 CFR 60, Appendix B, Performance Specification 3: Relative Accuracy for CO_2 must be no greater than an absolute difference of 1.0 % volume of CO_2 of the average CEMS value from the average of the reference method value.

TABLE 13
Unit 1B - CO CEMS 7-day Calibration Drift Test Results

Company: Tampa Electric Company
Location: Bayside Power Station
Start Date: 05/21/2003
Unit ID: CT1B
Analyzer Type: Non-Dispersive Infra-red
Manufacturer: Thermo Environmental Inst
Model # 48C
Serial # 48C-73423-373
Parameter: Carbon Monoxide, High Range

Span Value: 1000 ppmv
Zero-Level Gas: 0.0 ppmv
Mid-Level Gas: 557.0 ppmv

Parameter: Carbon Monoxide, Low Range

Span Value: 20 ppmv
Zero-Level Gas: 0.0 ppmv
Mid-Level Gas: 11.3 ppmv

Low Range Zero-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/21/2003	01:24	1562.3	0.00	0.20	0.20	1.0
2	05/22/2003	01:24	1587.6	0.00	0.30	0.30	1.5
3	05/23/2003	01:24	1347.9	0.00	0.30	0.30	1.5
4	05/24/2003	14:44	1227.1	0.00	0.30	0.30	1.5
5	05/25/2003	01:24	1445.3	0.00	0.30	0.30	1.5
6	05/26/2003	01:24	1300.6	0.00	0.40	0.40	2.0
7	05/27/2003	10:31	1356.7	0.00	0.30	0.30	1.5
					Averages	**0.30**	**1.3**

Low Range High-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/21/2003	01:18	1562.3	11.3	11.20	-0.10	-0.5
2	05/22/2003	01:18	1587.6	11.3	11.30	0.00	0.0
3	05/23/2003	01:18	1347.9	11.3	11.30	0.00	0.0
4	05/24/2003	14:38	1227.1	11.3	11.40	0.10	0.5
5	05/25/2003	01:18	1445.3	11.3	11.30	0.00	0.0
6	05/26/2003	01:18	1300.6	11.3	11.40	0.10	0.5
7	05/27/2003	10:25	1356.7	11.3	11.40	0.10	0.5
					Averages	**0.0**	**0.1**

High Range Zero-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/21/2003	01:24	1562.3	0.00	-1.60	-1.60	-0.2
2	05/22/2003	01:24	1587.6	0.00	-1.70	-1.70	-0.2
3	05/23/2003	01:24	1347.9	0.00	-1.70	-1.70	-0.2
4	05/24/2003	14:44	1227.1	0.00	-1.70	-1.70	-0.2
5	05/25/2003	01:24	1445.3	0.00	-1.70	-1.70	-0.2
6	05/26/2003	01:24	1300.6	0.00	-1.60	-1.60	-0.2
7	05/27/2003	10:31	1356.7	0.00	-1.70	-1.70	-0.2
					Averages	**-1.67**	**-0.1**

High Range High-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/21/2003	01:21	1562.3	557.0	551.10	-5.90	-0.6
2	05/22/2003	01:21	1587.6	557.0	555.30	-1.70	-0.2
3	05/23/2003	01:21	1347.9	557.0	554.20	-2.80	-0.3
4	05/24/2003	14:41	1227.1	557.0	557.90	0.90	0.1
5	05/25/2003	01:21	1445.3	557.0	555.60	-1.40	-0.1
6	05/26/2003	01:21	1300.6	557.0	560.10	3.10	0.3
7	05/27/2003	10:28	1356.7	557.0	556.60	-0.40	0.0
					Averages	**-1.17**	**-0.1**

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 4, 7-day calibration drift specifications state that acceptable results for CO monitors are a calibration drift of ≤5% from the instrument span value in 6 out of 7 test days.

TABLE 14
Unit 1B - CEMS CO_2 7-day Calibration Error Test Results

Company: Tampa Electric Company
Location: Bayside Power Station
Start Date: 05/21/2003
Unit ID: CT1B
System ID: 213
Component ID: 205
Analyzer Type: Infra-red
Manufacturer: Siemens
Model # Ultramat 6E
Serial # F-Nr-N1-Nd-0870
Parameter: Carbon Dioxide

Span Value: 10.00% vol
Zero-Level Gas: 0.00% vol
Mid-Level Gas: 5.55% vol

High Range Zero-Level Gas Calibrations

Day #	Date	Time (Hour Only)	Heat Input (MMBtu/hr)	Reference Value (% volume)	CEMS Response (% volume)	Calibration Error Cal Gas vs. CEMS (% vol Error)
1	05/21/2003	01:21	1562.3	0.00	0.00	0.00
2	05/22/2003	01:21	1587.6	0.00	0.00	0.00
3	05/23/2003	01:21	1347.9	0.00	0.00	0.00
4	05/24/2003	14:41	1227.1	0.00	0.00	0.00
5	05/25/2003	01:21	1445.3	0.00	0.00	0.00
6	05/26/2003	01:21	1300.6	0.00	0.00	0.00
7	05/27/2003	10:28	1356.7	0.00	0.00	0.00
					Averages	**0.00**

High Range Mid-Level Gas Calibrations

Day #	Date	Time (Hour Only)	Heat Input (MMBtu/hr)	Reference Value (% volume)	CEMS Response (% volume)	Calibration Error Cal Gas vs. CEMS (% vol Error)
1	05/21/2003	01:24	1562.3	5.55	5.80	0.25
2	05/22/2003	01:24	1587.6	5.55	5.80	0.25
3	05/23/2003	01:24	1347.9	5.55	5.90	0.35
4	05/24/2003	14:44	1227.1	5.55	5.80	0.25
5	05/25/2003	01:24	1445.3	5.55	5.90	0.35
6	05/26/2003	01:24	1300.6	5.55	5.80	0.25
7	05/27/2003	10:31	1356.7	5.55	5.80	0.25
					Averages	**0.28**

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 3, 7-day calibration drift specifications state that acceptable results for CO_2 or O_2 monitors are an absolute difference from the reference value of ≤ 0.5% in concentration.

TABLE 15
Summary of Results
Unit 1C Full Load Testing

Company: Tampa Electric Company
Plant: Bayside Power Station
Location: Tampa, Hillsborough County, Florida
Technicians: LJB, RPO, JTH, JT
Source: Unit 1C, a GE Frame 7FA Combustion Turbine

Test Number	1C-C-1	1C-C-2	1C-C-3		FDEP Permit Limits
Date	4/18/03	4/18/03	4/18/03		
Start Time (CEMS Time)	6:01	7:57	9:41		
Stop Time (CEMS Time)	7:46	9:25	11:10		
Power Turbine Operation	Base Load			*Averages*	
Generator Output (MW, DWATT)	167.6	163.3	159.7	***163.5***	**169**
Turbine Load (MMBtu/hr, HHV)	1720.2	1688.7	1663.2	***1690.7***	
Barometric Pressure ("Hg, AFPAP)	29.99	30.02	30.04	***30.02***	
Compressor Inlet Temperature (°F, CTIM)	63.8	71.8	77.5	***71.0***	
Air Inlet Duct Losses ("H_2O)	1.85	1.75	1.73	***1.77***	
Inlet Guide Vane Angle (degrees, CSGV)	82.00	82.00	82.01	***82.00***	
Engine Compressor Discharge Pressure (psia, CPD)	213.0	209.3	206.8	***209.7***	
Compressor Discharge Temperature (°F, CTD)	732.6	743.1	751.1	***742.3***	
Mean Turbine Exhaust Temperature (°F, TTXM)	1131.2	1138.1	1143.0	***1137.4***	
SCR Inlet Temperature (°F)	557.1	556.6	555.3	***556.3***	
NH_3 Injection Rate (lbs/hr)	9.12	9.27	10.26	***9.55***	
Turbine Fuel Data (Natural Gas)					
Fuel Heating Value (Btu/lb, Gross)	22944	22944	22944	***22944***	
Fuel Specific Gravity	0.5960	0.5960	0.5960	***0.5960***	
Sulfur in Fuel (grains S/100 scf of gas)	0.067	0.067	0.067	***0.067***	**2.0**
O_2 "F_d Factor" (DSCFex/MMBtu @ 0% excess air)	8647	8647	8647	***8647***	
CO_2 "F_c Factor" (DSCFex/MMBtu @ 0% excess air)	1032	1032	1032	***1032***	
Gas Fuel Flow (FQG, lbs/sec)	20.8264	20.4449	20.1367	***20.4693***	
Heat Input (MMBtu/hr, Higher Heating Value)	1720.2	1688.7	1663.2	***1690.7***	**1842 ISO**
Heat Input (MMBtu/hr, Lower Heating Value)	1551.1	1522.7	1499.7	***1524.5***	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.93	29.95	29.96	***29.94***	
Temperature (°F): Dry Bulb	65.8	75.2	80.0	***73.7***	
(°F): Wet Bulb	62.5	65.2	64.3	***64.0***	
Humidity (lbs moisture/lb of air)	0.0111	0.0108	0.0090	***0.0103***	
Measured Emissions					
NO_X (ppmv, dry basis)	3.84	3.90	3.75	***3.83***	
NO_X (ppmv, dry @ 15% excess O_2)	**3.14**	**3.19**	**3.10**	***3.14***	**3.5**
NO_X (ppmv @ 15% O_2, ISO Day)	3.39	3.35	3.09	***3.28***	
CO (ppmv, dry basis)	0.75	0.67	0.66	***0.69***	
CO (ppmv, dry @15% excess O_2)	**0.61**	**0.55**	**0.54**	***0.57***	**7.8**
VE (% opacity)	**0**	**-**	**-**	***0***	**10**
O_2 (% volume, dry basis)	13.69	13.70	13.76	***13.71***	
CO_2 (% volume, dry basis)	4.16	4.13	4.10	***4.13***	
F_o (fuel factor, range = 1.600-1.836 for NG)	1.73	1.74	1.74	***1.74***	
Stack Volumetric Flow Rates (via EPA Method 19)					
via O_2 "F_d Factor" (SCFH, dry basis)	4.31E+07	4.24E+07	4.21E+07	***4.25E+07***	
via CO_2 "F_c Factor" (SCFH, dry basis)	4.26E+07	4.22E+07	4.19E+07	***4.22E+07***	
Calculated Emission Rates (via M-19 O_2 or CO_2 "F-factor")					
NO_X (lbs/hr)	**19.8**	**19.7**	**18.9**	***19.4***	**23.1**
CO (lbs/hr)	**2.35**	**2.05**	**2.01**	***2.14***	**28.7**

TABLE 16
Unit 1C - Ammonia Sampling and Analysis Results

Company: Tampa Electric Company
Plant: Bayside Power Station
Location: Tampa, Hillsborough County, Florida
Technicians: LJB, RPO, JTH, JT
Source: Unit 1C, a GE Frame 7FA Combustion Turbine

Test Run Designation	**1C-NH3-1**	**1C-NH3-2**	**1C-NH3-3**		
Date	4/18/03	4/18/03	4/18/03		
Start Time (24 hour basis)	06:01	07:57	09:41		
Stop Time (24 hour basis)	07:13	09:08	10:53		
Unit Operational Data				**Averages**	**FDEP Permit Limits**
Generator Output (MW, CT generated power only)	167.6	163.3	159.7	163.5	
Heat Input (MMBtu/hr, HHV)	1720.2	1688.7	1663.2	1690.7	
Ammonia Injection Rate	9.12	9.27	10.26	9.55	
Stack Gas Sampling Data					
Box No.	E-1	E-2	E-2	-	
Atmospheric Pressure (" Hg, absolute)	29.80	29.82	29.84	29.82	
Sample Volume at STP, dry basis (SCF)	32.292	31.964	31.611	31.956	
Moisture (% volume)	9.30	8.84	9.20	9.11	
O_2 (% volume, dry basis)	13.69	13.70	13.76	13.71	
CO_2 (% volume, dry basis)	4.16	4.13	4.10	4.13	
Stack Gas Molecular Weight, wet basis (lbs./lb-mole)	28.17	28.22	28.18	28.19	
Stack Velocity (ft/sec @ stack conditions)	65.69	64.83	63.89	64.80	
Sample Run Time (minutes)	60	60	60	60	
Nozzle Area (ft^2)	0.0001983	0.0001983	0.0001983	0.000198	
% of Isokinetic Sampling	**99.5**	**99.0**	**99.6**	**99.4**	
NH_3 Ion Chromatography Analysis Data					
Probe/Impinger1 Laboratory Sample ID Number	030146-789	030146-791	030146-793	-	
Ammonium Ion Concentration (Imp-1/Probe $NH4^+$, μg/ml)	1.75	0.90	2.02	1.56	
Impinger 1 + Probe Rinse Volume, ml)	250	250	250	250	
Impinger 2 Laboratory Sample ID Number	030146-790	030146-792	030146-794	-	
Ammonium Ion Concentration (Imp-2 $NH4^+$, μg/ml)	ND	ND	ND	-	
Impinger 2 Volume, ml)	250	250	250	250	
Ammonium Ion Concentration (total $NH4^+$, mg)	0.438	0.225	0.505	0.389	
Breakthrough (Ratio of Imp-2 to Probe/Imp-1, must be <10%)	0%	0%	0%	0%	
Volume of Ammonia Gas in Sample (gaseous, liters)	0.000584	0.000301	0.000674	0.000520	
Measured Emissions					
NH_3 (ppmv, dry basis)	**0.64**	**0.33**	**0.75**	**0.57**	
NH_3 (ppmv, dry @15% excess O_2)	**0.52**	**0.27**	**0.62**	***0.47***	**5.00**

TABLE 17
Unit 1C - CO CEMS RATA Results

Date: April 18, 2003
Company: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1C, a GE Frame 7FA Combustion Turbine
Technician(s): LJB, RPO, JTH, JT
Cubix Method: EPA Methods 3a and 10
Basis (wet or dry): dry basis

Applicable Standard: *7.8 ppmv**
Number of Tests: 9
t- value (97.5% confidence) 2.306
CO CEMS Type: TECO Model 48C
CO Detector Type: Non-dispersive Infrared
CO_2 CEMS Type: Siemens Ultramat 6E
CO_2 Detector Type: Infrared Detector
Basis (wet or dry): dry basis

				Reference Method Data			CEMS Data	CEMS Data	CEMS Data	CO Standard
Test Run Number	**Start Time**	**Stop Time**	**Load (MW)**	**Cubix CO** *(ppmv, dry)*	**Cubix O_2** *(% vol, dry)*	**Cubix CO** *(ppmv @15% O_2)*	**CEM (CO)** *(ppmv, dry)*	**CEM (CO_2)** *(%vol, dry)*	**CEM (CO)** *(ppmv @15% O_2)*	**Difference** *(ppmv @15% O_2)*
1C-RA-1	06:01	06:22	168.1	0.74	13.69	0.606	0.559	4.338	0.441	0.165
1C-RA-2	06:52	07:13	167.8	0.74	13.69	0.606	0.600	4.319	0.500	0.106
1C-RA-3	07:25	07:46	166.7	0.77	13.69	0.630	0.605	4.305	0.500	0.130
1C-RA-4	07:57	08:18	164.8	0.74	13.68	0.605	0.591	4.290	0.491	0.114
1C-RA-5	08:30	08:51	163.2	0.62	13.70	0.508	0.532	4.270	0.418	0.090
1C-RA-6	09:04	09:25	162.1	0.64	13.71	0.525	0.500	4.263	0.405	0.120
1C-RA-7	09:41	10:02	160.9	0.65	13.73	0.535	0.505	4.256	0.405	0.130
1C-RA-8	10:14	10:35	159.9	0.66	13.77	0.546	0.500	4.250	0.400	0.146
1C-RA-9	10:49	11:10	159.3	0.66	13.77	0.546	0.491	4.244	0.395	0.151
Averages:				**0.69**	**13.71**	**0.56744**	**0.54**	**4.28**	**0.4394**	**0.128000**
Standard Deviation:				**0.06**	**0.03**	**0.04416**	**0.05**	**0.03**	**0.045**	**0.023500**
									Confidence Coefficient:	**0.018064**

†Relative Accuracy

CO (ppmv @ 15% O_2):	25.7%	**(Based on Mean of Reference Method)**
CO (ppmv @ 15% O_2):	1.87%	**(Based on the Applicable Standard)**

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 4, Section 13.2 "Relative Accuracy" specifications state that for CO CEMS systems the relative accuracy must be ≤10% of the average of the reference method or ≤5% of the applicable standard when the average emissions during the test are less than 50% of the emission standard.

TABLE 18
Unit 1C - CO_2 CEMS RATA Results

Date: April 18, 2003
Company: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1C, a GE Frame 7FA Combustion Turbine
Technician(s): LJB, RPO, JTH, JT
Cubix Method: EPA Method 3a
Basis (wet or dry): dry basis

Applicable Standard: *n/a*
Number of Tests: 9
t- value (97.5% confidence) 2.306
CO_2 CEMS Type: Siemens Ultramat 6E
CO_2 Detector Type: Infra-red Detector
Basis (wet or dry): dry basis

Test Run Number	Start Time	Stop Time	Load (MW)	Reference Method Data Cubix CO_2 *(% volume)*	CEMS Data CEM CO_2 *(% volume)*	Difference *(% volume)*
1C-RA-1	06:01	06:22	168.1	4.16	4.338	-0.178
1C-RA-2	06:52	07:13	167.8	4.17	4.319	-0.149
1C-RA-3	07:25	07:46	166.7	4.16	4.305	-0.145
1C-RA-4	07:57	08:18	164.8	4.13	4.290	-0.160
1C-RA-5	08:30	08:51	163.2	4.15	4.270	-0.120
1C-RA-6	09:04	09:25	162.1	4.12	4.263	-0.143
1C-RA-7	09:41	10:02	160.9	4.11	4.256	-0.146
1C-RA-8	10:14	10:35	159.9	4.10	4.250	-0.150
1C-RA-9	10:49	11:10	159.3	4.09	4.244	-0.154
			Averages:	**4.13222**	**4.2817**	**-0.149444**
			Standard Deviation:	**0.02906**	**0.033**	**0.015363**
					Confidence Coefficient:	**0.011809**

	†Relative Accuracy	
CO_2 (% volume):	**3.90%**	**(Based on Mean of Reference Method)**
CO_2 (% volume):	**0.15%**	**(Absolute Difference, % volume CO_2)**

† EPA Standard, 40 CFR 60, Appendix B, Performance Specification 3: Relative Accuracy for CO_2 must be no greater than an absolute difference of 1.0 % volume of CO_2 of the average CEMS value from the average of the reference method value.

TABLE 19
Unit 1C - CO CEMS 7-day Calibration Drift Test Results

Company:	**Tampa Electric Company**
Location:	**Bayside Power Station**
Start Date:	**05/06/2003**
Unit ID:	**CT1C**
Analyzer Type:	**Non-Dispersive Infra-red**
Manufacturer:	**Thermo Environmental Inst**
Model #	**48C**
Serial #	**48C-73685-374**

Parameter:	**Carbon Monoxide, High Range**	**Parameter:**	**Carbon Monoxide, Low Range**
Span Value:	**1000 ppmv**	**Span Value:**	**20 ppmv**
Zero-Level Gas:	**0.0 ppmv**	**Zero-Level Gas:**	**0.0 ppmv**
Mid-Level Gas:	**557.0 ppmv**	**Mid-Level Gas:**	**11.3 ppmv**

Low Range Zero-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/06/2003	01:39	1659.5	0.00	0.60	0.60	3.0
2	05/07/2003	01:39	1655.2	0.00	0.60	0.60	3.0
3	05/08/2003	01:39	1641.8	0.00	0.70	0.70	3.5
4	05/09/2003	01:39	1668.2	0.00	0.60	0.60	3.0
5	05/10/2003	01:39	1448.3	0.00	0.70	0.70	3.5
6	05/11/2003	01:39	1551.9	0.00	0.60	0.60	3.0
7	05/12/2003	08:16	1387.6	0.00	0.70	0.70	3.5
					Averages	**0.64**	**2.7**

Low Range High-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/06/2003	01:33	1659.5	11.3	11.80	0.50	2.5
2	05/07/2003	01:33	1655.2	11.3	11.80	0.50	2.5
3	05/08/2003	01:33	1641.8	11.3	11.90	0.60	3.0
4	05/09/2003	01:33	1668.2	11.3	11.90	0.60	3.0
5	05/10/2003	01:33	1448.3	11.3	12.00	0.70	3.5
6	05/11/2003	01:33	1551.9	11.3	11.90	0.60	3.0
7	05/12/2003	08:10	1387.6	11.3	11.90	0.60	3.0
					Averages	**0.6**	**2.9**

High Range Zero-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/06/2003	01:39	1659.5	0.00	0.20	0.20	0.0
2	05/07/2003	01:39	1655.2	0.00	0.50	0.50	0.1
3	05/08/2003	01:39	1641.8	0.00	0.50	0.50	0.1
4	05/09/2003	01:39	1668.2	0.00	0.20	0.20	0.0
5	05/10/2003	01:39	1448.3	0.00	0.20	0.20	0.0
6	05/11/2003	01:39	1551.9	0.00	0.30	0.30	0.0
7	05/12/2003	08:16	1387.6	0.00	0.20	0.20	0.0
					Averages	**0.30**	**0.0**

High Range High-Level Gas Calibrations

Day #	Date	Time (HH:MM)	Heat Input (MMBtu/hr)	Reference Value (ppmv)	CEMS Response (ppmv)	Calibration Error Calibration Gas vs. CEMS	
						(ppmv Error)	(% Cal Error)
1	05/06/2003	01:36	1659.5	557.0	551.70	-5.30	-0.5
2	05/07/2003	01:36	1655.2	557.0	550.70	-6.30	-0.6
3	05/08/2003	01:36	1641.8	557.0	557.70	0.70	0.1
4	05/09/2003	01:36	1668.2	557.0	551.80	-5.20	-0.5
5	05/10/2003	01:36	1448.3	557.0	557.00	0.00	0.0
6	05/11/2003	01:36	1551.9	557.0	554.00	-3.00	-0.3
7	05/12/2003	08:13	1387.6	557.0	555.10	-1.90	-0.2
					Averages	**-3.00**	**-0.3**

[†] EPA Standard, 40 CFR 60, Appendix B, Performance Specification 4, 7-day calibration drift specifications state that acceptable results for CO monitors are a calibration drift of ≤5% from the instrument span value in 6 out of 7 test days.

TABLE 20
Unit 1C - CO_2 CEMS 7-day Calibration Drift Test Results

Company:	**Tampa Electric Company**
Location:	**Bayside Power Station**
Start Date:	**05/06/2003**
Unit ID:	**CT1C**
System ID:	**313**
Component ID:	**305**
Analyzer Type:	**Infra-red**
Manufacturer:	**Siemens**
Model #	**Ultramat 6E**
Serial #	**F-Nr-N1-Nd-0877**
Parameter:	**Carbon Dioxide**

Span Value:	**10.00% vol**
Zero-Level Gas:	**0.00% vol**
Mid-Level Gas:	**5.55% vol**

High Range Zero-Level Gas Calibrations						
Day #	**Date**	**Time (Hour Only)**	**Heat Input (MMBtu/hr)**	**Reference Value (% volume)**	**CEMS Response (% volume)**	**Calibration Error Cal Gas vs. CEMS (% vol Error)**
1	05/06/2003	01:36	1659.5	0.00	0.00	0.00
2	05/07/2003	01:36	1655.2	0.00	0.00	0.00
3	05/08/2003	01:36	1641.8	0.00	0.00	0.00
4	05/09/2003	01:36	1668.2	0.00	0.00	0.00
5	05/10/2003	01:36	1448.3	0.00	0.00	0.00
6	05/11/2003	01:36	1551.9	0.00	0.00	0.00
7	05/12/2003	08:13	1387.6	0.00	0.00	0.00
					Averages	**0.00**

High Range Mid-Level Gas Calibrations						
Day #	**Date**	**Time (Hour Only)**	**Heat Input (MMBtu/hr)**	**Reference Value (% volume)**	**CEMS Response (% volume)**	**Calibration Error Cal Gas vs. CEMS (% vol Error)**
1	05/06/2003	01:39	1659.5	5.55	5.70	0.15
2	05/07/2003	01:39	1655.2	5.55	5.70	0.15
3	05/08/2003	01:39	1641.8	5.55	5.70	0.15
4	05/09/2003	01:39	1668.2	5.55	5.80	0.25
5	05/10/2003	01:39	1448.3	5.55	5.70	0.15
6	05/11/2003	01:39	1551.9	5.55	5.70	0.15
7	05/12/2003	08:16	1387.6	5.55	5.70	0.15
					Averages	**0.16**

†EPA Standard, 40 CFR 60, Appendix B, Performance Specification 3, 7-day calibration drift specifications state that acceptable results for CO_2 or O_2 monitors are an absolute difference from the reference value of ≤ 0.5% in concentration.

PROCESS DESCRIPTION

Tampa Electric owns and operates the Bayside Power Station in Tampa, Hillsborough County, Florida. Three recently installed combined-cycle power generation units, manufactured by General Electric, each consist of a combustion turbine connected to a heat recovery steam generator. The steam produced in each HRSG is directed to a steam turbine to produce additional electricity. Emission testing was conducted on the units to determine their initial compliance status with state permit and federal requirements and to satisfy initial CEMS monitor certification requirements. This section of the test report provides a brief description of the units and the associated CEMS.

Bayside Units 1A, 1B, and 1C are each designed to produce a nominal 169 MW of electrical power at compressor air inlet temperature of 59°F. The main body of each unit consists of a single shaft General Electric Model PG7241 (FA) combustion turbine directly coupled to a 60 Hz synchronous generator. An unfired heat recovery steam generation (HRSG) unit is used to produce steam from the waste heat of the combustion process from each CT unit. The HRSG steam from all three units is then used to generate additional electricity with Gannon Steam Turbine No. 5 equipped with a 239-MW electrical generator. The FDEP permitted capacity of each combustion turbine is 1842 million British thermal units per hour (MMBtu/hr) of heat input based upon the higher heating value of the fuel gas at an ambient temperature of 59°F. These turbines fire exclusively on natural gas fuel. GE dry, low-NO_X DLN combustion technology is used to control NO_X emissions in the initial stage of NO_X control in the combustion chamber. Additional NO_X control is achieved through the use of a selective catalytic reduction (SCR) system that uses ammonia injection installed in the HRSGs.

CT/HRSG stack exhaust gases are vented to the atmosphere through 150-foot tall stack. All three units have identical stack configurations. The sampling ports are approximately 651.6 inches (~ 2.9 stack diameters) downstream from the nearest flow disturbance, i.e., the stack section which joins at the top of the HRSG. The sampling ports are approximately 323.6 inches (~ 1.4 stack diameters) upstream from the nearest flow disturbance, i.e., before venting to atmosphere. Access to the stacks is available via a permanent steel frame platform equipped with a caged safety ladder. The internal diameter of each stack at the sample port location is 228 inches.

An extractive CEMS is associated with each combustion turbine, manufactured by Spectrum Systems Inc. Sample gas is drawn out of a CT using an M&C Model Ext gas extraction probe, through sample lines, and transported to a CEMS control cab where the gas sample is sent to the analyzers. Three continuous emission monitors are associated with each CT unit. Each CO monitor consists of a

Thermo Environmental Instruments Model 48 CO analyzer equipped with a non-dispersive infrared analyzer. The CO_2 monitors consist of Siemens Model Ultramat 6E analyzers equipped with infrared detectors. The NO_X monitors consist of Thermo Environmental Instruments Model 42CLS analyzers equipped with chemiluminescent detectors; the NO_X and CO_2 monitors were also tested under EPA Acid Rain Program regulations and reported separately. The output signals from the analyzers are sent to a Spectrum data acquisition and handling system Model 20/20 where it is stored for permanent record. One CEMS control cab houses all analyzers, CEMS calibration gas bottles, and the DAHS for the three units. Data from the CEMS data acquisition system associated with these units were collected by Tampa Electric personnel for each test run and are available in Appendix G.

Tampa Electric personnel obtained additional unit operational data from control panel instrumentation. Data was collected from the control system in one-minute intervals into a text file, converted into a Microsoft Excel spreadsheet, and averaged over each test run. All operational data sheets are located in Appendix G.

ANALYTICAL TECHNIQUES

Emissions from three combustion turbines were measured at the Bayside Power Station located in Tampa, Hillsborough County, Florida. Cubix Corporation performed these tests on April 17th through 23rd, 2003, in order to determine the initial compliance status with regard to permitted emission limits. Initial CEMS certification tests for relative accuracy and 7-day calibration drift were conducted on the CO and CO_2 CEMS associated with these CT units. This section of the report describes the analytical techniques and procedures used during these tests.

The sampling and analysis procedures used during these tests conformed with those outlined in The Code of Federal Regulations, 40 CFR 60, Appendix A, Methods 1, 2, 3a, 4, 7e, 9, 10, and 19. EPA Conditional Test Method 027 was conducted as published on August 14, 1997 and located on the EPA bulletin board at www.epa.gov/ttn/emc/ctm/ctm-027.pdf. Daily fuel samples were collected for determination of fuel sulfur content, composition, and heating value. To conduct monitor certification test on each CEMS, 40 CFR 60, Appendix B, Performance Specifications 3 and 4 were used. The stack gas analyses for NO_X, CO, O_2 and CO_2 were performed using continuous instrumental monitors. Exhaust gas analyses were performed on a dry basis for all compounds. Table 21 lists the instruments and detection principles used for these analyses. Manual sampling measurements included iso-kinetic sampling for collection of NH_3 samples using a combined hot/cold sampling train.

An initial stratification test was conducted in the CT/HRSG stack for each turbine during which continuous measurements of NO_X, CO, CO_2, and O_2 concentrations were at each of 12 traverse points. These tests were conducted per 40 CFR 60, Appendix B, Performance Specification 2, Section 8.1.3.2 to determine the number and location of traverse points used for the relative accuracy test audit (RATA) test runs. The sampling system response time was less than two minutes; the actual sampling time per point was 4 minutes per traverse point. The stratification tests were conducted with the turbines operating at normal load and steady state conditions. The results of the stratification tests for all three CT units showed that the concentration at each individual traverse point differed by no more than ±10.0% from the arithmetic average concentration for all traverse points for CO and CO_2 concentrations. The short measurement line of 0.4, 1.2, and 2.0 meters was used for sampling from one sample port in the runs that followed.

Compliance testing and RATA testing was conducted at full load. These tests consisted of nine 21-minute test runs for a RATA on each CEMS; each group of three test runs, i.e., test runs 1 through 3, 4 through 6, and 7 through 9, were also be combined to make three 63-minute gaseous compliance test runs. This deviation from the standard FDEP test strategy of three one-hour test runs was allowed in the FDEP PSD permit, Section IV, Appendix GG, page GG-3. Each test run consisted of sampling using a three-point traverse for 7 minutes per point. 40 CFR 60, Subpart GG multiple load NO_X emission compliance testing was not required, see the FDEP PSD permit, Section IV, Appendix GG, page GG-3. Instead, compliance testing was at full load only as the NO_X-diluent CEMS monitors shall be used to demonstrate on-going compliance across the load range of the turbines with the specified NO_X limits.

Full load testing was as close to unit capacity as possible. NO_X, CO, O_2, and CO_2 concentrations were continuously monitored throughout nine 21-minute test runs. NH_3 tests were conducted with a minimum sample volume collection of 30 SCF for 60-minutes per test run. The gaseous tests were conducted during the NH_3 testing with O_2 and CO_2 results from three gaseous test runs combined with each NH_3 test run for use in molecular weight determination for isokinetic sampling. In addition, a one-hour visible emissions test was conducted on each GT HRSG stack coincident with one of the NH_3 test runs.

After the completion of Test Run 1A-NH3-1, the post-test leak check on the ammonia sample train failed. The test run was made up by conducting an additional fourth ammonia test, Test Run 1A-NH3-4. Coincident with this test run a 60-minute gaseous test was conducted to determine O_2 and CO_2 concentrations for use in molecular weight determination in isokinetic sampling calculations.

Gaseous Emission Testing

Provisions were made to introduce the calibration gases to the instrumental monitors via two paths: 1) directly to the instruments via the sample manifold quick-connects and rotameters, and 2) through the complete sampling system including the sample probe, filter, heat trace, condenser, manifold, and rotameters. The former method was used for quick, convenient calibration checks. The latter method was used to demonstrate that the sample was not altered due to leakage, reactions, or adsorption within the sampling system (sample system bias check). A NO_X standard calibration gas was introduced into the NO_X analyzer directly. Then the response from the NO_X analyzer was noted as the calibration gas was introduced at the probe. Any difference between the two responses in the instrument was attributed to the bias of the sample system. Following the span gas bias check, a zero gas bias check was performed on the NO_X analyzer using nitrogen to check for any zero bias of the sample system. In accordance with EPA Method 3a this span and zero bias check procedure was repeated for the CO_2 and O_2 analyzers. This procedure was also used for CO measurements although not required by the EPA method.

As shown in Figure 1, a 1-inch diameter stainless steel probe was inserted into the sample port of the stack. The gas sample was continuously pulled through the probe and transported via a 120-foot long, $^3/_8$-inch diameter heat-traced Teflon®

sample line to a stainless steel minimum contact condenser situated on top of the HRSG platform to dry the sample. The gas stream was then transported to the mobile laboratory through a 150-foot long, $^3/_8$-inch diameter Teflon® sample line using a stainless steel/Teflon® diaphragm pump. The bulk of the gas stream was then passed into the (dry) sample manifold. From the manifold, the sample was partitioned to the analyzers through glass and stainless steel rotameters for flow control of the sample.

All instruments were housed in an air-conditioned trailer-mounted mobile laboratory. Gaseous calibration standards were provided in aluminum cylinders with the concentrations certified by the vendor. EPA Protocol No. 1 was used to determine the cylinder concentrations where applicable (i.e., NO_X calibration gases).

EPA Method 1 procedures were used to determine the CT/HRSG stack stratification traverse point locations for sampling per the requirements of Performance Specifications 3 and 4. The location of the sample ports and the traverse point distances for the turbines are denoted in the stack diagrams located in Appendix A.

The stack gas analyses for O_2 and CO_2 concentrations were performed in accordance with procedures set forth in EPA Method 3a. Instrumental analyses were used in lieu of an Orsat or Fyrite procedure due to the greater accuracy and precision provided by the instruments. The O_2 analyzer operated using a paramagnetic detector. The CO_2 analyzer operated using an infrared detector.

The F_O calculation of EPA Method 3b, Section 12.3.1 was used to verify that the ratio of O_2 to CO_2 were within an acceptable range during the test runs. In all cases, the F_O fell within the expected values for natural gas fuel.

Turbine NO_X emission concentrations were determined in accordance with EPA Method 7e. The NO_X analyzer operated on the principle of chemiluminescence. As required, the NO_X analyzer was equipped with a NO to NO_2 converter to allow for measurement of all forms of NO_X as per EPA's definition. This analyzer used a high temperature, approximately 650°C, converter to convert nitrogen dioxide (NO_2) in the sample stream to NO. Since the turbines use NH_3 injection as a catalyst with an SCR to control NO_X emissions, excess NH_3 emissions from the stack can cause a high bias of NO_X emissions through conversion to NO_X in the high temperature converter. To ensure that NH_3 emissions were converted to NO_X emissions, an NH_3 scrubber was placed in-line before the converter inside the NO_X analyzer. Also, due to low NO_X concentrations in the turbine exhaust, a temperature controlled NO_X analyzer, equipped with a chiller, was used to control instrument drift. NO_X mass emission rates were calculated as if all the NO_X were in the form of NO_2. This approach corresponds to EPA's convention, however, it tends to overestimate the actual NO_X mass emission rates since the majority of NO_X is in the form of NO which has less mass per unit volume (i.e., lbs. of emissions per ppmv concentration) than NO_2.

Opacity was determined via EPA Method 9. A one-hour opacity test run was performed on each unit by a visible emissions observer who was certified by Eastern Technical Associates of Raleigh, North Carolina. Appendix I provide both the opacity observation sheets as well as observer certification documentation.

CO emission concentrations in the HRSG stack were quantified in accordance with procedures set forth in EPA Method 10. A continuous nondispersive infrared (NDIR) analyzer was used for this purpose. This reference method analyzer was equipped with a gas correlation filter that removes most interference from moisture, CO_2, and other combustion products.

All data from the continuous monitoring instruments were logged into a computer file in 1-minute intervals and rolling 1-minute averages. A data logger with a computer generated display screen monitored, recorded and averaged the emission concentrations. The program controlling the logging of data was also used to log QA data. See Appendix F of this report for copies of the raw data and Appendix D for the QA data.

Fuel samples were collected daily during the emissions test. Natural gas samples were collected into 300-milliliter Teflon® lined stainless steel sample cylinders. These samples were collected downstream of the fuel system scrubbers and heaters. Core Laboratories of Houston, Texas determined the natural gas total reduced sulfur concentration on a ppm by weight basis and converter to grains of sulfur per 100-scf of natural gas using the American Society of Testing and Materials (ASTM) Method D3246. Copies of the fuel analyses are located in Appendix C of this report.

The stoichiometric calculations of EPA Method 19 were used to calculate the stack volumetric flow rates and mass emission rates. These calculations are based on the heating value and the O_2 and CO_2 "F-factors" (DSCF of exhaust per MMBtu of fuel burned) for natural gas. Method 19 flow rate determinations are also based on the excess air (as measured from the exhaust diluent concentrations) and the fuel flow rates. Core Laboratories of Houston, Texas analyzed the fuel samples for composition and heating value. Appendix C contains these analyses as well as Cubix's fuel calculations for the O_2 and CO_2 "F Factors". Due to high levels of turbulence typically present in gas turbines, pitot tube flow rates are unsuitable for determining volumetric flow and mass emissions.

NH_3 Emission Testing

EPA Method 1 was used to determine the NH_3 traverse point locations in the CT/HRSG stacks. Pitot tube measurements were made using a 6 × 4 matrix, 6 separate traverse points in each of 4 sample ports, i.e., 24 sample points total. The location of the sample ports and the pitot tube traverse point distances are denoted in the stack diagrams, see Appendix A.

EPA Method 2 in conjunction with EPA Conditional Test Method 027 (CTM-027) was used for determination of stack gas velocity during each run. An S-type pitot tube and inclined gauge oil manometer were used to measure the differential pressures at each traverse point. The stack gas temperature was determined with a K-type (chromel-alumel) thermocouple used in conjunction with a digital thermometer.

EPA Method 4 in conjunction with CTM-027 was used to measure the moisture content of the stack gases. A chilled liquid impingement system was used in conjunction with a calibrated dry gas meter to pull a sample greater than 30 standard cubic feet (scf). A K-type (chromel-alumel) thermocouple was used in conjunction with a digital thermometer to determine the last impinger temperatures in the chilled liquids impingement sampling train. This parameter is measured to ensure that the gas stream is cooled to a minimum of 68 degrees Fahrenheit as required by sampling methodology. The moisture content was used to determine the stack gas molecular weight necessary for determination of stack gas velocity used for verification of sampling iso-kinetics. EPA Method 5 equations were used to calculate stack moisture content.

Ammonia testing was conducted using the procedures of EPA CTM-027in a combined hot/cold sample train. Figure 2 depicts the sampling system used for NH_3 measurements. A sample was continuously pulled through a heated filter and probe assembly (suspended on monorails) and then through an iced impinger train with an aqueous acidic absorber solution to trap the ammonia and stack moisture. The dry gas was then passed through a dry gas meter. A glass nozzle and quartz probe liner was used for all NH_3 testing. EPA CTM-027 calls for a filter followed by two impingers containing 0.1 N sulfuric acid (H_2SO_4) then followed by an empty impinge and then a desiccant impinger. The H_2SO_4 impingers collected the basic NH_3 gases. Any PM was collected onto a quartz fiber filter using a sintered glass filter holder. The nozzle, front half of the filter holder, and the filter were not included in the NH_3 analysis. The filter holder and probe temperatures were maintained at or slight above that of the stack gases. Isokinetic sampling was maintained throughout each test run. Each NH_3 test run consisted of sampling for 60-minutes at six points from each of four ports that allowed for the collection of at least 30 scf of sample during each test run. The field data sheets used to record the NH_3 sampling data are available in Appendix A.

Atmospheric Analysis and Consulting of Ventura, California analyzed the ammonia samples using ion chromatography. Samples were recovered and taken to 250 ml in a volumetric flask. The samples were then split so that 200 ml were transferred to leak-proof HDPE plastic bottles after collection and kept chilled. These samples were then shipped with chain-of-custody forms Atmospheric Analysis and Consulting in chilled sample coolers. Analysis was conducted in accordance with EPA CTM-027 using a Dionex DX300 ion chromatograph with a PED-II conductivity detector. Results of the sample are contained in Appendix H. TEC's Polk Laboratory analyzer the remaining 50 ml sample portions as a back up.

Cubix personnel collected ambient absolute pressure, temperature, and humidity data during each test run. A wet bulb/dry bulb psychrometer equipped with a battery-operated fan was used to determine ambient temperature and humidity conditions. An aircraft-type aneroid barometer (altimeter) was used to measure absolute atmospheric pressure.

All emission calculations were conducted by a computer spreadsheet as shown in Tables 2 through 13 of this report. Example calculations were performed manually using a hand-held calculator in order to verify the formulas used in the spreadsheet. Example calculations are located in Appendix B of this report.

TABLE 21
ANALYTICAL INSTRUMENTATION

Parameter	Model and Manufacturer	Common Use Ranges	Sensitivity	Response Time (sec.)	Detection Principle
NO_X	TECO Model 42CHL	0-5, 0-10 ppm 0-25 ppm 0-50, 0-100 ppm 0-200, 500 ppm 0-1,000 ppm 0-5,000 ppm	0.1 ppm	1.7	Thermal reduction of NO_2 to NO. Chemiluminescence of reaction of NO with O_3. Detection by PMT. Inherently linear within 1% of full scale.
CO	TECO Model 48C	0-1 ppm 0-10 ppm 0-30 ppm 0-50, 0-100 ppm 0-200 ppm 0-500, 0-1000 ppm	0.1 ppm	60	Infrared absorption, gas filter correlation detector, microprocessor based linearization.
CO_2	Servomex 1400	0-5% 0-10% 0-15%	0.025% 0.05% 0.075%	< 10	Non-dispersive infrared absorption, electronic linearization of a logarithmic signal (Beer's Law)
O_2	Servomex 1400	0-5% 0-10% 0-25%	0.02% 0.02% 0.02%	< 10	Paramagnetic cell detector, inherently linear.
NH_3	Nutech 2010	0-1SCFM	n/a	n/a	Sample Console with temperature controllers, sample pump, dry gas meter, orfice meter, and inclined manometer for isokinetic sampling

NOTE: Higher ranges available by sample dilution.
Other ranges available via signal attenuation.

FIGURE 1
INSTRUMENTAL SAMPLE SYSTEM DIAGRAM

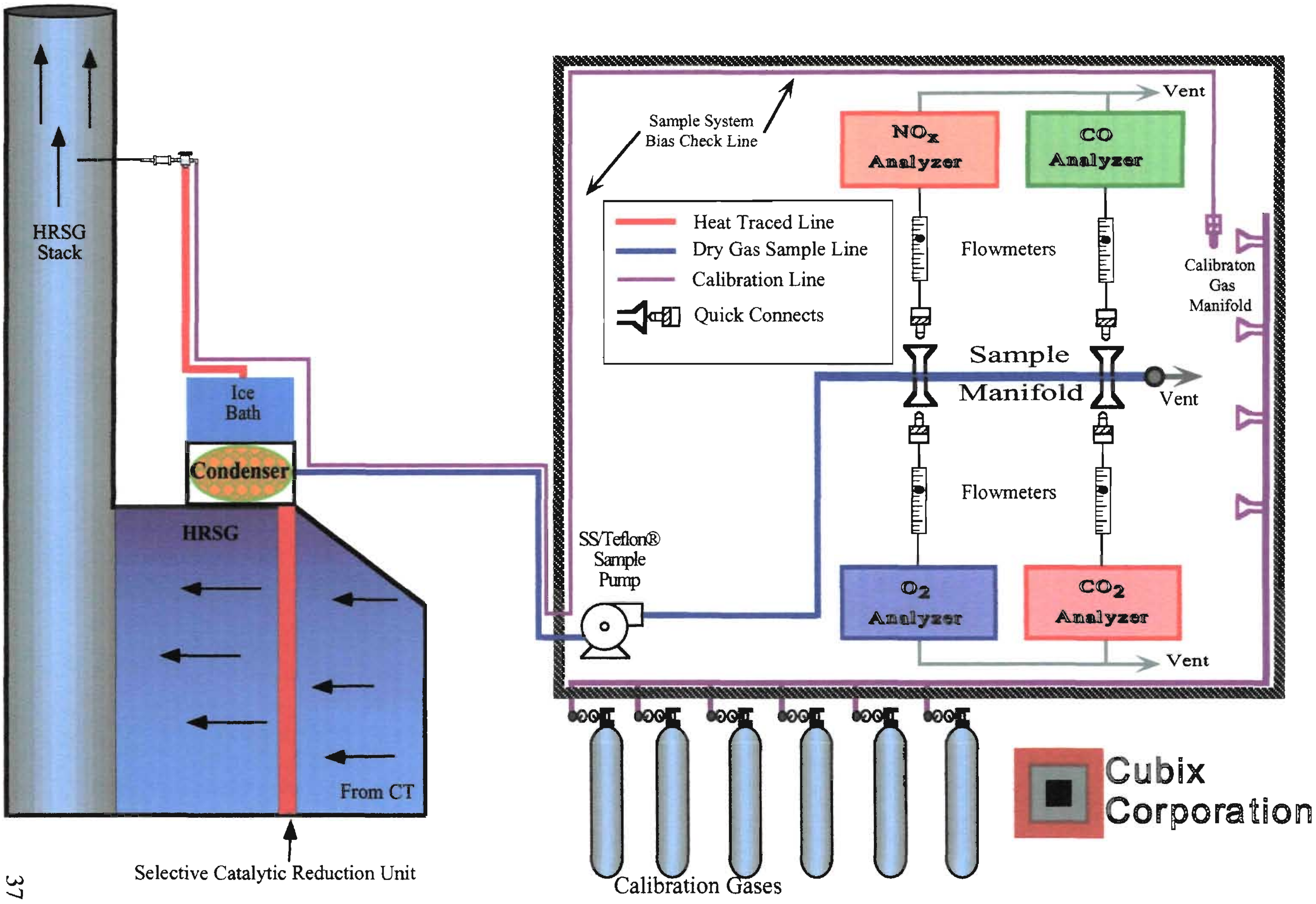
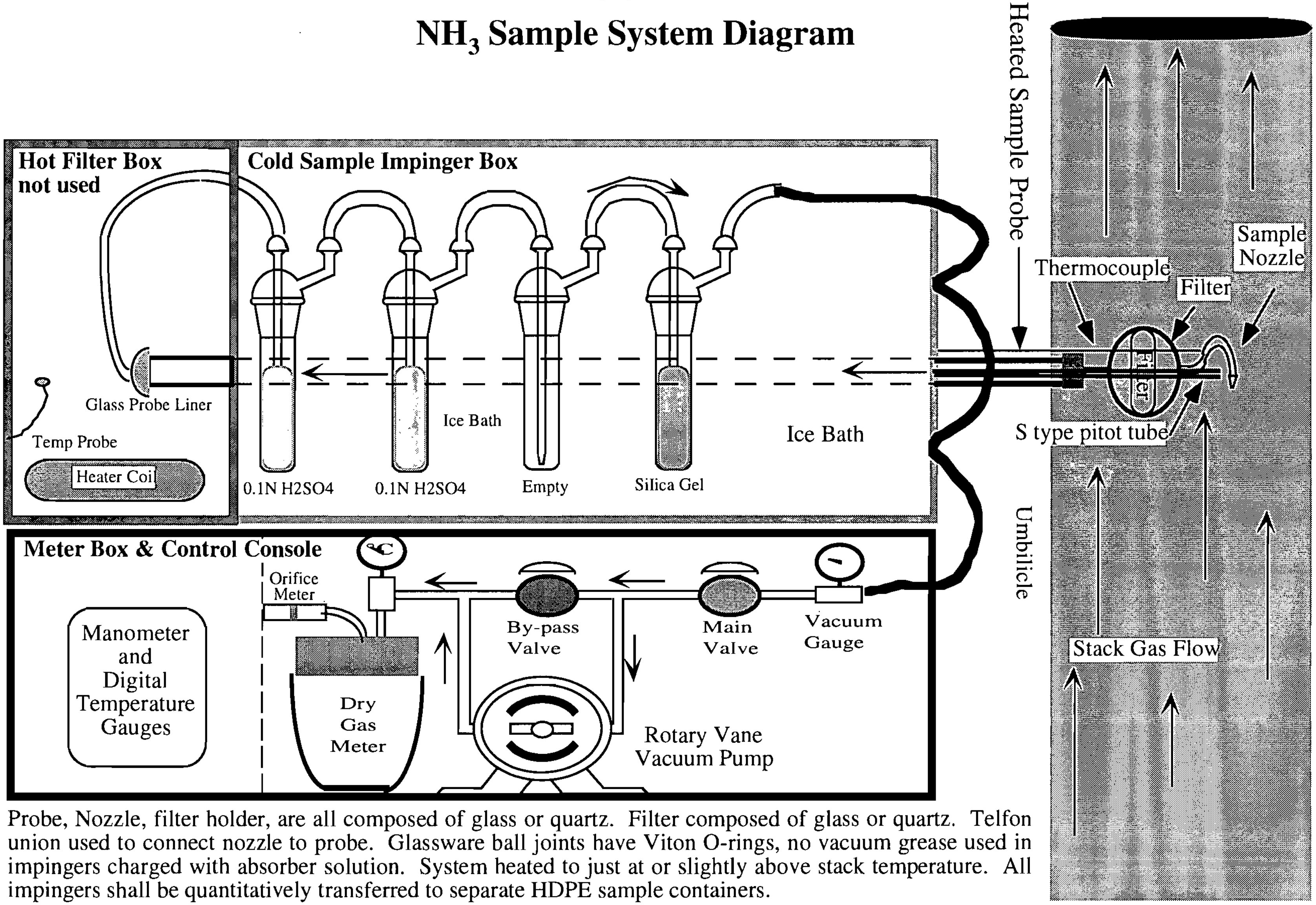


FIGURE 2
NH$_3$ Sample System Diagram



Probe, Nozzle, filter holder, are all composed of glass or quartz. Filter composed of glass or quartz. Telfon union used to connect nozzle to probe. Glassware ball joints have Viton O-rings, no vacuum grease used in impingers charged with absorber solution. System heated to just at or slightly above stack temperature. All impingers shall be quantitatively transferred to separate HDPE sample containers.

QUALITY ASSURANCE ACTIVITIES

A number of quality assurance activities were undertaken before, during, and after this testing project. This section of the report combined with the documentation in Appendices D and E describe each of those activities.

Gaseous Emission Testing

A multi-point calibration was performed for each instrument in the field prior to the collection of data. The instrument's linearity was checked by first adjusting the instrument's zero and span responses to zero nitrogen and an upscale calibration gas in the range of the expected concentrations. The instrument response was then challenged with other calibration gases of known concentration. The instrument's response was accepted as being linear if the response of the other calibration gases agreed within ± 2 percent of range from the predicted values. The response of the infrared absorption type CO and CO_2 analyzers is made linear through electronic suppression.

System bias checks were performed both before and after the sampling system was used for emissions testing. The sampling system's integrity was tested by comparing the responses of the NO_X analyzer to a calibration gas (and a zero gas) introduced via two paths as previously described in the *Analytical Techniques* section of this report. This system bias test was performed to assure that no alteration of the sample had occurred during the test due to leakage, reactions, or absorption. Similarly, system bias checks were performed with THC, CO, O_2, and CO_2 for added assurance of sample system integrity. The results of the system bias checks are available in Appendix D.

The efficiency of the NO_2 to NO converter in each NO_X analyzer was checked by monitoring a mixture of NO in N_2 standard gas and zero grade air from a Tedlar® bag. When this bag is mixed and exposed to sunlight, the NO is oxidized to NO_2. If the NO_X instrument's converter is 100% efficient, then the total NO_X response does not decrease as the NO in the bag is converted to NO_2. The criterion for acceptability is demonstrable NO_X converter efficiency greater than 90%; this is demonstrated if the concentration of NO_X does not decrease by more than 2% of the highest read value over a 30-minute period. Quality assurance worksheets, found in Appendix D, summarize the results of the converter efficiency tests.

The residence time of the sampling and measurement system was estimated using the pump flow rate and the sampling system volume. The pump's rated flow rate is 0.8 scfm at 5 psig. The sampling system volume was approximately 0.49 scf. Therefore, the minimum sample residence time was ~ 37 seconds.

Cubix Corporation and/or instrument vendors conducted interference response tests on the NO_X, CO, O_2, and CO_2 analyzers. For the NO_X, CO, and O_2 analyzers, the sum of the interference responses for H_2O, C_3H_8, CO, CO_2 and O_2 is less than 2 percent of the applicable full-scale span value. The instruments used for the tests meet the performance specifications for EPA Methods 3a, 7e, 10, and 20. The results of the interference tests are available in Appendix D of this report.

Each sampling system was leak checked by demonstrating that it could hold a vacuum greater than 15 inches of mercury ("Hg) for at least 1 minute with a decline of less than 1 "Hg. A leak test was conducted after each sample system was set up, i.e., before testing began, and before each system was dismantled, i.e., after testing was completed. This test was conducted to insure that ambient air was not diluting the sampling system. No leakage was detected.

As a minimum, before and after each test run, the analyzers were checked for zero and span drift. This allows test runs to be bracketed by calibrations and documents the precision of the data just collected. Calibration gases were introduced to the analyzers through the entire sampling system. Appendix D contains quality assurance tables that summarize the zero and span checks that were performed for each test run. The worksheets also contain the data used to correct the data for drift per EPA Method 6c, Equation 6c-1. NO_X, O_2, and CO_2 data were corrected for drift as required by the test methods. Although not required by the test method, CO concentrations were also corrected for drift to maintain consistency in results reporting.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to ±1% accuracy for all calibration gases. EPA Protocol No. 1 was used, where applicable (i.e., NO_X gases), to assign the concentration values traceable to the National Institute of Standards and Technology (NIST), Standard Reference Materials (SRM's). The gas calibration sheets as prepared by the vendor are contained in Appendix E.

NH_3 Emission Testing

Quality assurance activities for the NH_3 sampling began during preparation for the tests. All glassware was thoroughly washed, rinsed, dried, and packed safely to prevent contamination. American Chemical Society (ACS) reagent grade or better NH_3 absorber and analysis reagents were selected. A blank of the ammonia absorber solution was collected with each set of test runs and put into an impinger and allowed to sit for 1-hour before being packaged and shipped to the lab for analyses with the samples.

The NH_3 sampling system was leak checked by demonstrating that it could hold a vacuum greater than the highest sampling vacuum for at least 1 minute with a leakage rate less than 0.02 cubic feet per minute (cfm). A leak test was conducted after the sample system was set up (i.e., before each test run began) and before the system was dismantled (i.e., after each test was completed). This leak check was performed in accordance with EPA Method 17 to ensure that the sample was not diluted by ambient air. Leak checks were conducted at a vacuum higher than that used during sampling. No leaks greater than 0.02 cfm were detected except for Test Run 1A-NH3-1; an additional test run was conducted to make up for the failed test.

All NH_3 sampling was conducted iso-kinetically. Field checks of the iso-kinetics during each test run on each turbine were conducted to ensure strict adherence to EPA CTM-027. Documentation of the iso-kinetics is presented in Appendix A of this report.

After leak checks were conducted for each run, the nozzle and front half of the filter holder were washed with acetone to remove any adhering particulate matter. The quartz fiber filters were carefully removed from the filter holders after each test run and placed in containers and sealed against contamination.

After each NH_3 test run, the impingers of absorber solution and required sections of connecting glassware were rinsed and stored in HDPE plastic sample bottles. Each sample was rinsed with a specified volume of 0.1 N H_2SO_4. Sample bottles were labeled, sealed and stored in a chilled ice chest after they were split with 50ml from each sample provided to TEC and the remaining 200 ml from each sample provided to Atmospheric Analysis and Consulting. The samples were shipped with a chain-of-custody form to Atmospheric Analysis and Consulting.

Ion chromatographic analyses of the NH_3 samples were conducted with the inclusion of sample duplicates, spikes, and sample blanks. All duplicates and sample blanks fell within the requirements of the analytical method. Collection efficiency between the first impinger and the second from the NH_3 samples for the test runs was within the method requirements of no more than 10% breakthrough for all runs. Results of the quality assurance procedures conducted by the laboratory are located with the results in Appendix H.

The dry gas meter of the NH_3 and moisture train was calibrated prior to testing in accordance with EPA Method 17. The dry gas meter in the control box was calibrated and a flow curve and dry gas meter factor was generated at the Cubix Florida laboratory using the calibrated orifice procedure. The pitot tubes tips were inspected and assigned the default calibration factor. All glassware was thoroughly washed, rinsed, dried, and stored to prevent contamination. The calibration certifications of the particulate matter sampling system (dry gas meter, orifice curve and pitot tube calibrations) are found in Appendix E of this report.

Appendix E also contains calibration data ancillary equipment used during this testing. An altimeter/barometer was used for determination of barometric pressure. A fan-operated psychrometer with NIST traceable thermometers was used to determine ambient and dew point temperatures.

TEC personnel collected fuel samples daily during the testing. The samples were shipped to Core Laboratories, Inc. of Houston, Texas with a chain-of-custody form. Sample custody was maintained from the sampling location to the analytical lab.

Cubix collected and reported the enclosed test data in accordance with the procedures and quality assurance activities described in this test report. Cubix makes no warranty as to the suitability of the test methods. Cubix assumes no liability relating to the interpretation and use of the test data by others.

APPENDIX A:
FIELD DATA SHEETS

Sign In Sheet

Job Name: BAYSIDE POWER PROJECT

Date(s): 4/17/03 - 4/23/03

Job Number: 7445-FL

Permit No. PSD-FL-301A

Plant Name/Location: Bayside Power Station

Emission Source(s): Units 1A, 1B & 1C each a GE Model

PARTICIPANTS:

Cubix Corporation Test Contractor
Tampa Electric Company Owner/Operator
Hillsborough Co. EPC Regulatory Agency

Name	Affiliation	Position	Phone Number	Job Safety Review(Y/N)
LEONARD BRENNER	CUBIX	PROJ. DIR.	352 378 0332	Y
Roger Osier	CUBIX	PROJ. MANAGER	352 378 0332	Y
Jorge TREVINO	CUBIX	PROJ. MANAGER	~~2~~512 243 0202	Y
JIM HASTINGS	CUBIX	FIELD TECH	352 378 0332	Y
Dru Latchman	TEC	Assoc. Engineer	813 641 5034	Y
Elena Vance	TEC	Principal Engineer	(813) 641-5595	Y
CARLOS GONZALEZ	EPC	ENGINEER	(813) 272-5530	Y
RAMA IYER	EPC	PROF. ENG I	(813) 272-5530	Y
DIANA LEE	EPC	SENIOR ENGINEER	(813) 272-5530	Y
JUAN RAMIREZ	TEC	ENV. Tech	(813) 376-5786	Y

Cubix Corporation
Air Emission Testing Job Safety Analysis

Date:April 14-23, 2003
Mobile Lab/Cubix Crew: Florida office
Client:Tampa Electric Con
Job #/Contact:7445-FL1/ Drupati Latchman & David Smith
Plant & Unit Name:Bayside Power Plant
Location (city/state):Tampa, Florida

Description of Testing Activities:

Exhaust emission testing will be conducted on three General Electric combustion gas turbines, Bayside GT Units 1A, 1B, and 1C, respectively. Turbine emission measurements will be made for: oxides of nitrogen (NOX), carbon monoxide (CO), oxygen (O2), carbon dioxide (CO2), ammonia (NH3), and visible emissions (VE). Initial compliance and initial CEMS certification testing will be conducted

Permits Required		Comments
Hot Work	☐ Check	Gas sniff test required before moving trailer.
Cold Work	☐ Check	
Lock & Tag	☐ Check	
Scaffolding	☐ Check	
Crane/Lift	☐ Check	
Line Break	☐ Check	

Personal Protective Equipment Required			
hard hat	☒ Check	acid suit	☐ Check
ear plugs/muffs	☒ Check	rubber boots	☐ Check
safety glasses	☒ Check	monogoggles	☐ Check
steel toed shoes	☒ Check	face shield	☐ Check
gloves	☒ Check	safety harness	☐ Check
hot gloves	☒ Check	respirator	☐ Check

Emergency Response		
Safe Haven:	Main Office	*(Control room? Plant office?*
Wind Direction:	west	*N NE E SE S SW W NW*
Evacuation Route:	main gate	*(front gate? Back gate? Crosswind?*
Assembly Points:	main office	*office? Down the road?*
Plant Map Reviewed:	yes	*Yes or No or Not Applicable*

Phone No's. & Alarm Knowledge (list type of sound)			
Plant Contact Ph.:	n/a	Evacuate:	n/a
Control Room Ph.:	n/a	Fire:	n/a
Emergency Ph.:	911	All Clear:	n/a
Other:	n/a	Poison Gas:	n/a

If facility has no alarms, verify communication with control room

Emergency Equipment Locations Identified			
Emergency Shut Off	☐ Located	☒ Not Applicable	*manual emergency trip*
Fire Extinguisher	☒ Located	☐ Not Applicable	*Cubix Mobile Lab & Plant Ext.*
Safety Showers	☒ Located	☐ Not Applicable	*required for plant?*
Escape Air Pack	☒ Located	☐ Not Applicable	*required for plant?*

JOB HAZARD IDENTIFIED

Hazardous Material (in plant area) (flammability, reactivity, health hazards)	List Hazmat: Ammonia, natural gas, hydrogen, carbondioxide, acid

Environmental Hazards

			Comments:
airborne particulate	☒ Present	☐ No Hazard	
burn hazard	☒ Present	☐ No Hazard	
rain / fog	☐ Present	☒ No Hazard	
electrical shock	☐ Present	☒ No Hazard	
heat stress	☒ Present	☐ No Hazard	
cold weather/frostbite	☐ Present	☒ No Hazard	
inadequate lighting	☐ Present	☒ No Hazard	
noise	☒ Present	☐ No Hazard	
poor access/egress	☐ Present	☒ No Hazard	

Chemical Hazards (check hazards that are present at jobsite)

asfixiation	☒ Check	carcinogen	☒ Check
poison gas	☒ Check	chemical burns	☒ Check
chemical eye exposure	☒ Check	chemical skin exposure	☒ Check
flammable gas	☒ Check	flamable liquid	☐ Check
strong acid	☐ Check	strong base	☐ Check
OTHER	☐ Check		

Equipment Lifting & Fall Hazard

test equipment hoisting (pulley/boom)	☒ Required	☐ Not Applicable
portable ladder	☐ Required	☒ Not Applicable
man lift (cherry picker)	☐ Required	☒ Not Applicable
personnel basket (crane)	☐ Required	☒ Not Applicable
Plant Stairs & Ladders	☒ Required	☐ Not Applicable
rigging sample lines, umbilicle	☒ Required	☐ Not Applicable
scaffold	☐ Required	☒ Not Applicable

PRECAUTIONS TO BE IMPLEMENTED

Cubix MSDS in Mobile Lab	☒ Yes	☐ No
Plant MSDS located	☒ Yes	☐ Not Available

Protective Equipment		Protective Actions	
respirator	☐ Check	OTHER	☐ Check
work gloves	☒ Check	shade/cool breaks	☐ Check
rain protect elect. equip.	☐ Check	rain gear	☒ Check
inspect extension cords	☒ Check	secure/protect ext.cords	☒ Check
hot gloves	☒ Check	warm up breaks	☐ Check
cold weather clothing	☐ Check	liquid intake	☒ Check
flash light/head lamp	☐ Check	night lighting	☒ Check
hearing protection	☒ Check	hard hat liner	☒ Check
housekeeping	☒ Check	alternate route	☒ Check

Respiratory Safety Equip		Protective Clothing	
supplied fresh air	☐ Check	fire suit	☐ Check
SCBA	☐ Check	acid suit	☐ Check
respirator (correct type?)	☐ Check	rubber boots	☐ Check
escape pack	☐ Check	monogoggles	☒ Check
exposure dosiometer	☐ Check	face shield	☐ Check
OTHER	☐ Check	OTHER	☐ Check

Inspections and Protective Actions

equipment secure	☒ Check	clear lift zone	☒ Check
operator certification	☐ Check	rope inspection	☒ Check
guy lines	☒ Check	body harness	☐ Check
radios/handsignals	☒ Check	guard rails, toe plates	☒ Check
housekeeping	☒ Check	ladder tie-off	☐ Check
lines secure	☒ Check	monorails secure	☒ Check
secure tools	☒ Check	hard hats	☒ Check

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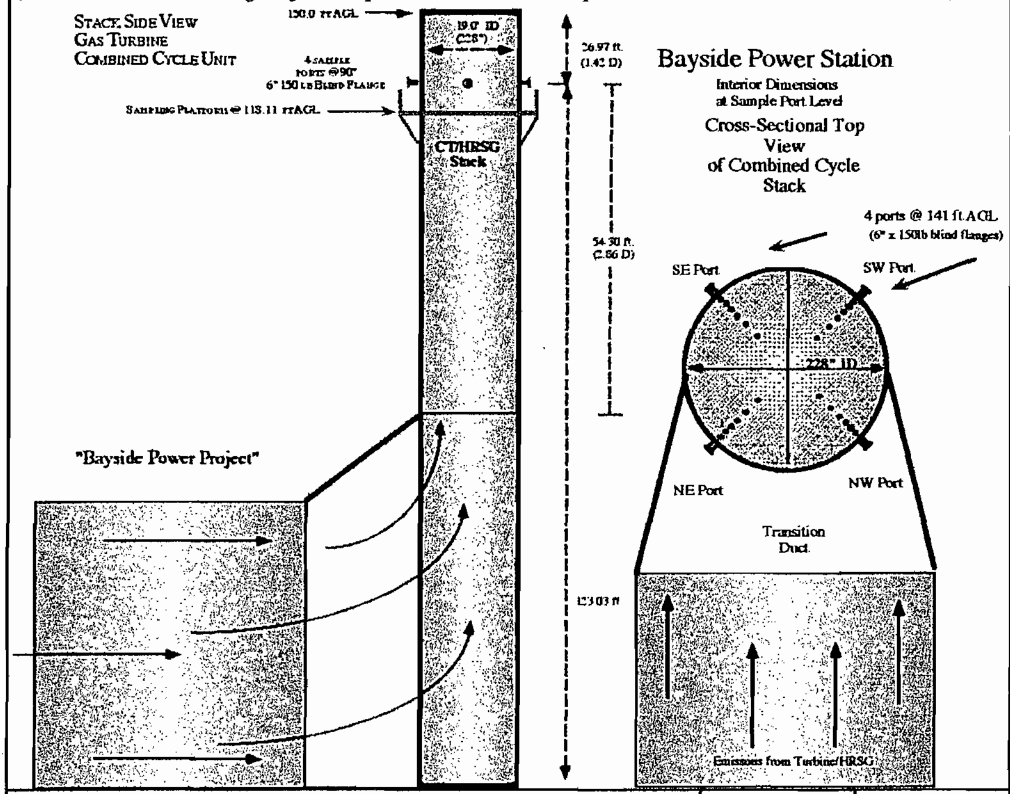
Circular Stack Sampling Traverse Point Layout
(EPA Method 1, Part 75/60 Stratification Traverse Points)

Date: April 23rd, 2003
Client: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1A, a GE Frame 7FA
Technician(s): LJB, RPO, JTH, JT

Port + Stack ID (in): 242.50
Port Extension (in): 14.5
Stack ID (in): 228.00
Stack Area (ft²): 283.52
Duct Diameters **upstream** from flow disturbance (A): 1.42
Duct Diameters **downstream** from flow disturbance (B): 2.86
Total Required Traverse Points: 12
No. of Traverse Points per Diameter: 6
No. of Traverse Points per Sample Port: 3

Stack Diagram

(Draw side view showing major components, dimensions, upstream/downstream flow disturbances)



CEMS Information

Spetrum CEMS Package

DAHS Model 20/20, S/N 9G10W11
Thermo Environmental NO_X Analyzer Model 42CLS, S/N 42CLS-72737-371
Thermo Environmental CO Analyzer Model 48C, S/N 48C-73684-374
Siemens CO_2 Analyzer, Model Ultramat 6E, S/N F-Nr-N1-Nd-0876
M&C Gas Extraction Probe, Model EXT, S/N 8177-126207

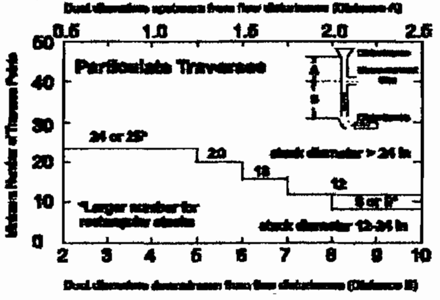
Unit Information

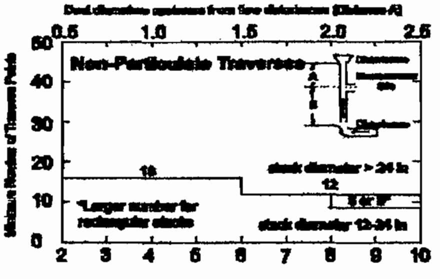
General Electric Power Systems

Combined Cycle Model PG7241(FA) Combustion Gas Turbine Generator Set equipped with an unfired HRSG.
NO_X Control Technology: DLN Combustion Technology and an SCR unit with ammonia injection.
CT Serial No. 297826
Nominally rated to produce 169-MW of shaft-driven electrical power.
Nominally permitted to fire with 1842 MMBtu/hr (HHV) Natural Gas @ 59°F.

Traverse Point Number	Number of Traverse Points on a Diameter					Stratification Test Traverse Point*	Emissions Testing Traverse Point*
	4	6	8	12	PS-2		
1	6.7	4.4	3.2	2.1	0.4 m	24.53	30.25
2	25.0	14.6	10.5	6.7	1.2 m	47.79	61.74
3	75.0	29.6	19.4	11.8	2.0 m	81.99	93.24
4	93.3	70.4	32.3	17.7			
5		85.4	67.7	25.0			
6		95.6	80.6	35.6			
7			89.5	64.4			
8			96.8	75.0			
9				82.3			
10				88.2			
11				93.3			
12				97.9			

**Stack diameters > 24 in shall have no traverse points located within 1-inch of the stack wall*
**Stack diameters ≤ 24 in shall have no traverse points located within 0.5-inch of the stack wall*





Bayside Power Station, Unit 1A Stratification Test

Run Number	Date	Time	CO (ppmv)	CO2 (% vol)	Point Number	AVE CO (ppmv)	AVE CO2 (% vol)	CO % Diff	CO2 % Diff
START Run 1A-Strat, SE Port	4/23/03	9:09:01	0.68	4.01					
Run 1A-Strat, SE Port	4/23/03	9:10:01	0.66	3.99					
Run 1A-Strat, SE Port	4/23/03	9:11:01	0.69	4.01					
Run 1A-Strat, SE Port	4/23/03	9:12:01	0.66	3.99					
Run 1A-Strat, SE Port	4/23/03	9:13:01	0.64	4.01	1	0.67	4.00	4.76%	-1.17%
Run 1A-Strat, SE Port	4/23/03	9:14:01	0.67	4.01					
Run 1A-Strat, SE Port	4/23/03	9:15:01	0.70	3.99					
Run 1A-Strat, SE Port	4/23/03	9:16:01	0.72	3.99					
Run 1A-Strat, SE Port	4/23/03	9:17:01	0.66	4.00	2	0.69	4.00	1.69%	-1.06%
Run 1A-Strat, SE Port	4/23/03	9:18:01	0.66	4.01					
Run 1A-Strat, SE Port	4/23/03	9:19:01	0.64	3.98					
Run 1A-Strat, SE Port	4/23/03	9:20:01	0.65	3.99					
END Run 1A-Strat, SE Port	4/23/03	9:21:00	0.66	3.98	3	0.65	3.99	6.69%	-0.87%
START Run 1A-Strat, NE Port	4/23/03	9:26:02	0.67	3.98					
Run 1A-Strat, NE Port	4/23/03	9:27:02	0.65	3.97					
Run 1A-Strat, NE Port	4/23/03	9:28:02	0.71	3.97					
Run 1A-Strat, NE Port	4/23/03	9:29:02	0.67	3.96					
Run 1A-Strat, NE Port	4/23/03	9:30:02	0.69	3.96	4	0.68	3.97	3.05%	-0.31%
Run 1A-Strat, NE Port	4/23/03	9:31:02	0.65	3.96					
Run 1A-Strat, NE Port	4/23/03	9:32:02	0.68	3.95					
Run 1A-Strat, NE Port	4/23/03	9:33:02	0.69	3.96					
Run 1A-Strat, NE Port	4/23/03	9:34:02	0.65	3.96	5	0.67	3.96	4.55%	-0.05%
Run 1A-Strat, NE Port	4/23/03	9:35:02	0.71	3.96					
Run 1A-Strat, NE Port	4/23/03	9:36:02	0.72	3.96					
Run 1A-Strat, NE Port	4/23/03	9:37:02	0.72	3.96					
END Run 1A-Strat, NE Port	4/23/03	9:38:02	0.65	3.94	6	0.70	3.96	-0.10%	0.02%
START Run 1A-Strat, NW Port	4/23/03	9:41:00	0.71	3.96					
Run 1A-Strat, NW Port	4/23/03	9:42:00	0.74	3.94					
Run 1A-Strat, NW Port	4/23/03	9:43:00	0.66	3.94					
Run 1A-Strat, NW Port	4/23/03	9:44:00	0.72	3.93					
Run 1A-Strat, NW Port	4/23/03	9:45:00	0.71	3.94	7	0.71	3.94	-1.24%	0.34%
Run 1A-Strat, NW Port	4/23/03	9:46:00	0.75	3.93					
Run 1A-Strat, NW Port	4/23/03	9:47:00	0.74	3.94					
Run 1A-Strat, NW Port	4/23/03	9:48:00	0.71	3.94					
Run 1A-Strat, NW Port	4/23/03	9:49:00	0.72	3.93	8	0.73	3.94	-4.39%	0.52%
Run 1A-Strat, NW Port	4/23/03	9:50:00	0.70	3.95					
Run 1A-Strat, NW Port	4/23/03	9:51:00	0.71	3.93					
Run 1A-Strat, NW Port	4/23/03	9:52:00	0.73	3.93					
END Run 1A-Strat, NW Port	4/23/03	9:53:00	0.73	3.95	9	0.72	3.94	-2.60%	0.39%
START Run 1A-Strat, SW Port	4/23/03	9:57:31	0.71	3.94					
Run 1A-Strat, SW Port	4/23/03	9:58:31	0.74	3.94					
Run 1A-Strat, SW Port	4/23/03	9:59:31	0.72	3.95					
Run 1A-Strat, SW Port	4/23/03	10:00:31	0.74	3.96					
Run 1A-Strat, SW Port	4/23/03	10:01:31	0.70	3.94	10	0.72	3.95	-3.25%	0.24%
Run 1A-Strat, SW Port	4/23/03	10:02:31	0.72	3.96					
Run 1A-Strat, SW Port	4/23/03	10:03:31	0.72	3.96					
Run 1A-Strat, SW Port	4/23/03	10:04:31	0.70	3.96					
Run 1A-Strat, SW Port	4/23/03	10:05:31	0.70	3.96	11	0.71	3.96	-1.53%	-0.11%
Run 1A-Strat, SW Port	4/23/03	10:06:31	0.69	3.96					
Run 1A-Strat, SW Port	4/23/03	10:07:31	0.73	3.96					
Run 1A-Strat, SW Port	4/23/03	10:08:31	0.71	3.96					
END Run 1A-Strat, SW Port	4/23/03	10:09:30	0.70	3.97	12	0.71	3.96	-1.17%	-0.17%
					Averages	**0.70**	**3.96**		
				Short Measurement Line Status:				**PASS**	**PASS**

Note: Sampling may be conducted from a the short measurement line if the results of the stratification test are as follows: either the stratification test shows that the concentration at each individual traverse point differs by no more than ±10% from the arithmetic average concentration for all points .

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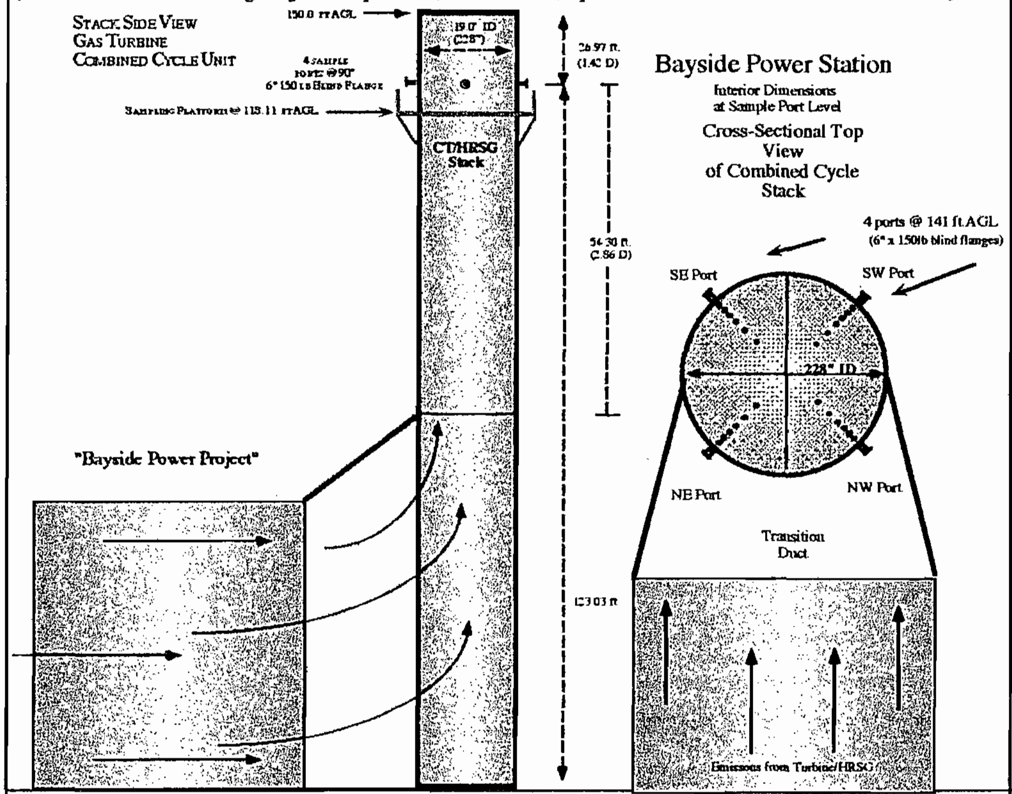
Circular Stack Sampling Traverse Point Layout
(EPA Method 1, NH3 Sampling Traverse Point Locations)

Date: April 23rd, 2003
Client: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1A, a GE Frame 7FA
Technician(s): LJB, RPO, JTH, JT

Port + Stack ID (in): 242.50
Port Extension (in): 14.5
Stack ID (in): 228.00
Stack Area (ft²): 283.52
Duct Diameters **upstream** from flow disturbance (A): 1.42
Duct Diameters **downstream** from flow disturbance (B): 2.86
Total Required Traverse Points: 24
No. of Traverse Points per Diameter: 12
No. of Traverse Points per Sample Port: 6

Stack Diagram

(Draw side view showing major components, dimensions, upstream/downstream flow disturbances)



CEMS Information

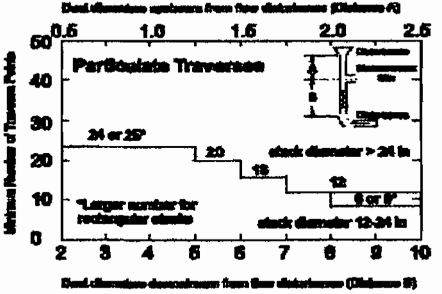
Spetrum CEMS Package
DAHS Model 20/20, S/N 9G10W11
Thermo Environmental NO_x Analyzer Model 42CLS, S/N 42CLS-72737-371
Thermo Environmental CO Analyzer Model 48C, S/N 48C-73684-374
Siemens CO_2 Analyzer, Model Ultramat 6E, S/N F-Nr-N1-Nd-0876
M&C Gas Extraction Probe, Model EXT, S/N 8177-126207

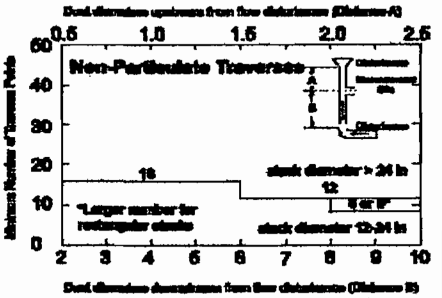
Unit Information

General Electric Power Systems
Combined Cycle Model PG7241(FA) Combustion Gas Turbine Generator Set equipped with an unfired HRSG.
NO_x Control Technology: DLN Combustion Technology and an SCR unit with ammonia injection.
CT Serial No. 297826
Nominally rated to produce 169-MW of shaft-driven electrical power.
Nominally permitted to fire with 1842 MMBtu/hr (HHV) Natural Gas @ 59°F.

Traverse Point Number	Number of Traverse Points on a Diameter				*Calculated Traverse Point	*Traverse Point with Port Extension
	4	6	8	12		
1	6.7	4.4	3.2	2.1	4.79	19.29
2	25.0	14.6	10.5	6.7	15.28	29.78
3	75.0	29.6	19.4	11.8	26.90	41.40
4	93.3	70.4	32.3	17.7	40.36	54.86
5		85.4	67.7	25.0	57.00	71.50
6		95.6	80.6	35.6	81.17	95.67
7			89.5	64.4		
8			96.8	75.0		
9				82.3		
10				88.2		
11				93.3		
12				97.9		

**Stack diameters > 24 in shall have no traverse points located within 1-inch of the stack wall*
**Stack diameters ≤ 24 in shall have no traverse points located within 0.5-inch of the stack wall*





EPA CTM-027: Iso-kinetics, Velocity, Molecular Weight, Moisture, and Flow Rates

UNIT IDENTIFICATION	100 load	Unit 1A		
RUN NUMBER	Prelim.	1A-NH3-2	1A-NH3-3	1A-NH3-4
Date	4/23/03	4/23/03	4/23/03	4/23/03
Start Time (24 hour basis)	09:00	12:12	13:55	15:41
Stop Time (24 hour basis)	09:30	13:21	15:08	16:50
Stack Gas Moisture & Molecular Weight Data				
O_2 (% volume, dry basis)	13.89	13.91	13.90	13.92
CO_2 (% volume, dry basis)	4.04	4.02	4.03	4.02
Beginning Meter Reading (ft^3)	988.303	324.181	357.627	391.408
Ending Meter Reading (ft^3)	1018.900	357.343	391.080	424.108
Beginning Impinger Weight (g)	2356.4	2432.5	2409.9	2444.2
Ending Impinger Weight (g)	2412.9	2500.1	2475.3	2505.8
Dry Gas Meter Factor (Y)	1.0157	1.0157	1.0157	1.0157
Dry Gas Meter Temperature (°F, average)	105.25	83.1	86.0	86.9
Atmospheric Pressure ("Hg absolute, P_{bar})	29.73	29.83	29.80	29.79
Stack Gas Moisture (% volume)	8.43	8.88	8.60	8.33
Dry Gas Fraction	0.916	0.911	0.914	0.917
Stack Gas Molecular Wt. (lbs/lb-mole, M_s)	28.26	28.21	28.24	28.27
Velocity and Volumetric Flow Rate Data				
ΔP #1	0.95	0.92	0.88	0.90
ΔP #2	1.25	1.05	0.95	1.05
ΔP #3	1.40	1.30	1.05	1.25
ΔP #4	1.60	1.40	1.25	1.40
ΔP #5	1.50	1.30	1.15	1.30
ΔP #6	1.20	1.25	1.05	1.15
ΔP #7	0.71	0.80	0.85	0.80
ΔP #8	0.84	0.87	0.90	0.89
ΔP #9	1.10	0.95	0.86	0.90
ΔP #10	1.15	1.05	0.95	1.00
ΔP #11	1.20	1.20	0.96	0.95
ΔP #12	0.90	0.95	0.71	0.93
ΔP #13	0.97	0.81	0.83	0.86
ΔP #14	0.86	0.86	0.87	0.85
ΔP #15	0.96	0.93	1.05	0.89
ΔP #16	1.05	0.95	1.05	0.93
ΔP #17	1.00	0.93	1.05	0.90
ΔP #18	0.90	0.76	0.94	0.65
ΔP #19	0.88	0.93	0.92	0.93
ΔP #20	0.96	0.95	1.00	1.00
ΔP #21	1.20	0.95	1.30	1.05
ΔP #22	1.35	1.10	1.50	1.15
ΔP #23	1.30	1.05	1.35	1.10
ΔP #24	1.25	0.93	1.20	0.85
Pitot Tube Coefficient (C_p)	0.84	0.84	0.84	0.84
Sum of Square Root of Vertical Component	25.08	24.02	24.22	23.76
Number of Traverse Points	24	24	24	24
Average Square Root of ΔP's	1.0452	1.0007	1.0090	0.9899
Average Stack Temperature (°F)	252.6	251.4	250.2	250.1
Static Pressure (" H_2O)	-0.80	-0.78	-0.82	-0.81
Stack Diameter (inches)	228	228	228	228
Stack Area (ft^2)	283.53	283.53	283.53	283.53
Stack Velocity (ft/sec @ stack conditions, V_s)	69	66.14	66.63	65.35
Stack Velocity (ft/min @ stack conditions)	4152	3968	3998	3921
Stack Flow,wet (ACFM)	1177210	1125115	1133578	1111654
Stack Flow, dry (SCFH, Q_{sd})	**4.75E+07**	**4.54E+07**	**4.59E+07**	**4.52E+07**
Stack Flow, wet (SCFH)	**5.19E+07**	**4.99E+07**	**5.03E+07**	**4.93E+07**
Method 5 Nozzle Selection, K Factor, and Isokinetic Data				
Stack Velocity, dry (SFM)	**2793**	**2671**	**2700**	**2655**
Target Sampling Rate (SCFM, 0.40-0.75)	**0.554**			
Target Nozzle Area (Ft^2)	**0.0001983**			
Selected Nozzle Number (xx/32")	6	6B	6A	6B
Actual Nozzle Area (Ft^2, A_n)	0.0001983	0.0001983	0.0001983	0.0001983
No. of M-5 Traverse Points	24			
Minutes per point (min.)	2.5			
Total Sampling Time (min., must be >60 min., Ø)	60	60	60	60
Expected Total Sample Vol. (SCF, must be >30 SCF)	33.24			
Sampling Rate (SCFM) (using actual nozzle)	**0.554**	**0.530**	**0.535**	**0.526**
$\Delta H_@$ ("H_2O Target, see Meter Box Calib Curve)	**0.90**			
Average ΔH@ ("H_2O, actual from meter box)	1.7	**0.85**	**0.85**	**0.81**
K-Factor (ΔH/ΔP)	**0.82**			
Sample volume at STP (DSCF, $V_{m(std)}$)	**28.952**	**32.709**	**32.782**	**31.972**
% Isokinetic (must be 90-110%, I)		**103.0**	**102.1**	**101.3**

MOISTURE & VELOCITY FIELD DATA SHEET

Date: 4-23-2003
Plant: Bayside Power Project
Source: Unit 1A
Technicians: RPO, JT
Atm. Pressure: 29.73 " Hg (Pb)
Test Run No.: preliminary

Dry Gas Meter ID: Meter Box E
Dry Gas Meter Factor: 1.0157 (Kd)
Pitot Tube No/Type: 8' M-5 probe with 7/8" S.S. S-Ty
Pitot Tube Factor: 0.84
Static Pressure: -0.90 "H_2O (Pg)
Ave. Stack Temp. 252.625 °F (Ts)

Collection Data

Sample Box		
Leak Check ≤ 0.02 ft^3/min		
Pre-Test Leak Check	ft^3/min "Hg Vac.	
Post-Test Leak Check	ft^3/min "Hg Vac.	
	Initial	Final
Time		
DGM Reading (ft^3 or L)		
DGM Average Temp (°F)		
Last Impinger Temp. (°F)		
DGM Flow Rate		
O_2 (% vol.)		
CO_2 (% vol.)		

Impingment System

Impinger	Contents	Initial Weight	Final Weight
1			
2			
3			
4			
5			
6			
Totals			

Velocity System Leak Check

Leak Check ≤ 0.1 "H_2O/min at a pressure ≥ 3.0 "H_2O			
Pre-Test Leak Check	+0.0 6.5	−0.0 6.5	"H_2O/min "H_2O Pres.
Post-Test Leak Check	+0.0 5.2	−0.0 6.7	"H_2O/min "H_2O Pres.

Velocity Traverse Data
with Stack Temperature and Cyclonic Flow Check

Point	ΔP ("H_2O)	°F	α	Point	ΔP ("H_2O)	°F	α
1-1	.95	254	5	3-1	.97	254	15
1-2	1.25	253	10	3-2	.86	255	10
1-3	1.4	252	12	3-3	.96	254	8
1-4	1.6	252	8	3-4	1.05	254	5
1-5	1.5	251	15	3-5	1.0	253	4
1-6	1.2	249	10	3-6	.90	249	2
2-1	.71	254	12	4-1	.88	253	10
2-2	.84	254	10	4-2	.96	254	9
2-3	1.1	254	8	4-3	1.2	254	15
2-4	1.15	254	12	4-4	1.35	253	5
2-5	1.20	252	9	4-5	1.3	253	10
2-6	.90	249	10	4-6	1.25	249	15

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EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT
Date: 4-23-03
Source: UNIT 1A
Technicians: LB, RO, JT, JH
Probe Size: 8'
Filter #: 69
Box #: E1
Time Start: 10:23
Run #: 1A-NH3-1
Time Stop: 11:34:30
Nozzle ~~Probe~~ Size: 6A, 0.0001983

Stack Height: ~150'
Stack Diameter: ~19'
Stack Moisture (% by Vol.):
ATM Pressure: 29.85
K Factor: 0.92 / ~~0.1417~~ 0.001553023
PTCF: 0.84

DGM #: METER Box E
DGMCF: 1.0157
Mol. Wt.:
Static Pressure: -0.80
Sample Time: 60 minutes / 2.5 min per point
#/Sample PTS.: 24 points

Pretest Leak Check: 0.000 ft³/minute @ 17 "Hg Vacuum
Post Test Leak Check: failed * ft³/minute @ "Hg Vacuum
Meter Reading (initial): 287.926 (final): 322.308

*failed post test leak check repeated Run.

Oxygen and Carbon Dioxide Concentrations (M-3a)
O_2: 13.87 % volume
CO_2: 4.03 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	Sigel		Total
Initial Wt. (g)	626.2	622.1	526.0	622.2		2396.5
Final Wt. (g)	648.2	628.3	528.1	629.7		2434.3

Pitot Tube Leak Check	+	-		
(pretest)	0.0065	0.0043	" H_2O /	minutes:
(post test)	0.0049	0.0057	" H_2O /	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
4-1	10:23	287.926	.96	.80	254	260	255	61	81/77/ 79	6.5
4-2	10:25:30	289.328	1.0	.84	252	255	255	63	81/80 / 80.5	6.5
4-3	10:28	290.710	1.05	.88	252	259	257	64	81/81 - 81	6.5
4-4	10:30:30	292.141	1.25	1.05	252	253	252	65	82/83 - 82.5	7.3
4-5	10:33	293.653	1.20	1.01	250	251	253	64	83/84 - 83.5	7.4
4-6	10:35:30	295.173	1.05	.89	247	252	254	61	84/84 - 84	6.5
End	10:37	296.613	—	—	—	—	—	—	—	—
3-1	10:41	296.613	.86	.73	253	256	259	62	83/83 / 83	4.5
3-2	10:43:30	297.937	.90	.76	254	260	254	60	84/84 / 84	5.0
3-3	10:46	299.275	.94	.79	254	257	256	59	85/84 / 84.5	5.2
3-4	10:48:30	300.624	1.05	.89	255	256	258	60	85/83 / 84	6.0
3-5	10:51	302.055	.95	.90	251	257	252	62	85/83 / 84	5.3
3-6	10:53:30	303.426	.90	.76	245	250	258	61	85/81 / 83	5.0
End	10:56	304.761	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name Bayside Power Plant
Date: 4/23/2003
Test Run #: 1A-NH3-1

point #	clock time	DGM reading	ΔP "H2O	ΔH " H2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
2-1	11:01:30	304.767	.81	.68	253	258	259	63	83/83 | 83	4.0
2-2	11:04	306.035	.94	.79	252	255	256	61	85/84 | 84.5	5.0
2-3	11:06:30	307.386	1.05	.89	252	257	255	61	85/84 | 84.5	5.7
2-4	11:09	308.800	1.05	.89	253	257	256	61	86/84 | 85	5.7
2-5	11:11:30	310.248	1.1	.93	251	255	258	62	86/85 85.5	6.0
2-6	11:14	311.703	.94	.80	249	255	256	61	87/84 | 85.5	5.3
End	11:16:30	313.083	—	—	—	—	—	—	—	—
1-1	11:19:30	313.083	.95	.80	251	256	252	66	84/83 | 83.5	5.0
1-2	11:22	314.451	1.15	.97	252	255	256	64	86/84 | 85	6.3
1-3	11:24:30	315.926	1.35	1.14	251	252	255	63	86/83 | 84.5	7.7
1-4	11:27	317.543	1.45	1.22	250	254	256	63	85/82 | 83.5	8.0
1-5	11:29:30	319.152	1.40	1.18	243	250	251	64	85/82 | 83.5	8.0
1-6	11:32	320.781	1.20	1.01	243	251	249	64	85/82 | 83.5	7.0
End	11:34:30	322.308	—	—	—	—	—	—	—	—
Totals or Avgs.		—	1.06	0.90	250.8	—	—	—	83.5	—

$$\Delta H = \Delta P \text{ x } \frac{(\text{Tdgm} + 460)}{528} \text{ x K factor}$$

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT
Date: 04-23-03
Source: UNIT 1A
Technicians: LB, RO, JT, JH
Probe Size: 8'
Filter #: 70
Box #: G1
Time Start: 12:12
Run #: 1A-NH3-2
Time Stop: 13:21
Nozzle ~~Probe~~ Size: 6B, 0.0001983
Pretest Leak Check: 0.000 ft³/minute @ 17.0 "Hg Vacuum
Post Test Leak Check: 0.000 ft³/minute @ 15.0 "Hg Vacuum
Meter Reading (initial): 324.181
(final): 357.343

Stack Height: 150'
Stack Diameter: 19'
Stack Moisture (% by Vol.): 8.98
ATM Pressure: 29.83
K Factor: .82
PTCF: 0.84

DGM #: METER BOX E
DGMCF: 1.0157
Mol. Wt.: 28.21
Static Pressure: -0.78
Sample Time: 60 minutes (2.5 minutes per point
#/Sample PTS.: 24 points

Oxygen and Carbon Dioxide Concentrations (M-3a)
O_2: 13.91 % volume
CO_2: 4.02 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGel		Total
Initial Wt. (g)	634.7	625.7	524.9	647.2		2432.5
Final Wt. (g)	686.5	631.8	526.8	655.0		2500.1

Pitot Tube Leak Check	+	-		
(pretest)	0.0061	0.0078	" H_2O 1	minutes:
(post test)	0.0057	0.0063	" H_2O 1	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH "H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
1-1	12:12	324.181	.92	.77	251	252	255	66	81/80 | 80.5	5.7
1-2	12:14:30	325.527	1.05	.88	251	255	256	64	81/80 | 80.5	6.7
1-3	12:17	326.929	1.3	1.09	250	257	257	63	81/81 | 81	8.0
1-4	12:19:30	328.437	1.4	1.18	250	256	253	64	81/81 | 81	9.0
1-5	12:22	329.999	1.3	1.09	246	255	249	66	82/81 | 81.5	8.8
1-6	12:24:30	331.565	1.25	1.05	246	251	250	66	83/81 | 82	8.7
End	12:27	333.096	—	—	—	—	—	—	—	—
2-1	12:30	333.096	.80	.67	254	256	255	66	82/83 | 82.5	5.0
2-2	12:32:30	334.368	.87	.73	254	254	255	62	83/83 | 83	5.3
2-3	12:35	335.663	.95	.80	254	254	260	63	83/83 | 83	5.7
2-4	12:37:30	337.000	1.05	.89	254	260	257	63	84/84 | 84	6.7
2-5	12:40	338.420	1.20	1.02	254	261	256	63	94/84 | 84	7.9
2-6	12:42:30	339.981	.95	.80	252	259	255	63	85/84 | 84.5	7.1
End	12:45	341.245	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \text{ x } \frac{(Tdgm + 460)}{528} \text{ x K factor}$$

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name Bayside Power Project

Date: 4/23/2003

Test Run #: 1A-NH_3-2

point #	clock time	DGM reading	ΔP "H2O	ΔH " H2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
3-1	12:48	341.245	.81	.68	254	259	259	65	83/83 | 83	5.2
3-2	12:50:30	342.503	.86	.73	254	260	260	61	84/83 | 83.5	6.0
3-3	12:53	343.799	.93	.79	254	261	261	60	85/84 | 84.5	6.5
3-4	12:55:30	345.151	.95	.80	254	257	255	57	85/83 | 84	6.5
3-5	12:58	346.507	.93	.78	251	256	256	56	84/83/83.5	6.4
3-6	13:00:30	347.843	.76	.64	249	253	256	56	84/83/ 83.5	5.2
End	13:03	348.076	—	—	—	—	—	—	—	—
4-1	13:06	349.076	.93	.78	251	252	252	59	83/83 | 83	5.4
4-2	13:08:30	350.400	.95	.80	251	255	253	60	83/84 | 83.5	7.0
4-3	13:11	351.751	.95	.80	251	252	257	61	84/83 | 83.5	7.0
4-4	13:13:30	353.100	1.1	.93	251	257	260	61	84/84/ 84	8.2
4-5	13:16	354.552	1.05	.89	251	259	256	63	85/84 | 84.5	8.1
4-6	13:18:30	355.989	.93	.79	247	251	252	62	86/85 | 85.5	7.0
End	13:21	357.343	—	—	—	—	—	—	—	—
	—									
Totals or Avgs.		—	1.01	0.85	251.4	—	—	—	83.1	—

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation, Austin, TX

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT
Date: 04-23-03
Source: UNIT 1A
Technicians: RD, LB, JT, JH
Probe Size: 8' | Filter #: 71 | Box #: E1
Time Start: 13:55 | Run #: 1A-NH$_3$-3
Time Stop: 15:08:30 | ~~Probe~~ Size: 6A, 0.0001983
Pretest Leak Check: 0.000 ft³/minute @ 17 "Hg Vacuum
Post Test Leak Check: 0.000 ft³/minute @ 15 "Hg Vacuum
Meter Reading (initial): 357.627 (final): 391.080

Stack Height: ~150'
Stack Diameter: ~19'
Stack Moisture (% by Vol.): 8.60
ATM Pressure: 29.80
K Factor: .82 /.795
PTCF: 0.84

DGM #: Meter Box E
DGMCF: 1.0157
Mol. Wt.: 28.24
Static Pressure: -0.82
Sample Time: 60 minutes / 2.5 min per point
#/Sample PTS.: 24 points

Oxygen and Carbon Dioxide Concentrations (M-3a)
O_2: 13.90 % volume
CO_2: 4.03 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGEL		Total
Initial Wt. (g)	628.0	624.1	528.1	629.7		2409.9
Final Wt. (g)	679.0	631.5	529.1	635.7		2475.3

Pitot Tube Leak Check				
	+	-		
(pretest)	0.0061	0.0057	" H_2O	1 minutes:
(post test)	0.0043	0.0047	" H_2O	1 minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
4-1	13:55	357.627	.80	.74	PPO:~~249~~252	256	255	66	84/83 | 83.5	5.7
4-2	13:57:30	358.940	.95	.80	251	260	256	61	84/83 | 83.5	6.3
4-3	14:00	360.300	1.05	.89	251	259	254	60	84/84 | 84	7.0
4-4	14:02:30	361.717	1.25	1.06	250	259	251	61	84/84 | 84	8.2
4-5	14:05	363.253	1.15	.97	250	257	254	61	85/85 | 85	8.1
4-6	14:07:30	364.753	1.05	.89	249	253	249	60	86/86 | 86	7.2
End	14:10	366.188	—	—	—	—	—	—	—	—
		366.282↓								
3-1	14:14:30	366.282	.85	.70	252	253	254	60	86/87/86.5	5.1
3-2	14:17	367.573	.90	.74	252	256	257	59	87/87/ 87	5.6
3-3	14:19:30	368.891	.86	.71	252	253	256	60	87/87/ 87	~~X~~ 5.5
3-4	14:22	370.177	.95	.78	252	255	257	59	87/87 | 87	6.0
3-5	14:24:30	371.525	.96	.79	251	259	260	58	89/87 | 88	6.2
3-6	14:27	372.878	.71	.59	248	254	256	59	89/87 | 88	4.5
End	14:29:30	374.061	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name Bayside Power Project
Date: 4/23/2003
Test Run #: 1A-NH_3-3

point	clock	DGM	ΔP	ΔH	Stack	Probe	Filter	Last Impinger	DGM in/out	Line Vacuum
#	time	reading	"H2O	" H2O	Temp °F	Temp °F	Temp °F	Temp °F	Temp °F	" Hg
2-1	14:35	374.061	.83	.68	251	260	254	61	86/86 | 86	4.9
2-2	14:37:30	375.291	.87	.72	251	257	257	61	87/86 | 86.5	5.6
2-3	14:40	376.563	1.05	.86	251	260	257	60	87/86 | 86.5	7.0
2-4	14:42:30	377.971	1.05	.86	251	259	256	60	87/86 | 86.5	7.0
2-5	14:45	379.385	1.05	.86	250	258	251	60	87/86 | 86.5	7.0
2-6	14:47:30	380.793	.94	.77	247	253	247	61	87/86 | 86.5	6.0
End	14:50	382.151	—	—	—	—	—	—	—	—
1-1	14:53:30	382.151	.92	.76	249	257	259	63	86/86 | 86	6.0
1-2	14:56	383.485	1.0	.82	251	260	257	61	87/85 | 86	6.5
1-3	14:58:30	384.859	1.3	1.07	249	257	256	62	86/85 | 85.5	8.5
1-4	15:01	386.383	1.5	1.23	250	257	260	62	86/86 | 86	9.4
1-5	15:03:30	387.974	1.35	1.10	248	253	256	63	86/86 | 86	9.3
1-6	15:06	389.573	1.2	.99	247	250	253	65	87/86 | 86.5	8.5
End	15:08:30	391.080	—	—	—	—	—	—	—	—
Totals or Avgs.			0.98	0.85	250.2	—	—	—	86	—

ΔH = ΔP x $\frac{\textbf{(Tdgm + 460)}}{\textbf{528}}$ x K factor

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT			Stack Height: 150'	DGM #: METER BOX E	
Date: 04-23-03			Stack Diameter: 19'	DGMCF: 1.0157	
Source: UNIT 1A			Stack Moisture (% by Vol.): 8.33	Mol. Wt.: 28.27	
Technicians: LB, RO, JT, JH			ATM Pressure: 29.79	Static Pressure: -.81	
Probe Size: 8'	Filter #: 72	Box #: E1	K Factor: .795	Sample Time: 60 minutes /2.5 min per point	
Time Start: 15:41:30	Run #: Run 1A-NH_3-4		PTCF: 0.84	#/Sample PTS.: 24 points	
Time Stop: 16:50	~~Probe~~ Size: 6B, 0.0001983				

Pretest Leak Check: 0.000 ft³/minute @ 18 "Hg Vacuum

Post Test Leak Check: 0.000 ft³/minute @ 15 "Hg Vacuum

Meter Reading (initial): 391.408 (final): 424.108

Oxygen and Carbon Dioxide Concentrations (M-3a)

O_2: 13.92 % volume

CO_2: 4.02 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGel		Total
Initial Wt. (g)	635.5	626.9	526.8	655.0		2444.2
Final Wt. (g)	684.3	632.6	528.6	660.3		2505.8

Pitot Tube Leak Check				
	+	-		
(pretest)	0.0083	0.0060	" H_2O 1	minutes:
(post test)	0.0071	0.0062	" H_2O 1	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
1-1	15:41:30	391.408	.90	.74	250	252	255	66	88/88 | 88	5.5
1-2	15:44	392.691	1.05	.86	251	253	251	60	87/87 | 87	8.0
1-3	15:46:30	394.066	1.25	1.03	250	253	256	61	87/88 | 87.5	9.5
1-4	15:49	395.577	1.4	1.15	249	258	250	61	87/88 | 87.5	10.3
1-5	15:51:30	397.147	1.3	1.07	246	251	249	62	87/89 | 88	10.2
1-6	15:54	398.703	1.15	.95	246	250	254	62	89/89 | 89	9.4
End	15:56:30	400.191	—	—	—	—	—	—	—	—
2-1	15:59:30	400.191	.80	.66	251	253	256	62	87/87 | 87	4.9
2-2	16:02	401.457	.89	.73	251	255	257	61	87/88 | 87.5	5.3
2-3	16:04:30	402.757	.90	.74	251	253	256	61	87/87 | 87	5.5
2-4	16:07	404.058	1.0	.82	251	255	260	61	87/88 | 87.5	6.0
2-5	16:09:30	405.431	.95	.78	251	257	~~254~~ 254	61	87/87 | 87	6.0
2-6	16:12	406.903	.93	.77	248	252	255	62	87/87 | 87	5.7
End	16:14:30	408.157	—	—	—	—	—	—	—	—
Totals or Averages			—							

$$\Delta H = \Delta P \text{ x } \frac{(\text{Tdgm} + 460)}{528} \text{ x K factor}$$

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name Bayside Power Project

Date: 4/23/2003

Test Run #: IA - NH_3 - 4

point	clock	DGM	ΔP	ΔH	Stack	Probe	Filter	Last Impinger	DGM in/out	Line Vacuum
#	time	reading	"H2O	" H2O	Temp °F	Temp °F	Temp °F	Temp °F	Temp °F	" Hg
3-1	16:17:30	408.157	.86	.71	252	253	260	60	87/87 | 87	5.2
3-2	16:20	409.451	.85	.70	253	254	260	61	87/87 | 87	5.1
3-3	16:22:30	410.738	.89	.73	253	258	260	61	87/86 | 86.5	5.4
3-4	16:25	412.045	.93	.77	252	254	256	63	87/87 | 87	5.6
3-5	16:27:30	413.381	.90	.74	251	256	253	62	87/86 | 86.5	5.5
3-6	16:30	414.691	.65	.53	246	251	253	64	87/86 | 86.5	4.0
~~3-7~~ End	16:32:30	415.831								
3-										
4-1	16:35	415.837	.93	.76	252	254	255	63	86/86 | 86	~~4.0 5.7~~ 6.0
4.2	16:37:30	417.158	1.0	.82	251	255	257	61	86/86 | 86	6.7
43	16:40	418.523	1.05	.86	251	254	259	61	86/86 | 86	6.8
4-4	16:42:30	419.921	1.15	.95	251	256	257	62	86/86 | 86	8.2
4-5	16:45	421.387	1.1	.96	249	253	255	60	86/86 | 86	7.7
4-6	16:47:30	422.813	.85	.70	247	252	251	60	86/86 | 86	6.0
End	16:50	424.108	—	—	—	—	—	—	—	—
Totals or Avgs.			0.99	0.81	250.1	—	—	—	86.9	—

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K \text{ factor}$$

Testing by Cubix Corporation, Austin, TX

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Circular Stack Sampling Traverse Point Layout

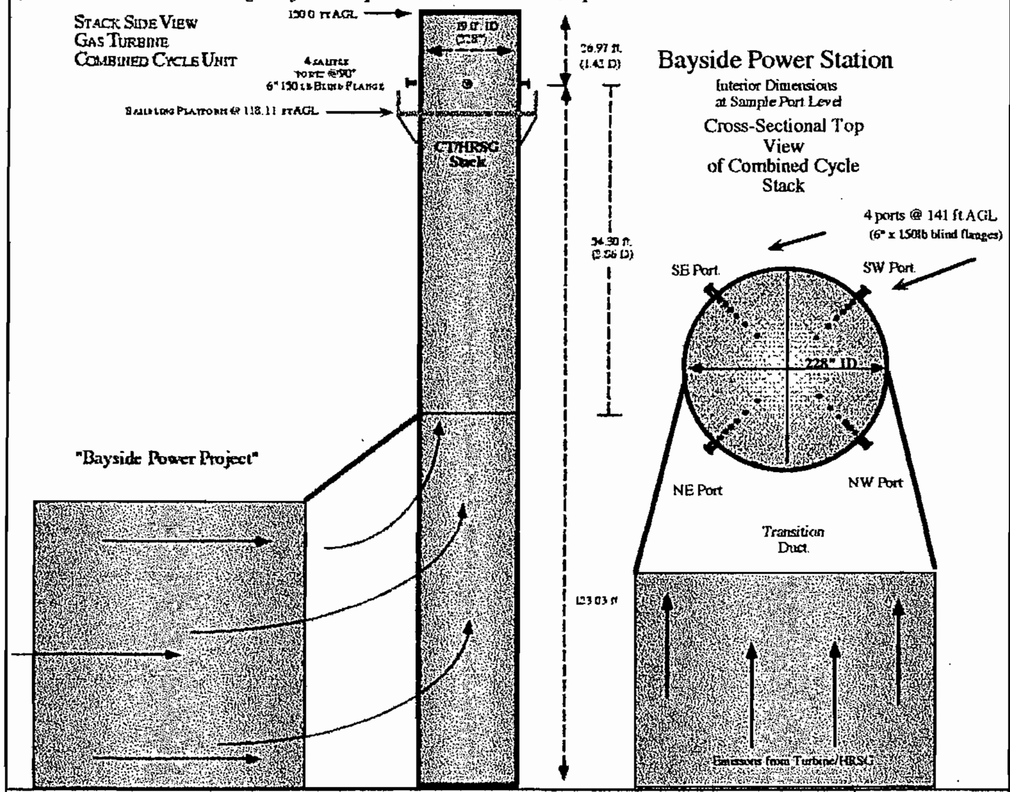
(EPA Method 1, Part 75/60 Stratification Traverse Points)

Date: April 16th, 2003
Client: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1B, a GE Frame 7FA
Technician(s): LJB, RPO, JTH, JT

Port + Stack ID (in): 242.50
Port Extension (in): 14.5
Stack ID (in): 228.00
Stack Area (ft^2): 283.52
Duct Diameters **upstream** from flow disturbance (A): 1.42
Duct Diameters **downstream** from flow disturbance (B): 2.86
Total Required Traverse Points: 12
No. of Traverse Points per Diameter: 6
No. of Traverse Points per Sample Port: 3

Stack Diagram

(Draw side view showing major components, dimensions, upstream/downstream flow disturbances)



CEMS Information

Spetrum CEMS Package

DAHS Model 20/20, S/N 9G10W11
Thermo Environmental NO_X Analyzer Model 42CLS, S/N 42CLS-72742-371
Thermo Environmental CO Analyzer Model 48C, S/N 48C-73423-373
Siemens CO_2 Analyzer, Model Ultramat 6E, S/N F-Nr-N1-Nd-0870
M&C Gas Extraction Probe, Model EXT, S/N 8150-126570

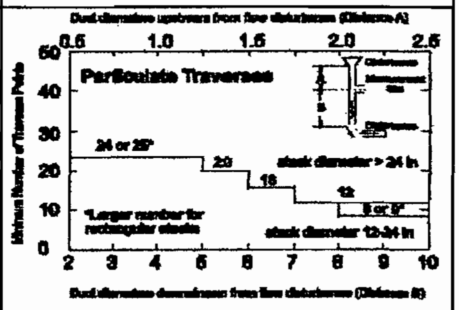
Unit Information

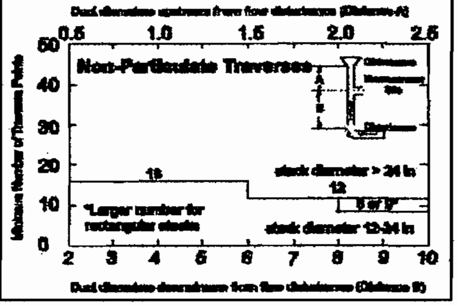
General Electric Power Systems

Combined Cycle Model PG7241(FA) Combustion Gas Turbine Generator Set equipped with an unfired HRSG.
NO_X Control Technology: DLN Combustion Technology and an SCR unit with ammonia injection.
CT Serial No. 297827
Nominally rated to produce 169-MW of shaft-driven electrical power.
Nominally permitted to fire with 1842 MMBtu/hr (HHV) Natural Gas @ 59°F.

Traverse Point Number	Number of Traverse Points on a Diameter				*Calculated Traverse Point	*Traverse Point with Port Extension
	4	6	8	12		
1	6.7	4.4	3.2	2.1	10.03	24.53
2	25.0	14.6	10.5	6.7	33.29	47.79
3	75.0	29.6	19.4	11.8	67.49	81.99
4	93.3	70.4	32.3	17.7		
5		85.4	67.7	25.0		
6		95.6	80.6	35.6		
7			89.5	64.4		
8			96.8	75.0		
9				82.3		
10				88.2		
11				93.3		
12				97.9		

Stack diameters > 24 in shall have no traverse points located within 1-inch of the stack wall
Stack diameters ≤ 24 in shall have no traverse points located within 0.5-inch of the stack wall





Testing by Cubix Corporation - Gainesville, Florida

Bayside Power Station, Unit 1B Stratification Test

Run Number	Date	Time	CO	CO2	Point	AVE CO	AVE CO2	CO	CO2
			(ppmv)	(% vol)	Number	(ppmv)	(% vol)	% Diff	% Diff
START Run 1B-Strat, SE Port	4/16/03	13:43:01	0.58	4.04					
Run 1B-Strat, SE Port	4/16/03	13:44:01	0.53	4.02					
Run 1B-Strat, SE Port	4/16/03	13:45:01	0.53	4.02					
Run 1B-Strat, SE Port	4/16/03	13:46:01	0.55	4.02					
Run 1B-Strat, SE Port	4/16/03	13:47:01	0.56	4.05	1	0.55	4.03	-5.64%	1.15%
Run 1B-Strat, SE Port	4/16/03	13:48:01	0.54	4.03					
Run 1B-Strat, SE Port	4/16/03	13:49:01	0.53	4.04					
Run 1B-Strat, SE Port	4/16/03	13:50:01	0.54	4.05					
Run 1B-Strat, SE Port	4/16/03	13:51:01	0.51	4.05	2	0.53	4.04	-1.80%	0.85%
Run 1B-Strat, SE Port	4/16/03	13:52:01	0.56	4.05					
Run 1B-Strat, SE Port	4/16/03	13:53:01	0.56	4.05					
Run 1B-Strat, SE Port	4/16/03	13:54:01	0.60	4.06					
END Run 1B-Strat, SE Port	4/16/03	13:55:01	0.57	4.07	3	0.57	4.06	-9.96%	0.48%
START Run 1B-Strat, NE Port	4/16/03	14:01:02	0.51	4.07					
Run 1B-Strat, NE Port	4/16/03	14:02:02	0.50	4.09					
Run 1B-Strat, NE Port	4/16/03	14:03:02	0.48	4.08					
Run 1B-Strat, NE Port	4/16/03	14:04:02	0.49	4.07					
Run 1B-Strat, NE Port	4/16/03	14:05:02	0.50	4.08	4	0.50	4.08	4.73%	-0.02%
Run 1B-Strat, NE Port	4/16/03	14:06:02	0.47	4.08					
Run 1B-Strat, NE Port	4/16/03	14:07:02	0.47	4.08					
Run 1B-Strat, NE Port	4/16/03	14:08:02	0.53	4.07					
Run 1B-Strat, NE Port	4/16/03	14:09:02	0.49	4.08	5	0.49	4.08	5.89%	-0.01%
Run 1B-Strat, NE Port	4/16/03	14:10:02	0.48	4.08					
Run 1B-Strat, NE Port	4/16/03	14:11:02	0.55	4.08					
Run 1B-Strat, NE Port	4/16/03	14:12:02	0.51	4.08					
END Run 1B-Strat, NE Port	4/16/03	14:13:02	0.49	4.08	6	0.51	4.08	2.53%	-0.07%
START Run 1B-Strat, NW Port	4/16/03	14:18:03	0.52	4.07					
Run 1B-Strat, NW Port	4/16/03	14:19:03	0.49	4.08					
Run 1B-Strat, NW Port	4/16/03	14:20:03	0.48	4.09					
Run 1B-Strat, NW Port	4/16/03	14:21:03	0.52	4.10					
Run 1B-Strat, NW Port	4/16/03	14:22:03	0.53	4.08	7	0.51	4.08	2.43%	-0.17%
Run 1B-Strat, NW Port	4/16/03	14:23:03	0.56	4.08					
Run 1B-Strat, NW Port	4/16/03	14:24:03	0.51	4.08					
Run 1B-Strat, NW Port	4/16/03	14:25:03	0.51	4.08					
Run 1B-Strat, NW Port	4/16/03	14:26:03	0.49	4.10	8	0.52	4.09	0.61%	-0.20%
Run 1B-Strat, NW Port	4/16/03	14:27:03	0.50	4.08					
Run 1B-Strat, NW Port	4/16/03	14:28:03	0.53	4.10					
Run 1B-Strat, NW Port	4/16/03	14:29:03	0.48	4.08					
END Run 1B-Strat, NW Port	4/16/03	14:30:03	0.54	4.08	9	0.51	4.09	1.57%	-0.20%
START Run 1B-Strat, SW Port	4/16/03	14:35:30	0.50	4.08					
Run 1B-Strat, SW Port	4/16/03	14:36:30	0.54	4.08					
Run 1B-Strat, SW Port	4/16/03	14:37:30	0.54	4.08					
Run 1B-Strat, SW Port	4/16/03	14:38:30	0.52	4.08					
Run 1B-Strat, SW Port	4/16/03	14:39:30	0.55	4.07	10	0.53	4.08	-1.80%	-0.02%
Run 1B-Strat, SW Port	4/16/03	14:40:30	0.58	4.09					
Run 1B-Strat, SW Port	4/16/03	14:41:30	0.50	4.07					
Run 1B-Strat, SW Port	4/16/03	14:42:30	0.54	4.07					
Run 1B-Strat, SW Port	4/16/03	14:43:30	0.52	4.08	11	0.54	4.08	-2.76%	-0.01%
Run 1B-Strat, SW Port	4/16/03	14:44:30	0.52	4.07					
Run 1B-Strat, SW Port	4/16/03	14:45:30	0.55	4.06					
Run 1B-Strat, SW Port	4/16/03	14:46:30	0.52	4.07					
END Run 1B-Strat, SW Port	4/16/03	14:47:30	0.56	4.07	12	0.54	4.07	-3.24%	0.23%
					Averages	**0.52**	**4.08**		
							Short Measurement Line Status:	**PASS**	**PASS**

Note: Sampling may be conducted from a the short measurement line if the results of the stratification test are as follows: either the stratification test shows that the concentration at each individual traverse point differs by no more than ±10% from the arithmetic average concentration for all points .

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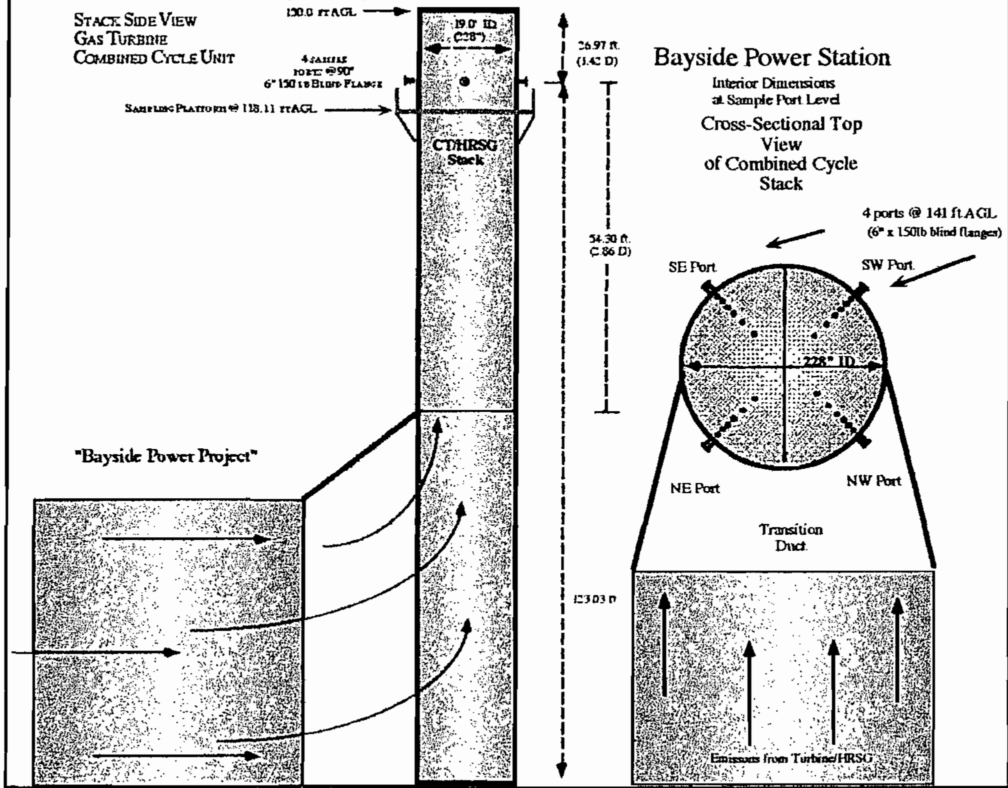
Circular Stack Sampling Traverse Point Layout
(EPA Method 1, NH3 Sampling Traverse Point Locations)

Date: April 16th, 2003
Client: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1B, a GE Frame 7FA
Technician(s): LJB, RPO, JTH, JT

Port + Stack ID (in): 242.50
Port Extension (in): 14.5
Stack ID (in): 228.00
Stack Area (ft^2): 283.52
Duct Diameters **upstream** from flow disturbance (A): 1.42
Duct Diameters **downstream** from flow disturbance (B): 2.86
Total Required Traverse Points: 24
No. of Traverse Points per Diameter: 12
No. of Traverse Points per Sample Port: 6

Stack Diagram

(Draw side view showing major components, dimensions, upstream/downstream flow disturbances)



CEMS Information

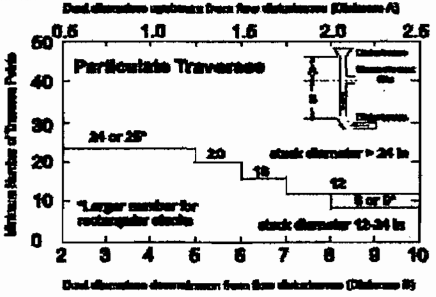
Spetrum CEMS Package
DAHS Model 20/20, S/N 9G10W11
Thermo Environmental NO$_X$ Analyzer Model 42CLS, S/N 42CLS-72742-371
Thermo Environmental CO Analyzer Model 48C, S/N 48C-73423-373
Siemens CO$_2$ Analyzer, Model Ultramat 6E, S/N F-Nr-N1-Nd-0870
M&C Gas Extraction Probe, Model EXT, S/N 8150-126570

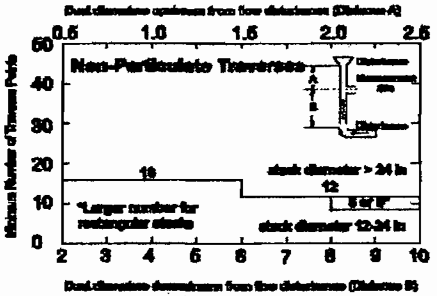
Unit Information

General Electric Power Systems
Combined Cycle Model PG7241(FA) Combustion Gas Turbine Generator Set equipped with an unfired HRSG.
NO$_X$ Control Technology: DLN Combustion Technology and an SCR unit with ammonia injection.
CT Serial No. 297827
Nominally rated to produce 169-MW of shaft-driven electrical power.
Nominally permitted to fire with 1842 MMBtu/hr (HHV) Natural Gas @ 59°F.

Traverse Point Number	Number of Traverse Points on a Diameter				*Calculated Traverse Point	*Traverse Point with Port Extension
	4	6	8	12		
1	6.7	4.4	3.2	2.1	4.79	19.29
2	25.0	14.6	10.5	6.7	15.28	29.78
3	75.0	29.6	19.4	11.8	26.90	41.40
4	93.3	70.4	32.3	17.7	40.36	54.86
5		85.4	67.7	25.0	57.00	71.50
6		95.6	80.6	35.6	81.17	95.67
7			89.5	64.4		
8			96.8	75.0		
9				82.3		
10				88.2		
11				93.3		
12				97.9		

**Stack diameters > 24 in shall have no traverse points located within 1-inch of the stack wall*
**Stack diameters ≤ 24 in shall have no traverse points located within 0.5-inch of the stack wall*





EPA CTM-027: Iso-kinetics, Velocity, Molecular Weight, Moisture, and Flow Rates

UNIT IDENTIFICATION	**100 load**	**Unit 1B**		
RUN NUMBER	**Prelim.**	**1B-NH3-1**	**1B-NH3-2**	**1B-NH3-3**
Date	4/16/03	4/17/03	4/17/03	4/17/03
Start Time (24 hour basis)	14:42	07:02	08:50	10:35
Stop Time (24 hour basis)	15:44	08:14	10:02	11:48
Stack Gas Moisture & Molecular Weight Data				
O_2 (% volume, dry basis)	13.83	13.75	13.77	13.78
CO_2 (% volume, dry basis)	4.10	4.13	4.13	4.10
Beginning Meter Reading (ft^3)	988.303	86.303	120.124	155.560
Ending Meter Reading (ft^3)	1018.900	119.821	154.881	188.770
Beginning Impinger Weight (g)	2356.4	2416.9	2416.6	2420.8
Ending Impinger Weight (g)	2412.9	2486.1	2487.7	2493.7
Dry Gas Meter Factor (Y)	1.0157	1.0157	1.0157	1.0157
Dry Gas Meter Temperature (°F, average)	105.25	94.5	107.9	96.8
Atmospheric Pressure ("Hg absolute, P_{bar})	29.92	29.80	29.80	29.79
Stack Gas Moisture (% volume)	8.38	9.17	9.28	9.73
Dry Gas Fraction	0.916	0.908	0.907	0.903
Stack Gas Molecular Wt. (lbs/lb-mole, M_s)	28.27	28.18	28.17	28.12
Velocity and Volumetric Flow Rate Data				
ΔP #1	0.90	0.99	1.00	0.97
ΔP #2	0.94	1.20	1.10	1.05
ΔP #3	1.15	1.30	1.30	1.25
ΔP #4	1.25	1.40	1.40	1.45
ΔP #5	1.27	1.50	1.40	1.30
ΔP #6	0.96	1.10	1.05	0.90
ΔP #7	0.80	0.82	0.80	0.83
ΔP #8	0.79	0.88	0.82	0.92
ΔP #9	0.91	0.93	0.95	1.00
ΔP #10	0.94	1.05	0.95	1.05
ΔP #11	1.00	1.00	0.93	1.00
ΔP #12	0.82	0.80	1.05	0.80
ΔP #13	0.86	0.80	0.87	0.84
ΔP #14	0.90	0.85	0.86	0.85
ΔP #15	0.89	0.93	0.99	0.95
ΔP #16	1.05	0.95	1.00	0.93
ΔP #17	1.05	0.94	1.05	0.91
ΔP #18	0.80	0.75	0.78	0.68
ΔP #19	0.90	0.90	0.95	0.92
ΔP #20	1.05	1.10	1.05	1.05
ΔP #21	1.15	1.20	1.20	1.15
ΔP #22	1.30	1.40	1.50	1.30
ΔP #23	1.30	1.45	1.30	1.25
ΔP #24	0.90	0.95	1.25	0.87
Pitot Tube Coefficient (C_p)	0.84	0.84	0.84	0.84
Sum of Square Root of Vertical Component	23.87	24.46	24.66	24.01
Number of Traverse Points	24	24	24	24
Average Square Root of ΔP's	0.9944	1.0192	1.0275	1.0006
Average Stack Temperature (°F)	229.5	235.4	236.6	236.8
Static Pressure (" H_2O)	-0.62	-0.57	-0.88	-0.69
Stack Diameter (inches)	228	228	228	228
Stack Area (ft^2)	283.53	283.53	283.53	283.53
Stack Velocity (ft/sec @ stack conditions, V_s)	64.52	66.65	67.28	65.59
Stack Velocity (ft/min @ stack conditions)	3871	3999	4037	3935
Stack Flow,wet (ACFM)	1097639	1133794	1144580	1115755
Stack Flow, dry (SCFH, Q_{sd})	**4.61E+07**	**4.67E+07**	**4.69E+07**	**4.55E+07**
Stack Flow, wet (SCFH)	**5.04E+07**	**5.14E+07**	**5.17E+07**	**5.04E+07**
Method 5 Nozzle Selection, K Factor, and Isokinetic Data				
Stack Velocity, dry (SFM)	**2712**	**2743**	**2759**	**2676**
Target Sampling Rate (SCFM, 0.40-0.75)	**0.543**			
Target Nozzle Area (Ft^2)	**0.000200**			
Selected Nozzle Number (xx/32")	6	6A	6B	6A
Actual Nozzle Area (Ft^2, A_n)	0.0002004	0.0001983	0.0001983	0.0001983
No. of M-5 Traverse Points	24			
Minutes per point (min.)	2.5			
Total Sampling Time (min., must be >60 min., Ø)	60	60	60	60
Expected Total Sample Vol. (SCF, must be >30 SCF)	32.60			
Sampling Rate (SCFM) (using actual nozzle)	**0.543**	**0.544**	**0.547**	**0.531**
$\Delta H_@$ ("H_2O Target, see Meter Box Calib Curve)	**0.80**			
Average ΔH@ ("H_2O, actual from meter box)	1.7	**0.86**	**0.89**	**0.83**
K-Factor (ΔH/ΔP)	**0.80**			
Sample volume at STP (DSCF, $V_{m(std)}$)	**29.139**	**32.337**	**32.756**	**31.901**
% Isokinetic (must be 90-110%, I)		**99.2**	**99.9**	**100.3**

MOISTURE & VELOCITY FIELD DATA SHEET

Date: 04-16-03
Plant: Bayside Power Project
Source: Unit 1B
Technicians: JH, LB, RO, JT.
Atm. Pressure: 29.92 " Hg (Pb)
Test Run No.: Prelim

Dry Gas Meter ID: Meter Box E
Dry Gas Meter Factor: 1.0157 (Kd)
Pitot Tube No/Type: 9' M-5 probe with 3/8" S.S S-Type
Pitot Tube Factor: 0.84
Static Pressure: -0.62 "H_2O (Pg)
Ave. Stack Temp. 229.5 °F (Ts)

Collection Data

Sample Box	E-1	
Leak Check ≤ 0.02 ft^3/min		
Pre-Test Leak Check	0.000 ft^3/min 23.5 "Hg Vac.	
Post-Test Leak Check	0.000 ft^3/min 18 "Hg Vac.	
	Initial	Final
Time	14:42	15:44
DGM Reading (ft^3 or L)	988.303	018.900
DGM Average Temp (°F)	104.5	106
Last Impinger Temp. (°F)	60	60
DGM Flow Rate	ΔH = 1.7	ΔH = 1.7
O_2 (% vol.)		
CO_2 (% vol.)		

Velocity System Leak Check

Leak Check ≤ 0.1 "H_2O/min at a pressure ≥ 3.0 "H_2O			
	+	−	
Pre-Test Leak Check	0.0	0.0	"H_2O/min
	4.1	3.9	"H_2O Pres.
	+	−	
Post-Test Leak Check	0.0	0.0	"H_2O/min
	3.5	3.6	"H_2O Pres.

Impingment System

Impinger	Contents	Initial Weight	Final Weight
1	D.H_2O	613.2	656.4
2	D.H_2O	623.3	627.4
3	MT	505.2	506.0
4	Sibel	614.7	623.1
5			
6			
Totals		2356.4	2412.9

Velocity Traverse Data
with Stack Temperature and Cyclonic Flow Check

Point	ΔP ("H_2O)	°F	α	Point	ΔP ("H_2O)	°F	α
1-1	.90	224	0	3-1	0.86	232	2
1-2	.94	227	11	3-2	0.90	233	4
1-3	1.15	225	5	3-3	0.89	233	15
1-4	1.25	225	15	3-4	1.05	233	16
1-5	1.27	225	12	3-5	1.05	234	18
1-6	0.96	225	3	3-6	.80	233	5
2-1	.80	230	11	4-1	.90	233	0
2-2	.79	231	8	4-2	1.05	231	6
2-3	.94	230	12	4-3	1.15	230	15
2-4	.94	230	18	4-4	1.30	230	15
2-5	1.0	231	10	4-5	1.30	229	12
2-6	.82	229	4	4-6	0.90	225	4

2:42
2:54
2:58
15:10

15:1
15:3
15:44

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT
Date: 04-17-03
Source: Unit 1B
Technicians: LJB, JT, RPO, JH
Probe Size: 8' | Filter #: 63 | Box #: E2
Time Start: 07:02 | Run #: 1B-NH_3-1
Time Stop: 08:14 | ~~Probe~~ Size: 64, 0.0001983
Pretest Leak Check: 0.000 ft^3/minute @ 15 "Hg Vacuum
Post Test Leak Check: 0.000 ft^3/minute @ 15 "Hg Vacuum
Meter Reading (initial): 086.303 (final): 119.821

Stack Height: 150'
Stack Diameter: 288"
Stack Moisture (% by Vol.): 9.17
ATM Pressure: 29.80
K Factor: .781
PTCF: 0.84

DGM #: Meter Box E
DGMCF: 1.0157
Mol. Wt.: 28.18
Static Pressure: - 0.57
Sample Time: 60 min / 2.5 min per point
#/Sample PTS.: 24

Oxygen and Carbon Dioxide Concentrations (M-3a)
O_2: 13.75 % volume
CO_2: 4.13 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGEL		Total
Initial Wt. (g)	634.4	625.0	523.1	634.4		2416.9
Final Wt. (g)	691.7	631.8	524.9	637.7		2486.1

Pitot Tube Leak Check	+	-			
(pretest)	0.0051	0.0047	" H_2O	1	minutes:
(post test)	0.0041	0.0044	" H_2O	1	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
1-1	7:02	086.303	.99	.79	237	240	243	66	85/82 | 83.5	6.0
1-2	7:04:30	087.639	1.20	.96	237	241	237	60	86/82 | 84	7.3
1-3	7:07	089.067	1.30	1.05	235	240	237	58	87/85 | 86	8.0
1-4	7:09:30	090.567	1.40	1.13	235	236	240	57	86/87 | 86.5	8.5
1-5	7:12	092.118	1.50	1.22	234	237	242	57	89/88 | 88.5	9.0
1-6	7:14:30	093.683	1.1	.89	231	236	242	57	90/89 | 89.5	7.5
End	7:17	095.150	—	—	—	—	—	—	—	—
2-1	7:22	095.150	.82	.66	237	239	240	61	89/86 | 87.5	5.0
2-2	7:24:30	096.416	.88	.72	237	239	241	59	92/90 | 91	5.3
2-3	7:27	097.684	.93	.76	237	241	240	58	92/92 | 92	5.7
2-4	7:29:30	099.022	1.05	.86	237	238	242	58	93/93 | 93	6.5
2-5	7:32	100.425	1.0	.82	236	240	239	57	95/94 | 94.5	6.3
2-6	7:34:30	101.808	.80	.66	235	236	241	58	95/96 | 95.5	5.0
End	7:37	103.086	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \text{ x } \frac{(\text{Tdgm} + 460)}{528} \text{ x K factor}$$

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name Bayside Power

Date: 4-17-03

Test Run #: 1B - NH_3 - 1

point	clock	DGM	ΔP	ΔH	Stack	Probe	Filter	Last Impinger	DGM in/out	Line Vacuum
#	time	reading	"H2O	" H2O	Temp °F	Temp °F	Temp °F	Temp °F	Temp °F	" Hg
3-1	07:41	103.086	.80	.66	237	240	239	61	95/97/ 96	4.8
3-2	07:43:30	104.335	.85	.70	237	237	237	58	98/97/ 97.5	5.0
3-3	07:46	105.625	.93	.77	237	237	239	57	99/97/ 98	5.5
3-4	07:48:30	106.951	.95	.78	237	239	240	58	100/97/ 98.5	5.6
3-5	07:51	108.311	.94	.78	237	238	240	57	101/99/ 100	5.6
3-6	07:53:30	109.680	.75	.62	236	237	239	57	101/100/100.5	4.8
End	07:56	110.927	—	—	—	—	—	—	—	—
4-1	07:59:30	110.927	.90	.74	235	236	240	61	99/99 / 99	5.3
4-2	08:02	112.255	1.1	.91	236	239	242	57	102/99 /100.5	7.0
4-3	08:04:30	113.693	1.2	.99	235	238	241	57	102/99 /100.5	7.5
4-4	08:07	115.200	1.4	1.16	233	237	240	56	103/100 / 101.5	8.5
4-5	08:09:30	116.799	1.45	1.20	232	240	240	57	104/101 /102.5	9.0
4-6	08:12	118.419	.95	.79	229	237	239	57	104/102 \ 103	6.2
End	08:14:30	119.821	—	—	—	—	—	—	—	—
Totals or Avgs.		~	1.02	0.86	235.4				94.5	

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation, Austin, TX

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT
Date: 4-17-03
Source: Unit 1B
Technicians: LB, RO, VT, VH
Probe Size: 8' | Filter #: 64 | Box #: E-2
Time Start: 08:50 | Run #: 1B-NH3-2
Time Stop: 10:02 | ~~Probe~~ Size: 6B, 0.0001983
Pretest Leak Check: 0.000 ft³/minute @ 15" "Hg Vacuum
Post Test Leak Check: 0.000 ft³/minute @ 13" "Hg Vacuum
Meter Reading (initial): 120.124 (final): 154.881

Stack Height: 150'
Stack Diameter: 228"
Stack Moisture (% by Vol.): 9.28
ATM Pressure: 29.80
K Factor: .78
PTCF: 0.84

DGM #: Meter Box E
DGMCF: 1.0157
Mol. Wt.: 28.17
Static Pressure: -0.88
Sample Time: 60 min / 2.5 min per point
#/Sample PTS.: 24 points

Oxygen and Carbon Dioxide Concentrations (M-3a)
O_2: 13.77 % volume
CO_2: 4.13 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGEL		total
Initial Wt. (g)	627.1	623.2	527.6	638.7		2416.6
Final Wt. (g)	683.3	631.9	529.4	643.1		2487.7

Pitot Tube Leak Check				
	+	-		
(pretest)	0.0065	0.0058	" H_2O 1	minutes:
(post test)	0.005.3	0.006.1	" H_2O 1	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
4-1	08:50	120.124	1.0	.84	236	241	240	60	105/108 | 106.5	6.7
4-2	08:52:30	121.557	1.1	.92	237	239	237	60	107/107 | 107	7.0
4-3	08:55	123.030	1.3	1.09	236	243	237	61	107/109 | 108	8.0
4-4	08:57:30	124.558	1.4	1.17	236	239	241	61	107/107 | 107	8.8
4-5	09:00	126.167	1.4	1.17	235	239	241	60	105/107 | 106	8.8
4-6	09:02:30	127.773	1.05	.88	233	234	240	60	108/106 | 107	7.5
End	09:05	129.278	—	—	—	—	—	—	—	—
3-1	09:07:30	129.278	.80	.67	237	238	237	61	107/110 | 108.5	5.0
3-2	09:10	130.584	.82	.69	239	239	241	58	107/106 | 106.5	5.1
3-3	09:12:30	131.880	.95	.80	237	241	241	59	107/106 | 106.5	5.9
3-4	09:15	133.247	.95	.80	239	239	239	59	108/107 | 107.5	5.9
3-5	09:17:30	134.620	.93	.79	237	237	237	59	108/105 | 106.5	5.8
3-6	09:20	136.613	1.05	.88	237	241	240	59	108/107 | 107.5	6.3
End	09:22:30	137.565	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \times \frac{(Tdgm + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAyside Power Project
Date: 4-17-03
Test Run #: 1B-NH_3-2

point	clock	DGM	ΔP	ΔH	Stack	Probe	Filter	Last Impinger	DGM in/out	Line Vacuum
#	time	reading	"H2O	" H2O	Temp °F	Temp °F	Temp °F	Temp °F	Temp °F	" Hg
2-1	9:28	137.565	.87	.73	237	240	239	64	107/106 | 106.5	5.1
2-2	9:30:30	138.913	.86	.72	239	243	243	61	108/111 | 109.5	5.1
2-3	9:33	140.224	.99	.83	239	239	240	64	108/109 | 108.5	5.6
2-4	9:35:30	141.598	1.0	.84	239	241	238	63	108/107 | 107.5	6.0
2-5	9:38	143.021	1.05	.88	236	240	239	64	108/108 | 108	6.5
2-6	9:40:30	144.457	.78	.66	235	241	237	64	109/111 | 110	5.0
End	9:43	145.752	—	—	—	—	—	—	—	—
1-1	09:47	145.752	.95	.80	236	239	237	65	107/108 | 107.5	5.4
1-2	09:49:30	147.127	1.05	.88	236	239	238	66	109/111 | 110	6.5
1-3	09:52	148.553	1.2	1.01	237	240	237	65	109/107 | 108	7.5
1-4	09:54:30	150.080	1.5	1.26	235	239	237	64	109/110 | 109.5	8.7
1-5	09:57	151.697	1.3	1.09	234	234	235	64	110/110 | 110	8.5
1-6	09:59:30	153.300	1.25	1.05	235	238	235	63	109/109 | 109	8.1
End	10:02	154.881	—	—	—	—	—	—	—	—
Totals or Avgs.		—	1.06	0.89	236.6	—	—	—	107.9	—

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times \text{K factor}$$

Testing by Cubix Corporation, Austin, TX

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT			Stack Height: 150'	DGM #: METER BOX E	
Date: 04-17-03			Stack Diameter: 228"	DGMCF: 1.0157	
Source: UNIT 1B			Stack Moisture (% by Vol.): 9.73	Mol. Wt.: 28.12	
Technicians: LB, JT, RO, JH			ATM Pressure: 29.79	Static Pressure: -.69	
Probe Size: 8'	Filter #: 65	Box #: E2	K Factor: .78	Sample Time: 60 min (2.5 min/per point)	
Time Start: 10:35	Run #: 1B-NH3-3		PTCF: 0.84	#/Sample PTS.: 24 points	
Time Stop: 11:48	~~Probe~~ Nozzle Size: 6H, 0.0001983				

Pretest Leak Check: 0.000 ft³/minute @ 17 "Hg Vacuum

Post Test Leak Check: 0.000 ft³/minute @ "Hg Vacuum

Meter Reading (initial): 155.560 (final): 188.770

Oxygen and Carbon Dioxide Concentrations (M-3a)

O_2: 13.78 % volume

CO_2: 4.10 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGEL		Total
Initial Wt. (g)	634.5	625.0	524.9	636.4		2420.9
Final Wt. (g)	692.6	632.3	526.2	642.6		2493.7

Pitot Tube Leak Check					
	+	-			
(pretest)	0.0010.0	0.0041.6	" H_2O	1	minutes:
(post test)	0.005-6	0.006.3	" H_2O	1	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
1-1	10:35	155.560	0.97	.80	237	239	240	60	100/96 | 98	6.0
1-2	10:37:30	157.016	1.05	.86	236	243	239	60	99/95 | 97	6.3
1-3	10:40	158.423	1.25	1.03	235	243	237	60	99/96 | 97.5	7.5
1-4	10:42:30	159.933	1.45	1.19	235	240	235	60	99/95 | 97	8.2
1-5	10:45	161.517	1.30	1.07	235	240	235	60	100/95 | 97.5	8.1
1-6	10:47:30	163.074	.90	.74	233	240	235	59	100/95 | 97.5	5.3
End	10:50	164.417	—	—	—	—	—	—	—	—
2-1	10:55	164.417	.83	.68	239	243	239	62	99/96 | 97.5	4.8
2-2	10:57:30	165.684	.92	.76	239	240	241	60	99/94 | 96.5	5.3
2-3	11:00	167.006	1.0	.82	239	241	239	60	99/94 | 96.5	6.0
2-4	11:02:30	168.383	1.05	.86	239	240	243	60	99/94 | 96.5	6.4
2-5	11:05	169.791	1.0	.82	237	239	240	61	99/95 | 97	6.0
2-6	11:07:30	171.177	.80	.66	235	241	237	61	99/95 | 97	~~3.0~~ 4.8
End	11:10	172.441	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: Bayside Power

Date: 4-17-03

Test Run #: 1B-NH_3-3

point #	clock time	DGM reading	ΔP "H2O	ΔH " H2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
3-1	11:14:30	172.441	.84	.69	239	239	240	61	98/95 | 96.5	5.0
3-2	11:17	173.717	.85	.70	239	240	239	58	98/96 | 97	5.1
3-3	11:19:30	175.001	.95	.78	239	241	239	57	98/95 | 96.5	5.5
3-4	11:22	176.337	.93	.77	239	239	240	57	99/95 | 97	5.5
3-5	11:24:30	177.680	.91	.75	238	238	241	57	99/95 | 97	5.4
3-6	11:27	179.015	.68	.56	235	237	239	58	99/95 | 97	4.2~~4.8~~ HO
End	11:29:30	180.188	—	—	—	—	—	—	—	—
4-1	11:33	180.188	.92	.76	237	241	239	63	98/95 | 96.5	5.0
4-2	11:35:30	181.513	1.05	.86	237	239	240	60	99/93 | 96	6.1
4-3	11:38	182.921	1.15	.94	236	240	237	61	99/93 | 96	6.7
4-4	11:40:30	184.388	1.30	1.07	236	241	239	61	99/93 | 96	7.5
4-5	11:43	185.919	1.25	1.03	235	240	241	62	99/93 | 96	7.5
4-6	11:45:30	187.443	.87	.71	233	239	238	61	99/93 | 96	5.0
End	11:48	188.770	—	—	—	—	—	—	—	—
Totals or Avgs.			1.01	0.83	236.8	—	—	—	96.8	—

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation, Austin, TX

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Circular Stack Sampling Traverse Point Layout

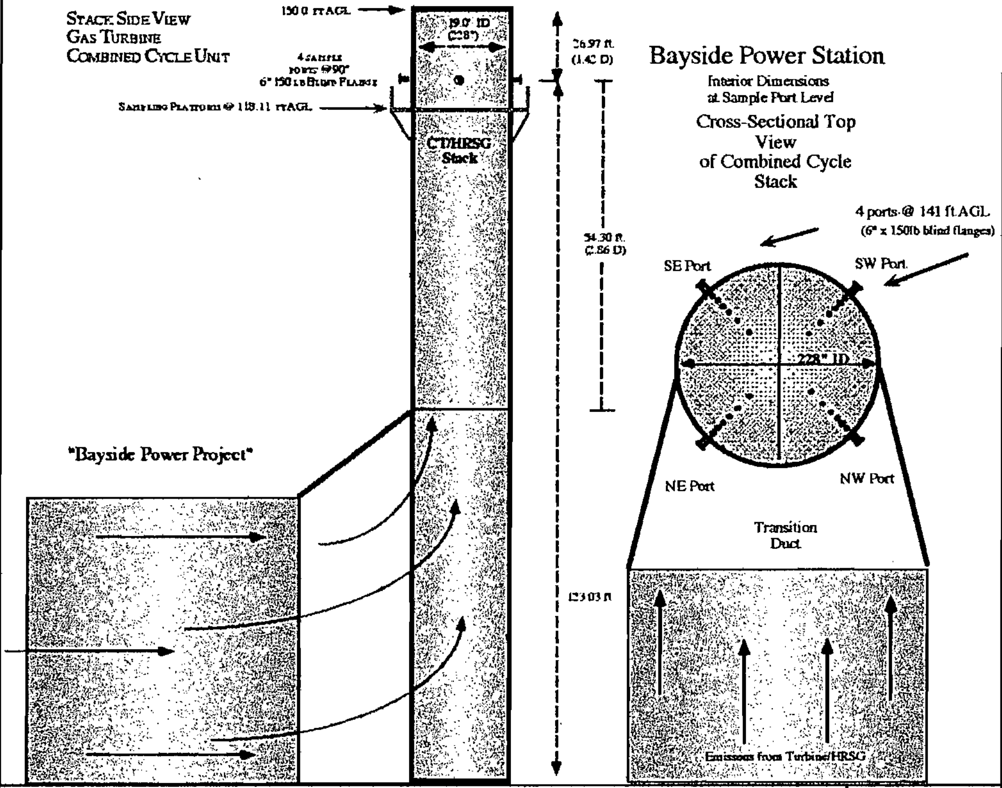
(EPA Method 1, Part 75/60 Stratification Traverse Points)

Date: April 17th, 2003
Client: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1C, a GE Frame 7FA
Technician(s): LJB, RPO, JTH, JT

Port + Stack ID (in):	242.50
Port Extension (in):	14.5
Stack ID (in):	228.00
Stack Area (ft²):	283.52
Duct Diameters **upstream** from flow disturbance (A):	1.42
Duct Diameters **downstream** from flow disturbance (B):	2.86
Total Required Traverse Points:	12
No. of Traverse Points per Diameter:	6
No. of Traverse Points per Sample Port:	3

Stack Diagram

(Draw side view showing major components, dimensions, upstream/downstream flow disturbances)



CEMS Information

Spetrum CEMS Package

DAHS Model 20/20, S/N 9G10W11
Thermo Environmental NO_X Analyzer Model 42CLS, S/N 42CLS-72508-371
Thermo Environmental CO Analyzer Model 48C, S/N 48C-73685-374
Siemens CO_2 Analyzer, Model Ultramat 6E, S/N F-Nr-N1-Nd-0877
M&C Gas Extraction Probe, Model EXT, S/N 8149-126570

Unit Information

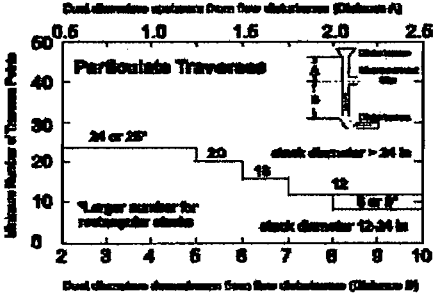
General Electric Power Systems

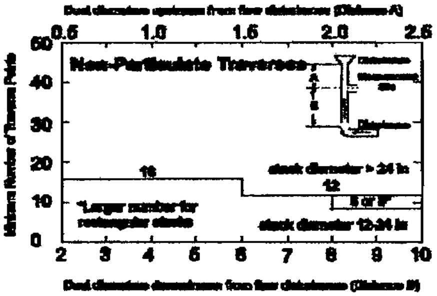
Combined Cycle Model PG7241(FA) Combustion Gas Turbine Generator Set equipped with an unfired HRSG.
NO_X Control Technology: DLN Combustion Technology and an SCR unit with ammonia injection.
CT Serial No. 297828
Nominally rated to produce 169-MW of shaft-driven electrical power.
Nominally permitted to fire with 1842 MMBtu/hr (HHV) Natural Gas @ 59°F.

Traverse Point Number	Number of Traverse Points on a Diameter				*Calculated Traverse Point	*Traverse Point with Port Extension
	4	6	8	12		
1	6.7	4.4	3.2	2.1	10.03	24.53
2	25.0	14.6	10.5	6.7	33.29	47.79
3	75.0	29.6	19.4	11.8	67.49	81.99
4	93.3	70.4	32.3	17.7		
5		85.4	67.7	25.0		
6		95.6	80.6	35.6		
7			89.5	64.4		
8			96.8	75.0		
9				82.3		
10				88.2		
11				93.3		
12				97.9		

**Stack diameters > 24 in shall have no traverse points located within 1-inch of the stack wall*

**Stack diameters ≤ 24 in shall have no traverse points located within 0.5-inch of the stack wall*





Testing by Cubix Corporation - Gainesville, Florida

Bayside Power Station, Unit 1C Stratification Test

Run Number	Date	Time	CO	CO2	Point	AVE CO	AVE CO2	CO	CO2
			(ppmv)	(% vol)	Number	(ppmv)	(% vol)	% Diff	% Diff
START Run 1C-Strat, SE Port	4/17/03	16:59:31	0.63	4.05					
Run 1C-Strat, SE Port	4/17/03	17:00:31	0.61	4.07					
Run 1C-Strat, SE Port	4/17/03	17:01:31	0.59	4.05					
Run 1C-Strat, SE Port	4/17/03	17:02:31	0.61	4.05					
Run 1C-Strat, SE Port	4/17/03	17:03:31	0.64	4.05	1	0.62	4.05	-2.68%	0.48%
Run 1C-Strat, SE Port	4/17/03	17:04:31	0.62	4.05					
Run 1C-Strat, SE Port	4/17/03	17:05:31	0.59	4.05					
Run 1C-Strat, SE Port	4/17/03	17:06:31	0.69	4.05					
Run 1C-Strat, SE Port	4/17/03	17:07:31	0.62	4.05	2	0.63	4.05	-5.01%	0.57%
Run 1C-Strat, SE Port	4/17/03	17:08:31	0.63	4.07					
Run 1C-Strat, SE Port	4/17/03	17:09:31	0.59	4.05					
Run 1C-Strat, SE Port	4/17/03	17:10:31	0.65	4.07					
END Run 1C-Strat, SE Port	4/17/03	17:11:30	0.60	4.07	3	0.62	4.07	-2.93%	0.21%
START Run 1C-Strat, NE Port	4/17/03	17:15:01	0.61	4.05					
Run 1C-Strat, NE Port	4/17/03	17:16:01	0.60	4.05					
Run 1C-Strat, NE Port	4/17/03	17:17:01	0.62	4.05					
Run 1C-Strat, NE Port	4/17/03	17:18:01	0.66	4.05					
Run 1C-Strat, NE Port	4/17/03	17:19:01	0.64	4.05	4	0.63	4.05	-4.34%	0.57%
Run 1C-Strat, NE Port	4/17/03	17:20:01	0.64	4.05					
Run 1C-Strat, NE Port	4/17/03	17:21:01	0.63	4.05					
Run 1C-Strat, NE Port	4/17/03	17:22:01	0.62	4.06					
Run 1C-Strat, NE Port	4/17/03	17:23:01	0.61	4.07	5	0.63	4.06	-4.18%	0.39%
Run 1C-Strat, NE Port	4/17/03	17:24:01	0.66	4.05					
Run 1C-Strat, NE Port	4/17/03	17:25:01	0.65	4.05					
Run 1C-Strat, NE Port	4/17/03	17:26:01	0.66	4.05					
END Run 1C-Strat, NE Port	4/17/03	17:27:00	0.64	4.04	6	0.65	4.05	-8.76%	0.64%
START Run 1C-Strat, NW Port	4/17/03	17:31:31	0.66	4.07					
Run 1C-Strat, NW Port	4/17/03	17:32:31	0.61	4.06					
Run 1C-Strat, NW Port	4/17/03	17:33:31	0.64	4.04					
Run 1C-Strat, NW Port	4/17/03	17:34:31	0.61	4.05					
Run 1C-Strat, NW Port	4/17/03	17:35:31	0.64	4.05	7	0.63	4.05	-5.34%	0.48%
Run 1C-Strat, NW Port	4/17/03	17:36:31	0.59	4.05					
Run 1C-Strat, NW Port	4/17/03	17:37:30	0.59	4.07					
Run 1C-Strat, NW Port	4/17/03	17:38:30	0.63	4.08					
Run 1C-Strat, NW Port	4/17/03	17:39:30	0.60	4.07	8	0.60	4.07	-0.43%	0.14%
Run 1C-Strat, NW Port	4/17/03	17:40:30	0.59	4.08					
Run 1C-Strat, NW Port	4/17/03	17:41:30	0.57	4.08					
Run 1C-Strat, NW Port	4/17/03	17:42:30	0.60	4.08					
END Run 1C-Strat, NW Port	4/17/03	17:43:30	0.54	4.08	9	0.58	4.08	4.16%	-0.16%
START Run 1C-Strat, SW Port	4/17/03	17:46:31	0.58	4.10					
Run 1C-Strat, SW Port	4/17/03	17:47:31	0.55	4.10					
Run 1C-Strat, SW Port	4/17/03	17:48:31	0.56	4.10					
Run 1C-Strat, SW Port	4/17/03	17:49:31	0.51	4.10					
Run 1C-Strat, SW Port	4/17/03	17:50:31	0.57	4.10	10	0.55	4.10	7.66%	-0.65%
Run 1C-Strat, SW Port	4/17/03	17:51:31	0.54	4.09					
Run 1C-Strat, SW Port	4/17/03	17:52:31	0.53	4.12					
Run 1C-Strat, SW Port	4/17/03	17:53:31	0.60	4.11					
Run 1C-Strat, SW Port	4/17/03	17:54:31	0.57	4.10	11	0.56	4.11	6.66%	-0.78%
Run 1C-Strat, SW Port	4/17/03	17:55:31	0.58	4.10					
Run 1C-Strat, SW Port	4/17/03	17:56:31	0.53	4.10					
Run 1C-Strat, SW Port	4/17/03	17:57:31	0.58	4.13					
END Run 1C-Strat, SW Port	4/17/03	17:58:30	0.53	4.10	12	0.56	4.11	7.49%	-0.84%
					Averages	**0.60**	**4.07**		
							Short Measurement Line Status:	**PASS**	**PASS**

Note: Sampling may be conducted from a the short measurement line if the results of the stratification test are as follows: either the stratification test shows that the concentration at each individual traverse point differs by no more than ±10% from the arithmetic average concentration for all points .

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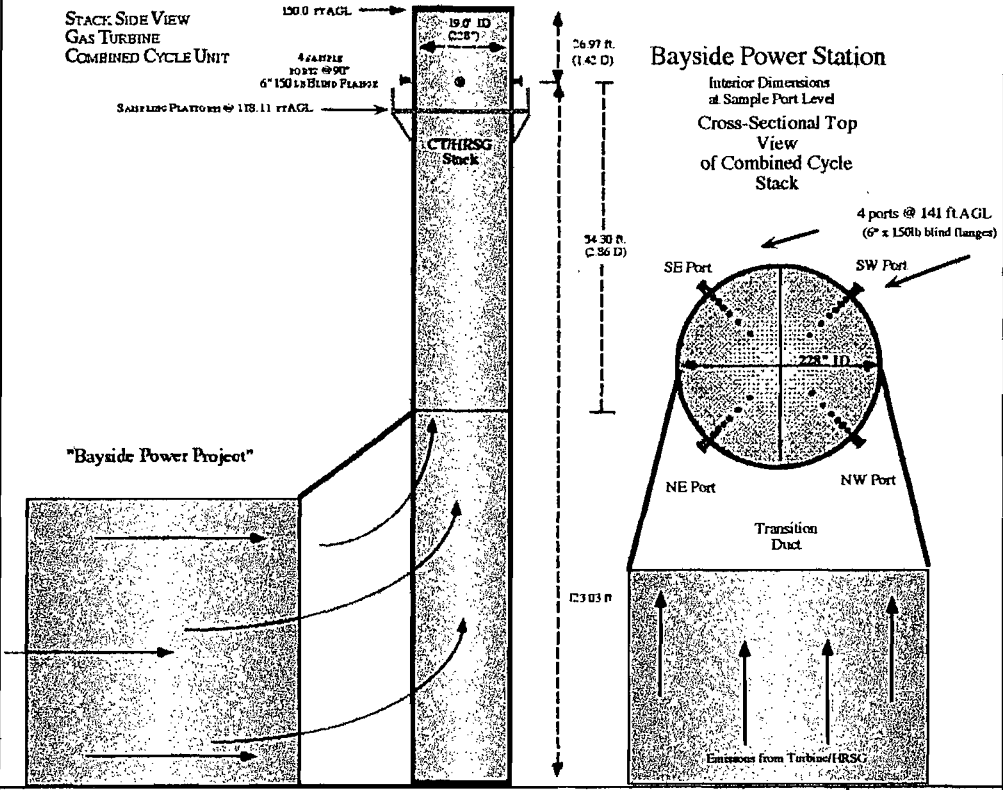
Circular Stack Sampling Traverse Point Layout
(EPA Method 1, NH3 Sampling Traverse Point Locations)

Date: April 17th, 2003
Client: Tampa Electric Company
Plant: Bayside Power Station
Source: Unit 1C, a GE Frame 7FA
Technician(s): LJB, RPO, JTH, JT

Port + Stack ID (in): 242.50
Port Extension (in): 14.5
Stack ID (in): 228.00
Stack Area (ft^2): 283.52
Duct Diameters **upstream** from flow disturbance (A): 1.42
Duct Diameters **downstream** from flow disturbance (B): 2.86
Total Required Traverse Points: 24
No. of Traverse Points per Diameter: 12
No. of Traverse Points per Sample Port: 6

Stack Diagram

(Draw side view showing major components, dimensions, upstream/downstream flow disturbances)



CEMS Information

Spetrum CEMS Package

DAHS Model 20/20, S/N 9G10W11
Thermo Environmental NO_x Analyzer Model 42CLS, S/N 42CLS-72508-371
Thermo Environmental CO Analyzer Model 48C, S/N 48C-73685-374
Siemens CO_2 Analyzer, Model Ultramat 6E, S/N F-Nr-N1-Nd-0877
M&C Gas Extraction Probe, Model EXT, S/N 8149-126570

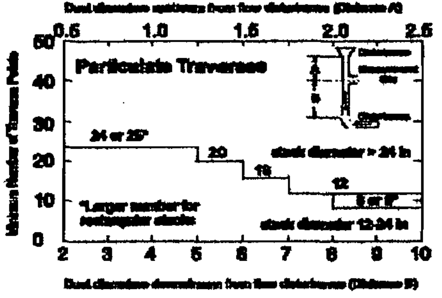
Unit Information

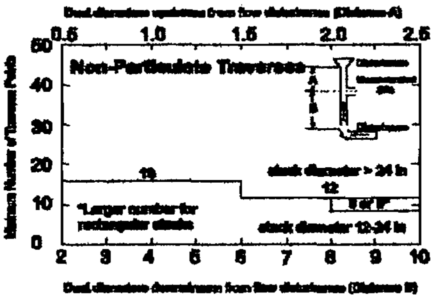
General Electric Power Systems

Combined Cycle Model PG7241(FA) Combustion Gas Turbine Generator Set equipped with an unfired HRSG.
NO_x Control Technology: DLN Combustion Technology and an SCR unit with ammonia injection.
CT Serial No. 297828
Nominally rated to produce 169-MW of shaft-driven electrical power.
Nominally permitted to fire with 1842 MMBtu/hr (HHV) Natural Gas @ 59°F.

Traverse Point Number	Number of Traverse Points on a Diameter				*Calculated Traverse Point	*Traverse Point with Port Extension
	4	6	8	12		
1	6.7	4.4	3.2	2.1	4.79	19.29
2	25.0	14.6	10.5	6.7	15.28	29.78
3	75.0	29.6	19.4	11.8	26.90	41.40
4	93.3	70.4	32.3	17.7	40.36	54.86
5		85.4	67.7	25.0	57.00	71.50
6		95.6	80.6	35.6	81.17	95.67
7			89.5	64.4		
8			96.8	75.0		
9				82.3		
10				88.2		
11				93.3		
12				97.9		

Stack diameters > 24 in shall have no traverse points located within 1-inch of the stack wall
Stack diameters ≤ 24 in shall have no traverse points located within 0.5-inch of the stack wall





Testing by Cubix Corporation - Gainesville, Florida

EPA CTM-027: Iso-kinetics, Velocity, Molecular Weight, Moisture, and Flow Rates

UNIT IDENTIFICATION	**100 load**		**Unit 1C**	
RUN NUMBER	**Prelim.**	**1C-NH3-1**	**1C-NH3-2**	**1C-NH3-3**
Date	4/16/03	4/18/03	4/18/03	4/18/03
Start Time (24 hour basis)	13:43	06:01	07:57	09:41
Stop Time (24 hour basis)	14:47	07:13	09:08	10:53
Stack Gas Moisture & Molecular Weight Data				
O_2 (% volume, dry basis)	13.74	13.69	13.70	13.76
CO_2 (% volume, dry basis)	4.10	4.16	4.13	4.10
Beginning Meter Reading (ft^3)	988.303	189.828	222.978	255.614
Ending Meter Reading (ft^3)	1018.900	221.834	255.168	287.500
Beginning Impinger Weight (g)	2356.4	2435.3	2429.4	2443.3
Ending Impinger Weight (g)	2412.9	2505.5	2495.1	2511.2
Dry Gas Meter Factor (Y)	1.0157	1.0157	1.0157	1.0157
Dry Gas Meter Temperature (°F, average)	105.25	70.3	79.2	80.3
Atmospheric Pressure ("Hg absolute, P_{bar})	29.73	29.80	29.82	29.84
Stack Gas Moisture (% volume)	8.43	9.30	8.84	9.20
Dry Gas Fraction	0.916	0.907	0.912	0.908
Stack Gas Molecular Wt. (lbs/lb-mole, M_s)	28.26	28.17	28.22	28.18
Velocity and Volumetric Flow Rate Data				
ΔP #1	0.89	1.05	0.94	0.95
ΔP #2	1.05	1.05	1.05	1.05
ΔP #3	1.20	1.15	1.20	1.10
ΔP #4	1.40	1.35	1.35	1.35
ΔP #5	1.35	1.30	1.40	1.30
ΔP #6	0.90	1.05	1.05	1.10
ΔP #7	0.84	0.82	0.79	0.77
ΔP #8	0.87	0.86	0.86	0.83
ΔP #9	1.05	0.89	0.95	0.80
ΔP #10	0.92	0.95	0.99	0.90
ΔP #11	1.05	0.93	0.98	0.91
ΔP #12	0.65	0.78	0.73	0.63
ΔP #13	0.92	0.80	0.80	0.73
ΔP #14	0.81	0.90	0.80	0.82
ΔP #15	0.90	0.90	0.86	0.89
ΔP #16	0.96	1.05	0.93	0.95
ΔP #17	0.91	1.05	0.92	0.93
ΔP #18	0.75	0.74	0.88	0.73
ΔP #19	0.92	0.95	0.90	0.94
ΔP #20	0.97	1.10	1.05	1.00
ΔP #21	1.25	1.25	1.15	1.20
ΔP #22	1.30	1.40	1.20	1.30
ΔP #23	1.40	1.30	1.30	1.25
ΔP #24	0.80	1.05	1.05	1.05
Pitot Tube Coefficient (C_p)	0.84	0.84	0.84	0.84
Sum of Square Root of Vertical Component	23.91	24.24	23.97	23.62
Number of Traverse Points	24	24	24	24
Average Square Root of ΔP's	0.9962	1.0099	0.9989	0.9843
Average Stack Temperature (°F)	235.9	227.4	226.3	225.6
Static Pressure (" H_2O)	-0.69	-0.83	-0.64	-0.67
Stack Diameter (inches)	228	228	228	228
Stack Area (ft^2)	283.53	283.53	283.53	283.53
Stack Velocity (ft/sec @ stack conditions, V_s)	65.17	65.69	64.83	63.89
Stack Velocity (ft/min @ stack conditions)	3910	3941	3890	3833
Stack Flow,wet (ACFM)	1108585	1117503	1102841	1086815
Stack Flow, dry (SCFH, Q_{sd})	**4.58E+07**	**4.64E+07**	**4.62E+07**	**4.54E+07**
Stack Flow, wet (SCFH)	**5.01E+07**	**5.12E+07**	**5.07E+07**	**5.00E+07**
Method 5 Nozzle Selection, K Factor, and Isokinetic Data				
Stack Velocity, dry (SFM)	**2694**	**2730**	**2715**	**2669**
Target Sampling Rate (SCFM, 0.40-0.75)	**0.538**			
Target Nozzle Area (Ft^2)	**0.0001997**			
Selected Nozzle Number (xx/32")	6	6B	6A	6B
Actual Nozzle Area (Ft^2, A_n)	0.0001983	0.0001983	0.0001983	0.0001983
No. of M-5 Traverse Points	24			
Minutes per point (min.)	2.5			
Total Sampling Time (min., must be >60 min., Ø)	60	60	60	60
Expected Total Sample Vol. (SCF, must be >30 SCF)	32.06			
Sampling Rate (SCFM) (using actual nozzle)	**0.534**	**0.541**	**0.538**	**0.529**
$ΔH_@$ ("H_2O Target, see Meter Box Calib Curve)	**0.78**			
Average ΔH@ ("H_2O, actual from meter box)	**1.7**	**0.80**	**0.80**	**0.78**
K-Factor (ΔH/ΔP)	**0.78**			
Sample volume at STP (DSCF, $V_{m(std)}$)	**28.952**	**32.292**	**31.964**	**31.611**
% Isokinetic (must be 90-110%, I)		**99.5**	**99.0**	**99.6**

MOISTURE & VELOCITY FIELD DATA SHEET

Date: 4/17/03
Plant: Bayside Power Project
Source: Unit 1C
Technicians: LB, RO, SH, JTr
Atm. Pressure: 29.85 " Hg (Pb)
Test Run No.: Prelim -1C

Dry Gas Meter ID: N/A
Dry Gas Meter Factor: N/A (Kd)
Pitot Tube No/Type: 8' M-5 probe, with 3/8" S.S. S-Type
Pitot Tube Factor: 0.84
Static Pressure: ~ 0.69 "H_2O (Pg)
Ave. Stack Temp. 235.9 °F (Ts)

Collection Data

Sample Box Leak Check ≤ 0.02 ft^3/min		
Pre-Test Leak Check	ft^3/min "Hg Vac.	
Post-Test Leak Check	ft^3/min "Hg Vac.	
	Initial	Final
Time		
DGM Reading (ft^3 or L)		
DGM Average Temp (°F)		
Last Impinger Temp. (°F)		
DGM Flow Rate		
O_2 (% vol.)		
CO_2 (% vol.)		

Velocity System Leak Check

Leak Check ≤ 0.1 "H_2O/min at a pressure ≥ 3.0 "H_2O		
Pre-Test Leak Check	+ 0.0 4.5	− 0.0 "H_2O/min 6.2 "H_2O Pres.
Post-Test Leak Check	+ 0.0 5.1	− 0.0 "H_2O/min 6.4 "H_2O Pres.

Impingment System

Impinger	Contents	Initial Weight	Final Weight
1			
2			
3			
4			
5			
6			
Totals			

Velocity Traverse Data
with Stack Temperature and Cyclonic Flow Check

Point	ΔP ("H_2O)	°F	α	Point	ΔP ("H_2O)	°F	α
1-1	0.89	237	4	3-1	0.92	237	4
1-2	1.05	236	~~6~~12	3-2	0.81	237	6
1-3	1.20	236	10	3-3	0.90	238	7
1-4	1.40	235	17	3-4	0.96	237	15
1-5	1.25	236	11	3-5	0.91	237	9
1-6	0.90	231	10	3-6	0.75	235	15
2-1	0.84	237	5	4-1	0.92	237	10
2-2	0.87	236	12	4-2	0.97	236	12
2-3	1.05	237	14	4-3	1.25	236	15
2-4	0.92	237	12	4-4	1.30	235	17
2-5	1.05	233	0	4-5	1.40	235	15
2-6	0.65	237	15	4-6	0.80	234	11

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT
Date: 04-17-03
Source: UNIT 1C
Technicians: LB, RO, VT, VH
Probe Size: 8'
Filter #: 66
Box #: E1
Time Start: 6:01
Run #: 1C- NH3-1
Time Stop: 7:13
~~Probe~~ Nozzle Size: 6B, 0.0001983
Pretest Leak Check: 0.000 ft³/minute @ 19" "Hg Vacuum
Post Test Leak Check: 0.000 ft³/minute @ 17 "Hg Vacuum
Meter Reading (initial): 189.828 (final): 221.834

Stack Height: 150'
Stack Diameter: 19'
Stack Moisture (% by Vol.): 9.30
ATM Pressure: 29.80
K Factor: .78
PTCF: 0.84

DGM #: METER BOX E
DGMCF: 1.0157
Mol. Wt.: 28.17
Static Pressure: -0.83
Sample Time: 60 minutes / 2.5 min per point
#/Sample PTS.: 24 points

Oxygen and Carbon Dioxide Concentrations (M-3a)
O_2: 13.69 % volume
CO_2: 4.16 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGEL		Total
Initial Wt. (g)	627.2	623.0	528.4	656.7		2435.3
Final Wt. (g)	683.0	629.8	528.8	663.9		2505.5

Pitot Tube Leak Check	+	-		
(pretest)	0.006.1	0.004.7	" H_2O /	minutes:
(post test)	0.004.9	0.006.2	" H_2O /	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
1-1	6:01	189.928	1.05	.82	229	233	237	61	71/69 | 70	6.7
1-2	6:03:30	191.216	1.05	.82	228	236	237	59	69/70 | 69.5	6.7
1-3	6:06	192.573	1.15	.90	227	235	239	59	69/70 | 69.5	7.3
1-4	6:08:30	193.963	1.35	1.05	227	230	227	59	69/70 | 69.5	8.5
1-5	6:11	195.440	1.30	1.02	225	230	240	60	70/70 | 70	8.5
1-6	6:13:30	196.931	1.05	.82	225	232	233	60	70/70 | 70	6.7
End	6:16	198.302	—	—	—	—	—	—	—	—
2-1	6:20	198.302	.82	.64	229	229	233	60	69/69 | 69	4.9
2-2	6:22:30	199.526	.86	.67	230	237	237	58	69/69 | 69	5.0
2-3	6:25	200.737	.89	.70	230	237	236	59	70/69 | 69.5	5.5
2-4	6:27:30	202.000	.95	.74	229	237	239	60	69/70 | 69.5	5.7
2-5	6:30	203.276	.93	.73	228	235	230	61	71/69 | 70	5.7
2-6	6:32:30	204.547	.78	.61	227	233	230	61	71/69 | 70	5.0
End	6:35	205.733	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name BAYSIDE POWER PROJECT

Date: 04-17-03

Test Run #: IC-NH3-1

point	clock	DGM	ΔP	ΔH	Stack	Probe	Filter	Last Impinger	DGM in/out	Line Vacuum
#	time	reading	"H2O	" H2O	Temp °F	Temp °F	Temp °F	Temp °F	Temp °F	" Hg
3-1	6:40	205.733	.80	.63	230	234	232	61	69/69 | 69	5.0
3-2	6:42:30	206.925	.90	.70	230	232	240	60	71/69 | 70	5.5
3-3	6:45	208.197	.90	.70	229	233	239	59	71/69 | 70	5.5
3-4	6:47:30	209.423	1.05	.82	229	239	234	61	71/69 | 70	6.7
3-5	6:50	210.774	1.05	.82	226	239	235	61	72/69 | 70.5	6.7
3-6	6:52:30	212.128	.74	.58	225	232	232	61	72/69 | 70.5	4.8
End	6:55	213.305	—	—	—	—	—	—	—	—
4-1	6:58	213.305	.95	.74	228	235	232	63	71/70 | 70.5	5.7 ~~5.5~~
4-2	7:00:30	214.588	1.1	.86	227	230	239	61	73/71 | 72	6.7
4-3	7:03	215.967	1.25	.98	228	235	240	61	74/70 | 72	9.3
4-4	7:05:30	217.431	1.4	1.1	226	230	234	61	74/71 | 72.5	9.0
4-5	7:08	218.952	1.3	1.02	223	227	233	61	74/71 | 72.5	8.9
4-6	7:10:30	220.458	1.05	.83	223	227	231	61	74/71 | 72.5	6.6
End	7:13	221.834	—	—	—	—	—	—	—	—
Totals or Avgs.		—	1.03	0.80	227.4	—	—	—	70.3	—

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation, Austin, TX

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name:	BAYSIDE POWER PROJECT	Stack Height:	150'	DGM #:	METER BOX E
Date:	04-18-03	Stack Diameter:	19'	DGMCF:	1,0157
Source:	UNIT 1C	Stack Moisture (% by Vol.):	8.84	Mol. Wt.:	28.22
Technicians:	LB, RO, JT, JH	ATM Pressure:	29.82	Static Pressure:	- 0.64
Probe Size: 8'	Filter #: 67 Box #: E2	K Factor:	.78	Sample Time:	60 min /2.5 per point
Time Start: 7:57	Run #: 1C-NH3-2	PTCF:	0.84	#/Sample PTS.:	24 points
Time Stop: 9:08:30	~~Probe~~ Nozzle Size: 6A, 0.0001983				

Pretest Leak Check: 0.000 ft³/minute @ 17 "Hg Vacuum

Post Test Leak Check: 0.000 ft³/minute @ 15 "Hg Vacuum

Meter Reading (initial): 222.978 (final): 255.168

Oxygen and Carbon Dioxide Concentrations (M-3a)

O_2: 13.70 % volume

CO_2: 4.13 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	Si Gel		Total
Initial Wt. (g)	635.0	625.6	526.2	642.6		2429.4
Final Wt. (g)	690.7	630.6	526.7	647.1		2495.1

Pitot Tube Leak Check

	+	-		
(pretest)	0.005.1	0,003.9	" H_2O /	minutes:
(post test)	0.003.9	0,0067	" H_2O /	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
4-1	7:57	222.978	.94	.74	227	230	239	60	74/74 | 74	6.0
4-2	7:59:30	224.294	1.05	.83	227	230	233	60	78/78 | 78	7.0
4-3	8:02	225.653	1.2	.96	226	230	230	61	79/79 | 79	8.5
4-4	8:04:30	227.116	1.35	1.07	226	233	231	60	79/79 | 79	9.3
4-5	8:07	228.626	1.4	1.12	224	227	229	60	80/79 | 79.5	9.5
4-6	8:09:30	230.161	1.05	.94	223	230	232	60	80/78 | 79	7.5
End	8:12	231.548	—	—	—	—	—	—	—	—
3-1	8:15:30	231.548	.79	.63	227	233	234	61	78/76 | 77	5.0
3-2	8:18	232.766	.86	.68	229	237	231	58	79/76 | 77.5	5.5
3-3	8:20:30	234.007	.95	.75	229	237	233	59	80/75 | 77.5	6.0
3-4	8:23	235.300	.99	.79	228	238	232	59	80/75 | 77.5	6.8
3-5	8:25:30	236.643	.98	.78	224	235	233	59	80/76 | 78	6.6
3-6	8:28	237.966	.73	.58	223	230	232	59	80/77 | 78.5	4.8
End	8:30:30	239.152	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \times \frac{(Tdgm + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name Bayside Power Project

Date: 4-18-2003

Test Run #: 1C-NH_3-2

point	clock	DGM	ΔP	ΔH	Stack	Probe	Filter	Last Impinger	DGM in/out	Line Vacuum
#	time	reading	"H2O	" H2O	Temp °F	Temp °F	Temp °F	Temp °F	Temp °F	" Hg
2-1	8:35	239.152	.80	.64	229	235	239	64	78/78 | 78	5.2
2-2	8:37:30	240.347	.80	.64	229	233	237	60	81/79 | 80	5.2
2-3	8:40	241.562	.86	.69	229	230	235	59	81/81 / 81	5.5
2-4	8:42:30	242.912	.93~~.87 10~~	.74	229	229	234	60	82/82 | 82	6.0
2-5	8:45	244.110	.92	.74	226	229	237	58	83/81 | 82	6.0
2-6	8:47:30	245.416	.88	.70	225	226	235	59	83/80 | 81.5	5.7
End	8:50	246.679	—	—	—	—	—	—	—	—
1-1	8:53:30	246.679	.90	.72	226	232	236	63	81/79 | 80	5.5
1-2	8:56	247.968	1.00	.84	227	230	239	60	82/78 | 80	7.0
1-3	8:58:30	249.335	1.15	.92	226	227	232	60	82/79 | 80.5	8.1
1-4	9:01	250.788	1.2	.96	226	232	239	61	82/79 | 80.5	8.2
1-5	9:03:30	252.253	1.3	1.04	223	230	236	61	82/79 | 80.5	9.0
1-6	9:06	253.764	1.05	.84	223	233	230	61	82/78 | 80	7.0
End.	9:08:30	255.168	—	—	—	—	—	—	—	—
Totals or Avgs.		—	1.01	0.80	226.3	—	—	—	79.2	—

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K \text{ factor}$$

Testing by Cubix Corporation, Austin, TX

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: BAYSIDE POWER PROJECT
Date: 04-18-03
Source: UNIT 1C
Technicians: LB, RO, JT, JH
Probe Size: 8' | Filter #: 68 | Box #: E2
Time Start: 09:41 | Run #: 1C-NH3-3
Time Stop: 10:53 | ~~Probe~~ Size: 6B, 0.0001983
Pretest Leak Check: 0.000 ft³/minute @ 18 "Hg Vacuum
Post Test Leak Check: 0.000 ft³/minute @ 15 "Hg Vacuum
Meter Reading (initial): 255.614 (final): 287.500

Stack Height: 150'
Stack Diameter: 19'
Stack Moisture (% by Vol.): 9.20
ATM Pressure: 29.84
K Factor: .78
PTCF: 0.84

DGM #: METER BOX E
DGMCF: 1.0157
Mol. Wt.: 28.18
Static Pressure: -0.67
Sample Time: 60min / 2.5 min for point
#/Sample PTS.: 24 points

Oxygen and Carbon Dioxide Concentrations (M-3a)
O_2: 13.76 % volume
CO_2: 4.10 % volume

Impinger #	1	2	3	4	5	6
contents	H_2SO_4	H_2SO_4	MT	SiGEL		Total
Initial Wt. (g)	627.0	623.6	528.8	663.9		2443.3
Final Wt. (g)	680.2	630.8	530.2	670.0		2511.2

Pitot Tube Leak Check	+	-			
(pretest)	0.0039	0.0061	" H_2O	/	minutes:
(post test)	0.0051	0.0071	" H_2O	/	minutes:

Point Number	Clock Time	DGM Reading	ΔP "H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
1-1	9:41	255.614	.95	.76	226	226	228	60	79/79/ | 79	5.5
1-2	9:43:30	256.920	1.05	.84	227	233	230	62	80/80 | 80	6.8
1-3	9:46	258.293	1.1	.88	226	237	236	62	80/80 | 80	7.0
1-4	9:48.30	259.693	1.35	1.08	226	239	232	63	91/80 | 80.5	8.3
1-5	9:51	261.202	1.30	1.04	225	236	226	64	81/80 | 80.5	8.3
1-6	9:53:30	262.723	1.1	.88	223	229	230	63	81/80 | 80.5	7.2
End	9:56	264.160	—	—	—	—	—	—	—	—
2-1	9:59	264.160	.77	.61	227	228	234	66	80/80 | 80	4.8
2-2	10:01:30	265.357	.83	.66	229	230	236	65	81/80 | 80.5	5.0
2-3	10:04	266.577	.80	.64	228	229	232	66	81/79 | 80	5.0
2-4	10:06:30	267.800	.90	.72	228	232	233	65	91/79 | 80	5.8
2-5	10:09	269.076	.91	.73	227	227	233	63	81/78 | 79.5	5.6
2-6	10:11:30	270.383	.63	.50	225	230	235	62	81/79 | 90	4.0
End	10:14	271.520	—	—	—	—	—	—	—	—
Totals or Averages										

$$\Delta H = \Delta P \times \frac{(Tdgm + 460)}{528} \times K\ factor$$

EPA METHOD 5 STACK SAMPLING DATA SHEET

Plant Name: Bayside Power Project

Date: 4-18-2003

Test Run #: IC-NH_3-3

point	clock	DGM	ΔP	ΔH	Stack	Probe	Filter	Last Impinger	DGM in/out	Line Vacuum
#	time	reading	"H2O	" H2O	Temp °F	Temp °F	Temp °F	Temp °F	Temp °F	" Hg
3-1	10:19	271.520	.73	.58	228	230	229	66	80/80 | 80	4.2
3-2	10:21:30	272.668	.82	.65	227	235	230	65	80/78 | 79	5.2
3-3	10:24	273.887	.89	.71	228	230	233	65	80/78 | 79	5.6
3-4	10:26:30	275.160	.95	.76	227	233	234	62	80/79 | 79.5	6.0
3-5	10:29	276.461	.93	.74	223	230	229	65	81/79 | 80	6.0
3-6	10:31:30	277.789	.73	.58	223	226	230	66	91/80 | 80.5	4.5
End	10:34	278.952	—	—	—	—	—	—	—	—
4-1	10:38	278.952	.94	.78	227	228	231	66	80/81 | 80.5	6.1
4-2	10:40:30	280.255	1.0	.80	226	227	233	63	81/80 | 80.5	6.2
4-3	10:43	281.594	1.2	.96	225	227	237	61	82/81 | 81.5	7.5
4-4	10:45:30	283.064	1.3	1.04	224	229	230	62	83/81 | 82	8.5
4-5	10:48	284.576	1.25	1.0	220	230	232	61	83/81 | 82	8.3
4-6	10:50:30	286.088	1.05	.84	220	226	228	63	83/80 | 81.5	6.7
End	10:53	287.500	—	—	—	—	—	—	—	—
Totals or Avgs.		—	0.98	0.78	225.6	—	—	—	80.3	—

$$\Delta H = \Delta P \times \frac{(T_{dgm} + 460)}{528} \times K\ factor$$

Testing by Cubix Corporation, Austin, TX

APPENDIX B:
EXAMPLE CALCULATIONS

Gaseous Compliance Testing Example Calculations

Stack Gas Flow Rates via F-factors **(Qd)**
Refers to Test Run #1A-C-1

Convert fuel flow to heat input:
Hg = heating value of nat. gas = 23,002 Btu/lb (gross)
FQG = fuel flow = 20.2122 lb/sec
HI = heat input (MMBtu/hr)
= FQD x Hg/(1 x 10^6) × 3600 = 1673.7 MMBtu/hr

Calculate flow rate using **O_2 F-factor**:
C_{O_2} = O_2 concentration in exhaust = 13.87% by vol, dry
O_2 F-factor = 8647 DSCF of Exhaust/MMBtu of fuel burned @ 0% excess air

Qd_1 = Stack Exhaust Gas Flow Rate via O_2 F-factor

$$Qd_1 = \frac{HI \times O_2F\text{-factor} \times 20.9}{20.9 - C_{O_2}}$$

$$Qd_1 = \frac{1673.7 \times 8647 \times 20.9}{20.9 - 13.87}$$

Qd_1 = 4.30(2) × 10^7 DSCFH

Calculate flow rate using **CO_2 F-factor:**
Using same data as above, except:
C_{CO_2} = Concentration of CO_2 in exhuast = 4.03 % vol,dry (stack ave)
CO_2 F-factor = 1032 DSCF of CO_2/ MMBtu of fuel burned @ 0% excess air

Qd_2 = Stack Exhaust Gas Flow Rate via CO_2 F-factor

$$Qd_2 = \frac{HI \times CO_2F - \text{factor} \times 100}{C_{CO2}}$$

$$Qd_2 = \frac{1673.7 \times 1032 \times 100}{4.03}$$

Qd_2 = 4.28(6) x 10^7 DSCFH

Correction of NO_x Gas Concentrations, C_{NO_x}

Refers to Test Run #1A-C-1a

The logged data records were used for continuous instrumental monitor data. Analytical instruments tend to drift in their calibrations over time and with changes in atmospheric conditions. Span and zero gas bias drift checks (calibrations) were conducted prior to and following each test. The results of these calibrations were used to bracket and thus correct the raw gas concentrations into corrected (more accurate) gas concentrations. The calculation used for these corrections is 40 CFR 60, Appendix A, Method 6c, Equation 6c-1. This correction is required for NO_x, O_2, and CO_2 exhaust concentrations. Cubix also conducts this correction for EPA Method 10, CO monitoring, in order to present more accurate and consistent test results.

U_{NO_x} = analyzer NO_x gas concentration, uncorrected for drift and bias
U_{NO_x} = 3.89 ppmv, uncorrected
C_o = Average of initial/final zero gas concentrations
= 0.03 ppmv
C_m = Average of initial/final span gas concentrations
= 4.95 ppmv
C_{ma} = Actual upscale cylinder span gas concentrations
= 5.05 ppmv

C_{NO_x} = Effluent NO_x gas concentration, ppmv corrected

$$= (U_{NO_x} - C_o) \times \frac{C_{ma}}{C_m - C_o}$$

$$= (3.89 - (0.03)) \times \frac{5.05}{4.95 - (0.03)}$$

C_{NO_x} = 3.96 ppmv NO_x, dry basis corrected

Determination of Average NO_x Gas Concentrations, $C_{NOx(Ave)}$

Refers to Test Run #1A-C-1

$C_{NOx(1A\text{-}C\text{-}1a)}$ = Run 1A-C-1a NOx gas concentration, ppmv corrected = 3.96 ppmv
$C_{NOx(1A\text{-}C\text{-}1b)}$ = Run 1A-C-1b NOx gas concentration, ppmv corrected = 3.92 ppmv
$C_{NOx(1A\text{-}C\text{-}1c)}$ = Run 1A-C-1c NOx gas concentration, ppmv corrected = 3.99 ppmv

$C_{NOx(1A\text{-}C\text{-}1)}$ = Run 1A-C-1 average NO_x gas concentration, ppmv corrected

$$= \frac{C_{NOx(1A\text{-}C\text{-}1a)} + C_{NOx(1A\text{-}C\text{-}1b)} + C_{NOx(1A\text{-}C\text{-}1c)}}{3}$$

$$= \frac{3.96 + 3.92 + 3.99}{3}$$

$C_{NOx(1A\text{-}C\text{-}1)}$ = 3.95(6) ppmv NO_x, dry basis corrected

NOx Correction to 15% O_2

Refers to Test Run #1A-C-1

C_{NOx} = observed NOx concentration = 3.956 ppmv (from analyzer)
C_{O2} = concentration of oxygen = 13.87% volume (from analyzer)

NOx @15% O_2 = NO_x emission concentration, corrected to 15% excess oxygen

$$= \frac{(C_{NOx} \times (20.9 - 15.0\%O_2))}{20.9 - C_{O2}}$$

$$= \frac{3.956 \times 5.9}{20.9 - 13.87}$$

NOx @15% O_2 = 3.32 ppmv @ 15% excess O_2

CO Correction to 15% O_2

Refers to Test Run #1A-C-1

C_{CO} = observed CO concentration = 0.64(3) ppmv (from analyzer)
C_{O2} = concentration of oxygen = 13.87% volume (from analyzer)

CO @15% O_2 = CO emission concentration, corrected to 15% excess oxygen

$$= \frac{(C_{CO} \times (20.9 - 15.0\%O_2))}{20.9 - C_{O2}}$$

$$= \frac{0.643 \times 5.9}{20.9 - 13.87}$$

CO @15% O_2 = 0.54 ppmv @ 15% excess O_2

NOx Mass Emission Rate (lbs/hr)

Refers to Test Run #1A-C-12

C_{NOx} = observed concentration of NOx = 3.956 ppmv (average)
MW_{NOx} = 46.01 lb/lb-mole for nitrogen dioxide
for an ideal gas, 385.15 SCF = 1.0 lb/mole
Q_{d1} = 4.302 x 10^7 SCFH, dry (from O_2 "F-factor" calculated ex. flow)

E_{NOx} = mass emission rate of NOx in (lb/hr)

$$= C_{NOx} \times 10^{-6} \times Q_{d1} \times \frac{MW_{NOx}}{385.15}$$

$$= 3.956 \times 10^{-6} \times 4.302 \times 10^{7} \times \frac{46.01}{385.15}$$

E_{NOx} = 20.3 lbs/hr of NO_x

CO Mass Emission Rate (lbs/hr)

Refers to Test Run #1A-C-1

CO = observed concentration of CO = 0.643 ppmv (average)
MW_{CO} = 28.01 lb/lb-mole for carbon monoxide
Q_{d1} = 4.302 x 10^7 SCFH, dry (from O_2 "F-factor" calculated ex. flow)

E_{CO} = mass emission rate of CO in (lb/hr)

$$= C_{CO} \times 10^{-6} \text{ x } Q_{d1} \times \frac{MW_{CO}}{385.15}$$

$$= 0.643 \times 10^{-6} \times 4.302 \times 10^{7} \times \frac{28.01}{385.15}$$

E_{CO} = 2.01 lbs/hr of CO

Ammonia Testing Compliance Example Calculations

Moisture Content via EPA Method 5

Refers to Test Run #1A-NH3-2

M_{WC} = net impinger weight gain = 2500.1 – 2432.5 = 67.6 g
Y = dry gas meter correction factor = 1.0157
V_m = volume metered = (357.343 – 324.181) = 33.162 ft³
P_{atm} = atmospheric pressure, corrected to stack elevation = 29.834 "Hg
ΔH_{ave} = average meter orifice pressure = 0.849
P_m = average meter pressure = $P_{atm} + \Delta H_{ave}/13.6$ = 29.896
T_m = average meter temperature = 83.06 °F + 460 = 543.06 °R
K_1 = conversion factor, standard temp to pressure ratio = 17.64 °R/"Hg
K_3 = conversion factor, water weight to vapor, per M-4 = 0.04715 ft³/g

V_{WC} = total volume of water vapor collected at STP

$$= K_3 \times M_{WC}$$

$$= (0.04715 \times 67.6)$$

$$= 3.18734 \text{ ft}^3$$

$V_{m(std)}$ = total volume metered at STP

$$= K_1 \times Y \times V_m \times \frac{P_m}{T_m}$$

$$= 17.64 \times 1.0157 \times 33.162 \times \frac{29.896}{543.06}$$

$$= 32.70921 \text{ ft}^3$$

B_{ws} = moisture content by EPA Method 4 w/ M-5 equations

$$= \frac{V_{WC}}{V_{WC} + V_{STP}}$$

$$= \frac{3.18734}{3.18734 + 32.70921}$$

B_{ws} = 0.08879

= 8.88% moisture

Stack Gas Molecular Weight, MW

Refers to Test Run #1A-NH3-2

MW_{H_2O} = molecular wt of H_2O = 18 lb/lb-mole
MW_{CO_2} = molecular wt of CO_2 = 44 lb/lb-mole
MW_{O_2} = molecular wt of O_2 = 32 lb/lb-mole
MW_{N_2} = molecular wt of N_2 = 28 lb/lb-mole
C_{CO_2} = concentration of CO_2 = 0.0402 (from analyzer)
C_{O_2} = concentration of O_2 = 0.1391 (from analyzer)
C_{N_2} = concentration of N_2 = $1- (C_{CO_2} + C_{O_2}) = 0.8207$
F_d = dry gas fraction = $1-B_{ws}$ = 0.91121

M_S = molecular weight of stack gas (lb/lb-mole)
= wt of H_2O + wt. of CO_2 + wt. of O_2 + wt. of N_2

$$= (MW_{H_2O} \times B_{ws}) + (F_d \times ((MW_{CO_2} \times C_{CO_2}) + (MW_{O_2} \times C_{O_2}) + (MW_{N_2} \times C_{N_2})))$$

$$= (18 \times 0.08879) + (0.91121 \times ((44 \times 0.0402) + (32 \times 0.1391) + (28 \times 0.8207)))$$

M_S = 28.205 lb/lb-mole

Stack Gas Flow Rate via Pitot Tube, Q_d

Refers to Test Run #1A-NH3-2

C_p = pitot tube coefficient = 0.84
ΔP = pressure difference in stack as measured (in. H_2O)
$\sqrt{\Delta P}_{av}$ = average of square root of ΔP's = 1.0007
T_s = ave. stack temperature = 251.4°F + 460 = 711.4 °R
P_{atm} = site corrected atmospheric pressure = 29.834"Hg
P_g = stack static pressure (in. H_2O) = -0.78 "H_2O
P_s = absolute stack pressure
= $P_{atm} + (Pg/13.6)$ = 29.777 "Hg

K_p = pitot tube constant= $85.49 \frac{ft}{sec} \left(\frac{(lb/lb\text{-}mol)\ (in\ Hg)}{(°R)\ (in.\ H_2O)} \right)^{1/2}$

V_s = stack velocity (ft/sec)

$$= 85.49 \times C_p \times \sqrt{\Delta P}_{av} \times \sqrt{\frac{T_s}{(P_s \times MW)}}$$

$$= 85.49 \times 0.84 \times 1.0007 \times \sqrt{\frac{711.4}{(29.777 \times 28.205)}}$$

= 66.13813 ft/sec × 60 sec/min

= 3,968.2878 ft/min

Q_a = stack flow rate (ft^3/min)

= V × A , where A= area of stack = 283.53 ft^2

Q_a = 3,968.2878 × 283.53 = 1,125,128.6 ft^3/min (Difference due to rounding)

Q_d = stack flow rate on a dry basis at standard conditions (DSCFH)

$$= \frac{Q_a \times T_{std} \times P_s}{T_s \times P_{std}} \times F_d \times 60$$

$$= \frac{1125128.6 \times 528 \times 29.777}{711.4 \times 29.92} \times 0.91121 \times 60$$

Q_d = 4.54 x 10^7 DSCFH

Percent Isokinetic Sampling Rate, I

Refers to Test Run #1A-NH3-2

K_4 = 0.09450

D_n = sample nozzle diameter = 0.191 in = 0.01589 ft

A_n = sample nozzle area (cross section) $= \pi \times \left(\frac{D_n}{2}\right)^2$

$= \pi \times \left(\frac{0.01589}{2}\right)^2$ = 0.0001983 ft^2

Ø = sample run time = 60 min

I = percent iso-kinetic sampling rate during test run

$$= \frac{K_4 \times T_s \times V_{m(std)}}{P_s \times V_s \times A_n \times Ø \times F_d}$$

$$= \frac{0.09450 \times 711.4 \times 32.70921}{29.777 \times 66.13813 \times 0.0001983 \times 60 \times 0.91121}$$

I = 103.0 % iso-kinetics

Ammonia Determination by Ion Chromatography

Refers to Test Run #1A-NH3-2

NH_3 samples were analyzed by Atmospheric Analysis and Consulting by ion chromatography. Analytical procedures for this method are identical to those previous in EPA Conditional Test Method 027, which has superceded EPA Draft Method 206. Sample solutions were collected with an iso-kinetic sampling train using 100 ml of 0.1N H_2SO_4 absorbing solution each into two impingers; they were then quantitatively transferred to HDPE plastic bottles equipped with Teflon® lid liners using preset rinse volumes and diluted to 250 ml in a volumetric flask, 200-ml of which was sent to the laboratory. Sample concentrations were reported in units of μg/ml and converter to mg based upon the total amount of sample volume, including the retained portion.

$V_{m(std)}$ = total volume metered at STP = 32.70921 ft^3
$M_{NH4+(Imp\ 1)}$ = mass of ammonium in Impinger 1 + Probe Rinse = 0.329 mg
$M_{NH4+(Imp\ 2)}$ = mass of ammonium in Impinger 2 = Not Detected
24.04 L/mol = liters of an ideal gas per mole of substance
MW_{NH4+} = molecular weight of ammonium ion = 18 g/mol
28.317 L/ft^3 = conversion factor from ft^3 to liters

V_a = volume of ammonia gas in sample

$$= \frac{\left(M_{NH4+(Imp\ 1)} + M_{NH4+(Imp\ 2)}\right) \times 24.04}{1000 \times MW_{NH4+}}$$

$$= \frac{(0.329 + 0.0) \times 24.04}{1000 \times 18}$$

V_a = 0.0004394 liters

C_{NH3} = concentration of NH_3 in ppmv by ion chromatography

$$= \frac{V_a}{V_{m(std)} \times 28.317 l/scf} \times 10^6$$

$$= \frac{0.0004394}{32.70921 \times 28.317} \times 10^6$$

C_{NH3} = 0.47(4) ppmv NH_3, dry basis

NH_3 Correction to 15% O_2

Refers to Test Run #1A-NH3-2

C_{NH3} = NH_3 concentration by ion chromatography = 0.474 ppmv (from analysis)
C_{O2} = concentration of oxygen = 13.91% volume (from analyzer)

NH_3 @15% O_2 = NH_3 emission concentration, corrected to 15% excess oxygen

$$= \frac{(C_{NH3} \times (20.9 - 15.0\% O_2))}{20.9 - C_{O2}}$$

$$= \frac{0.474 \times 5.9}{20.9 - 13.91}$$

NH_3 @15% O_2 = 0.40 ppmv @ 15% excess O_2

CO and CO_2 Part 60 Rata Example Calculations

Correction of CO Gas Concentrations, C_{CO}

Refers to Test Run #1A-C-1a /1A-RA-1

The logged data records were used for continuous instrumental monitor data. Analytical instruments tend to drift in their calibrations over time and with changes in atmospheric conditions. Span and zero gas bias drift checks (calibrations) were conducted prior to and following each test. The results of these calibrations were used to bracket and thus correct the raw gas concentrations into corrected (more accurate) gas concentrations. The calculation used for these correction is 40 CFR 60, Appendix A, Method 6c, Equation 6c-1. This correction is required for NO_x, O_2, and CO_2 exhaust concentrations. Cubix also conducted this correction for EPA Method 10, CO monitoring, in order to present more accurate and consistent test results.

U_{CO} = analyzer CO gas concentration, uncorrected for drift and bias
U_{CO} = 0.71 ppmv, uncorrected
C_o = Average of initial/final zero gas concentrations
= 0.08 ppmv
C_m = Average of initial/final span gas concentrations
= 6.08 ppmv
C_{ma} = Actual upscale cylinder span gas concentrations
= 6.03 ppmv

C_{CO} = Effluent CO gas concentration, ppmv corrected

$$= (U_{CO} - C_o) \times \frac{C_{ma}}{C_m - C_o}$$

$$= (0.71 - (0.08)) \times \frac{6.03}{6.08 - (0.08)}$$

C_{CO} = 0.63 ppmv CO, dry basis corrected

CO Correction to 15% O_2

Refers to Test Run #1A-C-1a /1A-RA-1

C_{CO} = observed CO concentration = 0.63 ppmv (from analyzer)
C_{O2} = concentration of oxygen = 13.87% volume (from analyzer)

CO @15% O_2 = CO emission concentration, corrected to 15% excess oxygen

$$= \frac{(C_{CO} \times (20.9 - 15.0\%O_2))}{20.9 - C_{O2}}$$

$$= \frac{0.63 \times 5.9}{20.9 - 13.87}$$

CO @15% O_2 = 0.529 ppmv @ 15% excess O_2

CO CEMS Relative Accuracy Determination for CO @ 15% O_2

Refers to Test Runs #1A-RA-1 through #1A-RA-9

Calculate arithmetic mean of differences:

n = number of data points = 9

d_i = difference between reference method (RM) and CEMS CO measurements during test runs i = 1 to 9

RM = average results of the reference method test runs

$$= \frac{\Sigma RM_i}{9} \quad \text{for test runs i = 1 to 9}$$

$$= \frac{0.529 + 0.537 + 0.555 + 0.531 + 0.558 + 0.574 + 0.581 + 0.573 + 0.582}{9}$$

RM = 0.55778 ppmv CO @ 15% O_2 average

Average of the differences:

d_{ave} = average of the differences between RM and CEMS data

$$= \frac{\Sigma d_i}{9} \quad \text{for test runs i = 1 to 9}$$

$$= \frac{0.129 + 0.132 + 0.155 + 0.136 + 0.158 + 0.174 + 0.181 + 0.168 + 0.182}{9}$$

$$d_{ave} = \frac{1.415}{9} = 0.157222 \text{ ppmv CO @ 15\% } O_2 \text{ average}$$

Calculate the standard deviation of the differences between RM and CEMS data:

S_d = Standard Deviation of the differences between RM and CEMS data

$$= \sqrt{\left(\frac{\Sigma d_i^2 - \frac{(\Sigma d_i)^2}{n}}{(n-1)}\right)}$$

$$= \sqrt{\left(\frac{(0.225935 - \frac{(1.415)^2}{9})}{(9-1)}\right)}$$

S_d = 0.020813

Calculate the 2.5 % confidence coefficient

CC = confidence coefficient for test runs 1 through 9

$$= t^{0.975} \times \frac{S_d}{\sqrt{n}} \text{ , where } t^{0.975} = 2.306$$

$$= 2.306 \times \frac{0.020813}{\sqrt{9}}$$

CC = 0.015999

Calculate the relative accuracy as based upon the mean of the reference method:

RA = relative accuracy of the CEMS with respect to the mean of the RM

$$= \frac{|d_{ave}| + CC}{RM} \times 100$$

$$= \frac{|0.157222| + 0.015999}{0.55778} \times 100$$

RA = 31.1% based on mean of reference method for CO CEMS in pmmv @ 15%O_2

Calculate the relative accuracy as based upon the applicable standard for the CEMS as based upon the ppmv CO @ 15% O_2 standard:

AS = applicable standard concentration for this source = 7.8 ppmv CO @ 15% O_2

RA_{AS} = relative accuracy of the CEMS with respect to the applicable standard

$$= \frac{|d_{ave}| + CC}{AS} \times 100$$

$$= \frac{|0.157222| + 0.015999}{7.8} \times 100$$

RA_{AS} = 2.22% based on the applicable standard of permit limit of 7.8 ppmv@15%O_2

CO_2 CEMS Relative Accuracy Determination

Refers to Test Runs #1A-RA-1 through #1A-RA-9

Calculate arithmetic mean of differences:

n = number of data points = 9

d_i = difference between reference method (RM) and HRSG stack CEMS CO_2 measurements during test runs i = 1 to 9

RM = average results of the reference method test runs

$$= \frac{\Sigma RM_i}{9} \quad \text{for test runs i = 1 to 9}$$

$$= \frac{4.03 + 4.04 + 4.02 + 4.03 + 4.03 + 4.01 + 4.02 + 4.04 + 4.03}{9}$$

RM = 4.02778% volume CO_2 average

Average of the differences:

d_{ave} = average of the differences between RM and CEMS data

$$= \frac{\Sigma d_i}{9} \quad \text{for test runs i = 1 to 9}$$

$$= \frac{(-0.010) + 0.002 + (-0.019) + (-0.026) + (-0.030) + (-0.054) + (-0.055) + (-0.045) + (-0.055)}{9}$$

$$d_{ave} = \frac{-0.292}{9} = -0.032444\% \text{ volume } CO_2 \text{ average}$$

Calculate the standard deviation of the differences between RM and CEMS data:

S_d = Standard Deviation of the differences between RM and CEMS data

$$= \sqrt{\left(\frac{\Sigma d_i^2 - \frac{(\Sigma d_i)^2}{n}}{(n-1)}\right)}$$

$$= \sqrt{\left(\frac{(0.013032 - \frac{(-0.292)^2}{9})}{(9-1)}\right)}$$

S_d = 0.021090

Calculate the 2.5 % confidence coefficient

CC = confidence coefficient for test runs 1 through 9

$$= t^{0.975} \times \frac{S_d}{\sqrt{n}} \text{ , where } t^{0.975} = 2.306$$

$$= 2.306 \times \frac{0.021090}{\sqrt{9}}$$

CC = 0.016211

Calculate the relative accuracy as based upon the mean of the reference method:

RA = relative accuracy of the CEMS with respect to the mean of the RM

$$= \frac{|d_{ave}|+CC}{RM} \times 100$$

$$= \frac{|-0.032444| + 0.016211}{4.02778} \times 100$$

RA = 1.21% based on mean of reference method for CO_2 CEMS

Calculate the relative accuracy as based upon the absolute difference of the CEMS value from the reference method value in like units of % volume on a dry basis:

Calculate the mean of the CEMS results:
CEMS = average results of the reference method test runs

$$= \frac{\Sigma CEMS_i}{9} \text{ for test runs i = 1 to 9}$$

$$= \frac{4.040 + 4.038 + 4.039 + 4.056 + 4.060 + 4.064 + 4.075 + 4.085 + 4.085}{9}$$

CEMS = 4.06022% volume CO_2 average

RA_{AD} = relative accuracy of the CEMS with respect to the applicable standard

$$= |RM - CEMS|$$

$$= |4.02778 - 4.0602|$$

RA_{AD} = 0.03% volume CO_2 based on the absolute difference of the mean of the CEMS from the mean of the reference method

APPENDIX C:
FUEL ANALYSIS

Core Lab
PETROLEUM SERVICES

8210 Mosley Rd.
Houston, TX 77075
713 943-9776 Telephone
713 943-3846 Facsimile

CORE LABORATORIES

LEONARD BRENNER
CUBIX CORPORATION
3709 SW 42ND AVENUE ST2
GAINSVILLE, FL 32608

Date Reported: 5/8/03
Date Received: 4/30/03

Analytical Report

Test	Result	Units	Method	Date	Analyst
Sample Number:	**131789-001**	**Sample ID:**	**Unit 1A Natural Gas**		**Sample Rcvd:**
Sample Date:	**4/23/03 3:30:00 PM**	**Description:**			**4/30/03**
			#1574		
Natural Gas Analysis					
Oxygen	< 0.01	Mol %	GPA 2261-95	5/7/03	JW
Nitrogen	0.31	Mol %	GPA 2261-95		
Carbon Dioxide	0.95	Mol %	GPA 2261-95		
Methane	94.61	Mol %	GPA 2261-95		
Ethane	2.90	Mol %	GPA 2261-95		
Propane	0.77	Mol %	GPA 2261-95		
Isobutane	0.15	Mol %	GPA 2261-95		
n-Butane	0.16	Mol %	GPA 2261-95		
Isopentane	0.05	Mol %	GPA 2261-95		
n-Pentane	0.03	Mol %	GPA 2261-95		
Hexanes Plus	0.07	Mol %	GPA 2261-95		
Total	100.00	Mol %	GPA 2261-95		
Molar Mass Ratio	0.59377		GPA 2172-96		
Relative Density	0.59470		GPA 2172-96		
Compressibility Factor	0.99775		GPA 2172-96		
Gross Heating Value (Dry)	1043.1	BTU/CF (Ideal	GPA 2172-96		
Gross Heating Value (Dry)	1045.5	BTU/CF (Real	GPA 2172-96		
Net Heating Value (Dry)	940.7	BTU/CF (Ideal	GPA 2172-96		
Net Heating Value (Dry)	942.8	BTU/CF (Real	GPA 2172-96		
Pressure Base	14.696	psia			
Sulfur, Total in Gas by Micro.	5	ppm wt	ASTM D-3246	5/5/03	KC
Sample Number:	**131789-002**	**Sample ID:**	**Unit 1B Natural Gas**		**Sample Rcvd:**
Sample Date:	**4/17/03 2:30:00 PM**	**Description:**			**4/30/03**
			#1756		

1A-Fuel-1

Gas Fuel F Factor & Heating Value Calculation

Company: Tampa Electric Company
Location: Bayside Power Station
Sample Identification: Unit 1A Fuel skid
Date: April 23, 2003
Time: 3:30 p.m.

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	319.1	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.310	28.016	0.0744	0.00023	0.5068	0	0.00	0.0	0
CO2	0.950	44.010	0.1170	0.00111	2.4424	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	94.610	16.041	0.0424	0.04011	88.1479	23879	21048.84	996.7	942.987
Ethane	2.900	30.067	0.0803	0.00233	5.1171	22320	1142.13	1756.1	50.9255
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.770	44.092	0.1196	0.00092	2.0236	21661	438.34	2518.4	19.3914
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.150	58.118	0.1582	0.00024	0.5214	21308	111.11	3303.3	4.95497
n-butane	0.160	58.118	0.1582	0.00025	0.5562	21257	118.23	3318.1	5.30893
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.050	72.144	0.1904	0.00010	0.2092	21091	44.12	3940.5	1.97027
n-pentane	0.030	72.144	0.1904	0.00006	0.1255	21052	26.42	3948.4	1.18452
n-hexane	0.070	86.169	0.2274	0.00016	0.3498	20940	73.24	4684.1	3.27888
n-heptane		86.169	0.2274	0.00000	0.0000	20940	0.00	5419.8	0
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density		0.04551	100.0000	**Gross Heating Value**		**Gross Heating Value**	
		Specific Gravity		0.59488		**Btu/lb**	**23002**	**Btu/SCF**	**1048.2**

CALCULATION OF F FACTORS

						Weight Percents			
Component	**Mol. Wt.**	**C Factor**	**H Factor**	**% volume**	**Fract. Wt.**	**Carbon**	**Hydrogen**	**Nitrogen**	**Oxygen**
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.31	8.6850			0.506983175	
CO2	44.010	0.272273	0	0.95	41.8095	0.66451574			1.77433
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	94.61	1517.6390	66.443954	22.147985		
Ethane	30.067	0.8	0.2	2.90	87.1943	4.07196285	1.0179907		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.77	33.9508	1.62153045	0.3603405		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.15	8.7177	0.42115589	0.087769		
n-butane	58.118	0.82759	0.17247	0.16	9.2989	0.44923295	0.0936203		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.05	3.6072	0.17547408	0.0350957		
n-pentane	72.144	0.83333	0.16667	0.03	2.1643	0.10528445	0.0210574		
n-hexane	86.169	0.83721	0.16279	0.00	0.0000	0	0		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.93000	1713.0667	73.9531104	23.76	0.506983175	1.77433

CALCULATED VALUES		
O2 F Factor (dry)	**8647**	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	**10641**	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	**1994**	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	**18.74**	volume % water in flue gas @ 0% excess air
CO2 F Factor	**1032**	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	**11.93**	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**1.75**	EPA Method 3a Fo value
Fuel VOC % (non-C1)	**9.17%**	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	**3.95%**	non-methane non-ethane fuel VOC content

1A-Fuel-2

```
                          Triad Measurement
                           3539 FM1960 EAST
                         Humble, TX  77338
                            800.275.5722

                 ORIFICE® Program Flow Element Calculation
                             Page 1 of 1
Tag.....: SN213534                    Date.....: 9/25/2001 08:01
Service.: FUEL GAS GR0647
Spec No.: GE DWG 371A5395             EFD(P&ID): GE P.O. 180278682
Line No.:                             Equip No.: 371A5395P001G297828
Customer: GE POWER SYSTEMS
Project#: TEC BAYSIDE ~~PK~~ CT1A     Shop Ord.: 8933
Revision: 00                          Calc. By.: k fountain
CalcType: Beta Ratio (Bore)           Pgm. Vers: 1.16L
Equ. Ref: AGA 3, 3rd edition.         FluidType: Gas
-------------------------------------------------------------------------
Fluid......  FUEL GAS
Element...., Type              Conc Orifice, Flange Tap
           , Material                          316 SS
           , Beta Ratio @ 68.00 Deg F       0.6919 d/D
           , Bore @ 68.00 Deg F             5.5223 d,  Inches
Pipe......., Schedule 40S and Size          8.0000     Inches
           , Material                          304 SS
           , Inside Dia @ 68.00 Deg F       7.9810 D,  Inches
Base......., Pressure at Std Cond          14.7000 Pb, Pounds/Sq In Absolute
           , Temperature at Std Cond       60.0000 Tb, Deg Fahrenheit
Local......, Atmospheric Pressure          14.6940 Pg, Pounds/Sq In Absolute
Pressure..., Flowing at Upstream          435.0000 Pf, Pounds/Sq In Gauge
           , Maximum Differential         138.5000 Hm, Inches Wtr Col
           , Normal Differential           67.8650 Hn, Inches Wtr Col
           , Permanent Loss @Max  Flow     73.6784 Lm, Inches Wtr Col
           , Permanent Loss @Norm Flow     36.1024 Ln, Inches Wtr Col
           , Drop For Critical Flow       261.9062 Hc, Pounds/Sq In
Temperature, Flowing                      365.0000 Tf, Deg Fahrenheit
Flow......., Maximum, Mass Conditions      22.7440 Qm, Mass Pounds/Second
           , Normal,  Mass Conditions      15.9208 Qn, Mass Pounds/Second
           , Ratio (Norm/Max Flow)         70.0000 %,  Percent
           , Reynolds Nmbr @Max  Flow 3,801,122.3589 RDm
           , Reynolds Nmbr @Norm Flow 2,660,785.6512 RDn
Fluid Prop., Specific Gravity               0.5765 SG
           , Viscosity @ Flowing            0.0170 Centipoise
           , Ratio of Specific Heats        1.2700 Cp/Cv
           , Compress Calc Method          Entered
           , Compressibility @ Flowing      0.9961 Zf
           , Calculated Flow Density        0.8520 Rhof, Lbs/Cu Ft
Factors...., Calculated at Normal Flow
           , Discharge Coefficient          0.6025 C
           , Velocity Approach Factor       1.1390  Ev
           , Gas Expansion Factor           0.9979 Y1
           , Comb Thermal Expan Factor      1.0055 Fa
-------------------------------------------------------------------------
    ORIFICE® is a registered trademark of FlowSoft Inc., St. Charles, MO  63303
                    All rights reserved, 1979 - 1997
-------------------------------------------------------------------------
Notes: None
```

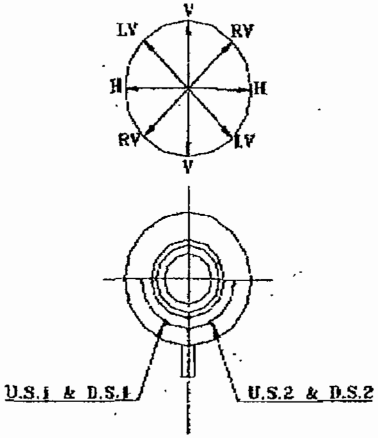
IA-Fuel-3

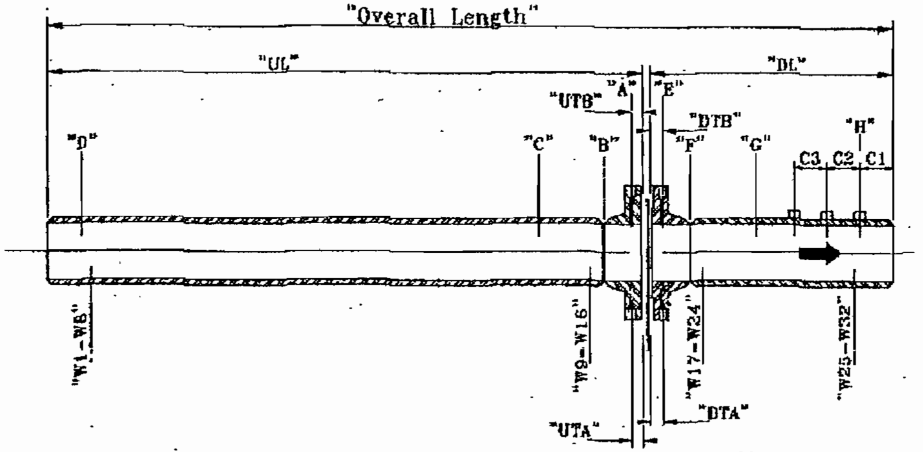
1A-Fuel-4

TRIAD MEASUREMENT & EQUIPMENT, INC

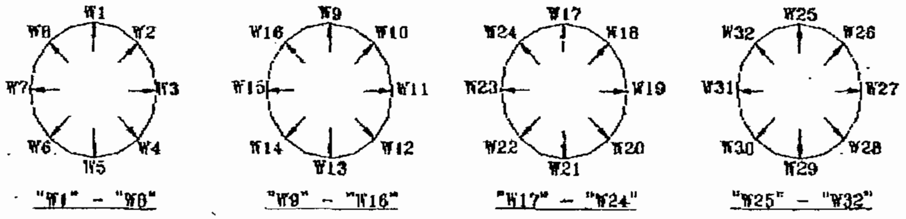
Customer: General Electric
Cust. P.O. No.: 180278682
Item No.: 3

Triad Job No.: 8933
Serial No.: 21-3534
Part No.: 371A5395

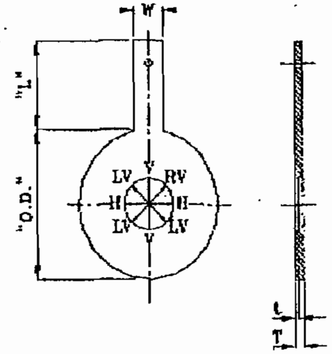




METER TUBE DIMENSIONS



WALL THICKNESS READINGS



ORIFICE PLATE DIMENSIONS

1A-Fuel-5

ORIFICE RUN MEASUREMENT DIMENSIONS (INCHES)

"UL"	"UTA"	"UTB"	"DL"	"DTA"	"DTB"
173.875	0.9120	0.9180	48.000	0.9100	0.9180

Gasket Thickness 0.1250 Orifice thickness 0.25 Overall Length 222.375 HT# U.S. Pipe: id75 HT# U.S. Flg.: 28534

"C1" 6.000 "C2" "C3" HT# D.S. Pipe: id75 HT# D.S. Flg.: 28534

UPSTREAM LOCATIONS					DOWNSTREAM LOCATIONS				
AXIS	"A" @ TAP	"B" @ WELD	"C" 2D FROM ORF. PLT.	"D" 6" FROM END	"E" @ TAP	"F" @ WELD	"G" 2D FROM ORF. PLT.	"H" 6" FROM END	AXIS
V	7.983	7.980	7.984	7.987	7.980	7.977	7.976	8.004	V
RV	7.983	7.981	7.977	7.982	7.980	7.979	7.979	7.988	RV
H	7.983	7.981	7.978	7.982	7.980	7.978	7.978	7.964	H
LV	7.983	7.981	7.984	7.984	7.980	7.975	7.975	7.976	LV
AVG.	7.983	7.981	7.981	7.984	7.980	7.977	7.977	7.983	AVG.
CALIBRATED SIZE:		7.98300			CALIBRATED SIZE:	7.98000			

Mic'd Orifice Bore: 5.5220 Nominal pipe size 8 inches Beta Ratio: 0.6917

Meter tube temp. when measurements were made at 60 degrees F

WALL THICKNESS READINGS				
	W1-W8	W9-W16	W17-W24	W25-W32
	329.000	319.000	319.000	292.000
	333.000	319.000	316.000	301.000
	348.000	329.000	309.000	351.000
	339.000	340.000	318.000	325.000
	279.000	290.000	292.000	302.000
	256.000	336.000	322.000	341.000
	333.000	327.000	320.000	358.000
	314.000	326.000	330.000	332.000
AVG.	316.3750	323.2500	315.7500	325.2500

ECCENTRICITY:

E</= 0.0025(Dm) / 0.1 + 2.3bm4

Where,

Dm = 7.983

β = 0.69172

E</= 0.03185 Max Deviation

	Calc. Radius to cL of Dowel	Measured Radius	Deviation
U.S. 1	6.5625	6.5540	0.0085
U.S. 2	6.5625	6.5500	0.0125
D.S. 1	6.5625	6.5800	0.0175
D.S. 2	6.5625	6.5400	0.0225

Deviation is within tolerance

Orifice Plate Measurements			
"V"	5.5220	"OD"	12.6250
"RV"	5.5220	"T"	0.1260
"H"	5.5220	"t"	0.1260
"LV"	5.5220	"L"	5.0000
Average	5.5220	"W"	1.2500

INSIDE PIPE CONDITION

Measure the internal surface roughness of the meter tube at approximately the same axial locations as those used to determine and verify the meter tube internal diameter (Dm) as those shown in Eccentricity table above.

Measurement 1	32	Microinches (Ra)	Measurement 2	32	Microinches (Ra)
Measurement 3	32	Microinches (Ra)	Measurement 4	32	Microinches (Ra)

Average surface finish 32 Microinches (Ra)

Is the average surface finish less than 250 microinches (Ra)?	YES
Is the pipe free of irregularities such as grooves, scoring, ETC.?	YES

SECTION 1 - WITHIN THE FIRST DIAMETER (Dm) UPSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.983 Dmax Smallest Dia.= 7.980 Dmin

$\frac{\text{Dmax - Dm}}{\text{Dm}}$ x 100= 0.00000% < or = 0.25% .... **Within Tolerance**

$\frac{\text{Dmin - Dm}}{\text{Dm}}$ x 100= 0.03758% < or = 0.25% .... **Within Tolerance**

IA-Fuel-6

SECTION 2 - ALL METER TUBE DIAMETER MEASUREMENTS UPSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.984 Dmax Smallest Dia.= 7.977 Dmin

$\frac{\text{Dmax - Dmin}}{\text{Dm}}$ x 100= 0.08769% < or = 0.50% .... **Within Tolerance**

SECTION 3 - ALL METER TUBE DIAMETER MEASUREMENTS DOWNSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.980 Dmax Smallest Dia.= 7.975 Dmin

$\frac{\text{Dmax - Dm}}{\text{Dm}}$ x 100= 0.00000% < or = 0.50% .... **Within Tolerance**

$\frac{\text{Dmin - Dm}}{\text{Dm}}$ x 100= 0.06266% < or = 0.50% .... **Within Tolerance**

FLANGE TAP CONSTRUCTION

Specified tap location from face of flange	0.9110	inches
Measured tap location for "UTA"	0.9120	inches.........**Tap hole is within tolerance**
Measured tap location for "UTB"	0.9180	inches.........**Tap hole is within tolerance**
Measured tap location for "DTA"	0.9100	inches.........**Tap hole is within tolerance**
Measured tap location for "DTB"	0.9180	inches.........**Tap hole is within tolerance**

The tap location tolerance for NPS 4" and larger is 0.03" for 0.75 beta ratio

The tap location tolerance for NPS smaller than 4" is 0.015" for 0.75 beta ratio

Specified drill thru diameter	0.5000	inches
Measured drill thru diameter for "UTA"	0.5000	inches.........**Drill thru is within tolerance**
Measured drill thru diameter for "UTB"	0.5000	inches.........**Drill thru is within tolerance**
Measured drill thru diameter for "DTA"	0.5000	inches.........**Drill thru is within tolerance**
Measured drill thru diameter for "DTB"	0.5000	inches.........**Drill thru is within tolerance**

The drill thru for NPS 4" and larger is 0.500" +/-0.0156"

The drill thru for NPS 2" and 3" is 0.375" +/-0.0156"

The drill thru for NPS 1 1/2" and smaller is 0.25" +/-"0.0156"

TAP HOLE CONDITION

☒ Good - Burr free edge

☐ Fair - Burr free edge, rounded but within 0.0625d

☐ Poor - Burrs or corrosion present

Orifice Meter Tube Is Accepted

Inspected and recorded By: Bruce Henderson

Date: December 17, 2002

Core Lab
PETROLEUM SERVICES

8210 Mosley Rd.
Houston, TX 77075
713 943-9776 Telephone
713 943-3846 Facsimile

CORE LABORATORIES

LEONARD BRENNER
CUBIX CORPORATION
3709 SW 42ND AVENUE ST2
GAINSVILLE, FL 32608

Date Reported: 5/8/03
Date Received: 4/30/03

Analytical Report

Sample Number: **131789-002** **Sample ID:** **Unit 1B Natural Gas** **Sample Rcvd:**
Sample Date: **4/17/03 2:30:00 PM** **Description:** **4/30/03**
#1756

Test	Result	Units	Method	Date	Analyst
Natural Gas Analysis					
Oxygen	< 0.01	Mol %	GPA 2261-95	5/7/03	JW
Nitrogen	0.29	Mol %	GPA 2261-95		
Carbon Dioxide	1.10	Mol %	GPA 2261-95		
Methane	94.29	Mol %	GPA 2261-95		
Ethane	3.01	Mol %	GPA 2261-95		
Propane	0.81	Mol %	GPA 2261-95		
Isobutane	0.18	Mol %	GPA 2261-95		
n-Butane	0.17	Mol %	GPA 2261-95		
Isopentane	0.05	Mol %	GPA 2261-95		
n-Pentane	0.03	Mol %	GPA 2261-95		
Hexanes Plus	0.07	Mol %	GPA 2261-95		
Total	100.00	Mol %	GPA 2261-95		
Molar Mass Ratio	0.59669		GPA 2172-96		
Relative Density	0.59764		GPA 2172-96		
Compressibility Factor	0.99773		GPA 2172-96		
Gross Heating Value (Dry)	1044.2	BTU/CF (Ideal	GPA 2172-96		
Gross Heating Value (Dry)	1046.6	BTU/CF (Real	GPA 2172-96		
Net Heating Value (Dry)	941.8	BTU/CF (Ideal	GPA 2172-96		
Net Heating Value (Dry)	944.0	BTU/CF (Real	GPA 2172-96		
Pressure Base	14.696	psia			
Sulfur, Total in Gas by Micro.	2	ppm wt	ASTM D-3246	5/5/03	KC

Sample Number: **131789-003** **Sample ID:** **Unit 1C Natural Gas** **Sample Rcvd:**
Sample Date: **4/18/03 10:20:00 AM** **Description:** **4/30/03**
#1829

1B-Fuel-1

Gas Fuel F Factor & Heating Value Calculation

Company: Tampa Electric Company
Location: Bayside Power Station
Sample Identification: Unit 1B fuel skid
Date: April 17, 2003
Time: 2:30 p.m.

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	319.1	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.290	28.016	0.0744	0.00022	0.4718	0	0.00	0.0	0
CO2	1.100	44.010	0.1170	0.00129	2.8142	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	94.290	16.041	0.0424	0.03998	87.4187	23879	20874.72	996.7	939.798
Ethane	3.010	30.067	0.0803	0.00242	5.2851	22320	1179.64	1756.1	52.8571
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.810	44.092	0.1196	0.00097	2.1183	21661	458.85	2518.4	20.3987
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.180	58.118	0.1582	0.00028	0.6227	21308	132.68	3303.3	5.94596
n-butane	0.170	58.118	0.1582	0.00027	0.5881	21257	125.01	3318.1	5.64074
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.050	72.144	0.1904	0.00010	0.2082	21091	43.90	3940.5	1.97027
n-pentane	0.030	72.144	0.1904	0.00006	0.1249	21052	26.29	3948.4	1.18452
n-hexane	0.070	86.169	0.2274	0.00016	0.3481	20940	72.89	4684.1	3.27888
n-heptane		86.169	0.2274	0.00000	0.0000	20940	0.00	5419.8	0
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density		0.04573	100.0000	**Gross Heating Value**		**Gross Heating Value**	
		Specific Gravity		0.59781		**Btu/lb**	**22914**	**Btu/SCF**	**1049.3**

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents			
						Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.29	8.1246			0.4719867	
CO2	44.010	0.272273	0	1.10	48.4110	0.76572753			2.04458
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	94.29	1512.5059	65.8997811	21.966594		
Ethane	30.067	0.8	0.2	3.01	90.5017	4.20602853	1.0515071		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.81	35.7145	1.69753724	0.377231		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.18	10.4612	0.5029491	0.1048147		
n-butane	58.118	0.82759	0.17247	0.17	9.8801	0.47500748	0.0989917		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.05	3.6072	0.1746276	0.0349264		
n-pentane	72.144	0.83333	0.16667	0.03	2.1643	0.10477656	0.0209558		
n-hexane	86.169	0.83721	0.16279	0.00	0.0000	0	0		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.93000	1721.3705	73.8264351	23.66	0.4719867	2.04458

CALCULATED VALUES		
O2 F Factor (dry)	**8649**	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	**10641**	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	**1992**	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	**18.72**	volume % water in flue gas @ 0% excess air
CO2 F Factor	**1034**	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	**11.96**	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**1.75**	EPA Method 3a Fo value
Fuel VOC % (non-C1)	**9.61%**	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	**4.20%**	non-methane non-ethane fuel VOC content

Testing By Cubix Corporation - Austin, Texas - Gainesville, Florida

1B-Fuel-2

```
                         Triad Measurement
                          3539 FM1960 EAST
                         Humble, TX  77338
                           800.275.5722

              ORIFICE® Program Flow Element Calculation
                            Page 1 of 1
Tag.....: SN213532                      Date.....: 9/25/2001 08:01
Service.: FUEL GAS GR0647
Spec No.: GE DWG 371A5395               EFD(P&ID): GE P.O. 180278682
Line No.:                               Equip No.: 371A5395P001G297826
Customer: GE POWER SYSTEMS
Project#: TEC BAYSIDE ~~#1~~ CT/1B               Shop Ord.: 8933
Revision: 00                            Calc. By.: k fountain
CalcType: Beta Ratio (Bore)             Pgm. Vers: 1.16L
Equ. Ref: AGA 3, 3rd edition.           FluidType: Gas
-----------------------------------------------------------------------
Fluid......  FUEL GAS
Element...., Type             Conc Orifice, Flange Tap
           , Material                          316 SS
           , Beta Ratio @ 68.00 Deg F          0.6919 d/D
           , Bore @ 68.00 Deg F                5.5223 d,  Inches
Pipe......., Schedule 40S and Size             8.0000     Inches
           , Material                          304 SS
           , Inside Dia @ 68.00 Deg F          7.9810 D,  Inches
Base......., Pressure at Std Cond             14.7000 Pb, Pounds/Sq In Absolute
           , Temperature at Std Cond          60.0000 Tb, Deg Fahrenheit
Local......, Atmospheric Pressure             14.6940 Pg, Pounds/Sq In Absolute
Pressure..., Flowing at Upstream             435.0000 Pf, Pounds/Sq In Gauge
           , Maximum Differential            138.5000 Hm, Inches Wtr Col
           , Normal Differential              67.8650 Hn, Inches Wtr Col
           , Permanent Loss @Max  Flow        73.6784 Lm, Inches Wtr Col
           , Permanent Loss @Norm Flow        36.1024 Ln, Inches Wtr Col
           , Drop For Critical Flow          261.9062 Hc, Pounds/Sq In
Temperature, Flowing                         365.0000 Tf, Deg Fahrenheit
Flow......., Maximum, Mass Conditions         22.7440 Qm, Mass Pounds/Second
           , Normal,  Mass Conditions         15.9208 Qn, Mass Pounds/Second
           , Ratio (Norm/Max Flow)            70.0000 %,  Percent
           , Reynolds Nmbr @Max  Flow   3,801,122.3589 RDm
           , Reynolds Nmbr @Norm Flow   2,660,785.6512 RDn
Fluid Prop., Specific Gravity                  0.5765 SG
           , Viscosity @ Flowing               0.0170 Centipoise
           , Ratio of Specific Heats           1.2700 Cp/Cv
           , Compress Calc Method             Entered
           , Compressibility @ Flowing         0.9961 Zf
           , Calculated Flow Density           0.8520 Rhof, Lbs/Cu Ft
Factors...., Calculated at Normal Flow
           , Discharge Coefficient             0.6025 C
           , Velocity Approach Factor          1.1390  Ev
           , Gas Expansion Factor              0.9979 Y1
           , Comb Thermal Expan Factor         1.0055 Fa
-----------------------------------------------------------------------
   ORIFICE® is a registered trademark of FlowSoft Inc., St. Charles, MO  63303
                    All rights reserved, 1979 - 1997
-----------------------------------------------------------------------
Notes: None
```

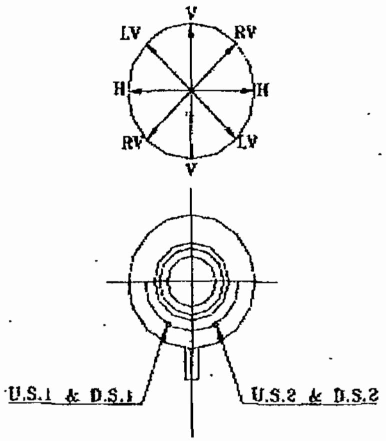
1B-Fuel-3

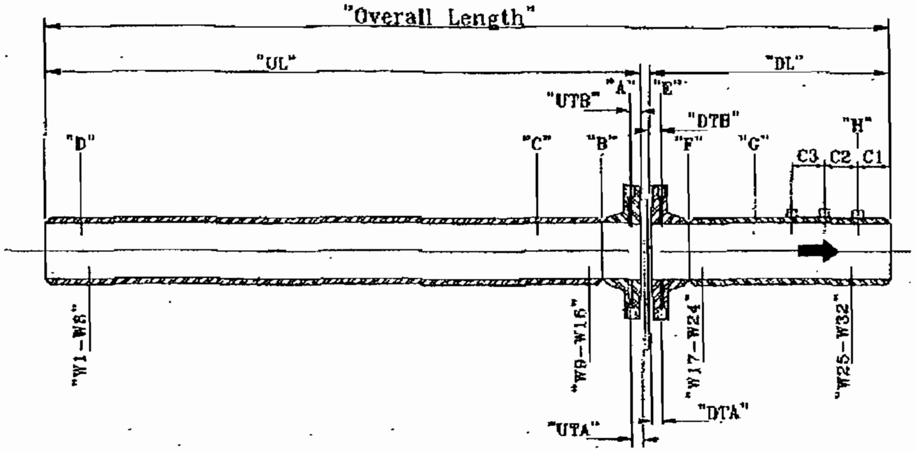
1B Fuel-4

MEASUREMENT
TRIAD
& EQUIPMENT, INC

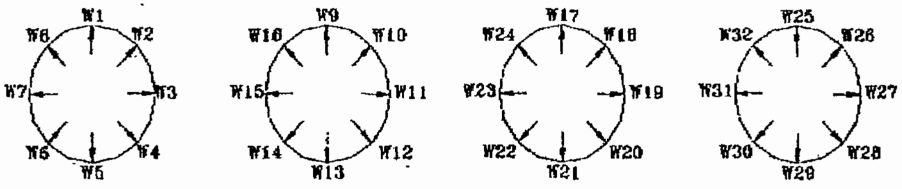
Customer: General Electric
Cust. P.O. No.: 180278682
Item No.: 1

Triad Job No.: 8933
Serial No.: 21-3532
Part No.: 371A5395



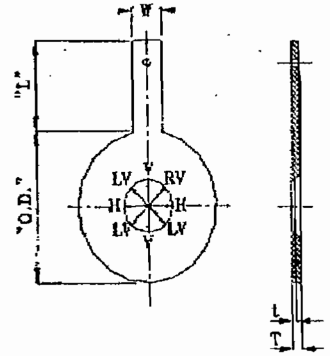


METER TUBE DIMENSIONS



"W1" - "W8" "W9" - "W16" "W17" - "W24" "W25" - "W32"

WALL THICKNESS READINGS



ORIFICE PLATE DIMENSIONS

13-Fuel-5

ORIFICE RUN MEASUREMENT DIMENSIONS (INCHES)

"UL"	"UTA"	"UTB"	"DL"	"DTA"	"DTB"
174.125	0.9150	0.9170	47.938	0.9100	0.9150

Gasket Thickness 0.1250 Orifice thickness 0.25 Overall Length 222.563 HT# U.S. Pipe: HT# U.S. Flg.:

"C1" 6.000 "C2" "C3" HT# D.S. Pipe: HT# D.S. Flg.:

	UPSTREAM LOCATIONS				DOWNSTREAM LOCATIONS				
AXIS	"A" @ TAP	"B" @ WELD	"C" 2D FROM ORF. PLT.	"D" 6" FROM END	"E" @ TAP	"F" @ WELD	"G" 2D FROM ORF. PLT.	"H" 6" FROM END	AXIS
V	7.980	7.978	7.974	7.982	7.980	7.975	7.974	7.982	V
RV	7.980	7.978	7.974	7.982	7.980	7.975	7.972	7.974	RV
H	7.980	7.978	7.975	7.979	7.980	7.974	7.971	7.970	H
LV	7.980	7.979	7.975	7.977	7.980	7.975	7.974	7.976	LV
AVG.	7.980	7.978	7.975	7.980	7.980	7.975	7.973	7.976	AVG.
CALIBRATED SIZE:		7.98000			CALIBRATED SIZE:	7.98000			

Mic'd Orifice Bore: 5.5210 Nominal pipe size 8 inches Beta Ratio: 0.6919

Meter tube temp. when measurements were made at 65 degrees F

	WALL THICKNESS READINGS			
	W1-W8	W9-W16	W17-W24	W25-W32
	313.000	343.000	342.000	362.000
	325.000	378.000	348.000	370.000
	358.000	378.000	0.372	346.000
	345.000	360.000	340.000	345.000
	345.000	344.000	335.000	332.000
	342.000	333.000	322.000	329.000
	346.000	310.000	322.000	317.000
	328.000	301.000	324.000	361.000
AVG.	337.7500	343.3750	291.6715	345.2500

ECCENTRICITY:

E</= 0.0025(Dm) / 0.1 + 2.3bm4

Where,

Dm = 7.98

β = 0.69185

E</= 0.03182 Max Deviation

	Calc. Radius to cL of Dowel	Measured Radius	Deviation
U.S. 1	6.5625	6.5620	0.0005
U.S. 2	6.5625	6.5630	0.0005
D.S. 1	6.5625	6.5600	0.0025
D.S. 2	6.5625	6.5650	0.0025

Deviation is within tolerance

Orifice Plate Measurements			
"V"	5.5210	"OD"	12.6250
"RV"	5.5210	"T"	0.1260
"H"	5.5210	"t"	0.1260
"LV"	5.5210	"L"	5.0000
Average	5.5210	"W"	1.2500

INSIDE PIPE CONDITION

Measure the internal surface roughness of the meter tube at approximately the same axial locations as those used to determina and verify the meter tube internal diameter (Dm) as those shown in Eccentricity table above.

Measurement 1	32	Microinches (Ra)	Measurement 2	32	Microinches (Ra)
Measurement 3	32	Microinches (Ra)	Measurement 4	32	Microinches (Ra)

Average surface finish 32 Microinches (Ra)

Is the average surface finish less than 250 microinches (Ra)? YES

Is the pipe free of irregularities such as grooves, scoring, ETC.? YES

SECTION 1 - WITHIN THE FIRST DIAMETER (Dm) UPSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.980 Dmax Smallest Dia.= 7.978 Dmin

$\frac{\text{Dmax - Dm}}{\text{Dm}}$ x 100= 0.00000% < or = 0.25% .... **Within Tolerance**

$\frac{\text{Dmin - Dm}}{\text{Dm}}$ x 100= 0.02506% < or = 0.25% .... **Within Tolerance**

13-Fuel-6

SECTION 2 - ALL METER TUBE DIAMETER MEASUREMENTS UPSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.980 Dmax Smallest Dia.= 7.974 Dmin

$\frac{Dmax - Dmin}{Dm} \times 100 =$ 0.07519% < or = 0.50% .... **Within Tolerance**

SECTION 3 - ALL METER TUBE DIAMETER MEASUREMENTS DOWNSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.980 Dmax Smallest Dia.= 7.971 Dmin

$\frac{Dmax - Dm}{Dm} \times 100 =$ 0.00000% < or = 0.50% .... **Within Tolerance**

$\frac{Dmin - Dm}{Dm} \times 100 =$ 0.11278% < or = 0.50% .... **Within Tolerance**

FLANGE TAP CONSTRUCTION

Specified tap location from face of flange	0.9110	inches
Measured tap location for "UTA"	0.9150	inches......... **Tap hole is within tolerance**
Measured tap location for "UTB"	0.9170	inches......... **Tap hole is within tolerance**
Measured tap location for "DTA"	0.9100	inches......... **Tap hole is within tolerance**
Measured tap location for "DTB"	0.9150	inches......... **Tap hole is within tolerance**

The tap location tolerance for NPS 4" and larger is 0.03" for 0.75 beta ratio
The tap location tolerance for NPS smaller than 4" is 0.015" for 0.75 beta ratio

Specified drill thru diameter	0.5000	inches
Measured drill thru diameter for "UTA"	0.5000	inches......... **Drill thru is within tolerance**
Measured drill thru diameter for "UTB"	0.5000	inches......... **Drill thru is within tolerance**
Measured drill thru diameter for "DTA"	0.5000	inches......... **Drill thru is within tolerance**
Measured drill thru diameter for "DTB"	0.5000	inches......... **Drill thru is within tolerance**

The drill thru for NPS 4" and larger is 0.500" +/-0.0156"
The drill thru for NPS 2" and 3" is 0.375" +/-0.0156"
The drill thru for NPS 1 1/2" and smaller is 0.25" +/-"0.0156"

TAP HOLE CONDITION

☒ Good - Burr free edge
☐ Fair - Burr free edge, rounded but within 0.0625d
☐ Poor - Burrs or corrosion present

Orifice Meter Tube Is Accepted

Inspected and recorded By: Bruce Henderson

Date: October 29, 2001

Core Lab
PETROLEUM SERVICES

8210 Mosley Rd.
Houston, TX 77075
713 943-9776 Telephone
713 943-3846 Facsimile

CORE LABORATORIES

LEONARD BRENNER
CUBIX CORPORATION
3709 SW 42ND AVENUE ST2
GAINSVILLE, FL 32608

Date Reported: 5/8/03
Date Received: 4/30/03

Analytical Report

Test	Result	Units	Method	Date	Analyst
Sample Number:	**131789-003**	**Sample ID:**	**Unit 1C Natural Gas**		**Sample Rcvd:**
Sample Date:	**4/18/03 10:20:00 AM**	**Description:**			**4/30/03**
			#1829		
Natural Gas Analysis					
Oxygen	0.05	Mol %	GPA 2261-95	5/7/03	JW
Nitrogen	0.37	Mol %	GPA 2261-95		
Carbon Dioxide	0.97	Mol %	GPA 2261-95		
Methane	94.52	Mol %	GPA 2261-95		
Ethane	2.86	Mol %	GPA 2261-95		
Propane	0.73	Mol %	GPA 2261-95		
Isobutane	0.15	Mol %	GPA 2261-95		
n-Butane	0.16	Mol %	GPA 2261-95		
Isopentane	0.05	Mol %	GPA 2261-95		
n-Pentane	0.03	Mol %	GPA 2261-95		
Hexanes Plus	0.11	Mol %	GPA 2261-95		
Total	100.00	Mol %	GPA 2261-95		
Molar Mass Ratio	0.59495		GPA 2172-96		
Relative Density	0.59589		GPA 2172-96		
Compressibility Factor	0.99774		GPA 2172-96		
Gross Heating Value (Dry)	1042.5	BTU/CF (Ideal	GPA 2172-96		
Gross Heating Value (Dry)	1044.9	BTU/CF (Real	GPA 2172-96		
Net Heating Value (Dry)	940.2	BTU/CF (Ideal	GPA 2172-96		
Net Heating Value (Dry)	942.3	BTU/CF (Real	GPA 2172-96		
Pressure Base	14.696	psia			
Sulfur, Total in Gas by Micro.	2	ppm wt	ASTM D-3246	5/5/03	KC

Approved By:
for
Jean Waits
Supervising Chemist

1C-Fuel-1

Gas Fuel F Factor & Heating Value Calculation

Company: Tampa Electric Company
Location: Bayside Power Station
Sample Identification: Unit 1C fuel skid
Date: April 18, 2003
Time: 10:20 a.m.

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	319.1	0
Oxygen	0.050	32.000	0.0846	0.00004	0.0928	0	0.00	0.0	0
Nitrogen	0.370	28.016	0.0744	0.00028	0.6038	0	0.00	0.0	0
CO2	0.970	44.010	0.1170	0.00113	2.4893	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	94.520	16.041	0.0424	0.04008	87.9034	23879	20990.45	996.7	942.09
Ethane	2.860	30.067	0.0803	0.00230	5.0373	22320	1124.33	1756.1	50.223
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.730	44.092	0.1196	0.00087	1.9150	21661	414.81	2518.4	18.384
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.150	58.118	0.1582	0.00024	0.5205	21308	110.91	3303.3	4.95497
n-butane	0.160	58.118	0.1582	0.00025	0.5552	21257	118.02	3318.1	5.30893
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.050	72.144	0.1904	0.00010	0.2088	21091	44.04	3940.5	1.97027
n-pentane	0.030	72.144	0.1904	0.00006	0.1253	21052	26.38	3948.4	1.18452
n-hexane	0.110	86.169	0.2274	0.00025	0.5487	20940	114.89	4684.1	5.15253
n-heptane		86.169	0.2274	0.00000	0.0000	20940	0.00	5419.8	0
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density		0.04559	100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity		0.59597		Btu/lb	22944	Btu/SCF	1047.5

CALCULATION OF F FACTORS

						Weight Percents			
Component	**Mol. Wt.**	**C Factor**	**H Factor**	**% volume**	**Fract. Wt.**	**Carbon**	**Hydrogen**	**Nitrogen**	**Oxygen**
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.05	1.6000				0.09341
Nitrogen	28.016	0	0	0.37	10.3659			0.60519688	
CO2	44.010	0.272273	0	0.97	42.6897	0.67860414			1.81195
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	94.52	1516.1953	66.3903935	22.130131		
Ethane	30.067	0.8	0.2	2.86	85.9916	4.01638138	1.0040953		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.73	32.1872	1.53751848	0.3416712		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.15	8.7177	0.42121709	0.0877818		
n-butane	58.118	0.82759	0.17247	0.16	9.2989	0.44929823	0.0936339		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.05	3.6072	0.17549957	0.0351008		
n-pentane	72.144	0.83333	0.16667	0.03	2.1643	0.10529974	0.0210605		
n-hexane	86.169	0.83721	0.16279	0.00	0.0000	0	0		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.89000	1712.8178	73.7742121	23.71	0.60519688	1.90536

CALCULATED VALUES

O2 F Factor (dry)	**8647**	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	**10642**	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	**1995**	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	**18.74**	volume % water in flue gas @ 0% excess air
CO2 F Factor	**1032**	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	**11.94**	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**1.75**	EPA Method 3a Fo value
Fuel VOC % (non-C1)	**9.21%**	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	**4.07%**	non-methane non-ethane fuel VOC content

1C-fuel-2

```
                          Triad Measurement
                          3539 FM1960 EAST
                          Humble, TX  77338
                            800.275.5722

                ORIFICE® Program Flow Element Calculation
                             Page 1 of 1
Tag.....: SN213533                    Date.....: 9/25/2001 08:01
Service.: FUEL GAS GR0647
Spec No.: GE DWG 371A5395             EFD(P&ID): GE P.O. 180278682
Line No.:                             Equip No.: 371A5395P001G297827
Customer: GE POWER SYSTEMS
Project#: TEC BAYSIDE CT/C            Shop Ord.: 8933
Revision: 00                          Calc. By.: k fountain
CalcType: Beta Ratio (Bore)           Pgm. Vers: 1.16L
Equ. Ref: AGA 3, 3rd edition.         FluidType: Gas
------------------------------------------------------------------------------
Fluid......  FUEL GAS
Element...., Type                Conc Orifice, Flange Tap
           , Material                            316 SS
           , Beta Ratio @ 68.00 Deg F            0.6919 d/D
           , Bore @ 68.00 Deg F                  5.5223 d,   Inches
Pipe......., Schedule 40S and Size               8.0000      Inches
           , Material                            304 SS
           , Inside Dia @ 68.00 Deg F            7.9810 D,   Inches
Base......., Pressure at Std Cond               14.7000 Pb,  Pounds/Sq In Absolute
           , Temperature at Std Cond            60.0000 Tb,  Deg Fahrenheit
Local......, Atmospheric Pressure               14.6940 Pg,  Pounds/Sq In Absolute
Pressure..., Flowing at Upstream               435.0000 Pf,  Pounds/Sq In Gauge
           , Maximum Differential              138.5000 Hm,  Inches Wtr Col
           , Normal Differential                67.8650 Hn,  Inches Wtr Col
           , Permanent Loss @Max  Flow          73.6784 Lm,  Inches Wtr Col
           , Permanent Loss @Norm Flow          36.1024 Ln,  Inches Wtr Col
           , Drop For Critical Flow            261.9062 Hc,  Pounds/Sq In
Temperature, Flowing                           365.0000 Tf,  Deg Fahrenheit
Flow......., Maximum, Mass Conditions           22.7440 Qm,  Mass Pounds/Second
           , Normal,  Mass Conditions           15.9208 Qn,  Mass Pounds/Second
           , Ratio (Norm/Max Flow)              70.0000 %,   Percent
           , Reynolds Nmbr @Max  Flow    3,801,122.3589 RDm
           , Reynolds Nmbr @Norm Flow    2,660,785.6512 RDn
Fluid Prop., Specific Gravity                    0.5765 SG
           , Viscosity @ Flowing                 0.0170 Centipoise
           , Ratio of Specific Heats             1.2700 Cp/Cv
           , Compress Calc Method               Entered
           , Compressibility @ Flowing           0.9961 Zf
           , Calculated Flow Density             0.8520 Rhof, Lbs/Cu Ft
Factors...., Calculated at Normal Flow
           , Discharge Coefficient               0.6025 C
           , Velocity Approach Factor            1.1390  Ev
           , Gas Expansion Factor                0.9979 Y1
           , Comb Thermal Expan Factor           1.0055 Fa
------------------------------------------------------------------------------
    ORIFICE® is a registered trademark of FlowSoft Inc., St. Charles, MO  63303
                     All rights reserved, 1979 - 1997
------------------------------------------------------------------------------
Notes: None
```

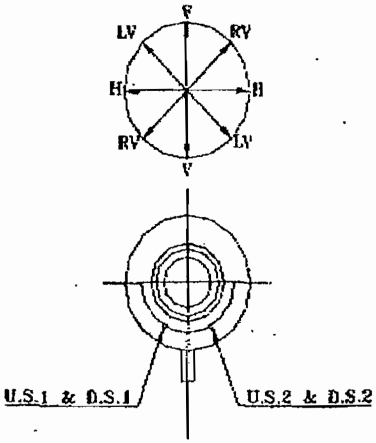
1C-Fuel-3

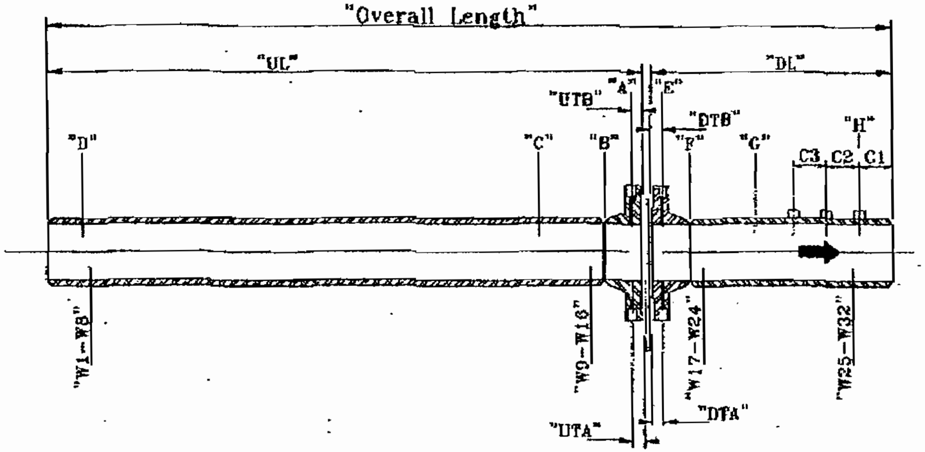
1C-Fuel-4

TRIAD
MEASUREMENT & EQUIPMENT, INC

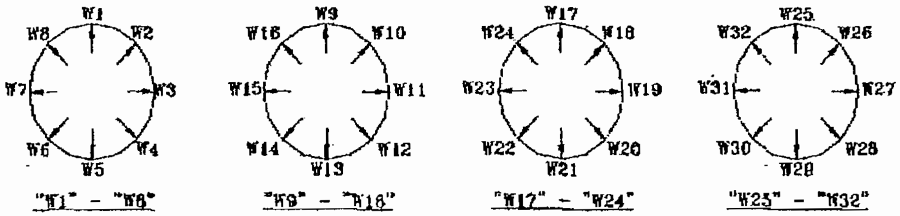
Customer: General Electric
Cust. P.O. No.: 180278682
Item No.: 2

Triad Job No.: 8933
Serial No.: 21-3533
Part No.: 371A5395



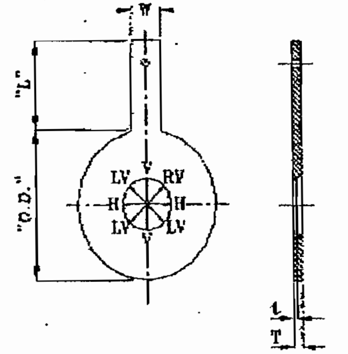


METER TUBE DIMENSIONS



"W1" - "W8"   "W9" - "W16"   "W17" - "W24"   "W25" - "W32"

WALL THICKNESS READINGS



ORIFICE PLATE DIMENSIONS

1C-Fuel-5

ORIFICE RUN MEASUREMENT DIMENSIONS (INCHES)

"UL"	"UTA"	"UTB"	"DL"	"DTA"	"DTB"
173.875	0.9120	0.9180	47.875	0.9100	0.9180

Gasket Thickness 0.1250 Orifice thickness 0.25 Overall Length 222.250 HT# U.S. Pipe: HT# U.S. Flg.:

"C1" 6.000 "C2" "C3" HT# D.S. Pipe: HT# D.S. Flg.:

	UPSTREAM LOCATIONS				DOWNSTREAM LOCATIONS				
AXIS	"A" @ TAP	"B" @ WELD	"C" 2D FROM ORF. PLT.	"D" 6" FROM END	"E" @ TAP	"F" @ WELD	"G" 2D FROM ORF. PLT.	"H" 6" FROM END	AXIS
V	7.982	7.980	7.976	7.982	7.975	7.972	7.969	7.980	V
RV	7.982	7.981	7.976	7.982	7.975	7.975	7.972	7.971	RV
H	7.982	7.981	7.974	7.979	7.975	7.972	7.971	7.966	H
LV	7.982	7.980	7.975	7.981	7.975	7.972	7.974	7.974	LV
AVG.	7.982	7.981	7.975	7.981	7.975	7.973	7.972	7.973	AVG.
CALIBRATED SIZE:			7.98200		CALIBRATED SIZE:	7.97500			

Mic'd Orifice Bore: 5.5220 Nominal pipe size 8 inches Beta Ratio: 0.6918

Meter tube temp. when measurements were made at 60 degrees F

	WALL THICKNESS READINGS			
	W1-W8	W9-W16	W17-W24	W25-W32
	326.000	310.000	340.000	324.000
	331.000	321.000	354.000	361.000
	334.000	334.000	346.000	368.000
	335.000	353.000	323.000	344.000
	337.000	354.000	363.000	371.000
	347.000	342.000	338.000	366.000
	352.000	335.000	345.000	368.000
	339.000	322.000	342.000	369.000
AVG.	337.6250	333.8750	343.8750	358.8750

Orifice Plate Measurements			
"V"	5.5220	"OD"	12.6250
"RV"	5.5220	"T"	0.1280
"H"	5.5220	"t"	0.1280
"LV"	5.5220	"L"	5.0000
Average	5.5220	"W"	1.2500

ECCENTRICITY:

E</= **0.0025(Dm) / 0.1 + 2.3bm4**

Where,

Dm = 7.982

β = 0.69181

E</= **0.03184** Max Deviation

	Calc. Radius to cL of Dowel	Measured Radius	Deviation
U.S. 1	6.5625	6.5540	0.0085
U.S. 2	6.5625	6.5500	0.0125
D.S. 1	6.5625	6.5800	0.0175
D.S. 2	6.5625	6.5400	0.0225

Deviation is within tolerance

INSIDE PIPE CONDITION

Measure the internal surface roughness of the meter tube at approximately the same axial locations as those used to determine and verify the meter tube internal diameter (Dm) as those shown in Eccentricity table above.

Measurement 1	32	Microinches (Ra)	Measurement 2	32	Microinches (Ra)
Measurement 3	32	Microinches (Ra)	Measurement 4	32	Microinches (Ra)

Average surface finish 32 Microinches (Ra)

Is the average surface finish less than 250 microinches (Ra)?	**YES**
Is the pipe free of irregularities such as grooves, scoring, ETC.?	**YES**

SECTION 1 - WITHIN THE FIRST DIAMETER (Dm) UPSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.982 Dmax Smallest Dia.= 7.980 Dmin

$\frac{Dmax - Dm}{Dm}$ x 100= 0.00000% < or = 0.25% .... **Within Tolerance**

$\frac{Dmin - Dm}{Dm}$ x 100= 0.02506% < or = 0.25% .... **Within Tolerance**

IC-Fuel 6

SECTION 2 - ALL METER TUBE DIAMETER MEASUREMENTS UPSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.982 Dmax Smallest Dia.= 7.974 Dmin

$\frac{Dmax - Dmin}{Dm} \times 100=$ 0.10023% < or = 0.50% .... **Within Tolerance**

SECTION 3 - ALL METER TUBE DIAMETER MEASUREMENTS DOWNSTREAM OF THE ORIFICE PLATE

Largest Dia.= 7.975 Dmax Smallest Dia.= 7.969 Dmin

$\frac{Dmax - Dm}{Dm} \times 100=$ 0.00000% < or = 0.50% .... **Within Tolerance**

$\frac{Dmin - Dm}{Dm} \times 100=$ 0.07524% < or = 0.50% .... **Within Tolerance**

FLANGE TAP CONSTRUCTION

Specified tap location from face of flange	0.9110	inches	
Measured tap location for "UTA"	0.9120	inches.........	**Tap hole is within tolerance**
Measured tap location for "UTB"	0.9180	inches.........	**Tap hole is within tolerance**
Measured tap location for "DTA"	0.9100	inches.........	**Tap hole is within tolerance**
Measured tap location for "DTB"	0.9180	inches.........	**Tap hole is within tolerance**

The tap location tolerance for NPS 4" and larger is
0.03" for 0.75 beta ratio
The tap location tolerance for NPS smaller than 4" is
0.015" for 0.75 beta ratio

Specified drill thru diameter	0.5000	inches	
Measured drill thru diameter for "UTA"	0.5000	inches.........	**Drill thru is within tolerance**
Measured drill thru diameter for "UTB"	0.5000	inches.........	**Drill thru is within tolerance**
Measured drill thru diameter for "DTA"	0.5000	inches.........	**Drill thru is within tolerance**
Measured drill thru diameter for "DTB"	0.5000	inches.........	**Drill thru is within tolerance**

The drill thru for NPS 4" and larger is 0.500" +/-0.0156"
The drill thru for NPS 2" and 3" is 0.375" +/-0.0156"
The drill thru for NPS 1 1/2" and smaller is 0.25"
+/-"0.0156"

TAP HOLE CONDITION

☒ Good - Burr free edge
☐ Fair - Burr free edge, rounded but within 0.0625d
☐ Poor - Burrs or corrosion present

Orifice Meter Tube Is Accepted
Inspected and recorded By: Bruce Henderson
Date: November 13, 2001

CORE LABORATORIES, INC.

Core Lab
RESERVOIR OPTIMIZATION

8210 Mosley Road
Houston, Texas 77075
Phone: 713-943-9776
Fax: 713-943-3846

21730 S. Wilmington Avenue, Suite 201
Carson, California 90810-1640
Phone: 310-513-2031
Fax: 310-513-2035

No. 14395

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION

COMPANY: CUBIX CORPORATION
SEND REPORT TO: LEONARD BRENNER
ADDRESS: 3709 SW 42nd AVENUE
SUITE 2
GAINESVILLE, FL 32608
PHONE: (352) 378-0332
FAX: (352) 378-0354

PROJECT INFORMATION

PROJECT NAME/NUMBER: BAYSIDE #7445-FL1

BILLING INFORMATION

BILL TO: CUBIX CORPORATION
ADDRESS: 9225 US HWY 183 SOUTH
AUSTIN, TEXAS 78747
PHONE: (512) 243-0202
FAX: (512) 243-0222
PO NO.: # 2003174

ANALYSIS / METHOD REQUEST

LAB JOB NO.

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	ASTM D3246/2261								REMARKS / PRECAUTIONS
UNIT 1A	NATURAL GAS	4/23/03	15:30	NA	STAINLESS STEEL	NA	1	X								SERIAL # 1574
UNIT 1B	NATURAL GAS	4/17/03	14:30	NA	STAINLESS STEEL	NA	1	X								SERIAL # 1756
UNIT 1C	NATURAL GAS	4/18/03	10:20	NA	STAINLESS STEEL	NA	1	X								SERIAL # 1829

SAMPLER: JOHN ULERY
SHIPMENT METHOD: ~~FEDEX~~ [✓ FEDEX GROUND] ~~UPS~~
AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☒ ROUTINE OTHER

1. RELINQUISHED BY: SIGNATURE: James Harty	DATE 4/25/03	2. RELINQUISHED BY: SIGNATURE:	DATE	3. RELINQUISHED BY: SIGNATURE:	DATE
PRINTED NAME/COMPANY: CUBIX CORPORATION	TIME 8 AM	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY: SIGNATURE:	DATE 4/30/03	2. RECEIVED BY: SIGNATURE:	DATE	3. RECEIVED BY: SIGNATURE:	DATE
PRINTED NAME/COMPANY:	TIME 2:55	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

ORIGINAL

APPENDIX D:
QUALITY ASSURANCE ACTIVITIES

Quality Assurance Activities Unit 1A
Calibration Error, Bias, and Drift Checks

Linearity Check	NO_X	CO	O_2	CO_2
Analyzer Range (ppmv), O_2 & CO_2 in % vol	10.00	10.00	25.00	10.00
Strip Chart Offset	2.0	5.0	10.0	2.0
Low Level Certified Value (ppm or % vol)	2.94	3.04	4.16	na
Mid Level Certified Value (ppm or % vol)	5.05	6.03	11.94	4.48
High Level Certified Value (ppm or % vol)	8.60	8.92	20.90	7.99
Zero Target (% Chart)	2.0	5.0	10.0	2.0
Low Level Target (% Chart)	31.4	35.4	26.6	na
Mid Level Target (% Chart)	52.5	65.3	57.8	46.8
High Level Target (% Chart)	88.0	94.2	93.6	81.9
Zero Observed (% Chart)	2.0	5.0	10.0	2.0
Low Level Observed (% Chart)	32.2	34.0	26.5	na
Mid Level Observed (% Chart)	51.5	63.7	57.8	46.5
High Level Observed (% Chart)	87.9	94.0	93.6	81.9
Zero Observed (ppm or % vol)	0.00	0.00	0.00	0.00
Low Level Observed (ppm or % vol)	3.02	2.90	4.12	na
Mid Level Observed (ppm or % vol)	4.95	5.87	11.95	4.45
High Level Observed (ppm or % vol)	8.59	8.90	20.90	7.99
% Difference From Zero to Target	0.0	0.0	0.0	0.0
% Difference From Low to Target	-0.8	1.4	0.2	na
% Difference From Mid to Target	1.0	1.6	0.0	0.3
% Difference. From High to Target	0.1	0.2	0.0	0.0
EPA Allowable % Difference from Target	±2% Span	±2% Span	±2% Span	±2% Span

Run 1A-Stratification	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.4	6.0	10.0	1.1
Calibration Gas (chart %)	52.2	65.7	92.7	46.2
Zero Gas (ppmv)	0.04	0.10	0.00	-0.09
Calibration Gas (ppmv)	5.02	6.07	20.67	4.42
Final Readings				
Zero Gas (chart %)	2.3	6.0	10.0	0.8
Calibration Gas (chart %)	51.6	65.6	93.2	46.0
Zero Gas (ppmv)	0.03	0.10	0.00	-0.12
Calibration Gas (ppmv)	4.96	6.06	20.80	4.40
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	1.0	0.0	-1.2
Calibration Bias (% Chart) ≤5%	0.1	1.9	-0.4	-0.5
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	0.0	0.0	0.3
Calibration Drift (Chart %) ≤2 or 3%	0.6	0.1	-0.5	0.2
Run Results				
Raw Results (chart %)	41.6	12.0	65.1	41.6
Raw Results (ppmv or % vol)	3.96	0.70	13.78	3.96
Corrected Results (ppmv or % vol) from % chart	4.00	0.60	13.89	4.04

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1A-C-1a/1A-RA-1	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.3	6.0	10.0	0.8
Calibration Gas (chart %)	51.6	65.6	93.2	46.0
Zero Gas (ppmv)	0.03	0.10	0.00	-0.12
Calibration Gas (ppmv)	4.96	6.06	20.80	4.40
Final Readings				
Zero Gas (chart %)	2.3	5.6	10.0	0.4
Calibration Gas (chart %)	51.4	66.0	93.2	45.9
Zero Gas (ppmv)	0.03	0.06	0.00	-0.16
Calibration Gas (ppmv)	4.94	6.10	20.80	4.39
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	0.6	0.0	-1.6
Calibration Bias (% Chart) ≤5%	-0.1	2.3	-0.4	-0.6
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.4	0.0	0.4
Calibration Drift (Chart %) ≤2 or 3%	0.2	-0.4	0.0	0.1
Run Results				
Raw Results (chart %)	40.9	12.1	65.2	41.4
Raw Results (ppmv or % vol)	3.89	0.71	13.80	3.94
Corrected Results (ppmv or % vol) from % chart	3.96	0.63	13.87	4.03

Run 1A-C-1b/1A-RA-2	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.3	5.6	10.0	0.4
Calibration Gas (chart %)	51.4	66.0	93.2	45.9
Zero Gas (ppmv)	0.03	0.06	0.00	-0.16
Calibration Gas (ppmv)	4.94	6.10	20.80	4.39
Final Readings				
Zero Gas (chart %)	2.3	5.4	10.0	0.6
Calibration Gas (chart %)	51.3	65.8	93.2	46.1
Zero Gas (ppmv)	0.03	0.04	0.00	-0.14
Calibration Gas (ppmv)	4.93	6.08	20.80	4.41
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	0.4	0.0	-1.4
Calibration Bias (% Chart) ≤5%	-0.2	2.1	-0.4	-0.4
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.2	0.0	-0.2
Calibration Drift (Chart %) ≤2 or 3%	0.1	0.2	0.0	-0.2
Run Results				
Raw Results (chart %)	40.4	11.9	65.2	41.5
Raw Results (ppmv or % vol)	3.84	0.69	13.80	3.95
Corrected Results (ppmv or % vol) from % chart	3.92	0.64	13.87	4.04

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1A-C-1c/1A-RA-3	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.3	5.4	10.0	0.6
Calibration Gas (chart %)	51.3	65.8	93.2	46.1
Zero Gas (ppmv)	0.03	0.04	0.00	-0.14
Calibration Gas (ppmv)	4.93	6.08	20.80	4.41
Final Readings				
Zero Gas (chart %)	2.5	6.1	10.0	-0.2
Calibration Gas (chart %)	51.3	66.3	93.1	45.3
Zero Gas (ppmv)	0.05	0.11	0.00	-0.22
Calibration Gas (ppmv)	4.93	6.13	20.77	4.33
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.5	1.1	0.0	-2.2
Calibration Bias (% Chart) ≤5%	-0.2	2.6	-0.5	-1.2
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.2	-0.7	0.0	0.8
Calibration Drift (Chart %) ≤2 or 3%	0.0	-0.5	0.1	0.8
Run Results				
Raw Results (chart %)	41.0	12.3	65.2	41.0
Raw Results (ppmv or % vol)	3.90	0.73	13.80	3.90
Corrected Results (ppmv or % vol) from % chart	3.99	0.66	13.88	4.02

Run 1A-C-2a/1A-RA-4	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.5	6.1	10.0	-0.2
Calibration Gas (chart %)	51.3	66.3	93.1	45.3
Zero Gas (ppmv)	0.05	0.11	0.00	-0.22
Calibration Gas (ppmv)	4.93	6.13	20.77	4.33
Final Readings				
Zero Gas (chart %)	2.6	5.4	10.0	0.1
Calibration Gas (chart %)	51.4	65.9	93.1	45.6
Zero Gas (ppmv)	0.06	0.04	0.00	-0.19
Calibration Gas (ppmv)	4.94	6.09	20.77	4.36
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.6	0.4	0.0	-1.9
Calibration Bias (% Chart) ≤5%	-0.1	2.2	-0.5	-0.9
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.1	0.7	0.0	-0.3
Calibration Drift (Chart %) ≤2 or 3%	-0.1	0.4	0.0	-0.3
Run Results				
Raw Results (chart %)	40.7	12.1	65.2	40.9
Raw Results (ppmv or % vol)	3.87	0.71	13.81	3.89
Corrected Results (ppmv or % vol) from % chart	3.95	0.63	13.90	4.03

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1A-C-2b/1A-RA-5	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.6	5.4	10.0	0.1
Calibration Gas (chart %)	51.4	65.9	93.1	45.6
Zero Gas (ppmv)	0.06	0.04	0.00	-0.19
Calibration Gas (ppmv)	4.94	6.09	20.77	4.36
Final Readings				
Zero Gas (chart %)	2.4	4.4	10.0	0.8
Calibration Gas (chart %)	51.2	65.1	93.2	46.2
Zero Gas (ppmv)	0.04	-0.06	0.00	-0.12
Calibration Gas (ppmv)	4.92	6.01	20.80	4.42
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.4	-0.6	0.0	-1.2
Calibration Bias (% Chart) ≤5%	-0.3	1.4	-0.4	-0.3
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.2	1.0	0.0	-0.7
Calibration Drift (Chart %) ≤2 or 3%	0.2	0.8	-0.1	-0.6
Run Results				
Raw Results (chart %)	41.7	11.5	65.4	41.3
Raw Results (ppmv or % vol)	3.97	0.65	13.84	3.93
Corrected Results (ppmv or % vol) from % chart	4.06	0.66	13.92	4.03

Run 1A-C-2c/1A-RA-6	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.4	4.4	10.0	0.8
Calibration Gas (chart %)	51.2	65.1	93.2	46.2
Zero Gas (ppmv)	0.04	-0.06	0.00	-0.12
Calibration Gas (ppmv)	4.92	6.01	20.80	4.42
Final Readings				
Zero Gas (chart %)	2.3	4.6	10.0	0.9
Calibration Gas (chart %)	50.8	65.3	93.2	46.1
Zero Gas (ppmv)	0.03	-0.04	0.00	-0.11
Calibration Gas (ppmv)	4.88	6.03	20.80	4.41
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	-0.4	0.0	-1.1
Calibration Bias (% Chart) ≤5%	-0.7	1.6	-0.4	-0.4
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	-0.2	0.0	-0.1
Calibration Drift (Chart %) ≤2 or 3%	0.4	-0.2	0.0	0.1
Run Results				
Raw Results (chart %)	40.7	11.3	65.4	41.4
Raw Results (ppmv or % vol)	3.87	0.63	13.84	3.94
Corrected Results (ppmv or % vol) from % chart	3.98	0.68	13.91	4.01

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1A-C-3a/1A-RA-7	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.3	4.6	10.0	0.9
Calibration Gas (chart %)	50.8	65.3	93.2	46.1
Zero Gas (ppmv)	0.03	-0.04	0.00	-0.11
Calibration Gas (ppmv)	4.88	6.03	20.80	4.41
Final Readings				
Zero Gas (chart %)	2.2	4.9	10.0	0.4
Calibration Gas (chart %)	51.0	65.2	93.1	45.9
Zero Gas (ppmv)	0.02	-0.01	0.00	-0.16
Calibration Gas (ppmv)	4.90	6.02	20.77	4.39
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.2	-0.1	0.0	-1.6
Calibration Bias (% Chart) ≤5%	-0.5	1.5	-0.5	-0.6
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	-0.3	0.0	0.5
Calibration Drift (Chart %) ≤2 or 3%	-0.2	0.1	0.1	0.2
Run Results				
Raw Results (chart %)	39.9	11.7	65.2	41.3
Raw Results (ppmv or % vol)	3.79	0.67	13.81	3.93
Corrected Results (ppmv or % vol) from % chart	3.91	0.69	13.89	4.02

Run 1A-C-3b/1A-RA-8	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.2	4.9	10.0	0.4
Calibration Gas (chart %)	51.0	65.2	93.1	45.9
Zero Gas (ppmv)	0.02	-0.01	0.00	-0.16
Calibration Gas (ppmv)	4.90	6.02	20.77	4.39
Final Readings				
Zero Gas (chart %)	2.3	5.0	10.0	0.3
Calibration Gas (chart %)	51.0	65.5	93.0	45.6
Zero Gas (ppmv)	0.03	0.00	0.00	-0.17
Calibration Gas (ppmv)	4.90	6.05	20.75	4.36
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	0.0	0.0	-1.7
Calibration Bias (% Chart) ≤5%	-0.5	1.8	-0.6	-0.9
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.1	-0.1	0.0	0.1
Calibration Drift (Chart %) ≤2 or 3%	0.0	-0.3	0.1	0.3
Run Results				
Raw Results (chart %)	40.3	11.8	65.2	41.3
Raw Results (ppmv or % vol)	3.83	0.68	13.81	3.93
Corrected Results (ppmv or % vol) from % chart	3.94	0.68	13.90	4.04

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1A-C-3c/1A-RA-9	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.3	5.0	10.0	0.3
Calibration Gas (chart %)	51.0	65.5	93.0	45.6
Zero Gas (ppmv)	0.03	0.00	0.00	-0.17
Calibration Gas (ppmv)	4.90	6.05	20.75	4.36
Final Readings				
Zero Gas (chart %)	2.3	5.1	10.0	0.1
Calibration Gas (chart %)	51.1	65.8	93.0	45.4
Zero Gas (ppmv)	0.03	0.01	0.00	-0.19
Calibration Gas (ppmv)	4.91	6.08	20.75	4.34
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	0.1	0.0	-1.9
Calibration Bias (% Chart) ≤5%	-0.4	2.1	-0.6	-1.1
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	-0.1	0.0	0.2
Calibration Drift (Chart %) ≤2 or 3%	-0.1	-0.3	0.0	0.2
Run Results				
Raw Results (chart %)	41.4	12.0	65.2	40.9
Raw Results (ppmv or % vol)	3.94	0.70	13.80	3.89
Corrected Results (ppmv or % vol) from % chart	4.05	0.69	13.90	4.03

Run 1A-NH3-4	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.5	63.7	93.6	46.5
Initial Readings				
Zero Gas (chart %)	2.3	5.1	10.0	0.1
Calibration Gas (chart %)	51.1	65.8	93.0	45.4
Zero Gas (ppmv)	0.03	0.01	0.00	-0.19
Calibration Gas (ppmv)	4.91	6.08	20.75	4.34
Final Readings				
Zero Gas (chart %)	2.4	5.3	10.0	-0.2
Calibration Gas (chart %)	51.0	66.2	92.9	45.3
Zero Gas (ppmv)	0.04	0.03	0.00	-0.22
Calibration Gas (ppmv)	4.90	6.12	20.72	4.33
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.4	0.3	0.0	-2.2
Calibration Bias (% Chart) ≤5%	-0.5	2.5	-0.7	-1.2
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.1	-0.2	0.0	0.3
Calibration Drift (Chart %) ≤2 or 3%	0.1	-0.4	0.1	0.1
Run Results				
Raw Results (chart %)	42.3	12.1	65.2	40.7
Raw Results (ppmv or % vol)	4.03	0.71	13.81	3.87
Corrected Results (ppmv or % vol) from % chart	4.14	0.68	13.92	4.02

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Linearity Check	NO_X	CO	O_2	CO_2
Analyzer Range (ppmv), O_2 & CO_2 in % vol	10.00	10.00	25.00	10.00
Strip Chart Offset	2.0	5.0	10.0	2.0
Low Level Certified Value (ppm or % vol)	2.94	3.04	4.16	na
Mid Level Certified Value (ppm or % vol)	5.05	6.03	11.94	4.48
High Level Certified Value (ppm or % vol)	8.60	8.92	20.90	7.99
Zero Target (% Chart)	2.0	5.0	10.0	2.0
Low Level Target (% Chart)	31.4	35.4	26.6	na
Mid Level Target (% Chart)	52.5	65.3	57.8	46.8
High Level Target (% Chart)	88.0	94.2	93.6	81.9
Zero Observed (% Chart)	2.0	5.0	10.0	2.0
Low Level Observed (% Chart)	32.1	33.7	26.6	na
Mid Level Observed (% Chart)	51.9	63.6	57.8	47.0
High Level Observed (% Chart)	88.2	94.1	93.6	82.0
Zero Observed (ppm or % vol)	0.00	0.00	0.00	0.00
Low Level Observed (ppm or % vol)	3.01	2.87	4.15	na
Mid Level Observed (ppm or % vol)	4.99	5.86	11.95	4.50
High Level Observed (ppm or % vol)	8.62	8.91	20.90	8.00
% Difference From Zero to Target	0.0	0.0	0.0	0.0
% Difference From Low to Target	-0.7	1.7	0.0	na
% Difference From Mid to Target	0.6	1.7	0.0	-0.2
% Difference. From High to Target	-0.2	0.1	0.0	-0.1
EPA Allowable % Difference from Target	±2% Span	±2% Span	±2% Span	±2% Span

Run 1B-Stratification	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.9	63.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.8	2.8	10.1	1.8
Calibration Gas (chart %)	52.2	64.6	93.0	46.5
Zero Gas (ppmv)	0.08	-0.22	0.02	-0.02
Calibration Gas (ppmv)	5.02	5.96	20.75	4.45
Final Readings				
Zero Gas (chart %)	2.7	2.8	10.1	2.1
Calibration Gas (chart %)	51.8	64.0	92.9	46.6
Zero Gas (ppmv)	0.07	-0.22	0.03	0.01
Calibration Gas (ppmv)	4.98	5.90	20.72	4.46
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.7	-2.2	0.1	0.1
Calibration Bias (% Chart) ≤5%	-0.1	0.4	-0.7	-0.4
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	0.0	0.0	-0.3
Calibration Drift (Chart %) ≤2 or 3%	0.4	0.6	0.1	-0.1
Run Results				
Raw Results (chart %)	37.7	10.3	64.9	42.8
Raw Results (ppmv or % vol)	3.57	0.53	13.73	4.08
Corrected Results (ppmv or % vol) from % chart	3.59	0.73	13.83	4.10

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Linearity Check	NO_X	CO	O_2	CO_2
Analyzer Range (ppmv), O_2 & CO_2 in % vol	10.00	10.00	25.00	10.00
Strip Chart Offset	2.0	5.0	10.0	2.0
Low Level Certified Value (ppm or % vol)	2.94	3.04	4.16	na
Mid Level Certified Value (ppm or % vol)	5.05	6.03	11.94	4.48
High Level Certified Value (ppm or % vol)	8.60	8.92	20.90	7.99
Zero Target (% Chart)	2.0	5.0	10.0	2.0
Low Level Target (% Chart)	31.4	35.4	26.6	na
Mid Level Target (% Chart)	52.5	65.3	57.8	46.8
High Level Target (% Chart)	88.0	94.2	93.6	81.9
Zero Observed (% Chart)	2.0	5.0	10.0	2.0
Low Level Observed (% Chart)	32.0	34.2	26.6	na
Mid Level Observed (% Chart)	51.6	64.6	57.8	47.0
High Level Observed (% Chart)	87.9	94.2	93.6	81.9
Zero Observed (ppm or % vol)	0.00	0.00	0.00	0.00
Low Level Observed (ppm or % vol)	3.00	2.92	4.15	na
Mid Level Observed (ppm or % vol)	4.96	5.96	11.95	4.50
High Level Observed (ppm or % vol)	8.59	8.92	20.90	7.99
% Difference From Zero to Target	0.0	0.0	0.0	0.0
% Difference From Low to Target	-0.6	1.2	0.0	na
% Difference From Mid to Target	0.9	0.7	0.0	-0.2
% Difference. From High to Target	0.1	0.0	0.0	0.0
EPA Allowable % Difference from Target	±2% Span	±2% Span	±2% Span	±2% Span

Run 1B-C-1a/1B-RA-1	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.3	2.8	10.2	2.7
Calibration Gas (chart %)	51.9	65.3	92.4	47.7
Zero Gas (ppmv)	0.03	-0.22	0.05	0.07
Calibration Gas (ppmv)	4.99	6.03	20.60	4.57
Final Readings				
Zero Gas (chart %)	2.3	2.8	10.2	2.3
Calibration Gas (chart %)	52.1	64.8	93.1	47.2
Zero Gas (ppmv)	0.03	-0.22	0.05	0.03
Calibration Gas (ppmv)	5.01	5.98	20.77	4.52
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	-2.2	0.2	0.3
Calibration Bias (% Chart) ≤5%	0.5	0.2	-0.5	0.2
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.0	0.0	0.4
Calibration Drift (Chart %) ≤2 or 3%	-0.2	0.5	-0.7	0.5
Run Results				
Raw Results (chart %)	37.2	12.1	64.6	44.2
Raw Results (ppmv or % vol)	3.52	0.71	13.64	4.22
Corrected Results (ppmv or % vol) from % chart	3.55	0.90	13.76	4.16

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1B-C-1b/1B-RA-2	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.3	2.8	10.2	2.3
Calibration Gas (chart %)	52.1	64.8	93.1	47.2
Zero Gas (ppmv)	0.03	-0.22	0.05	0.03
Calibration Gas (ppmv)	5.01	5.98	20.77	4.52
Final Readings				
Zero Gas (chart %)	2.2	2.8	10.2	2.0
Calibration Gas (chart %)	51.9	64.7	93.1	47.0
Zero Gas (ppmv)	0.02	-0.22	0.05	0.00
Calibration Gas (ppmv)	4.99	5.97	20.77	4.50
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.2	-2.2	0.2	0.0
Calibration Bias (% Chart) ≤5%	0.3	0.1	-0.5	0.0
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	0.0	0.0	0.3
Calibration Drift (Chart %) ≤2 or 3%	0.2	0.1	0.0	0.2
Run Results				
Raw Results (chart %)	37.3	12.0	64.7	43.3
Raw Results (ppmv or % vol)	3.53	0.70	13.67	4.13
Corrected Results (ppmv or % vol) from % chart	3.56	0.90	13.74	4.10

Run 1B-C-1c/1B-RA-3	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.2	2.8	10.2	2.0
Calibration Gas (chart %)	51.9	64.7	93.1	47.0
Zero Gas (ppmv)	0.02	-0.22	0.05	0.00
Calibration Gas (ppmv)	4.99	5.97	20.77	4.50
Final Readings				
Zero Gas (chart %)	2.2	2.8	10.2	2.0
Calibration Gas (chart %)	51.5	64.9	93.1	46.8
Zero Gas (ppmv)	0.02	-0.22	0.05	0.00
Calibration Gas (ppmv)	4.95	5.99	20.77	4.48
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.2	-2.2	0.2	0.0
Calibration Bias (% Chart) ≤5%	-0.1	0.3	-0.5	-0.2
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.0	0.0	0.0
Calibration Drift (Chart %) ≤2 or 3%	0.4	-0.2	0.0	0.2
Run Results				
Raw Results (chart %)	37.0	11.6	64.7	43.3
Raw Results (ppmv or % vol)	3.50	0.66	13.68	4.13
Corrected Results (ppmv or % vol) from % chart	3.55	0.86	13.75	4.12

Run 1B-C-2a/1B-RA-4	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.2	2.8	10.2	2.0
Calibration Gas (chart %)	51.5	64.9	93.1	46.8
Zero Gas (ppmv)	0.02	-0.22	0.05	0.00
Calibration Gas (ppmv)	4.95	5.99	20.77	4.48
Final Readings				
Zero Gas (chart %)	2.1	2.8	10.2	2.0
Calibration Gas (chart %)	51.3	65.1	93.1	47.0
Zero Gas (ppmv)	0.01	-0.22	0.05	0.00
Calibration Gas (ppmv)	4.93	6.01	20.77	4.50
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-2.2	0.2	0.0
Calibration Bias (% Chart) ≤5%	-0.3	0.5	-0.5	0.0
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	0.0	0.0	0.0
Calibration Drift (Chart %) ≤2 or 3%	0.2	-0.2	0.0	-0.2
Run Results				
Raw Results (chart %)	37.1	11.1	64.8	43.4
Raw Results (ppmv or % vol)	3.51	0.61	13.70	4.14
Corrected Results (ppmv or % vol) from % chart	3.58	0.80	13.77	4.13

Run 1B-C-2b/1B-RA-5	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.1	2.8	10.2	2.0
Calibration Gas (chart %)	51.3	65.1	93.1	47.0
Zero Gas (ppmv)	0.01	-0.22	0.05	0.00
Calibration Gas (ppmv)	4.93	6.01	20.77	4.50
Final Readings				
Zero Gas (chart %)	2.2	2.8	10.2	1.6
Calibration Gas (chart %)	51.5	65.7	93.1	46.5
Zero Gas (ppmv)	0.02	-0.22	0.05	-0.04
Calibration Gas (ppmv)	4.95	6.07	20.77	4.45
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.2	-2.2	0.2	-0.4
Calibration Bias (% Chart) ≤5%	-0.1	1.1	-0.5	-0.5
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.1	0.0	0.0	0.4
Calibration Drift (Chart %) ≤2 or 3%	-0.2	-0.6	0.0	0.5
Run Results				
Raw Results (chart %)	36.8	12.1	64.8	43.1
Raw Results (ppmv or % vol)	3.48	0.71	13.70	4.11
Corrected Results (ppmv or % vol) from % chart	3.55	0.90	13.77	4.12

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1B-C-2c/1B-RA-6	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.2	2.8	10.2	1.6
Calibration Gas (chart %)	51.5	65.7	93.1	46.5
Zero Gas (ppmv)	0.02	-0.22	0.05	-0.04
Calibration Gas (ppmv)	4.95	6.07	20.77	4.45
Final Readings				
Zero Gas (chart %)	2.4	2.8	10.2	1.3
Calibration Gas (chart %)	51.9	65.9	93.1	46.2
Zero Gas (ppmv)	0.04	-0.22	0.05	-0.07
Calibration Gas (ppmv)	4.99	6.09	20.77	4.42
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.4	-2.2	0.2	-0.7
Calibration Bias (% Chart) ≤5%	0.3	1.3	-0.5	-0.8
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.2	0.0	0.0	0.3
Calibration Drift (Chart %) ≤2 or 3%	-0.4	-0.2	0.0	0.3
Run Results				
Raw Results (chart %)	36.7	11.9	64.8	43.0
Raw Results (ppmv or % vol)	3.47	0.69	13.70	4.10
Corrected Results (ppmv or % vol) from % chart	3.52	0.87	13.77	4.15

Run 1B-C-3a/1B-RA-7	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.4	2.8	10.2	1.3
Calibration Gas (chart %)	51.9	65.9	93.1	46.2
Zero Gas (ppmv)	0.04	-0.22	0.05	-0.07
Calibration Gas (ppmv)	4.99	6.09	20.77	4.42
Final Readings				
Zero Gas (chart %)	2.4	3.0	10.1	0.3
Calibration Gas (chart %)	51.4	66.6	93.0	45.9
Zero Gas (ppmv)	0.04	-0.20	0.03	-0.17
Calibration Gas (ppmv)	4.94	6.16	20.75	4.39
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.4	-2.0	0.1	-1.7
Calibration Bias (% Chart) ≤5%	-0.2	2.0	-0.6	-1.1
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	-0.2	0.1	1.0
Calibration Drift (Chart %) ≤2 or 3%	0.5	-0.7	0.1	0.3
Run Results				
Raw Results (chart %)	36.8	12.4	64.8	42.2
Raw Results (ppmv or % vol)	3.48	0.74	13.69	4.02
Corrected Results (ppmv or % vol) from % chart	3.53	0.90	13.77	4.10

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1B-C-3b/1B-RA-8	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.4	3.0	10.1	0.3
Calibration Gas (chart %)	51.4	66.6	93.0	45.9
Zero Gas (ppmv)	0.04	-0.20	0.03	-0.17
Calibration Gas (ppmv)	4.94	6.16	20.75	4.39
Final Readings				
Zero Gas (chart %)	2.3	2.8	10.2	0.9
Calibration Gas (chart %)	51.2	65.4	93.0	45.9
Zero Gas (ppmv)	0.03	-0.22	0.05	-0.11
Calibration Gas (ppmv)	4.92	6.04	20.75	4.39
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	-2.2	0.2	-1.1
Calibration Bias (% Chart) ≤5%	-0.4	0.8	-0.6	-1.1
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	0.2	-0.1	-0.6
Calibration Drift (Chart %) ≤2 or 3%	0.2	1.2	0.0	0.0
Run Results				
Raw Results (chart %)	36.7	12.7	64.8	42.0
Raw Results (ppmv or % vol)	3.47	0.77	13.69	4.00
Corrected Results (ppmv or % vol) from % chart	3.54	0.94	13.78	4.09

Run 1B-C-3c/1B-RA-9	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.6	64.6	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.3	2.8	10.2	0.9
Calibration Gas (chart %)	51.2	65.4	93.0	45.9
Zero Gas (ppmv)	0.03	-0.22	0.05	-0.11
Calibration Gas (ppmv)	4.92	6.04	20.75	4.39
Final Readings				
Zero Gas (chart %)	2.3	2.8	10.1	0.6
Calibration Gas (chart %)	51.4	65.8	93.0	45.9
Zero Gas (ppmv)	0.03	-0.22	0.03	-0.14
Calibration Gas (ppmv)	4.94	6.08	20.75	4.39
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.3	-2.2	0.1	-1.4
Calibration Bias (% Chart) ≤5%	-0.2	1.2	-0.6	-1.1
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.0	0.1	0.3
Calibration Drift (Chart %) ≤2 or 3%	-0.2	-0.4	0.0	0.0
Run Results				
Raw Results (chart %)	36.5	12.6	64.8	42.2
Raw Results (ppmv or % vol)	3.45	0.76	13.70	4.02
Corrected Results (ppmv or % vol) from % chart	3.52	0.94	13.79	4.11

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Unit 1C

Linearity Check	NO_x	CO	O_2	CO_2
Analyzer Range (ppmv), O_2 & CO_2 in % vol	10.00	10.00	25.00	10.00
Strip Chart Offset	2.0	5.0	10.0	2.0
Low Level Certified Value (ppm or % vol)	2.94	3.04	4.16	na
Mid Level Certified Value (ppm or % vol)	5.05	6.03	11.94	4.48
High Level Certified Value (ppm or % vol)	8.60	8.92	20.90	7.99
Zero Target (% Chart)	2.0	5.0	10.0	2.0
Low Level Target (% Chart)	31.4	35.4	26.6	na
Mid Level Target (% Chart)	52.5	65.3	57.8	46.8
High Level Target (% Chart)	88.0	94.2	93.6	81.9
Zero Observed (% Chart)	2.0	5.0	10.0	2.0
Low Level Observed (% Chart)	31.9	33.4	26.6	na
Mid Level Observed (% Chart)	51.3	63.8	57.7	47.0
High Level Observed (% Chart)	88.1	93.9	93.6	81.9
Zero Observed (ppm or % vol)	0.00	0.00	0.00	0.00
Low Level Observed (ppm or % vol)	2.99	2.84	4.15	na
Mid Level Observed (ppm or % vol)	4.93	5.88	11.92	4.50
High Level Observed (ppm or % vol)	8.61	8.89	20.90	7.99
% Difference From Zero to Target	0.0	0.0	0.0	0.0
% Difference From Low to Target	-0.5	2.0	0.0	na
% Difference From Mid to Target	1.2	1.5	0.1	-0.2
% Difference. From High to Target	-0.1	0.3	0.0	0.0
EPA Allowable % Difference from Target	±2% Span	±2% Span	±2% Span	±2% Span

Run 1C-Stratification	NO_x	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.3	63.8	93.6	47.0
Initial Readings				
Zero Gas (chart %)	2.4	2.8	10.2	1.2
Calibration Gas (chart %)	50.9	65.2	93.0	46.3
Zero Gas (ppmv)	0.04	-0.22	0.05	-0.08
Calibration Gas (ppmv)	4.89	6.02	20.75	4.43
Final Readings				
Zero Gas (chart %)	2.4	2.8	10.2	2.0
Calibration Gas (chart %)	51.1	64.9	93.2	46.7
Zero Gas (ppmv)	0.04	-0.22	0.05	0.00
Calibration Gas (ppmv)	4.91	5.99	20.80	4.47
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.4	-2.2	0.2	0.0
Calibration Bias (% Chart) ≤5%	-0.2	1.1	-0.4	-0.3
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.0	0.0	-0.8
Calibration Drift (Chart %) ≤2 or 3%	-0.2	0.3	-0.2	-0.4
Run Results				
Raw Results (chart %)	39.8	11.0	64.7	42.7
Raw Results (ppmv or % vol)	3.78	0.60	13.67	4.07
Corrected Results (ppmv or % vol) from % chart	3.89	0.80	13.74	4.10

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Linearity Check	NO_X	CO	O_2	CO_2
Analyzer Range (ppmv), O_2 & CO_2 in % vol	10.00	10.00	25.00	10.00
Strip Chart Offset	2.0	5.0	10.0	2.0
Low Level Certified Value (ppm or % vol)	2.94	3.04	4.16	na
Mid Level Certified Value (ppm or % vol)	5.05	6.03	11.94	4.48
High Level Certified Value (ppm or % vol)	8.60	8.92	20.90	7.99
Zero Target (% Chart)	2.0	5.0	10.0	2.0
Low Level Target (% Chart)	31.4	35.4	26.6	na
Mid Level Target (% Chart)	52.5	65.3	57.8	46.8
High Level Target (% Chart)	88.0	94.2	93.6	81.9
Zero Observed (% Chart)	2.0	5.0	10.0	2.0
Low Level Observed (% Chart)	31.8	33.5	26.7	na
Mid Level Observed (% Chart)	51.7	63.9	57.8	47.4
High Level Observed (% Chart)	88.0	94.4	93.6	81.9
Zero Observed (ppm or % vol)	0.00	0.00	0.00	0.00
Low Level Observed (ppm or % vol)	2.98	2.85	4.17	na
Mid Level Observed (ppm or % vol)	4.97	5.89	11.95	4.54
High Level Observed (ppm or % vol)	8.60	8.94	20.90	7.99
% Difference From Zero to Target	0.0	0.0	0.0	0.0
% Difference From Low to Target	-0.4	1.9	0.0	na
% Difference From Mid to Target	0.8	1.4	0.0	-0.6
% Difference. From High to Target	0.0	-0.2	0.0	0.0
EPA Allowable % Difference from Target	±2% Span	±2% Span	±2% Span	±2% Span

Run 1C-C-1a/1C-RA-1	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.1	3.4	10.1	2.4
Calibration Gas (chart %)	51.6	63.6	93.2	47.4
Zero Gas (ppmv)	0.01	-0.16	0.03	0.04
Calibration Gas (ppmv)	4.96	5.86	20.80	4.54
Final Readings				
Zero Gas (chart %)	2.2	3.4	10.2	2.5
Calibration Gas (chart %)	51.7	64.0	93.3	47.4
Zero Gas (ppmv)	0.02	-0.16	0.05	0.05
Calibration Gas (ppmv)	4.97	5.90	20.82	4.54
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.2	-1.6	0.2	0.5
Calibration Bias (% Chart) ≤5%	0.0	0.1	-0.3	0.0
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.1	0.0	-0.1	-0.1
Calibration Drift (Chart %) ≤2 or 3%	-0.1	-0.4	-0.1	0.0
Run Results				
Raw Results (chart %)	39.2	10.8	64.6	44.2
Raw Results (ppmv or % vol)	3.72	0.58	13.64	4.22
Corrected Results (ppmv or % vol) from % chart	3.78	0.74	13.69	4.16

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1C-C-1b/1C-RA-2	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.2	3.4	10.2	2.5
Calibration Gas (chart %)	51.7	64.0	93.3	47.4
Zero Gas (ppmv)	0.02	-0.16	0.05	0.05
Calibration Gas (ppmv)	4.97	5.90	20.82	4.54
Final Readings				
Zero Gas (chart %)	2.1	3.3	10.2	2.7
Calibration Gas (chart %)	51.6	64.0	93.3	47.6
Zero Gas (ppmv)	0.01	-0.17	0.05	0.07
Calibration Gas (ppmv)	4.96	5.9	20.82	4.56
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-1.7	0.2	0.7
Calibration Bias (% Chart) ≤5%	-0.1	0.1	-0.3	0.2
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	0.1	0.0	-0.2
Calibration Drift (Chart %) ≤2 or 3%	0.1	0.0	0.0	-0.2
Run Results				
Raw Results (chart %)	39.9	10.8	64.6	44.4
Raw Results (ppmv or % vol)	3.79	0.58	13.65	4.24
Corrected Results (ppmv or % vol) from % chart	3.85	0.74	13.69	4.17

Run 1C-C-1c/1C-RA-3	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.1	3.3	10.2	2.7
Calibration Gas (chart %)	51.6	64.0	93.3	47.6
Zero Gas (ppmv)	0.01	-0.17	0.05	0.07
Calibration Gas (ppmv)	4.96	5.9	20.82	4.56
Final Readings				
Zero Gas (chart %)	2.1	3.2	10.2	2.9
Calibration Gas (chart %)	51.4	63.7	93.3	47.7
Zero Gas (ppmv)	0.01	-0.18	0.05	0.09
Calibration Gas (ppmv)	4.94	5.87	20.82	4.57
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-1.8	0.2	0.9
Calibration Bias (% Chart) ≤5%	-0.3	-0.2	-0.3	0.3
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.1	0.0	-0.2
Calibration Drift (Chart %) ≤2 or 3%	0.2	0.3	0.0	-0.1
Run Results				
Raw Results (chart %)	40.1	11.0	64.6	44.4
Raw Results (ppmv or % vol)	3.81	0.60	13.65	4.24
Corrected Results (ppmv or % vol) from % chart	3.88	0.77	13.69	4.16

Run 1C-C-2a/1C-RA-4	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.1	3.2	10.2	2.9
Calibration Gas (chart %)	51.4	63.7	93.3	47.7
Zero Gas (ppmv)	0.01	-0.18	0.05	0.09
Calibration Gas (ppmv)	4.94	5.87	20.82	4.57
Final Readings				
Zero Gas (chart %)	2.0	4.1	10.2	2.7
Calibration Gas (chart %)	51.5	64.0	93.4	47.7
Zero Gas (ppmv)	0.00	-0.09	0.05	0.07
Calibration Gas (ppmv)	4.95	5.90	20.85	4.57
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.0	-0.9	0.2	0.7
Calibration Bias (% Chart) ≤5%	-0.2	0.1	-0.2	0.3
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.1	-0.9	0.0	0.2
Calibration Drift (Chart %) ≤2 or 3%	-0.1	-0.3	-0.1	0.0
Run Results				
Raw Results (chart %)	39.9	11.0	64.6	44.2
Raw Results (ppmv or % vol)	3.79	0.60	13.65	4.22
Corrected Results (ppmv or % vol) from % chart	3.87	0.74	13.68	4.13

Run 1C-C-2b/1C-RA-5	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.0	4.1	10.2	2.7
Calibration Gas (chart %)	51.5	64.0	93.4	47.7
Zero Gas (ppmv)	0.00	-0.09	0.05	0.07
Calibration Gas (ppmv)	4.95	5.90	20.85	4.57
Final Readings				
Zero Gas (chart %)	2.1	3.8	10.2	2.5
Calibration Gas (chart %)	51.6	64.8	93.4	47.4
Zero Gas (ppmv)	0.01	-0.12	0.05	0.05
Calibration Gas (ppmv)	4.96	5.98	20.85	4.54
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-1.2	0.2	0.5
Calibration Bias (% Chart) ≤5%	-0.1	0.9	-0.2	0.0
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	-0.1	0.3	0.0	0.2
Calibration Drift (Chart %) ≤2 or 3%	-0.1	-0.8	0.0	0.3
Run Results				
Raw Results (chart %)	39.9	10.2	64.7	44.2
Raw Results (ppmv or % vol)	3.79	0.52	13.68	4.22
Corrected Results (ppmv or % vol) from % chart	3.86	0.62	13.70	4.15

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1C-C-2c/1C-RA-6	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.1	3.8	10.2	2.5
Calibration Gas (chart %)	51.6	64.8	93.4	47.4
Zero Gas (ppmv)	0.01	-0.12	0.05	0.05
Calibration Gas (ppmv)	4.96	5.98	20.85	4.54
Final Readings				
Zero Gas (chart %)	2.1	3.7	10.2	2.7
Calibration Gas (chart %)	51.5	64.4	93.4	47.6
Zero Gas (ppmv)	0.01	-0.13	0.05	0.07
Calibration Gas (ppmv)	4.95	5.94	20.85	4.56
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-1.3	0.2	0.7
Calibration Bias (% Chart) ≤5%	-0.2	0.5	-0.2	0.2
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.1	0.0	-0.2
Calibration Drift (Chart %) ≤2 or 3%	0.1	0.4	0.0	-0.2
Run Results				
Raw Results (chart %)	41.0	10.2	64.8	43.9
Raw Results (ppmv or % vol)	3.90	0.52	13.69	4.19
Corrected Results (ppmv or % vol) from % chart	3.97	0.64	13.71	4.12

Run 1C-C-3a/1C-RA-7	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.1	3.7	10.2	2.7
Calibration Gas (chart %)	51.5	64.4	93.4	47.6
Zero Gas (ppmv)	0.01	-0.13	0.05	0.07
Calibration Gas (ppmv)	4.95	5.94	20.85	4.56
Final Readings				
Zero Gas (chart %)	2.1	4.0	10.2	2.1
Calibration Gas (chart %)	51.7	65.0	93.3	47.1
Zero Gas (ppmv)	0.01	-0.10	0.05	0.01
Calibration Gas (ppmv)	4.97	6.00	20.82	4.51
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-1.0	0.2	0.1
Calibration Bias (% Chart) ≤5%	0.0	1.1	-0.3	-0.3
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	-0.3	0.0	0.6
Calibration Drift (Chart %) ≤2 or 3%	-0.2	-0.6	0.1	0.5
Run Results				
Raw Results (chart %)	38.9	10.4	64.8	43.6
Raw Results (ppmv or % vol)	3.69	0.54	13.70	4.16
Corrected Results (ppmv or % vol) from % chart	3.75	0.65	13.73	4.11

Quality Assurance Activities
Calibration Error, Bias, and Drift Checks

Run 1C-C-3b/1C-RA-8	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.1	4.0	10.2	2.1
Calibration Gas (chart %)	51.7	65.0	93.3	47.1
Zero Gas (ppmv)	0.01	-0.10	0.05	0.01
Calibration Gas (ppmv)	4.97	6.00	20.82	4.51
Final Readings				
Zero Gas (chart %)	2.1	3.9	10.1	2.3
Calibration Gas (chart %)	51.4	64.3	93.3	47.4
Zero Gas (ppmv)	0.01	-0.11	0.03	0.03
Calibration Gas (ppmv)	4.94	5.93	20.82	4.54
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-1.1	0.1	0.3
Calibration Bias (% Chart) ≤5%	-0.3	0.4	-0.3	0.0
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.1	0.1	-0.2
Calibration Drift (Chart %) ≤2 or 3%	0.3	0.7	0.0	-0.3
Run Results				
Raw Results (chart %)	38.8	10.6	64.9	43.4
Raw Results (ppmv or % vol)	3.68	0.56	13.73	4.14
Corrected Results (ppmv or % vol) from % chart	3.75	0.66	13.77	4.10

Run 1C-C-3c/1C-RA-9	NO_X	CO	O_2	CO_2
Analyzer Range (ppm), O_2 & CO_2 in %	10.0	10.0	25.00	10.00
Calibration Gas Certified Value (ppm or %)	5.05	6.03	20.90	4.48
Strip Chart Offset	2.0	5.0	10.0	2.0
Target Calibration Gas (Chart %)	52.5	65.3	93.6	46.8
Actual Zero Gas from Direct (Chart %)	2.0	5.0	10.0	2.0
Actual Calibration Gas from Direct (Chart %)	51.7	63.9	93.6	47.4
Initial Readings				
Zero Gas (chart %)	2.1	3.9	10.1	2.3
Calibration Gas (chart %)	51.4	64.3	93.3	47.4
Zero Gas (ppmv)	0.01	-0.11	0.03	0.03
Calibration Gas (ppmv)	4.94	5.93	20.82	4.54
Final Readings				
Zero Gas (chart %)	2.1	3.9	10.1	2.3
Calibration Gas (chart %)	51.4	64.4	93.3	47.0
Zero Gas (ppmv)	0.01	-0.11	0.03	0.03
Calibration Gas (ppmv)	4.94	5.94	20.82	4.50
Bias and Drift Calculations				
Zero Bias (% Chart) (Run-Direct Cal) ≤5%	0.1	-1.1	0.1	0.3
Calibration Bias (% Chart) ≤5%	-0.3	0.5	-0.3	-0.4
Zero Drift (Chart %) (Run-Run) ≤2 or 3%	0.0	0.0	0.0	0.0
Calibration Drift (Chart %) ≤2 or 3%	0.0	-0.1	0.0	0.4
Run Results				
Raw Results (chart %)	38.8	10.5	64.9	43.3
Raw Results (ppmv or % vol)	3.68	0.55	13.73	4.13
Corrected Results (ppmv or % vol) from % chart	3.76	0.66	13.77	4.09

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-Strat, SE Port 4/23/03 9:09:01 9:21:01

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.04	5.02
CO (ppmv)	0.1	6.07
O2 (% vol)	0	20.67
CO2 (%vol)	-0.09	4.42

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	4.08	10	2.94	8.6	5.05
CO (ppmv)	0.67	10	3.04	8.92	6.03
O2 (% vol)	13.77	25	4.16	11.94	20.9
CO2 (%vol)	3.99	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-Strat, NE Port 4/23/03 9:26:02 9:38:02

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.04	5.02
CO (ppmv)	0.1	6.07
O2 (% vol)	0	20.67
CO2 (%vol)	-0.09	4.42

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	4.01	10	2.94	8.6	5.05
CO (ppmv)	0.68	10	3.04	8.92	6.03
O2 (% vol)	13.77	25	4.16	11.94	20.9
CO2 (%vol)	3.96	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-Strat, NW Port 4/23/03 9:41:00 9:53:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.04	5.02
CO (ppmv)	0.1	6.07
O2 (% vol)	0	20.67
CO2 (%vol)	-0.09	4.42

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.86	10	2.94	8.6	5.05
CO (ppmv)	0.72	10	3.04	8.92	6.03
O2 (% vol)	13.78	25	4.16	11.94	20.9
CO2 (%vol)	3.94	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-Strat, SW Port 4/23/03 9:57:30 10:09:30

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.04	5.02	0.03	4.96	0.3	0.1	0.1	0.6
CO (ppmv)	0.1	6.07	0.1	6.06	1	1.9	0	0.1
O2 (% vol)	0	20.67	0	20.8	0	-0.4	0	-0.5
CO2 (%vol)	-0.09	4.42	-0.12	4.4	-1.2	-0.5	0.3	0.2

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.88	10	2.94	8.6	5.05
CO (ppmv)	0.71	10	3.04	8.92	6.03
O2 (% vol)	13.79	25	4.16	11.94	20.9
CO2 (%vol)	3.96	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-1a/1A-RA-1 4/23/03 10:23:00 10:44:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.96	0.03	4.94	0.3	-0.1	0	0.2
CO (ppmv)	0.1	6.06	0.06	6.1	0.6	2.3	0.4	-0.4
O2 (% vol)	0	20.8	0	20.8	0	-0.4	0	0
CO2 (%vol)	-0.12	4.4	-0.16	4.39	-1.6	-0.6	0.4	0.1

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.89	3.96	10	2.94	8.6	5.05
CO (ppmv)	0.71	0.63	10	3.04	8.92	6.03
O2 (% vol)	13.8	13.87	25	4.16	11.94	20.9
CO2 (%vol)	3.94	4.03	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-1b/1A-RA-2 4/23/03 10:54:00 11:15:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.94	0.03	4.93	0.3	-0.2	0	0.1
CO (ppmv)	0.06	6.1	0.04	6.08	0.4	2.1	0.2	0.2
O2 (% vol)	0	20.8	0	20.8	0	-0.4	0	0
CO2 (%vol)	-0.16	4.39	-0.14	4.41	-1.4	-0.4	-0.2	-0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.84	3.92	10	2.94	8.6	5.05
CO (ppmv)	0.69	0.64	10	3.04	8.92	6.03
O2 (% vol)	13.8	13.87	25	4.16	11.94	20.9
CO2 (%vol)	3.95	4.04	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-1c/1A-RA-3 4/23/03 11:28:00 11:49:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.93	0.05	4.93	0.5	-0.2	-0.2	0
CO (ppmv)	0.04	6.08	0.11	6.13	1.1	2.6	-0.7	-0.5
O2 (% vol)	0	20.8	0	20.77	0	-0.5	0	0.1
CO2 (%vol)	-0.14	4.41	-0.22	4.33	-2.2	-1.2	0.8	0.8

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.9	3.99	10	2.94	8.6	5.05
CO (ppmv)	0.73	0.66	10	3.04	8.92	6.03
O2 (% vol)	13.8	13.88	25	4.16	11.94	20.9
CO2 (%vol)	3.9	4.02	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-2a/1A-RA-4 4/23/03 12:12:00 12:33:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.05	4.93	0.06	4.94	0.6	-0.1	-0.1	-0.1
CO (ppmv)	0.11	6.13	0.04	6.09	0.4	2.2	0.7	0.4
O2 (% vol)	0	20.77	0	20.77	0	-0.5	0	0
CO2 (%vol)	-0.22	4.33	-0.19	4.36	-1.9	-0.9	-0.3	-0.3

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.87	3.95	10	2.94	8.6	5.05
CO (ppmv)	0.71	0.63	10	3.04	8.92	6.03
O2 (% vol)	13.81	13.90	25	4.16	11.94	20.9
CO2 (%vol)	3.89	4.03	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-2b/1A-RA-5 4/23/03 12:47:00 13:08:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.06	4.94	0.04	4.92	0.4	-0.3	0.2	0.2
CO (ppmv)	0.04	6.09	-0.06	6.01	-0.6	1.4	1	0.8
O2 (% vol)	0	20.77	0	20.8	0	-0.4	0	-0.1
CO2 (%vol)	-0.19	4.36	-0.12	4.42	-1.2	-0.3	-0.7	-0.6

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.97	4.06	10	2.94	8.6	5.05
CO (ppmv)	0.65	0.66	10	3.04	8.92	6.03
O2 (% vol)	13.84	13.92	25	4.16	11.94	20.9
CO2 (%vol)	3.93	4.03	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-2c/1A-RA-6 4/23/03 13:23:00 13:44:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.04	4.92	0.03	4.88	0.3	-0.7	0.1	0.4
CO (ppmv)	-0.06	6.01	-0.04	6.03	-0.4	1.6	-0.2	-0.2
O2 (% vol)	0	20.8	0	20.8	0	-0.4	0	0
CO2 (%vol)	-0.12	4.42	-0.11	4.41	-1.1	-0.4	-0.1	0.1

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.87	3.98	10	2.94	8.6	5.05
CO (ppmv)	0.63	0.68	10	3.04	8.92	6.03
O2 (% vol)	13.84	13.91	25	4.16	11.94	20.9
CO2 (%vol)	3.94	4.01	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-3a/1A-RA-7 4/23/03 13:55:00 14:16:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.88	0.02	4.9	0.2	-0.5	0.1	-0.2
CO (ppmv)	-0.04	6.03	-0.01	6.02	-0.1	1.5	-0.3	0.1
O2 (% vol)	0	20.8	0	20.77	0	-0.5	0	0.1
CO2 (%vol)	-0.11	4.41	-0.16	4.39	-1.6	-0.6	0.5	0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.79	3.91	10	2.94	8.6	5.05
CO (ppmv)	0.67	0.69	10	3.04	8.92	6.03
O2 (% vol)	13.81	13.89	25	4.16	11.94	20.9
CO2 (%vol)	3.93	4.02	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-3b/1A-RA-8 4/23/03 14:27:01 14:48:01

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.02	4.9	0.03	4.9	0.3	-0.5	-0.1	0
CO (ppmv)	-0.01	6.02	0	6.05	0	1.8	-0.1	-0.3
O2 (% vol)	0	20.77	0	20.75	0	-0.6	0	0.1
CO2 (%vol)	-0.16	4.39	-0.17	4.36	-1.7	-0.9	0.1	0.3

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.83	3.94	10	2.94	8.6	5.05
CO (ppmv)	0.68	0.68	10	3.04	8.92	6.03
O2 (% vol)	13.81	13.90	25	4.16	11.94	20.9
CO2 (%vol)	3.93	4.04	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-C-3c/1A-RA-9 4/23/03 14:58:00 15:19:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.9	0.03	4.91	0.3	-0.4	0	-0.1
CO (ppmv)	0	6.05	0.01	6.08	0.1	2.1	-0.1	-0.3
O2 (% vol)	0	20.75	0	20.75	0	-0.6	0	0
CO2 (%vol)	-0.17	4.36	-0.19	4.34	-1.9	-1.1	0.2	0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.94	4.05	10	2.94	8.6	5.05
CO (ppmv)	0.7	0.69	10	3.04	8.92	6.03
O2 (% vol)	13.8	13.90	25	4.16	11.94	20.9
CO2 (%vol)	3.89	4.03	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged QA Calibration Records

Run 1A-NH3-4 4/23/03 15:41:31 16:41:31

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.02	8.59	4.95	-0.8	0.1	1
CO (ppmv)	0	2.9	8.9	5.87	1.4	0.2	1.6
O2 (% vol)	0	4.12	11.95	20.9	0.14	-0.04	0
CO2 (%vol)	0	0	7.99	4.45	0	0	0.3

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.91	0.04	4.9	0.4	-0.5	-0.1	0.1
CO (ppmv)	0.01	6.08	0.03	6.12	0.3	2.5	-0.2	-0.4
O2 (% vol)	0	20.75	0	20.72	0	-0.7	0	0.1
CO2 (%vol)	-0.19	4.34	-0.22	4.33	-2.2	-1.2	0.3	0.1

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	4.03	4.14	10	2.94	8.6	5.05
CO (ppmv)	0.71	0.68	10	3.04	8.92	6.03
O2 (% vol)	13.81	13.92	25	4.16	11.94	20.9
CO2 (%vol)	3.87	4.02	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-Strat, SE Port 4/16/03 13:43:01 13:55:01

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.01	8.62	4.99	-0.7	-0.2	0.6
CO (ppmv)	0	2.87	8.91	5.86	1.7	0.1	1.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	8	4.5	0	-0.1	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.08	5.02
CO (ppmv)	-0.22	5.96
O2 (% vol)	0.05	20.75
CO2 (%vol)	-0.02	4.45

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.61	10	2.94	8.6	5.05
CO (ppmv)	0.55	10	3.04	8.92	6.03
O2 (% vol)	13.73	25	4.16	11.94	20.9
CO2 (%vol)	4.05	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-Strat, NE Port 4/16/03 14:01:02 14:13:02

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.01	8.62	4.99	-0.7	-0.2	0.6
CO (ppmv)	0	2.87	8.91	5.86	1.7	0.1	1.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	8	4.5	0	-0.1	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.08	5.02
CO (ppmv)	-0.22	5.96
O2 (% vol)	0.05	20.75
CO2 (%vol)	-0.02	4.45

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.68	10	2.94	8.6	5.05
CO (ppmv)	0.5	10	3.04	8.92	6.03
O2 (% vol)	13.73	25	4.16	11.94	20.9
CO2 (%vol)	4.08	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-Strat, NW Port 4/16/03 14:18:03 14:30:03

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.01	8.62	4.99	-0.7	-0.2	0.6
CO (ppmv)	0	2.87	8.91	5.86	1.7	0.1	1.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	8	4.5	0	-0.1	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.08	5.02
CO (ppmv)	-0.22	5.96
O2 (% vol)	0.05	20.75
CO2 (%vol)	-0.02	4.45

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.52	10	2.94	8.6	5.05
CO (ppmv)	0.51	10	3.04	8.92	6.03
O2 (% vol)	13.72	25	4.16	11.94	20.9
CO2 (%vol)	4.09	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-Strat, SW Port 4/16/03 14:35:30 14:47:30

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3.01	8.62	4.99	-0.7	-0.2	0.6
CO (ppmv)	0	2.87	8.91	5.86	1.7	0.1	1.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	8	4.5	0	-0.1	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.08	5.02	0.07	4.98	0.7	-0.1	0.1	0.4
CO (ppmv)	-0.22	5.96	-0.22	5.9	-2.2	0.4	0	0.6
O2 (% vol)	0.05	20.75	0.03	20.72	0.1	-0.7	0.1	0.1
CO2 (%vol)	-0.02	4.45	0.01	4.46	0.1	-0.4	-0.3	-0.1

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.48	10	2.94	8.6	5.05
CO (ppmv)	0.54	10	3.04	8.92	6.03
O2 (% vol)	13.72	25	4.16	11.94	20.9
CO2 (%vol)	4.08	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-1a/1B-RA-1 4/17/03 7:02:02 7:23:03

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.99	0.03	5.01	0.3	0.5	0	-0.2
CO (ppmv)	-0.22	6.03	-0.22	5.98	-2.2	0.2	0	0.5
O2 (% vol)	0.05	20.6	0.05	20.77	0.2	-0.5	0	-0.7
CO2 (%vol)	0.07	4.57	0.03	4.52	0.3	0.2	0.4	0.5

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.52	3.55	10	2.94	8.6	5.05
CO (ppmv)	0.71	0.90	10	3.04	8.92	6.03
O2 (% vol)	13.64	13.76	25	4.16	11.94	20.9
CO2 (%vol)	4.22	4.16	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-1b/1B-RA-2 4/17/03 7:36:00 7:57:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	5.01	0.02	4.99	0.2	0.3	0.1	0.2
CO (ppmv)	-0.22	5.98	-0.22	5.97	-2.2	0.1	0	0.1
O2 (% vol)	0.05	20.77	0.05	20.77	0.2	-0.5	0	0
CO2 (%vol)	0.03	4.52	0	4.5	0	0	0.3	0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.53	3.56	10	2.94	8.6	5.05
CO (ppmv)	0.7	0.90	10	3.04	8.92	6.03
O2 (% vol)	13.67	13.74	25	4.16	11.94	20.9
CO2 (%vol)	4.13	4.10	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-1c/1B-RA-3 4/17/03 8:09:00 8:30:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.02	4.99	0.02	4.95	0.2	-0.1	0	0.4
CO (ppmv)	-0.22	5.97	-0.22	5.99	-2.2	0.3	0	-0.2
O2 (% vol)	0.05	20.77	0.05	20.77	0.2	-0.5	0	0
CO2 (%vol)	0	4.5	0	4.48	0	-0.2	0	0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.5	3.55	10	2.94	8.6	5.05
CO (ppmv)	0.66	0.86	10	3.04	8.92	6.03
O2 (% vol)	13.68	13.75	25	4.16	11.94	20.9
CO2 (%vol)	4.13	4.12	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-2a/1B-RA-4 4/17/03 8:50:00 9:11:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.02	4.95	0.01	4.93	0.1	-0.3	0.1	0.2
CO (ppmv)	-0.22	5.99	-0.22	6.01	-2.2	0.5	0	-0.2
O2 (% vol)	0.05	20.77	0.05	20.77	0.2	-0.5	0	0
CO2 (%vol)	0	4.48	0	4.5	0	0	0	-0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.51	3.58	10	2.94	8.6	5.05
CO (ppmv)	0.61	0.80	10	3.04	8.92	6.03
O2 (% vol)	13.7	13.77	25	4.16	11.94	20.9
CO2 (%vol)	4.14	4.13	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-2b/1B-RA-5 4/17/03 9:23:01 9:44:01

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.93	0.02	4.95	0.2	-0.1	-0.1	-0.2
CO (ppmv)	-0.22	6.01	-0.22	6.07	-2.2	1.1	0	-0.6
O2 (% vol)	0.05	20.77	0.05	20.77	0.2	-0.5	0	0
CO2 (%vol)	0	4.5	-0.04	4.45	-0.4	-0.5	0.4	0.5

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.48	3.55	10	2.94	8.6	5.05
CO (ppmv)	0.71	0.90	10	3.04	8.92	6.03
O2 (% vol)	13.7	13.77	25	4.16	11.94	20.9
CO2 (%vol)	4.11	4.12	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-2c/1B-RA-6 4/17/03 10:00:00 10:21:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.02	4.95	0.04	4.99	0.4	0.3	-0.2	-0.4
CO (ppmv)	-0.22	6.07	-0.22	6.09	-2.2	1.3	0	-0.2
O2 (% vol)	0.05	20.77	0.05	20.77	0.2	-0.5	0	0
CO2 (%vol)	-0.04	4.45	-0.07	4.42	-0.7	-0.8	0.3	0.3

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.47	3.52	10	2.94	8.6	5.05
CO (ppmv)	0.69	0.87	10	3.04	8.92	6.03
O2 (% vol)	13.7	13.77	25	4.16	11.94	20.9
CO2 (%vol)	4.1	4.15	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-3a/1B-RA-7 4/17/03 10:35:00 10:56:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.04	4.99	0.04	4.94	0.4	-0.2	0	0.5
CO (ppmv)	-0.22	6.09	-0.2	6.16	-2	2	-0.2	-0.7
O2 (% vol)	0.05	20.77	0.03	20.75	0.1	-0.6	0.1	0.1
CO2 (%vol)	-0.07	4.42	-0.17	4.39	-1.7	-1.1	1	0.3

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.48	3.53	10	2.94	8.6	5.05
CO (ppmv)	0.74	0.90	10	3.04	8.92	6.03
O2 (% vol)	13.69	13.77	25	4.16	11.94	20.9
CO2 (%vol)	4.02	4.10	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-3b/1B-RA-8 4/17/03 11:16:00 11:37:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.04	4.94	0.03	4.92	0.3	-0.4	0.1	0.2
CO (ppmv)	-0.2	6.16	-0.22	6.04	-2.2	0.8	0.2	1.2
O2 (% vol)	0.03	20.75	0.05	20.75	0.2	-0.6	-0.1	0
CO2 (%vol)	-0.17	4.39	-0.11	4.39	-1.1	-1.1	-0.6	0

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.47	3.54	10	2.94	8.6	5.05
CO (ppmv)	0.77	0.94	10	3.04	8.92	6.03
O2 (% vol)	13.69	13.78	25	4.16	11.94	20.9
CO2 (%vol)	4	4.09	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged QA Calibration Records

Run 1B-C-3c/1B-RA-9 4/17/03 11:48:01 12:09:01

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	3	8.59	4.96	-0.6	0.1	0.9
CO (ppmv)	0	2.92	8.92	5.96	1.2	0	0.7
O2 (% vol)	0	4.15	11.95	20.9	0.04	-0.04	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.03	4.92	0.03	4.94	0.3	-0.2	0	-0.2
CO (ppmv)	-0.22	6.04	-0.22	6.08	-2.2	1.2	0	-0.4
O2 (% vol)	0.05	20.75	0.03	20.75	0.1	-0.6	0.1	0
CO2 (%vol)	-0.11	4.39	-0.14	4.39	-1.4	-1.1	0.3	0

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.45	3.52	10	2.94	8.6	5.05
CO (ppmv)	0.76	0.94	10	3.04	8.92	6.03
O2 (% vol)	13.7	13.79	25	4.16	11.94	20.9
CO2 (%vol)	4.02	4.11	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-Strat, SE Port 4/17/03 16:59:30 17:11:30

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.99	8.61	4.93	-0.5	-0.1	1.2
CO (ppmv)	0	2.84	8.89	5.88	2	0.3	1.5
O2 (% vol)	0	4.15	11.92	20.9	0.04	0.06	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.04	4.89
CO (ppmv)	-0.22	6.02
O2 (% vol)	0.05	20.75
CO2 (%vol)	-0.08	4.43

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.78	10	2.94	8.6	5.05
CO (ppmv)	0.61	10	3.04	8.92	6.03
O2 (% vol)	13.66	25	4.16	11.94	20.9
CO2 (%vol)	4.05	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-Strat, NE Port 4/17/03 17:15:00 17:27:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.99	8.61	4.93	-0.5	-0.1	1.2
CO (ppmv)	0	2.84	8.89	5.88	2	0.3	1.5
O2 (% vol)	0	4.15	11.92	20.9	0.04	0.06	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.04	4.89
CO (ppmv)	-0.22	6.02
O2 (% vol)	0.05	20.75
CO2 (%vol)	-0.08	4.43

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.95	10	2.94	8.6	5.05
CO (ppmv)	0.63	10	3.04	8.92	6.03
O2 (% vol)	13.66	25	4.16	11.94	20.9
CO2 (%vol)	4.05	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-Strat, NW Port 4/17/03 17:31:30 17:43:30

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.99	8.61	4.93	-0.5	-0.1	1.2
CO (ppmv)	0	2.84	8.89	5.88	2	0.3	1.5
O2 (% vol)	0	4.15	11.92	20.9	0.04	0.06	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span
NOx (ppmv)	0.04	4.89
CO (ppmv)	-0.22	6.02
O2 (% vol)	0.05	20.75
CO2 (%vol)	-0.08	4.43

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.68	10	2.94	8.6	5.05
CO (ppmv)	0.61	10	3.04	8.92	6.03
O2 (% vol)	13.68	25	4.16	11.94	20.9
CO2 (%vol)	4.07	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-Strat, SW Port 4/17/03 17:46:30 17:58:30

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.99	8.61	4.93	-0.5	-0.1	1.2
CO (ppmv)	0	2.84	8.89	5.88	2	0.3	1.5
O2 (% vol)	0	4.15	11.92	20.9	0.04	0.06	0
CO2 (%vol)	0	0	7.99	4.5	0	0	-0.2

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.04	4.89	0.04	4.91	0.4	-0.2	0	-0.2
CO (ppmv)	-0.22	6.02	-0.22	5.99	-2.2	1.1	0	0.3
O2 (% vol)	0.05	20.75	0.05	20.8	0.2	-0.4	0	-0.2
CO2 (%vol)	-0.08	4.43	0	4.47	0	-0.3	-0.8	-0.4

Run Results and Cal Gases Used	Raw	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.71	10	2.94	8.6	5.05
CO (ppmv)	0.56	10	3.04	8.92	6.03
O2 (% vol)	13.69	25	4.16	11.94	20.9
CO2 (%vol)	4.11	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-1a/1C-RA-1 4/18/03 6:01:00 6:22:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.96	0.02	4.97	0.2	0	-0.1	-0.1
CO (ppmv)	-0.16	5.86	-0.16	5.9	-1.6	0.1	0	-0.4
O2 (% vol)	0.03	20.8	0.05	20.82	0.2	-0.3	-0.1	-0.1
CO2 (%vol)	0.04	4.54	0.05	4.54	0.5	0	-0.1	0

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.72	3.78	10	2.94	8.6	5.05
CO (ppmv)	0.58	0.74	10	3.04	8.92	6.03
O2 (% vol)	13.64	13.69	25	4.16	11.94	20.9
CO2 (%vol)	4.22	4.16	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-1b/1C-RA-2 4/18/03 6:52:16 7:13:16

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.02	4.97	0.01	4.96	0.1	-0.1	0.1	0.1
CO (ppmv)	-0.16	5.9	-0.17	5.9	-1.7	0.1	0.1	0
O2 (% vol)	0.05	20.82	0.05	20.82	0.2	-0.3	0	0
CO2 (%vol)	0.05	4.54	0.07	4.56	0.7	0.2	-0.2	-0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.79	3.85	10	2.94	8.6	5.05
CO (ppmv)	0.58	0.74	10	3.04	8.92	6.03
O2 (% vol)	13.65	13.69	25	4.16	11.94	20.9
CO2 (%vol)	4.24	4.17	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-1c/1C-RA-3 4/18/03 7:25:00 7:46:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.96	0.01	4.94	0.1	-0.3	0	0.2
CO (ppmv)	-0.17	5.9	-0.18	5.87	-1.8	-0.2	0.1	0.3
O2 (% vol)	0.05	20.82	0.05	20.82	0.2	-0.3	0	0
CO2 (%vol)	0.07	4.56	0.09	4.57	0.9	0.3	-0.2	-0.1

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.81	3.88	10	2.94	8.6	5.05
CO (ppmv)	0.6	0.77	10	3.04	8.92	6.03
O2 (% vol)	13.65	13.69	25	4.16	11.94	20.9
CO2 (%vol)	4.24	4.16	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-2a/1C-RA-4 4/18/03 7:57:00 8:18:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.94	0	4.95	0	-0.2	0.1	-0.1
CO (ppmv)	-0.18	5.87	-0.09	5.9	-0.9	0.1	-0.9	-0.3
O2 (% vol)	0.05	20.82	0.05	20.85	0.2	-0.2	0	-0.1
CO2 (%vol)	0.09	4.57	0.07	4.57	0.7	0.3	0.2	0

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.79	3.87	10	2.94	8.6	5.05
CO (ppmv)	0.6	0.74	10	3.04	8.92	6.03
O2 (% vol)	13.65	13.68	25	4.16	11.94	20.9
CO2 (%vol)	4.22	4.13	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-2b/1C-RA-5 4/18/03 8:30:07 8:51:07

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0	4.95	0.01	4.96	0.1	-0.1	-0.1	-0.1
CO (ppmv)	-0.09	5.9	-0.12	5.98	-1.2	0.9	0.3	-0.8
O2 (% vol)	0.05	20.85	0.05	20.85	0.2	-0.2	0	0
CO2 (%vol)	0.07	4.57	0.05	4.54	0.5	0	0.2	0.3

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.79	3.86	10	2.94	8.6	5.05
CO (ppmv)	0.52	0.62	10	3.04	8.92	6.03
O2 (% vol)	13.68	13.70	25	4.16	11.94	20.9
CO2 (%vol)	4.22	4.15	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-2c/1C-RA-6 4/18/03 9:04:03 9:25:03

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.96	0.01	4.95	0.1	-0.2	0	0.1
CO (ppmv)	-0.12	5.98	-0.13	5.94	-1.3	0.5	0.1	0.4
O2 (% vol)	0.05	20.85	0.05	20.85	0.2	-0.2	0	0
CO2 (%vol)	0.05	4.54	0.07	4.56	0.7	0.2	-0.2	-0.2

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.9	3.97	10	2.94	8.6	5.05
CO (ppmv)	0.52	0.64	10	3.04	8.92	6.03
O2 (% vol)	13.69	13.71	25	4.16	11.94	20.9
CO2 (%vol)	4.19	4.12	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-3a/1C-RA-7 4/18/03 9:41:00 10:02:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.95	0.01	4.97	0.1	0	0	-0.2
CO (ppmv)	-0.13	5.94	-0.1	6	-1	1.1	-0.3	-0.6
O2 (% vol)	0.05	20.85	0.05	20.82	0.2	-0.3	0	0.1
CO2 (%vol)	0.07	4.56	0.01	4.51	0.1	-0.3	0.6	0.5

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.69	3.75	10	2.94	8.6	5.05
CO (ppmv)	0.54	0.65	10	3.04	8.92	6.03
O2 (% vol)	13.7	13.73	25	4.16	11.94	20.9
CO2 (%vol)	4.16	4.11	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-3b/1C-RA-8 4/18/03 10:14:00 10:35:00

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.97	0.01	4.94	0.1	-0.3	0	0.3
CO (ppmv)	-0.1	6	-0.11	5.93	-1.1	0.4	0.1	0.7
O2 (% vol)	0.05	20.82	0.03	20.82	0.1	-0.3	0.1	0
CO2 (%vol)	0.01	4.51	0.03	4.54	0.3	0	-0.2	-0.3

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.68	3.75	10	2.94	8.6	5.05
CO (ppmv)	0.56	0.66	10	3.04	8.92	6.03
O2 (% vol)	13.73	13.77	25	4.16	11.94	20.9
CO2 (%vol)	4.14	4.10	10	0	7.99	4.48

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged QA Calibration Records

Run 1C-C-3c/1C-RA-9 4/18/03 10:49:01 11:10:01

Initial Linearity Test	Zero	Low	Mid	Span	L-Lin	M-Lin	S-Lin
NOx (ppmv)	0	2.98	8.6	4.97	-0.4	0	0.8
CO (ppmv)	0	2.85	8.94	5.89	1.9	-0.2	1.4
O2 (% vol)	0	4.17	11.95	20.9	-0.06	-0.04	0
CO2 (%vol)	0	0	7.99	4.54	0	0	-0.6

Initial and Final Bias and Drift	I-Zero	I-Span	F-Zero	F-Span	Z-Bias	S-Bias	Z-Drift	S-Drift
NOx (ppmv)	0.01	4.94	0.01	4.94	0.1	-0.3	0	0
CO (ppmv)	-0.11	5.93	-0.11	5.94	-1.1	0.5	0	-0.1
O2 (% vol)	0.03	20.82	0.03	20.82	0.1	-0.3	0	0
CO2 (%vol)	0.03	4.54	0.03	4.5	0.3	-0.4	0	0.4

Run Results and Cal Gases Used	Raw	Corrected	Ranges	Low Gas	Mid Gas	Span Gas
NOx (ppmv)	3.68	3.76	10	2.94	8.6	5.05
CO (ppmv)	0.55	0.66	10	3.04	8.92	6.03
O2 (% vol)	13.73	13.77	25	4.16	11.94	20.9
CO2 (%vol)	4.13	4.09	10	0	7.99	4.48

Instrumental Analyses
Quality Assurance Data
Unit 1A

Date:	**April 23, 2003**
Company:	**Tampa Electric Company**
Facility:	**Bayside Power Station**
Source ID:	**Unit 1A, a GE Frame 7FA Combustion Turbine**
Location:	**Tampa, Hillsborough County, Florida**
Technicians:	**LJB, RPO, JTH, JT**

NO_x Analyzer: NO_2 to NO Converter Efficiency Test

NO_x Calibration Gas: 5.05 ppmv
Diluent Gas: Air
Date: 4/23/03

	NO_x conc. (ppmv)	**% Decrease from Highest conc.**	**NO conc. (ppmv)**
Highest NO_x Concentration:	2.90		
Initial Concentration:	2.88	0.69	2.88
10 minute Concentration:	2.89	0.34	2.88
20 minute Concentration:	2.90	0.00	2.87
30 minute Concentration:	2.89	0.34	2.86
Lowest NO_x Concentration:	2.88	0.69	

Converter efficiency criteria is less than 2% decrease from highest read value.

Instrumental Sample System Leak Checks

Date	**Run Number**	**Vacuum (inches Hg)**	**Leak Rate (inches Hg/min)**	**Pass**
4/23/03	pre 1A-Strat, SE Port	23.6	0.2	yes
4/23/03	post 1A-C-3c/1A-RA-9	23.8	0.1	yes

Leak check criteria less than 1.0" Hg Vacuum per minute decline at greater than 15.0" Hg Vac.

NOx Converter Efficiency Test
Unit 1A

Run Number	MODE	Date	Time	NOx
				(ppmv)
START NOx Converter, Unit 1A	Total NOx	4/23/03	6:59:01	2.88
NOx Converter, Unit 1A	Total NOx	4/23/03	7:00:01	2.88
NOx Converter, Unit 1A	Total NOx	4/23/03	7:01:01	2.88
NOx Converter, Unit 1A	Total NOx	4/23/03	7:02:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:03:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:04:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:05:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:06:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:07:01	2.88
NOx Converter, Unit 1A	Total NOx	4/23/03	7:08:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:09:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:10:01	2.88
NOx Converter, Unit 1A	Total NOx	4/23/03	7:11:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:12:01	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:13:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:14:01	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:15:00	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:16:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:17:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:18:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:19:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:20:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:21:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:22:00	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:23:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:24:00	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:25:00	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:26:00	2.90
NOx Converter, Unit 1A	Total NOx	4/23/03	7:26:59	2.89
NOx Converter, Unit 1A	Total NOx	4/23/03	7:28:00	2.89
END NOx Converter, Unit 1A	Total NOx	4/23/03	7:29:00	2.89

Instrumental Analyses
Quality Assurance Data
Unit 1B

Date:	**April 16 - 17, 2003**
Company:	**Tampa Electric Company**
Facility:	**Bayside Power Station**
Source ID:	**Unit 1B, a GE Frame 7FA Combustion Turbine**
Location:	**Tampa, Hillsborough County, Florida**
Technicians:	**LJB, RPO, JTH, JT**

NO_x Analyzer: NO_2 to NO Converter Efficiency Test

NO_x Calibration Gas: 5.05 ppmv
Diluent Gas: Air
Date: 4/16/03

	NO_x conc. (ppmv)	**% Decrease from Highest conc.**	**NO conc. (ppmv)**
Highest NO_x Concentration:	3.25		
Initial Concentration:	3.23	0.62	3.21
10 minute Concentration:	3.25	0.00	3.19
20 minute Concentration:	3.24	0.31	3.19
30 minute Concentration:	3.24	0.31	3.17
Lowest NO_x Concentration:	3.22	0.92	

Converter efficiency criteria is less than 2% decrease from highest read value.

Instrumental Sample System Leak Checks

Date	**Run Number**	**Vacuum (inches Hg)**	**Leak Rate (inches Hg/min)**	**Pass**
4/16/03	pre 1B-Strat, SE Port	24.1	0.4	yes
4/16/03	post 1B-Strat, SW Port	24.4	0.2	yes
4/17/03	pre 1B-C-1a/1B-RA-1	20.5	0.4	yes
4/17/03	post 1B-C-3c/1B-RA-9	23.8	0.2	yes

Leak check criteria less than 1.0" Hg Vacuum per minute decline at greater than 15.0" Hg Vac.

NOx Converter Efficiency Test
Unit 1B

Run Number	MODE	Date	Time	NOx
				(ppmv)
START Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:01:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:02:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:03:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:04:00	3.22
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:05:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:06:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:07:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:08:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:09:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:10:00	3.25
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:11:00	3.25
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:12:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:13:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:14:00	3.25
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:14:59	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:16:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:17:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:18:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:19:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:20:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:21:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:22:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:23:00	3.23
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:24:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:25:00	3.25
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:26:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:27:00	3.25
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:28:00	3.25
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:29:00	3.24
Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:30:00	3.23
END Run NOx Converter, Unit 1B	Total NOx	4/16/03	12:31:00	3.24

Instrumental Analyses
Quality Assurance Data
Unit 1C

Date:	**April 17 - 18, 2003**
Company:	**Tampa Electric Company**
Facility:	**Bayside Power Station**
Source ID:	**Unit 1C, a GE Frame 7FA Combustion Turbine**
Location:	**Tampa, Hillsborough County, Florida**
Technicians:	**LJB, RPO, JTH, JT**

NO_x Analyzer: NO_2 to NO Converter Efficiency Test

NO_x Calibration Gas: 5.05 ppmv
Diluent Gas: Air
Date: 4/17/03

	NO_x conc. (ppmv)	**% Decrease from Highest conc.**	**NO conc. (ppmv)**
Highest NO_x Concentration:	2.93		
Initial Concentration:	2.90	1.02	2.90
10 minute Concentration:	2.90	1.02	2.89
20 minute Concentration:	2.91	0.68	2.87
30 minute Concentration:	2.93	0.00	2.86
Lowest NO_x Concentration:	2.88	1.71	

Converter efficiency criteria is less than 2% decrease from highest read value.

Instrumental Sample System Leak Checks

Date	**Run Number**	**Vacuum (inches Hg)**	**Leak Rate (inches Hg/min)**	**Pass**
4/17/03	pre 1C-Strat, SE Port	23.0	0.9	yes
4/17/03	post 1C-Strat, SW Port	22.0	0.9	yes
4/18/03	pre 1C-C-1a/1C-RA-1	23.7	0.0	yes
4/18/03	post 1C-C-3c/1C-RA-9	25.3	0.1	yes

Leak check criteria less than 1.0" Hg Vacuum per minute decline at greater than 15.0" Hg Vac.

NOx Converter Efficiency Test
Unit 1C

Run Number	MODE	Date	Time	NOx
				(ppmv)
START NOx Converter, Unit 1C	Total NOx	4/17/03	15:22:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:23:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:24:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:25:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:26:01	2.89
NOx Converter, Unit 1C	Total NOx	4/17/03	15:27:01	2.89
NOx Converter, Unit 1C	Total NOx	4/17/03	15:28:00	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:29:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:30:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:31:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:32:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:33:01	2.88
NOx Converter, Unit 1C	Total NOx	4/17/03	15:34:01	2.89
NOx Converter, Unit 1C	Total NOx	4/17/03	15:35:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:36:01	2.89
NOx Converter, Unit 1C	Total NOx	4/17/03	15:37:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:38:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:39:01	2.91
NOx Converter, Unit 1C	Total NOx	4/17/03	15:40:01	2.90
NOx Converter, Unit 1C	Total NOx	4/17/03	15:41:01	2.91
NOx Converter, Unit 1C	Total NOx	4/17/03	15:42:01	2.91
NOx Converter, Unit 1C	Total NOx	4/17/03	15:43:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:44:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:45:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:46:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:47:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:48:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:49:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:50:01	2.92
NOx Converter, Unit 1C	Total NOx	4/17/03	15:51:01	2.92
END NOx Converter, Unit 1C	Total NOx	4/17/03	15:52:01	2.93

Continuous Emission Analyzer
Interference Response Tests

Analyzer Interference Response Checks

(Frequency: Prior to initial use of sampling system or after alteration or modification.)

Test Date: *September 27, 2002* *Technician:* *RPO*
Mobile Lab: *T-13* *Location:* *Gainesville, Florida*

Analyzer	Manufacturer	Model	Serial Number	Detection Method/Comments
NO_x Analyzer	TECO	42C	42CHL-69541-363	Chemiluminescence with Ozone
CO Analyzer	TECO	48C	48C-70472-365	Infrared Absorption/GFC Detector
O_2 Analyzer	Servomex	1440	1420C/2647	Paramagnetic Cell Detector
CO_2 Analyzer	Servomex	1440	01415/2537	Infrared Absorption/ Solid State Detector
THC	California Analytical	300-HFID CE	4J11003	Flame Ionization Detector

Interferrent Test Gases		**Analyzer Response (ppmv or % as applicable)**				
Type Gas	**Conc.**	**NO_x 0-25 ppmv**	**CO 0-50 ppmv**	**O_2 0-25% vol**	**CO_2 0-15% vol**	**THC 0-100 ppmv**
CO/Methane in air	885/919	0.1 ppmv	▨	▨	0.00 %	▨
Propane in air	2000	0.1 ppmv	0.4 ppmv	▨	0.03 %	▨
SO_2 in N_2	4400	0.2 ppmv	-0.3 ppmv	0.00 %	0.00 %	no data
Air	dry instrument	< 0.1 ppmv	0.4 ppmv	▨	0.03 %	no data
Nitrogen	pre-purified	0.0 ppmv	0.3 ppmv	0.00 %	0.00 %	no data
Air	UHC, CO free	0.0 ppmv	0.0 ppmv	▨	0.01 %	no data
CO_2/ O_2	4.54%/20.8%	< 0.1 ppmv	-0.2 ppmv	▨	▨	no data
CO_2/ O_2	8.004%/11.91%	< 0.1 ppmv	-0.4 ppmv	▨	▨	no data
CO_2/ O_2	12.62%/4.53%	< 0.1 ppmv	-0.6 ppmv	▨	▨	no data
NO_x in N_2	1209	▨	0.4 ppmv	0.18 %	0.03 %	no data

Quality Assurance Report
Response Time Data

Date April 16, 2003
Technician: LJB, RPO, JTH, JT
Lab Unit #: T-13

Test Instrumentation				
Analyzer	**Make**	**Model**	**Serial Number**	**Detection Method**
NO_X Analyzer	Thermo Env	42CHL	42CHL-69541-363	Chemiluminescence with Ozone
CO Analyzer	Thermo Env	48C	48C-70472-365	IR Absorption/GFC Detector
O_2 Analyzer	Servomex	1440	1420C/2647	Paramagnetic
CO_2 Analyzer	Servomex	1440	01415/2537	IR Absorption/Solid State Detector

HRSG Stack Test Conditions	
Sample Line Vacuum	6.0 " Hg
Sample Manifold Pressure	5 psig
Analyzer Flow Meter Setting	1.0 liter/min
Gas Standard Pressure	12 psig
Sample System Configuration:	120 ft. Heat Trace Ice Bath Condenser 150 ft Sample Line

Analyzer Response Time Test Data					
seconds to 95% of stable value	NO_X	O_2	CO_2	CO	
Zero Gas Concentration	0.00	0.00	0.00	0.00	
Span Gas Concentration	5.05	20.90	20.90	6.03	
Stack Gas Concentration	3.97	13.80	4.02	0.72	
Analyzer Full Scale Range	10 ppmv	25%	10%	10 ppmv	
Upscale Response Time					
Test # 1	85	56	61	99	
Test # 2	83	60	68	90	
Test # 3	90	56	62	104	
Average Upscale Response	86	57	64	98	
Downscale Response Time					
Test # 1	87	58	60	99	
Test # 2	73	58	56	97	
Test # 3	71	54	56	123	
Average Downscale Response	77	57	57	106	
Maximum System Response Time (seconds)				**106**	**seconds**
Minmum Sampling Time Each Traverse Point				**166**	**seconds**
Sample Time Selected For Each Stratification Test Traverse Point				**240**	**seconds**
Sample Time Selected For Each Sample Traverse Point				**420**	**seconds**

APPENDIX E:
CALIBRATION CERTIFICATIONS

CUBIX CALIBRATION RECORDS

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0033389
ITEM# : 1
P.O.# : 2003047

CYLINDER # : CC-84914
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 2/26/2003
EXPIRATION DATE: 8/26/2003

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	2/19/2003 2/26/2003	2.942 ppm 2.932 ppm	2.94 ppm	+/- 2%
NOx			2.94 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	GMIS-1	CC-135593	5.06 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Thermo 42C	42C-64942-345	Cheml	2/19/2003

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: ______________
FRED PIKULA

DATE: 2/26/2003

SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER:	Cubix Corporation	**CYLINDER # :**	CC-133035
SGI ORDER # :	0016012	**CYLINDER PRES:**	2000 PSIG
ITEM# :	6	**CGA OUTLET:**	660
P.O.# :	2002014ROGER		

CERTIFICATION DATE: 1/28/2002
EXPIRATION DATE: 1/28/2004

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	1/21/2002 1/28/2002	5.070 ppm 5.028 ppm	5.05 ppm	+/- 1%
NOx			5.05 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	GMIS-1	CC-127534	15.12 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Thermo 42C	42C-64942-345	Cheml	1/8/2002

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: ____________________
REX JOHNSON

DATE: 1/28/2002

SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0019339
ITEM# : 1
P.O.# : 2002179 T10LENO

CYLINDER # : CC-133286
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660

CERTIFICATION DATE: 4/2/2002
EXPIRATION DATE: 4/2/2004

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	3/25/2002 4/2/2002	8.616 ppm 8.577 ppm	8.60 ppm	+/- 1%
NOx			8.60 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	GMIS-1	CC-133063	19.86 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Thermo 42C	42C-64942-345	Cheml	3/13/2002

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: ____________
FRED PIKULA

DATE: 4/2/2002

SPECTRA GASES INC.

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CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0033389
ITEM# : 3
P.O.# : 2003047

CYLINDER # : CC-38308
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 2/26/2003
EXPIRATION DATE: 8/26/2003

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	2/19/2003 2/26/2003	3.046 ppm 3.035 ppm	3.04 ppm	+/- 2%
Methane	2/26/2003	3.00 ppm	3.00 ppm	+/- 2%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	NTRM-31002	CC-135230	19.53 ppm
Methane	SRM-1659a	Cal-013286	9.85 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Thermo 48C	48CTL-69941-364	GFC-IR	2/10/2003
Methane	H. Packard 6890	US00001434	GC - FID	2/26/2003

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cheryl Patino
CHERYL PATINO

DATE: 2/26/2003

SPECTRA GASES INC.

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Shipped From: 80 Industrial Drive • Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0033389
ITEM# : 2
P.O.# : 2003047

CYLINDER # : CC-38285
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 2/26/2003
EXPIRATION DATE: 8/26/2003

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	2/19/2003 2/26/2003	6.037 ppm 6.020 ppm	6.03 ppm	+/- 1%
Methane	2/26/2003	5.03 ppm	5.03 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	NTRM-31002	CC-135230	19.53 ppm
Methane	SRM-1659a	Cal-013286	9.85 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Thermo 48C	48CTL-69941-364	GFC-IR	2/10/2003
Methane	H. Packard 6890	US00001434	GC - FID	2/26/2003

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cheryl Patino
CHERYL PATINO

DATE: 2/26/2003

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 153396
ITEM# : 2
P.O.# : 2000131

CYLINDER # : CC63266
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 5/2/2000
EXPIRATION DATE: 5/2/2003

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	4/25/2000 5/2/2000	8.946 ppm 8.904 ppm	8.92 ppm	+/- 1%
Methane	5/2/2000	9.06 ppm	9.06 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	GMIS-1	CC88476	10.04 ppm
Methane	GMIS-1	CC60179	50.10 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Nicolet 560	ADL9600109	FTIR	4/10/2000
Methane	H. Packard 6890	US00001434	GC - FID	5/2/2000

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: ____________________
FRED PIKULA

DATE: 5/2/2000

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: CUBIX c/o HAMAKUA ENERGY
SGI ORDER # : 0027494
ITEM# : 12
P.O.# : 2002624T10TONY

CYLINDER # : CC-133578
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 580

CERTIFICATION DATE: 10/14/02
EXPIRATION DATE: 10/14/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	10/14/02	11.97 %	11.97 %	+/- 1%
Oxygen	10/14/02	4.16 %	4.16 %	+/- 1%

BALANCE Nitrogen
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	NTRM-82745x	CC60205	20.0 %
Oxygen	GMIS-1	CC-131282	7.53 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	Horiba VIA-510	571417045	NDIR	9/25/02
Oxygen	Horiba MPA-510	570694081	PM	9/25/02

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: ______________
FRED PIKULA

DATE: 10/14/02

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0023960
ITEM# : 1
P.O.# : 2002420

CYLINDER # : CC-127463
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 7/23/2002
EXPIRATION DATE: 7/23/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	7/23/2002	7.99 %	7.99 %	+/- 1%
Oxygen	7/23/2002	11.94 %	11.94 %	+/- 1%

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	GMIS-1	CC-90832	9.98 %
Oxygen	NTRM-1	CC-83909	22.8 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	Horiba VIA-510	571417045	NDIR	6/25/2002
Oxygen	Horiba MPA-510	570694081	PM	7/23/2002

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES. DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: ______________________
FRED PIKULA

DATE: 7/23/2002

SPECTRA GASES INC.
3434 Route 22 West • Branchburg, NJ 08876 USA Tel.: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0811
Shipped From: 80 Industrial Drive • Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0027314
ITEM# : 3
P.O.# : 2002623 FLA

CYLINDER # : CC-133119
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

Begin use 01-31-03

CERTIFICATION DATE: 10/14/2002
EXPIRATION DATE: 10/14/2005

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	10/14/2002	4.48 %	4.48 %	+/- 1%
Oxygen	10/14/2002	20.9 %	20.9 %	+/- 1%

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	GMIS-1	CC-90832	9.98 %
Oxygen	NTRM-1	CC-83909	22.8 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	Horiba VIA-510	571417045	NDIR	10/4/2002
Oxygen	Horiba MPA-510	570694081	PM	10/1/2002

THIS STANDARD ISNIST TRACEABLE IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: ______________
FRED PIKULA

DATE: 10/14/2002

Air Products and Chemicals, Inc.
5837 W. Fifth Street
Jacksonville, FL 32254
Telephone (904) 786-2663
FAX (904) 693-9128

AIR PRODUCTS

30 March, 1995

Cubix Corporation
2106 NW 67th Place
Suite 7
Gainesville, FL 32653

CERTIFICATE OF CONFORMANCE

This document certifies that the product listed below is supplied via Air Products and Chemicals, Inc. and complies with the current minimum purity specifications of Air Products and Chemicals, Inc., Specialty Gas Department.

Product	Hydrogen
Product Code	3602
Product	Oxygen
Product Code	1602
Shipper Number	854-C-78428
Product	Compressed Air
Product Code	9197
Product	Nitrogen
Product Code	2602
Shipper Number	854-C-78440

C Edward Henderson
Authorized Signature

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-23-03
Nozzle ID: 0.19066 Nozzle # 6A (Run 1A-NH3-1)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft²

Signature:

Date Measured: 4-23-03

Date: 4-23-03

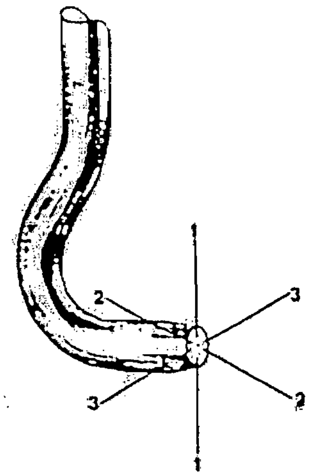
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.191
Diameter 2: 0.191
Diameter 3: 0.190
Average: 0.19066

Area = $\pi D^2/(4 \times 144)$
Area = 0.0001983 ft²

This area shall be used in data reduction.



Signature:

Date: 4-23-03

* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-23-03
Nozzle ID: 0.19066 Nozzle #6B (Run 1A-NH$_3$-2)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft^2

Signature:

Date Measured: 4-23-03

Date: 4-23-03

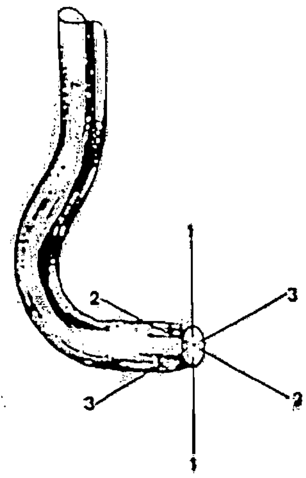
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.190
Diameter 2: 0.190
Diameter 3: 0.192
Average: 0.19066

Area = $\pi D^2 /(4 \times 144)$
Area = 0.0001983 ft^2

This area shall be used in data reduction.



Signature:

Date: 4-23-03

* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-23-03
Nozzle ID: 0.19066 Nozzle #6A (Run 1A-NH_3-3)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft^2

Signature:

Date Measured: 4-23-03

Date: 4-23-03

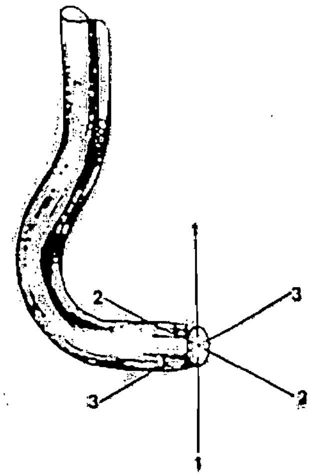
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.191
Diameter 2: 0.191
Diameter 3: 0.190
Average: 0.19066

Area = $\pi D^2/(4 \times 144)$
Area = 0.0001983 ft^2

This area shall be used in data reduction.



Signature:

Date: 4-23-03

* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: BAyside Power Station
Date: 4-23-03
Nozzle ID: 0.19066 Nozzle (Run 1A-NH_3-4)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft^2

Signature: Roy Paul

Date Measured: 4-23-03

Date: 4-23-03

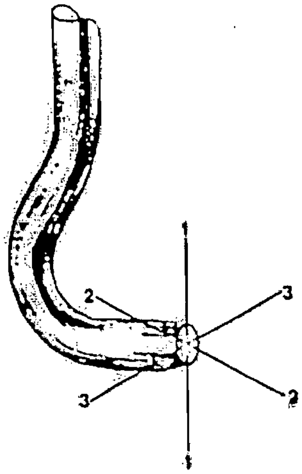
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.190
Diameter 2: 0.190
Diameter 3: 0.192
Average: 0.19066

Area = $\pi D^2/(4 \times 144)$
Area = 0.0001983 ft^2

This area shall be used in data reduction.



Signature: Roy

Date: 4-23-03

* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power station
Date: 4-16-2003
Nozzle ID: 0.19066 Nozzle # 6A (Run 1B-NH3-1)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft²
Signature:

Date Measured: 4-16-03
Date: 4-16-03

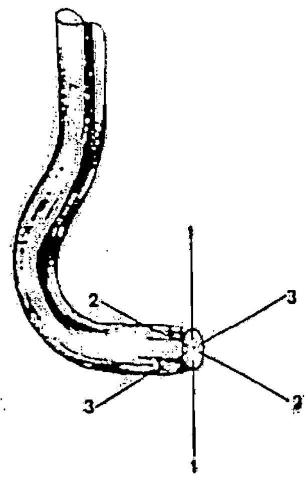
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.191
Diameter 2: 0.191
Diameter 3: 0.190
Average: 0.19066

Area = $\pi D^2 /(4 \text{ x } 144)$
Area = 0.0001983 ft²

This area shall be used in data reduction.



* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

Signature:

Date: 4/17/03

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-16-03
Nozzle ID: 0.19066 Nozzle # 6B (Run 1B-NH3-2)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft^2

Signature:

Date Measured: 4-16-03

Date: 4-16-03

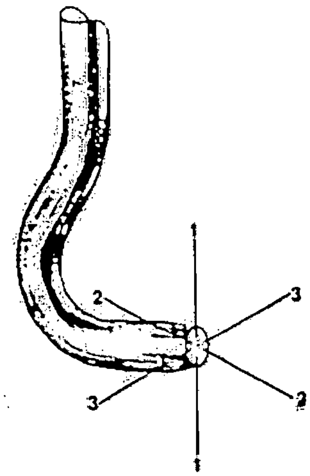
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.190
Diameter 2: 0.190
Diameter 3: 0.192
Average: 0.19066

Area = $\pi D^2/(4 \times 144)$
Area = 0.0001983 ft^2

This area shall be used in data reduction.



Signature:

Date: 4/17/2003

* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-17-03
Nozzle ID: 0.19066 Nozzle # 6A (Run 1B-NH_3-3)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft^2

Signature: Roy Paul O

Date Measured: 4-17-03

Date: 4-17-03

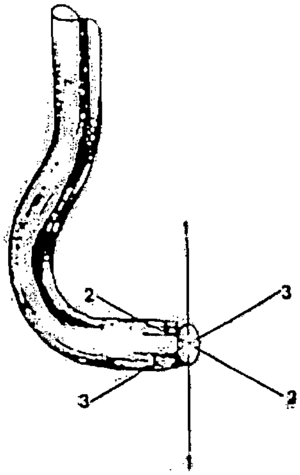
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.191
Diameter 2: 0.191
Diameter 3: 0.190
Average: 0.19066

Area = $\pi D^2/(4 \times 144)$
Area = 0.0001983 ft^2

This area shall be used in data reduction.



Signature: Roy Paul O

Date: 4/17/03

* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-17-03
Nozzle ID: 0.19066 Nozzle #6B (Run 1C-NH3-1)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft²

Signature:

Date Measured: 4-17-03

Date: 4-17-03

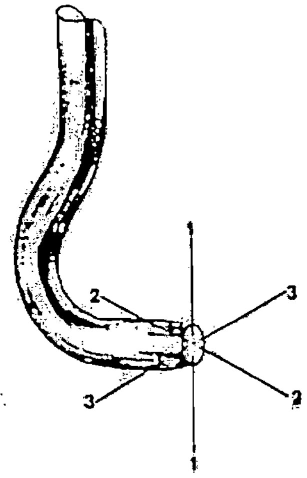
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.190
Diameter 2: 0.190
Diameter 3: 0.192
Average: 0.19066

Area = $\pi D^2 /(4 \times 144)$
Area = 0.0001983 ft²

This area shall be used in data reduction.



* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

Signature:

Date: 4-18-03

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-17-03
Nozzle ID: 0.19066 Nozzle # 6A (Run 1C-NH_3-2)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft^2

Signature:

Date Measured: 4-17-03

Date: 4-17-03

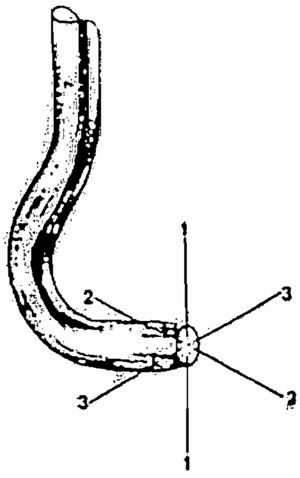
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.191
Diameter 2: 0.191
Diameter 3: 0.190
Average: 0.19066

Area = $\pi D^2/(4 \times 144)$
Area = 0.0001983 ft^2

This area shall be used in data reduction.



* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

Signature:

Date: 4-18-03

NOZZLE INSPECTION AND MEASUREMENT DATA SHEET

Company: Bayside Power Station
Date: 4-18-03
Nozzle ID: 0.19066 Nozzle # 6B (Run 1C-NH3-3)

Pre-sample Inspection

I hereby certify that the above referenced nozzle appears to be round, sharp-edged, free of nicks and dents and is judged acceptable for use at this time.

Last Previously Measured
Nozzle Area: 0.0001983 ft²

Signature: Roy

Date Measured: 4-18-03

Date: 4-18-03

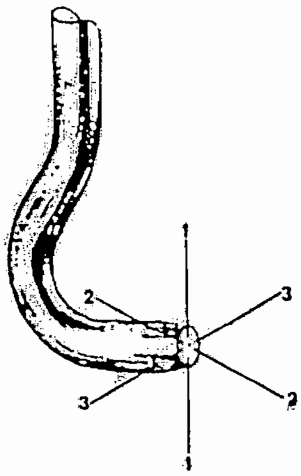
Post-sample Inspection

Measure three diameters as shown. Measurement is in inches.
Record results below and perform calculations.

Diameter 1: 0.190
Diameter 2: 0.190
Diameter 3: 0.192
Average: 0.19066

Area = $\pi D^2/(4 \times 144)$
Area = 0.0001983 ft²

This area shall be used in data reduction.



Signature: Roy

Date: 4-18-03

* Maximum allowable difference between largest diameter and smallest diameter is 0.004 inches

EPA Method 5
Initial Dry Gas Meter Calibration
Critical Orifice Calibration

Model #: 2010.1111
Serial #: 80893

Date: 03-Sep-02
Barometric Pressure: 29.88 in Hg

METER CALIBRATION READINGS

dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperatures Inlet (deg F)	Initial Temperatures Outlet (deg F)	Final Temperatures Inlet (deg F)	Final Temperatures Outlet (deg F)	Vacuum (in Hg)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Ambient Temperatures Initial (deg F)	Ambient Temperatures Final (deg F)
0.110	10.00	808.513	810.653	2.140	86.0	85.0	86.0	86.0	20.5	31	0.161	80.0	80.0
0.110	10.00	810.653	812.786	2.133	86.0	86.0	86.0	86.0	20.5	31	0.161	80.0	81.0
0.570	10.00	730.378	735.057	4.679	88.0	89.0	90.0	89.0	15.0	48	0.363	86.7	85.9
0.570	10.00	735.057	739.768	4.711	90.0	89.0	90.0	87.0	15.0	48	0.363	85.9	83.1
1.050	10.00	740.043	746.229	6.186	90.0	87.0	90.0	86.0	15.0	55	0.473	83.5	83.3
1.050	10.00	746.229	752.427	6.198	90.0	86.0	90.0	84.0	15.0	55	0.473	83.3	81.1
1.750	10.00	826.605	834.691	8.086	89.0	89.0	89.0	89.0	19.0	63	0.616	84.0	85.0
1.750	10.00	834.691	842.688	7.997	89.0	89.0	90.0	90.0	19.0	63	0.616	86.0	83.0
3.350	10.00	769.072	780.111	11.039	90.0	84.0	91.0	84.0	15.0	73	0.844	81.0	80.0
3.350	10.00	780.111	791.131	11.020	91.0	84.0	91.0	83.0	15.0	73	0.844	80.0	80.1

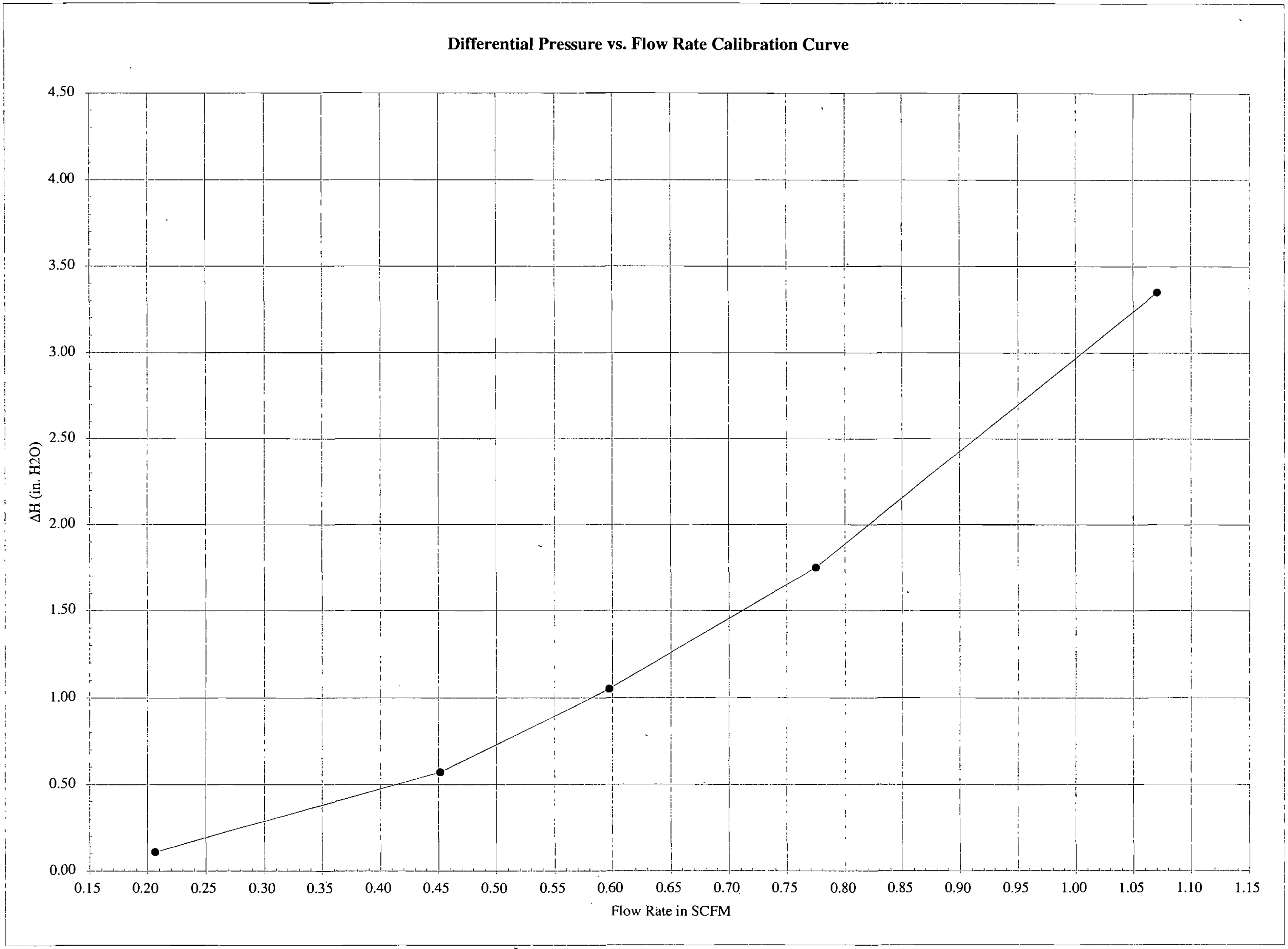
METER CALIBRATION RESULTS

********* DRY GAS METER *********			******* ORIFICE *******		*** DRY GAS METER **		****** ORIFICE ******	
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	FLOW RATE (SCFM)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	CALIBRATION FACTOR Y Value (number)	CALIBRATION FACTOR Y Variation (number)	CALIBRATION FACTOR dH@ Value (in H2O)	CALIBRATION FACTOR dH@ Variation (in H2O)
2.060	58.3	0.206	2.070	58.6	1.005	-0.011	1.385	-0.111
2.067	58.5	0.207	2.069	58.6	1.001	-0.015	1.407	-0.089
4.529	128.3	0.453	4.641	131.4	1.025	0.009	1.454	-0.042
4.499	127.4	0.450	4.648	131.6	1.033	0.018	1.410	-0.086
5.963	168.8	0.596	6.063	171.7	1.017	0.001	1.553	0.057
5.982	169.4	0.598	6.070	171.9	1.015	-0.001	1.552	0.056
7.797	220.8	0.780	7.888	223.4	1.012	-0.004	1.533	0.037
7.704	218.1	0.770	7.888	223.4	1.024	0.008	1.531	0.035
10.701	303.0	1.070	10.847	307.2	1.014	-0.002	1.563	0.067
10.720	303.6	1.072	10.852	307.3	1.012	-0.003	1.573	0.077

FACTOR	CRITERIA	CALIBRATION TEST RESULTS	PASS/FAIL
Y	Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.	Average Y: 1.0157	PASS
dH@	For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.	Average dH@: 1.496	PASS

SIGNED: 9/3/02

EPA Method 5


Differential Pressure vs. Flow Rate Calibration Curve
ΔH (in. H2O)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
1.00
1.05
1.10
1.15
Flow Rate in SCFM

EPA Method 5: Post-Test Meter Calibration Check
Critical Orifice Calibration
English Meter Box Units, English K' Factor

Model #: 2010.1111
Serial #: 80893
Meter Factor#: 1.0157

Date: 05/20/03
Barometric Pressure: 29.97 in Hg
Critical Orifice Vacuum: 15 in Hg

IMPORTANT!!! For valid test results, the Critical Orifice Vacuum must be equal to or higher than the value shown above.
The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

-- DRY GAS METER READINGS --

dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Initial Temperatures Inlet (deg F)	Initial Temperatures Outlet (deg F)	Final Temperatures Inlet (deg F)	Final Temperatures Outlet (deg F)	Vacuum (in Hg)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Ambient Temperatures Initial (deg F)	Ambient Temperatures Final (deg F)
1.05	10.00	325.600	331.803	6.203	91.0	87.0	92.0	87.0	15.0	55	0.473	83.0	83.0
1.05	10.00	331.803	338.016	6.213	92.0	87.0	93.0	88.0	15.0	55	0.473	83.0	83.0
1.05	10.00	338.016	344.232	6.216	93.0	88.0	93.0	88.0	15.0	55	0.473	83.0	83.0

** RESULTS************************************ **

********* DRY GAS METER *********			******* ORIFICE *******		*** DRY GAS METER **		****** ORIFICE ******	
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	FLOW RATE (CFM)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	CALIBRATION FACTOR Y Value (number)	Variation (number)	CALIBRATION FACTOR dH@ Value (in H2O)	Variation (in H2O)
5.986	169.5	0.62	6.083	172.3	1.016	0.000	1.506	0.005
5.987	169.6	0.62	6.083	172.3	1.016	0.000	1.501	0.000
5.985	169.5	0.62	6.083	172.3	1.016	0.000	1.497	-0.005

FACTOR	CRITERIA	CALIBRATION TEST RESULTS	PASS/FAIL
Y	Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.	Average Y: 1.0163	PASS
dH@	For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H20 that equates to 0.75 cfm of air at 68 F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +-0.2.	Average dH@ 1.501	PASS

SIGNED:______________________________

Pitot Tube Calibration Sheet

S-Type Tip Inspection (Method 2, Section 4)

Alignment Inspection

Transverse tube axis pitot-tip angle:

α_1 = 1 ° α_2 = 2 °

Each α must be less than 10° from perpendicular to the transverse tube axis

Longitudinal tube axis pitot-tip angle:

β_1 = 3 ° β_1 = 2 °

Each β must be less than 5° from parrallel to the longitudinal tube axis

Pitot-tip end length alignment:

z = 0.071 ([✓ in] or cm)

Z must be ≤ 0.32 cm (1/8 in)

Environmental Protection Agency Pt. 60, App. A, Meth. 2

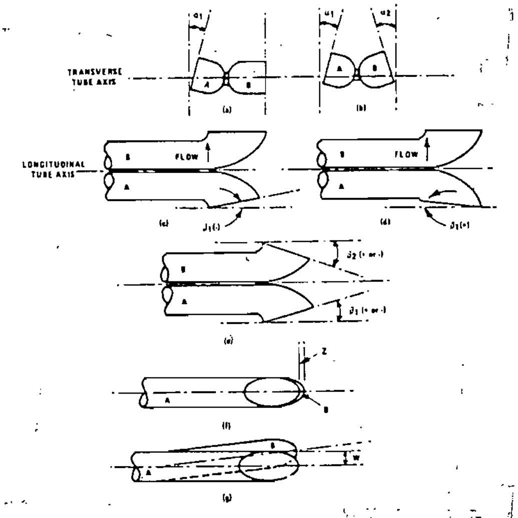


Figure 2–3. Types of face-opening misalignment that can result from field use or improper construction of Type S pitot tubes. These will not affect the baseline value of Cp(s) so long as α¹ and α² ≤ 10°, β¹ and β¹ ≤ 5°, z ≤ 0.32 cm (1/8 in.) and w ≤ 0.08 cm (1/32 in.) (citation 11 in Bibliography).

Pitot-tip centriod alignment with respect to transverse axis:

w = 0.000 ([✓ in] or cm)

W must be ≤ 0.08 cm (1/32 in)

Pitot Tip Dimension Check

External tubing diameter:

D_t = 0.375 ([✓ in] or cm)

D_t must be between 0.48 and 0.95 cm (3/16 and 3/8 in)

Base to opening plane distance:

$P_A = P_B$ = 0.483 ([✓ in] or cm)

P_A and P_B must be between 1.05 D_t and 1.50 D_t

Pt. 60, App. A, Meth. 2 40 CFR Ch. I (7-1-93 Edition)

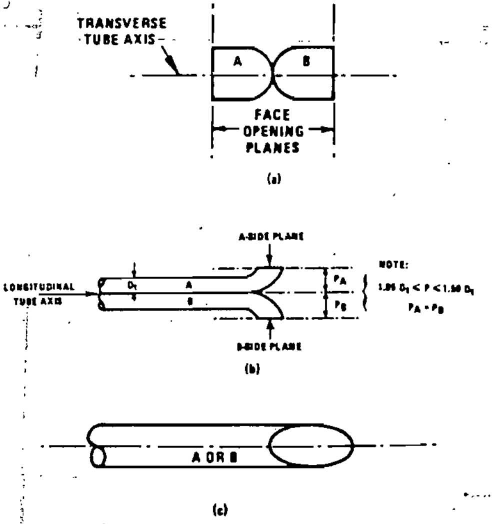


Figure 2-2. Properly constructed Type S pitot tube, shown in: (a) end view; face opening planes perpendicular to transverse axis; (b) top view; face opening planes parallel to longitudinal axis; (c) side view; both legs of equal length and centerlines coincident, when viewed from both sides. Baseline coefficient values of 0.84 may be assigned to pitot tubes constructed this way.

Pitot Tube Coefficient

C_p = 0.84 Pitot Tube: MS-FL1-8-001 Date and Initials: 4/14/03 JH

Calibration by Cubix Corporation - Austin, Texas - Gainesville, Florida

Digital Thermometer Calibration

Date: 10/7/2002
Location: Cubix Austin Lab
Technician: KRH
Barometric Presure: 29.64 In. Hg
Ambient Temp: 78

Reference Thermometer / Calibrator

Manufacturer Omega
Model CL23A
Seriel # T-208883
Certificate Date 6/30/1999
Thermocouple Type K Type
Tested By RF
(complies with ANSI/Z540-1-1994)

Working Thermometer

Cubix ID Meter Box E
Manufacturer Omega
Model HH21
Thermometer: BX-A

Reference Thermo./Calib. (°F)	Working Thermometer (°F)	Temperature Difference (°F)	Abs. Temp. % Diff. (°R)
32.0	33.0	-1.0	-0.20
100.0	99.4	0.6	0.11
212.0	212.6	-0.6	-0.09
500.0	501.7	-1.7	-0.18
1000.0	1001.8	-1.8	-0.12
1800.0	1802	-2.0	-0.09
	Average Diff.	-1.1	-0.10

Criteria:

Method 2 Sec 4.3 (in-stack thermometers):
Test within 10% of the observed absolute stack temperature °F+460). Agreement must be less than 1.5% absolute temperature difference between reference and working thermometer.

See also (EMC ALT-011) Emission Mesurement Center, Approved Alternative Method 2 Thermocouple Calibration Procedure.

Method 4 Sec 2.1.4 & M. 5 Sec. 2.1.8 (gas meter thermometers): Thermometers capable of measuring temperature within 3°C (5.4°F).

Method 4 Sec 2.1.2 (last iimpinger thermometers):
Themometer capable of measuring within 1°C (2°F).

Calibration Conducted by CUBIX CORPORATION, Austin, TX

Digital Thermocouple Thermometer Calibration

Date:	3/5/2003
Location:	Cubix Austin Lab
Technician:	KRH
Barometric Presure:	29.27" Hg
Ambient Temp:	69° F

Reference Thermometer / Calibrator

Manufacturer	Omega
Model	CL23A
Seriel #	T-239267
Certificate Date	11/13/2002
Thermocouple Type	K Type
Tested By	RF

(complies with ANSI/Z540-1-1994)

Working Thermometer

Cubix ID	T-13-T-233418
Manufacturer	OMEGA
Model	HH-25KF
Thermometer:	T-233418

Reference Thermo./Calib. (°F)	Working Thermometer (°F)	Temperature Difference (°F)	Abs. Temp. % Diff. (°R)
32.0	31.7	0.3	0.06
100.0	99.5	0.5	0.09
212.0	211.0	1.0	0.15
500.0	494	6.0	0.63
1000.0	1005	-5.0	-0.34
1800.0	1801	-1.0	-0.04
	Average Diff.	0.3	0.09

Criteria:

Method 2 Sec 4.3 (in-stack thermometers):
Test within 10% of the observed absolute stack temperature °F+460). Agreement must be less than 1.5% absolute temperature difference between reference and working thermometer.

See also (EMC ALT-011) Emission Mesurement Center, Approved Alternative Method 2 Thermocouple Calibration Procedure.

Method 4 Sec 2.1.4 & M. 5 Sec. 2.1.8 (gas meter thermometers): Thermometers capable of measuring temperature within 3°C (5.4°F).

Method 4 Sec 2.1.2 (last iimpinger thermometers):
Themometer capable of measuring within 1°C (2°F).

Calibration Conducted by CUBIX CORPORATION, Austin, TX

OMEGA ENGINEERING, INC.
An OMEGA Technologies Company

Certificate Of Calibration

CUBIX CORPORATION

Cust. P.O. #:	JH030303	Report #:	303906027
Test Item:	ASTM-1C-CC	Test Date:	17-Mar-03
Serial #:	78717	Recal Date:	Per System Application

Omega Engineering, Inc. certifies that the above instrumentation has been calibrated and tested to **meet or exceed** the published specifications. This calibration and testing was performed using instrumentation and standards that are traceable to the United States National Institute of Standards and Technology. Calibration on this product was performed by an approved Supplier/ Lab of Omega Engineering, Inc. and is in compliance with **MIL-STD-45662A.**

Test Conditions: Temperature 22 C Relative Humidity 35%

NIST Traceable Test Numbers: 265610-01

Temperature	Thermometer Reading	Correction
	We certify that subject thermometer conforms to specifications and tolerances stated in A.S.T.M. Designate E-1, Table 1, No. 1C, Scale error ± 0.5 C Max.	

Metrology Inspector 17-Mar-03

ALTIMETER TEST RECORD

This unit was tested and inspected IAW FAR Part 43,
Appendix E, and is approved for return to service.

DATE: 03/06/03

WORK ORDER #: 5322

SCALE ERROR

−1000	-5
0	0
+ 500	-5
+1000	0
+1500	-5
+2000	0
+3000	-5
+4000	-5
+6000	-10
+8000	-5
+10,000	+5
+12,000	+5
+14,000	+10
+16,000	0
+18,000	-15
+20,000	-20
+22,000	
+25,000	
+30,000	
+35,000	
+40,000	
+45,000	
+50,000	

START PRESSURE 29.79

FINAL PRESSURE 29.79

BAROMETRIC SCALE ERROR TEST

28.10	-5	30.50	0
28.50	0	30.90	0
29.00	-5	30.99	0
29.50	0		
29.92	0		

FRICTION TEST

1000	20	20,000	60
2000	20	25,000	
3000	20	30,000	
5000	30	35,000	
10,000	40	40,000	
15,000	50	50,000	

CASE LEAK TEST @ 18,000 0

CASE LEAK TEST @ 1,200 0

HYSTERESIS TEST @ 50% 25

HYSTERESIS TEST @ 40% 25

AFTER EFFECT 15

SERIAL NUMBER J5924

INSPECTOR

TRAILER 10

ALTIMETER/BAROMETER CALIBRATION SHEET

BFG/C 9001

BFGoodrich
Aerospace

817 Dessau Road
Austin, Texas 78753
512-251-3441
FAX 512-990-1271

Component Overhaul & Repair

FAA Repair Station No. UZ2R232L

CASTLEBERRY AERCOR

Serviceable Part Tag

COMPONENT Altimeter
PART NO. 5934P-1A.83
SERIAL NO. J5924
MFG United Instr. WORK ORDER # V7071

☒ Overhaul ☐ Repair ☐ Bench Check & Test ☐ Other

The Aircraft Appliance identified above was overhauled, repaired, or bench tested (as per block marked) and inspected, in accordance with current Federal Aviation Administration Regulations, and is approved for return to service. Details of this component are on file at this repair station.

AUTHORIZED SIGNATURE

JAN 16 1995
DATE

ALTIMETER SCALE ERROR

PART NO. 5934P1A83 SERIAL NO. J5924

ALTIMETER PRESSURE

TEST PT (FT)	INDICATOR READINGS AT + 25 °C	TEST PT (FT)	INDICATOR READINGS AT + 25 °C	TEST PT (FT)	INDICATOR READINGS AT + 25 °C
-1000	+5	8,000	+5	30,000	
0 0	0	10,000	+10	35,000	
500	0	12,000	+15	40,000	
1000	0	14,000	+15	45,000	
1500	0	16,000	+5	50,000	
2000	0	18,000	0	55,000	
3000	-5	20,000	-5	60,000	
4000	-10	22,000		70,000	
6000	-10	25,000		80,000	

INNOCAL™
INNOVATIVE CALIBRATION SOLUTIONS
625 East Bunker Court, Vernon Hills, Illinois, 60061
Domestic 866-InnoCal - Fax 847-247-2984

NIST CALIBRATION CERTIFICATE

Page 1 of 2

Catalog Number : 17005-00 **Certificate Reference Number** 3924899

Unit Under Test 1 :	03312-20	Unit Under Test 2:	n/a
Serial Number 1 :	57778	Serial Number 2:	n/a

Certificate Completed for: **Cubix Corp**
3709 SW 42nd Ave
Gainsville FL 32608

InnoCal certifies that the calibration of the listed units, used procedure number MWI-17005-00with equipment traceable to the National Institute of Standards and Technology (NIST), and the test was performed in accordance with ANSI/NCSL Z540-1,ISO Guide 25.

Best measurement uncertainty: k=2, ±0.08°C

Listed uncertainties represent the best measurement uncertainty expressed at 95% confidence level. Actual uncertainties available upon request.

Purchase Order Number:	2002615	Secondary ID #:	n/a
Equipment Conditon :	USED		

Calibration Standards Used

Manufacturer	Function Performed	Model Number	Serial Number	Due Date
Hart Scientific	Platinum Resistance Probe	5680	1074	04/14/03
Ertco/Hart	Temperature Indicator	850	85307	04/14/03

Lab Technician: 321

Date Completed: 10/17/02 **Issue Date:** 10/17/02 **Received Date** 9/18/02

*This certificate shall not be reproduced except in full and requires written approval from InnoCal. * Results data shown relates only to above listed item(s) **

NIST CALIBRATION CERTIFICATE

Page 2 of 2

Catalog Number : **17005-00** Certificate Reference Number **3924899**

Instrument Tolerance

±3% full-scale

	Equipment "As Found"				Equipment "As Left"		
	Test Points	Reading	Deviation	O.O.T	Test Points	Reading	Deviation
Measured in:	Wet	Wet	#Error	☐	Wet	Wet	#Error
	32.00	32.0	0.0000	☐	32.00	32.0	0.0000
°F	60.09	60.0	-0.0900	☐	60.09	60.0	-0.0900
	110.00	110.0	0.0000	☐	110.00	110.0	0.0000
Measured in:	Dry	Dry	#Error	☐	Dry	Dry	#Error
	32.00	32.0	0.0000	☐	32.00	32.0	0.0000
°F	60.09	60.0	-0.0900	☐	60.09	60.0	-0.0900
	110.00	110.0	0.0000	☐	110.00	110.0	0.0000
Measured in:				☐			
				☐			
				☐			
				☐			
Measured in:				☐			
				☐			
				☐			
				☐			
Measured in:				☐			
				☐			
				☐			
				☐			

****** Note **** Check mark under the O.O.T column indicates the equipment is Out Of Tolerance.**

This certificate was performed under the climate controlled lab conditons of: **22** °C **50** %RH **29.5** "Hg

Additional Comments:

n/a

*This certificate shall not be reproduced except in full and requires written approval from InnoCal. * Results data shown relates only to above listed item(s) **

TAMPA ELECTRIC CEMS CALIBRATION RECORDS

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 75516
Project No.: 01-86469-002

Customer

TAMPA ELECTRIC COMPANY
BILL ROBINSON
GANNON WHSE-STOREROOM 22
3602 PORT SUTTON ROAD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: 1L3771 **Certification Date:** 03Mar2003 **Exp. Date:** 02Mar2005
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	11.3	PPM	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	5.52	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		

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

** *Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.*
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMi standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2635	03Apr2003	ALM020670	25.78 PPM	CARBON MONOXIDE
NTRM 2629	02Oct2004	AAL069504	18.05 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS/6E/KN-240	28Feb2003	NDIR
HORIBA/CLA220/5708850810	21Feb2003	CHEMILUMINESCENCE

ANALYZER READINGS

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

First Triad Analysis	Second Triad Analysis	Calibration Curve

CARBON MONOXIDE

Date: 24Feb2003	Response Unit:VOLTS	
Z1=-0.00680	R1=2.54500	T1=1.10810
R2=2.54850	Z2=-0.00200	T2=1.10400
Z3=-0.00950	T3=1.09960	R3=2.54150
Avg. Concentration:	11.30	PPM

Date: 03Mar2003	Response Unit: VOLTS	
Z1=-0.00120	R1=2.53970	T1=1.10830
R2=2.54220	Z2=0.00280	T2=1.10710
Z3=0.00170	T3=1.10560	R3=2.54580
Avg. Concentration:	11.30	PPM

Concentration=A+Bx+Cx2+Dx3+Ex4

r=.999953	2635
Constants:	A=8.5759E-02
B=1.0175E+01	C=
D=	E=

NITRIC OXIDE

Date: 24Feb2003	Response Unit:VOLTS	
Z1=0.00510	R1=3.99270	T1=1.21980
R2=3.98990	Z2=0.00720	T2=1.22080
Z3=0.01260	T3=1.22510	R3=3.99290
Avg. Concentration:	5.520	PPM

Date: 03Mar2003	Response Unit: VOLTS	
Z1=0.00620	R1=3.90090	T1=1.19290
R2=3.90270	Z2=0.00650	T2=1.19740
Z3=0.00670	T3=1.20190	R3=3.92960
Avg. Concentration:	5.530	PPM

Concentration=A+Bx+Cx2+Ox3+Ex4

r=.999999	2629
Constants:	A=-.002014
B=4.583012	C=
D=	E=

Special Notes: NOx = 5.53 ppm

APPROVED BY:

JOHN C. FITZ

Removed 3/25/03

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

P.O. No.: 0320067F
Project No.: 01-84645-002

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

Customer

SPECTRUM SYSTEMS

3410 WEST NINE MILE ROAD
PENSACOLA FL 32526

ANALYTICAL INFORMATION

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

Cylinder Number: 1L14458 **Certification Date:** 03Feb2003 **Exp. Date:** 02Feb2005
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	11.3	PPM	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	5.49	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		

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

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMi standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2635	03Apr2003	ALM020670	25.78 PPM	CARBON MONOXIDE
NTRM 2629	02Oct2004	AAL069504	18.05 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS/6E/KN-240	31Jan2003	NDIR
HORIBA/CLA220/5708850810	22Jan2003	CHEMILUMINESCENCE

ANALYZER READINGS

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

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

CARBON MONOXIDE

Date: 27Jan2003	Response Unit:VOLTS	
Z1 = -0.00340	R1 = 2.54020	T1 = 1.11020
R2 = 2.54570	Z2 = -0.00370	T2 = 1.10840
Z3 = -0.00490	T3 = 1.11290	R3 = 2.54600
Avg. Concentration:	11.30	PPM

Date: 03Feb2003	Response Unit: VOLTS	
Z1 = -0.00300	R1 = 2.54290	T1 = 1.11390
R2 = 2.54390	Z2 = -0.00090	T2 = 1.11340
Z3 = -0.00190	T3 = 1.11690	R3 = 2.55390
Avg. Concentration:	11.30	PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = .999951	2635
Constants:	A = 6.6140E-02
B = 1.0194E+01	C =
D =	E =

NITRIC OXIDE

Date: 27Jan2003	Response Unit:VOLTS	
Z1 = 0.00660	R1 = 3.95720	T1 = 1.20860
R2 = 3.96140	Z2 = 0.00570	T2 = 1.20800
Z3 = 0.00580	T3 = 1.20950	R3 = 3.96470
Avg. Concentration:	5.500	PPM

Date: 03Feb2003	Response Unit: VOLTS	
Z1 = 0.00750	R1 = 3.91320	T1 = 1.19240
R2 = 3.92460	Z2 = 0.01000	T2 = 1.19570
Z3 = 0.00660	T3 = 1.19500	R3 = 3.94700
Avg. Concentration:	5.470	PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = .999999	2629
Constants:	A = -.005887
B = 4.549761	C =
D =	E =

Special Notes: NOX = 5.49 PPM

APPROVED BY:

JOHN C. FITZ

RATA CLASS

Scott Specialty Gases *Dual-Analyzed Calibration Standard*

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 0320067F
Project No.: 01-84645-005

Customer

SPECTRUM SYSTEMS

3410 WEST NINE MILE ROAD
PENSACOLA FL 32526

ANALYTICAL INFORMATION

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

Cylinder Number: ALM045675 **Certification Date:** 05Feb2003 **Exp. Date:** 04Feb2005
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	2.06	%	+/- 1%	Direct NIST and NMI
NITRIC OXIDE	37.5	PPM	+/- 1%	Direct NIST and NMI
NITROGEN - OXYGEN FREE		BALANCE		

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

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1800	01Jan2004	H049491	18.05 %	CARBON DIOXIDE
NTRM 1684	03Apr2006	AAL069400	94.62 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
MTI/M200/170927	03Feb2003	GC-TCD
HORIBA/CLA220/5708850810	24Jan2003	CHEMILUMINESCENCE

ANALYZER READINGS

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

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

CARBON DIOXIDE

First Triad Analysis:

Date: 28Jan2003	Response Unit:AREA	
Z1=0.00000	R1=806193.0	T1=91578.00
R2=806873.0	Z2=0.00000	T2=91450.00
Z3=0.00000	T3=91722.00	R3=805385.0
Avg. Concentration:	2.060	%

Calibration Curve:

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r=.999999	1800
Constants:	A=7.6764E-03
B=2.2477E-05	C=
D=	E=

NITRIC OXIDE

First Triad Analysis:

Date: 24Jan2003	Response Unit:VOLTS	
Z1=0.00570	R1=3.12810	T1=2.46590
R2=3.12060	Z2=0.00610	T2=2.46780
Z3=0.00730	T3=2.46720	R3=3.12170
Avg. Concentration:	37.52	PPM

Second Triad Analysis:

Date: 05Feb2003	Response Unit: VOLTS	
Z1=0.00310	R1=4.57090	T1=1.80210
R2=4.57010	Z2=0.00120	T2=1.79930
Z3=0.00160	T3=1.80000	R3=4.56610
Avg. Concentration:	37.30	PPM

Calibration Curve:

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r=.999999	1684
Constants:	A=-.018172
B=20.941078	C=
D=	E=

Special Notes: NOX = 37.6 PPM

APPROVED BY: ____________________

Removed 3/20/03

RATA CLASS

Dual-Analyzed Calibration Standard

Scott Specialty Gases

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

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

Assay Laboratory

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

P.O. No.: 0320067F
Project No.: 01-84645-001

Customer

SPECTRUM SYSTEMS

3410 WEST NINE MILE ROAD
PENSACOLA FL 32526

ANALYTICAL INFORMATION

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

Cylinder Number: ALM049487 **Certification Date:** 31Jan2003 **Exp. Date:** 30Jan2005
Cylinder Pressure*:** 1950 PSIA

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	5.57	%	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	82.0	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	82.6	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMi standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2000	01Jun2005	K026963	5.006 %	CO2/N2
NTRM 1684	03Apr2006	AAL069403	94.62 PPM	NO/N2

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9300174	04Jan2003	Scott Enhanced FTIR
FTIR System/8220/AAB9300174	04Jan2003	Scott Enhanced FTIR

ANALYZER READINGS

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

First Triad Analysis	Second Triad Analysis	Calibration Curve
CARBON DIOXIDE		
Date: 24Jan2003 Response Unit:%		Concentration = A + Bx + Cx2 + Dx3 + Ex4
Z1 = -0.00410 R1 = 5.00387 T1 = 5.57153		r = 0.999990
R2 = 5.00327 Z2 = -0.00270 T2 = 5.57312		Constants: A = 0.000000
Z3 = -0.00240 T3 = 5.57083 R3 = 5.01085		B = 1.000000 C = 0.000000
Avg. Concentration: 5.572 %		D = 0.000000 E = 0.000000
NITRIC OXIDE		
Date: 24Jan2003 Response Unit:PPM	Date: 31Jan2003 Response Unit: PPM	Concentration = A + Bx + Cx2 + Dx3 + Ex4
Z1 = -0.51510 R1 = 94.88549 T1 = 81.69818	Z1 = -0.15790 R1 = 94.70475 T1 = 82.02636	r = 0.999990
R2 = 94.53738 Z2 = -0.43530 T2 = 81.72062	R2 = 94.32298 Z2 = -0.36110 T2 = 82.55844	Constants: A = 0.000000
Z3 = -0.24770 T3 = 82.21959 R3 = 94.43711	Z3 = -0.06370 T3 = 81.83354 R3 = 94.83230	B = 1.000000 C = 0.000000
Avg. Concentration: 81.88 PPM	Avg. Concentration: 82.14 PPM	D = 0.000000 E = 0.000000

APPROVED BY:

Michael A. Kuhns

RATA CLASS

Dual-Analyzed Calibration Standard

Scott Specialty Gases

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

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

Assay Laboratory

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

P.O. No.: 75516
Project No.: 01-85121-001

Customer

TAMPA ELECTRIC COMPANY

BILL ROBINSON
GANNON WHSE-STOREROOM 22
3602 PORT SUTTON ROAD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: 1L2745 **Certification Date:** 11Feb2003 **Exp. Date:** 10Feb2005
Cylinder Pressure*:** 1994 PSIA

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	5.55	%	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	83.2	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	83.8	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

* Note: In Service on Unit CT/A on 03-20-2003 after d calibra

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1685	01Jun2004	1D2061	13.93 %	CO2/N2
NTRM 1684	03Apr2006	AAL069403	94.62 PPM	NO/N2

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9300174	03Feb2003	Scott Enhanced FTIR
FTIR System/8220/AAB9300174	03Feb2003	Scott Enhanced FTIR

ANALYZER READINGS

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

First Triad Analysis	Second Triad Analysis	Calibration Curve
CARBON DIOXIDE		
Date: 04Feb2003 Response Unit:%		Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=0.00240 R1=13.92810 T1=5.55173		r=0.999990
R2=13.93349 Z2=0.00340 T2=5.55552		Constants: A=0.000000
Z3=0.00460 T3=5.55502 R3=13.92840		B=1.000000 C=0.000000
Avg. Concentration: 5.554 %		D=0.000000 E=0.000000
NITRIC OXIDE		
Date: 04Feb2003 Response Unit:PPM	Date: 11Feb2003 Response Unit: PPM	Concentration=A+Bx+Cx2+Dx3+Ex4
Z1=-0.61340 R1=94.19288 T1=83.39057	Z1=-0.39380 R1=94.73301 T1=83.33360	r=0.999990
R2=94.97201 Z2=-0.26930 T2=82.92242	R2=94.43090 Z2=-0.31360 T2=83.26830	Constants: A=0.000000
Z3=-0.66760 T3=83.21891 R3=94.69512	Z3=-0.51760 T3=83.20431 R3=94.69610	B=1.000000 C=0.000000
Avg. Concentration: 83.18 PPM	Avg. Concentration: 83.27 PPM	D=0.000000 E=0.000000

APPROVED BY: Michael A Kuhns

Michael A. Kuhns

RATA CLASS

Dual-Analyzed Calibration Standard

Scott Specialty Gases

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

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

Assay Laboratory

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

P.O. No.: 0320067F
Project No.: 01-84645-004

Customer

SPECTRUM SYSTEMS

3410 WEST NINE MILE ROAD
PENSACOLA FL 32526

ANALYTICAL INFORMATION

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

Cylinder Number: AAL6721 **Certification Date:** 02Feb2003 **Exp. Date:** 01Feb2005
Cylinder Pressure*:** 1964 PSIA

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	9.03	%	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	133.0	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	133.9	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1685	01Jun2004	1D2061	13.93 %	CO2/N2
NTRM 1685	01Feb2006	ALM039183	243.7 PPM	NO/N2

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9300174	04Jan2003	Scott Enhanced FTIR
FTIR System/8220/AAB9300174	04Jan2003	Scott Enhanced FTIR

ANALYZER READINGS

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

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

CARBON DIOXIDE

Date: 24Jan2003 Response Unit:%
Z1 = 0.00120 R1 = 13.92006 T1 = 9.02417
R2 = 13.93916 Z2 = 0.00230 T2 = 9.03817
Z3 = 0.00170 T3 = 9.01757 R3 = 13.93076
Avg. Concentration: 9.027 %

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999990
Constants: A = 0.000000
B = 1.000000 C = 0.000000
D = 0.000000 E = 0.000000

NITRIC OXIDE

Date: 24Jan2003 Response Unit:PPM
Z1 = -0.42390 R1 = 243.6316 T1 = 133.0724
R2 = 243.5025 Z2 = -0.13040 T2 = 133.0190
Z3 = -0.33120 T3 = 132.9524 R3 = 243.9657
Avg. Concentration: 133.0 PPM

Date: 02Feb2003 Response Unit: PPM
Z1 = -0.33920 R1 = 243.2688 T1 = 133.1219
R2 = 244.1383 Z2 = -0.27480 T2 = 133.0698
Z3 = -0.52140 T3 = 132.9682 R3 = 243.6927
Avg. Concentration: 133.1 . PPM

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999990
Constants: A = 0.000000
B = 1.000000 C = 0.000000
D = 0.000000 E = 0.000000

APPROVED BY: Michael A. Kuhns

Michael A. Kuhns

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: Interference Free™ EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 0320067F
Project No.: 01-84645-007

Customer

SPECTRUM SYSTEMS

3410 WEST NINE MILE ROAD
PENSACOLA FL 32526

ANALYTICAL INFORMATION

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

Cylinder Number: ALM050741 **Certification Date:** 01Feb2003 **Exp. Date:** 31Jan2006

Cylinder Pressure*:** 1960 PSIA

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	244	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMi standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1680	01Mar2003	ALM065542	486.3 PPM	CO/N2

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9300174	04Jan2003	Scott Enhanced FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE

Date: 25Jan2003 Response Unit:PPM
Z1=-0.00040 R1=486.0836 T1=244.1935
R2=485.9812 Z2=0.08180 T2=244.1591
Z3=-0.02070 T3=244.6758 R3=486.8351
Avg. Concentration: 244.3 PPM

Second Triad Analysis

Date: 01Feb2003 Response Unit: PPM
Z1=0.06510 R1=486.4336 T1=244.4223
R2=485.3640 Z2=0.14880 T2=244.2223
Z3=0.12340 T3=244.1020 R3=487.1023
Avg. Concentration: 244.2 PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999990
Constants: A=0.000000
B=1.000000 C=0.000000
D=0.000000 E=0.000000

APPROVED BY:

Michael A. Kuhns

In-3/15/03 Removed 4/04/03

RATA CLASS

Dual-Analyzed Calibration Standard

Scott Specialty Gases

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

CERTIFICATE OF ACCURACY: Interference Free™ EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 75516
Project No.: 01-86469-003

Customer

TAMPA ELECTRIC COMPANY
BILL ROBINSON
GANNON WHSE-STOREROOM 22
3602 PORT SUTTON ROAD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: AAL18894 **Certification Date:** 09Mar2003 **Exp. Date:** 08Mar2006

Cylinder **Pressure*****: 2000 PSIA

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	557	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMi standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1681	01Mar2007	ALM016231	977.1 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9300174	28Feb2003	Scott Enhanced FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE

Date: 02Mar2003	**Response Unit:PPM**	
Z1=0.12870	R1=486.3545	T1=555.9108
R2=487.0350	Z2=0.18440	T2=555.9470
Z3=0.15340	T3=556.7714	R3=485.5102
Avg. Concentration:	556.2	PPM

Second Triad Analysis

Date: 09Mar2003	Response Unit: PPM	
Z1=0.15480	R1=976.7495	T1=557.0534
R2=978.7740	Z2=0.25500	T2=558.1986
Z3=0.23610	T3=557.3068	R3=975.7763
Avg. Concentration:	557.5	PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4

r=0.999990

Constants:	A=0.000000
B=1.000000	C=0.000000
D=0.000000	E=0.000000

Special Notes: CO2 < 1 ppm NOx < 0.5 ppm

APPROVED BY: Michael A. Kuhns
Michael A. Kuhns

In-3/15/03 Removed 4/04/03

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: Interference Free™ EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 75516
Project No.: 01-86469-003

Customer

TAMPA ELECTRIC COMPANY
BILL ROBINSON
GANNON WHSE-STOREROOM 22
3602 PORT SUTTON ROAD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: AAL18894 **Certification Date:** 09Mar2003 **Exp. Date:** 08Mar2006

Cylinder Pressure***: 2000 PSIA

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	557 PPM	+/- 1%	Direct NIST and NMi
NITROGEN	BALANCE		

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

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

Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMi standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1681	01Mar2007	ALM016231	977.1 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9300174	28Feb2003	Scott Enhanced FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE

Date: 02Mar2003	Response Unit:PPM	
Z1=0.12870	R1=486.3545	T1=555.9108
R2=487.0350	Z2=0.18440	T2=555.9470
Z3=0.15340	T3=556.7714	R3=485.5102
Avg. Concentration:	556.2	PPM

Second Triad Analysis

Date: 09Mar2003	Response Unit: PPM	
Z1=0.15480	R1=976.7495	T1=557.0534
R2=978.7740	Z2=0.25500	T2=558.1986
Z3=0.23610	T3=557.3068	R3=975.7763
Avg. Concentration:	557.5	PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4

r=0.999990

Constants:	A=0.000000
B=1.000000	C=0.000000
D=0.000000	E=0.000000

Special Notes: CO2 < 1 ppm NOx < 0.5 ppm

APPROVED BY: Michael A Kuhns
Michael A. Kuhns

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: Interference Free™ EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 75516
Project No.: 01-86469-003

Customer

TAMPA ELECTRIC COMPANY
BILL ROBINSON
GANNON WHSE-STOREROOM 22
3602 PORT SUTTON ROAD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: ALM045032 **Certification Date:** 09Mar2003 **Exp. Date:** 08Mar2006

Cylinder Pressure*:** 2000 PSIA

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON MONOXIDE	557	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMI standards.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1681	01Mar2007	ALM016231	977.1 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR System/8220/AAB9300174	28Feb2003	Scott Enhanced FTIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE

Date: 02Mar2003	**Response Unit:PPM**	
Z1 = 0.12870	R1 = 486.3545	T1 = 557.3136
R2 = 487.0350	Z2 = 0.18440	T2 = 556.5908
Z3 = 0.15340	T3 = 557.7739	R3 = 485.5102
Avg. Concentration:	557.2	PPM

Second Triad Analysis

Date: 09Mar2003	**Response Unit: PPM**	
Z1 = 0.15480	R1 = 976.7495	T1 = 558.1172
R2 = 978.7740	Z2 = 0.25500	T2 = 556.6730
Z3 = 0.23610	T3 = 556.9003	R3 = 975.7763
Avg. Concentration:	557.2	PPM

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = 0.999990	
Constants:	A = 0.000000
B = 1.000000	C = 0.000000
D = 0.000000	E = 0.000000

Special Notes: CO2 < 1 ppm NOx < 0.5 ppm

APPROVED BY: Michael A Kuhns

Michael A. Kuhns

Field Calibration Data Sheet

Date	5/22/03	Initials	CW
Tag No.	1A-FGC-FT-711		
Manufacturer	ROSEMOUNT		
Model	3051CD2A02A1H5M3		
Serial	1145677		

Type (Check One)			
Transmitter	X	Other	
Switch			
On/Off Valve			
Modulating Control Valve			
Local Indicator			

		Eng. Units *
Zero	0	InH2O
Span	26.13	
Setpoint		
Deadband		
Fail State/ Shelf State		

I.e. 125VDC for sov's
InH2O, Psi, Deg. F
As appropriate

Input 1	0	Output 1	0-LB/HR
Input 2	13.06	Output 2	24.5-LB/HR
Input 3	26.13	Output 3	49-LB/HR

Accessories (Positioner, Limit Switches etc.)

Tag No.		
Manufacturer		
Model		
Serial		

Tag No.		
Manufacturer		
Model		
Serial		

Equipment Used	Model	Serial
	HART	
	DCS	

Notes/Comments	AMMONIA FLOW FOR 1A HRSG

Field Calibration Data Sheet

Date	5/22/03	Initials	CW
Tag No.	1B-FGC-FT-711		
Manufacturer	ROSEMOUNT		
Model	3051CD2A02A1H2M5		
Serial	1153548		

Type
(Check One)

Transmitter	X	Other	
Switch			
On/Off Valve			
Modulating Control Valve			
Local Indicator			

		Eng. Units *
Zero	0	InH2O
Span	26.13	
Setpoint		
Deadband		
Fail State/ Shelf State		

* I.e. 125VDC for sov's
InH2O, Psi, Deg. F
As appropriate

Input 1	0	Output 1	0-LB/HR
Input 2	13.06	Output 2	24.5-LB/HR
Input 3	26.13	Output 3	49-LB/HR

Accessories (Positioner, Limit Switches etc.)

Tag No.		
Manufacturer		
Model		
Serial		

Tag No.		
Manufacturer		
Model		
Serial		

Equipment Used	Model	Serial
	HART	
	DCS	

Notes/Comments	AMMONIA FLOW FOR 1B HRSG

Field Calibration Data Sheet

Date	1/8/03	Initials	RJS
Tag No.	1C-FGC-FT-711		
Manufacturer	ROSEMOUNT		
Model	3051CD2A02A1H5M3		
Serial	1172982		

Type

(Check One)

Transmitter	X	Other	
Switch			
On/Off Valve			
Modulating Control Valve			
Local Indicator			

		Eng. Units *
Zero	0	InH2O
Span	30	
Setpoint		
Deadband		
Fail State/ Shelf State		

* I.e. 125VDC for sov's
InH2O, Psi, Deg. F
As appropriate

Input 1	0	Output 1	0-LB/HR
Input 2	15	Output 2	100-LB/HR
Input 3	30	Output 3	200-LB/HR

Accessories (Positioner, Limit Switches etc.)

Tag No.		
Manufacturer		
Model		
Serial		

Tag No.		
Manufacturer		
Model		
Serial		

Equipment Used	Model	Serial
	HART	
	DCS	

Notes/Comments	AMMONIA FLOW FOR 1C HRSG

APPENDIX F:
LOGGED DATA RECORDS

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-Strat, SE Port	4/23/03	9:09:01	4.13	0.68	13.78	4.01	4.13	0.68	13.78	4.01
Run 1A-Strat, SE Port	4/23/03	9:10:01	4.14	0.66	13.78	3.99	4.13	0.68	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:11:01	4.15	0.69	13.78	4.01	4.14	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:12:01	4.14	0.66	13.78	3.99	4.15	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:13:01	4.16	0.64	13.78	4.01	4.15	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:14:01	4.11	0.67	13.78	4.01	4.15	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:15:01	4.06	0.70	13.80	3.99	4.14	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:16:01	4.00	0.72	13.78	3.99	4.12	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:17:01	4.01	0.66	13.78	4.00	4.11	0.68	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:18:01	4.01	0.66	13.78	4.01	4.10	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:19:01	4.02	0.64	13.78	3.98	4.09	0.67	13.77	4.00
Run 1A-Strat, SE Port	4/23/03	9:20:01	4.06	0.65	13.78	3.99	4.09	0.67	13.77	3.99
END Run 1A-Strat, SE Port	4/23/03	9:21:00	4.05	0.66	13.78	3.98	**4.08**	**0.67**	**13.77**	**3.99**
START Run 1A-Strat, NE Port	4/23/03	9:26:02	4.04	0.67	13.78	3.98	4.04	0.67	13.78	3.98
Run 1A-Strat, NE Port	4/23/03	9:27:02	4.06	0.65	13.78	3.97	4.04	0.66	13.78	3.97
Run 1A-Strat, NE Port	4/23/03	9:28:02	4.03	0.71	13.78	3.97	4.05	0.66	13.78	3.97
Run 1A-Strat, NE Port	4/23/03	9:29:02	3.99	0.67	13.78	3.96	4.03	0.67	13.78	3.97
Run 1A-Strat, NE Port	4/23/03	9:30:02	3.98	0.69	13.78	3.96	4.02	0.68	13.78	3.97
Run 1A-Strat, NE Port	4/23/03	9:31:02	3.96	0.65	13.78	3.96	4.01	0.67	13.78	3.97
Run 1A-Strat, NE Port	4/23/03	9:32:02	4.00	0.68	13.78	3.95	4.01	0.67	13.77	3.97
Run 1A-Strat, NE Port	4/23/03	9:33:02	4.00	0.69	13.78	3.96	4.01	0.67	13.77	3.97
Run 1A-Strat, NE Port	4/23/03	9:34:02	4.03	0.65	13.78	3.96	4.01	0.67	13.77	3.97
Run 1A-Strat, NE Port	4/23/03	9:35:02	4.00	0.71	13.78	3.96	4.01	0.67	13.77	3.97
Run 1A-Strat, NE Port	4/23/03	9:36:02	4.02	0.72	13.78	3.96	4.01	0.68	13.77	3.97
Run 1A-Strat, NE Port	4/23/03	9:37:02	4.00	0.72	13.78	3.96	4.01	0.68	13.77	3.96
END Run 1A-Strat, NE Port	4/23/03	9:38:02	4.05	0.65	13.78	3.94	**4.01**	**0.68**	**13.77**	**3.96**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-Strat, NW Port	4/23/03	9:41:00	3.93	0.71	13.78	3.96	3.93	0.71	13.78	3.96
Run 1A-Strat, NW Port	4/23/03	9:42:00	3.90	0.74	13.78	3.94	3.91	0.70	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:43:00	3.93	0.66	13.78	3.94	3.92	0.70	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:44:00	3.93	0.72	13.78	3.93	3.92	0.69	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:45:00	3.93	0.71	13.78	3.94	3.92	0.69	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:46:00	3.87	0.75	13.78	3.93	3.92	0.70	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:47:00	3.81	0.74	13.78	3.94	3.91	0.70	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:48:00	3.81	0.71	13.78	3.94	3.89	0.71	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:49:00	3.83	0.72	13.78	3.93	3.88	0.71	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:50:00	3.79	0.70	13.78	3.95	3.87	0.71	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:51:00	3.82	0.71	13.78	3.93	3.87	0.71	13.78	3.94
Run 1A-Strat, NW Port	4/23/03	9:52:00	3.83	0.73	13.80	3.93	3.86	0.71	13.78	3.94
END Run 1A-Strat, NW Port	4/23/03	9:53:00	3.87	0.73	13.78	3.95	**3.86**	**0.72**	**13.78**	**3.94**
START Run 1A-Strat, SW Port	4/23/03	9:57:31	3.90	0.71	13.78	3.94	3.90	0.71	13.78	3.94
Run 1A-Strat, SW Port	4/23/03	9:58:31	3.91	0.74	13.78	3.94	3.91	0.73	13.78	3.94
Run 1A-Strat, SW Port	4/23/03	9:59:31	3.93	0.72	13.78	3.95	3.91	0.72	13.78	3.94
Run 1A-Strat, SW Port	4/23/03	10:00:31	3.94	0.74	13.78	3.96	3.92	0.73	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:01:31	3.96	0.70	13.78	3.94	3.93	0.73	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:02:31	3.87	0.72	13.78	3.96	3.93	0.73	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:03:31	3.86	0.72	13.80	3.96	3.92	0.73	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:04:31	3.88	0.70	13.80	3.96	3.91	0.72	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:05:31	3.90	0.70	13.78	3.96	3.91	0.72	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:06:31	3.81	0.69	13.80	3.96	3.90	0.72	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:07:31	3.82	0.73	13.80	3.96	3.89	0.72	13.78	3.95
Run 1A-Strat, SW Port	4/23/03	10:08:31	3.81	0.71	13.80	3.96	3.88	0.72	13.79	3.96
END Run 1A-Strat, SW Port	4/23/03	10:09:30	3.84	0.70	13.80	3.97	**3.88**	**0.71**	**13.79**	**3.96**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-1a/1A-RA-1	4/23/03	10:23:01	3.82	0.71	13.80	3.95	3.82	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:24:01	3.84	0.70	13.80	3.96	3.83	0.71	13.80	3.96
Run 1A-C-1a/1A-RA-1	4/23/03	10:25:01	3.87	0.70	13.80	3.96	3.85	0.70	13.80	3.96
Run 1A-C-1a/1A-RA-1	4/23/03	10:26:01	3.87	0.70	13.80	3.96	3.85	0.70	13.80	3.96
Run 1A-C-1a/1A-RA-1	4/23/03	10:27:01	3.86	0.69	13.80	3.96	3.85	0.70	13.80	3.96
Run 1A-C-1a/1A-RA-1	4/23/03	10:28:01	3.88	0.71	13.80	3.96	3.86	0.70	13.80	3.96
Run 1A-C-1a/1A-RA-1	4/23/03	10:29:01	3.84	0.70	13.80	3.94	3.86	0.70	13.80	3.96
Run 1A-C-1a/1A-RA-1	4/23/03	10:30:01	3.85	0.75	13.80	3.96	3.86	0.70	13.80	3.96
Run 1A-C-1a/1A-RA-1	4/23/03	10:31:01	3.85	0.71	13.80	3.96	3.86	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:32:01	3.86	0.70	13.80	3.96	3.86	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:33:01	3.88	0.72	13.80	3.94	3.86	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:34:01	3.87	0.71	13.80	3.95	3.86	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:35:01	3.88	0.70	13.80	3.95	3.87	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:36:01	3.90	0.72	13.80	3.93	3.87	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:37:01	3.91	0.73	13.80	3.93	3.87	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:38:01	3.94	0.72	13.80	3.93	3.88	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:39:01	3.92	0.73	13.80	3.93	3.88	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:40:01	3.92	0.72	13.80	3.93	3.88	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:41:01	3.92	0.72	13.80	3.93	3.89	0.71	13.80	3.95
Run 1A-C-1a/1A-RA-1	4/23/03	10:42:01	3.89	0.71	13.80	3.93	3.89	0.71	13.80	3.94
Run 1A-C-1a/1A-RA-1	4/23/03	10:43:00	3.95	0.69	13.80	3.93	3.89	0.71	13.80	3.94
END Run 1A-C-1a/1A-RA-1	4/23/03	10:44:00	3.93	0.73	13.80	3.93	**3.89**	**0.71**	**13.80**	**3.94**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-1b/1A-RA-2	4/23/03	10:54:01	3.86	0.72	13.80	3.93	3.86	0.72	13.80	3.93
Run 1A-C-1b/1A-RA-2	4/23/03	10:55:01	3.84	0.70	13.83	3.93	3.86	0.70	13.80	3.94
Run 1A-C-1b/1A-RA-2	4/23/03	10:56:01	3.87	0.69	13.80	3.94	3.85	0.70	13.80	3.94
Run 1A-C-1b/1A-RA-2	4/23/03	10:57:01	3.83	0.69	13.83	3.94	3.85	0.70	13.80	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	10:58:01	3.85	0.69	13.80	3.94	3.85	0.70	13.80	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	10:59:01	3.83	0.69	13.80	3.96	3.85	0.69	13.80	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:00:00	3.86	0.66	13.80	3.96	3.85	0.69	13.80	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:01:01	3.88	0.68	13.80	3.96	3.85	0.69	13.80	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:02:01	3.84	0.69	13.80	3.95	3.85	0.69	13.80	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:03:01	3.81	0.66	13.83	3.95	3.85	0.69	13.80	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:04:01	3.82	0.74	13.83	3.96	3.85	0.69	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:05:01	3.86	0.70	13.83	3.96	3.85	0.69	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:06:01	3.87	0.66	13.80	3.96	3.85	0.69	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:07:01	3.83	0.69	13.83	3.96	3.85	0.69	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:08:01	3.84	0.67	13.80	3.95	3.85	0.68	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:09:00	3.89	0.71	13.80	3.96	3.85	0.68	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:10:00	3.85	0.69	13.80	3.95	3.85	0.68	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:11:00	3.82	0.70	13.80	3.96	3.85	0.68	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:12:00	3.78	0.71	13.80	3.94	3.85	0.69	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:13:00	3.84	0.61	13.80	3.96	3.84	0.68	13.81	3.95
Run 1A-C-1b/1A-RA-2	4/23/03	11:14:00	3.83	0.69	13.80	3.93	3.84	0.68	13.80	3.95
END Run 1A-C-1b/1A-RA-2	4/23/03	11:15:00	3.87	0.71	13.80	3.95	**3.84**	**0.69**	**13.80**	**3.95**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-1c/1A-RA-3	4/23/03	11:28:01	3.96	0.69	13.83	3.91	3.96	0.69	13.83	3.91
Run 1A-C-1c/1A-RA-3	4/23/03	11:29:01	3.97	0.72	13.80	3.90	3.95	0.72	13.82	3.91
Run 1A-C-1c/1A-RA-3	4/23/03	11:30:01	3.92	0.72	13.80	3.90	3.95	0.71	13.81	3.91
Run 1A-C-1c/1A-RA-3	4/23/03	11:31:01	3.92	0.71	13.80	3.91	3.94	0.70	13.81	3.91
Run 1A-C-1c/1A-RA-3	4/23/03	11:32:01	3.95	0.74	13.80	3.90	3.94	0.71	13.81	3.91
Run 1A-C-1c/1A-RA-3	4/23/03	11:33:01	3.90	0.76	13.80	3.91	3.94	0.72	13.81	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:34:00	3.91	0.70	13.80	3.90	3.93	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:35:00	3.86	0.67	13.80	3.90	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:36:00	3.91	0.76	13.80	3.92	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:37:00	3.93	0.76	13.83	3.89	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:38:00	3.92	0.69	13.80	3.90	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:39:00	3.96	0.70	13.80	3.90	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:40:00	3.92	0.72	13.80	3.90	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:41:00	3.92	0.74	13.80	3.88	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:42:00	3.91	0.75	13.80	3.90	3.92	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:43:00	3.84	0.73	13.80	3.88	3.91	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:44:00	3.89	0.73	13.80	3.89	3.91	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:45:00	3.87	0.76	13.78	3.90	3.91	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:46:00	3.88	0.78	13.80	3.90	3.91	0.72	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:47:00	3.88	0.75	13.80	3.90	3.91	0.73	13.80	3.90
Run 1A-C-1c/1A-RA-3	4/23/03	11:48:00	3.86	0.74	13.80	3.87	3.90	0.73	13.80	3.90
END Run 1A-C-1c/1A-RA-3	4/23/03	11:49:00	3.84	0.70	13.80	3.87	**3.90**	**0.73**	**13.80**	**3.90**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-2a/1A-RA-4	4/23/03	12:12:01	3.89	0.69	13.80	3.88	3.89	0.69	13.80	3.88
Run 1A-C-2a/1A-RA-4	4/23/03	12:13:01	3.86	0.71	13.83	3.88	3.88	0.72	13.80	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:14:01	3.84	0.76	13.80	3.89	3.86	0.72	13.80	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:15:01	3.87	0.72	13.80	3.88	3.86	0.72	13.80	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:16:01	3.91	0.70	13.83	3.88	3.86	0.72	13.80	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:17:01	3.88	0.71	13.80	3.89	3.87	0.72	13.80	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:18:01	3.87	0.72	13.80	3.90	3.87	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:19:00	3.85	0.72	13.83	3.90	3.87	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:20:01	3.88	0.74	13.80	3.90	3.87	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:21:01	3.88	0.73	13.80	3.88	3.87	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:22:01	3.89	0.72	13.80	3.90	3.87	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:23:01	3.89	0.72	13.80	3.90	3.87	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:24:01	3.90	0.72	13.80	3.90	3.88	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:25:01	3.92	0.70	13.80	3.90	3.88	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:26:00	3.90	0.71	13.80	3.90	3.88	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:27:00	3.88	0.71	13.83	3.90	3.88	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:28:00	3.87	0.71	13.83	3.90	3.88	0.72	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:29:00	3.85	0.69	13.80	3.90	3.88	0.71	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:30:00	3.84	0.72	13.83	3.89	3.88	0.71	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:31:00	3.84	0.72	13.80	3.90	3.87	0.71	13.81	3.89
Run 1A-C-2a/1A-RA-4	4/23/03	12:32:00	3.85	0.68	13.80	3.90	3.87	0.71	13.81	3.89
END Run 1A-C-2a/1A-RA-4	4/23/03	12:33:00	3.84	0.66	13.83	3.90	**3.87**	**0.71**	**13.81**	**3.89**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-2b/1A-RA-5	4/23/03	12:47:00	3.88	0.68	13.83	3.93	3.88	0.68	13.83	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	12:48:00	3.87	0.65	13.83	3.93	3.88	0.67	13.83	3.92
Run 1A-C-2b/1A-RA-5	4/23/03	12:49:00	3.90	0.63	13.83	3.93	3.88	0.67	13.83	3.92
Run 1A-C-2b/1A-RA-5	4/23/03	12:50:00	3.93	0.66	13.83	3.93	3.89	0.67	13.83	3.92
Run 1A-C-2b/1A-RA-5	4/23/03	12:51:00	3.93	0.68	13.83	3.93	3.90	0.67	13.83	3.92
Run 1A-C-2b/1A-RA-5	4/23/03	12:52:00	3.94	0.66	13.85	3.93	3.91	0.67	13.83	3.92
Run 1A-C-2b/1A-RA-5	4/23/03	12:53:00	3.94	0.65	13.85	3.93	3.91	0.67	13.83	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	12:54:00	3.96	0.65	13.83	3.93	3.92	0.67	13.83	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	12:55:00	3.96	0.68	13.83	3.93	3.93	0.67	13.83	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	12:56:00	3.94	0.69	13.83	3.93	3.93	0.67	13.83	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	12:57:00	3.92	0.66	13.85	3.93	3.93	0.67	13.83	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	12:58:00	4.00	0.64	13.85	3.92	3.93	0.67	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	12:59:00	4.01	0.69	13.85	3.93	3.94	0.67	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:00:00	4.03	0.65	13.83	3.94	3.94	0.67	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:01:00	4.04	0.62	13.83	3.93	3.95	0.66	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:02:00	4.01	0.64	13.83	3.92	3.95	0.66	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:03:00	3.99	0.60	13.85	3.92	3.96	0.66	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:04:00	4.00	0.67	13.85	3.94	3.96	0.66	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:05:00	3.98	0.62	13.83	3.94	3.96	0.66	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:06:00	4.00	0.63	13.85	3.93	3.96	0.66	13.84	3.93
Run 1A-C-2b/1A-RA-5	4/23/03	13:07:00	4.01	0.63	13.83	3.96	3.97	0.66	13.84	3.93
END Run 1A-C-2b/1A-RA-5	4/23/03	13:08:00	4.02	0.61	13.83	3.95	**3.97**	**0.65**	**13.84**	**3.93**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-2c/1A-RA-6	4/23/03	13:23:01	3.87	0.61	13.85	3.94	3.87	0.61	13.85	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:24:01	3.88	0.62	13.85	3.96	3.88	0.62	13.85	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:25:01	3.88	0.62	13.85	3.96	3.88	0.62	13.85	3.95
Run 1A-C-2c/1A-RA-6	4/23/03	13:26:01	3.93	0.61	13.85	3.95	3.89	0.62	13.85	3.95
Run 1A-C-2c/1A-RA-6	4/23/03	13:27:01	3.93	0.61	13.85	3.95	3.90	0.62	13.85	3.95
Run 1A-C-2c/1A-RA-6	4/23/03	13:28:01	3.92	0.62	13.85	3.94	3.90	0.62	13.85	3.95
Run 1A-C-2c/1A-RA-6	4/23/03	13:29:01	3.91	0.62	13.85	3.95	3.90	0.62	13.85	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:30:01	3.95	0.64	13.85	3.94	3.91	0.62	13.85	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:31:01	3.96	0.63	13.85	3.94	3.91	0.63	13.85	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:32:01	3.91	0.63	13.83	3.96	3.92	0.63	13.85	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:33:01	3.85	0.61	13.83	3.94	3.91	0.63	13.85	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:34:01	3.81	0.65	13.85	3.93	3.90	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:35:01	3.87	0.69	13.83	3.94	3.90	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:36:01	3.87	0.66	13.83	3.96	3.90	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:37:01	3.85	0.62	13.83	3.93	3.89	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:38:01	3.85	0.64	13.85	3.93	3.89	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:39:01	3.85	0.62	13.83	3.95	3.89	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:40:01	3.82	0.62	13.83	3.95	3.88	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:41:01	3.83	0.64	13.83	3.95	3.88	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:42:01	3.80	0.61	13.85	3.93	3.88	0.63	13.84	3.94
Run 1A-C-2c/1A-RA-6	4/23/03	13:43:01	3.84	0.60	13.83	3.96	3.87	0.63	13.84	3.94
END Run 1A-C-2c/1A-RA-6	4/23/03	13:44:00	3.83	0.67	13.83	3.94	**3.87**	**0.63**	**13.84**	**3.94**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

Run Number	Date	Time	NOx (ppmv)	CO (ppmv)	O2 (% vol)	CO2 (% vol)	AVE NOx (ppmv)	AVE CO (ppmv)	AVE O2 (% vol)	AVE CO2 (% vol)
START Run 1A-C-3a/1A-RA-7	4/23/03	13:55:01	3.80	0.64	13.83	3.94	3.80	0.64	13.83	3.94
Run 1A-C-3a/1A-RA-7	4/23/03	13:56:01	3.81	0.65	13.83	3.93	3.81	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	13:57:01	3.83	0.67	13.83	3.91	3.81	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	13:58:01	3.86	0.67	13.80	3.93	3.82	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	13:59:01	3.86	0.69	13.83	3.93	3.83	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:00:01	3.87	0.67	13.83	3.93	3.84	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:01:01	3.89	0.65	13.83	3.93	3.84	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:02:01	3.86	0.64	13.80	3.91	3.85	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:03:01	3.87	0.68	13.83	3.93	3.85	0.66	13.82	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:04:01	3.83	0.66	13.80	3.93	3.85	0.66	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:05:01	3.79	0.69	13.80	3.93	3.85	0.66	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:06:01	3.77	0.69	13.80	3.93	3.84	0.66	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:07:01	3.75	0.63	13.80	3.92	3.83	0.67	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:08:01	3.74	0.64	13.80	3.93	3.83	0.66	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:09:00	3.75	0.69	13.80	3.91	3.82	0.66	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:10:00	3.74	0.65	13.83	3.93	3.82	0.67	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:11:00	3.75	0.67	13.80	3.93	3.81	0.66	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:12:00	3.74	0.69	13.83	3.93	3.81	0.66	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:13:00	3.72	0.68	13.80	3.93	3.80	0.67	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:14:00	3.68	0.74	13.83	3.92	3.80	0.67	13.81	3.93
Run 1A-C-3a/1A-RA-7	4/23/03	14:15:00	3.71	0.70	13.83	3.92	3.79	0.67	13.81	3.93
END Run 1A-C-3a/1A-RA-7	4/23/03	14:16:00	3.70	0.72	13.83	3.93	**3.79**	**0.67**	**13.81**	**3.93**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-3b/1A-RA-8	4/23/03	14:27:01	3.51	0.69	13.83	3.92	3.51	0.69	13.83	3.92
Run 1A-C-3b/1A-RA-8	4/23/03	14:28:01	3.52	0.69	13.83	3.93	3.53	0.69	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:29:01	3.53	0.70	13.83	3.91	3.53	0.69	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:30:01	3.58	0.71	13.83	3.93	3.54	0.69	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:31:01	3.61	0.72	13.83	3.93	3.55	0.69	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:32:01	3.61	0.70	13.83	3.92	3.57	0.69	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:33:01	3.61	0.66	13.83	3.91	3.57	0.69	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:34:01	3.66	0.65	13.80	3.93	3.58	0.69	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:35:01	3.71	0.65	13.80	3.93	3.59	0.68	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:36:01	3.77	0.68	13.83	3.92	3.61	0.68	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:37:01	3.82	0.65	13.80	3.92	3.63	0.68	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:38:01	3.85	0.63	13.80	3.93	3.65	0.68	13.82	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:39:01	3.90	0.71	13.80	3.93	3.67	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:40:01	3.93	0.69	13.80	3.94	3.69	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:41:01	3.96	0.70	13.80	3.93	3.70	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:42:01	4.01	0.67	13.80	3.92	3.72	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:43:01	4.02	0.68	13.80	3.92	3.74	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:44:01	4.06	0.68	13.80	3.91	3.76	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:45:01	4.12	0.68	13.80	3.92	3.78	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:46:01	4.13	0.73	13.80	3.92	3.80	0.68	13.81	3.93
Run 1A-C-3b/1A-RA-8	4/23/03	14:47:01	4.13	0.70	13.80	3.93	3.81	0.68	13.81	3.93
END Run 1A-C-3b/1A-RA-8	4/23/03	14:48:01	4.13	0.68	13.80	3.91	**3.83**	**0.68**	**13.81**	**3.93**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-C-3c/1A-RA-9	4/23/03	14:58:01	3.99	0.67	13.80	3.90	3.99	0.67	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	14:59:01	4.02	0.69	13.78	3.90	4.01	0.68	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:00:01	4.05	0.68	13.80	3.90	4.03	0.68	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:01:00	4.07	0.71	13.80	3.90	4.04	0.68	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:02:00	4.09	0.71	13.80	3.90	4.05	0.68	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:03:00	4.06	0.70	13.80	3.90	4.06	0.68	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:04:00	4.04	0.69	13.80	3.88	4.05	0.68	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:05:00	4.07	0.69	13.80	3.90	4.05	0.69	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:06:00	4.04	0.71	13.80	3.89	4.05	0.69	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:07:00	4.03	0.69	13.80	3.90	4.05	0.69	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:08:00	4.08	0.73	13.80	3.88	4.05	0.69	13.80	3.90
Run 1A-C-3c/1A-RA-9	4/23/03	15:09:00	4.00	0.71	13.80	3.90	4.05	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:10:00	3.95	0.71	13.80	3.89	4.04	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:11:00	3.87	0.69	13.80	3.88	4.03	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:12:00	3.83	0.72	13.80	3.88	4.02	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:13:00	3.81	0.71	13.80	3.88	4.01	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:14:00	3.81	0.73	13.80	3.90	3.99	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:15:00	3.80	0.67	13.80	3.88	3.98	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:16:00	3.80	0.71	13.80	3.90	3.97	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:17:00	3.79	0.69	13.80	3.87	3.96	0.70	13.80	3.89
Run 1A-C-3c/1A-RA-9	4/23/03	15:18:00	3.79	0.67	13.80	3.88	3.95	0.70	13.80	3.89
END Run 1A-C-3c/1A-RA-9	4/23/03	15:19:00	3.70	0.72	13.80	3.90	**3.94**	**0.70**	**13.80**	**3.89**

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1A-NH3-4	4/23/03	15:41:32	3.99	0.70	13.80	3.90	3.99	0.70	13.80	3.90
Run 1A-NH3-4	4/23/03	15:42:32	4.03	0.69	13.80	3.89	4.01	0.70	13.81	3.89
Run 1A-NH3-4	4/23/03	15:43:32	4.04	0.69	13.83	3.88	4.03	0.70	13.81	3.88
Run 1A-NH3-4	4/23/03	15:44:32	4.03	0.69	13.80	3.88	4.02	0.70	13.81	3.88
Run 1A-NH3-4	4/23/03	15:45:32	4.05	0.69	13.83	3.87	4.03	0.70	13.82	3.88
Run 1A-NH3-4	4/23/03	15:46:32	4.05	0.70	13.83	3.87	4.03	0.70	13.82	3.88
Run 1A-NH3-4	4/23/03	15:47:32	4.03	0.68	13.83	3.88	4.03	0.70	13.82	3.88
Run 1A-NH3-4	4/23/03	15:48:32	4.07	0.71	13.83	3.87	4.04	0.70	13.82	3.88
Run 1A-NH3-4	4/23/03	15:49:32	4.04	0.68	13.83	3.87	4.04	0.69	13.82	3.88
Run 1A-NH3-4	4/23/03	15:50:32	4.03	0.71	13.83	3.88	4.04	0.70	13.82	3.88
Run 1A-NH3-4	4/23/03	15:51:32	4.01	0.69	13.80	3.87	4.04	0.70	13.82	3.88
Run 1A-NH3-4	4/23/03	15:52:31	3.97	0.72	13.83	3.87	4.03	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	15:53:31	3.96	0.71	13.80	3.87	4.03	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	15:54:31	3.94	0.70	13.83	3.87	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	15:55:31	3.96	0.72	13.83	3.89	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	15:56:31	4.01	0.68	13.83	3.87	4.01	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	15:57:31	4.03	0.70	13.83	3.86	4.01	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	15:58:31	4.04	0.67	13.80	3.88	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	15:59:31	4.01	0.71	13.80	3.87	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:00:31	4.03	0.70	13.83	3.88	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:01:31	4.03	0.69	13.83	3.88	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:02:31	4.06	0.71	13.83	3.86	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:03:31	4.05	0.71	13.80	3.87	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:04:31	4.06	0.68	13.83	3.87	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:05:31	4.06	0.71	13.83	3.86	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:06:31	4.05	0.67	13.83	3.87	4.03	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:07:31	4.05	0.70	13.83	3.87	4.03	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:08:31	4.04	0.71	13.80	3.88	4.03	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:09:31	3.99	0.71	13.83	3.87	4.03	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:10:31	4.00	0.67	13.85	3.93	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:11:31	3.88	0.72	13.83	3.86	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:12:31	3.91	0.72	13.83	3.87	4.02	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:13:31	3.93	0.70	13.83	3.87	4.01	0.70	13.82	3.87

Tampa Electric Company - Bayside Power Station, Unit 1A, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
Run 1A-NH3-4	4/23/03	16:14:31	3.97	0.70	13.83	3.88	4.01	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:15:31	3.96	0.72	13.83	3.88	4.01	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:16:31	3.95	0.72	13.80	3.86	4.01	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:17:31	3.92	0.73	13.80	3.89	4.01	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:18:31	3.91	0.74	13.83	3.88	4.01	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:19:31	3.93	0.70	13.83	3.87	4.00	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:20:31	3.92	0.74	13.83	3.87	4.00	0.70	13.82	3.87
Run 1A-NH3-4	4/23/03	16:21:31	3.95	0.71	13.83	3.85	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:22:31	3.99	0.72	13.83	3.86	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:23:31	4.05	0.75	13.80	3.87	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:24:31	4.06	0.73	13.80	3.87	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:25:31	4.02	0.71	13.80	3.88	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:26:31	4.04	0.69	13.80	3.87	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:27:31	4.05	0.73	13.80	3.86	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:28:31	3.99	0.71	13.80	3.86	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:29:31	4.02	0.72	13.80	3.87	4.00	0.71	13.82	3.87
Run 1A-NH3-4	4/23/03	16:30:31	4.03	0.75	13.80	3.86	4.00	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:31:31	4.02	0.73	13.80	3.87	4.00	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:32:31	4.00	0.70	13.80	3.88	4.01	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:33:31	3.99	0.70	13.80	3.87	4.00	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:34:31	3.98	0.73	13.80	3.88	4.00	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:35:31	4.04	0.69	13.80	3.86	4.00	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:36:31	4.15	0.74	13.80	3.87	4.01	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:37:31	4.18	0.71	13.80	3.87	4.01	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:38:31	4.23	0.76	13.80	3.87	4.01	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:39:31	4.30	0.73	13.80	3.87	4.02	0.71	13.81	3.87
Run 1A-NH3-4	4/23/03	16:40:31	4.28	0.73	13.80	3.87	4.02	0.71	13.81	3.87
END Run 1A-NH3-4	4/23/03	16:41:31	4.27	0.71	13.80	3.85	**4.03**	**0.71**	**13.81**	**3.87**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-Strat, SE Port	4/16/03	13:43:01	3.59	0.58	13.75	4.04	3.59	0.58	13.75	4.04
Run 1B-Strat, SE Port	4/16/03	13:44:01	3.57	0.53	13.75	4.02	3.58	0.56	13.74	4.02
Run 1B-Strat, SE Port	4/16/03	13:45:01	3.51	0.53	13.73	4.02	3.56	0.55	13.74	4.03
Run 1B-Strat, SE Port	4/16/03	13:46:01	3.50	0.55	13.75	4.02	3.54	0.55	13.74	4.03
Run 1B-Strat, SE Port	4/16/03	13:47:01	3.50	0.56	13.73	4.05	3.53	0.55	13.74	4.03
Run 1B-Strat, SE Port	4/16/03	13:48:01	3.53	0.54	13.73	4.03	3.52	0.56	13.73	4.03
Run 1B-Strat, SE Port	4/16/03	13:49:01	3.54	0.53	13.73	4.04	3.53	0.55	13.73	4.04
Run 1B-Strat, SE Port	4/16/03	13:50:01	3.60	0.54	13.73	4.05	3.53	0.55	13.73	4.04
Run 1B-Strat, SE Port	4/16/03	13:51:01	3.66	0.51	13.75	4.05	3.54	0.55	13.73	4.04
Run 1B-Strat, SE Port	4/16/03	13:52:01	3.80	0.56	13.73	4.05	3.56	0.55	13.73	4.04
Run 1B-Strat, SE Port	4/16/03	13:53:01	3.84	0.56	13.73	4.05	3.59	0.54	13.73	4.04
Run 1B-Strat, SE Port	4/16/03	13:54:01	3.70	0.60	13.73	4.06	3.61	0.55	13.73	4.04
END Run 1B-Strat, SE Port	4/16/03	13:55:01	3.64	0.57	13.73	4.07	**3.61**	**0.55**	**13.73**	**4.05**
START Run 1B-Strat, NE Port	4/16/03	14:01:02	3.75	0.51	13.73	4.07	3.75	0.51	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:02:02	3.81	0.50	13.75	4.09	3.79	0.48	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:03:02	3.69	0.48	13.73	4.08	3.78	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:04:02	3.64	0.49	13.73	4.07	3.74	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:05:02	3.62	0.50	13.75	4.08	3.71	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:06:02	3.66	0.47	13.73	4.08	3.69	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:07:02	3.70	0.47	13.73	4.08	3.69	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:08:02	3.64	0.53	13.73	4.07	3.69	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:09:02	3.62	0.49	13.73	4.08	3.68	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:10:02	3.74	0.48	13.73	4.08	3.68	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:11:02	3.73	0.55	13.73	4.08	3.69	0.49	13.73	4.07
Run 1B-Strat, NE Port	4/16/03	14:12:02	3.61	0.51	13.75	4.08	3.69	0.50	13.73	4.08
END Run 1B-Strat, NE Port	4/16/03	14:13:02	3.63	0.49	13.73	4.08	**3.68**	**0.50**	**13.73**	**4.08**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-Strat, NW Port	4/16/03	14:18:03	3.50	0.52	13.73	4.07	3.50	0.52	13.73	4.07
Run 1B-Strat, NW Port	4/16/03	14:19:03	3.63	0.49	13.73	4.08	3.56	0.49	13.73	4.08
Run 1B-Strat, NW Port	4/16/03	14:20:03	3.59	0.48	13.73	4.09	3.59	0.50	13.73	4.08
Run 1B-Strat, NW Port	4/16/03	14:21:03	3.50	0.52	13.70	4.10	3.57	0.50	13.72	4.08
Run 1B-Strat, NW Port	4/16/03	14:22:03	3.47	0.53	13.73	4.08	3.55	0.50	13.72	4.08
Run 1B-Strat, NW Port	4/16/03	14:23:03	3.45	0.56	13.73	4.08	3.54	0.51	13.72	4.09
Run 1B-Strat, NW Port	4/16/03	14:24:03	3.44	0.51	13.70	4.08	3.52	0.52	13.72	4.08
Run 1B-Strat, NW Port	4/16/03	14:25:03	3.47	0.51	13.70	4.08	3.51	0.52	13.72	4.09
Run 1B-Strat, NW Port	4/16/03	14:26:03	3.50	0.49	13.73	4.10	3.51	0.52	13.72	4.08
Run 1B-Strat, NW Port	4/16/03	14:27:03	3.57	0.50	13.70	4.08	3.51	0.51	13.72	4.09
Run 1B-Strat, NW Port	4/16/03	14:28:03	3.58	0.53	13.73	4.10	3.52	0.52	13.72	4.09
Run 1B-Strat, NW Port	4/16/03	14:29:03	3.52	0.48	13.73	4.08	3.52	0.52	13.72	4.09
END Run 1B-Strat, NW Port	4/16/03	14:30:03	3.48	0.54	13.73	4.08	**3.52**	**0.51**	**13.72**	**4.09**
START Run 1B-Strat, SW Port	4/16/03	14:35:30	3.52	0.50	13.73	4.08	3.52	0.50	13.73	4.08
Run 1B-Strat, SW Port	4/16/03	14:36:30	3.59	0.54	13.73	4.08	3.56	0.52	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:37:30	3.50	0.54	13.73	4.08	3.56	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:38:30	3.48	0.52	13.73	4.08	3.54	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:39:30	3.53	0.55	13.73	4.07	3.53	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:40:30	3.43	0.58	13.73	4.09	3.52	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:41:30	3.46	0.50	13.73	4.07	3.51	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:42:30	3.45	0.54	13.73	4.07	3.50	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:43:30	3.45	0.52	13.73	4.08	3.50	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:44:30	3.48	0.52	13.73	4.07	3.49	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:45:30	3.47	0.55	13.73	4.06	3.49	0.54	13.72	4.08
Run 1B-Strat, SW Port	4/16/03	14:46:30	3.39	0.52	13.73	4.07	3.49	0.54	13.72	4.08
END Run 1B-Strat, SW Port	4/16/03	14:47:30	3.36	0.56	13.73	4.07	**3.48**	**0.54**	**13.72**	**4.08**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-C-1a/1B-RA-1	4/17/03	7:02:03	3.56	0.76	13.58	4.25	3.56	0.76	13.58	4.25
Run 1B-C-1a/1B-RA-1	4/17/03	7:03:03	3.53	0.77	13.58	4.24	3.53	0.77	13.58	4.24
Run 1B-C-1a/1B-RA-1	4/17/03	7:04:03	3.53	0.77	13.58	4.25	3.53	0.77	13.58	4.24
Run 1B-C-1a/1B-RA-1	4/17/03	7:05:03	3.51	0.76	13.58	4.24	3.53	0.76	13.57	4.24
Run 1B-C-1a/1B-RA-1	4/17/03	7:06:03	3.54	0.76	13.58	4.25	3.52	0.76	13.57	4.24
Run 1B-C-1a/1B-RA-1	4/17/03	7:07:03	3.52	0.72	13.60	4.24	3.52	0.76	13.58	4.24
Run 1B-C-1a/1B-RA-1	4/17/03	7:08:03	3.53	0.77	13.63	4.23	3.52	0.76	13.58	4.24
Run 1B-C-1a/1B-RA-1	4/17/03	7:09:03	3.55	0.73	13.65	4.22	3.53	0.75	13.59	4.24
Run 1B-C-1a/1B-RA-1	4/17/03	7:10:03	3.53	0.68	13.65	4.21	3.53	0.75	13.60	4.23
Run 1B-C-1a/1B-RA-1	4/17/03	7:11:03	3.53	0.72	13.65	4.19	3.53	0.74	13.60	4.23
Run 1B-C-1a/1B-RA-1	4/17/03	7:12:03	3.52	0.66	13.68	4.20	3.53	0.73	13.61	4.23
Run 1B-C-1a/1B-RA-1	4/17/03	7:13:03	3.52	0.74	13.68	4.20	3.53	0.73	13.61	4.23
Run 1B-C-1a/1B-RA-1	4/17/03	7:14:03	3.52	0.70	13.65	4.20	3.53	0.73	13.62	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:15:03	3.55	0.69	13.68	4.20	3.53	0.73	13.62	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:16:03	3.52	0.68	13.65	4.21	3.53	0.72	13.62	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:17:03	3.50	0.66	13.68	4.22	3.53	0.72	13.63	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:18:03	3.50	0.66	13.68	4.22	3.52	0.72	13.63	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:19:03	3.53	0.67	13.65	4.19	3.52	0.72	13.63	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:20:03	3.54	0.67	13.65	4.22	3.53	0.71	13.63	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:21:03	3.50	0.65	13.65	4.22	3.52	0.71	13.63	4.22
Run 1B-C-1a/1B-RA-1	4/17/03	7:22:03	3.49	0.66	13.65	4.22	3.52	0.71	13.63	4.22
END Run 1B-C-1a/1B-RA-1	4/17/03	7:23:03	3.47	0.68	13.65	4.20	**3.52**	**0.71**	**13.64**	**4.22**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-C-1b/1B-RA-2	4/17/03	7:36:01	3.47	0.71	13.68	4.13	3.47	0.71	13.68	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:37:01	3.46	0.74	13.68	4.13	3.48	0.73	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:38:01	3.49	0.72	13.68	4.13	3.48	0.72	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:39:01	3.50	0.69	13.68	4.13	3.49	0.71	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:40:01	3.50	0.68	13.68	4.13	3.49	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:41:01	3.51	0.71	13.68	4.13	3.50	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:42:01	3.54	0.71	13.65	4.11	3.50	0.71	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:43:01	3.54	0.69	13.68	4.13	3.51	0.71	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:44:01	3.56	0.67	13.65	4.13	3.51	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:45:01	3.57	0.65	13.68	4.13	3.52	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:46:01	3.61	0.68	13.68	4.13	3.53	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:47:01	3.59	0.69	13.68	4.12	3.53	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:48:01	3.54	0.71	13.68	4.13	3.53	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:49:01	3.58	0.71	13.68	4.13	3.53	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:50:01	3.54	0.70	13.68	4.11	3.54	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:51:00	3.53	0.67	13.68	4.13	3.54	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:52:00	3.54	0.70	13.68	4.13	3.54	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:53:00	3.56	0.69	13.68	4.13	3.54	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:54:00	3.52	0.69	13.68	4.13	3.54	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:55:00	3.48	0.66	13.68	4.12	3.53	0.70	13.67	4.13
Run 1B-C-1b/1B-RA-2	4/17/03	7:56:00	3.49	0.66	13.68	4.14	3.53	0.70	13.67	4.13
END Run 1B-C-1b/1B-RA-2	4/17/03	7:57:00	3.51	0.69	13.68	4.13	**3.53**	**0.70**	**13.67**	**4.13**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

Run Number	Date	Time	NOx (ppmv)	CO (ppmv)	O2 (% vol)	CO2 (% vol)	AVE NOx (ppmv)	AVE CO (ppmv)	AVE O2 (% vol)	AVE CO2 (% vol)
START Run 1B-C-1c/1B-RA-3	4/17/03	8:09:01	3.50	0.65	13.68	4.14	3.50	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:10:01	3.50	0.65	13.68	4.16	3.50	0.64	13.68	4.15
Run 1B-C-1c/1B-RA-3	4/17/03	8:11:01	3.52	0.67	13.68	4.13	3.51	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:12:01	3.54	0.66	13.68	4.13	3.52	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:13:01	3.53	0.63	13.68	4.15	3.52	0.65	13.68	4.15
Run 1B-C-1c/1B-RA-3	4/17/03	8:14:01	3.55	0.63	13.68	4.13	3.52	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:15:01	3.54	0.67	13.68	4.14	3.53	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:16:01	3.56	0.64	13.68	4.16	3.53	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:17:00	3.58	0.66	13.68	4.13	3.53	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:18:00	3.55	0.64	13.68	4.13	3.54	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:19:00	3.50	0.68	13.68	4.13	3.54	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:20:00	3.45	0.65	13.68	4.13	3.53	0.65	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:21:00	3.45	0.69	13.68	4.13	3.53	0.66	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:22:00	3.46	0.64	13.68	4.12	3.52	0.66	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:23:00	3.45	0.70	13.68	4.13	3.52	0.66	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:24:00	3.43	0.67	13.68	4.13	3.51	0.66	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:25:00	3.43	0.63	13.68	4.11	3.51	0.66	13.68	4.14
Run 1B-C-1c/1B-RA-3	4/17/03	8:26:00	3.49	0.64	13.68	4.13	3.50	0.66	13.68	4.13
Run 1B-C-1c/1B-RA-3	4/17/03	8:27:00	3.51	0.65	13.68	4.13	3.50	0.66	13.68	4.13
Run 1B-C-1c/1B-RA-3	4/17/03	8:28:00	3.49	0.68	13.68	4.11	3.50	0.66	13.68	4.13
Run 1B-C-1c/1B-RA-3	4/17/03	8:29:00	3.52	0.64	13.68	4.13	3.50	0.66	13.68	4.13
END Run 1B-C-1c/1B-RA-3	4/17/03	8:30:00	3.54	0.66	13.68	4.11	**3.50**	**0.66**	**13.68**	**4.13**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-C-2a/1B-RA-4	4/17/03	8:50:01	3.50	0.61	13.70	4.13	3.50	0.61	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:51:01	3.48	0.64	13.70	4.13	3.49	0.62	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:52:01	3.49	0.66	13.68	4.13	3.49	0.62	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:53:01	3.47	0.63	13.70	4.15	3.48	0.62	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:54:01	3.46	0.61	13.70	4.13	3.47	0.63	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:55:01	3.47	0.64	13.70	4.15	3.47	0.63	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:56:01	3.48	0.63	13.70	4.13	3.47	0.63	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:57:01	3.49	0.58	13.70	4.13	3.47	0.62	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:58:01	3.50	0.58	13.70	4.14	3.48	0.62	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	8:59:01	3.51	0.63	13.70	4.13	3.48	0.62	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:00:01	3.53	0.62	13.70	4.15	3.48	0.62	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:01:01	3.55	0.58	13.70	4.16	3.49	0.61	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:02:01	3.57	0.61	13.70	4.13	3.50	0.61	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:03:01	3.60	0.56	13.70	4.13	3.50	0.61	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:04:01	3.60	0.59	13.70	4.13	3.51	0.61	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:05:01	3.56	0.59	13.70	4.13	3.51	0.61	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:06:01	3.52	0.64	13.70	4.13	3.52	0.61	13.70	4.13
Run 1B-C-2a/1B-RA-4	4/17/03	9:07:01	3.48	0.61	13.70	4.16	3.52	0.61	13.70	4.14
Run 1B-C-2a/1B-RA-4	4/17/03	9:08:00	3.49	0.58	13.70	4.13	3.51	0.61	13.70	4.14
Run 1B-C-2a/1B-RA-4	4/17/03	9:09:00	3.47	0.63	13.70	4.15	3.51	0.61	13.70	4.14
Run 1B-C-2a/1B-RA-4	4/17/03	9:10:00	3.45	0.63	13.70	4.13	3.51	0.61	13.70	4.14
END Run 1B-C-2a/1B-RA-4	4/17/03	9:11:00	3.44	0.62	13.70	4.13	**3.51**	**0.61**	**13.70**	**4.14**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-C-2b/1B-RA-5	4/17/03	9:23:01	3.46	0.70	13.73	4.13	3.46	0.70	13.73	4.13
Run 1B-C-2b/1B-RA-5	4/17/03	9:24:01	3.48	0.68	13.70	4.13	3.46	0.70	13.70	4.13
Run 1B-C-2b/1B-RA-5	4/17/03	9:25:01	3.47	0.69	13.70	4.11	3.47	0.68	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:26:01	3.46	0.66	13.70	4.13	3.47	0.68	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:27:01	3.47	0.72	13.70	4.13	3.47	0.68	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:28:01	3.46	0.70	13.70	4.12	3.47	0.69	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:29:01	3.48	0.70	13.70	4.13	3.47	0.69	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:30:01	3.48	0.73	13.70	4.11	3.47	0.69	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:31:01	3.49	0.69	13.70	4.13	3.47	0.69	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:32:01	3.53	0.73	13.70	4.13	3.48	0.69	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:33:01	3.52	0.72	13.70	4.11	3.48	0.69	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:34:01	3.52	0.68	13.70	4.11	3.49	0.70	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:35:01	3.49	0.73	13.70	4.12	3.49	0.70	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:36:01	3.49	0.75	13.70	4.12	3.49	0.70	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:37:01	3.48	0.71	13.70	4.10	3.49	0.70	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:38:01	3.49	0.74	13.70	4.10	3.49	0.70	13.70	4.12
Run 1B-C-2b/1B-RA-5	4/17/03	9:39:01	3.45	0.70	13.70	4.10	3.49	0.70	13.70	4.11
Run 1B-C-2b/1B-RA-5	4/17/03	9:40:01	3.45	0.68	13.68	4.09	3.48	0.70	13.70	4.11
Run 1B-C-2b/1B-RA-5	4/17/03	9:41:01	3.47	0.67	13.73	4.10	3.48	0.70	13.70	4.11
Run 1B-C-2b/1B-RA-5	4/17/03	9:42:01	3.47	0.74	13.70	4.10	3.48	0.70	13.70	4.11
Run 1B-C-2b/1B-RA-5	4/17/03	9:43:01	3.50	0.72	13.70	4.08	3.48	0.70	13.70	4.11
END Run 1B-C-2b/1B-RA-5	4/17/03	9:44:01	3.50	0.68	13.70	4.09	**3.48**	**0.71**	**13.70**	**4.11**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-C-2c/1B-RA-6	4/17/03	10:00:01	3.48	0.70	13.70	4.10	3.48	0.70	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:01:01	3.49	0.70	13.70	4.10	3.49	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:02:01	3.50	0.74	13.70	4.09	3.50	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:03:01	3.48	0.76	13.70	4.10	3.50	0.70	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:04:01	3.47	0.70	13.70	4.12	3.49	0.70	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:05:01	3.44	0.68	13.70	4.10	3.48	0.70	13.70	4.11
Run 1B-C-2c/1B-RA-6	4/17/03	10:06:01	3.41	0.72	13.70	4.10	3.47	0.70	13.70	4.11
Run 1B-C-2c/1B-RA-6	4/17/03	10:07:01	3.39	0.71	13.70	4.10	3.46	0.70	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:08:01	3.44	0.65	13.70	4.11	3.46	0.70	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:09:01	3.43	0.62	13.70	4.10	3.46	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:10:01	3.44	0.68	13.70	4.10	3.45	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:11:01	3.42	0.71	13.70	4.09	3.45	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:12:01	3.44	0.66	13.70	4.10	3.45	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:13:01	3.45	0.70	13.70	4.10	3.45	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:14:01	3.47	0.69	13.70	4.10	3.45	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:15:01	3.49	0.70	13.70	4.08	3.45	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:16:01	3.54	0.67	13.70	4.09	3.46	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:17:01	3.53	0.73	13.70	4.10	3.46	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:18:01	3.51	0.68	13.70	4.10	3.46	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:19:01	3.49	0.69	13.70	4.08	3.47	0.69	13.70	4.10
Run 1B-C-2c/1B-RA-6	4/17/03	10:20:01	3.47	0.65	13.70	4.08	3.47	0.69	13.70	4.10
END Run 1B-C-2c/1B-RA-6	4/17/03	10:21:00	3.47	0.73	13.70	4.08	**3.47**	**0.69**	**13.70**	**4.10**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

Run Number	Date	Time	NOx (ppmv)	CO (ppmv)	O2 (% vol)	CO2 (% vol)	AVE NOx (ppmv)	AVE CO (ppmv)	AVE O2 (% vol)	AVE CO2 (% vol)
START Run 1B-C-3a/1B-RA-7	4/17/03	10:35:01	3.49	0.82	13.70	4.02	3.49	0.82	13.70	4.02
Run 1B-C-3a/1B-RA-7	4/17/03	10:36:01	3.50	0.79	13.70	4.02	3.49	0.80	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:37:01	3.50	0.78	13.70	4.02	3.49	0.79	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:38:01	3.44	0.71	13.70	4.04	3.49	0.78	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:39:01	3.44	0.78	13.70	4.03	3.48	0.76	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:40:01	3.47	0.77	13.70	4.02	3.47	0.78	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:41:01	3.50	0.77	13.70	4.02	3.48	0.77	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:42:01	3.47	0.67	13.70	4.03	3.48	0.76	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:43:01	3.45	0.69	13.70	4.02	3.48	0.76	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:44:01	3.46	0.67	13.70	4.02	3.47	0.75	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:45:01	3.45	0.72	13.70	4.02	3.47	0.74	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:46:01	3.46	0.74	13.68	4.02	3.47	0.74	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:47:01	3.44	0.73	13.68	4.01	3.47	0.74	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:48:01	3.45	0.75	13.70	4.02	3.47	0.74	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:49:01	3.53	0.73	13.68	4.02	3.47	0.74	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:50:01	3.50	0.76	13.68	4.02	3.47	0.74	13.70	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:51:01	3.49	0.72	13.70	4.04	3.47	0.74	13.69	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:52:00	3.50	0.72	13.70	4.02	3.48	0.74	13.69	4.03
Run 1B-C-3a/1B-RA-7	4/17/03	10:53:00	3.48	0.74	13.68	4.02	3.48	0.74	13.69	4.02
Run 1B-C-3a/1B-RA-7	4/17/03	10:54:00	3.48	0.79	13.68	4.02	3.48	0.74	13.69	4.02
Run 1B-C-3a/1B-RA-7	4/17/03	10:55:00	3.44	0.75	13.68	4.02	3.48	0.74	13.69	4.02
END Run 1B-C-3a/1B-RA-7	4/17/03	10:56:00	3.47	0.79	13.68	4.02	**3.48**	**0.74**	**13.69**	**4.02**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-C-3b/1B-RA-8	4/17/03	11:16:01	3.52	0.74	13.68	3.97	3.52	0.74	13.68	3.97
Run 1B-C-3b/1B-RA-8	4/17/03	11:17:00	3.50	0.77	13.68	3.99	3.53	0.74	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:18:00	3.48	0.76	13.68	3.99	3.51	0.76	13.68	3.98
Run 1B-C-3b/1B-RA-8	4/17/03	11:19:00	3.47	0.78	13.68	3.99	3.50	0.76	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:20:00	3.46	0.78	13.68	3.97	3.49	0.76	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:21:00	3.47	0.76	13.68	3.99	3.49	0.76	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:22:00	3.48	0.76	13.68	3.99	3.48	0.76	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:23:00	3.46	0.75	13.68	3.99	3.48	0.76	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:24:00	3.53	0.84	13.70	4.01	3.48	0.76	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:25:00	3.52	0.81	13.68	3.99	3.49	0.77	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:26:00	3.48	0.88	13.70	4.01	3.49	0.78	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:27:00	3.43	0.82	13.70	3.99	3.49	0.78	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:28:00	3.45	0.79	13.70	4.02	3.48	0.78	13.68	3.99
Run 1B-C-3b/1B-RA-8	4/17/03	11:29:00	3.40	0.74	13.70	4.02	3.48	0.78	13.68	4.00
Run 1B-C-3b/1B-RA-8	4/17/03	11:30:00	3.39	0.82	13.70	4.02	3.47	0.78	13.68	4.00
Run 1B-C-3b/1B-RA-8	4/17/03	11:31:00	3.41	0.79	13.70	4.02	3.47	0.78	13.68	4.00
Run 1B-C-3b/1B-RA-8	4/17/03	11:32:00	3.43	0.80	13.70	4.02	3.47	0.78	13.68	4.00
Run 1B-C-3b/1B-RA-8	4/17/03	11:33:00	3.50	0.85	13.70	4.00	3.47	0.78	13.68	4.00
Run 1B-C-3b/1B-RA-8	4/17/03	11:34:00	3.47	0.71	13.70	4.02	3.47	0.78	13.68	4.00
Run 1B-C-3b/1B-RA-8	4/17/03	11:35:00	3.48	0.73	13.70	4.00	3.47	0.78	13.69	4.00
Run 1B-C-3b/1B-RA-8	4/17/03	11:36:00	3.47	0.73	13.70	4.01	3.47	0.78	13.69	4.00
END Run 1B-C-3b/1B-RA-8	4/17/03	11:37:00	3.44	0.72	13.70	4.02	**3.47**	**0.77**	**13.69**	**4.00**

Tampa Electric Company - Bayside Power Station, Unit 1B, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1B-C-3c/1B-RA-9	4/17/03	11:48:01	3.42	0.67	13.70	4.00	3.42	0.67	13.70	4.00
Run 1B-C-3c/1B-RA-9	4/17/03	11:49:01	3.44	0.70	13.70	4.02	3.43	0.73	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:50:01	3.46	0.74	13.70	4.02	3.44	0.73	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:51:01	3.55	0.78	13.70	4.02	3.46	0.74	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:52:01	3.48	0.85	13.70	4.02	3.48	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:53:01	3.47	0.73	13.70	4.02	3.47	0.77	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:54:01	3.44	0.78	13.70	4.03	3.47	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:55:01	3.43	0.75	13.70	4.02	3.47	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:56:01	3.43	0.75	13.70	4.03	3.46	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:57:01	3.45	0.74	13.70	4.00	3.46	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:58:01	3.44	0.74	13.70	4.02	3.46	0.75	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	11:59:01	3.45	0.79	13.70	4.02	3.45	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:00:01	3.50	0.68	13.70	4.02	3.46	0.75	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:01:01	3.45	0.77	13.68	4.02	3.46	0.75	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:02:01	3.43	0.79	13.70	4.04	3.46	0.75	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:03:01	3.40	0.77	13.68	4.02	3.45	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:04:01	3.43	0.82	13.70	4.00	3.45	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:05:01	3.42	0.75	13.70	4.00	3.45	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:06:01	3.42	0.73	13.68	4.00	3.45	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:07:01	3.42	0.78	13.68	4.00	3.45	0.76	13.70	4.02
Run 1B-C-3c/1B-RA-9	4/17/03	12:08:01	3.43	0.73	13.68	4.00	3.45	0.76	13.70	4.02
END Run 1B-C-3c/1B-RA-9	4/17/03	12:09:01	3.43	0.74	13.70	4.01	**3.45**	**0.76**	**13.70**	**4.02**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-Strat, SE Port	4/17/03	16:59:31	3.81	0.63	13.65	4.05	3.81	0.63	13.65	4.05
Run 1C-Strat, SE Port	4/17/03	17:00:31	3.80	0.61	13.68	4.07	3.81	0.62	13.65	4.05
Run 1C-Strat, SE Port	4/17/03	17:01:31	3.74	0.59	13.65	4.05	3.79	0.61	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:02:31	3.74	0.61	13.68	4.05	3.77	0.61	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:03:31	3.72	0.64	13.68	4.05	3.76	0.62	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:04:31	3.71	0.62	13.68	4.05	3.75	0.61	13.67	4.05
Run 1C-Strat, SE Port	4/17/03	17:05:31	3.78	0.59	13.68	4.05	3.75	0.61	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:06:31	3.79	0.69	13.68	4.05	3.75	0.61	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:07:31	3.81	0.62	13.65	4.05	3.76	0.61	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:08:31	3.80	0.63	13.65	4.07	3.76	0.62	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:09:31	3.85	0.59	13.65	4.05	3.77	0.61	13.66	4.05
Run 1C-Strat, SE Port	4/17/03	17:10:31	3.85	0.65	13.65	4.07	3.78	0.61	13.66	4.05
END Run 1C-Strat, SE Port	4/17/03	17:11:30	3.82	0.60	13.65	4.07	**3.78**	**0.61**	**13.66**	**4.05**
START Run 1C-Strat, NE Port	4/17/03	17:15:01	3.89	0.61	13.65	4.05	3.89	0.61	13.65	4.05
Run 1C-Strat, NE Port	4/17/03	17:16:01	3.92	0.60	13.68	4.05	3.89	0.61	13.65	4.05
Run 1C-Strat, NE Port	4/17/03	17:17:01	3.94	0.62	13.65	4.05	3.91	0.62	13.65	4.05
Run 1C-Strat, NE Port	4/17/03	17:18:01	3.95	0.66	13.68	4.05	3.92	0.62	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:19:01	3.91	0.64	13.68	4.05	3.92	0.63	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:20:01	3.89	0.64	13.68	4.05	3.92	0.63	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:21:01	3.92	0.63	13.65	4.05	3.91	0.63	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:22:01	3.93	0.62	13.65	4.06	3.92	0.63	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:23:01	3.96	0.61	13.65	4.07	3.92	0.63	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:24:01	3.99	0.66	13.65	4.05	3.93	0.63	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:25:01	4.02	0.65	13.65	4.05	3.93	0.63	13.66	4.05
Run 1C-Strat, NE Port	4/17/03	17:26:01	4.02	0.66	13.68	4.05	3.94	0.63	13.66	4.05
END Run 1C-Strat, NE Port	4/17/03	17:27:00	4.01	0.64	13.65	4.04	**3.95**	**0.63**	**13.66**	**4.05**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-Strat, NW Port	4/17/03	17:31:31	3.72	0.66	13.68	4.07	3.72	0.66	13.68	4.07
Run 1C-Strat, NW Port	4/17/03	17:32:31	3.72	0.61	13.68	4.06	3.72	0.63	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:33:31	3.72	0.64	13.68	4.04	3.72	0.63	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:34:31	3.74	0.61	13.68	4.05	3.72	0.63	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:35:31	3.71	0.64	13.68	4.05	3.73	0.63	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:36:31	3.67	0.59	13.68	4.05	3.72	0.63	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:37:30	3.60	0.59	13.68	4.07	3.70	0.62	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:38:30	3.61	0.63	13.68	4.08	3.68	0.62	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:39:30	3.67	0.60	13.68	4.07	3.68	0.62	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:40:30	3.64	0.59	13.68	4.08	3.68	0.62	13.67	4.06
Run 1C-Strat, NW Port	4/17/03	17:41:30	3.66	0.57	13.68	4.08	3.68	0.61	13.67	4.07
Run 1C-Strat, NW Port	4/17/03	17:42:30	3.71	0.60	13.68	4.08	3.68	0.61	13.68	4.07
END Run 1C-Strat, NW Port	4/17/03	17:43:30	3.63	0.54	13.68	4.08	**3.68**	**0.61**	**13.68**	**4.07**
START Run 1C-Strat, SW Port	4/17/03	17:46:31	3.76	0.58	13.70	4.10	3.76	0.58	13.70	4.10
Run 1C-Strat, SW Port	4/17/03	17:47:31	3.79	0.55	13.70	4.10	3.77	0.57	13.70	4.09
Run 1C-Strat, SW Port	4/17/03	17:48:31	3.77	0.56	13.68	4.10	3.78	0.57	13.70	4.10
Run 1C-Strat, SW Port	4/17/03	17:49:31	3.76	0.51	13.70	4.10	3.77	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:50:31	3.76	0.57	13.68	4.10	3.77	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:51:31	3.73	0.54	13.68	4.09	3.77	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:52:31	3.71	0.53	13.68	4.12	3.76	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:53:31	3.71	0.60	13.70	4.11	3.75	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:54:31	3.70	0.57	13.70	4.10	3.74	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:55:31	3.65	0.58	13.68	4.10	3.74	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:56:31	3.63	0.53	13.68	4.10	3.73	0.56	13.69	4.10
Run 1C-Strat, SW Port	4/17/03	17:57:31	3.62	0.58	13.70	4.13	3.72	0.56	13.69	4.10
END Run 1C-Strat, SW Port	4/17/03	17:58:30	3.64	0.53	13.68	4.10	**3.71**	**0.56**	**13.69**	**4.11**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-1a/1C-RA-1	4/18/03	6:01:01	3.88	0.54	13.63	4.22	3.88	0.54	13.63	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:02:01	3.85	0.57	13.65	4.23	3.88	0.55	13.64	4.23
Run 1C-C-1a/1C-RA-1	4/18/03	6:03:01	3.85	0.57	13.65	4.23	3.87	0.55	13.64	4.23
Run 1C-C-1a/1C-RA-1	4/18/03	6:04:01	3.83	0.56	13.65	4.22	3.86	0.56	13.64	4.23
Run 1C-C-1a/1C-RA-1	4/18/03	6:05:01	3.82	0.55	13.65	4.23	3.85	0.56	13.64	4.23
Run 1C-C-1a/1C-RA-1	4/18/03	6:06:01	3.71	0.58	13.63	4.22	3.84	0.56	13.64	4.23
Run 1C-C-1a/1C-RA-1	4/18/03	6:07:01	3.70	0.57	13.63	4.20	3.82	0.57	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:08:01	3.73	0.58	13.65	4.22	3.80	0.57	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:09:01	3.74	0.60	13.65	4.22	3.79	0.57	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:10:01	3.73	0.58	13.65	4.22	3.78	0.57	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:11:01	3.72	0.57	13.65	4.20	3.78	0.57	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:12:01	3.68	0.56	13.63	4.22	3.77	0.57	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:13:01	3.65	0.57	13.65	4.22	3.76	0.57	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:14:01	3.64	0.60	13.63	4.22	3.75	0.58	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:15:00	3.63	0.60	13.63	4.20	3.74	0.58	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:16:00	3.64	0.59	13.63	4.22	3.74	0.58	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:17:00	3.63	0.60	13.65	4.22	3.73	0.58	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:18:00	3.68	0.61	13.63	4.22	3.72	0.58	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:19:00	3.70	0.57	13.63	4.22	3.72	0.58	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:20:00	3.70	0.59	13.63	4.22	3.72	0.58	13.64	4.22
Run 1C-C-1a/1C-RA-1	4/18/03	6:21:00	3.75	0.61	13.63	4.22	3.72	0.58	13.64	4.22
END Run 1C-C-1a/1C-RA-1	4/18/03	6:22:00	3.83	0.59	13.63	4.21	**3.72**	**0.58**	**13.64**	**4.22**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-1b/1C-RA-2	4/18/03	6:52:16	3.30	0.56	13.65	4.25	3.30	0.56	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	6:53:16	3.36	0.61	13.65	4.25	3.32	0.60	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	6:54:16	3.48	0.56	13.65	4.23	3.38	0.60	13.65	4.24
Run 1C-C-1b/1C-RA-2	4/18/03	6:55:16	3.57	0.55	13.65	4.25	3.42	0.59	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	6:56:16	3.66	0.60	13.65	4.23	3.47	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	6:57:16	3.75	0.57	13.65	4.25	3.52	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	6:58:16	3.83	0.57	13.65	4.24	3.56	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	6:59:16	3.87	0.60	13.65	4.24	3.60	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:00:16	3.91	0.55	13.65	4.25	3.64	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:01:16	3.92	0.55	13.65	4.25	3.67	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:02:16	3.91	0.54	13.65	4.23	3.69	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:03:16	3.92	0.53	13.65	4.25	3.71	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:04:16	3.91	0.59	13.65	4.25	3.73	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:05:16	3.89	0.63	13.65	4.24	3.74	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:06:16	3.89	0.59	13.65	4.25	3.76	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:07:16	3.85	0.58	13.65	4.25	3.76	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:08:16	3.85	0.56	13.65	4.23	3.77	0.58	13.65	4.25
Run 1C-C-1b/1C-RA-2	4/18/03	7:09:16	3.85	0.57	13.65	4.22	3.77	0.58	13.65	4.24
Run 1C-C-1b/1C-RA-2	4/18/03	7:10:16	3.84	0.59	13.65	4.25	3.78	0.58	13.65	4.24
Run 1C-C-1b/1C-RA-2	4/18/03	7:11:16	3.83	0.55	13.65	4.22	3.78	0.58	13.65	4.24
Run 1C-C-1b/1C-RA-2	4/18/03	7:12:16	3.82	0.60	13.65	4.22	3.78	0.58	13.65	4.24
END Run 1C-C-1b/1C-RA-2	4/18/03	7:13:16	3.81	0.59	13.65	4.23	**3.79**	**0.58**	**13.65**	**4.24**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-1c/1C-RA-3	4/18/03	7:25:01	3.83	0.64	13.65	4.22	3.83	0.64	13.65	4.22
Run 1C-C-1c/1C-RA-3	4/18/03	7:26:01	3.83	0.59	13.65	4.24	3.83	0.62	13.65	4.22
Run 1C-C-1c/1C-RA-3	4/18/03	7:27:01	3.81	0.58	13.65	4.22	3.83	0.61	13.65	4.22
Run 1C-C-1c/1C-RA-3	4/18/03	7:28:01	3.80	0.62	13.65	4.22	3.82	0.61	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:29:01	3.79	0.60	13.65	4.22	3.82	0.61	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:30:01	3.78	0.61	13.65	4.23	3.81	0.62	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:31:01	3.76	0.57	13.65	4.22	3.80	0.62	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:32:01	3.76	0.59	13.65	4.22	3.80	0.61	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:33:00	3.77	0.61	13.65	4.22	3.79	0.61	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:34:00	3.80	0.58	13.65	4.25	3.79	0.61	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:35:00	3.81	0.60	13.65	4.24	3.80	0.61	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:36:00	3.83	0.60	13.65	4.25	3.80	0.61	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:37:00	3.85	0.58	13.65	4.25	3.80	0.60	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:38:00	3.90	0.60	13.65	4.25	3.81	0.60	13.65	4.23
Run 1C-C-1c/1C-RA-3	4/18/03	7:39:00	3.87	0.58	13.65	4.25	3.81	0.60	13.65	4.24
Run 1C-C-1c/1C-RA-3	4/18/03	7:40:00	3.83	0.57	13.65	4.25	3.82	0.60	13.65	4.24
Run 1C-C-1c/1C-RA-3	4/18/03	7:41:00	3.82	0.57	13.65	4.25	3.82	0.60	13.65	4.24
Run 1C-C-1c/1C-RA-3	4/18/03	7:42:00	3.79	0.60	13.65	4.25	3.82	0.60	13.65	4.24
Run 1C-C-1c/1C-RA-3	4/18/03	7:43:00	3.76	0.60	13.65	4.25	3.81	0.60	13.65	4.24
Run 1C-C-1c/1C-RA-3	4/18/03	7:44:00	3.74	0.60	13.65	4.23	3.81	0.60	13.65	4.24
Run 1C-C-1c/1C-RA-3	4/18/03	7:45:00	3.75	0.59	13.65	4.25	3.81	0.60	13.65	4.24
END Run 1C-C-1c/1C-RA-3	4/18/03	7:46:00	3.76	0.62	13.65	4.25	**3.81**	**0.60**	**13.65**	**4.24**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-2a/1C-RA-4	4/18/03	7:57:01	3.81	0.61	13.65	4.22	3.81	0.61	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	7:58:00	3.79	0.64	13.65	4.22	3.79	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	7:59:00	3.82	0.62	13.65	4.24	3.79	0.63	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:00:00	3.85	0.64	13.65	4.23	3.81	0.63	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:01:00	3.86	0.64	13.65	4.22	3.82	0.63	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:02:00	3.89	0.59	13.65	4.23	3.82	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:03:00	3.86	0.62	13.65	4.22	3.83	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:04:00	3.90	0.63	13.65	4.22	3.84	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:05:00	3.83	0.61	13.65	4.20	3.84	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:06:00	3.80	0.65	13.65	4.20	3.84	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:07:00	3.76	0.62	13.65	4.22	3.83	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:08:00	3.70	0.62	13.65	4.22	3.82	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:09:00	3.68	0.59	13.65	4.22	3.81	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:10:00	3.66	0.57	13.65	4.21	3.80	0.62	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:11:00	3.69	0.57	13.65	4.22	3.79	0.61	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:12:00	3.70	0.59	13.65	4.22	3.79	0.61	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:13:00	3.74	0.59	13.68	4.22	3.78	0.61	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:14:00	3.77	0.58	13.65	4.22	3.78	0.61	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:15:00	3.80	0.59	13.65	4.22	3.78	0.61	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:16:00	3.87	0.55	13.65	4.21	3.79	0.61	13.65	4.22
Run 1C-C-2a/1C-RA-4	4/18/03	8:17:00	3.87	0.59	13.68	4.22	3.79	0.60	13.65	4.22
END Run 1C-C-2a/1C-RA-4	4/18/03	8:18:00	3.96	0.54	13.65	4.22	**3.79**	**0.60**	**13.65**	**4.22**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-2b/1C-RA-5	4/18/03	8:30:07	3.86	0.58	13.68	4.23	3.86	0.58	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:31:07	3.94	0.53	13.68	4.22	3.91	0.57	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:32:07	3.90	0.53	13.70	4.23	3.91	0.55	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:33:07	3.83	0.53	13.68	4.22	3.89	0.55	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:34:07	3.75	0.53	13.68	4.24	3.87	0.55	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:35:07	3.74	0.55	13.68	4.24	3.84	0.55	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:36:07	3.74	0.54	13.68	4.23	3.82	0.54	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:37:07	3.74	0.53	13.68	4.22	3.81	0.54	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:38:07	3.71	0.51	13.70	4.22	3.80	0.54	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:39:07	3.74	0.54	13.68	4.22	3.79	0.54	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:40:07	3.77	0.49	13.68	4.23	3.79	0.54	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:41:07	3.79	0.53	13.68	4.22	3.79	0.54	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:42:07	3.81	0.51	13.68	4.22	3.79	0.53	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:43:07	3.81	0.50	13.70	4.22	3.79	0.53	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:44:07	3.83	0.52	13.70	4.20	3.79	0.53	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:45:07	3.81	0.51	13.68	4.21	3.79	0.53	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:46:07	3.81	0.49	13.70	4.20	3.80	0.53	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:47:07	3.81	0.52	13.68	4.20	3.80	0.53	13.68	4.23
Run 1C-C-2b/1C-RA-5	4/18/03	8:48:07	3.79	0.50	13.68	4.20	3.80	0.52	13.68	4.22
Run 1C-C-2b/1C-RA-5	4/18/03	8:49:07	3.78	0.48	13.68	4.19	3.80	0.52	13.68	4.22
Run 1C-C-2b/1C-RA-5	4/18/03	8:50:07	3.77	0.48	13.68	4.18	3.79	0.52	13.68	4.22
END Run 1C-C-2b/1C-RA-5	4/18/03	8:51:07	3.76	0.53	13.68	4.20	**3.79**	**0.52**	**13.68**	**4.22**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-2c/1C-RA-6	4/18/03	9:04:04	3.97	0.54	13.68	4.17	3.97	0.54	13.68	4.17
Run 1C-C-2c/1C-RA-6	4/18/03	9:05:04	4.18	0.51	13.68	4.19	4.11	0.53	13.68	4.18
Run 1C-C-2c/1C-RA-6	4/18/03	9:06:04	4.28	0.54	13.68	4.19	4.18	0.52	13.68	4.18
Run 1C-C-2c/1C-RA-6	4/18/03	9:07:04	4.36	0.50	13.68	4.19	4.23	0.52	13.68	4.18
Run 1C-C-2c/1C-RA-6	4/18/03	9:08:04	4.39	0.52	13.70	4.19	4.27	0.52	13.68	4.18
Run 1C-C-2c/1C-RA-6	4/18/03	9:09:04	4.28	0.52	13.70	4.19	4.29	0.52	13.68	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:10:04	4.07	0.51	13.70	4.19	4.26	0.52	13.68	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:11:04	3.89	0.51	13.70	4.17	4.22	0.52	13.68	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:12:04	3.77	0.54	13.70	4.17	4.17	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:13:04	3.66	0.52	13.70	4.19	4.12	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:14:04	3.64	0.55	13.70	4.19	4.07	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:15:04	3.71	0.52	13.70	4.20	4.04	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:16:03	3.75	0.51	13.70	4.19	4.01	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:17:03	3.81	0.51	13.70	4.19	3.99	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:18:03	3.86	0.50	13.70	4.19	3.98	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:19:03	3.91	0.52	13.70	4.21	3.98	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:20:03	3.95	0.50	13.70	4.22	3.97	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:21:03	3.90	0.49	13.70	4.19	3.97	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:22:03	3.72	0.50	13.70	4.20	3.96	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:23:03	3.59	0.53	13.70	4.19	3.95	0.52	13.69	4.19
Run 1C-C-2c/1C-RA-6	4/18/03	9:24:03	3.51	0.50	13.70	4.19	3.93	0.52	13.69	4.19
END Run 1C-C-2c/1C-RA-6	4/18/03	9:25:03	3.45	0.54	13.70	4.20	**3.90**	**0.52**	**13.69**	**4.19**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

Run Number	Date	Time	NOx (ppmv)	CO (ppmv)	O2 (% vol)	CO2 (% vol)	AVE NOx (ppmv)	AVE CO (ppmv)	AVE O2 (% vol)	AVE CO2 (% vol)
START Run 1C-C-3a/1C-RA-7	4/18/03	9:41:01	3.52	0.54	13.70	4.19	3.52	0.54	13.70	4.19
Run 1C-C-3a/1C-RA-7	4/18/03	9:42:00	3.45	0.53	13.70	4.19	3.49	0.53	13.70	4.18
Run 1C-C-3a/1C-RA-7	4/18/03	9:43:00	3.45	0.53	13.70	4.17	3.46	0.53	13.70	4.18
Run 1C-C-3a/1C-RA-7	4/18/03	9:44:00	3.47	0.55	13.70	4.16	3.46	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:45:00	3.47	0.53	13.70	4.16	3.46	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:46:00	3.46	0.53	13.70	4.16	3.46	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:47:00	3.47	0.54	13.73	4.16	3.46	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:48:00	3.50	0.54	13.70	4.16	3.46	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:49:00	3.81	0.54	13.70	4.17	3.48	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:50:00	4.08	0.53	13.70	4.17	3.54	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:51:00	4.11	0.54	13.70	4.16	3.60	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:52:00	3.96	0.54	13.70	4.16	3.64	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:53:00	3.81	0.56	13.70	4.15	3.66	0.53	13.70	4.17
Run 1C-C-3a/1C-RA-7	4/18/03	9:54:00	3.69	0.55	13.73	4.16	3.66	0.53	13.70	4.16
Run 1C-C-3a/1C-RA-7	4/18/03	9:55:00	3.78	0.51	13.73	4.21	3.66	0.54	13.70	4.16
Run 1C-C-3a/1C-RA-7	4/18/03	9:56:00	3.69	0.55	13.73	4.14	3.67	0.54	13.70	4.16
Run 1C-C-3a/1C-RA-7	4/18/03	9:57:00	3.75	0.59	13.70	4.15	3.67	0.54	13.70	4.16
Run 1C-C-3a/1C-RA-7	4/18/03	9:58:00	3.77	0.54	13.70	4.13	3.67	0.54	13.70	4.16
Run 1C-C-3a/1C-RA-7	4/18/03	9:59:00	3.86	0.54	13.70	4.14	3.68	0.54	13.70	4.16
Run 1C-C-3a/1C-RA-7	4/18/03	10:00:00	3.75	0.52	13.70	4.14	3.69	0.54	13.70	4.16
Run 1C-C-3a/1C-RA-7	4/18/03	10:01:00	3.73	0.56	13.70	4.14	3.69	0.54	13.70	4.16
END Run 1C-C-3a/1C-RA-7	4/18/03	10:02:00	3.74	0.54	13.70	4.13	**3.69**	**0.54**	**13.70**	**4.16**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-3b/1C-RA-8	4/18/03	10:14:01	3.60	0.58	13.73	4.11	3.60	0.58	13.73	4.11
Run 1C-C-3b/1C-RA-8	4/18/03	10:15:01	3.54	0.59	13.73	4.11	3.57	0.58	13.73	4.11
Run 1C-C-3b/1C-RA-8	4/18/03	10:16:01	3.37	0.57	13.73	4.11	3.51	0.58	13.73	4.11
Run 1C-C-3b/1C-RA-8	4/18/03	10:17:01	3.55	0.55	13.73	4.13	3.49	0.57	13.73	4.11
Run 1C-C-3b/1C-RA-8	4/18/03	10:18:01	3.97	0.58	13.73	4.13	3.56	0.58	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:19:01	4.05	0.58	13.73	4.13	3.66	0.57	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:20:01	3.77	0.57	13.73	4.11	3.70	0.58	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:21:01	3.61	0.58	13.73	4.13	3.70	0.58	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:22:01	3.48	0.59	13.73	4.15	3.68	0.57	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:23:01	3.45	0.58	13.73	4.12	3.65	0.57	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:24:01	3.54	0.52	13.73	4.13	3.64	0.57	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:25:01	3.70	0.53	13.70	4.14	3.64	0.57	13.73	4.12
Run 1C-C-3b/1C-RA-8	4/18/03	10:26:01	3.85	0.55	13.73	4.12	3.65	0.57	13.72	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:27:01	3.90	0.55	13.73	4.16	3.67	0.57	13.72	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:28:01	3.88	0.56	13.73	4.16	3.69	0.56	13.72	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:29:01	3.57	0.56	13.73	4.16	3.69	0.56	13.73	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:30:01	3.45	0.54	13.73	4.13	3.67	0.56	13.73	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:31:01	3.39	0.56	13.73	4.16	3.66	0.56	13.73	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:32:01	3.54	0.50	13.73	4.16	3.65	0.56	13.73	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:33:00	3.93	0.49	13.73	4.16	3.65	0.56	13.73	4.13
Run 1C-C-3b/1C-RA-8	4/18/03	10:34:00	3.98	0.54	13.73	4.16	3.67	0.56	13.73	4.13
END Run 1C-C-3b/1C-RA-8	4/18/03	10:35:00	3.73	0.56	13.73	4.16	**3.68**	**0.56**	**13.73**	**4.14**

Tampa Electric Company - Bayside Power Station, Unit 1C, Logged Data Records

	Date	Time	NOx	CO	O2	CO2	AVE NOx	AVE CO	AVE O2	AVE CO2
Run Number			(ppmv)	(ppmv)	(% vol)	(% vol)	(ppmv)	(ppmv)	(% vol)	(% vol)
START Run 1C-C-3c/1C-RA-9	4/18/03	10:49:01	3.98	0.55	13.75	4.16	3.98	0.55	13.75	4.16
Run 1C-C-3c/1C-RA-9	4/18/03	10:50:01	3.77	0.55	13.73	4.14	3.86	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:51:01	3.61	0.53	13.73	4.13	3.76	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:52:01	3.54	0.55	13.73	4.14	3.70	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:53:01	3.45	0.52	13.73	4.16	3.64	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:54:01	3.57	0.55	13.73	4.15	3.61	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:55:01	3.73	0.53	13.75	4.13	3.62	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:56:01	3.89	0.54	13.73	4.14	3.65	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:57:01	4.01	0.54	13.75	4.13	3.69	0.54	13.73	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:58:01	3.87	0.56	13.75	4.13	3.72	0.54	13.74	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	10:59:01	3.53	0.52	13.75	4.14	3.71	0.55	13.74	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	11:00:01	3.40	0.54	13.75	4.13	3.69	0.55	13.74	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	11:01:01	3.40	0.57	13.73	4.13	3.67	0.55	13.74	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	11:02:01	3.63	0.53	13.73	4.13	3.65	0.54	13.74	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	11:03:01	3.92	0.54	13.75	4.12	3.66	0.54	13.74	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	11:04:01	4.02	0.58	13.75	4.11	3.69	0.55	13.74	4.14
Run 1C-C-3c/1C-RA-9	4/18/03	11:05:01	3.76	0.54	13.73	4.13	3.70	0.55	13.74	4.13
Run 1C-C-3c/1C-RA-9	4/18/03	11:06:01	3.60	0.55	13.75	4.11	3.70	0.55	13.73	4.13
Run 1C-C-3c/1C-RA-9	4/18/03	11:07:01	3.49	0.54	13.75	4.13	3.69	0.55	13.73	4.13
Run 1C-C-3c/1C-RA-9	4/18/03	11:08:01	3.49	0.57	13.73	4.11	3.68	0.55	13.73	4.13
Run 1C-C-3c/1C-RA-9	4/18/03	11:09:01	3.68	0.56	13.73	4.11	3.67	0.55	13.73	4.13
END Run 1C-C-3c/1C-RA-9	4/18/03	11:10:01	3.82	0.53	13.73	4.12	**3.68**	**0.55**	**13.73**	**4.13**

APPENDIX G:
OPERATIONAL DATA

UNIT 1A

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1A-C-1											
23-Apr-03 10:23:00	162.1	1133.4	20.3134	73.7	747.6	208.4	82.00	30.06	1.72	15.41	606.9
23-Apr-03 10:24:00	162.1	1133.4	20.3083	73.6	747.7	208.4	82.00	30.06	1.72	15.39	606.9
23-Apr-03 10:25:00	162.2	1133.4	20.3033	73.6	747.8	208.5	82.00	30.06	1.72	15.37	606.9
23-Apr-03 10:26:00	162.2	1133.5	20.2982	73.6	747.9	208.5	82.00	30.06	1.72	15.34	606.9
23-Apr-03 10:27:00	162.2	1133.5	20.2932	73.6	748.0	208.5	82.00	30.06	1.71	15.32	606.9
23-Apr-03 10:28:00	162.2	1133.6	20.2881	73.5	748.2	208.6	82.00	30.06	1.71	15.30	606.9
23-Apr-03 10:29:00	162.2	1133.6	20.2831	73.5	748.4	208.6	82.00	30.06	1.71	15.28	606.9
23-Apr-03 10:30:00	162.2	1133.6	20.2812	73.5	748.6	208.5	82.00	30.05	1.71	15.26	606.9
23-Apr-03 10:31:00	162.2	1133.7	20.2821	73.4	748.4	208.5	82.00	30.05	1.71	15.24	606.9
23-Apr-03 10:32:00	162.2	1133.7	20.2830	73.4	748.0	208.5	82.00	30.05	1.70	15.24	606.9
23-Apr-03 10:33:00	162.2	1133.8	20.2838	73.4	747.7	208.5	82.01	30.05	1.70	15.26	606.8
23-Apr-03 10:34:00	162.1	1133.8	20.2847	73.4	747.7	208.5	82.01	30.05	1.70	15.28	606.8
23-Apr-03 10:35:00	162.1	1133.8	20.2856	73.4	748.1	208.4	82.01	30.05	1.70	15.29	606.8
23-Apr-03 10:36:00	162.1	1133.9	20.2865	73.4	748.4	208.4	82.01	30.05	1.70	15.31	606.8
23-Apr-03 10:37:00	162.1	1133.9	20.2874	73.4	748.5	208.4	82.01	30.05	1.69	15.32	606.8
23-Apr-03 10:38:00	162.0	1134.0	20.2882	73.4	748.4	208.4	82.01	30.05	1.69	15.34	606.8
23-Apr-03 10:39:00	162.0	1134.0	20.2891	73.4	748.2	208.3	82.01	30.05	1.69	15.35	606.8
23-Apr-03 10:40:00	162.0	1134.1	20.2900	73.4	748.2	208.3	82.01	30.05	1.69	15.37	606.8
23-Apr-03 10:41:00	161.9	1134.1	20.2909	73.4	748.1	208.3	82.01	30.05	1.69	15.39	606.8
23-Apr-03 10:42:00	161.9	1134.1	20.2917	73.4	748.1	208.3	82.01	30.05	1.68	15.40	606.8
23-Apr-03 10:43:00	161.9	1134.2	20.2926	73.4	748.0	208.3	82.01	30.05	1.68	15.42	606.8
23-Apr-03 10:44:00	161.8	1134.2	20.2935	73.4	748.0	208.2	82.01	30.05	1.68	15.43	606.8
23-Apr-03 10:45:00	161.8	1134.3	20.2944	73.4	748.0	208.2	82.00	30.05	1.68	15.45	606.8
23-Apr-03 10:46:00	161.8	1134.3	20.2953	73.4	748.0	208.2	82.00	30.05	1.68	15.46	606.8
23-Apr-03 10:47:00	161.7	1134.3	20.2961	73.4	748.5	208.2	82.00	30.05	1.67	15.48	606.7
23-Apr-03 10:48:00	161.7	1134.4	20.2970	73.4	748.8	208.2	82.00	30.05	1.67	15.50	606.7
23-Apr-03 10:49:00	161.7	1134.4	20.2979	73.4	748.9	208.2	82.00	30.05	1.68	15.51	606.7
23-Apr-03 10:50:00	161.7	1134.4	20.2952	73.4	748.9	208.2	82.00	30.05	1.68	15.53	606.7
23-Apr-03 10:51:00	161.6	1134.5	20.2890	73.4	748.9	208.2	82.00	30.05	1.68	15.54	606.7
23-Apr-03 10:52:00	161.6	1134.5	20.2829	73.4	749.0	208.2	82.00	30.05	1.68	15.54	606.7
23-Apr-03 10:53:00	161.6	1134.5	20.2768	73.4	748.9	208.2	82.00	30.05	1.68	15.52	606.7
23-Apr-03 10:54:00	161.6	1134.5	20.2706	73.4	748.9	208.2	82.00	30.05	1.68	15.51	606.7
23-Apr-03 10:55:00	161.5	1134.5	20.2645	73.7	748.8	208.2	82.00	30.05	1.68	15.50	606.7
23-Apr-03 10:56:00	161.5	1134.5	20.2584	74.0	748.7	208.2	82.00	30.05	1.68	15.49	606.7
23-Apr-03 10:57:00	161.5	1134.5	20.2523	74.4	748.6	208.2	82.00	30.05	1.69	15.47	606.7
23-Apr-03 10:58:00	161.5	1134.6	20.2461	74.7	749.0	208.2	82.00	30.05	1.69	15.46	606.7
23-Apr-03 10:59:00	161.5	1134.6	20.2400	75.0	749.4	208.2	82.00	30.05	1.69	15.45	606.7
23-Apr-03 11:00:00	161.4	1134.6	20.2339	75.3	749.3	208.2	82.00	30.05	1.69	15.44	606.7
23-Apr-03 11:01:00	161.4	1134.6	20.2278	75.7	749.1	208.2	82.00	30.05	1.69	15.42	606.7
23-Apr-03 11:02:00	161.4	1134.6	20.2216	75.4	749.1	208.2	82.00	30.05	1.69	15.41	606.7
23-Apr-03 11:03:00	161.4	1134.6	20.2155	75.1	749.2	208.2	82.00	30.05	1.69	15.40	606.7
23-Apr-03 11:04:00	161.4	1134.6	20.2094	74.8	749.2	208.2	82.00	30.05	1.70	15.39	606.7
23-Apr-03 11:05:00	161.3	1134.7	20.2033	74.8	749.3	208.2	82.00	30.05	1.70	15.37	606.7
23-Apr-03 11:06:00	161.3	1134.7	20.1971	74.9	749.4	208.2	82.00	30.05	1.70	15.36	606.7
23-Apr-03 11:07:00	161.3	1134.7	20.1910	75.0	749.4	208.2	82.00	30.05	1.70	15.35	606.7
23-Apr-03 11:08:00	161.3	1134.7	20.1849	75.1	749.4	208.2	82.00	30.05	1.70	15.33	606.7
23-Apr-03 11:09:00	161.3	1134.7	20.1788	75.2	749.3	208.3	82.00	30.05	1.70	15.32	606.7

NH3 injection rate rescaled
after run 1A-C-3

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
23-Apr-03 11:10:00	161.2	1134.7	20.1726	75.3	749.3	208.3	82.00	30.05	1.70	15.31	606.7
23-Apr-03 11:11:00	161.2	1134.7	20.1665	75.3	749.2	208.3	82.00	30.05	1.70	15.30	606.7
23-Apr-03 11:12:00	161.2	1134.8	20.1604	75.4	749.1	208.3	82.00	30.05	1.71	15.28	606.7
23-Apr-03 11:13:00	161.2	1134.8	20.1543	75.5	749.2	208.3	82.00	30.05	1.70	15.29	606.7
23-Apr-03 11:14:00	161.1	1134.8	20.1481	75.6	749.3	208.3	82.00	30.05	1.70	15.34	606.7
23-Apr-03 11:15:00	161.1	1134.8	20.1423	75.7	749.5	208.4	82.00	30.05	1.70	15.39	606.7
23-Apr-03 11:16:00	161.1	1134.9	20.1420	75.7	749.6	208.4	82.00	30.05	1.70	15.43	606.7
23-Apr-03 11:17:00	161.1	1134.9	20.1417	75.8	749.7	208.4	82.00	30.05	1.70	15.48	606.7
23-Apr-03 11:18:00	161.0	1135.0	20.1414	75.8	749.7	208.4	82.00	30.05	1.69	15.53	606.7
23-Apr-03 11:19:00	161.0	1135.0	20.1412	75.9	749.6	208.4	82.00	30.05	1.69	15.58	606.7
23-Apr-03 11:20:00	161.0	1135.1	20.1409	75.9	749.9	208.5	82.00	30.05	1.69	15.63	606.7
23-Apr-03 11:21:00	160.9	1135.1	20.1406	76.0	750.1	208.5	82.00	30.05	1.69	15.68	606.6
23-Apr-03 11:22:00	160.9	1135.2	20.1403	76.0	750.4	208.5	82.00	30.05	1.69	15.73	606.6
23-Apr-03 11:23:00	160.9	1135.2	20.1400	76.1	750.3	208.5	82.00	30.05	1.68	15.78	606.6
23-Apr-03 11:24:00	160.9	1135.3	20.1398	76.1	750.2	208.5	82.00	30.05	1.68	15.83	606.6
23-Apr-03 11:25:00	160.8	1135.3	20.1395	76.2	750.2	208.5	82.00	30.05	1.68	15.88	606.6
23-Apr-03 11:26:00	160.8	1135.4	20.1392	76.2	750.1	208.6	82.00	30.05	1.68	15.92	606.6
23-Apr-03 11:27:00	160.8	1135.4	20.1389	76.3	750.2	208.6	82.00	30.05	1.68	15.97	606.6
23-Apr-03 11:28:00	160.7	1135.5	20.1386	76.2	750.2	208.6	82.00	30.05	1.68	16.02	606.6
23-Apr-03 11:29:00	160.7	1135.5	20.1383	75.9	750.3	208.6	82.00	30.05	1.67	16.07	606.6
23-Apr-03 11:30:00	160.7	1135.6	20.1381	75.6	750.3	208.6	82.00	30.05	1.67	16.12	606.6
23-Apr-03 11:31:00	160.7	1135.6	20.1378	75.3	750.4	208.5	82.00	30.05	1.67	16.17	606.6
23-Apr-03 11:32:00	160.7	1135.7	20.1375	75.1	750.4	208.5	82.00	30.05	1.67	16.22	606.6
23-Apr-03 11:33:00	160.7	1135.7	20.1372	75.0	750.3	208.5	82.00	30.05	1.67	16.24	606.6
23-Apr-03 11:34:00	160.7	1135.8	20.1369	74.8	750.2	208.4	82.00	30.05	1.66	16.24	606.6
23-Apr-03 11:35:00	160.7	1135.8	20.1367	75.5	750.7	208.4	82.00	30.05	1.66	16.23	606.6
23-Apr-03 11:36:00	160.7	1135.9	20.1364	75.7	750.6	208.4	82.00	30.05	1.66	16.22	606.6
23-Apr-03 11:37:00	160.8	1135.9	20.1361	75.5	750.5	208.4	82.00	30.05	1.66	16.22	606.6
23-Apr-03 11:38:00	160.8	1136.0	20.1358	75.4	750.3	208.3	82.00	30.05	1.66	16.21	606.6
23-Apr-03 11:39:00	160.8	1136.1	20.1380	75.2	750.2	208.3	82.00	30.05	1.66	16.20	606.6
23-Apr-03 11:40:00	160.8	1136.1	20.1413	75.2	750.5	208.3	82.00	30.05	1.66	16.20	606.6
23-Apr-03 11:41:00	160.9	1136.1	20.1447	75.2	751.2	208.2	82.00	30.05	1.66	16.19	606.6
23-Apr-03 11:42:00	160.9	1136.1	20.1481	75.3	750.9	208.2	82.00	30.05	1.67	16.18	606.6
23-Apr-03 11:43:00	160.9	1136.1	20.1515	75.3	750.6	208.2	82.00	30.05	1.67	16.18	606.5
23-Apr-03 11:44:00	160.9	1136.1	20.1549	75.3	750.3	208.2	82.00	30.05	1.67	16.17	606.5
23-Apr-03 11:45:00	160.9	1136.1	20.1583	75.3	750.2	208.1	82.00	30.05	1.67	16.16	606.5
23-Apr-03 11:46:00	161.0	1136.1	20.1616	75.3	750.2	208.1	82.00	30.05	1.68	16.16	606.5
23-Apr-03 11:47:00	161.0	1136.1	20.1650	75.3	750.2	208.1	82.00	30.05	1.68	16.15	606.5
23-Apr-03 11:48:00	161.0	1136.1	20.1684	75.2	750.2	208.0	82.00	30.05	1.68	16.14	606.5
23-Apr-03 11:49:00	161.0	1136.1	20.1718	75.3	750.2	208.0	82.00	30.05	1.68	16.14	606.5
Averages:	**161.4**	**1134.8**	**20.2122**	**74.7**	**749.3**	**208.3**	**82.00**	**30.05**	**1.69**	**15.63**	**606.7**

NH3 injection rate rescaled
after run 1A-C-3

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1A-C-2											
23-Apr-03 12:12:00	160.0	1136.2	20.1696	76.1	751.3	207.5	82.00	30.04	1.67	16.03	606.6
23-Apr-03 12:13:00	160.0	1136.3	20.1684	76.2	751.6	207.5	82.00	30.04	1.67	16.02	606.6
23-Apr-03 12:14:00	160.1	1136.3	20.1672	76.2	752.0	207.5	82.00	30.04	1.67	16.01	606.6
23-Apr-03 12:15:00	160.1	1136.3	20.1657	76.3	752.2	207.6	82.00	30.04	1.67	15.98	606.6
23-Apr-03 12:16:00	160.1	1136.3	20.1636	76.4	752.5	207.6	82.00	30.04	1.66	15.95	606.5
23-Apr-03 12:17:00	160.1	1136.4	20.1616	76.4	752.7	207.6	82.00	30.04	1.67	15.91	606.5
23-Apr-03 12:18:00	160.1	1136.4	20.1596	76.5	752.9	207.6	82.00	30.04	1.67	15.88	606.5
23-Apr-03 12:19:00	160.1	1136.4	20.1575	76.5	753.2	207.6	82.00	30.04	1.67	15.85	606.5
23-Apr-03 12:20:00	160.1	1136.4	20.1555	76.6	753.1	207.6	82.00	30.04	1.67	15.82	606.5
23-Apr-03 12:21:00	160.2	1136.5	20.1535	76.6	752.2	207.6	82.00	30.04	1.67	15.79	606.5
23-Apr-03 12:22:00	160.2	1136.5	20.1515	76.7	752.1	207.7	82.00	30.04	1.68	15.76	606.5
23-Apr-03 12:23:00	160.2	1136.5	20.1494	76.7	752.3	207.7	82.00	30.04	1.68	15.72	606.5
23-Apr-03 12:24:00	160.2	1136.5	20.1474	76.7	752.5	207.7	82.00	30.04	1.68	15.69	606.5
23-Apr-03 12:25:00	160.2	1136.6	20.1454	76.7	752.3	207.7	82.00	30.04	1.68	15.66	606.5
23-Apr-03 12:26:00	160.2	1136.6	20.1433	76.6	751.7	207.7	82.00	30.04	1.68	15.63	606.5
23-Apr-03 12:27:00	160.3	1136.6	20.1413	76.5	751.4	207.7	82.00	30.04	1.68	15.60	606.4
23-Apr-03 12:28:00	160.3	1136.7	20.1393	76.5	751.7	207.7	82.00	30.04	1.67	15.57	606.4
23-Apr-03 12:29:00	160.3	1136.7	20.1372	76.4	752.0	207.8	82.00	30.04	1.67	15.53	606.4
23-Apr-03 12:30:00	160.3	1136.7	20.1352	76.4	752.3	207.7	82.00	30.04	1.67	15.50	606.4
23-Apr-03 12:31:00	160.3	1136.7	20.1332	76.3	752.6	207.7	82.00	30.04	1.67	15.47	606.4
23-Apr-03 12:32:00	160.3	1136.7	20.1311	76.6	752.9	207.6	82.00	30.04	1.67	15.44	606.4
23-Apr-03 12:33:00	160.3	1136.7	20.1291	76.9	753.3	207.5	82.00	30.04	1.67	15.41	606.4
23-Apr-03 12:34:00	160.3	1136.7	20.1271	77.3	753.6	207.5	82.00	30.04	1.67	15.39	606.4
23-Apr-03 12:35:00	160.3	1136.7	20.1253	77.6	753.9	207.4	82.00	30.04	1.67	15.39	606.4
23-Apr-03 12:36:00	160.3	1136.7	20.1241	77.9	754.1	207.3	82.00	30.04	1.67	15.38	606.4
23-Apr-03 12:37:00	160.2	1136.7	20.1229	77.9	753.2	207.3	82.01	30.04	1.67	15.38	606.4
23-Apr-03 12:38:00	160.2	1136.7	20.1216	77.8	752.3	207.2	82.01	30.04	1.67	15.38	606.4
23-Apr-03 12:39:00	160.2	1136.7	20.1204	77.7	752.4	207.2	82.01	30.04	1.67	15.38	606.3
23-Apr-03 12:40:00	160.2	1136.7	20.1191	77.7	752.6	207.1	82.01	30.04	1.67	15.38	606.3
23-Apr-03 12:41:00	160.2	1136.6	20.1179	77.6	752.7	207.0	82.00	30.04	1.67	15.37	606.3
23-Apr-03 12:42:00	160.2	1136.6	20.1166	77.5	752.9	207.0	82.00	30.04	1.67	15.37	606.3
23-Apr-03 12:43:00	160.2	1136.6	20.1154	77.5	753.0	206.9	82.00	30.04	1.67	15.37	606.3
23-Apr-03 12:44:00	160.1	1136.6	20.1141	77.5	753.2	206.8	82.00	30.04	1.67	15.37	606.3
23-Apr-03 12:45:00	160.1	1136.6	20.1129	77.5	753.3	206.8	82.00	30.04	1.68	15.37	606.3
23-Apr-03 12:46:00	160.1	1136.6	20.1116	77.5	753.4	206.7	82.00	30.04	1.68	15.36	606.3
23-Apr-03 12:47:00	160.1	1136.6	20.1104	77.6	753.5	206.6	82.00	30.04	1.68	15.36	606.3
23-Apr-03 12:48:00	160.1	1136.6	20.1091	77.6	753.6	206.6	82.00	30.04	1.68	15.36	606.3
23-Apr-03 12:49:00	160.1	1136.6	20.1079	77.6	753.7	206.5	82.00	30.04	1.69	15.36	606.3
23-Apr-03 12:50:00	160.1	1136.6	20.1066	77.6	753.7	206.5	82.00	30.04	1.70	15.36	606.3
23-Apr-03 12:51:00	160.0	1136.6	20.1054	77.6	753.8	206.5	82.00	30.04	1.70	15.35	606.3
23-Apr-03 12:52:00	160.0	1136.6	20.1041	77.7	753.7	206.5	82.00	30.04	1.71	15.35	606.3
23-Apr-03 12:53:00	159.9	1136.6	20.1029	77.7	753.6	206.5	82.00	30.04	1.72	15.35	606.2
23-Apr-03 12:54:00	159.9	1136.6	20.1016	77.7	753.5	206.5	82.00	30.04	1.72	15.35	606.2
23-Apr-03 12:55:00	159.8	1136.6	20.1002	77.7	753.4	206.6	82.00	30.04	1.73	15.34	606.2
23-Apr-03 12:56:00	159.8	1136.6	20.0978	77.7	753.3	206.6	82.00	30.04	1.74	15.34	606.2
23-Apr-03 12:57:00	159.7	1136.6	20.0953	77.7	753.2	206.6	82.00	30.04	1.74	15.34	606.2
23-Apr-03 12:58:00	159.6	1136.7	20.0928	77.7	753.1	206.6	82.00	30.04	1.73	15.34	606.2

NH3 injection rate rescaled
after run 1A-C-3

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
23-Apr-03 12:59:00	159.6	1136.8	20.0904	77.7	753.4	206.6	81.99	30.04	1.73	15.34	606.2
23-Apr-03 13:00:00	159.5	1136.8	20.0879	77.7	753.7	206.6	81.99	30.04	1.73	15.37	606.2
23-Apr-03 13:01:00	159.5	1136.9	20.0854	77.7	753.3	206.7	81.99	30.04	1.73	15.40	606.2
23-Apr-03 13:02:00	159.4	1136.9	20.0830	77.7	753.3	206.7	81.99	30.04	1.72	15.44	606.2
23-Apr-03 13:03:00	159.3	1137.0	20.0805	77.7	753.4	206.7	81.99	30.04	1.72	15.47	606.2
23-Apr-03 13:04:00	159.3	1137.1	20.0781	77.7	753.9	206.7	81.99	30.04	1.72	15.50	606.2
23-Apr-03 13:05:00	159.2	1137.1	20.0756	77.8	754.6	206.7	81.99	30.04	1.72	15.53	606.2
23-Apr-03 13:06:00	159.1	1137.2	20.0731	77.8	755.2	206.7	81.99	30.04	1.71	15.56	606.2
23-Apr-03 13:07:00	159.1	1137.2	20.0707	77.9	755.8	206.7	81.99	30.03	1.71	15.59	606.1
23-Apr-03 13:08:00	159.0	1137.3	20.0682	77.9	755.7	206.8	81.99	30.03	1.71	15.62	606.1
23-Apr-03 13:09:00	159.0	1137.4	20.0657	78.0	755.4	206.8	81.99	30.03	1.70	15.65	606.1
23-Apr-03 13:10:00	158.9	1137.4	20.0633	78.0	755.1	206.8	81.99	30.03	1.70	15.68	606.1
23-Apr-03 13:11:00	158.8	1137.5	20.0608	78.1	754.9	206.7	81.99	30.03	1.70	15.71	606.1
23-Apr-03 13:12:00	158.8	1137.5	20.0583	78.1	754.9	206.7	81.99	30.03	1.70	15.74	606.1
23-Apr-03 13:13:00	158.8	1137.6	20.0559	78.2	754.8	206.7	81.99	30.03	1.70	15.78	606.1
23-Apr-03 13:14:00	158.8	1137.6	20.0534	78.2	754.7	206.6	81.99	30.03	1.70	15.81	606.1
23-Apr-03 13:15:00	158.8	1137.7	20.0505	78.3	754.6	206.6	81.99	30.03	1.70	15.84	606.1
23-Apr-03 13:16:00	158.8	1137.8	20.0419	78.5	754.5	206.5	81.99	30.03	1.70	15.87	606.1
23-Apr-03 13:17:00	158.7	1137.8	20.0332	78.7	754.8	206.5	81.99	30.03	1.69	15.90	606.1
23-Apr-03 13:18:00	158.7	1137.9	20.0245	78.9	755.1	206.5	81.99	30.03	1.69	15.93	606.1
23-Apr-03 13:19:00	158.7	1137.9	20.0159	79.0	755.4	206.4	82.00	30.03	1.69	15.96	606.1
23-Apr-03 13:20:00	158.7	1138.0	20.0072	79.0	755.2	206.4	82.00	30.03	1.69	15.99	606.1
23-Apr-03 13:21:00	158.7	1138.0	19.9985	79.0	754.8	206.4	82.00	30.03	1.69	16.02	606.0
23-Apr-03 13:22:00	158.7	1138.1	19.9899	79.1	754.5	206.3	82.00	30.03	1.69	16.01	606.0
23-Apr-03 13:23:00	158.7	1138.1	19.9812	79.1	754.2	206.3	82.00	30.03	1.69	16.01	606.0
23-Apr-03 13:24:00	158.7	1138.2	19.9726	79.2	754.4	206.3	82.00	30.03	1.69	16.01	606.0
23-Apr-03 13:25:00	158.7	1138.2	19.9639	79.2	754.5	206.2	82.00	30.03	1.69	16.00	606.0
23-Apr-03 13:26:00	158.7	1138.2	19.9552	79.3	755.0	206.2	82.00	30.03	1.69	16.00	606.0
23-Apr-03 13:27:00	158.7	1138.3	19.9466	79.3	755.1	206.1	82.00	30.03	1.69	15.99	606.0
23-Apr-03 13:28:00	158.7	1138.3	19.9379	79.4	755.0	206.1	82.00	30.03	1.69	15.99	606.0
23-Apr-03 13:29:00	158.7	1138.3	19.9292	79.4	755.0	206.1	82.00	30.03	1.69	15.99	606.0
23-Apr-03 13:30:00	158.6	1138.4	19.9206	79.5	755.4	206.0	82.00	30.03	1.69	15.98	606.0
23-Apr-03 13:31:00	158.6	1138.4	19.9119	79.5	755.8	206.0	82.00	30.03	1.69	15.98	606.0
23-Apr-03 13:32:00	158.6	1138.5	19.9032	79.6	756.1	206.0	82.00	30.03	1.69	15.97	606.0
23-Apr-03 13:33:00	158.6	1138.5	19.8946	79.6	756.4	206.0	82.00	30.03	1.69	15.97	606.0
23-Apr-03 13:34:00	158.7	1138.5	19.8859	79.7	756.6	206.0	82.00	30.03	1.69	15.97	606.0
23-Apr-03 13:35:00	158.7	1138.6	19.8772	79.7	756.0	206.0	82.00	30.03	1.69	15.96	605.9
23-Apr-03 13:36:00	158.7	1138.6	19.8686	79.8	755.3	205.9	82.00	30.03	1.70	15.96	605.9
23-Apr-03 13:37:00	158.7	1138.6	19.8599	79.8	755.6	205.9	82.00	30.03	1.70	15.96	605.9
23-Apr-03 13:38:00	158.7	1138.7	19.8512	79.8	755.9	205.9	82.00	30.03	1.70	15.95	605.9
23-Apr-03 13:39:00	158.7	1138.7	19.8426	79.9	756.2	205.9	82.00	30.03	1.71	15.95	605.9
23-Apr-03 13:40:00	158.7	1138.8	19.8373	79.9	756.4	205.9	82.00	30.03	1.71	15.94	605.9
23-Apr-03 13:41:00	158.7	1138.8	19.8443	79.8	756.3	205.9	82.00	30.02	1.72	15.94	605.9
23-Apr-03 13:42:00	158.7	1138.8	19.8513	79.8	756.1	205.8	82.00	30.02	1.72	15.93	605.8
23-Apr-03 13:43:00	158.7	1138.9	19.8583	79.7	756.9	205.8	82.00	30.02	1.72	15.92	605.8
23-Apr-03 13:44:00	158.7	1138.9	19.8653	79.7	756.5	205.8	82.00	30.02	1.73	15.91	605.8
Averages:	**159.5**	**1137.3**	**20.0555**	**78.0**	**754.0**	**206.8**	**82.00**	**30.04**	**1.69**	**15.68**	**606.2**

NH3 injection rate rescaled
after run 1A-C-3

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1A-C-3											
23-Apr-03 13:55:00	158.7	1139.1	19.9425	79.4	755.0	205.6	82.01	30.02	1.79	15.78	605.7
23-Apr-03 13:56:00	158.7	1139.1	19.9495	79.4	755.0	205.6	82.01	30.02	1.80	15.77	605.7
23-Apr-03 13:57:00	158.6	1139.1	19.9565	79.4	755.1	205.6	82.01	30.02	1.79	15.76	605.7
23-Apr-03 13:58:00	158.6	1139.1	19.9635	79.4	755.1	205.6	82.01	30.02	1.77	15.75	605.7
23-Apr-03 13:59:00	158.6	1139.1	19.9705	79.4	755.1	205.6	82.01	30.02	1.76	15.74	605.6
23-Apr-03 14:00:00	158.5	1139.1	19.9776	79.4	755.2	205.6	82.01	30.02	1.73	15.73	605.6
23-Apr-03 14:01:00	158.5	1139.1	19.9846	79.4	755.2	205.6	82.01	30.02	1.71	15.71	605.6
23-Apr-03 14:02:00	158.5	1139.1	19.9885	79.4	754.7	205.5	82.01	30.02	1.71	15.70	605.6
23-Apr-03 14:03:00	158.4	1139.1	19.9847	79.5	754.9	205.5	82.01	30.02	1.72	15.67	605.6
23-Apr-03 14:04:00	158.4	1139.1	19.9808	79.5	755.2	205.5	82.00	30.02	1.73	15.54	605.6
23-Apr-03 14:05:00	158.4	1139.1	19.9770	79.5	755.4	205.5	82.00	30.02	1.74	15.41	605.6
23-Apr-03 14:06:00	158.3	1139.2	19.9731	79.5	755.4	205.5	82.00	30.02	1.75	15.28	605.6
23-Apr-03 14:07:00	158.3	1139.2	19.9693	79.5	755.4	205.5	82.00	30.02	1.76	15.15	605.6
23-Apr-03 14:08:00	158.3	1139.2	19.9654	79.5	755.5	205.5	82.00	30.02	1.76	15.02	605.6
23-Apr-03 14:09:00	158.2	1139.2	19.9616	79.5	755.5	205.4	82.00	30.01	1.76	14.89	605.6
23-Apr-03 14:10:00	158.2	1139.2	19.9577	79.6	755.5	205.4	82.00	30.01	1.77	14.76	605.6
23-Apr-03 14:11:00	158.2	1139.2	19.9539	79.6	755.5	205.4	82.00	30.01	1.77	14.64	605.6
23-Apr-03 14:12:00	158.1	1139.2	19.9501	79.6	755.5	205.4	82.00	30.01	1.78	14.51	605.6
23-Apr-03 14:13:00	158.1	1139.3	19.9462	79.6	755.4	205.4	82.00	30.01	1.78	14.38	605.6
23-Apr-03 14:14:00	158.1	1139.3	19.9424	79.6	755.3	205.4	82.00	30.01	1.78	14.25	605.6
23-Apr-03 14:15:00	158.0	1139.3	19.9385	79.6	755.3	205.4	82.00	30.01	1.78	14.12	605.6
23-Apr-03 14:16:00	158.0	1139.4	19.9347	79.6	755.3	205.3	82.00	30.01	1.78	13.99	605.6
23-Apr-03 14:17:00	158.0	1139.4	19.9308	79.7	755.3	205.3	82.00	30.01	1.77	13.86	605.6
23-Apr-03 14:18:00	158.0	1139.4	19.9270	79.7	755.3	205.3	82.00	30.01	1.77	13.73	605.6
23-Apr-03 14:19:00	157.9	1139.5	19.9231	79.8	755.3	205.3	82.00	30.01	1.77	13.60	605.6
23-Apr-03 14:20:00	157.9	1139.5	19.9193	79.8	755.2	205.3	82.00	30.01	1.76	13.47	605.6
23-Apr-03 14:21:00	157.9	1139.5	19.9154	79.9	756.2	205.2	82.00	30.01	1.76	13.34	605.6
23-Apr-03 14:22:00	157.9	1139.6	19.9113	79.9	756.1	205.2	82.00	30.01	1.75	13.21	605.6
23-Apr-03 14:23:00	157.8	1139.6	19.9064	79.9	756.0	205.2	82.00	30.01	1.75	13.08	605.6
23-Apr-03 14:24:00	157.8	1139.6	19.9016	80.0	755.9	205.2	82.00	30.01	1.75	12.95	605.6
23-Apr-03 14:25:00	157.8	1139.7	19.8967	80.0	755.8	205.2	82.00	30.01	1.74	12.86	605.6
23-Apr-03 14:26:00	157.8	1139.7	19.8918	80.1	755.7	205.1	82.00	30.01	1.74	12.81	605.5
23-Apr-03 14:27:00	157.7	1139.7	19.8869	80.1	755.6	205.1	82.00	30.01	1.77	12.77	605.5
23-Apr-03 14:28:00	157.7	1139.8	19.8821	80.2	755.7	205.1	82.00	30.01	1.79	12.72	605.5
23-Apr-03 14:29:00	157.7	1139.8	19.8772	80.2	755.7	205.1	82.00	30.01	1.81	12.68	605.5
23-Apr-03 14:30:00	157.7	1139.9	19.8723	80.3	755.7	205.1	82.00	30.01	1.83	12.64	605.5
23-Apr-03 14:31:00	157.6	1139.9	19.8674	80.3	755.7	205.1	82.00	30.01	1.82	12.59	605.5
23-Apr-03 14:32:00	157.6	1139.9	19.8625	80.3	755.7	205.0	82.00	30.01	1.81	12.55	605.5
23-Apr-03 14:33:00	157.6	1140.0	19.8577	80.4	755.7	205.0	82.00	30.01	1.80	12.50	605.5
23-Apr-03 14:34:00	157.6	1140.0	19.8528	80.4	755.7	205.0	82.00	30.01	1.79	12.46	605.5
23-Apr-03 14:35:00	157.6	1140.0	19.8479	80.5	755.5	205.0	82.00	30.01	1.78	12.41	605.5
23-Apr-03 14:36:00	157.6	1140.1	19.8430	80.5	755.4	205.0	82.00	30.01	1.78	12.37	605.5
23-Apr-03 14:37:00	157.5	1140.1	19.8382	80.6	755.3	205.0	82.00	30.01	1.79	12.32	605.5
23-Apr-03 14:38:00	157.5	1140.1	19.8333	80.6	755.2	205.0	82.00	30.01	1.80	12.28	605.5
23-Apr-03 14:39:00	157.5	1140.1	19.8284	80.7	755.6	205.0	82.00	30.01	1.81	12.24	605.5
23-Apr-03 14:40:00	157.5	1140.0	19.8235	80.7	756.0	205.0	82.00	30.01	1.82	12.19	605.4
23-Apr-03 14:41:00	157.5	1140.0	19.8187	80.7	756.3	205.0	82.00	30.01	1.83	12.15	605.4

NH3 injection rate rescaled
after run 1A-C-3

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
23-Apr-03 14:42:00	157.5	1140.0	19.8138	80.8	756.7	205.0	82.00	30.00	1.84	12.10	605.4
23-Apr-03 14:43:00	157.4	1140.0	19.8089	80.8	756.8	205.0	82.00	30.00	1.85	12.06	605.4
23-Apr-03 14:44:00	157.4	1140.0	19.8040	80.8	756.7	205.0	82.00	30.00	1.85	12.01	605.4
23-Apr-03 14:45:00	157.4	1140.0	19.8026	80.8	756.7	205.0	82.00	30.00	1.84	11.97	605.4
23-Apr-03 14:46:00	157.4	1140.0	19.8023	80.9	756.6	205.0	82.00	30.00	1.83	11.92	605.4
23-Apr-03 14:47:00	157.4	1140.0	19.8021	80.9	756.6	205.0	82.00	30.00	1.82	11.88	605.4
23-Apr-03 14:48:00	157.4	1140.0	19.8018	80.9	756.6	205.0	82.00	30.00	1.81	11.84	605.4
23-Apr-03 14:49:00	157.3	1140.0	19.8015	80.9	756.7	205.0	82.00	30.00	1.80	11.79	605.4
23-Apr-03 14:50:00	157.3	1140.0	19.8012	80.9	756.7	205.0	82.00	30.00	1.79	11.86	605.4
23-Apr-03 14:51:00	157.3	1140.0	19.8010	81.0	756.7	204.9	82.00	30.00	1.78	11.92	605.3
23-Apr-03 14:52:00	157.3	1139.9	19.8007	81.0	756.7	204.9	82.00	30.00	1.77	11.99	605.3
23-Apr-03 14:53:00	157.3	1139.9	19.8004	81.0	756.8	204.9	82.00	30.00	1.78	12.06	605.3
23-Apr-03 14:54:00	157.3	1139.9	19.8001	81.0	756.8	204.9	82.00	30.00	1.78	12.13	605.3
23-Apr-03 14:55:00	157.4	1139.9	19.7999	81.1	756.8	204.9	82.00	30.00	1.79	12.20	605.3
23-Apr-03 14:56:00	157.4	1139.9	19.7996	81.1	756.8	204.9	82.00	30.00	1.80	12.27	605.3
23-Apr-03 14:57:00	157.4	1139.9	19.7993	81.1	756.8	204.9	82.00	30.00	1.80	12.33	605.3
23-Apr-03 14:58:00	157.5	1139.9	19.7990	81.1	756.7	204.9	82.00	30.00	1.81	12.40	605.3
23-Apr-03 14:59:00	157.5	1139.9	19.7988	81.1	756.6	204.9	82.00	30.00	1.81	12.47	605.3
23-Apr-03 15:00:00	157.5	1139.9	19.7985	81.0	756.6	204.9	82.00	29.99	1.82	12.54	605.3
23-Apr-03 15:01:00	157.5	1139.9	19.7982	81.0	756.7	204.9	82.00	29.99	1.80	12.61	605.3
23-Apr-03 15:02:00	157.6	1139.8	19.7979	81.0	756.8	204.9	82.00	29.99	1.77	12.67	605.3
23-Apr-03 15:03:00	157.6	1139.8	19.7977	81.0	756.8	204.9	82.00	29.99	1.75	12.74	605.3
23-Apr-03 15:04:00	157.6	1139.8	19.7974	81.0	756.9	204.9	82.00	29.99	1.73	12.81	605.3
23-Apr-03 15:05:00	157.7	1139.8	19.8013	81.0	756.6	204.9	82.00	29.99	1.73	12.88	605.3
23-Apr-03 15:06:00	157.7	1139.8	19.8067	81.0	756.1	204.9	82.00	29.99	1.74	12.83	605.3
23-Apr-03 15:07:00	157.7	1139.8	19.8120	81.0	756.2	204.9	82.00	29.99	1.76	12.75	605.3
23-Apr-03 15:08:00	157.7	1139.7	19.8174	81.1	756.2	204.9	82.00	29.99	1.77	12.67	605.3
23-Apr-03 15:09:00	157.8	1139.7	19.8228	81.2	756.3	204.9	82.00	29.99	1.78	12.59	605.3
23-Apr-03 15:10:00	157.8	1139.7	19.8282	81.3	756.5	204.9	82.00	29.99	1.80	12.51	605.3
23-Apr-03 15:11:00	157.8	1139.7	19.8336	81.4	757.0	204.9	82.00	29.99	1.81	12.43	605.3
23-Apr-03 15:12:00	157.9	1139.7	19.8390	81.5	757.5	204.9	82.00	29.99	1.82	12.35	605.3
23-Apr-03 15:13:00	157.8	1139.6	19.8444	81.6	758.0	204.9	82.00	29.99	1.79	12.27	605.3
23-Apr-03 15:14:00	157.7	1139.6	19.8498	81.7	758.3	204.9	82.00	29.99	1.76	12.19	605.3
23-Apr-03 15:15:00	157.7	1139.6	19.8551	81.7	758.0	204.9	82.00	29.99	1.74	12.11	605.3
23-Apr-03 15:16:00	157.6	1139.6	19.8605	81.6	757.8	204.9	82.00	29.99	1.71	12.03	605.3
23-Apr-03 15:17:00	157.6	1139.6	19.8659	81.5	757.6	205.0	82.00	29.99	1.68	11.95	605.3
23-Apr-03 15:18:00	157.5	1139.5	19.8713	81.4	757.4	205.0	82.00	29.99	1.66	11.86	605.3
23-Apr-03 15:19:00	157.4	1139.5	19.8767	81.4	757.1	205.0	82.00	29.99	1.65	11.78	605.3
Averages:	**157.8**	**1139.6**	**19.8717**	**80.4**	**756.1**	**205.1**	**82.00**	**30.01**	**1.78**	**13.17**	**605.5**

NH3 injection rate rescaled
after run 1A-C-3

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1A-NH3-4											
23-Apr-03 17:41:00	156.9	1139.7	19.9032	81.0	757.4	204.8	82.00	29.99	1.72	6.11	605.2
23-Apr-03 17:42:00	156.9	1139.7	19.9036	80.9	757.2	204.9	82.00	29.99	1.72	6.13	605.2
23-Apr-03 17:43:00	156.9	1139.7	19.9040	80.9	756.9	204.9	82.00	29.99	1.73	6.14	605.2
23-Apr-03 17:44:00	157.0	1139.7	19.9044	80.9	756.6	204.9	82.00	29.99	1.73	6.16	605.2
23-Apr-03 17:45:00	157.0	1139.8	19.9048	80.9	756.4	205.0	82.00	29.99	1.73	6.18	605.2
23-Apr-03 17:46:00	157.0	1139.8	19.9066	80.8	756.2	205.0	82.00	29.99	1.72	6.19	605.2
23-Apr-03 17:47:00	157.0	1139.8	19.9104	80.8	756.4	205.0	82.00	29.99	1.72	6.21	605.2
23-Apr-03 17:48:00	157.0	1139.8	19.9141	80.8	756.6	205.1	82.00	29.99	1.72	6.23	605.2
23-Apr-03 17:49:00	157.1	1139.9	19.9179	80.7	756.8	205.1	82.00	29.99	1.72	6.26	605.2
23-Apr-03 17:50:00	157.1	1139.9	19.9217	80.7	757.0	205.1	82.00	29.99	1.72	6.29	605.2
23-Apr-03 17:51:00	157.1	1139.9	19.9254	80.7	757.0	205.2	82.00	29.99	1.72	6.33	605.2
23-Apr-03 17:52:00	157.1	1139.9	19.9292	80.7	757.0	205.2	82.00	29.99	1.71	6.36	605.2
23-Apr-03 17:53:00	157.2	1139.9	19.9330	80.6	757.0	205.2	82.00	29.99	1.71	6.39	605.2
23-Apr-03 17:54:00	157.2	1139.9	19.9367	80.6	757.1	205.3	82.00	29.99	1.71	6.43	605.2
23-Apr-03 17:55:00	157.3	1139.8	19.9405	80.6	757.3	205.3	82.00	29.99	1.71	6.46	605.2
23-Apr-03 17:56:00	157.3	1139.8	19.9442	80.5	757.3	205.3	82.00	29.99	1.71	6.50	605.2
23-Apr-03 17:57:00	157.4	1139.7	19.9480	80.5	757.3	205.3	82.00	29.99	1.70	6.53	605.2
23-Apr-03 17:58:00	157.4	1139.7	19.9518	80.5	757.3	205.3	82.00	29.99	1.70	6.56	605.2
23-Apr-03 17:59:00	157.5	1139.7	19.9555	80.4	757.3	205.4	82.00	29.99	1.70	6.60	605.2
23-Apr-03 18:00:00	157.5	1139.6	19.9593	80.4	757.3	205.4	82.00	29.99	1.70	6.63	605.2
23-Apr-03 18:01:00	157.6	1139.6	19.9630	80.4	757.3	205.4	82.00	29.99	1.70	6.67	605.2
23-Apr-03 18:02:00	157.6	1139.5	19.9668	80.4	757.3	205.4	82.00	29.99	1.70	6.70	605.2
23-Apr-03 18:03:00	157.7	1139.5	19.9706	80.3	757.3	205.4	82.00	29.99	1.69	6.73	605.2
23-Apr-03 18:04:00	157.7	1139.5	19.9743	80.3	757.3	205.4	82.00	29.99	1.69	6.77	605.2
23-Apr-03 18:05:00	157.8	1139.4	19.9781	80.3	757.3	205.5	82.00	29.99	1.69	6.80	605.2
23-Apr-03 18:06:00	157.8	1139.4	19.9818	80.3	757.3	205.5	82.00	29.99	1.69	6.84	605.2
23-Apr-03 18:07:00	157.9	1139.3	19.9856	80.2	757.3	205.5	82.00	29.99	1.69	6.87	605.2
23-Apr-03 18:08:00	157.9	1139.3	19.9894	80.2	757.1	205.5	82.00	30.00	1.68	6.90	605.2
23-Apr-03 18:09:00	157.9	1139.3	19.9931	80.2	756.9	205.5	82.00	30.00	1.68	6.92	605.2
23-Apr-03 18:10:00	158.0	1139.2	19.9969	80.2	756.7	205.6	82.00	30.00	1.68	6.94	605.2
23-Apr-03 18:11:00	158.0	1139.2	20.0005	80.2	756.5	205.6	82.00	30.00	1.68	6.97	605.2
23-Apr-03 18:12:00	158.1	1139.1	19.9979	80.2	756.3	205.6	82.00	30.00	1.68	6.99	605.2
23-Apr-03 18:13:00	158.1	1139.1	19.9953	80.1	756.2	205.6	82.00	30.00	1.68	7.02	605.2
23-Apr-03 18:14:00	158.1	1139.1	19.9928	80.1	756.2	205.6	82.00	30.00	1.68	7.04	605.2
23-Apr-03 18:15:00	158.1	1139.0	19.9902	80.1	756.2	205.6	82.00	30.00	1.69	7.06	605.2
23-Apr-03 18:16:00	158.0	1139.0	19.9876	80.1	756.2	205.6	82.00	30.00	1.70	7.09	605.2
23-Apr-03 18:17:00	158.0	1138.9	19.9850	80.1	756.2	205.6	82.00	30.00	1.71	7.11	605.2
23-Apr-03 18:18:00	158.0	1138.9	19.9824	80.1	756.3	205.6	82.00	30.00	1.72	7.13	605.2
23-Apr-03 18:19:00	158.0	1138.9	19.9798	80.0	756.3	205.6	82.00	30.00	1.73	7.16	605.2
23-Apr-03 18:20:00	158.0	1138.8	19.9772	80.0	756.3	205.6	82.00	30.00	1.74	7.18	605.2
23-Apr-03 18:21:00	158.0	1138.8	19.9746	80.0	754.7	205.6	82.00	30.00	1.75	7.20	605.2
23-Apr-03 18:22:00	158.0	1138.8	19.9720	80.0	755.8	205.6	82.00	30.00	1.75	7.23	605.2
23-Apr-03 18:23:00	158.0	1138.8	19.9694	80.0	755.8	205.6	82.00	30.00	1.76	7.25	605.3
23-Apr-03 18:24:00	158.0	1138.7	19.9668	80.0	755.8	205.6	82.00	30.00	1.72	7.27	605.3
23-Apr-03 18:25:00	157.9	1138.7	19.9642	80.0	755.8	205.6	82.00	30.00	1.70	7.30	605.3
23-Apr-03 18:26:00	157.9	1138.7	19.9616	80.0	755.8	205.6	82.00	30.00	1.70	7.32	605.3
23-Apr-03 18:27:00	157.9	1138.7	19.9590	80.0	755.8	205.5	82.00	30.00	1.70	7.34	605.3

NH3 injection rate rescaled
after run 1A-C-3

Tampa Electric Company, Bayside Unit 1A, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
23-Apr-03 18:28:00	157.9	1138.6	19.9564	80.0	756.1	205.5	82.00	30.00	1.70	7.37	605.3
23-Apr-03 18:29:00	157.9	1138.6	19.9538	80.0	756.4	205.5	82.00	30.00	1.70	7.39	605.3
23-Apr-03 18:30:00	157.9	1138.6	19.9513	80.0	756.7	205.5	82.00	30.00	1.70	7.42	605.3
23-Apr-03 18:31:00	157.9	1138.6	19.9487	80.0	757.0	205.5	82.00	30.00	1.70	7.44	605.3
23-Apr-03 18:32:00	157.9	1138.5	19.9461	80.0	756.9	205.5	82.00	29.99	1.70	7.46	605.3
23-Apr-03 18:33:00	157.9	1138.5	19.9435	80.0	756.8	205.5	82.00	29.99	1.69	7.50	605.3
23-Apr-03 18:34:00	157.9	1138.5	19.9406	80.0	756.7	205.5	82.00	29.99	1.69	7.53	605.3
23-Apr-03 18:35:00	157.9	1138.5	19.9375	80.0	756.6	205.5	82.00	29.99	1.69	7.57	605.3
23-Apr-03 18:36:00	157.9	1138.4	19.9345	80.0	756.5	205.5	82.00	29.99	1.69	7.61	605.3
23-Apr-03 18:37:00	157.8	1138.4	19.9314	80.0	756.4	205.5	82.00	29.99	1.69	7.65	605.3
23-Apr-03 18:38:00	157.8	1138.4	19.9283	80.0	756.3	205.5	82.00	29.99	1.68	7.69	605.3
23-Apr-03 18:39:00	157.8	1138.4	19.9253	80.0	756.2	205.5	81.99	29.99	1.68	7.73	605.3
23-Apr-03 18:40:00	157.8	1138.3	19.9222	80.0	756.1	205.6	81.99	29.99	1.68	7.77	605.3
23-Apr-03 18:41:00	157.8	1138.3	19.9192	80.0	756.0	205.6	81.99	29.99	1.69	7.81	605.3
23-Apr-03 18:42:00	157.8	1138.3	19.9161	80.0	755.9	205.6	81.99	29.99	1.69	7.85	605.3
23-Apr-03 18:43:00	157.8	1138.3	19.9130	80.0	755.9	205.6	81.99	29.99	1.70	7.89	605.3
23-Apr-03 18:44:00	157.8	1138.2	19.9100	80.0	755.8	205.6	81.99	29.99	1.70	7.93	605.3
23-Apr-03 18:45:00	157.8	1138.2	19.9069	80.0	756.0	205.6	81.99	29.99	1.71	7.97	605.3
23-Apr-03 18:46:00	157.8	1138.2	19.9038	80.0	756.1	205.7	81.99	29.99	1.72	8.01	605.3
23-Apr-03 18:47:00	157.8	1138.2	19.9008	80.0	756.2	205.7	81.99	29.99	1.72	8.04	605.3
23-Apr-03 18:48:00	157.8	1138.2	19.8977	80.0	756.3	205.7	81.99	29.99	1.73	8.08	605.3
23-Apr-03 18:49:00	157.8	1138.1	19.8946	80.0	756.4	205.7	81.99	29.99	1.73	8.12	605.3
23-Apr-03 18:50:00	157.8	1138.1	19.8916	80.0	756.5	205.7	81.99	29.99	1.74	8.16	605.3
Averages:	**157.7**	**1139.0**	**19.9463**	**80.2**	**756.6**	**205.4**	**82.00**	**29.99**	**1.71**	**7.06**	**605.2**

NH3 injection rate rescaled
after run 1A-C-3

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1A-RA-1								
4/23/03	102300	162.2	19.7390	3.53	0.50	4.04	0.4	0.011
4/23/03	102400	162.5	19.6950	3.55	0.50	4.04	0.4	0.011
4/23/03	102500	162.5	19.7470	3.55	0.50	4.04	0.4	0.011
4/23/03	102600	162.2	19.7390	3.57	0.50	4.04	0.4	0.011
4/23/03	102700	162.2	19.6870	3.58	0.50	4.04	0.4	0.011
4/23/03	102800	162.2	19.6870	3.60	0.50	4.04	0.4	0.011
4/23/03	102900	162.2	19.6870	3.59	0.50	4.04	0.4	0.011
4/23/03	103000	162.2	19.6850	3.58	0.50	4.04	0.4	0.011
4/23/03	103100	162.3	19.6870	3.61	0.50	4.04	0.4	0.011
4/23/03	103200	162.1	19.6790	3.59	0.50	4.04	0.4	0.011
4/23/03	103300	162.3	19.6460	3.62	0.50	4.04	0.4	0.011
4/23/03	103400	162.4	19.6850	3.59	0.50	4.04	0.4	0.011
4/23/03	103500	162.2	19.6870	3.58	0.50	4.04	0.4	0.011
4/23/03	103600	162.0	19.6870	3.64	0.50	4.04	0.4	0.011
4/23/03	103700	162.1	19.6690	3.64	0.50	4.04	0.4	0.011
4/23/03	103800	161.5	19.5820	3.67	0.60	4.04	0.4	0.011
4/23/03	103900	161.7	19.6480	3.68	0.50	4.04	0.4	0.011
4/23/03	104000	162.1	19.6850	3.66	0.50	4.04	0.4	0.011
4/23/03	104100	161.7	19.6870	3.66	0.50	4.04	0.4	0.011
4/23/03	104200	162.1	19.6850	3.63	0.50	4.04	0.4	0.011
4/23/03	104300	162.0	19.6850	3.65	0.50	4.04	0.4	0.011
4/23/03	104400	161.9	19.6850	3.66	0.50	4.04	0.4	0.011
	Averages:	**162.1**	**19.6847**	**3.610**	**0.505**	**4.040**	**0.400**	**0.011**
Run 1A-RA-2								
4/23/03	105400	161.9	19.6750	3.620	0.40	4.03	0.4	0.011
4/23/03	105500	162.0	19.6460	3.620	0.50	4.04	0.4	0.011
4/23/03	105600	162.3	19.6870	3.560	0.50	4.04	0.4	0.011
4/23/03	105700	162.0	19.6870	3.570	0.50	4.04	0.4	0.011
4/23/03	105800	162.1	19.6730	3.610	0.50	4.04	0.4	0.011
4/23/03	105900	161.8	19.6340	3.570	0.50	4.04	0.4	0.011
4/23/03	110000	161.7	19.6300	3.590	0.50	4.04	0.4	0.011
4/23/03	110100	161.2	19.6380	3.580	0.50	4.04	0.4	0.011
4/23/03	110200	161.0	19.6300	3.600	0.50	4.04	0.4	0.011
4/23/03	110300	161.4	19.6400	3.580	0.50	4.04	0.4	0.011
4/23/03	110400	161.8	19.6850	3.580	0.50	4.03	0.4	0.011
4/23/03	110500	161.9	19.6850	3.590	0.50	4.03	0.4	0.011
4/23/03	110600	161.5	19.6540	3.600	0.50	4.03	0.4	0.011
4/23/03	110700	161.7	19.6670	3.610	0.50	4.04	0.4	0.011
4/23/03	110800	161.7	19.6870	3.600	0.50	4.04	0.4	0.011
4/23/03	110900	161.4	19.6560	3.610	0.50	4.04	0.4	0.011
4/23/03	111000	161.3	19.6380	3.590	0.50	4.04	0.4	0.011
4/23/03	111100	161.2	19.6240	3.570	0.50	4.04	0.4	0.011
4/23/03	111200	161.4	19.6750	3.540	0.60	4.04	0.4	0.011
4/23/03	111300	161.3	19.6380	3.560	0.50	4.04	0.4	0.011
4/23/03	111400	161.4	19.6480	3.580	0.50	4.04	0.4	0.011
4/23/03	111500	161.6	19.6890	3.610	0.50	4.04	0.5	0.011
	Averages:	**161.6**	**19.6585**	**3.588**	**0.500**	**4.038**	**0.405**	**0.011**

CEMS DAHS data collected by Spectrum Systems Inc.

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34 (MW)	GAS31 (lb/sec)	NOX35 (ppmv)	COL33 (ppmv)	CO232 (% volume)	COLD39 (ppmv@15%O_2)	NOXRT36 (lb/MMBtu)
Run 1A-RA-3								
4/23/03	112800	161.0	19.5930	3.700	0.50	4.03	0.4	0.011
4/23/03	112900	160.9	19.6130	3.680	0.50	4.03	0.4	0.011
4/23/03	113000	161.2	19.5930	3.690	0.50	4.03	0.4	0.011
4/23/03	113100	161.6	19.6480	3.650	0.50	4.04	0.4	0.011
4/23/03	113200	161.4	19.6710	3.680	0.50	4.04	0.4	0.011
4/23/03	113300	161.2	19.6340	3.660	0.50	4.04	0.4	0.011
4/23/03	113400	161.2	19.6380	3.630	0.50	4.04	0.4	0.011
4/23/03	113500	161.5	19.6300	3.610	0.50	4.04	0.4	0.011
4/23/03	113600	160.8	19.6050	3.620	0.50	4.04	0.4	0.011
4/23/03	113700	160.9	19.5890	3.660	0.50	4.04	0.4	0.011
4/23/03	113800	161.4	19.6300	3.650	0.50	4.04	0.4	0.011
4/23/03	113900	161.4	19.6210	3.690	0.50	4.04	0.4	0.011
4/23/03	114000	161.2	19.6300	3.660	0.50	4.04	0.4	0.011
4/23/03	114100	161.0	19.6170	3.650	0.50	4.04	0.4	0.011
4/23/03	114200	160.5	19.5530	3.630	0.50	4.04	0.4	0.011
4/23/03	114300	160.7	19.5330	3.600	0.50	4.04	0.4	0.011
4/23/03	114400	161.0	19.5860	3.580	0.50	4.04	0.4	0.011
4/23/03	114500	161.4	19.6260	3.590	0.50	4.04	0.4	0.011
4/23/03	114600	161.3	19.6300	3.610	0.50	4.04	0.4	0.011
4/23/03	114700	160.8	19.6070	3.620	0.50	4.05	0.4	0.011
4/23/03	114800	160.5	19.5490	3.610	0.50	4.04	0.4	0.011
4/23/03	114900	161.0	19.5470	3.600	0.50	4.04	0.4	0.011
	Averages:	**161.1**	**19.6065**	**3.640**	**0.500**	**4.039**	**0.400**	**0.011**
Run 1A-RA-4								
4/23/03	121200	160.8	19.5720	3.570	0.50	4.06	0.4	0.011
4/23/03	121300	160.5	19.5700	3.610	0.50	4.05	0.4	0.011
4/23/03	121400	160.4	19.5530	3.560	0.50	4.06	0.4	0.011
4/23/03	121500	160.1	19.5100	3.560	0.50	4.06	0.4	0.011
4/23/03	121600	159.9	19.5120	3.610	0.50	4.06	0.4	0.011
4/23/03	121700	160.2	19.5140	3.610	0.50	4.05	0.4	0.011
4/23/03	121800	160.2	19.5000	3.600	0.50	4.05	0.4	0.011
4/23/03	121900	160.4	19.4790	3.600	0.50	4.05	0.4	0.011
4/23/03	122000	160.3	19.5100	3.600	0.40	4.05	0.3	0.011
4/23/03	122100	160.1	19.5080	3.620	0.50	4.05	0.4	0.011
4/23/03	122200	160.0	19.5120	3.600	0.50	4.05	0.4	0.011
4/23/03	122300	160.2	19.4980	3.590	0.50	4.06	0.4	0.011
4/23/03	122400	160.2	19.4730	3.610	0.50	4.05	0.4	0.011
4/23/03	122500	160.2	19.5120	3.600	0.50	4.06	0.4	0.011
4/23/03	122600	160.0	19.5120	3.620	0.50	4.06	0.4	0.011
4/23/03	122700	160.6	19.5270	3.600	0.50	4.05	0.4	0.011
4/23/03	122800	160.6	19.5560	3.580	0.50	4.06	0.4	0.011
4/23/03	122900	160.4	19.5100	3.570	0.50	4.06	0.4	0.011
4/23/03	123000	160.2	19.5100	3.540	0.50	4.06	0.4	0.011
4/23/03	123100	160.4	19.5120	3.560	0.50	4.06	0.4	0.011
4/23/03	123200	160.2	19.4960	3.570	0.50	4.06	0.4	0.011
4/23/03	123300	160.2	19.4770	3.550	0.50	4.06	0.4	0.011
	Averages:	**160.3**	**19.5147**	**3.588**	**0.495**	**4.056**	**0.395**	**0.011**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1A-RA-5								
4/23/03	124700	160.0	19.5120	3.600	0.50	4.06	0.4	0.011
4/23/03	124800	159.7	19.5000	3.630	0.50	4.06	0.4	0.011
4/23/03	124900	159.7	19.4650	3.620	0.50	4.06	0.4	0.011
4/23/03	125000	159.4	19.4480	3.630	0.50	4.06	0.4	0.011
4/23/03	125100	159.4	19.4070	3.660	0.50	4.06	0.4	0.011
4/23/03	125200	159.5	19.4090	3.660	0.50	4.06	0.4	0.011
4/23/03	125300	159.8	19.4170	3.660	0.50	4.06	0.4	0.011
4/23/03	125400	159.5	19.4480	3.660	0.50	4.06	0.4	0.011
4/23/03	125500	159.1	19.4090	3.700	0.50	4.06	0.4	0.011
4/23/03	125600	159.2	19.3950	3.650	0.50	4.06	0.4	0.011
4/23/03	125700	159.6	19.3870	3.660	0.50	4.06	0.4	0.011
4/23/03	125800	159.5	19.4630	3.680	0.50	4.06	0.4	0.011
4/23/03	125900	160.0	19.4750	3.720	0.50	4.06	0.4	0.011
4/23/03	130000	160.0	19.5000	3.730	0.50	4.06	0.4	0.011
4/23/03	130100	159.9	19.4670	3.780	0.50	4.06	0.4	0.012
4/23/03	130200	159.1	19.4510	3.740	0.50	4.06	0.4	0.011
4/23/03	130300	159.5	19.4150	3.740	0.50	4.06	0.4	0.011
4/23/03	130400	159.8	19.4650	3.700	0.50	4.06	0.4	0.011
4/23/03	130500	159.6	19.4500	3.730	0.50	4.06	0.4	0.011
4/23/03	130600	159.5	19.4170	3.730	0.50	4.06	0.4	0.011
4/23/03	130700	159.4	19.4690	3.710	0.50	4.06	0.4	0.011
4/23/03	130800	158.9	19.4420	3.740	0.50	4.06	0.4	0.011
Averages:		**159.6**	**19.4460**	**3.688**	**0.500**	**4.060**	**0.400**	**0.011**
Run 1A-RA-6								
4/23/03	132300	158.9	19.3970	3.620	0.50	4.06	0.4	0.011
4/23/03	132400	158.7	19.3580	3.630	0.50	4.07	0.4	0.011
4/23/03	132500	159.1	19.3700	3.640	0.50	4.06	0.4	0.011
4/23/03	132600	158.6	19.3950	3.650	0.50	4.06	0.4	0.011
4/23/03	132700	158.6	19.3620	3.680	0.50	4.07	0.4	0.011
4/23/03	132800	158.6	19.3720	3.660	0.50	4.07	0.4	0.011
4/23/03	132900	159.0	19.4050	3.670	0.50	4.06	0.4	0.011
4/23/03	133000	158.8	19.4050	3.690	0.50	4.06	0.4	0.011
4/23/03	133100	158.5	19.3950	3.670	0.50	4.06	0.4	0.011
4/23/03	133200	158.3	19.3580	3.670	0.50	4.07	0.4	0.011
4/23/03	133300	158.4	19.3660	3.630	0.50	4.06	0.4	0.011
4/23/03	133400	158.6	19.3620	3.600	0.50	4.07	0.4	0.011
4/23/03	133500	158.8	19.3600	3.620	0.40	4.07	0.4	0.011
4/23/03	133600	158.4	19.3640	3.620	0.50	4.06	0.4	0.011
4/23/03	133700	158.7	19.3600	3.620	0.50	4.06	0.4	0.011
4/23/03	133800	158.5	19.3580	3.600	0.50	4.07	0.4	0.011
4/23/03	133900	158.5	19.3410	3.620	0.50	4.06	0.4	0.011
4/23/03	134000	158.5	19.3290	3.620	0.50	4.07	0.4	0.011
4/23/03	134100	157.9	19.3190	3.590	0.50	4.06	0.4	0.011
4/23/03	134200	158.0	19.2810	3.570	0.50	4.06	0.4	0.011
4/23/03	134300	157.8	19.3000	3.580	0.50	4.06	0.4	0.011
4/23/03	134400	158.0	19.2980	3.620	0.50	4.06	0.4	0.011
Averages:		**158.5**	**19.3570**	**3.630**	**0.495**	**4.064**	**0.400**	**0.011**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1A-RA-7								
4/23/03	135500	158.1	19.3230	3.560	0.50	4.07	0.4	0.011
4/23/03	135600	158.4	19.3330	3.570	0.50	4.07	0.4	0.011
4/23/03	135700	158.4	19.3560	3.590	0.50	4.07	0.4	0.011
4/23/03	135800	158.4	19.3600	3.580	0.50	4.07	0.4	0.011
4/23/03	135900	158.4	19.3600	3.630	0.50	4.08	0.4	0.011
4/23/03	140000	158.7	19.3600	3.620	0.50	4.07	0.4	0.011
4/23/03	140100	158.4	19.3580	3.640	0.50	4.08	0.4	0.011
4/23/03	140200	158.4	19.3580	3.620	0.50	4.08	0.4	0.011
4/23/03	140300	158.5	19.3580	3.640	0.50	4.08	0.4	0.011
4/23/03	140400	158.5	19.3600	3.580	0.50	4.08	0.4	0.011
4/23/03	140500	158.3	19.3600	3.560	0.50	4.08	0.4	0.011
4/23/03	140600	157.9	19.3210	3.520	0.50	4.08	0.4	0.011
4/23/03	140700	158.2	19.3330	3.530	0.50	4.08	0.4	0.011
4/23/03	140800	158.4	19.3210	3.500	0.50	4.08	0.4	0.011
4/23/03	140900	158.6	19.3290	3.500	0.50	4.08	0.4	0.011
4/23/03	141000	158.4	19.3580	3.510	0.40	4.07	0.4	0.011
4/23/03	141100	158.4	19.3620	3.510	0.40	4.07	0.4	0.011
4/23/03	141200	158.5	19.3250	3.490	0.50	4.07	0.4	0.011
4/23/03	141300	158.1	19.3330	3.500	0.50	4.08	0.4	0.011
4/23/03	141400	157.9	19.3190	3.460	0.50	4.08	0.4	0.011
4/23/03	141500	157.9	19.3020	3.450	0.50	4.07	0.4	0.010
4/23/03	141600	157.9	19.2940	3.480	0.50	4.07	0.4	0.011
Averages:		**158.3**	**19.3401**	**3.547**	**0.491**	**4.075**	**0.400**	**0.011**
Run 1A-RA-8								
4/23/03	142700	158.2	19.3250	3.320	0.50	4.08	0.4	0.010
4/23/03	142800	158.0	19.3330	3.320	0.50	4.08	0.4	0.010
4/23/03	142900	158.1	19.3190	3.330	0.50	4.08	0.5	0.010
4/23/03	143000	158.0	19.2980	3.340	0.50	4.08	0.4	0.010
4/23/03	143100	157.9	19.2650	3.370	0.50	4.08	0.4	0.010
4/23/03	143200	158.0	19.2790	3.380	0.50	4.08	0.4	0.010
4/23/03	143300	158.1	19.3330	3.370	0.50	4.08	0.4	0.010
4/23/03	143400	157.9	19.3250	3.410	0.50	4.08	0.4	0.010
4/23/03	143500	157.7	19.3000	3.440	0.50	4.09	0.4	0.010
4/23/03	143600	157.8	19.2920	3.490	0.50	4.09	0.4	0.011
4/23/03	143700	158.1	19.2980	3.550	0.40	4.08	0.4	0.011
4/23/03	143800	157.8	19.3000	3.580	0.50	4.08	0.4	0.011
4/23/03	143900	157.7	19.2690	3.620	0.50	4.08	0.4	0.011
4/23/03	144000	158.2	19.3150	3.640	0.50	4.09	0.4	0.011
4/23/03	144100	157.6	19.2880	3.700	0.50	4.09	0.4	0.011
4/23/03	144200	157.3	19.2430	3.710	0.50	4.09	0.4	0.011
4/23/03	144300	157.3	19.2430	3.730	0.50	4.09	0.4	0.011
4/23/03	144400	157.3	19.2780	3.770	0.50	4.09	0.4	0.011
4/23/03	144500	157.5	19.2670	3.810	0.50	4.09	0.4	0.012
4/23/03	144600	157.3	19.2800	3.840	0.50	4.09	0.4	0.012
4/23/03	144700	157.5	19.2980	3.850	0.50	4.09	0.4	0.012
4/23/03	144800	157.5	19.2650	3.820	0.50	4.09	0.4	0.012
Averages:		**157.8**	**19.2915**	**3.563**	**0.495**	**4.085**	**0.405**	**0.011**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1A-RA-9								
4/23/03	145800	157.4	19.2470	3.730	0.50	4.09	0.4	0.011
4/23/03	145900	157.3	19.2180	3.730	0.50	4.09	0.4	0.011
4/23/03	150000	157.3	19.2200	3.770	0.50	4.09	0.4	0.011
4/23/03	150100	157.4	19.2780	3.790	0.50	4.09	0.4	0.012
4/23/03	150200	157.0	19.2360	3.780	0.50	4.09	0.4	0.012
4/23/03	150300	157.3	19.2130	3.790	0.50	4.09	0.4	0.012
4/23/03	150400	157.5	19.2470	3.760	0.50	4.09	0.4	0.011
4/23/03	150500	156.9	19.2420	3.770	0.50	4.09	0.4	0.011
4/23/03	150600	156.8	19.2430	3.790	0.50	4.09	0.4	0.012
4/23/03	150700	157.5	19.2420	3.740	0.50	4.09	0.4	0.011
4/23/03	150800	156.9	19.2380	3.770	0.50	4.08	0.4	0.011
4/23/03	150900	157.0	19.2420	3.740	0.50	4.08	0.4	0.011
4/23/03	151000	157.2	19.2430	3.700	0.50	4.09	0.4	0.011
4/23/03	151100	157.5	19.2470	3.630	0.50	4.08	0.4	0.011
4/23/03	151200	157.6	19.2510	3.580	0.40	4.09	0.4	0.011
4/23/03	151300	157.5	19.2510	3.560	0.50	4.08	0.4	0.011
4/23/03	151400	157.5	19.2430	3.540	0.50	4.08	0.4	0.011
4/23/03	151500	157.4	19.2380	3.520	0.50	4.08	0.4	0.011
4/23/03	151600	156.8	19.2050	3.530	0.50	4.08	0.4	0.011
4/23/03	151700	157.2	19.2240	3.550	0.50	4.08	0.4	0.011
4/23/03	151800	157.2	19.2110	3.520	0.50	4.08	0.4	0.011
4/23/03	151900	157.1	19.2180	3.490	0.50	4.08	0.4	0.011
	Averages:	**157.2**	**19.2362**	**3.672**	**0.495**	**4.085**	**0.400**	**0.011**

```
==========================================================================
                        Daily Calibration Summary
                        Tampa Electric Company
                        Bayside CT1A
==========================================================================
 Report Period
 Day: 05/21/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME    ZERO     %CE      REF        TIME    SPAN     %CE      REF
NOxHigh   1:06    0.00    0.000P    0.00       1:09    81.40    1.700P   83.10
          8:28    0.00    0.000P    0.00       8:31    81.20    1.900P   83.10

NOx Low   1:06    0.00    0.000P    0.00       1:03     5.30    0.200P    5.50
          8:28    0.00    0.000P    0.00       8:25     5.30    0.200P    5.50

CO2       1:06    0.00    0.000P    0.00       1:09     5.60    0.100P    5.50
          8:28    0.00    0.000P    0.00       8:31     5.60    0.100P    5.50

CO High   1:09    0.40    0.040P    0.00       1:06   549.90    0.710P  557.00
          8:31    0.50    0.050P    0.00       8:28   550.00    0.700P  557.00

CO Low    1:09    0.80    4.000P    0.00       1:03    11.20    0.500P   11.30
          8:31    0.70    3.500P    0.00       8:25    11.10    1.000P   11.30

==========================================================================




 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:29:20
                              P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1A
==========================================================================
 Report Period
 Day: 05/22/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO     %CE     REF       TIME    SPAN     %CE     REF
NOxHigh   1:06   0.00   0.000P   0.00       1:09   81.70   1.400P   83.10

NOx Low   1:06   0.00   0.000P   0.00       1:03    5.30   0.200P    5.50

CO2       1:06   0.00   0.000P   0.00       1:09    5.60   0.100P    5.50

CO High   1:09   0.20   0.020P   0.00       1:06  551.80   0.520P  557.00

CO Low    1:09   0.60   3.000P   0.00       1:03   11.00   1.500P   11.30

==========================================================================



 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:31:29
                              P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1A
==========================================================================
 Report Period
 Day: 05/23/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO     %CE     REF       TIME    SPAN     %CE     REF
NOxHigh   1:06   0.00   0.000P   0.00       1:09   81.00   2.100P   83.10

NOx Low   1:06   0.00   0.000P   0.00       1:03    5.20   0.300P    5.50

CO2       1:06   0.00   0.000P   0.00       1:09    5.60   0.100P    5.50

CO High   1:09  -0.20   0.020P   0.00       1:06  554.40   0.260P  557.00

CO Low    1:09   0.50   2.500P   0.00       1:03   11.00   1.500P   11.30

==========================================================================




 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:32:31

                              P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1A
==========================================================================
 Report Period
 Day: 05/24/2003       ZERO CAL                         SPAN CAL
==========================================================================
          TIME   ZERO     %CE      REF        TIME    SPAN     %CE      REF
NOxHigh   1:06   0.00   0.000P    0.00        1:09   81.70   1.400P   83.10
         12:58   0.00   0.000P    0.00       13:01   81.80   1.300P   83.10

NOx Low   1:06   0.00   0.000P    0.00        1:03    5.30   0.200P    5.50
         12:58   0.00   0.000P    0.00       12:55    5.30   0.200P    5.50

CO2       1:06   0.00   0.000P    0.00        1:09    5.60   0.100P    5.50
         12:58   0.00   0.000P    0.00       13:01    5.60   0.100P    5.50

CO High   1:09  -0.20   0.020P    0.00        1:06  554.70   0.230P  557.00
         13:01   0.50   0.050P    0.00       12:58  556.40   0.060P  557.00

CO Low    1:09   0.50   2.500P    0.00        1:03   11.10   1.000P   11.30
         13:01   0.90   4.500P    0.00       12:55   11.30   0.000P   11.30

==========================================================================




 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:33:27
                              P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1A
==========================================================================
 Report Period
 Day: 05/25/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO     %CE      REF         TIME    SPAN     %CE     REF
NOxHigh   1:06   0.00   0.000P    0.00         1:09   81.10   2.000P   83.10

NOx Low   1:06   0.00   0.000P    0.00         1:03    5.30   0.200P    5.50

CO2       1:06   0.00   0.000P    0.00         1:09    5.70   0.200P    5.50

CO High   1:09   0.50   0.050P    0.00         1:06  557.50   0.050P  557.00

CO Low    1:09   0.90   4.500P    0.00         1:03   11.40   0.500P   11.30

==========================================================================



 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:34:30
                              P - Calibration Passed    F - Calibration Failed
```

```
=================================================================================
                           Daily Calibration Summary
                           Tampa Electric Company
                           Bayside CT1A
=================================================================================
 Report Period
 Day: 05/26/2003        ZERO CAL                          SPAN CAL
=================================================================================
           TIME    ZERO     %CE       REF         TIME     SPAN      %CE      REF
NOxHigh    1:06    0.00    0.000P    0.00         1:09    81.70    1.400P    83.10
          10:47    0.00    0.000P    0.00        10:38    81.50    1.600P    83.10
          10:56    0.00    0.000P    0.00        10:59    81.30    1.800P    83.10

NOx Low    1:06    0.00    0.000P    0.00         1:03     5.30    0.200P     5.50
          10:47    0.00    0.000P    0.00        10:41     5.60    0.100P     5.50
          10:56    0.00    0.000P    0.00        10:53     5.30    0.200P     5.50

CO2        1:06    0.00    0.000P    0.00         1:09     5.60    0.100P     5.50
          10:47    0.00    0.000P    0.00        10:38     5.60    0.100P     5.50
          10:56    0.00    0.000P    0.00        10:59     5.60    0.100P     5.50

CO High    1:09    0.50    0.050P    0.00         1:06   558.80    0.180P   557.00
          10:38   -0.30    0.030P    0.00        10:47   550.60    0.640P   557.00
          10:59    0.50    0.050P    0.00        10:56   554.80    0.220P   557.00

CO Low     1:09    1.10    5.500P    0.00         1:03    11.70    2.000P    11.30
          10:38    0.40    2.000P    0.00        10:41    11.00    1.500P    11.30
          10:59    0.90    4.500P    0.00        10:53    11.60    1.500P    11.30

=================================================================================




 Today's Date: 05/27/2003      %CE = Percent Calibration Error
 Time: 06:36:28
                               P - Calibration Passed     F - Calibration Failed
```

```
==========================================================================
                        Daily Calibration Summary
                        Tampa Electric Company
                        Bayside CT1A
==========================================================================
 Report Period
 Day: 05/27/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO    %CE     REF         TIME   SPAN     %CE      REF
NOxHigh   1:06   0.00   0.000P   0.00        1:09  81.00   2.100P   83.10

NOx Low   1:06   0.00   0.000P   0.00        1:03   5.30   0.200P    5.50

CO2       1:06   0.00   0.000P   0.00        1:09   5.60   0.100P    5.50

CO High   1:09   0.50   0.050P   0.00        1:06 549.80   0.720P  557.00

CO Low    1:09   0.90   4.500P   0.00        1:03  11.30   0.000P   11.30

==========================================================================



 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:36:38
                              P - Calibration Passed    F - Calibration Failed
```

Tampa Electric Company
Bayside CT1A
Hillsborough County, Florida

Today's Date: 05/27/2003
Time: 06:30:10

Reporting Period
Day: 05/21/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0500	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0600	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0700	3.0	24.3	0.101	27.3	125.6	141.1	62.3	842.6
0800	4.2	3.3	0.010	2.6	0.6	0.5	118.2	1319.1
0900	4.2	3.7	0.011	3.0	0.6	0.5	117.0	1313.0
1000	4.2	3.8	0.011	3.0	0.5	0.4	140.1	1483.0
1100	4.2	3.7	0.011	3.0	0.5	0.4	152.1	1575.6
1200	4.2	3.7	0.011	3.0	0.5	0.4	140.0	1478.2
1300	4.2	3.7	0.011	3.0	0.6	0.5	139.5	1474.4
1400	4.2	3.8	0.011	3.0	0.6	0.5	152.1	1575.6
1500	4.2	3.7	0.011	3.0	0.6	0.5	151.4	1569.9
1600	4.2	3.8	0.011	3.0	0.6	0.5	151.7	1573.2
1700	4.2	3.8	0.011	3.0	0.7	0.6	151.8	1573.7
1800	4.2	3.7	0.011	3.0	0.7	0.6	147.4	1536.5
1900	4.2	3.7	0.011	3.0	0.6	0.5	142.9	1498.5
2000	4.2	3.8	0.011	3.0	0.6	0.5	149.8	1553.1
2100	4.2	3.7	0.011	3.0	0.7	0.6	151.7	1569.6
2200	4.2	3.8	0.011	3.0	0.6	0.5	143.5	1502.9
2300	4.2	3.8	0.011	3.0	0.5	0.4	154.7	1594.1
2400	4.2	3.7	0.011	3.0	0.5	0.4	155.9	1603.1
AVG	3.1	3.6	0.012	3.2	5.7	6.2	105.1	1109.8

Legend
C - Out of Control
D - Out of Service
I - Insufficient Data
M - Maintenance Fault
A - Calibration Error
X - Calibration Expired

```
=============================================================================
                         Tampa Electric Company
                         Bayside CT1A
                         Hillsborough County, Florida

=============================================================================

   Today's Date: 05/27/2003                            Reporting Period
   Time: 06:32:01                                      Day: 05/22/2003

                         Daily Emissions Log
  Time       CO2       NOx      NOx        NOx       CO       CO        Gen      HTIP
              %        ppm   lb/mmBtu   @15% O2     ppm    @15% O2     MW     lb/mmBtu

  0100       4.2       3.8     0.011      3.0       0.5      0.4     151.6    1566.8
  0200       4.2       3.8     0.011      3.0       0.6      0.5     153.5    1581.6
  0300       4.3       3.7     0.011      2.9       0.5      0.4     158.8    1625.9
  0400       4.2       3.8     0.011      3.0       0.6      0.5     156.2    1603.0
  0500       4.2       3.8     0.011      3.0       0.6      0.5     144.4    1507.8
  0600       4.2       3.8     0.011      3.0       0.5      0.4     158.7    1625.2
  0700       4.2       3.8     0.011      3.0       0.6      0.5     133.7    1426.2
  0800       4.2       3.7     0.011      3.0       0.6      0.5     127.0    1376.9
  0900       4.2       3.8     0.011      3.0       0.5      0.4     148.2    1541.4
  1000       4.2       3.7     0.011      3.0       0.5      0.4     150.8    1563.3
  1100       4.2       3.8     0.011      3.0       0.5      0.4     137.6    1458.6
  1200       4.2       3.8     0.011      3.0       0.6      0.5     150.8    1564.1
  1300       4.2       3.7     0.011      3.0       0.6      0.5     151.1    1567.1
  1400       4.2       3.8     0.011      3.0       0.6      0.5     119.9    1323.8
  1500       4.2       3.8     0.011      3.0       0.6      0.5     146.8    1531.4
  1600       4.2       3.8     0.011      3.0       0.6      0.5     152.9    1580.4
  1700       4.2       3.7     0.011      3.0       0.6      0.5     151.5    1569.3
  1800       4.2       3.8     0.011      3.0       0.6      0.5     128.1    1387.3
  1900       4.3       3.9     0.011      3.1       0.6      0.5     154.0    1589.6
  2000       4.2       3.8     0.011      3.0       0.5      0.4     134.6    1433.3
  2100       4.2       3.8     0.011      3.0       0.4      0.3     131.7    1413.3
  2200       4.2       3.8     0.011      3.0       0.4      0.3     107.4    1242.3
  2300       4.2       3.8     0.011      3.0       0.6      0.5     109.8    1258.6
  2400       4.2       3.8     0.011      3.0       0.5      0.4     113.2    1280.7

   AVG       4.2       3.8     0.011      3.0       0.6      0.5     140.5    1484.1


                            Legend
                            C - Out of Control
                            D - Out of Service
                            I - Insufficient Data
                            M - Maintenance Fault
                            A - Calibration Error
                            X - Calibration Expired
```

Tampa Electric Company
Bayside CT1A
Hillsborough County, Florida

Today's Date: 05/27/2003
Time: 06:33:00

Reporting Period
Day: 05/23/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.2	3.8	0.011	3.0	0.5	0.4	120.7	1331.5
0200	4.2	3.8	0.011	3.0	0.5	0.4	115.0	1293.1
0300	4.2	3.8	0.011	3.0	0.4	0.3	105.8	1229.6
0400	4.2	3.8	0.011	3.0	0.4	0.3	105.6	1227.6
0500	4.2	3.8	0.011	3.0	0.5	0.4	117.5	1307.4
0600	4.2	3.8	0.011	3.0	0.4	0.3	137.7	1456.9
0700	4.2	3.8	0.011	3.0	0.4	0.3	125.3	1366.6
0800	4.2	3.7	0.011	3.0	0.4	0.3	135.5	1441.3
0900	4.2	3.8	0.011	3.0	0.4	0.3	110.8	1265.3
1000	4.2	3.8	0.011	3.0	0.4	0.3	140.7	1480.9
1100	4.2	3.8	0.011	3.0	0.4	0.3	127.5	1380.7
1200	4.2	3.8	0.011	3.0	0.4	0.3	132.6	1418.3
1300	4.2	3.7	0.011	3.0	0.5	0.4	111.5	1267.3
1400	4.2	3.7	0.011	3.0	0.5	0.4	112.5	1275.3
1500	4.2	3.7	0.011	3.0	0.4	0.3	140.1	1476.0
1600	4.2	3.8	0.011	3.0	0.5	0.4	141.8	1488.1
1700	4.2	3.8	0.011	3.0	0.5	0.4	142.4	1492.5
1800	4.2	3.8	0.011	3.0	0.6	0.5	142.8	1495.2
1900	4.2	3.8	0.011	3.0	0.6	0.5	143.6	1502.2
2000	4.2	3.8	0.011	3.0	0.7	0.6	142.7	1495.6
2100	3.4	7.8	0.028	7.7	166.2	164.8	97.6	1067.5
2200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
AVG	3.6	3.5	0.010	2.8	7.3	7.2	110.4	1198.3

Legend
C - Out of Control
D - Out of Service
I - Insufficient Data
M - Maintenance Fault
A - Calibration Error
X - Calibration Expired

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===============================================================================
                               Tampa Electric Company
                               Bayside CT1A
                               Hillsborough County, Florida

===============================================================================

   Today's Date: 05/27/2003                              Reporting Period
   Time: 06:33:59                                        Day: 05/24/2003

                              Daily Emissions Log
  Time     CO2      NOx      NOx       NOx         CO      CO       Gen     HTIP
           %        ppm   lb/mmBtu  @15% O2       ppm   @15% O2   MW     lb/mmBtu

  0100     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0200     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0300     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0400     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0500     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0600     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0700     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0800     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  0900     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  1000     0.0I     0.0I   0.000     0.0         0.0     0.0      0.0       0.0
  1100     1.4      6.2    0.055    14.9       177.1   426.4      0.3     221.6
  1200     3.8     20.6    0.067    18.3       124.7   110.6     90.5    1122.8
  1300     4.2      3.8    0.011     3.0         0.8     0.6    111.1    1268.4
  1400     4.2      3.8    0.011     3.0         0.8     0.6    111.2    1261.1
  1500     4.2      3.7    0.011     3.0         0.7     0.6    131.5    1414.4
  1600     4.2      3.8    0.011     3.0         0.7     0.6    149.3    1553.4
  1700     4.2      3.8    0.011     3.0         0.7     0.6    151.8    1575.7
  1800     4.2      3.7    0.011     3.0         0.7     0.6    141.0    1485.4
  1900     4.2      3.8    0.011     3.0         0.7     0.6    122.5    1346.6
  2000     4.2      3.8    0.011     3.0         0.7     0.6    110.7    1264.4
  2100     4.2      3.7    0.011     3.0         0.7     0.6    139.0    1468.7
  2200     4.2      3.8    0.011     3.0         0.8     0.6    137.7    1458.7
  2300     4.2      3.8    0.011     3.0         0.8     0.6    133.9    1430.9
  2400     4.3      3.8    0.011     3.0         0.8     0.6    131.1    1411.3

   AVG     2.3      3.0    0.011     2.9        12.9    22.7     69.2     761.8


                                  Legend
                                  C - Out of Control
                                  D - Out of Service
                                  I - Insufficient Data
                                  M - Maintenance Fault
                                  A - Calibration Error
                                  X - Calibration Expired
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==============================================================================
                              Tampa Electric Company
                              Bayside CT1A
                              Hillsborough County, Florida

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  Today's Date: 05/27/2003                               Reporting Period
  Time: 06:45:20                                         Day: 05/25/2003

                             Daily Emissions Log
 Time      CO2       NOx      NOx       NOx         CO      CO       Gen      HTIP
            %        ppm    lb/mmBtu  @15% O2       ppm   @15% O2    MW     lb/mmBtu

 0100      4.2       3.8     0.011      3.0         0.9     0.7     133.7    1428.1
 0200      4.2       3.8     0.011      3.0         0.9     0.7     130.0    1400.8
 0300      4.2       3.8     0.011      3.0         0.9     0.7     134.3    1432.7
 0400      4.2       3.8     0.011      3.0         1.0     0.8     111.5    1270.5
 0500      4.2       3.8     0.011      3.0         1.0     0.8     106.6    1235.5
 0600      4.2       3.8     0.011      3.0         1.0     0.8     105.2    1226.0
 0700      4.2       3.8     0.011      3.0         1.3     1.0     105.4    1227.7
 0800      4.2       3.8     0.011      3.0         1.0     0.8     112.0    1273.5
 0900      4.2       3.8     0.011      3.0         1.0     0.8     135.3    1442.9
 1000      4.2       3.8     0.011      3.0         1.0     0.8     112.7    1278.3
 1100      4.2       3.7     0.011      3.0         1.0     0.8     119.0    1323.6
 1200      4.2       3.7     0.011      3.0         1.0     0.8     144.8    1517.0
 1300      4.2       3.7     0.011      3.0         1.0     0.8     139.4    1472.8
 1400      4.2       3.8     0.011      3.0         0.9     0.7     141.0    1484.7
 1500      4.2       3.7     0.011      3.0         0.9     0.7     147.4    1537.9
 1600      4.2       3.8     0.011      3.0         0.8     0.6     149.1    1552.8
 1700      4.2       3.7     0.011      3.0         0.7     0.6     146.7    1531.1
 1800      4.2       3.8     0.011      3.0         0.8     0.6     141.2    1483.6
 1900      4.2       3.8     0.011      3.0         0.8     0.6     138.7    1465.0
 2000      4.2       3.8     0.011      3.0         0.8     0.6     142.9    1497.7
 2100      4.2       3.8     0.011      3.0         0.8     0.6     140.8    1481.7
 2200      4.2       3.8     0.011      3.0         0.8     0.6     135.4    1439.4
 2300      4.2       3.8     0.011      3.0         0.9     0.7     134.6    1434.3
 2400      4.2       3.8     0.011      3.0         0.9     0.7     136.9    1452.0

  AVG      4.2       3.8     0.011      3.0         0.9     0.7     131.0    1412.1


                                 Legend
                                 C - Out of Control
                                 D - Out of Service
                                 I - Insufficient Data
                                 M - Maintenance Fault
                                 A - Calibration Error
                                 X - Calibration Expired
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Tampa Electric Company
Bayside CT1A
Hillsborough County, Florida

Today's Date: 05/27/2003
Time: 06:35:50

Reporting Period
Day: 05/26/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.2	3.8	0.011	3.0	1.0	0.8	113.8	1285.8
0200	4.2	3.8	0.011	3.0	1.0	0.8	112.4	1277.9
0300	4.2	3.7	0.011	3.0	1.0	0.8	135.0	1438.4
0400	4.2	3.8	0.011	3.0	1.1	0.9	129.9	1401.1
0500	4.2	3.8	0.011	3.0	1.1	0.9	113.1	1284.1
0600	4.2	3.8	0.011	3.0	1.0	0.8	110.9	1268.9
0700	4.2	3.8	0.011	3.0	1.0	0.8	107.0	1239.9
0800	4.2	3.7	0.011	3.0	1.0	0.8	111.6	1272.9
0900	4.2	3.8	0.011	3.0	1.0	0.8	154.9	1601.8
1000	4.2	3.8	0.011	3.0	1.1	0.9	154.7	1601.6
1100	4.2	3.8	0.011	3.0	1.1	0.9	148.6	1550.1
1200	4.2	3.6	0.011	2.9	0.7	0.6	136.3	1450.4
1300	4.2	3.7	0.011	3.0	0.6	0.5	137.3	1458.5
1400	4.2	3.7	0.011	3.0	0.6	0.5	140.4	1483.6
1500	4.2	3.7	0.011	3.0	0.5	0.4	139.5	1475.2
1600	4.2	3.7	0.011	3.0	0.5	0.4	142.8	1500.2
1700	4.2	3.7	0.011	3.0	0.5	0.4	143.7	1507.4
1800	4.2	3.7	0.011	3.0	0.5	0.4	135.6	1444.9
1900	4.2	3.7	0.011	3.0	0.5	0.4	136.0	1446.8
2000	4.2	3.7	0.011	3.0	0.5	0.4	138.7	1466.6
2100	4.2	3.8	0.011	3.0	0.5	0.4	130.8	1412.1
2200	4.2	3.8	0.011	3.0	0.5	0.4	107.3	1242.1
2300	4.2	3.7	0.011	3.0	0.5	0.4	118.3	1322.7
2400	4.2	3.8	0.011	3.0	0.6	0.5	106.9	1240.8
AVG	4.2	3.7	0.011	3.0	0.8	0.6	129.4	1403.1

Legend
C - Out of Control
D - Out of Service
I - Insufficient Data
M - Maintenance Fault
A - Calibration Error
X - Calibration Expired

Tampa Electric Company
Bayside CT1A
Hillsborough County, Florida

Today's Date: 05/28/2003
Time: 08:56:07

Reporting Period
Day: 05/27/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.2	3.8	0.011	3.0	0.6	0.5	108.3	1249.3
0200	4.2	3.8	0.011	3.0	0.7	0.6	106.2	1235.8
0300	4.2	3.8	0.011	3.0	0.6	0.5	109.5	1259.4
0400	4.2	3.8	0.011	3.0	0.6	0.5	105.8	1233.6
0500	4.2	3.8	0.011	3.0	0.6	0.5	107.5	1245.2
0600	4.2	3.8	0.011	3.0	0.6	0.5	105.6	1232.0
0700	4.2	3.8	0.011	3.0	0.7	0.6	105.6	1231.6
0800	4.2	3.7	0.011	3.0	0.7	0.6	122.9	1355.0
0900	4.2	3.7	0.011	3.0	0.7	0.6	148.0	1545.2
1000	4.2	3.8	0.011	3.0	0.7	0.6	114.9	1294.8
1100	4.2	3.7	0.011	3.0	0.8	0.6	140.1	1482.6
1200	4.1	3.7	0.011	3.0	0.7	0.6	147.4	1538.1
1300	4.1	3.7	0.011	3.0	0.7	0.6	148.8	1551.5
1400	4.2	3.8	0.011	3.0	0.6	0.5	149.7	1561.3
1500	4.2	3.8	0.011	3.0	0.5	0.4	151.2	1573.2
1600	4.2	3.8	0.011	3.0	0.5	0.4	151.6	1577.4
1700	4.2	3.8	0.011	3.0	0.5	0.4	151.5	1577.0
1800	4.2	3.8	0.011	3.0	0.5	0.4	151.5	1576.4
1900	4.2	3.8	0.011	3.0	0.5	0.4	152.4	1583.5
2000	4.2	3.7	0.011	3.0	0.4	0.3	138.3	1467.3
2100	4.2	3.8	0.011	3.0	0.4	0.3	117.4	1314.4
2200	4.2	3.8	0.011	3.0	0.3	0.2	109.4	1258.0
2300	4.2	3.8	0.011	3.0	0.4	0.3	119.1	1326.1
2400	4.2	3.8	0.011	3.0	0.5	0.4	119.2	1328.0
AVG	4.2	3.8	0.011	3.0	0.6	0.5	128.4	1399.9

Legend
C - Out of Control
D - Out of Service
I - Insufficient Data
M - Maintenance Fault
A - Calibration Error
X - Calibration Expired

UNIT 1B

Tampa Electric Company, Bayside Unit 1B, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1B-C-1											
17-Apr-03 07:02:00	164.8	1129.7	20.4667	67.6	731.5	210.3	82.00	29.97	1.72	7.99	568.4
17-Apr-03 07:03:00	164.8	1129.8	20.4647	67.6	731.5	210.3	82.00	29.97	1.72	7.97	568.4
17-Apr-03 07:04:00	164.7	1129.8	20.4627	67.7	731.5	210.3	82.00	29.97	1.72	7.95	568.4
17-Apr-03 07:05:00	164.7	1129.8	20.4607	67.7	731.5	210.3	82.00	29.97	1.72	7.93	568.4
17-Apr-03 07:06:00	164.6	1129.8	20.4587	67.7	731.5	210.3	82.00	29.97	1.72	7.92	568.4
17-Apr-03 07:07:00	164.6	1129.9	20.4567	67.8	731.6	210.3	82.00	29.97	1.72	7.90	568.4
17-Apr-03 07:08:00	164.5	1129.9	20.4544	67.8	731.6	210.2	82.00	29.97	1.72	7.88	568.4
17-Apr-03 07:09:00	164.5	1129.9	20.4516	67.8	731.6	210.2	82.00	29.97	1.72	7.87	568.4
17-Apr-03 07:10:00	164.4	1129.9	20.4488	67.9	731.6	210.2	82.00	29.97	1.72	7.85	568.4
17-Apr-03 07:11:00	164.4	1130.0	20.4460	67.9	731.6	210.2	82.00	29.97	1.72	7.83	568.4
17-Apr-03 07:12:00	164.3	1130.0	20.4432	67.9	731.7	210.1	82.00	29.97	1.72	7.82	568.5
17-Apr-03 07:13:00	164.3	1130.1	20.4404	68.0	731.8	210.1	82.00	29.97	1.72	7.80	568.5
17-Apr-03 07:14:00	164.2	1130.1	20.4376	68.0	731.8	210.1	82.00	29.97	1.72	7.78	568.5
17-Apr-03 07:15:00	164.2	1130.2	20.4348	68.0	731.9	210.0	82.00	29.97	1.72	7.76	568.5
17-Apr-03 07:16:00	164.1	1130.3	20.4320	68.1	732.0	210.0	82.00	29.97	1.72	7.75	568.5
17-Apr-03 07:17:00	164.1	1130.3	20.4293	68.1	732.1	210.0	82.00	29.98	1.72	7.73	568.5
17-Apr-03 07:18:00	164.0	1130.4	20.4265	68.2	732.2	209.9	82.00	29.98	1.72	7.71	568.5
17-Apr-03 07:19:00	164.0	1130.4	20.4237	68.3	732.3	209.9	82.00	29.98	1.72	7.70	568.5
17-Apr-03 07:20:00	163.9	1130.5	20.4209	68.3	732.4	209.9	82.00	29.98	1.71	7.68	568.5
17-Apr-03 07:21:00	163.9	1130.6	20.4181	68.4	732.5	209.8	82.00	29.98	1.71	7.66	568.5
17-Apr-03 07:22:00	163.8	1130.6	20.4153	68.5	732.6	209.8	82.00	29.98	1.71	7.65	568.5
17-Apr-03 07:23:00	163.8	1130.7	20.4125	68.5	732.7	209.8	82.00	29.98	1.71	7.64	568.5
17-Apr-03 07:24:00	163.7	1130.8	20.4097	68.6	732.8	209.7	82.00	29.98	1.71	7.62	568.5
17-Apr-03 07:25:00	163.7	1130.8	20.4069	68.7	732.9	209.7	82.00	29.98	1.71	7.61	568.5
17-Apr-03 07:26:00	163.7	1130.9	20.4041	68.7	733.0	209.7	82.00	29.98	1.71	7.60	568.5
17-Apr-03 07:27:00	163.6	1130.9	20.4013	68.8	733.1	209.6	82.00	29.98	1.71	7.59	568.5
17-Apr-03 07:28:00	163.6	1131.0	20.3979	68.9	733.2	209.6	82.00	29.98	1.71	7.57	568.5
17-Apr-03 07:29:00	163.5	1131.1	20.3934	68.9	733.3	209.6	82.00	29.98	1.71	7.56	568.4
17-Apr-03 07:30:00	163.5	1131.1	20.3888	69.0	733.4	209.5	82.00	29.98	1.71	7.55	568.4
17-Apr-03 07:31:00	163.4	1131.2	20.3842	69.1	733.5	209.5	82.00	29.98	1.71	7.54	568.4
17-Apr-03 07:32:00	163.4	1131.3	20.3796	69.1	733.6	209.5	82.00	29.98	1.71	7.52	568.4
17-Apr-03 07:33:00	163.4	1131.3	20.3751	69.2	733.7	209.4	82.00	29.98	1.71	7.51	568.4
17-Apr-03 07:34:00	163.3	1131.4	20.3705	69.3	733.8	209.4	82.00	29.98	1.70	7.50	568.4
17-Apr-03 07:35:00	163.3	1131.4	20.3659	69.3	733.9	209.4	82.00	29.98	1.70	7.49	568.4
17-Apr-03 07:36:00	163.2	1131.5	20.3613	69.4	733.9	209.3	82.00	29.98	1.70	7.47	568.4
17-Apr-03 07:37:00	163.2	1131.6	20.3568	69.5	734.0	209.3	82.00	29.98	1.70	7.46	568.4
17-Apr-03 07:38:00	163.2	1131.7	20.3522	69.5	734.2	209.3	82.00	29.98	1.70	7.45	568.4
17-Apr-03 07:39:00	163.1	1131.7	20.3476	69.6	734.4	209.2	82.00	29.98	1.70	7.44	568.4
17-Apr-03 07:40:00	163.1	1131.8	20.3430	69.7	734.5	209.2	82.00	29.98	1.70	7.43	568.4
17-Apr-03 07:41:00	163.0	1131.9	20.3385	69.7	734.7	209.1	82.00	29.98	1.70	7.41	568.4
17-Apr-03 07:42:00	163.0	1132.0	20.3339	69.8	734.9	209.1	82.00	29.98	1.70	7.40	568.4
17-Apr-03 07:43:00	163.0	1132.0	20.3293	69.9	735.0	209.1	82.00	29.98	1.70	7.39	568.4
17-Apr-03 07:44:00	162.9	1132.1	20.3247	69.9	735.2	209.0	82.00	29.98	1.70	7.00	568.4
17-Apr-03 07:45:00	162.9	1132.2	20.3201	70.0	735.4	209.0	82.00	29.98	1.69	7.33	568.4
17-Apr-03 07:46:00	162.9	1132.2	20.3156	70.1	735.5	209.0	82.00	29.98	1.69	7.66	568.3

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1B, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
17-Apr-03 07:47:00	162.8	1132.3	20.3110	70.1	735.7	208.9	82.00	29.98	1.69	7.87	568.3
17-Apr-03 07:48:00	162.8	1132.4	20.3064	70.2	735.9	208.9	82.00	29.98	1.69	7.79	568.3
17-Apr-03 07:49:00	162.8	1132.5	20.3018	70.3	736.0	208.9	82.00	29.98	1.69	7.71	568.3
17-Apr-03 07:50:00	162.8	1132.5	20.2973	70.3	736.2	208.8	82.00	29.98	1.69	7.63	568.3
17-Apr-03 07:51:00	162.7	1132.6	20.2927	70.4	736.3	208.8	82.00	29.98	1.69	7.56	568.3
17-Apr-03 07:52:00	162.7	1132.7	20.2881	70.4	736.2	208.8	82.00	29.98	1.69	7.48	568.3
17-Apr-03 07:53:00	162.7	1132.8	20.2846	70.5	736.2	208.8	82.00	29.98	1.69	7.40	568.3
17-Apr-03 07:54:00	162.6	1132.8	20.2831	70.6	736.2	208.7	82.00	29.98	1.69	7.32	568.3
17-Apr-03 07:55:00	162.6	1132.9	20.2816	70.6	736.2	208.7	82.00	29.98	1.69	7.24	568.3
17-Apr-03 07:56:00	162.6	1133.0	20.2802	70.7	736.1	208.7	82.00	29.98	1.69	7.16	568.3
17-Apr-03 07:57:00	162.5	1133.1	20.2787	70.8	736.1	208.6	82.00	29.98	1.69	7.09	568.3
17-Apr-03 07:58:00	162.5	1133.1	20.2772	70.8	736.1	208.6	82.00	29.98	1.69	7.01	568.3
17-Apr-03 07:59:00	162.5	1133.2	20.2757	70.9	736.1	208.6	82.00	29.98	1.69	6.93	568.3
17-Apr-03 08:00:00	162.4	1133.3	20.2742	70.9	736.0	208.5	82.00	29.98	1.69	6.87	568.2
17-Apr-03 08:01:00	162.4	1133.3	20.2727	71.0	736.0	208.5	82.00	29.98	1.69	6.70	568.2
17-Apr-03 08:02:00	162.4	1133.4	20.2713	71.1	736.0	208.5	82.00	29.98	1.68	5.81	568.2
17-Apr-03 08:03:00	162.4	1133.4	20.2698	71.1	736.0	208.4	81.99	29.98	1.68	5.84	568.2
17-Apr-03 08:04:00	162.3	1133.5	20.2683	71.2	735.9	208.4	81.99	29.98	1.68	5.87	568.2
17-Apr-03 08:05:00	162.3	1133.6	20.2668	71.3	735.9	208.4	81.99	29.98	1.68	5.90	568.2
17-Apr-03 08:06:00	162.3	1133.6	20.2653	71.3	735.9	208.3	81.99	29.98	1.68	5.93	568.2
17-Apr-03 08:07:00	162.3	1133.7	20.2639	71.4	735.9	208.3	81.99	29.98	1.68	5.96	568.2
17-Apr-03 08:08:00	162.2	1133.7	20.2624	71.5	735.8	208.3	81.99	29.98	1.68	5.99	568.2
17-Apr-03 08:09:00	162.2	1133.8	20.2609	71.6	735.8	208.2	81.99	29.98	1.68	6.02	568.2
17-Apr-03 08:10:00	162.2	1133.8	20.2594	71.6	735.9	208.1	81.99	29.98	1.68	6.05	568.2
17-Apr-03 08:11:00	162.1	1133.9	20.2579	71.7	736.2	208.1	81.99	29.98	1.68	6.08	568.2
17-Apr-03 08:12:00	162.1	1133.9	20.2564	71.8	736.5	208.0	81.99	29.98	1.68	6.11	568.2
17-Apr-03 08:13:00	162.1	1134.0	20.2543	71.9	736.7	208.0	81.99	29.98	1.68	6.14	568.2
17-Apr-03 08:14:00	162.1	1134.1	20.2508	72.0	737.0	207.9	81.99	29.98	1.68	6.17	568.2
17-Apr-03 08:15:00	162.0	1134.1	20.2473	72.1	737.2	207.9	81.99	29.98	1.68	6.20	568.2
17-Apr-03 08:16:00	162.0	1134.2	20.2439	72.2	737.5	207.8	81.99	29.98	1.68	6.30	568.2
17-Apr-03 08:17:00	162.0	1134.2	20.2404	72.2	737.6	207.8	81.99	29.98	1.68	6.39	568.2
17-Apr-03 08:18:00	162.0	1134.3	20.2370	72.3	737.6	207.7	81.99	29.98	1.68	6.48	568.2
17-Apr-03 08:19:00	161.9	1134.3	20.2335	72.4	737.6	207.7	81.99	29.98	1.68	6.57	568.2
17-Apr-03 08:20:00	161.9	1134.4	20.2300	72.5	737.5	207.6	81.99	29.98	1.68	6.67	568.2
17-Apr-03 08:21:00	161.9	1134.5	20.2266	72.6	737.5	207.6	81.99	29.98	1.69	6.76	568.2
17-Apr-03 08:22:00	161.9	1134.5	20.2231	72.7	737.4	207.5	81.99	29.98	1.69	6.85	568.2
17-Apr-03 08:23:00	161.8	1134.6	20.2197	72.8	737.4	207.5	82.00	29.98	1.69	6.94	568.1
17-Apr-03 08:24:00	161.8	1134.6	20.2162	72.8	737.4	207.4	82.00	29.98	1.69	7.04	568.1
17-Apr-03 08:25:00	161.8	1134.7	20.2127	72.9	737.3	207.4	82.00	29.98	1.69	7.13	568.1
17-Apr-03 08:26:00	161.8	1134.7	20.2093	73.0	737.3	207.3	82.00	29.98	1.69	7.22	568.1
17-Apr-03 08:27:00	161.8	1134.8	20.2058	73.1	737.9	207.3	82.00	29.98	1.69	7.32	568.1
17-Apr-03 08:28:00	161.8	1134.9	20.2023	73.2	738.6	207.2	82.00	29.98	1.69	7.41	568.1
17-Apr-03 08:29:00	161.7	1134.9	20.1989	73.3	739.2	207.2	82.00	29.98	1.69	7.50	568.1
17-Apr-03 08:30:00	161.7	1135.0	20.1954	73.4	739.8	207.2	82.00	29.98	1.69	7.59	568.1
Averages:	**163.0**	**1132.2**	**20.3299**	**70.1**	**734.8**	**208.9**	**82.00**	**29.98**	**1.70**	**7.21**	**568.3**

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1B, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1B-C-2											
17-Apr-03 08:50:00	161.1	1136.2	20.0863	74.1	740.2	206.7	82.01	29.98	1.71	7.59	567.9
17-Apr-03 08:51:00	161.0	1136.2	20.0881	74.2	740.3	206.7	82.01	29.98	1.72	7.60	567.9
17-Apr-03 08:52:00	161.0	1136.3	20.0900	74.2	740.4	206.7	82.01	29.98	1.72	7.62	567.9
17-Apr-03 08:53:00	160.9	1136.3	20.0919	74.3	740.4	206.7	82.01	29.98	1.72	7.63	567.9
17-Apr-03 08:54:00	160.9	1136.4	20.0937	74.3	740.5	206.7	82.01	29.99	1.72	7.65	567.9
17-Apr-03 08:55:00	160.8	1136.4	20.0956	74.3	740.5	206.7	82.01	29.99	1.72	7.66	567.9
17-Apr-03 08:56:00	160.8	1136.4	20.0974	74.3	740.6	206.7	82.01	29.99	1.72	7.68	568.0
17-Apr-03 08:57:00	160.7	1136.5	20.0993	74.4	740.7	206.7	82.01	29.99	1.72	7.69	568.0
17-Apr-03 08:58:00	160.6	1136.5	20.1012	74.4	740.9	206.7	82.01	29.99	1.72	7.69	568.0
17-Apr-03 08:59:00	160.6	1136.5	20.1030	74.4	741.1	206.7	82.01	29.99	1.72	7.68	568.0
17-Apr-03 09:00:00	160.5	1136.6	20.1049	74.4	741.3	206.7	82.01	29.99	1.72	7.68	568.0
17-Apr-03 09:01:00	160.5	1136.6	20.1068	74.5	741.5	206.7	82.01	29.99	1.72	7.67	568.0
17-Apr-03 09:02:00	160.4	1136.6	20.1086	74.5	741.6	206.6	82.01	29.99	1.72	7.67	568.0
17-Apr-03 09:03:00	160.4	1136.7	20.1105	74.5	741.5	206.6	82.01	29.99	1.72	7.66	568.0
17-Apr-03 09:04:00	160.4	1136.7	20.1123	74.6	741.5	206.6	82.01	29.99	1.72	7.66	568.0
17-Apr-03 09:05:00	160.4	1136.7	20.1142	74.6	741.4	206.6	82.01	29.99	1.72	7.66	568.0
17-Apr-03 09:06:00	160.4	1136.8	20.1161	74.6	741.4	206.6	82.01	29.99	1.72	7.65	568.0
17-Apr-03 09:07:00	160.4	1136.8	20.1179	74.6	741.3	206.6	82.01	29.99	1.72	7.65	567.9
17-Apr-03 09:08:00	160.4	1136.9	20.1198	74.7	741.3	206.6	82.01	29.99	1.72	7.64	567.9
17-Apr-03 09:09:00	160.4	1136.9	20.1216	74.7	741.3	206.6	82.00	29.99	1.72	7.64	567.9
17-Apr-03 09:10:00	160.4	1136.9	20.1235	74.7	741.2	206.6	82.00	29.99	1.72	7.64	567.9
17-Apr-03 09:11:00	160.4	1137.0	20.1259	74.7	741.2	206.6	82.00	29.99	1.72	7.63	567.9
17-Apr-03 09:12:00	160.4	1137.0	20.1283	74.8	741.1	206.6	82.00	29.99	1.72	7.63	567.8
17-Apr-03 09:13:00	160.4	1137.0	20.1307	74.8	741.1	206.6	82.00	29.99	1.72	7.62	567.8
17-Apr-03 09:14:00	160.4	1137.1	20.1332	74.8	741.1	206.6	82.00	29.99	1.72	7.62	567.8
17-Apr-03 09:15:00	160.3	1137.1	20.1356	74.9	741.0	206.6	82.00	29.99	1.72	7.61	567.8
17-Apr-03 09:16:00	160.3	1137.1	20.1380	74.9	741.0	206.6	82.00	29.99	1.72	7.61	567.8
17-Apr-03 09:17:00	160.3	1137.1	20.1404	74.9	741.0	206.6	82.00	29.99	1.71	7.61	567.7
17-Apr-03 09:18:00	160.3	1137.1	20.1429	74.9	741.0	206.6	82.00	29.99	1.71	7.62	567.7
17-Apr-03 09:19:00	160.3	1137.1	20.1453	75.0	741.0	206.6	82.00	29.99	1.71	7.63	567.7
17-Apr-03 09:20:00	160.3	1137.1	20.1477	75.0	740.9	206.5	82.00	29.99	1.71	7.65	567.7
17-Apr-03 09:21:00	160.3	1137.1	20.1501	75.0	740.9	206.5	82.00	29.99	1.71	7.66	567.7
17-Apr-03 09:22:00	160.3	1137.1	20.1526	75.1	740.9	206.5	82.00	29.99	1.71	7.68	567.6
17-Apr-03 09:23:00	160.3	1137.1	20.1550	75.1	740.9	206.5	82.00	29.99	1.70	7.70	567.6
17-Apr-03 09:24:00	160.3	1137.1	20.1574	75.1	740.9	206.5	82.00	29.99	1.70	7.71	567.6
17-Apr-03 09:25:00	160.3	1137.1	20.1598	75.2	740.9	206.5	82.00	29.99	1.70	7.73	567.6
17-Apr-03 09:26:00	160.3	1137.1	20.1622	75.2	740.9	206.5	82.00	30.00	1.70	7.74	567.6
17-Apr-03 09:27:00	160.3	1137.1	20.1647	75.2	740.9	206.5	82.00	30.00	1.70	7.76	567.6
17-Apr-03 09:28:00	160.3	1137.1	20.1671	75.2	740.9	206.5	82.00	30.00	1.70	7.77	567.6
17-Apr-03 09:29:00	160.3	1137.1	20.1619	75.3	741.0	206.4	82.00	30.00	1.69	7.79	567.6
17-Apr-03 09:30:00	160.3	1137.1	20.1548	75.3	741.1	206.4	82.00	30.00	1.69	7.81	567.6
17-Apr-03 09:31:00	160.3	1137.1	20.1478	75.3	741.1	206.3	82.00	30.00	1.69	7.82	567.6
17-Apr-03 09:32:00	160.3	1137.1	20.1407	75.4	741.2	206.3	82.00	30.00	1.69	7.84	567.6
17-Apr-03 09:33:00	160.3	1137.1	20.1336	75.4	741.2	206.3	82.00	30.00	1.69	7.85	567.6
17-Apr-03 09:34:00	160.3	1137.1	20.1266	75.4	741.4	206.2	82.00	30.00	1.69	7.87	567.6
17-Apr-03 09:35:00	160.3	1137.1	20.1195	75.5	741.5	206.2	82.00	30.00	1.68	7.88	567.6
17-Apr-03 09:36:00	160.2	1137.1	20.1124	75.5	741.7	206.2	82.00	30.00	1.68	7.89	567.6
17-Apr-03 09:37:00	160.2	1137.1	20.1053	75.5	741.9	206.1	82.00	30.00	1.69	7.87	567.7
17-Apr-03 09:38:00	160.2	1137.1	20.0983	75.6	742.1	206.1	82.00	30.00	1.69	7.85	567.7
17-Apr-03 09:39:00	160.2	1137.1	20.0912	75.7	742.2	206.0	82.00	30.00	1.69	7.83	567.7

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1B, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
17-Apr-03 09:40:00	160.2	1137.2	20.0841	75.7	742.4	206.0	82.00	30.00	1.69	7.81	567.7
17-Apr-03 09:41:00	160.2	1137.2	20.0770	75.8	742.5	206.0	82.00	30.00	1.69	7.79	567.7
17-Apr-03 09:42:00	160.2	1137.3	20.0700	75.9	742.6	205.9	82.00	30.00	1.69	7.77	567.7
17-Apr-03 09:43:00	160.2	1137.3	20.0629	75.9	742.7	205.9	82.00	30.00	1.69	7.74	567.7
17-Apr-03 09:44:00	160.1	1137.4	20.0558	76.0	742.8	205.8	82.00	30.00	1.69	7.72	567.7
17-Apr-03 09:45:00	160.0	1137.5	20.0487	76.1	743.0	205.8	82.00	30.00	1.69	7.70	567.7
17-Apr-03 09:46:00	160.0	1137.5	20.0417	76.2	743.1	205.8	82.00	30.00	1.69	7.68	567.7
17-Apr-03 09:47:00	159.9	1137.6	20.0346	76.2	743.1	205.7	82.00	30.00	1.69	7.66	567.7
17-Apr-03 09:48:00	159.8	1137.6	20.0275	76.3	743.2	205.8	82.00	30.00	1.69	7.64	567.6
17-Apr-03 09:49:00	159.8	1137.7	20.0205	76.4	743.2	205.8	82.00	30.00	1.69	7.62	567.6
17-Apr-03 09:50:00	159.7	1137.7	20.0134	76.5	743.2	205.8	82.00	30.00	1.70	7.60	567.6
17-Apr-03 09:51:00	159.6	1137.8	20.0086	76.6	743.3	205.8	82.00	30.00	1.70	7.58	567.6
17-Apr-03 09:52:00	159.6	1137.8	20.0068	76.7	743.4	205.8	82.00	30.00	1.70	7.56	567.6
17-Apr-03 09:53:00	159.5	1137.9	20.0050	76.8	743.5	205.8	82.00	30.00	1.70	7.54	567.6
17-Apr-03 09:54:00	159.4	1138.0	20.0032	76.9	743.6	205.8	82.00	30.00	1.70	7.52	567.6
17-Apr-03 09:55:00	159.4	1138.0	20.0013	77.0	743.7	205.9	82.00	30.00	1.70	7.50	567.6
17-Apr-03 09:56:00	159.3	1138.1	19.9995	77.1	743.8	205.9	82.00	30.00	1.70	7.48	567.6
17-Apr-03 09:57:00	159.3	1138.1	19.9977	77.2	743.7	205.9	82.00	30.00	1.70	7.46	567.6
17-Apr-03 09:58:00	159.2	1138.2	19.9959	77.1	743.6	205.9	82.00	30.00	1.70	7.43	567.6
17-Apr-03 09:59:00	159.1	1138.2	19.9941	77.1	743.5	205.9	82.00	30.00	1.70	7.40	567.5
17-Apr-03 10:00:00	159.1	1138.3	19.9923	77.0	743.5	205.9	82.00	30.00	1.70	7.37	567.5
17-Apr-03 10:01:00	159.0	1138.3	19.9905	77.0	743.4	205.9	82.00	29.99	1.71	7.33	567.5
17-Apr-03 10:02:00	158.9	1138.4	19.9887	76.9	743.3	206.0	82.00	29.99	1.72	7.30	567.5
17-Apr-03 10:03:00	158.9	1138.5	19.9868	76.9	743.2	206.0	82.00	29.99	1.73	7.26	567.5
17-Apr-03 10:04:00	158.9	1138.5	19.9850	76.8	743.1	206.0	82.00	29.99	1.73	7.23	567.5
17-Apr-03 10:05:00	159.0	1138.5	19.9832	76.8	743.1	206.0	82.00	29.99	1.74	7.19	567.5
17-Apr-03 10:06:00	159.0	1138.5	19.9814	76.7	743.1	206.0	82.00	29.99	1.75	7.16	567.5
17-Apr-03 10:07:00	159.0	1138.5	19.9796	76.7	743.1	206.0	82.00	29.99	1.76	7.12	567.5
17-Apr-03 10:08:00	159.0	1138.5	19.9778	76.6	743.1	206.0	82.00	29.99	1.77	7.09	567.5
17-Apr-03 10:09:00	159.1	1138.5	19.9760	76.6	743.1	206.0	82.00	29.99	1.78	7.05	567.5
17-Apr-03 10:10:00	159.1	1138.5	19.9742	76.7	743.0	206.0	82.00	29.99	1.78	7.02	567.5
17-Apr-03 10:11:00	159.1	1138.6	19.9736	76.7	743.0	206.0	82.00	29.99	1.79	6.98	567.5
17-Apr-03 10:12:00	159.2	1138.6	19.9748	76.7	743.0	206.0	82.00	29.99	1.80	6.95	567.5
17-Apr-03 10:13:00	159.2	1138.6	19.9759	76.8	743.0	206.0	82.00	29.99	1.81	6.91	567.5
17-Apr-03 10:14:00	159.2	1138.6	19.9771	76.8	743.0	206.0	82.00	29.99	1.82	6.88	567.5
17-Apr-03 10:15:00	159.2	1138.6	19.9783	76.8	743.0	206.0	82.00	29.99	1.83	6.84	567.5
17-Apr-03 10:16:00	159.3	1138.6	19.9794	76.8	742.9	206.0	82.00	29.99	1.83	6.81	567.5
17-Apr-03 10:17:00	159.3	1138.6	19.9806	76.9	742.9	206.0	82.00	29.99	1.84	6.77	567.5
17-Apr-03 10:18:00	159.3	1138.6	19.9818	76.9	742.9	206.0	82.00	29.99	1.83	6.74	567.5
17-Apr-03 10:19:00	159.3	1138.7	19.9829	76.9	742.9	206.0	82.00	29.99	1.81	6.70	567.5
17-Apr-03 10:20:00	159.4	1138.7	19.9841	76.9	742.9	206.0	82.00	29.99	1.78	6.67	567.6
17-Apr-03 10:21:00	159.4	1138.7	19.9853	77.0	742.9	206.0	82.00	29.99	1.78	6.63	567.6
Averages:	**160.0**	**1137.5**	**20.0692**	**75.7**	**742.0**	**206.3**	**82.00**	**29.99**	**1.72**	**7.51**	**567.7**

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1B, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1B-C-3											
17-Apr-03 10:35:00	159.3	1139.1	20.0016	78.3	744.8	205.6	82.00	29.98	1.75	7.15	567.5
17-Apr-03 10:36:00	159.3	1139.1	20.0026	78.4	744.6	205.6	82.00	29.98	1.75	7.19	567.5
17-Apr-03 10:37:00	159.3	1139.1	19.9975	78.5	744.4	205.5	82.00	29.98	1.75	7.23	567.5
17-Apr-03 10:38:00	159.3	1139.2	19.9924	78.4	744.2	205.5	82.00	29.98	1.75	7.27	567.5
17-Apr-03 10:39:00	159.3	1139.2	19.9873	78.4	744.0	205.4	82.00	29.98	1.74	7.31	567.5
17-Apr-03 10:40:00	159.3	1139.3	19.9822	78.3	743.8	205.4	82.00	29.98	1.74	7.35	567.5
17-Apr-03 10:41:00	159.3	1139.3	19.9771	78.3	743.6	205.3	82.00	29.98	1.74	7.39	567.5
17-Apr-03 10:42:00	159.3	1139.4	19.9720	78.2	743.5	205.3	82.00	29.98	1.74	7.43	567.5
17-Apr-03 10:43:00	159.2	1139.4	19.9669	78.2	743.3	205.3	82.00	29.98	1.73	7.47	567.5
17-Apr-03 10:44:00	159.2	1139.5	19.9617	78.1	743.4	205.2	82.00	29.98	1.73	7.51	567.5
17-Apr-03 10:45:00	159.1	1139.5	19.9566	78.1	743.6	205.2	82.00	29.98	1.73	7.55	567.5
17-Apr-03 10:46:00	159.0	1139.5	19.9515	78.0	743.7	205.1	82.00	29.98	1.73	7.59	567.5
17-Apr-03 10:47:00	159.0	1139.6	19.9464	78.1	743.8	205.1	82.00	29.98	1.72	7.63	567.5
17-Apr-03 10:48:00	158.9	1139.6	19.9413	78.1	744.0	205.1	82.00	29.98	1.72	7.61	567.5
17-Apr-03 10:49:00	158.9	1139.7	19.9362	78.1	744.1	205.1	82.00	29.98	1.73	7.59	567.4
17-Apr-03 10:50:00	158.8	1139.7	19.9311	78.1	744.3	205.1	82.00	29.98	1.73	7.57	567.4
17-Apr-03 10:51:00	158.7	1139.8	19.9260	78.2	744.4	205.1	82.00	29.98	1.73	7.54	567.4
17-Apr-03 10:52:00	158.7	1139.8	19.9209	78.2	744.6	205.1	82.00	29.98	1.73	7.52	567.4
17-Apr-03 10:53:00	158.6	1139.8	19.9158	78.2	744.6	205.0	82.00	29.98	1.73	7.50	567.4
17-Apr-03 10:54:00	158.6	1139.9	19.9107	78.2	744.7	205.0	82.00	29.98	1.73	7.48	567.4
17-Apr-03 10:55:00	158.5	1139.9	19.9056	78.2	744.8	205.0	82.00	29.98	1.73	7.45	567.4
17-Apr-03 10:56:00	158.4	1139.9	19.9004	78.3	744.9	205.0	82.00	29.98	1.73	7.43	567.4
17-Apr-03 10:57:00	158.4	1140.0	19.8992	78.3	745.0	205.0	82.01	29.98	1.73	7.41	567.3
17-Apr-03 10:58:00	158.3	1140.0	19.9004	78.3	745.0	205.0	82.01	29.98	1.74	7.38	567.3
17-Apr-03 10:59:00	158.3	1140.0	19.9017	78.3	745.1	205.0	82.01	29.98	1.74	7.36	567.3
17-Apr-03 11:00:00	158.2	1140.1	19.9029	78.4	745.2	205.0	82.01	29.98	1.74	7.34	567.3
17-Apr-03 11:01:00	158.1	1140.1	19.9042	78.4	745.3	204.9	82.01	29.98	1.74	7.31	567.3
17-Apr-03 11:02:00	158.1	1140.1	19.9055	78.4	745.4	204.9	82.01	29.98	1.74	7.29	567.3
17-Apr-03 11:03:00	158.0	1140.1	19.9067	78.4	745.5	204.9	82.01	29.98	1.74	7.27	567.3
17-Apr-03 11:04:00	158.0	1140.2	19.9080	78.5	745.6	204.9	82.01	29.98	1.74	7.25	567.3
17-Apr-03 11:05:00	158.0	1140.2	19.9093	78.5	745.6	204.9	82.01	29.98	1.74	7.22	567.2
17-Apr-03 11:06:00	158.0	1140.2	19.9105	78.5	745.7	204.8	82.01	29.98	1.74	7.20	567.2
17-Apr-03 11:07:00	158.0	1140.3	19.9118	78.5	745.8	204.8	82.01	29.98	1.74	7.18	567.2
17-Apr-03 11:08:00	157.9	1140.3	19.9130	78.5	745.9	204.8	82.01	29.98	1.75	7.15	567.2
17-Apr-03 11:09:00	157.9	1140.3	19.9143	78.6	745.8	204.7	82.00	29.98	1.75	7.14	567.2
17-Apr-03 11:10:00	157.9	1140.3	19.9156	78.6	745.6	204.7	82.00	29.98	1.75	7.16	567.2
17-Apr-03 11:11:00	157.9	1140.4	19.9168	78.6	745.5	204.7	82.00	29.97	1.75	7.18	567.2
17-Apr-03 11:12:00	157.8	1140.4	19.9181	78.6	745.3	204.6	82.00	29.97	1.75	7.21	567.2
17-Apr-03 11:13:00	157.8	1140.4	19.9193	78.6	745.2	204.6	82.00	29.97	1.75	7.23	567.2
17-Apr-03 11:14:00	157.8	1140.5	19.9206	78.7	745.1	204.6	82.00	29.97	1.75	7.26	567.2
17-Apr-03 11:15:00	157.8	1140.5	19.9219	78.7	745.1	204.5	82.00	29.97	1.75	7.28	567.2
17-Apr-03 11:16:00	157.8	1140.5	19.9231	78.7	745.2	204.5	82.00	29.97	1.75	7.30	567.2
17-Apr-03 11:17:00	157.7	1140.5	19.9213	78.7	745.2	204.5	82.00	29.97	1.74	7.33	567.2
17-Apr-03 11:18:00	157.7	1140.6	19.9171	78.7	745.2	204.4	82.00	29.97	1.74	7.35	567.2
17-Apr-03 11:19:00	157.7	1140.6	19.9130	78.8	745.3	204.4	82.00	29.97	1.74	7.38	567.2
17-Apr-03 11:20:00	157.7	1140.6	19.9088	78.8	745.4	204.3	82.00	29.97	1.74	7.40	567.2
17-Apr-03 11:21:00	157.6	1140.6	19.9046	78.8	745.4	204.3	82.00	29.97	1.74	7.42	567.2
17-Apr-03 11:22:00	157.6	1140.6	19.9004	78.8	745.5	204.3	82.00	29.97	1.74	7.45	567.2
17-Apr-03 11:23:00	157.6	1140.6	19.8963	78.8	745.6	204.2	82.00	29.97	1.74	7.47	567.2
17-Apr-03 11:24:00	157.6	1140.7	19.8921	78.8	745.6	204.2	82.00	29.97	1.74	7.50	567.1

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1B, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCT1M	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
17-Apr-03 11:25:00	157.6	1140.7	19.8879	78.9	745.7	204.2	82.00	29.97	1.74	7.52	567.1
17-Apr-03 11:26:00	157.6	1140.7	19.8837	78.9	745.8	204.1	82.00	29.97	1.74	7.54	567.1
17-Apr-03 11:27:00	157.6	1140.7	19.8796	78.9	745.9	204.1	82.00	29.97	1.73	7.57	567.1
17-Apr-03 11:28:00	157.6	1140.7	19.8754	78.9	745.9	204.1	82.00	29.97	1.73	7.59	567.1
17-Apr-03 11:29:00	157.6	1140.7	19.8712	78.9	746.0	204.1	82.00	29.97	1.73	7.62	567.1
17-Apr-03 11:30:00	157.6	1140.7	19.8671	78.9	746.2	204.1	82.00	29.97	1.73	7.64	567.1
17-Apr-03 11:31:00	157.6	1140.7	19.8629	79.0	746.4	204.0	82.00	29.97	1.73	7.66	567.1
17-Apr-03 11:32:00	157.6	1140.8	19.8587	79.0	746.6	204.0	82.00	29.97	1.73	7.69	567.1
17-Apr-03 11:33:00	157.6	1140.8	19.8545	79.0	746.8	204.0	82.00	29.97	1.73	7.71	567.1
17-Apr-03 11:34:00	157.6	1140.8	19.8504	79.0	747.0	204.0	82.00	29.97	1.73	7.74	567.1
17-Apr-03 11:35:00	157.6	1140.8	19.8462	79.0	747.2	204.0	82.00	29.97	1.73	7.74	567.1
17-Apr-03 11:36:00	157.6	1140.8	19.8420	79.0	747.2	203.9	82.00	29.97	1.73	7.73	567.1
17-Apr-03 11:37:00	157.6	1140.8	19.8378	79.1	747.3	203.9	82.00	29.97	1.73	7.72	567.0
17-Apr-03 11:38:00	157.6	1140.8	19.8329	79.2	747.4	203.9	82.00	29.97	1.72	7.71	567.0
17-Apr-03 11:39:00	157.5	1140.8	19.8281	79.2	747.4	203.9	82.00	29.97	1.72	7.70	567.0
17-Apr-03 11:40:00	157.5	1140.9	19.8232	79.3	747.5	203.9	82.00	29.97	1.72	7.69	567.0
17-Apr-03 11:41:00	157.5	1140.9	19.8183	79.3	747.5	203.8	82.01	29.97	1.72	7.68	567.0
17-Apr-03 11:42:00	157.5	1140.9	19.8134	79.4	747.6	203.8	82.01	29.97	1.72	7.67	567.0
17-Apr-03 11:43:00	157.5	1140.9	19.8086	79.5	747.7	203.8	82.01	29.97	1.72	7.66	567.0
17-Apr-03 11:44:00	157.5	1140.9	19.8037	79.5	747.7	203.8	82.01	29.97	1.72	7.65	567.0
17-Apr-03 11:45:00	157.5	1140.9	19.7988	79.6	747.8	203.8	82.01	29.97	1.72	7.64	567.0
17-Apr-03 11:46:00	157.4	1140.9	19.7940	79.6	747.9	203.7	82.01	29.97	1.72	7.63	567.0
17-Apr-03 11:47:00	157.4	1140.9	19.7891	79.7	747.9	203.7	82.01	29.97	1.71	7.62	567.0
17-Apr-03 11:48:00	157.4	1140.9	19.7842	79.7	747.9	203.7	82.00	29.97	1.71	7.61	566.9
17-Apr-03 11:49:00	157.3	1140.9	19.7793	79.8	747.9	203.7	82.00	29.97	1.71	7.60	566.9
17-Apr-03 11:50:00	157.3	1140.9	19.7745	79.9	747.9	203.7	82.00	29.97	1.71	7.59	566.9
17-Apr-03 11:51:00	157.3	1140.9	19.7696	79.9	747.8	203.7	82.00	29.97	1.71	7.58	567.0
17-Apr-03 11:52:00	157.2	1140.9	19.7647	79.8	747.6	203.7	82.00	29.97	1.71	7.58	567.0
17-Apr-03 11:53:00	157.2	1141.0	19.7598	79.7	747.4	203.7	82.00	29.97	1.71	7.57	567.0
17-Apr-03 11:54:00	157.2	1141.0	19.7550	79.7	747.2	203.7	82.00	29.97	1.71	7.56	567.0
17-Apr-03 11:55:00	157.2	1141.0	19.7501	79.6	747.1	203.7	82.00	29.96	1.71	7.56	567.0
17-Apr-03 11:56:00	157.1	1141.0	19.7452	79.5	747.2	203.7	82.00	29.96	1.70	7.55	567.0
17-Apr-03 11:57:00	157.1	1141.0	19.7404	79.4	747.3	203.7	82.00	29.96	1.70	7.55	567.0
17-Apr-03 11:58:00	157.1	1141.0	19.7355	79.3	747.4	203.7	82.00	29.96	1.70	7.55	567.0
17-Apr-03 11:59:00	157.0	1141.0	19.7306	79.3	747.5	203.7	82.00	29.96	1.70	7.54	567.0
17-Apr-03 12:00:00	157.0	1141.0	19.7257	79.3	747.6	203.6	82.00	29.96	1.70	7.54	567.0
17-Apr-03 12:01:00	157.0	1141.0	19.7209	79.4	747.6	203.6	82.00	29.96	1.70	7.54	567.0
17-Apr-03 12:02:00	156.9	1141.0	19.7179	79.4	747.7	203.6	82.00	29.96	1.70	7.53	567.0
17-Apr-03 12:03:00	156.9	1141.0	19.7213	79.5	747.8	203.6	82.00	29.96	1.70	7.53	567.0
17-Apr-03 12:04:00	156.9	1141.0	19.7247	79.5	747.9	203.6	82.00	29.96	1.71	7.53	567.0
17-Apr-03 12:05:00	157.0	1141.0	19.7281	79.6	748.0	203.6	82.00	29.96	1.71	7.52	567.0
17-Apr-03 12:06:00	157.0	1141.0	19.7314	79.7	748.1	203.6	82.00	29.96	1.71	7.52	567.0
17-Apr-03 12:07:00	157.0	1141.0	19.7348	79.7	748.2	203.6	82.00	29.96	1.71	7.52	567.0
17-Apr-03 12:08:00	157.0	1141.1	19.7382	79.8	748.2	203.6	82.00	29.96	1.71	7.51	567.0
17-Apr-03 12:09:00	157.1	1141.1	19.7416	79.9	748.3	203.6	82.00	29.96	1.71	7.51	567.0
Averages:	**157.9**	**1140.4**	**19.8649**	**78.9**	**746.0**	**204.4**	**82.00**	**29.97**	**1.73**	**7.48**	**567.2**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN21	GAS22	NOX25	COL24	CO223	COLD28	NOXRT26
		(MW)	(lbs/sec)	(ppmv)	(ppmv)	(% vol)	(ppmv @15% O2)	(lbs/MMBtu)
Run 1B-RA-1								
4/17/03	70200	164.6	20.2070	3.58	0.80	4.37	0.6	0.010
4/17/03	70300	164.6	20.1800	3.53	0.80	4.37	0.6	0.010
4/17/03	70400	164.7	20.1490	3.52	0.80	4.37	0.6	0.010
4/17/03	70500	164.5	20.1490	3.52	0.80	4.37	0.6	0.010
4/17/03	70600	164.6	20.1530	3.50	0.80	4.37	0.6	0.010
4/17/03	70700	164.7	20.1780	3.50	0.80	4.37	0.6	0.010
4/17/03	70800	164.6	20.2070	3.50	0.80	4.37	0.6	0.010
4/17/03	70900	164.5	20.1740	3.50	0.80	4.37	0.6	0.010
4/17/03	71000	164.3	20.1530	3.51	0.80	4.37	0.6	0.010
4/17/03	71100	164.6	20.1550	3.54	0.80	4.37	0.6	0.010
4/17/03	71200	164.4	20.1550	3.51	0.80	4.37	0.6	0.010
4/17/03	71300	164.3	20.1530	3.50	0.90	4.36	0.7	0.010
4/17/03	71400	164.2	20.1490	3.49	0.90	4.37	0.7	0.010
4/17/03	71500	164.1	20.1530	3.50	0.80	4.37	0.6	0.010
4/17/03	71600	164.1	20.1530	3.49	0.80	4.37	0.6	0.010
4/17/03	71700	164.4	20.1490	3.48	0.80	4.37	0.6	0.010
4/17/03	71800	164.1	20.1490	3.50	0.80	4.37	0.6	0.010
4/17/03	71900	164.1	20.1530	3.51	0.80	4.37	0.6	0.010
4/17/03	72000	164.0	20.1490	3.51	0.80	4.37	0.6	0.010
4/17/03	72100	164.0	20.1210	3.50	0.80	4.37	0.6	0.010
4/17/03	72200	163.9	20.0960	3.48	0.80	4.37	0.6	0.010
4/17/03	72300	164.0	20.0980	3.49	0.80	4.37	0.6	0.010
	Averages:	**164.3**	**20.1540**	**3.507**	**0.809**	**4.370**	**0.609**	**0.010**
Run 1B-RA-2								
4/17/03	73600	163.8	20.0940	3.47	0.80	4.37	0.6	0.010
4/17/03	73700	163.7	20.0920	3.47	0.80	4.37	0.6	0.010
4/17/03	73800	163.4	20.0960	3.46	0.80	4.37	0.6	0.010
4/17/03	73900	163.4	20.0630	3.46	0.80	4.37	0.6	0.010
4/17/03	74000	163.4	20.0610	3.48	0.80	4.37	0.6	0.010
4/17/03	74100	163.2	20.0650	3.48	0.80	4.36	0.6	0.010
4/17/03	74200	163.0	20.0340	3.50	0.80	4.36	0.6	0.010
4/17/03	74300	163.0	20.0320	3.51	0.80	4.36	0.6	0.010
4/17/03	74400	163.0	20.0340	3.52	0.80	4.37	0.6	0.010
4/17/03	74500	162.9	20.0340	3.51	0.80	4.37	0.6	0.010
4/17/03	74600	162.9	20.0340	3.54	0.80	4.37	0.6	0.010
4/17/03	74700	163.0	20.0340	3.52	0.80	4.37	0.6	0.010
4/17/03	74800	162.9	20.0360	3.51	0.80	4.36	0.6	0.010
4/17/03	74900	162.7	20.0090	3.50	0.80	4.36	0.6	0.010
4/17/03	75000	162.5	19.9800	3.52	0.80	4.37	0.6	0.010
4/17/03	75100	162.5	19.9800	3.51	0.80	4.37	0.6	0.010
4/17/03	75200	162.5	19.9740	3.49	0.80	4.36	0.6	0.010
4/17/03	75300	162.5	19.9510	3.49	0.80	4.36	0.6	0.010
4/17/03	75400	162.4	19.9470	3.47	0.80	4.36	0.6	0.010
4/17/03	75500	162.5	19.9800	3.45	0.80	4.36	0.6	0.010
4/17/03	75600	162.5	19.9740	3.46	0.80	4.36	0.6	0.010
4/17/03	75700	162.5	19.9760	3.46	0.80	4.36	0.6	0.010
	Averages:	**162.9**	**20.0220**	**3.490**	**0.800**	**4.365**	**0.600**	**0.010**

CEMS DAHS data collected by Spectrum Systems Inc.

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN21	GAS22	NOX25	COL24	CO223	COLD28	NOXRT26
		(MW)	(lbs/sec)	(ppmv)	(ppmv)	(% vol)	(ppmv @15% O2)	(lbs/MMBtu)
Run 1B-RA-3								
4/17/03	80900	162.2	19.9780	3.49	0.80	4.36	0.6	0.010
4/17/03	81000	162.2	19.9760	3.50	0.80	4.36	0.6	0.010
4/17/03	81100	162.1	19.9490	3.50	0.80	4.36	0.6	0.010
4/17/03	81200	162.0	19.9220	3.50	0.80	4.36	0.6	0.010
4/17/03	81300	162.1	19.9490	3.51	0.80	4.36	0.6	0.010
4/17/03	81400	162.2	19.9530	3.51	0.80	4.36	0.6	0.010
4/17/03	81500	162.1	19.9220	3.53	0.80	4.36	0.6	0.010
4/17/03	81600	161.9	19.9160	3.55	0.80	4.36	0.6	0.010
4/17/03	81700	161.9	19.9470	3.54	0.80	4.36	0.6	0.010
4/17/03	81800	161.7	19.9510	3.56	0.80	4.36	0.6	0.010
4/17/03	81900	161.8	19.9200	3.53	0.80	4.36	0.6	0.010
4/17/03	82000	161.8	19.9200	3.50	0.80	4.36	0.6	0.010
4/17/03	82100	161.9	19.9200	3.48	0.80	4.36	0.6	0.010
4/17/03	82200	161.9	19.9180	3.48	0.80	4.36	0.6	0.010
4/17/03	82300	161.8	19.9220	3.49	0.80	4.36	0.6	0.010
4/17/03	82400	161.6	19.9220	3.48	0.80	4.36	0.6	0.010
4/17/03	82500	161.6	19.9200	3.46	0.80	4.36	0.6	0.010
4/17/03	82600	161.8	19.9200	3.48	0.70	4.35	0.5	0.010
4/17/03	82700	161.6	19.9220	3.47	0.70	4.35	0.5	0.010
4/17/03	82800	161.4	19.9000	3.47	0.70	4.35	0.5	0.010
4/17/03	82900	161.1	19.8710	3.49	0.70	4.35	0.5	0.010
4/17/03	83000	160.9	19.8710	3.52	0.70	4.35	0.5	0.010
	Averages:	**161.8**	**19.9270**	**3.502**	**0.777**	**4.358**	**0.577**	**0.010**
Run 1B-RA-4								
4/17/03	85000	160.9	19.8710	3.52	0.70	4.35	0.5	0.010
4/17/03	85100	160.8	19.8420	3.49	0.70	4.35	0.5	0.010
4/17/03	85200	160.7	19.8380	3.49	0.70	4.35	0.5	0.010
4/17/03	85300	160.4	19.8440	3.46	0.80	4.35	0.6	0.010
4/17/03	85400	160.3	19.7880	3.48	0.80	4.35	0.6	0.010
4/17/03	85500	160.6	19.7860	3.47	0.80	4.35	0.6	0.010
4/17/03	85600	160.6	19.8150	3.46	0.70	4.35	0.5	0.010
4/17/03	85700	160.5	19.8110	3.47	0.70	4.35	0.5	0.010
4/17/03	85800	160.5	19.8150	3.49	0.70	4.35	0.5	0.010
4/17/03	85900	160.7	19.8150	3.52	0.70	4.35	0.5	0.010
4/17/03	90000	160.5	19.8110	3.52	0.70	4.35	0.5	0.010
4/17/03	90100	160.0	19.8110	3.53	0.70	4.35	0.5	0.010
4/17/03	90200	160.5	19.8110	3.56	0.70	4.35	0.5	0.010
4/17/03	90300	160.4	19.8150	3.58	0.70	4.34	0.5	0.010
4/17/03	90400	160.2	19.8150	3.60	0.70	4.34	0.5	0.010
4/17/03	90500	160.2	19.8150	3.59	0.70	4.34	0.5	0.010
4/17/03	90600	160.4	19.8110	3.55	0.70	4.34	0.5	0.010
4/17/03	90700	160.4	19.8090	3.51	0.70	4.35	0.5	0.010
4/17/03	90800	160.3	19.8170	3.48	0.70	4.34	0.5	0.010
4/17/03	90900	160.2	19.8090	3.48	0.80	4.35	0.5	0.010
4/17/03	91000	160.3	19.8110	3.46	0.80	4.34	0.6	0.010
4/17/03	91100	160.5	19.8110	3.46	0.80	4.35	0.6	0.010
	Averages:	**160.5**	**19.8170**	**3.508**	**0.727**	**4.347**	**0.523**	**0.010**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN21	GAS22	NOX25	COL24	CO223	COLD28	NOXRT26
		(MW)	(lbs/sec)	(ppmv)	(ppmv)	(% vol)	(ppmv @15% O2)	(lbs/MMBtu)
Run 1B-RA-5								
4/17/03	92300	160.7	19.8730	3.47	0.80	4.35	0.6	0.010
4/17/03	92400	160.6	19.8690	3.47	0.80	4.35	0.6	0.010
4/17/03	92500	160.3	19.8460	3.48	0.80	4.35	0.6	0.010
4/17/03	92600	160.5	19.8110	3.47	0.80	4.35	0.6	0.010
4/17/03	92700	160.3	19.8110	3.47	0.80	4.35	0.6	0.010
4/17/03	92800	160.0	19.8150	3.46	0.80	4.35	0.6	0.010
4/17/03	92900	159.9	19.7880	3.47	0.80	4.35	0.6	0.010
4/17/03	93000	160.2	19.7780	3.47	0.80	4.35	0.6	0.010
4/17/03	93100	160.2	19.8110	3.49	0.80	4.35	0.6	0.010
4/17/03	93200	160.2	19.8110	3.52	0.80	4.35	0.6	0.010
4/17/03	93300	160.1	19.8150	3.53	0.80	4.35	0.6	0.010
4/17/03	93400	160.2	19.8190	3.54	0.80	4.35	0.6	0.010
4/17/03	93500	160.3	19.8110	3.50	0.80	4.35	0.6	0.010
4/17/03	93600	160.3	19.8110	3.50	0.80	4.35	0.6	0.010
4/17/03	93700	159.9	19.8190	3.50	0.80	4.36	0.6	0.010
4/17/03	93800	159.6	19.8090	3.49	0.80	4.36	0.6	0.010
4/17/03	93900	159.7	19.7880	3.47	0.80	4.36	0.6	0.010
4/17/03	94000	159.9	19.7610	3.47	0.80	4.35	0.6	0.010
4/17/03	94100	159.7	19.7620	3.46	0.80	4.35	0.6	0.010
4/17/03	94200	159.9	19.7780	3.47	0.70	4.36	0.5	0.010
4/17/03	94300	159.8	19.7820	3.48	0.80	4.35	0.6	0.010
4/17/03	94400	159.9	19.7490	3.49	0.70	4.35	0.6	0.010
Averages:		**160.1**	**19.8050**	**3.485**	**0.791**	**4.352**	**0.595**	**0.010**
Run 1B-RA-6								
4/17/03	100000	158.9	19.6690	3.46	0.80	4.33	0.6	0.010
4/17/03	100100	159.2	19.6990	3.47	0.70	4.33	0.5	0.010
4/17/03	100200	159.1	19.7080	3.50	0.80	4.34	0.6	0.010
4/17/03	100300	159.1	19.7330	3.50	0.80	4.34	0.6	0.010
4/17/03	100400	159.1	19.7290	3.47	0.80	4.34	0.6	0.010
4/17/03	100500	159.0	19.7040	3.47	0.80	4.34	0.6	0.010
4/17/03	100600	159.1	19.6950	3.43	0.80	4.33	0.6	0.010
4/17/03	100700	159.3	19.7370	3.42	0.80	4.34	0.6	0.010
4/17/03	100800	159.6	19.7490	3.43	0.70	4.33	0.5	0.010
4/17/03	100900	159.6	19.7700	3.44	0.70	4.33	0.5	0.010
4/17/03	101000	159.3	19.7570	3.42	0.70	4.33	0.5	0.010
4/17/03	101100	159.2	19.7700	3.44	0.80	4.33	0.5	0.010
4/17/03	101200	159.2	19.7490	3.43	0.70	4.33	0.5	0.010
4/17/03	101300	159.1	19.7570	3.44	0.70	4.33	0.5	0.010
4/17/03	101400	159.2	19.7350	3.46	0.70	4.33	0.5	0.010
4/17/03	101500	159.2	19.7350	3.50	0.70	4.33	0.5	0.010
4/17/03	101600	159.1	19.7570	3.51	0.80	4.33	0.6	0.010
4/17/03	101700	159.2	19.7490	3.54	0.80	4.33	0.6	0.010
4/17/03	101800	159.2	19.7290	3.52	0.70	4.32	0.5	0.010
4/17/03	101900	159.4	19.7040	3.49	0.70	4.33	0.5	0.010
4/17/03	102000	159.3	19.7310	3.45	0.70	4.33	0.5	0.010
4/17/03	102100	159.4	19.7740	3.46	0.80	4.32	0.5	0.010
Averages:		**159.2**	**19.7340**	**3.466**	**0.750**	**4.331**	**0.541**	**0.010**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN21	GAS22	NOX25	COL24	CO223	COLD28	NOXRT26
		(MW)	(lbs/sec)	(ppmv)	(ppmv)	(% vol)	(ppmv @15% O2)	(lbs/MMBtu)
Run 1B-RA-7								
DATE	TIME	GEN21	GAS22	NOX25	COL24	CO223	COLD28	NOXRT26
4/17/03	103500	158.2	19.6360	3.51	0.80	4.32	0.6	0.010
4/17/03	103600	158.3	19.6070	3.48	0.80	4.32	0.6	0.010
4/17/03	103700	158.2	19.6500	3.49	0.80	4.32	0.6	0.010
4/17/03	103800	158.4	19.6500	3.47	0.80	4.32	0.6	0.010
4/17/03	103900	158.3	19.6640	3.45	0.80	4.32	0.6	0.010
4/17/03	104000	158.3	19.6810	3.43	0.80	4.32	0.6	0.010
4/17/03	104100	158.5	19.6050	3.50	0.80	4.32	0.6	0.010
4/17/03	104200	158.6	19.6500	3.49	0.70	4.32	0.5	0.010
4/17/03	104300	158.8	19.6520	3.45	0.70	4.32	0.5	0.010
4/17/03	104400	158.9	19.6600	3.46	0.70	4.32	0.5	0.010
4/17/03	104500	158.8	19.6950	3.45	0.70	4.32	0.5	0.010
4/17/03	104600	158.5	19.6500	3.45	0.80	4.32	0.6	0.010
4/17/03	104700	158.4	19.6500	3.43	0.70	4.32	0.5	0.010
4/17/03	104800	158.3	19.6500	3.44	0.70	4.32	0.5	0.010
4/17/03	104900	158.3	19.6500	3.48	0.70	4.32	0.5	0.010
4/17/03	105000	158.3	19.6500	3.52	0.80	4.32	0.5	0.010
4/17/03	105100	158.4	19.6420	3.49	0.80	4.32	0.6	0.010
4/17/03	105200	158.6	19.6500	3.49	0.70	4.32	0.6	0.010
4/17/03	105300	158.5	19.6460	3.46	0.70	4.32	0.5	0.010
4/17/03	105400	158.1	19.6400	3.46	0.80	4.32	0.6	0.010
4/17/03	105500	157.9	19.5430	3.44	0.80	4.32	0.6	0.010
4/17/03	105600	158.2	19.5970	3.45	0.80	4.32	0.6	0.010
Averages:		**158.4**	**19.6420**	**3.468**	**0.759**	**4.32**	**0.559**	**0.010**
Run 1B-RA-8								
4/17/03	111600	157.7	19.6200	3.55	0.70	4.30	0.5	0.010
4/17/03	111700	157.3	19.5930	3.53	0.70	4.31	0.5	0.010
4/17/03	111800	157.5	19.5950	3.49	0.80	4.31	0.6	0.010
4/17/03	111900	157.5	19.5910	3.48	0.80	4.30	0.5	0.010
4/17/03	112000	157.7	19.5950	3.47	0.80	4.30	0.6	0.010
4/17/03	112100	157.6	19.5910	3.45	0.70	4.30	0.5	0.010
4/17/03	112200	157.5	19.5890	3.46	0.80	4.30	0.6	0.010
4/17/03	112300	157.4	19.5930	3.46	0.70	4.30	0.5	0.010
4/17/03	112400	157.4	19.5890	3.48	0.80	4.30	0.6	0.010
4/17/03	112500	157.3	19.5640	3.52	0.80	4.30	0.6	0.010
4/17/03	112600	157.2	19.5600	3.48	0.80	4.30	0.6	0.010
4/17/03	112700	157.4	19.5930	3.45	0.80	4.30	0.6	0.010
4/17/03	112800	157.4	19.6010	3.43	0.80	4.30	0.6	0.010
4/17/03	112900	157.2	19.5910	3.41	0.80	4.30	0.6	0.010
4/17/03	113000	157.1	19.5680	3.41	0.80	4.30	0.6	0.010
4/17/03	113100	157.4	19.5560	3.39	0.80	4.30	0.6	0.010
4/17/03	113200	157.3	19.5930	3.40	0.80	4.30	0.6	0.010
4/17/03	113300	157.3	19.5930	3.45	0.80	4.30	0.6	0.010
4/17/03	113400	157.4	19.5890	3.51	0.80	4.30	0.6	0.010
4/17/03	113500	157.4	19.5910	3.49	0.80	4.30	0.5	0.010
4/17/03	113600	157.3	19.5950	3.45	0.80	4.30	0.6	0.010
4/17/03	113700	157.2	19.5680	3.45	0.80	4.30	0.6	0.010
Averages:		**157.4**	**19.5870**	**3.464**	**0.782**	**4.30**	**0.573**	**0.010**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN21	GAS22	NOX25	COL24	CO223	COLD28	NOXRT26
		(MW)	(lbs/sec)	(ppmv)	(ppmv)	(% vol)	(ppmv @15% O2)	(lbs/MMBtu)
Run 1B-RA-9								
4/17/03	114800	156.9	19.5100	3.42	0.80	4.30	0.6	0.010
4/17/03	114900	157.2	19.5350	3.42	0.80	4.30	0.6	0.010
4/17/03	115000	157.1	19.5040	3.43	0.80	4.30	0.6	0.010
4/17/03	115100	156.7	19.4770	3.51	0.80	4.30	0.6	0.010
4/17/03	115200	156.8	19.4790	3.52	0.80	4.30	0.6	0.010
4/17/03	115300	157.0	19.4790	3.48	0.80	4.30	0.6	0.010
4/17/03	115400	157.1	19.5080	3.45	0.80	4.30	0.6	0.010
4/17/03	115500	157.1	19.5350	3.45	0.80	4.30	0.6	0.010
4/17/03	115600	157.0	19.5350	3.45	0.80	4.30	0.6	0.010
4/17/03	115700	157.5	19.5390	3.42	0.70	4.30	0.6	0.010
4/17/03	115800	157.2	19.5080	3.43	0.70	4.30	0.6	0.010
4/17/03	115900	157.2	19.5060	3.45	0.80	4.30	0.6	0.010
4/17/03	120000	157.4	19.5270	3.51	0.80	4.30	0.6	0.010
4/17/03	120100	157.1	19.5330	3.46	0.70	4.30	0.5	0.010
4/17/03	120200	157.1	19.5390	3.43	0.80	4.30	0.5	0.010
4/17/03	120300	156.8	19.5000	3.42	0.80	4.30	0.6	0.010
4/17/03	120400	156.8	19.4770	3.43	0.80	4.30	0.6	0.010
4/17/03	120500	156.9	19.5040	3.42	0.80	4.30	0.6	0.010
4/17/03	120600	157.1	19.5390	3.41	0.70	4.30	0.6	0.010
4/17/03	120700	156.9	19.5080	3.41	0.70	4.30	0.5	0.010
4/17/03	120800	157.2	19.5120	3.42	0.80	4.30	0.6	0.010
4/17/03	120900	157.1	19.5390	3.45	0.80	4.30	0.6	0.010
	Averages:	**157.1**	**19.5130**	**3.445**	**0.777**	**4.30**	**0.586**	**0.010**

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===========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1B
===========================================================================
 Report Period
 Day: 05/21/2003       ZERO CAL                        SPAN CAL
===========================================================================
          TIME   ZERO     %CE     REF       TIME    SPAN     %CE      REF
NOxHigh   1:21  -0.30   0.300P   0.00       1:24   82.80   0.300P    83.10

NOx Low   1:21   0.00   0.000P   0.00       1:18    5.70   0.200P     5.50

CO2       1:21   0.00   0.000P   0.00       1:24    5.80   0.300P     5.50

CO High   1:24  -1.60   0.160P   0.00       1:21  551.10   0.590P   557.00

CO Low    1:24   0.20   1.000P   0.00       1:18   11.20   0.500P    11.30

===========================================================================



 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:29:47
                              P - Calibration Passed    F - Calibration Failed
```

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==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1B
==========================================================================
 Report Period
 Day: 05/22/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO    %CE      REF       TIME    SPAN     %CE     REF
NOxHigh   1:21  -0.30   0.300P   0.00       1:24   83.20   0.100P  83.10

NOx Low   1:21   0.00   0.000P   0.00       1:18    5.70   0.200P   5.50

CO2       1:21   0.00   0.000P   0.00       1:24    5.80   0.300P   5.50

CO High   1:24  -1.70   0.170P   0.00       1:21  555.30   0.170P 557.00

CO Low    1:24   0.30   1.500P   0.00       1:18   11.30   0.000P  11.30

==========================================================================



 Today's Date: 05/27/2003    %CE = Percent Calibration Error
 Time: 06:31:47
                              P - Calibration Passed    F - Calibration Failed
```

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==========================================================================
                          Daily Calibration Summary
                          Tampa Electric Company
                          Bayside CT1B
==========================================================================
 Report Period
 Day: 05/23/2003        ZERO CAL                         SPAN CAL
==========================================================================
          TIME   ZERO     %CE      REF        TIME   SPAN     %CE     REF
NOxHigh   1:21  -0.30   0.300P    0.00        1:24  82.70   0.400P  83.10

NOx Low   1:21   0.00   0.000P    0.00        1:18   5.60   0.100P   5.50

CO2       1:21   0.00   0.000P    0.00        1:24   5.90   0.400P   5.50

CO High   1:24  -1.70   0.170P    0.00        1:21 554.20   0.280P 557.00

CO Low    1:24   0.30   1.500P    0.00        1:18  11.30   0.000P  11.30

==========================================================================




 Today's Date: 05/27/2003    %CE = Percent Calibration Error
 Time: 06:32:45
                             P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1B
==========================================================================
 Report Period
 Day: 05/24/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO      %CE     REF       TIME    SPAN     %CE     REF
NOxHigh   1:21  -0.30   0.300P   0.00       1:24  83.20   0.100P  83.10
         14:41  -0.20   0.200P   0.00      14:44  83.50   0.400P  83.10

NOx Low   1:21   0.00   0.000P   0.00       1:18   5.60   0.100P   5.50
         14:41   0.00   0.000P   0.00      14:38   5.80   0.300P   5.50

CO2       1:21   0.00   0.000P   0.00       1:24   5.80   0.300P   5.50
         14:41   0.00   0.000P   0.00      14:44   5.80   0.300P   5.50

CO High   1:24  -1.70   0.170P   0.00       1:21 557.80   0.080P 557.00
         14:44  -1.70   0.170P   0.00      14:41 557.90   0.090P 557.00

CO Low    1:24   0.30   1.500P   0.00       1:18  11.40   0.500P  11.30
         14:44   0.30   1.500P   0.00      14:38  11.40   0.500P  11.30

==========================================================================



 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:33:41
                              P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                        Daily Calibration Summary
                        Tampa Electric Company
                        Bayside CT1B
==========================================================================
 Report Period
 Day: 05/25/2003        ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO      %CE      REF         TIME    SPAN      %CE      REF
NOxHigh   1:21  -0.30    0.300P    0.00         1:24   82.70    0.400P   83.10

NOx Low   1:21   0.00    0.000P    0.00         1:18    5.70    0.200P    5.50

CO2       1:21   0.00    0.000P    0.00         1:24    5.90    0.400P    5.50

CO High   1:24  -1.70    0.170P    0.00         1:21  555.60    0.140P  557.00

CO Low    1:24   0.30    1.500P    0.00         1:18   11.30    0.000P   11.30

==========================================================================



 Today's Date: 05/27/2003     %CE = Percent Calibration Error
 Time: 06:44:59
                              P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1B
==========================================================================
 Report Period
 Day: 05/26/2003       ZERO CAL                       SPAN CAL
==========================================================================
          TIME   ZERO      %CE      REF         TIME   SPAN      %CE     REF
NOxHigh   1:21  -0.30    0.300P    0.00         1:24   83.20   0.100P   83.10

NOx Low   1:21   0.00    0.000P    0.00         1:18    5.70   0.200P    5.50

CO2       1:21   0.00    0.000P    0.00         1:24    5.80   0.300P    5.50

CO High   1:24  -1.60    0.160P    0.00         1:21  560.10   0.310P  557.00

CO Low    1:24   0.40    2.000P    0.00         1:18   11.40   0.500P   11.30

==========================================================================


 Today's Date: 05/27/2003      %CE = Percent Calibration Error
 Time: 06:35:38
                               P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1B
==========================================================================
 Report Period
 Day: 05/27/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO    %CE      REF       TIME    SPAN     %CE     REF
NOxHigh   1:21  -0.30   0.300P   0.00       1:24   82.70   0.400P   83.10
         10:28  -0.30   0.300P   0.00      10:31   83.00   0.100P   83.10

NOx Low   1:21   0.00   0.000P   0.00       1:18    5.60   0.100P    5.50
         10:28   0.00   0.000P   0.00      10:25    5.70   0.200P    5.50

CO2       1:21   0.00   0.000P   0.00       1:24    5.90   0.400P    5.50
         10:28   0.00   0.000P   0.00      10:31    5.80   0.300P    5.50

CO High   1:24  -1.70   0.170P   0.00       1:21  557.00   0.000P  557.00
         10:31  -1.70   0.170P   0.00      10:28  556.60   0.040P  557.00

CO Low    1:24   0.40   2.000P   0.00       1:18   11.40   0.500P   11.30
         10:31   0.30   1.500P   0.00      10:25   11.40   0.500P   11.30

==========================================================================




 Today's Date: 05/29/2003     %CE = Percent Calibration Error
 Time: 07:42:10
                              P - Calibration Passed    F - Calibration Failed
```

Tampa Electric Company
Bayside CT1B
Hillsborough County, Florida

Today's Date: 05/27/2003
Time: 06:30:57

Reporting Period
Day: 05/21/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.4	3.9	0.011	3.0	0.7	0.5	148.1	1562.3
0200	4.4	4.0	0.011	3.1	0.8	0.6	134.4	1455.0
0300	4.4	3.9	0.011	3.0	0.8	0.6	113.6	1301.9
0400	4.4	3.9	0.011	3.0	0.8	0.6	110.9	1284.4
0500	4.4	3.9	0.011	3.0	0.8	0.6	121.1	1355.0
0600	4.4	3.9	0.011	3.0	0.8	0.6	139.2	1491.9
0700	4.4	3.9	0.011	3.0	0.8	0.6	133.3	1447.5
0800	4.4	3.9	0.011	3.0	0.8	0.6	117.7	1330.9
0900	4.4	3.9	0.011	3.0	0.8	0.6	118.7	1340.4
1000	4.4	4.0	0.011	3.1	0.9	0.7	139.9	1502.6
1100	4.4	3.9	0.011	3.0	0.8	0.6	152.2	1600.5
1200	4.3	3.8	0.011	3.0	0.8	0.6	139.8	1500.4
1300	4.3	3.9	0.011	3.1	0.8	0.6	138.9	1493.9
1400	4.4	4.0	0.011	3.1	0.8	0.6	151.8	1599.6
1500	4.4	3.9	0.011	3.0	0.8	0.6	151.1	1594.3
1600	4.4	3.9	0.011	3.0	0.8	0.6	151.5	1597.2
1700	4.4	3.9	0.011	3.0	0.8	0.6	151.8	1598.7
1800	4.4	3.8	0.011	2.9	0.9	0.7	147.4	1560.1
1900	4.3	3.9	0.011	3.1	1.0	0.8	142.5	1518.4
2000	4.4	3.9	0.011	3.0	0.9	0.7	149.6	1575.1
2100	4.4	3.9	0.011	3.0	1.0	0.8	151.5	1591.5
2200	4.3	3.9	0.011	3.1	1.0	0.8	143.1	1521.6
2300	4.4	3.9	0.011	3.0	1.0	0.8	154.4	1615.2
2400	4.4	3.8	0.011	2.9	0.9	0.7	155.8	1625.7
AVG	4.4	3.9	0.011	3.0	0.8	0.6	139.9	1502.7

Legend
C - Out of Control
D - Out of Service
I - Insufficient Data
M - Maintenance Fault
A - Calibration Error
X - Calibration Expired

```
=================================================================================
                                  Tampa Electric Company
                                  Bayside CT1B
                                  Hillsborough County, Florida

=================================================================================

   Today's Date: 05/27/2003                                Reporting Period
   Time: 06:32:20                                          Day: 05/22/2003

                                 Daily Emissions Log
  Time        CO2       NOx        NOx       NOx          CO       CO      Gen      HTIP
               %        ppm     lb/mmBtu   @15% O2       ppm    @15% O2   MW     lb/mmBtu

  0100        4.4       3.9       0.011      3.0         1.0       0.8    151.3    1587.6
  0200        4.4       4.0       0.011      3.1         1.1       0.8    153.1    1601.9
  0300        4.4       3.8       0.011      2.9         1.0       0.8    157.6    1641.2
  0400        4.4       3.9       0.011      3.0         1.0       0.8    156.0    1625.3
  0500        4.4       3.9       0.011      3.0         1.1       0.8    144.2    1527.5
  0600        4.4       3.9       0.011      3.0         1.0       0.8    158.5    1647.5
  0700        4.4       3.9       0.011      3.0         1.1       0.8    133.4    1446.4
  0800        4.3       3.9       0.011      3.1         1.0       0.8    126.3    1391.6
  0900        4.4       3.9       0.011      3.0         0.9       0.7    147.8    1561.5
  1000        4.4       3.9       0.011      3.0         0.9       0.7    150.8    1586.4
  1100        4.3       3.8       0.011      3.0         0.9       0.7    137.2    1477.6
  1200        4.4       3.9       0.011      3.0         0.9       0.7    150.8    1589.0
  1300        4.4       3.8       0.011      2.9         0.9       0.7    151.0    1592.5
  1400        4.3       3.9       0.011      3.1         0.9       0.7    120.1    1345.8
  1500        4.4       3.9       0.011      3.0         0.9       0.7    145.9    1550.9
  1600        4.4       3.9       0.011      3.0         0.9       0.7    151.9    1600.3
  1700        4.4       3.8       0.011      2.9         0.9       0.7    151.4    1594.5
  1800        4.4       3.9       0.011      3.0         0.8       0.6    127.9    1405.2
  1900        4.4       4.0       0.011      3.1         0.8       0.6    153.6    1610.6
  2000        4.4       3.9       0.011      3.0         0.8       0.6    134.5    1455.1
  2100        4.4       4.0       0.011      3.1         0.8       0.6    131.7    1433.3
  2200        4.4       3.9       0.011      3.0         0.8       0.6    107.0    1255.9
  2300        4.4       4.0       0.011      3.1         0.9       0.7    110.1    1276.2
  2400        4.4       3.9       0.011      3.0         0.9       0.7    113.0    1295.8

   AVG        4.4       3.9       0.011      3.0         0.9       0.7    140.2    1504.2


                                     Legend
                                     C - Out of Control
                                     D - Out of Service
                                     I - Insufficient Data
                                     M - Maintenance Fault
                                     A - Calibration Error
                                     X - Calibration Expired
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===========================================================================
                         Tampa Electric Company
                         Bayside CT1B
                         Hillsborough County, Florida

===========================================================================

  Today's Date: 05/27/2003                               Reporting Period
  Time: 06:33:12                                         Day: 05/23/2003

                            Daily Emissions Log
 Time       CO2       NOx       NOx       NOx        CO       CO     Gen      HTIP
             %        ppm    lb/mmBtu  @15% O2      ppm   @15% O2   MW     lb/mmBtu

 0100       4.4       3.9     0.011      3.0        1.0      0.8   120.5    1347.9
 0200       4.4       4.1     0.012      3.1        0.9      0.7   114.9    1309.3
 0300       4.4       3.9     0.011      3.0        0.8      0.6   106.8    1253.0
 0400       4.4       3.9     0.011      3.0        0.9      0.7   105.6    1246.4
 0500       4.4       3.9     0.011      3.0        1.0      0.8   117.1    1323.8
 0600       4.4       3.9     0.011      3.0        0.8      0.6   137.1    1474.5
 0700       4.4       4.0     0.011      3.1        0.8      0.6   125.5    1387.0
 0800       4.4       3.9     0.011      3.0        0.8      0.6   134.9    1458.8
 0900       4.4       4.0     0.011      3.1        0.9      0.7   110.9    1282.4
 1000       4.4       3.9     0.011      3.0        0.9      0.7   140.2    1500.0
 1100       4.3       3.9     0.011      3.1        0.9      0.7   127.5    1400.8
 1200       4.3       3.9     0.011      3.1        0.8      0.6   132.2    1437.5
 1300       4.3       3.9     0.011      3.1        0.8      0.6   111.6    1285.4
 1400       4.4       3.8     0.011      2.9        0.8      0.6   112.0    1289.1
 1500       4.4       3.9     0.011      3.0        0.8      0.6   139.7    1498.0
 1600       4.4       3.9     0.011      3.0        0.8      0.6   141.4    1508.6
 1700       4.4       3.9     0.011      3.0        0.8      0.6   142.1    1513.9
 1800       4.4       3.9     0.011      3.0        0.8      0.6   142.6    1517.0
 1900       4.4       3.9     0.011      3.0        0.8      0.6   143.3    1522.5
 2000       4.4       3.9     0.011      3.0        0.9      0.7   142.3    1514.7
 2100       4.4       4.0     0.011      3.1        1.0      0.8   152.2    1597.4
 2200       2.1      11.0     0.065     17.7      477.4    766.3    29.5     394.2
 2300       0.0I      0.0I    0.000      0.0        0.0      0.0     0.0       0.0
 2400       0.0I      0.0I    0.000      0.0        0.0      0.0     0.0       0.0

  AVG       3.9       3.9     0.012      3.4       20.6     32.5   113.7    1252.6


                              Legend
                              C - Out of Control
                              D - Out of Service
                              I - Insufficient Data
                              M - Maintenance Fault
                              A - Calibration Error
                              X - Calibration Expired
```

Tampa Electric Company
Bayside CT1B
Hillsborough County, Florida

Today's Date: 05/27/2003
Time: 06:34:14

Reporting Period
Day: 05/24/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0500	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0600	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0700	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0800	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0900	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1000	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1300	2.4	28.7	0.148	40.3	295.8	415.4	16.5	475.0
1400	4.3	15.7	0.045	12.3	26.1	20.5	102.7	1227.1
1500	4.4	3.8	0.011	2.9	0.9	0.7	129.9	1428.8
1600	4.4	3.9	0.011	3.0	0.9	0.7	149.0	1577.4
1700	4.4	3.9	0.011	3.0	0.9	0.7	151.8	1601.4
1800	4.3	3.9	0.011	3.1	0.9	0.7	140.7	1505.7
1900	4.4	3.9	0.011	3.0	0.9	0.7	122.5	1365.1
2000	4.4	3.9	0.011	3.0	0.9	0.7	110.4	1278.4
2100	4.4	3.9	0.011	3.0	0.8	0.6	138.7	1489.0
2200	4.4	3.9	0.011	3.0	0.9	0.7	137.4	1478.3
2300	4.4	3.9	0.011	3.0	0.9	0.7	133.8	1451.2
2400	4.4	3.9	0.011	3.0	0.9	0.7	130.9	1430.0
AVG	2.1	3.5	0.013	3.4	13.8	18.5	61.0	679.5

Legend
C - Out of Control
D - Out of Service
I - Insufficient Data
M - Maintenance Fault
A - Calibration Error
X - Calibration Expired

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==============================================================================
                                Tampa Electric Company
                                Bayside CT1B
                                Hillsborough County, Florida

==============================================================================

  Today's Date: 05/27/2003                               Reporting Period
  Time: 06:35:16                                         Day: 05/25/2003

                              Daily Emissions Log
 Time      CO2       NOx      NOx       NOx        CO       CO       Gen      HTIP
            %        ppm   lb/mmBtu   @15% O2      ppm    @15% O2    MW     lb/mmBtu

 0100      4.4       3.9     0.011      3.0        1.0      0.8     133.1    1445.3
 0200      4.4       4.0     0.011      3.1        1.0      0.8     129.8    1419.2
 0300      4.4       3.9     0.011      3.0        0.9      0.7     134.0    1450.9
 0400      4.4       4.0     0.011      3.1        1.2      0.9     111.4    1286.4
 0500      4.4       3.9     0.011      3.0        0.9      0.7     106.1    1248.5
 0600      4.4       3.9     0.011      3.0        0.9      0.7     104.7    1238.9
 0700      4.4       3.9     0.011      3.0        1.8      1.4     105.2    1243.1
 0800      4.4       3.9     0.011      3.0        1.1      0.8     111.6    1287.8
 0900      4.3       3.9     0.011      3.1        0.9      0.7     135.2    1464.7
 1000      4.3       3.9     0.011      3.1        1.0      0.8     112.5    1294.0
 1100      4.3       3.8     0.011      3.0        0.8      0.6     118.7    1339.9
 1200      4.3       3.9     0.011      3.1        0.8      0.6     144.4    1539.0
 1300      4.4       3.9     0.011      3.0        0.8      0.6     139.1    1497.2
 1400      4.4       3.9     0.011      3.0        0.8      0.6     140.4    1506.2
 1500      4.4       3.9     0.011      3.0        0.8      0.6     147.2    1562.0
 1600      4.4       3.9     0.011      3.0        0.8      0.6     148.8    1574.7
 1700      4.4       3.9     0.011      3.0        0.8      0.6     146.5    1553.7
 1800      4.4       3.9     0.011      3.0        0.8      0.6     141.0    1504.9
 1900      4.4       3.9     0.011      3.0        0.8      0.6     138.4    1484.6
 2000      4.4       3.9     0.011      3.0        0.8      0.6     142.7    1518.4
 2100      4.4       3.9     0.011      3.0        0.8      0.6     140.6    1503.2
 2200      4.4       3.9     0.011      3.0        0.9      0.7     135.1    1458.6
 2300      4.4       3.9     0.011      3.0        0.9      0.7     134.2    1451.9
 2400      4.4       3.9     0.011      3.0        0.9      0.7     136.6    1470.3

  AVG      4.4       3.9     0.011      3.0        0.9      0.7     130.7    1431.0

                                  Legend
                                  C - Out of Control
                                  D - Out of Service
                                  I - Insufficient Data
                                  M - Maintenance Fault
                                  A - Calibration Error
                                  X - Calibration Expired
```

Tampa Electric Company
Bayside CT1B
Hillsborough County, Florida

Today's Date: 05/27/2003
Time: 06:36:01

Reporting Period
Day: 05/26/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.4	4.0	0.011	3.1	0.9	0.7	113.6	1300.6
0200	4.4	3.9	0.011	3.0	1.0	0.8	112.5	1293.1
0300	4.4	3.9	0.011	3.0	0.9	0.7	134.7	1455.8
0400	4.4	3.9	0.011	3.0	1.0	0.8	129.5	1417.4
0500	4.4	3.9	0.011	3.0	1.0	0.8	112.9	1296.7
0600	4.4	3.9	0.011	3.0	1.0	0.8	110.4	1280.1
0700	4.4	3.9	0.011	3.0	0.9	0.7	106.8	1253.9
0800	4.3	3.8	0.011	3.0	0.9	0.7	111.5	1288.5
0900	4.4	4.0	0.011	3.1	0.9	0.7	154.9	1625.4
1000	4.4	3.9	0.011	3.0	1.0	0.8	154.6	1625.0
1100	4.4	3.8	0.011	2.9	0.9	0.7	148.1	1572.7
1200	4.3	3.8	0.011	3.0	0.9	0.7	135.9	1471.1
1300	4.3	3.9	0.011	3.1	0.9	0.7	137.0	1481.0
1400	4.3	3.9	0.011	3.1	0.9	0.7	140.2	1507.2
1500	4.3	3.9	0.011	3.1	0.9	0.7	139.4	1498.3
1600	4.3	3.9	0.011	3.1	0.9	0.7	142.3	1520.6
1700	4.3	3.9	0.011	3.1	0.9	0.7	143.4	1529.4
1800	4.3	3.9	0.011	3.1	0.9	0.7	135.4	1464.1
1900	4.3	3.8	0.011	3.0	0.9	0.7	135.8	1466.1
2000	4.3	3.9	0.011	3.1	0.9	0.7	138.5	1485.9
2100	4.3	3.9	0.011	3.1	0.9	0.7	130.7	1431.8
2200	4.4	3.9	0.011	3.0	0.9	0.7	107.0	1255.2
2300	3.3	6.9	0.026	7.0	215.9	220.5	69.2	846.0
2400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
AVG	4.1	3.9	0.011	3.1	9.8	9.9	122.7	1348.6

Legend
C - Out of Control
D - Out of Service
I - Insufficient Data
M - Maintenance Fault
A - Calibration Error
X - Calibration Expired

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================================================================================
                              Tampa Electric Company
                              Bayside CT1B
                              Hillsborough County, Florida

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   Today's Date: 05/28/2003                                 Reporting Period
   Time: 08:56:28                                           Day: 05/27/2003

                             Daily Emissions Log
  Time       CO2       NOx       NOx        NOx         CO       CO       Gen       HTIP
              %        ppm    lb/mmBtu   @15% O2        ppm   @15% O2    MW      lb/mmBtu

  0100      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0200      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0300      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0400      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0500      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0600      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0700      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0800      0.0I      0.0I     0.000       0.0         0.0      0.0      0.0         0.0
  0900      2.7      31.4      0.144      39.2       190.6    237.9     30.5       606.6
  1000      4.3       3.3      0.010       2.6         0.9      0.7    120.5      1356.7
  1100      4.3       3.8      0.011       3.0         0.9      0.7    139.8      1506.7
  1200      4.3       3.8      0.011       3.0         0.9      0.7    147.1      1565.0
  1300      4.3       3.8      0.011       3.0         0.8      0.6    148.5      1578.2
  1400      4.3       3.9      0.011       3.1         0.9      0.7    149.5      1587.5
  1500      4.4       3.9      0.011       3.0         0.9      0.7    151.4      1602.6
  1600      4.4       3.9      0.011       3.0         0.9      0.7    151.9      1606.8
  1700      4.4       3.9      0.011       3.0         0.9      0.7    151.8      1605.4
  1800      4.4       3.9      0.011       3.0         0.9      0.7    151.8      1603.3
  1900      4.4       3.9      0.011       3.0         0.9      0.7    152.8      1610.5
  2000      4.4       3.8      0.011       2.9         0.8      0.6    138.1      1487.2
  2100      4.4       4.0      0.011       3.1         0.8      0.6    117.0      1329.7
  2200      4.4       3.9      0.011       3.0         0.8      0.6    109.4      1274.6
  2300      4.4       3.9      0.011       3.0         0.9      0.7    119.0      1343.3
  2400      4.4       3.9      0.011       3.0         0.9      0.7    119.5      1347.5

   AVG      2.8       3.7      0.013       3.5         8.5     10.3     87.4       958.8


                                 Legend
                                 C - Out of Control
                                 D - Out of Service
                                 I - Insufficient Data
                                 M - Maintenance Fault
                                 A - Calibration Error
                                 X - Calibration Expired
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UNIT 1C

Tampa Electric Company, Bayside Unit 1C, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1C-C-1											
18-Apr-03 6:01:00	167.9	1130.4	20.8340	63.1	732.2	213.6	82.01	29.98	1.89	9.37	556.9
18-Apr-03 6:02:00	167.9	1130.4	20.8371	63.1	732.1	213.6	82.01	29.98	1.89	9.34	557.0
18-Apr-03 6:03:00	168.0	1130.4	20.8403	63.0	732.0	213.7	82.01	29.98	1.88	9.31	557.0
18-Apr-03 6:04:00	168.0	1130.4	20.8435	63.0	731.9	213.7	82.01	29.98	1.88	9.28	557.0
18-Apr-03 6:05:00	168.0	1130.4	20.8467	63.0	731.9	213.8	82.01	29.98	1.88	9.25	557.0
18-Apr-03 6:06:00	168.1	1130.4	20.8499	62.9	731.9	213.9	82.01	29.98	1.88	9.22	557.0
18-Apr-03 6:07:00	168.1	1130.4	20.8526	62.9	731.8	213.9	82.01	29.98	1.88	9.19	557.0
18-Apr-03 6:08:00	168.1	1130.3	20.8542	62.9	731.8	213.9	82.01	29.98	1.87	9.16	557.1
18-Apr-03 6:09:00	168.1	1130.3	20.8559	62.8	731.8	213.9	82.01	29.98	1.87	9.13	557.1
18-Apr-03 6:10:00	168.2	1130.3	20.8575	62.8	731.8	213.9	82.01	29.98	1.87	9.10	557.1
18-Apr-03 6:11:00	168.2	1130.3	20.8591	62.8	731.7	213.8	82.01	29.98	1.87	9.07	557.1
18-Apr-03 6:12:00	168.2	1130.3	20.8608	62.7	731.7	213.8	82.01	29.98	1.87	9.04	557.1
18-Apr-03 6:13:00	168.3	1130.3	20.8624	62.7	731.7	213.8	82.01	29.98	1.86	9.02	557.1
18-Apr-03 6:14:00	168.3	1130.3	20.8641	62.7	731.6	213.8	82.01	29.98	1.86	8.99	557.1
18-Apr-03 6:15:00	168.3	1130.3	20.8657	62.6	731.6	213.8	82.01	29.98	1.86	8.96	557.1
18-Apr-03 6:16:00	168.3	1130.3	20.8674	62.6	731.6	213.8	82.01	29.98	1.86	8.93	557.1
18-Apr-03 6:17:00	168.3	1130.3	20.8690	62.6	731.5	213.7	82.01	29.98	1.86	8.90	557.1
18-Apr-03 6:18:00	168.3	1130.3	20.8707	62.5	731.3	213.7	82.01	29.98	1.85	8.87	557.1
18-Apr-03 6:19:00	168.2	1130.3	20.8723	62.5	731.2	213.7	82.00	29.98	1.85	8.96	557.1
18-Apr-03 6:20:00	168.2	1130.3	20.8740	62.5	731.1	213.7	82.00	29.98	1.85	9.08	557.1
18-Apr-03 6:21:00	168.2	1130.4	20.8756	62.4	731.0	213.7	82.00	29.98	1.85	9.20	557.1
18-Apr-03 6:22:00	168.2	1130.4	20.8772	62.4	731.0	213.7	82.00	29.98	1.85	9.32	557.1
18-Apr-03 6:23:00	168.2	1130.4	20.8789	62.4	731.0	213.7	82.00	29.98	1.84	9.44	557.1
18-Apr-03 6:24:00	168.2	1130.4	20.8805	62.3	731.0	213.6	82.00	29.99	1.84	9.56	557.2
18-Apr-03 6:25:00	168.2	1130.5	20.8822	62.3	731.0	213.6	82.00	29.99	1.84	9.68	557.2
18-Apr-03 6:26:00	168.1	1130.5	20.8838	62.3	731.0	213.6	82.00	29.99	1.84	9.81	557.2
18-Apr-03 6:27:00	168.1	1130.5	20.8844	62.3	731.0	213.6	82.00	29.99	1.84	9.93	557.2
18-Apr-03 6:28:00	168.1	1130.5	20.8823	62.3	731.0	213.6	82.00	29.99	1.85	10.05	557.2
18-Apr-03 6:29:00	168.1	1130.5	20.8802	62.3	731.0	213.6	82.00	29.99	1.85	10.17	557.2
18-Apr-03 6:30:00	168.1	1130.6	20.8782	62.4	731.0	213.5	82.00	29.99	1.85	10.29	557.2
18-Apr-03 6:31:00	168.1	1130.6	20.8761	62.4	731.0	213.5	82.00	29.99	1.85	10.41	557.2
18-Apr-03 6:32:00	168.1	1130.6	20.8740	62.5	731.1	213.5	82.00	29.99	1.85	10.53	557.2
18-Apr-03 6:33:00	168.0	1130.6	20.8719	62.5	731.1	213.5	82.00	29.99	1.85	10.65	557.2
18-Apr-03 6:34:00	168.0	1130.6	20.8698	62.6	731.1	213.5	82.00	29.99	1.85	10.77	557.1
18-Apr-03 6:35:00	168.0	1130.7	20.8677	62.6	731.1	213.4	81.99	29.99	1.85	10.89	557.1
18-Apr-03 6:36:00	168.0	1130.7	20.8657	62.6	731.1	213.4	81.99	29.99	1.85	11.01	557.1
18-Apr-03 6:37:00	168.0	1130.7	20.8636	62.7	731.2	213.4	81.99	29.99	1.86	11.13	557.1
18-Apr-03 6:38:00	168.0	1130.7	20.8615	62.7	731.2	213.4	81.99	29.99	1.86	11.25	557.1
18-Apr-03 6:39:00	167.9	1130.8	20.8594	62.8	731.2	213.4	81.99	29.99	1.86	11.37	557.1
18-Apr-03 6:40:00	167.9	1130.8	20.8573	62.8	731.2	213.3	81.99	29.99	1.86	11.48	557.1
18-Apr-03 6:41:00	167.9	1130.8	20.8552	62.9	731.2	213.3	81.99	29.99	1.86	11.27	557.1
18-Apr-03 6:42:00	167.9	1130.8	20.8532	62.9	731.2	213.3	81.99	29.99	1.86	11.05	557.1

Tampa Electric Company, Bayside Unit 1C, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
18-Apr-03 6:43:00	167.9	1130.8	20.8511	63.0	731.3	213.3	81.99	29.99	1.86	10.84	557.1
18-Apr-03 6:44:00	167.8	1130.8	20.8490	63.0	731.4	213.3	81.99	29.99	1.86	10.62	557.1
18-Apr-03 6:45:00	167.8	1130.8	20.8469	63.0	731.4	213.3	81.99	29.99	1.87	10.41	557.1
18-Apr-03 6:46:00	167.8	1130.8	20.8448	63.1	731.5	213.2	81.99	29.99	1.87	10.19	557.1
18-Apr-03 6:47:00	167.8	1130.8	20.8432	63.1	731.6	213.2	81.99	29.99	1.87	9.98	557.1
18-Apr-03 6:48:00	167.8	1130.8	20.8432	63.2	731.6	213.2	81.99	29.99	1.87	9.77	557.1
18-Apr-03 6:49:00	167.8	1130.8	20.8431	63.2	731.7	213.2	81.99	29.99	1.87	9.55	557.1
18-Apr-03 6:50:00	167.7	1130.8	20.8431	63.3	731.8	213.2	81.99	29.99	1.87	9.34	557.1
18-Apr-03 6:51:00	167.7	1130.8	20.8430	63.3	731.8	213.1	81.99	29.99	1.87	9.12	557.1
18-Apr-03 6:52:00	167.7	1130.8	20.8430	63.3	731.9	213.1	81.99	29.99	1.87	8.91	557.1
18-Apr-03 6:53:00	167.7	1130.8	20.8429	63.4	732.0	213.1	81.99	30.00	1.87	8.69	557.1
18-Apr-03 6:54:00	167.7	1130.8	20.8429	63.4	732.0	213.1	81.99	30.00	1.86	8.48	557.1
18-Apr-03 6:55:00	167.6	1130.8	20.8428	63.5	732.1	213.1	82.00	30.00	1.86	8.26	557.1
18-Apr-03 6:56:00	167.6	1130.8	20.8427	63.5	732.2	213.1	82.00	30.00	1.86	8.06	557.1
18-Apr-03 6:57:00	167.6	1130.8	20.8427	63.5	732.2	213.0	82.00	30.00	1.86	8.09	557.1
18-Apr-03 6:58:00	167.6	1130.8	20.8426	63.6	732.3	213.0	82.00	30.00	1.86	8.11	557.1
18-Apr-03 6:59:00	167.6	1130.8	20.8426	63.6	732.4	213.0	82.00	30.00	1.85	8.13	557.1
18-Apr-03 7:00:00	167.6	1130.8	20.8425	63.6	732.4	213.0	82.00	30.00	1.85	8.15	557.1
18-Apr-03 7:01:00	167.6	1130.8	20.8425	63.7	732.5	213.0	82.00	30.00	1.85	8.18	557.1
18-Apr-03 7:02:00	167.6	1130.8	20.8424	63.7	732.5	212.9	82.00	30.00	1.85	8.20	557.1
18-Apr-03 7:03:00	167.6	1130.8	20.8424	63.8	732.6	212.9	82.00	30.00	1.85	8.22	557.1
18-Apr-03 7:04:00	167.5	1130.9	20.8423	63.8	732.7	212.9	82.00	30.00	1.85	8.24	557.1
18-Apr-03 7:05:00	167.5	1130.9	20.8423	63.8	732.7	212.9	82.00	30.00	1.84	8.27	557.2
18-Apr-03 7:06:00	167.5	1131.0	20.8422	63.9	732.8	212.9	82.00	30.00	1.84	8.29	557.2
18-Apr-03 7:07:00	167.5	1131.1	20.8415	63.9	732.8	212.9	82.00	30.00	1.84	8.31	557.2
18-Apr-03 7:08:00	167.5	1131.1	20.8387	63.9	732.9	212.8	82.00	30.00	1.84	8.33	557.2
18-Apr-03 7:09:00	167.5	1131.2	20.8359	64.0	732.9	212.8	82.00	30.00	1.84	8.36	557.2
18-Apr-03 7:10:00	167.5	1131.2	20.8331	64.0	733.0	212.8	82.00	30.00	1.83	8.38	557.2
18-Apr-03 7:11:00	167.5	1131.3	20.8303	64.1	733.0	212.8	82.00	30.00	1.83	8.40	557.2
18-Apr-03 7:12:00	167.5	1131.3	20.8275	64.1	733.1	212.8	82.01	30.00	1.83	8.42	557.2
18-Apr-03 7:13:00	167.4	1131.4	20.8247	64.1	733.1	212.8	82.01	30.00	1.83	8.45	557.2
18-Apr-03 7:14:00	167.4	1131.5	20.8219	64.2	733.2	212.8	82.01	30.00	1.83	8.47	557.2
18-Apr-03 7:15:00	167.4	1131.5	20.8191	64.2	733.2	212.8	82.01	30.00	1.83	8.49	557.2
18-Apr-03 7:16:00	167.4	1131.6	20.8163	64.3	733.3	212.8	82.01	30.00	1.83	8.51	557.2
18-Apr-03 7:17:00	167.3	1131.6	20.8135	64.3	733.4	212.8	82.01	30.00	1.83	8.53	557.2
18-Apr-03 7:18:00	167.3	1131.7	20.8107	64.4	733.5	212.7	82.01	30.00	1.83	8.53	557.2
18-Apr-03 7:19:00	167.3	1131.8	20.8079	64.4	733.7	212.7	82.01	30.00	1.83	8.53	557.2
18-Apr-03 7:20:00	167.2	1131.8	20.8051	64.5	733.8	212.7	82.01	30.00	1.83	8.54	557.2
18-Apr-03 7:21:00	167.2	1131.9	20.8023	64.6	733.9	212.7	82.01	30.00	1.83	8.54	557.2
18-Apr-03 7:22:00	167.1	1131.9	20.7995	64.7	734.1	212.7	82.01	30.00	1.83	8.55	557.2
18-Apr-03 7:23:00	167.1	1132.0	20.7967	64.8	734.2	212.7	82.01	30.00	1.83	8.55	557.2
18-Apr-03 7:24:00	167.1	1132.1	20.7939	64.9	734.3	212.7	82.01	30.00	1.83	8.55	557.2
18-Apr-03 7:25:00	167.0	1132.1	20.7911	65.0	734.5	212.7	82.01	30.00	1.82	8.56	557.2

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1C, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
18-Apr-03 7:26:00	167.0	1132.2	20.7883	65.1	734.4	212.7	82.01	30.00	1.82	8.56	557.2
18-Apr-03 7:27:00	166.9	1132.2	20.7850	65.2	734.3	212.6	82.01	30.00	1.82	8.57	557.2
18-Apr-03 7:28:00	166.9	1132.3	20.7800	65.3	734.2	212.6	82.01	30.00	1.82	8.57	557.2
18-Apr-03 7:29:00	166.9	1132.4	20.7749	65.4	734.2	212.5	82.01	30.00	1.82	8.57	557.2
18-Apr-03 7:30:00	166.8	1132.4	20.7699	65.5	734.1	212.4	82.01	30.00	1.82	8.58	557.2
18-Apr-03 7:31:00	166.8	1132.5	20.7648	65.6	734.2	212.4	82.01	30.00	1.82	8.58	557.2
18-Apr-03 7:32:00	166.7	1132.5	20.7598	65.7	734.3	212.3	82.01	30.00	1.82	8.59	557.2
18-Apr-03 7:33:00	166.7	1132.6	20.7547	65.7	734.5	212.2	82.01	30.00	1.82	8.59	557.2
18-Apr-03 7:34:00	166.7	1132.7	20.7497	65.8	734.6	212.2	82.01	30.01	1.82	8.59	557.2
18-Apr-03 7:35:00	166.6	1132.7	20.7446	65.9	734.8	212.1	82.01	30.01	1.82	8.60	557.2
18-Apr-03 7:36:00	166.6	1132.8	20.7395	66.0	734.9	212.0	82.01	30.01	1.82	8.60	557.2
18-Apr-03 7:37:00	166.5	1132.9	20.7345	66.1	735.1	212.0	82.01	30.01	1.82	8.60	557.2
18-Apr-03 7:38:00	166.5	1132.9	20.7294	66.2	735.3	211.9	82.01	30.01	1.82	8.60	557.2
18-Apr-03 7:39:00	166.4	1133.0	20.7244	66.3	735.4	211.9	82.01	30.01	1.81	8.59	557.2
18-Apr-03 7:40:00	166.4	1133.1	20.7193	66.4	735.6	211.8	82.01	30.01	1.81	8.58	557.2
18-Apr-03 7:41:00	166.3	1133.1	20.7143	66.5	735.7	211.7	82.01	30.01	1.81	8.57	557.2
18-Apr-03 7:42:00	166.2	1133.2	20.7092	66.6	735.9	211.7	82.01	30.01	1.81	8.56	557.2
18-Apr-03 7:43:00	166.2	1133.2	20.7042	66.7	736.0	211.6	82.01	30.01	1.81	8.55	557.2
18-Apr-03 7:44:00	166.1	1133.3	20.6991	66.8	736.2	211.5	82.01	30.01	1.81	8.54	557.2
18-Apr-03 7:45:00	166.1	1133.4	20.6941	66.9	736.4	211.5	82.01	30.01	1.81	8.54	557.2
18-Apr-03 7:46:00	166.0	1133.4	20.6890	67.1	736.5	211.4	82.01	30.01	1.80	8.53	557.1
Averages:	**167.6**	**1131.2**	**20.8264**	**63.8**	**732.6**	**213.0**	**82.00**	**29.99**	**1.85**	**9.12**	**557.1**

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1C, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1C-C-2											
18-Apr-03 7:57:00	165.4	1134.4	20.6256	68.5	738.1	210.7	82.02	30.01	1.79	8.43	557.1
18-Apr-03 7:58:00	165.4	1134.5	20.6197	68.7	738.2	210.7	82.02	30.01	1.79	8.45	557.1
18-Apr-03 7:59:00	165.3	1134.6	20.6139	68.8	738.3	210.6	82.01	30.01	1.79	8.46	557.1
18-Apr-03 8:00:00	165.2	1134.7	20.6081	68.9	738.4	210.6	82.01	30.01	1.79	8.48	557.0
18-Apr-03 8:01:00	165.1	1134.8	20.6023	69.1	738.5	210.5	82.01	30.01	1.79	8.50	557.0
18-Apr-03 8:02:00	165.1	1134.9	20.5964	69.2	738.6	210.5	82.01	30.01	1.79	8.52	557.0
18-Apr-03 8:03:00	165.0	1135.0	20.5906	69.3	738.7	210.4	82.01	30.01	1.79	8.54	557.0
18-Apr-03 8:04:00	164.9	1135.2	20.5848	69.4	738.8	210.3	82.01	30.01	1.79	8.56	557.0
18-Apr-03 8:05:00	164.9	1135.3	20.5790	69.5	738.9	210.3	82.01	30.01	1.79	8.57	557.0
18-Apr-03 8:06:00	164.8	1135.4	20.5732	69.6	739.8	210.2	82.01	30.01	1.79	8.59	557.0
18-Apr-03 8:07:00	164.7	1135.5	20.5677	69.7	741.2	210.2	82.00	30.01	1.79	8.61	557.0
18-Apr-03 8:08:00	164.7	1135.6	20.5638	69.8	739.9	210.1	82.00	30.01	1.79	8.63	557.0
18-Apr-03 8:09:00	164.6	1135.7	20.5598	69.9	739.9	210.1	82.00	30.01	1.79	8.65	557.0
18-Apr-03 8:10:00	164.5	1135.8	20.5559	70.0	740.0	210.1	82.00	30.01	1.78	8.66	557.0
18-Apr-03 8:11:00	164.5	1135.9	20.5519	70.1	740.1	210.1	82.00	30.02	1.78	8.68	556.9
18-Apr-03 8:12:00	164.4	1136.0	20.5480	70.1	740.1	210.0	82.00	30.02	1.78	8.70	556.9
18-Apr-03 8:13:00	164.3	1136.1	20.5440	70.2	740.2	210.0	82.00	30.02	1.78	8.72	556.9
18-Apr-03 8:14:00	164.3	1136.3	20.5401	70.3	740.2	210.0	82.00	30.02	1.78	8.74	556.9
18-Apr-03 8:15:00	164.2	1136.4	20.5361	70.4	740.3	210.0	82.00	30.02	1.78	8.76	556.9
18-Apr-03 8:16:00	164.2	1136.5	20.5322	70.5	740.4	209.9	82.00	30.02	1.78	8.77	556.9
18-Apr-03 8:17:00	164.1	1136.6	20.5282	70.6	740.4	209.9	82.00	30.02	1.78	8.79	556.9
18-Apr-03 8:18:00	164.1	1136.7	20.5243	70.6	740.6	209.9	82.00	30.02	1.77	8.80	556.9
18-Apr-03 8:19:00	164.1	1136.8	20.5203	70.7	740.8	209.9	82.00	30.02	1.77	8.81	556.9
18-Apr-03 8:20:00	164.1	1136.8	20.5164	70.7	741.1	209.9	82.00	30.02	1.77	8.82	556.9
18-Apr-03 8:21:00	164.0	1136.9	20.5124	70.8	741.3	209.8	82.00	30.02	1.77	8.82	556.9
18-Apr-03 8:22:00	164.0	1137.0	20.5085	70.9	741.5	209.8	82.00	30.02	1.77	8.83	556.9
18-Apr-03 8:23:00	164.0	1137.1	20.5045	70.9	741.7	209.8	82.00	30.02	1.76	8.84	556.8
18-Apr-03 8:24:00	164.0	1137.2	20.5006	71.0	741.8	209.8	82.00	30.02	1.76	8.84	556.8
18-Apr-03 8:25:00	163.9	1137.3	20.4966	71.1	741.9	209.7	82.00	30.02	1.76	8.85	556.8
18-Apr-03 8:26:00	163.9	1137.4	20.4926	71.1	742.0	209.7	82.00	30.02	1.76	8.86	556.8
18-Apr-03 8:27:00	163.9	1137.5	20.4888	71.2	742.0	209.7	82.00	30.02	1.76	8.86	556.8
18-Apr-03 8:28:00	163.8	1137.6	20.4853	71.2	742.1	209.7	82.00	30.02	1.75	8.87	556.8
18-Apr-03 8:29:00	163.8	1137.7	20.4818	71.3	742.2	209.6	82.00	30.02	1.75	8.88	556.8
18-Apr-03 8:30:00	163.8	1137.7	20.4783	71.4	742.3	209.6	82.00	30.02	1.75	8.88	556.8
18-Apr-03 8:31:00	163.8	1137.8	20.4747	71.4	742.4	209.6	82.00	30.02	1.75	8.89	556.8
18-Apr-03 8:32:00	163.7	1137.9	20.4712	71.5	742.5	209.6	82.01	30.02	1.75	8.90	556.8
18-Apr-03 8:33:00	163.7	1138.0	20.4677	71.5	742.6	209.5	82.01	30.02	1.75	8.91	556.8
18-Apr-03 8:34:00	163.7	1138.1	20.4642	71.6	742.7	209.5	82.01	30.02	1.75	8.91	556.7
18-Apr-03 8:35:00	163.7	1138.2	20.4607	71.7	742.8	209.5	82.01	30.02	1.75	8.92	556.7
18-Apr-03 8:36:00	163.6	1138.3	20.4572	71.7	742.9	209.5	82.01	30.02	1.75	8.93	556.7
18-Apr-03 8:37:00	163.5	1138.4	20.4537	71.8	743.1	209.4	82.01	30.02	1.75	8.93	556.7
18-Apr-03 8:38:00	163.5	1138.5	20.4502	71.8	743.2	209.4	82.01	30.02	1.75	8.94	556.7
18-Apr-03 8:39:00	163.4	1138.5	20.4467	71.9	743.4	209.4	82.00	30.02	1.75	8.95	556.7
18-Apr-03 8:40:00	163.4	1138.6	20.4432	72.0	743.6	209.4	82.00	30.02	1.74	8.96	556.7
18-Apr-03 8:41:00	163.3	1138.7	20.4396	72.0	743.8	209.4	82.00	30.02	1.74	8.98	556.7
18-Apr-03 8:42:00	163.2	1138.8	20.4361	72.1	743.9	209.3	82.00	30.02	1.74	9.00	556.6

Data collected by PI control system historian

Tampa Electric Company, Bayside Unit 1C, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
18-Apr-03 8:43:00	163.2	1138.8	20.4326	72.1	744.1	209.3	82.00	30.02	1.74	9.02	556.6
18-Apr-03 8:44:00	163.1	1138.8	20.4291	72.1	743.9	209.3	82.00	30.02	1.74	9.03	556.6
18-Apr-03 8:45:00	163.1	1138.8	20.4256	72.2	743.7	209.3	82.00	30.02	1.74	9.05	556.6
18-Apr-03 8:46:00	163.0	1138.9	20.4221	72.2	743.8	209.2	82.00	30.02	1.74	9.07	556.6
18-Apr-03 8:47:00	163.0	1138.9	20.4186	72.2	744.0	209.2	82.00	30.02	1.74	9.09	556.6
18-Apr-03 8:48:00	162.9	1138.9	20.4149	72.2	744.3	209.2	82.00	30.02	1.74	9.11	556.6
18-Apr-03 8:49:00	162.8	1138.9	20.4113	72.3	744.6	209.2	82.00	30.02	1.74	9.13	556.5
18-Apr-03 8:50:00	162.8	1138.9	20.4077	72.3	744.7	209.1	82.00	30.02	1.74	9.15	556.5
18-Apr-03 8:51:00	162.7	1139.0	20.4041	72.3	744.7	209.1	82.00	30.02	1.74	9.17	556.5
18-Apr-03 8:52:00	162.7	1139.0	20.4005	72.4	744.8	209.1	82.00	30.02	1.74	9.18	556.5
18-Apr-03 8:53:00	162.6	1139.0	20.3969	72.4	744.9	209.1	82.00	30.02	1.74	9.20	556.5
18-Apr-03 8:54:00	162.5	1139.0	20.3932	72.4	745.1	209.0	82.00	30.02	1.74	9.22	556.5
18-Apr-03 8:55:00	162.5	1139.0	20.3896	72.4	745.4	209.0	81.99	30.02	1.74	9.24	556.5
18-Apr-03 8:56:00	162.5	1139.1	20.3860	72.5	745.5	209.0	81.99	30.02	1.74	9.26	556.5
18-Apr-03 8:57:00	162.5	1139.1	20.3824	72.5	745.1	208.9	81.99	30.03	1.73	9.31	556.5
18-Apr-03 8:58:00	162.4	1139.1	20.3788	72.5	744.8	208.9	81.99	30.03	1.73	9.38	556.4
18-Apr-03 8:59:00	162.4	1139.1	20.3751	72.6	744.5	208.9	81.99	30.03	1.73	9.45	556.4
18-Apr-03 9:00:00	162.4	1139.1	20.3715	72.6	744.5	208.9	81.99	30.03	1.73	9.53	556.4
18-Apr-03 9:01:00	162.4	1139.2	20.3679	72.6	744.8	208.8	81.99	30.03	1.73	9.60	556.4
18-Apr-03 9:02:00	162.4	1139.2	20.3643	72.6	745.0	208.8	81.99	30.03	1.73	9.67	556.4
18-Apr-03 9:03:00	162.4	1139.2	20.3607	72.7	745.1	208.8	81.99	30.03	1.73	9.74	556.4
18-Apr-03 9:04:00	162.3	1139.2	20.3570	72.7	745.0	208.8	81.99	30.03	1.73	9.81	556.4
18-Apr-03 9:05:00	162.3	1139.2	20.3534	72.7	744.9	208.7	81.99	30.03	1.73	9.88	556.4
18-Apr-03 9:06:00	162.3	1139.3	20.3498	72.8	744.8	208.7	81.99	30.03	1.73	9.96	556.4
18-Apr-03 9:07:00	162.3	1139.3	20.3464	72.9	744.7	208.7	81.99	30.03	1.73	10.03	556.4
18-Apr-03 9:08:00	162.3	1139.4	20.3442	73.0	744.6	208.6	81.99	30.03	1.72	10.10	556.3
18-Apr-03 9:09:00	162.3	1139.5	20.3420	73.1	745.4	208.6	81.99	30.03	1.72	10.17	556.3
18-Apr-03 9:10:00	162.3	1139.6	20.3398	73.2	744.9	208.6	81.99	30.03	1.72	10.24	556.3
18-Apr-03 9:11:00	162.2	1139.7	20.3376	73.3	745.1	208.6	81.99	30.03	1.72	10.31	556.3
18-Apr-03 9:12:00	162.2	1139.8	20.3354	73.4	745.2	208.5	81.99	30.03	1.72	10.39	556.3
18-Apr-03 9:13:00	162.2	1139.9	20.3332	73.5	745.4	208.5	81.99	30.03	1.72	10.46	556.3
18-Apr-03 9:14:00	162.2	1140.0	20.3310	73.6	745.6	208.5	81.99	30.03	1.72	10.53	556.3
18-Apr-03 9:15:00	162.2	1140.1	20.3288	73.8	745.7	208.4	81.99	30.03	1.72	10.60	556.3
18-Apr-03 9:16:00	162.1	1140.2	20.3266	73.9	745.9	208.4	81.99	30.03	1.72	10.67	556.3
18-Apr-03 9:17:00	162.1	1140.3	20.3244	74.1	746.0	208.4	81.99	30.03	1.72	10.75	556.2
18-Apr-03 9:18:00	162.0	1140.4	20.3222	74.2	746.2	208.4	81.99	30.03	1.71	10.82	556.2
18-Apr-03 9:19:00	162.0	1140.5	20.3200	74.4	746.4	208.3	81.99	30.03	1.71	10.89	556.2
18-Apr-03 9:20:00	161.9	1140.6	20.3178	74.5	746.7	208.3	81.99	30.03	1.71	10.88	556.2
18-Apr-03 9:21:00	161.9	1140.8	20.3156	74.7	746.9	208.3	81.99	30.03	1.71	10.62	556.2
18-Apr-03 9:22:00	161.8	1140.9	20.3134	74.8	747.0	208.3	81.99	30.03	1.71	10.36	556.2
18-Apr-03 9:23:00	161.8	1141.0	20.3112	75.0	747.0	208.2	81.99	30.03	1.71	10.11	556.2
18-Apr-03 9:24:00	161.7	1141.1	20.3090	75.1	747.1	208.2	81.99	30.03	1.71	9.85	556.1
18-Apr-03 9:25:00	161.7	1141.2	20.3068	75.2	747.1	208.2	81.99	30.03	1.71	9.59	556.1
Averages:	**163.3**	**1138.1**	**20.4449**	**71.8**	**743.1**	**209.3**	**82.00**	**30.02**	**1.75**	**9.27**	**556.6**

Tampa Electric Company, Bayside Unit 1C, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
Run 1C-C-3											
18-Apr-03 9:41:00	160.9	1142.0	20.2709	76.0	747.6	207.9	82.00	30.04	1.68	10.80	555.9
18-Apr-03 9:42:00	160.9	1142.0	20.2687	76.0	747.6	207.9	82.00	30.04	1.68	10.78	555.8
18-Apr-03 9:43:00	160.9	1142.0	20.2664	76.0	747.6	207.8	82.00	30.04	1.68	10.76	555.8
18-Apr-03 9:44:00	160.8	1142.0	20.2642	76.1	747.6	207.8	82.00	30.04	1.68	10.74	555.8
18-Apr-03 9:45:00	160.8	1142.0	20.2619	76.1	747.6	207.8	82.00	30.04	1.68	10.73	555.8
18-Apr-03 9:46:00	160.7	1142.0	20.2597	76.1	747.7	207.8	82.00	30.04	1.68	10.71	555.8
18-Apr-03 9:47:00	160.7	1142.0	20.2573	76.2	747.7	207.8	82.00	30.04	1.68	10.69	555.7
18-Apr-03 9:48:00	160.7	1142.0	20.2541	76.2	747.7	207.7	82.00	30.04	1.68	10.67	555.7
18-Apr-03 9:49:00	160.6	1142.1	20.2509	76.3	747.9	207.7	82.00	30.04	1.69	10.65	555.7
18-Apr-03 9:50:00	160.6	1142.1	20.2477	76.3	749.3	207.6	82.00	30.04	1.69	10.63	555.7
18-Apr-03 9:51:00	160.6	1142.1	20.2446	76.4	749.4	207.6	82.00	30.04	1.69	10.61	555.7
18-Apr-03 9:52:00	160.5	1142.1	20.2414	76.4	749.6	207.6	82.01	30.04	1.70	10.59	555.6
18-Apr-03 9:53:00	160.5	1142.1	20.2382	76.5	749.7	207.5	82.01	30.04	1.70	10.57	555.6
18-Apr-03 9:54:00	160.4	1142.1	20.2350	76.5	749.8	207.5	82.01	30.04	1.70	10.55	555.6
18-Apr-03 9:55:00	160.4	1142.1	20.2318	76.6	749.7	207.4	82.01	30.04	1.71	10.53	555.6
18-Apr-03 9:56:00	160.4	1142.1	20.2286	76.6	749.6	207.4	82.01	30.04	1.71	10.51	555.6
18-Apr-03 9:57:00	160.3	1142.1	20.2255	76.7	749.6	207.3	82.01	30.04	1.71	10.49	555.6
18-Apr-03 9:58:00	160.3	1142.1	20.2223	76.7	749.7	207.3	82.01	30.04	1.71	10.47	555.5
18-Apr-03 9:59:00	160.3	1142.2	20.2191	76.8	749.8	207.2	82.01	30.04	1.72	10.45	555.5
18-Apr-03 10:00:00	160.2	1142.2	20.2159	76.8	749.9	207.2	82.01	30.04	1.72	10.43	555.5
18-Apr-03 10:01:00	160.2	1142.2	20.2127	76.9	750.0	207.1	82.01	30.04	1.72	10.41	555.5
18-Apr-03 10:02:00	160.2	1142.2	20.2095	76.9	750.1	207.1	82.01	30.04	1.73	10.39	555.5
18-Apr-03 10:03:00	160.1	1142.3	20.2064	77.0	750.1	207.1	82.01	30.04	1.73	10.37	555.5
18-Apr-03 10:04:00	160.1	1142.3	20.2032	77.0	750.1	207.0	82.01	30.04	1.73	10.36	555.5
18-Apr-03 10:05:00	160.1	1142.3	20.2000	77.1	750.2	207.0	82.01	30.04	1.73	10.37	555.4
18-Apr-03 10:06:00	160.1	1142.3	20.1968	77.1	750.2	206.9	82.01	30.04	1.74	10.37	555.4
18-Apr-03 10:07:00	160.0	1142.4	20.1936	77.2	750.2	206.9	82.01	30.04	1.74	10.38	555.4
18-Apr-03 10:08:00	160.0	1142.4	20.1897	77.2	750.3	206.9	82.02	30.04	1.74	10.39	555.4
18-Apr-03 10:09:00	160.0	1142.4	20.1859	77.3	750.4	206.9	82.02	30.04	1.75	10.39	555.4
18-Apr-03 10:10:00	159.9	1142.5	20.1820	77.3	750.5	206.8	82.02	30.04	1.75	10.40	555.4
18-Apr-03 10:11:00	159.9	1142.5	20.1782	77.4	750.5	206.8	82.02	30.04	1.75	10.41	555.4
18-Apr-03 10:12:00	159.9	1142.5	20.1744	77.4	750.6	206.8	82.02	30.04	1.75	10.41	555.4
18-Apr-03 10:13:00	159.8	1142.5	20.1705	77.4	750.7	206.8	82.02	30.04	1.75	10.42	555.3
18-Apr-03 10:14:00	159.8	1142.6	20.1667	77.4	750.8	206.8	82.02	30.04	1.75	10.43	555.3
18-Apr-03 10:15:00	159.8	1142.6	20.1628	77.4	750.9	206.8	82.02	30.04	1.74	10.44	555.3
18-Apr-03 10:16:00	159.8	1142.6	20.1590	77.4	751.0	206.8	82.02	30.04	1.74	10.44	555.3
18-Apr-03 10:17:00	159.7	1142.6	20.1551	77.4	751.5	206.8	82.02	30.04	1.74	10.36	555.3
18-Apr-03 10:18:00	159.7	1142.7	20.1513	77.4	751.6	206.8	82.02	30.04	1.74	10.29	555.3
18-Apr-03 10:19:00	159.7	1142.7	20.1475	77.4	751.3	206.7	82.02	30.04	1.74	10.21	555.3
18-Apr-03 10:20:00	159.7	1142.7	20.1436	77.4	750.9	206.7	82.02	30.04	1.74	10.13	555.3
18-Apr-03 10:21:00	159.6	1142.7	20.1398	77.4	750.8	206.7	82.02	30.04	1.74	10.06	555.3
18-Apr-03 10:22:00	159.6	1142.8	20.1359	77.4	750.8	206.7	82.02	30.04	1.74	9.98	555.2
18-Apr-03 10:23:00	159.6	1142.8	20.1321	77.4	750.7	206.7	82.01	30.04	1.74	9.90	555.2
18-Apr-03 10:24:00	159.6	1142.8	20.1282	77.4	750.6	206.7	82.01	30.04	1.74	9.83	555.2
18-Apr-03 10:25:00	159.5	1142.9	20.1244	77.5	750.6	206.7	82.01	30.04	1.74	9.75	555.2
18-Apr-03 10:26:00	159.5	1142.9	20.1206	77.5	751.1	206.7	82.01	30.04	1.73	9.67	555.2

Tampa Electric Company, Bayside Unit 1C, Operational Data

	MW Output	Turbine Exhaust Temperature	Fuel Gas Flow	Compressor Inlet Temperature	Compressor Discharge Temperature	Compressor Discharge Pressure	Inlet Guide Vane Angle	Barometric Pressure	Air Duct Losses	NH3 Injection Rate	SCR Inlet Temperature (Average)
	1bDWATT	1bTTXM	1bFQG	1bCTIM	1bCTD	1bCPD	1bCSGV	1bAFPAP	1bAFPCS	1BFGCFI711	1BMBAAVG71X
	(MW)	(F)	(lb/sec)	(F)	(F)	(PSIG)	(DGA)	(Inches HG)	(Inches H2O)	(lb/hr)	(F)
18-Apr-03 10:27:00	159.5	1143.0	20.1168	77.5	751.5	206.7	82.01	30.04	1.73	9.60	555.2
18-Apr-03 10:28:00	159.5	1143.0	20.1134	77.5	751.9	206.6	82.01	30.04	1.73	9.52	555.2
18-Apr-03 10:29:00	159.4	1143.1	20.1101	77.5	751.8	206.6	82.01	30.04	1.73	9.44	555.2
18-Apr-03 10:30:00	159.4	1143.1	20.1067	77.5	751.7	206.6	82.01	30.04	1.73	9.37	555.2
18-Apr-03 10:31:00	159.4	1143.2	20.1034	77.6	751.9	206.6	82.01	30.04	1.73	9.29	555.1
18-Apr-03 10:32:00	159.4	1143.2	20.1000	77.6	752.3	206.6	82.01	30.04	1.73	9.28	555.1
18-Apr-03 10:33:00	159.3	1143.3	20.0967	77.6	752.7	206.6	82.01	30.04	1.73	9.34	555.1
18-Apr-03 10:34:00	159.3	1143.3	20.0933	77.6	752.6	206.6	82.01	30.04	1.73	9.39	555.1
18-Apr-03 10:35:00	159.3	1143.4	20.0900	77.6	752.6	206.5	82.01	30.04	1.73	9.45	555.1
18-Apr-03 10:36:00	159.3	1143.4	20.0866	77.7	752.6	206.5	82.01	30.04	1.73	9.51	555.1
18-Apr-03 10:37:00	159.3	1143.5	20.0833	77.7	752.6	206.5	82.01	30.04	1.73	9.57	555.1
18-Apr-03 10:38:00	159.3	1143.5	20.0799	77.7	752.6	206.5	82.01	30.04	1.73	9.62	555.1
18-Apr-03 10:39:00	159.3	1143.6	20.0765	77.7	752.5	206.5	82.01	30.04	1.73	9.68	555.1
18-Apr-03 10:40:00	159.3	1143.6	20.0732	77.8	752.4	206.5	82.01	30.04	1.73	9.74	555.1
18-Apr-03 10:41:00	159.3	1143.7	20.0698	77.8	752.3	206.4	82.01	30.04	1.73	9.80	555.1
18-Apr-03 10:42:00	159.3	1143.7	20.0665	77.8	752.1	206.4	82.01	30.04	1.73	9.85	555.1
18-Apr-03 10:43:00	159.3	1143.8	20.0631	77.8	752.0	206.4	82.01	30.04	1.73	9.91	555.0
18-Apr-03 10:44:00	159.3	1143.8	20.0598	77.8	751.9	206.4	82.01	30.04	1.73	9.97	555.0
18-Apr-03 10:45:00	159.3	1143.9	20.0564	77.9	751.9	206.4	82.01	30.04	1.73	10.02	555.0
18-Apr-03 10:46:00	159.3	1143.9	20.0531	77.9	752.0	206.4	82.01	30.04	1.73	10.08	555.0
18-Apr-03 10:47:00	159.3	1143.9	20.0501	78.0	752.1	206.4	82.01	30.04	1.73	10.14	555.0
18-Apr-03 10:48:00	159.3	1143.9	20.0506	78.0	752.2	206.4	82.01	30.04	1.73	10.20	555.0
18-Apr-03 10:49:00	159.3	1143.9	20.0512	78.0	752.2	206.4	82.01	30.04	1.73	10.25	555.0
18-Apr-03 10:50:00	159.3	1143.9	20.0517	78.1	752.3	206.3	82.01	30.04	1.73	10.31	555.0
18-Apr-03 10:51:00	159.3	1143.9	20.0523	78.1	752.4	206.3	82.01	30.04	1.73	10.37	555.0
18-Apr-03 10:52:00	159.3	1143.9	20.0528	78.1	752.6	206.3	82.01	30.04	1.73	10.42	555.0
18-Apr-03 10:53:00	159.3	1143.9	20.0534	78.2	752.9	206.3	82.01	30.04	1.73	10.48	555.0
18-Apr-03 10:54:00	159.3	1143.9	20.0539	78.2	753.1	206.3	82.01	30.04	1.73	10.54	555.0
18-Apr-03 10:55:00	159.3	1143.9	20.0545	78.3	753.4	206.3	82.01	30.04	1.73	10.60	555.0
18-Apr-03 10:56:00	159.2	1143.9	20.0550	78.3	753.8	206.3	82.01	30.04	1.73	10.65	555.0
18-Apr-03 10:57:00	159.2	1143.9	20.0555	78.4	753.7	206.3	82.01	30.04	1.73	10.68	555.0
18-Apr-03 10:58:00	159.2	1143.9	20.0561	78.4	753.0	206.3	82.01	30.04	1.73	10.67	555.0
18-Apr-03 10:59:00	159.1	1143.9	20.0566	78.5	752.4	206.3	82.01	30.04	1.74	10.65	555.0
18-Apr-03 11:00:00	159.1	1143.9	20.0572	78.5	752.5	206.3	82.01	30.04	1.74	10.64	555.0
18-Apr-03 11:01:00	159.1	1143.9	20.0577	78.5	752.5	206.3	82.01	30.04	1.74	10.63	555.0
18-Apr-03 11:02:00	159.1	1143.9	20.0583	78.6	752.4	206.3	82.01	30.03	1.74	10.62	555.0
18-Apr-03 11:03:00	159.0	1143.9	20.0588	78.6	752.4	206.3	82.01	30.03	1.74	10.60	555.0
18-Apr-03 11:04:00	159.0	1143.9	20.0594	78.7	752.4	206.3	82.01	30.03	1.74	10.59	555.0
18-Apr-03 11:05:00	159.0	1143.9	20.0599	78.7	752.4	206.3	82.01	30.03	1.74	10.58	555.0
18-Apr-03 11:06:00	158.9	1143.9	20.0605	78.7	752.4	206.3	82.01	30.03	1.74	10.57	555.0
18-Apr-03 11:07:00	158.9	1144.0	20.0609	78.8	752.3	206.3	82.01	30.03	1.75	10.55	555.0
18-Apr-03 11:08:00	158.9	1144.0	20.0581	78.8	752.5	206.3	82.01	30.03	1.75	10.54	555.0
18-Apr-03 11:09:00	158.9	1144.0	20.0553	78.8	753.1	206.2	82.01	30.03	1.75	10.53	555.0
18-Apr-03 11:10:00	158.8	1144.0	20.0525	78.9	753.6	206.2	82.01	30.03	1.75	10.52	555.0
Averages:	**159.7**	**1143.0**	**20.1367**	**77.5**	**751.1**	**206.8**	**82.01**	**30.04**	**1.73**	**10.26**	**555.3**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1C-RA-1								
4/18/03	060100	167.8	20.7030	3.56	0.60	4.34	0.4	0.010
4/18/03	060200	167.8	20.6740	3.54	0.50	4.34	0.4	0.010
4/18/03	060300	167.8	20.7090	3.51	0.50	4.34	0.4	0.010
4/18/03	060400	168.0	20.7030	3.49	0.60	4.34	0.5	0.010
4/18/03	060500	167.9	20.7140	3.48	0.60	4.34	0.4	0.010
4/18/03	060600	167.8	20.7240	3.44	0.60	4.34	0.5	0.010
4/18/03	060700	168.0	20.7010	3.37	0.60	4.34	0.4	0.010
4/18/03	060800	168.0	20.6910	3.39	0.50	4.34	0.4	0.010
4/18/03	060900	168.0	20.7010	3.38	0.50	4.34	0.4	0.010
4/18/03	061000	168.0	20.7030	3.37	0.60	4.34	0.5	0.010
4/18/03	061100	168.0	20.7200	3.38	0.50	4.34	0.4	0.010
4/18/03	061200	168.1	20.7430	3.36	0.50	4.34	0.4	0.010
4/18/03	061300	168.1	20.7800	3.32	0.50	4.34	0.4	0.010
4/18/03	061400	168.3	20.7800	3.32	0.50	4.34	0.4	0.010
4/18/03	061500	168.2	20.7430	3.30	0.50	4.34	0.4	0.009
4/18/03	061600	168.3	20.7630	3.29	0.60	4.33	0.5	0.009
4/18/03	061700	168.3	20.7530	3.31	0.60	4.34	0.4	0.009
4/18/03	061800	168.3	20.7240	3.33	0.60	4.33	0.5	0.010
4/18/03	061900	168.2	20.7280	3.34	0.60	4.33	0.5	0.010
4/18/03	062000	168.4	20.7550	3.35	0.60	4.34	0.5	0.010
4/18/03	062100	168.4	20.7800	3.39	0.60	4.33	0.5	0.010
4/18/03	062200	168.4	20.7640	3.42	0.60	4.33	0.5	0.010
	Averages:	**168.1**	**20.7298**	**3.393**	**0.559**	**4.338**	**0.441**	**0.010**
Run 1C-RA-2								
4/18/03	65200	168.1	20.7140	2.970	0.60	4.32	0.5	0.008
4/18/03	65300	168.1	20.7300	3.070	0.60	4.32	0.5	0.009
4/18/03	65400	168.1	20.7780	3.140	0.60	4.32	0.5	0.009
4/18/03	65500	168.1	20.7410	3.220	0.60	4.32	0.5	0.009
4/18/03	65600	167.9	20.7240	3.310	0.60	4.32	0.5	0.009
4/18/03	65700	168.0	20.7200	3.370	0.60	4.32	0.5	0.010
4/18/03	65800	168.0	20.6990	3.440	0.60	4.32	0.5	0.010
4/18/03	65900	167.8	20.6870	3.520	0.60	4.32	0.5	0.010
4/18/03	70000	167.9	20.7470	3.550	0.60	4.32	0.5	0.010
4/18/03	70100	167.8	20.7370	3.610	0.60	4.32	0.5	0.010
4/18/03	70200	167.7	20.7240	3.600	0.60	4.32	0.5	0.010
4/18/03	70300	167.8	20.7070	3.580	0.60	4.32	0.5	0.010
4/18/03	70400	168.0	20.7240	3.580	0.60	4.32	0.5	0.010
4/18/03	70500	167.9	20.7070	3.580	0.60	4.32	0.5	0.010
4/18/03	70600	167.9	20.6970	3.560	0.60	4.32	0.5	0.010
4/18/03	70700	167.6	20.6970	3.530	0.60	4.32	0.5	0.010
4/18/03	70800	167.7	20.7180	3.520	0.60	4.32	0.5	0.010
4/18/03	70900	167.7	20.7220	3.510	0.60	4.32	0.5	0.010
4/18/03	71000	167.7	20.7120	3.520	0.60	4.32	0.5	0.010
4/18/03	71100	167.6	20.7220	3.500	0.60	4.31	0.5	0.010
4/18/03	71200	167.6	20.6830	3.500	0.60	4.31	0.5	0.010
4/18/03	71300	167.5	20.6520	3.500	0.60	4.31	0.5	0.010
	Averages:	**167.8**	**20.7155**	**3.440**	**0.600**	**4.319**	**0.500**	**0.010**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1C-RA-3								
4/18/03	072500	167.1	20.6070	3.480	0.60	4.31	0.5	0.010
4/18/03	072600	167.1	20.6070	3.490	0.60	4.31	0.5	0.010
4/18/03	072700	167.1	20.6030	3.480	0.60	4.31	0.5	0.010
4/18/03	072800	167.1	20.6360	3.480	0.60	4.31	0.5	0.010
4/18/03	072900	167.1	20.6290	3.450	0.60	4.31	0.5	0.010
4/18/03	073000	166.9	20.6500	3.440	0.60	4.31	0.5	0.010
4/18/03	073100	166.8	20.6400	3.420	0.60	4.31	0.5	0.010
4/18/03	073200	166.8	20.5860	3.440	0.60	4.30	0.5	0.010
4/18/03	073300	166.8	20.6110	3.440	0.60	4.31	0.5	0.010
4/18/03	073400	166.7	20.6290	3.450	0.70	4.30	0.5	0.010
4/18/03	073500	166.7	20.5900	3.470	0.60	4.31	0.5	0.010
4/18/03	073600	166.6	20.6280	3.480	0.60	4.31	0.5	0.010
4/18/03	073700	166.7	20.6250	3.510	0.60	4.31	0.5	0.010
4/18/03	073800	166.7	20.6540	3.530	0.60	4.30	0.5	0.010
4/18/03	073900	166.7	20.6210	3.530	0.60	4.30	0.5	0.010
4/18/03	074000	166.6	20.5710	3.530	0.60	4.30	0.5	0.010
4/18/03	074100	166.4	20.5710	3.510	0.60	4.30	0.5	0.010
4/18/03	074200	166.4	20.5630	3.470	0.60	4.30	0.5	0.010
4/18/03	074300	166.4	20.5940	3.450	0.60	4.30	0.5	0.010
4/18/03	074400	166.4	20.5820	3.450	0.60	4.30	0.5	0.010
4/18/03	074500	166.2	20.5710	3.430	0.60	4.30	0.5	0.010
4/18/03	074600	166.1	20.5760	3.440	0.60	4.30	0.5	0.010
	Averages:	**166.7**	**20.6065**	**3.471**	**0.605**	**4.305**	**0.500**	**0.010**
Run 1C-RA-4								
4/18/03	075700	165.5	20.5260	3.460	0.60	4.30	0.5	0.010
4/18/03	075800	165.5	20.5260	3.460	0.60	4.30	0.5	0.010
4/18/03	075900	165.5	20.5320	3.460	0.60	4.30	0.5	0.010
4/18/03	080000	165.4	20.5020	3.510	0.60	4.30	0.5	0.010
4/18/03	080100	165.5	20.4890	3.520	0.60	4.30	0.5	0.010
4/18/03	080200	165.3	20.4960	3.530	0.60	4.29	0.5	0.010
4/18/03	080300	165.2	20.4850	3.540	0.60	4.29	0.5	0.010
4/18/03	080400	165.0	20.4460	3.540	0.60	4.29	0.5	0.010
4/18/03	080500	164.6	20.4190	3.560	0.60	4.29	0.5	0.010
4/18/03	080600	164.8	20.4600	3.500	0.60	4.29	0.5	0.010
4/18/03	080700	164.8	20.4870	3.460	0.60	4.29	0.5	0.010
4/18/03	080800	164.6	20.4030	3.410	0.60	4.29	0.5	0.010
4/18/03	080900	164.5	20.3990	3.390	0.60	4.29	0.5	0.010
4/18/03	081000	164.4	20.4030	3.360	0.60	4.29	0.5	0.010
4/18/03	081100	164.5	20.4070	3.360	0.60	4.29	0.5	0.010
4/18/03	081200	164.4	20.4030	3.400	0.60	4.29	0.5	0.010
4/18/03	081300	164.3	20.4050	3.420	0.60	4.28	0.5	0.010
4/18/03	081400	164.3	20.4030	3.450	0.60	4.28	0.5	0.010
4/18/03	081500	164.4	20.4300	3.470	0.60	4.28	0.5	0.010
4/18/03	081600	164.4	20.4170	3.520	0.50	4.28	0.4	0.010
4/18/03	081700	164.4	20.4090	3.520	0.60	4.28	0.5	0.010
4/18/03	081800	164.2	20.4110	3.560	0.50	4.28	0.4	0.010
	Averages:	**164.8**	**20.4481**	**3.473**	**0.591**	**4.290**	**0.491**	**0.010**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34 (MW)	GAS31 (lb/sec)	NOX35 (ppmv)	COL33 (ppmv)	CO232 (% volume)	COLD39 (ppmv@15%O_2)	NOXRT36 (lb/MMBtu)
Run 1C-RA-5								
4/18/03	083000	163.6	20.2770	3.470	0.60	4.27	0.5	0.010
4/18/03	083100	163.6	20.2870	3.580	0.50	4.27	0.4	0.010
4/18/03	083200	163.8	20.3630	3.620	0.60	4.27	0.4	0.010
4/18/03	083300	163.6	20.3610	3.540	0.60	4.27	0.4	0.010
4/18/03	083400	163.5	20.3100	3.470	0.60	4.27	0.5	0.010
4/18/03	083500	163.6	20.3430	3.430	0.60	4.27	0.5	0.010
4/18/03	083600	163.4	20.2970	3.430	0.60	4.27	0.4	0.010
4/18/03	083700	163.4	20.2750	3.380	0.50	4.28	0.4	0.010
4/18/03	083800	163.4	20.2710	3.390	0.50	4.27	0.4	0.010
4/18/03	083900	163.0	20.2910	3.400	0.50	4.27	0.5	0.010
4/18/03	084000	162.9	20.2560	3.430	0.60	4.27	0.4	0.010
4/18/03	084100	163.1	20.2930	3.460	0.50	4.27	0.4	0.010
4/18/03	084200	163.0	20.3060	3.480	0.50	4.27	0.4	0.010
4/18/03	084300	163.2	20.2930	3.460	0.50	4.27	0.4	0.010
4/18/03	084400	163.2	20.2630	3.470	0.50	4.27	0.4	0.010
4/18/03	084500	162.8	20.2110	3.480	0.50	4.27	0.4	0.010
4/18/03	084600	162.9	20.2330	3.480	0.50	4.27	0.4	0.010
4/18/03	084700	162.9	20.3120	3.460	0.50	4.27	0.4	0.010
4/18/03	084800	162.8	20.2810	3.460	0.50	4.27	0.4	0.010
4/18/03	084900	162.9	20.2270	3.450	0.50	4.27	0.4	0.010
4/18/03	085000	162.6	20.2150	3.440	0.50	4.26	0.4	0.010
4/18/03	085100	162.7	20.2230	3.420	0.50	4.27	0.4	0.010
	Averages:	**163.2**	**20.2813**	**3.464**	**0.532**	**4.270**	**0.418**	**0.010**
Run 1C-RA-6								
4/18/03	090400	162.5	20.2500	3.510	0.50	4.27	0.4	0.010
4/18/03	090500	162.5	20.2460	3.740	0.50	4.27	0.4	0.011
4/18/03	090600	162.4	20.2930	3.850	0.50	4.27	0.4	0.011
4/18/03	090700	162.6	20.2190	3.940	0.50	4.27	0.4	0.012
4/18/03	090800	162.5	20.2260	3.990	0.50	4.27	0.4	0.012
4/18/03	090900	162.4	20.1980	4.000	0.50	4.27	0.4	0.012
4/18/03	091000	162.4	20.1670	3.830	0.50	4.27	0.4	0.011
4/18/03	091100	162.4	20.2130	3.630	0.50	4.26	0.4	0.011
4/18/03	091200	162.1	20.2010	3.510	0.50	4.26	0.4	0.010
4/18/03	091300	162.0	20.1740	3.380	0.50	4.26	0.4	0.010
4/18/03	091400	162.2	20.2340	3.320	0.50	4.26	0.4	0.010
4/18/03	091500	162.3	20.2250	3.360	0.50	4.26	0.4	0.010
4/18/03	091600	162.3	20.2460	3.420	0.50	4.26	0.4	0.010
4/18/03	091700	162.2	20.2380	3.470	0.50	4.26	0.4	0.010
4/18/03	091800	161.7	20.1930	3.510	0.50	4.26	0.4	0.010
4/18/03	091900	161.7	20.1690	3.540	0.50	4.26	0.4	0.010
4/18/03	092000	161.9	20.1910	3.600	0.50	4.26	0.4	0.010
4/18/03	092100	161.8	20.1570	3.600	0.50	4.26	0.4	0.010
4/18/03	092200	161.7	20.1630	3.500	0.50	4.26	0.4	0.010
4/18/03	092300	161.6	20.1550	3.340	0.50	4.26	0.4	0.010
4/18/03	092400	161.6	20.1720	3.230	0.50	4.26	0.5	0.009
4/18/03	092500	161.7	20.1980	3.170	0.50	4.26	0.4	0.009
	Averages:	**162.1**	**20.2058**	**3.565**	**0.500**	**4.263**	**0.405**	**0.010**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1C-RA-7								
4/18/03	094100	161.4	20.1240	3.280	0.50	4.26	0.4	0.010
4/18/03	094200	161.4	20.1330	3.180	0.50	4.26	0.4	0.009
4/18/03	094300	161.3	20.1570	3.130	0.50	4.26	0.4	0.009
4/18/03	094400	161.3	20.1570	3.150	0.50	4.26	0.4	0.009
4/18/03	094500	161.4	20.1370	3.160	0.50	4.25	0.4	0.009
4/18/03	094600	161.1	20.1020	3.160	0.50	4.26	0.4	0.009
4/18/03	094700	161.0	20.0960	3.150	0.50	4.26	0.4	0.009
4/18/03	094800	160.9	20.1180	3.180	0.50	4.26	0.4	0.009
4/18/03	094900	161.0	20.1300	3.290	0.50	4.26	0.4	0.009
4/18/03	095000	161.1	20.0750	3.600	0.50	4.26	0.4	0.010
4/18/03	095100	161.0	20.1280	3.750	0.50	4.26	0.4	0.011
4/18/03	095200	160.8	20.0790	3.700	0.60	4.26	0.4	0.011
4/18/03	095300	160.6	20.1450	3.520	0.50	4.26	0.5	0.010
4/18/03	095400	160.9	20.0830	3.390	0.50	4.26	0.4	0.010
4/18/03	095500	160.7	20.0980	3.330	0.50	4.25	0.4	0.010
4/18/03	095600	160.6	20.0750	3.350	0.50	4.25	0.4	0.010
4/18/03	095700	160.5	20.1000	3.380	0.50	4.25	0.4	0.010
4/18/03	095800	160.4	20.0690	3.420	0.50	4.25	0.4	0.010
4/18/03	095900	160.3	20.0460	3.470	0.50	4.25	0.4	0.010
4/18/03	100000	160.7	20.0480	3.450	0.50	4.26	0.4	0.010
4/18/03	100100	160.4	20.0730	3.420	0.50	4.25	0.4	0.010
4/18/03	100200	160.3	20.0940	3.400	0.50	4.25	0.4	0.010
	Averages:	**160.9**	**20.1030**	**3.357**	**0.505**	**4.256**	**0.405**	**0.010**
Run 1C-RA-8								
4/18/03	101400	160.1	20.0310	3.340	0.50	4.25	0.4	0.010
4/18/03	101500	159.9	20.0280	3.270	0.50	4.25	0.4	0.010
4/18/03	101600	160.1	20.0460	3.160	0.50	4.25	0.4	0.009
4/18/03	101700	160.0	20.0190	3.100	0.50	4.25	0.4	0.009
4/18/03	101800	160.3	20.0260	3.430	0.50	4.25	0.4	0.010
4/18/03	101900	160.2	20.0440	3.720	0.50	4.25	0.4	0.011
4/18/03	102000	159.8	20.0210	3.600	0.50	4.24	0.4	0.011
4/18/03	102100	160.0	20.0130	3.360	0.50	4.24	0.4	0.010
4/18/03	102200	160.1	20.0320	3.220	0.50	4.25	0.4	0.009
4/18/03	102300	160.0	20.0480	3.140	0.50	4.25	0.4	0.009
4/18/03	102400	160.0	20.0200	3.220	0.50	4.25	0.4	0.009
4/18/03	102500	160.1	20.0010	3.310	0.50	4.25	0.4	0.009
4/18/03	102600	160.0	20.0340	3.460	0.50	4.25	0.4	0.010
4/18/03	102700	160.0	20.0190	3.540	0.50	4.26	0.4	0.010
4/18/03	102800	159.9	20.0010	3.590	0.50	4.26	0.4	0.010
4/18/03	102900	159.8	20.0250	3.440	0.50	4.25	0.4	0.010
4/18/03	103000	160.0	20.0150	3.220	0.50	4.25	0.4	0.009
4/18/03	103100	159.9	19.9700	3.130	0.50	4.25	0.4	0.009
4/18/03	103200	159.7	19.9640	3.160	0.50	4.25	0.4	0.009
4/18/03	103300	159.6	19.9780	3.430	0.50	4.25	0.4	0.010
4/18/03	103400	159.1	19.9590	3.670	0.50	4.25	0.4	0.011
4/18/03	103500	159.8	19.9160	3.530	0.50	4.26	0.4	0.010
	Averages:	**159.9**	**20.0095**	**3.365**	**0.500**	**4.250**	**0.400**	**0.010**

Spectrum Systems CEMS DAHS Data
Relative Accuracy Test Audit

DATE	TIME	GEN34	GAS31	NOX35	COL33	CO232	COLD39	NOXRT36
		(MW)	(lb/sec)	(ppmv)	(ppmv)	(% volume)	(ppmv@15%O_2)	(lb/MMBtu)
Run 1C-RA-9								
4/18/03	104900	159.3	19.9690	3.630	0.50	4.25	0.4	0.011
4/18/03	105000	159.3	19.9650	3.570	0.50	4.25	0.4	0.011
4/18/03	105100	159.3	19.9800	3.370	0.50	4.25	0.4	0.010
4/18/03	105200	159.3	19.9800	3.270	0.50	4.25	0.4	0.010
4/18/03	105300	159.5	19.9800	3.200	0.50	4.25	0.4	0.009
4/18/03	105400	159.3	19.9510	3.180	0.50	4.24	0.4	0.009
4/18/03	105500	159.7	19.9700	3.370	0.50	4.24	0.4	0.010
4/18/03	105600	159.7	19.9720	3.500	0.50	4.24	0.4	0.010
4/18/03	105700	159.5	20.0280	3.650	0.50	4.24	0.4	0.011
4/18/03	105800	159.0	20.0150	3.680	0.50	4.24	0.4	0.011
4/18/03	105900	159.4	19.9120	3.390	0.40	4.24	0.4	0.010
4/18/03	110000	159.5	19.9310	3.190	0.40	4.24	0.3	0.009
4/18/03	110100	159.3	19.9590	3.110	0.50	4.24	0.4	0.009
4/18/03	110200	158.8	19.9490	3.220	0.50	4.24	0.4	0.009
4/18/03	110300	158.8	19.8730	3.480	0.50	4.25	0.4	0.010
4/18/03	110400	159.2	19.8890	3.680	0.50	4.24	0.4	0.011
4/18/03	110500	159.4	19.9530	3.580	0.50	4.24	0.4	0.010
4/18/03	110600	159.4	19.9800	3.370	0.50	4.25	0.4	0.010
4/18/03	110700	159.5	19.9720	3.250	0.50	4.24	0.4	0.009
4/18/03	110800	159.2	19.9620	3.200	0.50	4.24	0.4	0.009
4/18/03	110900	159.3	19.9680	3.310	0.50	4.25	0.4	0.010
4/18/03	111000	159.2	19.9660	3.480	0.50	4.25	0.4	0.010
	Averages:	**159.3**	**19.9602**	**3.395**	**0.491**	**4.244**	**0.395**	**0.010**

```
===========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1C
===========================================================================
 Report Period
 Day: 05/06/2003       ZERO CAL                         SPAN CAL
===========================================================================
          TIME   ZERO      %CE      REF         TIME     SPAN      %CE      REF
NOxHigh   1:36   0.00   0.000P     0.00         1:39    83.20   0.100P    83.10

NOx Low   1:36   0.10   0.100P     0.00         1:33     5.60   0.100P     5.50

CO2       1:36   0.00   0.000P     0.00         1:39     5.70   0.200P     5.50

CO High   1:39   0.20   0.020P     0.00         1:36   551.70   0.530P   557.00

CO Low    1:39   0.60   3.000P     0.00         1:33    11.80   2.500P    11.30

===========================================================================




 Today's Date: 05/20/2003     %CE = Percent Calibration Error
 Time: 12:21:54
                              P - Calibration Passed     F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1C
==========================================================================
 Report Period
 Day: 05/07/2003      ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO    %CE      REF        TIME   SPAN     %CE     REF
NOxHigh   1:36   0.00   0.000P   0.00        1:39   83.70   0.600P   83.10

NOx Low   1:36   0.10   0.100P   0.00        1:33    5.60   0.100P    5.50

CO2       1:36   0.00   0.000P   0.00        1:39    5.70   0.200P    5.50

CO High   1:39   0.50   0.050P   0.00        1:36  550.70   0.630P  557.00

CO Low    1:39   0.60   3.000P   0.00        1:33   11.80   2.500P   11.30

==========================================================================



 Today's Date: 05/20/2003    %CE = Percent Calibration Error
 Time: 12:21:38
                             P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1C
==========================================================================
 Report Period
 Day: 05/08/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO    %CE      REF        TIME   SPAN     %CE     REF
NOxHigh   1:36   0.00   0.000P    0.00       1:39   83.90   0.800P   83.10

NOx Low   1:36   0.10   0.100P    0.00       1:33    5.60   0.100P    5.50

CO2       1:36   0.00   0.000P    0.00       1:39    5.70   0.200P    5.50

CO High   1:39   0.50   0.050P    0.00       1:36  557.70   0.070P  557.00

CO Low    1:39   0.70   3.500P    0.00       1:33   11.90   3.000P   11.30

==========================================================================




 Today's Date: 05/20/2003     %CE = Percent Calibration Error
 Time: 12:21:20
                              P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                        Daily Calibration Summary
                        Tampa Electric Company
                        Bayside CT1C
==========================================================================
 Report Period
 Day: 05/09/2003      ZERO CAL                         SPAN CAL
==========================================================================
          TIME   ZERO     %CE     REF        TIME    SPAN     %CE     REF
NOxHigh   1:36   0.10   0.100P   0.00        1:39   83.70   0.600P   83.10

NOx Low   1:36   0.10   0.100P   0.00        1:33    5.60   0.100P    5.50

CO2       1:36   0.00   0.000P   0.00        1:39    5.80   0.300P    5.50

CO High   1:39   0.20   0.020P   0.00        1:36  551.80   0.520P  557.00

CO Low    1:39   0.60   3.000P   0.00        1:33   11.90   3.000P   11.30

==========================================================================




 Today's Date: 05/20/2003     %CE = Percent Calibration Error
 Time: 12:21:05
                              P - Calibration Passed    F - Calibration Failed
```

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==========================================================================
                        Daily Calibration Summary
                        Tampa Electric Company
                        Bayside CT1C
==========================================================================
 Report Period
 Day: 05/10/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO     %CE     REF        TIME    SPAN     %CE     REF
NOxHigh   1:36   0.10   0.100P   0.00        1:39   83.90   0.800P   83.10

NOx Low   1:36   0.10   0.100P   0.00        1:33    5.60   0.100P    5.50

CO2       1:36   0.00   0.000P   0.00        1:39    5.70   0.200P    5.50

CO High   1:39   0.20   0.020P   0.00        1:36  557.00   0.000P  557.00

CO Low    1:39   0.70   3.500P   0.00        1:33   12.00   3.500P   11.30

==========================================================================




 Today's Date: 05/20/2003      %CE = Percent Calibration Error
 Time: 12:20:46
                               P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                            Daily Calibration Summary
                            Tampa Electric Company
                            Bayside CT1C
==========================================================================
 Report Period
 Day: 05/11/2003      ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO     %CE      REF        TIME   SPAN     %CE     REF
NOxHigh   1:36   0.00   0.000P    0.00        1:39  83.70   0.600P   83.10

NOx Low   1:36   0.10   0.100P    0.00        1:33   5.60   0.100P    5.50

CO2       1:36   0.00   0.000P    0.00        1:39   5.70   0.200P    5.50

CO High   1:39   0.30   0.030P    0.00        1:36 554.00   0.300P  557.00

CO Low    1:39   0.60   3.000P    0.00        1:33  11.90   3.000P   11.30

==========================================================================




 Today's Date: 05/20/2003      %CE = Percent Calibration Error
 Time: 12:20:30
                               P - Calibration Passed    F - Calibration Failed
```

```
==========================================================================
                         Daily Calibration Summary
                         Tampa Electric Company
                         Bayside CT1C
==========================================================================
 Report Period
 Day: 05/12/2003       ZERO CAL                        SPAN CAL
==========================================================================
          TIME   ZERO     %CE      REF         TIME    SPAN      %CE     REF
NOxHigh   1:36  -0.10   0.100P    0.00         1:39   84.10   1.000P   83.10
          8:13   0.00   0.000P    0.00         8:16   84.50   1.400P   83.10

NOx Low   1:36   0.00   0.000P    0.00         1:33    5.60   0.100P    5.50
          8:13   0.10   0.100P    0.00         8:10    5.70   0.200P    5.50

CO2       1:36   0.00   0.000P    0.00         1:39    5.70   0.200P    5.50
          8:13   0.00   0.000P    0.00         8:16    5.70   0.200P    5.50

CO High   1:39   0.30   0.030P    0.00         1:36  556.10   0.090P  557.00
          8:16   0.20   0.020P    0.00         8:13  555.10   0.190P  557.00

CO Low    1:39   0.70   3.500P    0.00         1:33   12.00   3.500P   11.30
          8:16   0.70   3.500P    0.00         8:10   11.90   3.000P   11.30

==========================================================================




 Today's Date: 05/20/2003     %CE = Percent Calibration Error
 Time: 12:19:59

                              P - Calibration Passed    F - Calibration Failed
```

Tampa Electric Company
Bayside CT1C
Hillsborough County, Florida

Today's Date: 05/20/2003
Time: 07:10:08

Reporting Period
Day: 05/06/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.4	3.9	0.011	3.0	0.7	0.5	156.8	1659.5
0200	4.4	3.9	0.011	3.0	0.7	0.5	157.2	1663.8
0300	4.3	3.9	0.011	3.1	0.6	0.5	127.5	1423.6
0400	4.3	3.9	0.011	3.1	0.6	0.5	124.9	1401.5
0500	4.3	3.8	0.011	3.0	0.6	0.5	130.6	1445.7
0600	4.4	3.9	0.011	3.0	0.6	0.5	153.8	1630.5
0700	4.3	3.9	0.011	3.1	0.6	0.5	154.8	1639.3
0800	4.3	3.9	0.011	3.1	0.6	0.5	141.5	1530.1
0900	4.3	3.9	0.011	3.1	0.6	0.5	141.6	1532.3
1000	4.4	3.9	0.011	3.0	0.6	0.5	153.8	1633.9
1100	4.3	3.9	0.011	3.1	0.7	0.5	152.9	1628.4
1200	4.3	3.9	0.011	3.1	0.6	0.5	147.0	1580.4
1300	4.3	3.8	0.011	3.0	0.6	0.5	151.5	1619.9
1400	4.3	3.9	0.011	3.1	0.7	0.5	151.2	1617.2
1500	4.3	3.9	0.011	3.1	0.7	0.5	151.1	1618.3
1600	4.3	3.9	0.011	3.1	0.7	0.5	151.5	1622.0
1700	4.3	3.9	0.011	3.1	0.7	0.5	151.8	1624.2
1800	4.3	3.9	0.011	3.1	0.7	0.5	152.0	1623.9
1900	4.3	3.9	0.011	3.1	0.7	0.5	152.2	1625.4
2000	4.4	3.9	0.011	3.0	0.8	0.6	153.8	1638.7
2100	4.4	3.9	0.011	3.0	0.8	0.6	154.6	1644.9
2200	4.4	3.9	0.011	3.0	0.7	0.5	153.7	1637.0
2300	4.3	3.9	0.011	3.1	0.7	0.5	152.0	1620.9
2400	4.4	3.9	0.011	3.0	0.6	0.5	155.6	1652.5
AVG	4.3	3.9	0.011	3.1	0.7	0.5	148.9	1596.4

Tampa Electric Company
Bayside CT1C
Hillsborough County, Florida

Today's Date: 05/20/2003
Time: 07:10:43

Reporting Period
Day: 05/07/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.4	3.9	0.011	3.0	0.6	0.5	156.0	1655.2
0200	4.4	3.9	0.011	3.0	0.6	0.5	155.5	1650.8
0300	4.3	3.9	0.011	3.1	0.6	0.5	156.9	1662.2
0400	4.3	3.8	0.011	3.0	0.6	0.5	156.5	1658.0
0500	4.3	3.8	0.011	3.0	0.7	0.5	154.1	1637.9
0600	4.3	3.8	0.011	3.0	0.7	0.5	154.9	1643.6
0700	4.3	3.9	0.011	3.1	0.7	0.5	145.8	1568.4
0800	4.3	3.8	0.011	3.0	0.7	0.5	155.2	1647.1
0900	4.3	3.9	0.011	3.1	0.7	0.5	156.3	1659.4
1000	4.3	3.9	0.011	3.1	0.7	0.5	154.3	1642.3
1100	4.3	3.9	0.011	3.1	0.7	0.5	153.0	1634.2
1200	4.3	3.8	0.011	3.0	0.7	0.5	152.5	1631.8
1300	4.3	3.8	0.011	3.0	0.7	0.5	151.9	1626.7
1400	4.3	3.9	0.011	3.1	0.8	0.6	150.7	1616.1
1500	4.3	3.9	0.011	3.1	0.8	0.6	151.9	1625.1
1600	4.3	3.9	0.011	3.1	0.8	0.6	151.8	1624.0
1700	4.3	3.9	0.011	3.1	0.8	0.6	152.2	1626.9
1800	4.3	3.9	0.011	3.1	0.8	0.6	152.7	1629.8
1900	4.3	3.9	0.011	3.1	0.8	0.6	153.4	1636.4
2000	4.4	3.9	0.011	3.0	0.8	0.6	154.1	1642.3
2100	4.3	3.9	0.011	3.1	0.8	0.6	143.0	1548.0
2200	4.3	3.9	0.011	3.1	0.8	0.6	151.3	1617.8
2300	4.4	3.9	0.011	3.0	0.8	0.6	155.3	1651.2
2400	4.3	3.8	0.011	3.0	0.8	0.6	154.0	1640.0
AVG	4.3	3.9	0.011	3.1	0.7	0.5	153.1	1632.3

```
==============================================================================
                          Tampa Electric Company
                          Bayside CT1C
                          Hillsborough County, Florida
==============================================================================

 Today's Date: 05/20/2003                               Reporting Period
 Time: 07:11:03                                         Day: 05/08/2003

                                Daily Emissions Log
Time        CO2       NOx      NOx       NOx         CO      CO       Gen     HTIP
             %        ppm   lb/mmBtu   @15% O2      ppm    @15% O2   MW    lb/mmBtu

0100        4.3       3.8     0.011      3.0        0.7      0.5    154.5   1641.8
0200        4.3       3.9     0.011      3.1        0.7      0.5    146.0   1569.9
0300        4.3       3.8     0.011      3.0        0.7      0.5    152.3   1621.0
0400        4.4       3.9     0.011      3.0        0.6      0.5    157.0   1663.3
0500        4.4       3.9     0.011      3.0        0.6      0.5    152.6   1625.2
0600        4.4       3.9     0.011      3.0        0.6      0.5    154.6   1642.0
0700        4.3       3.9     0.011      3.1        0.6      0.5    155.4   1643.5
0800        4.3       3.9     0.011      3.1        0.6      0.5    135.7   1485.7
0900        4.4       3.9     0.011      3.0        0.6      0.5    155.4   1646.9
1000        4.4       3.9     0.011      3.0        0.7      0.5    149.5   1597.6
1100        4.4       3.9     0.011      3.0        0.7      0.5    154.3   1644.1
1200        4.4       3.9     0.011      3.0        0.7      0.5    153.2   1637.1
1300        4.4       3.9     0.011      3.0        0.7      0.5    151.8   1626.6
1400        4.4       3.9     0.011      3.0        0.7      0.5    151.1   1620.7
1500        4.4       3.9     0.011      3.0        0.8      0.6    150.8   1617.7
1600        4.4       3.9     0.011      3.0        0.8      0.6    151.1   1620.9
1700        4.4       3.9     0.011      3.0        0.8      0.6    151.4   1621.9
1800        4.4       3.9     0.011      3.0        0.7      0.5    152.0   1625.0
1900        4.4       3.9     0.011      3.0        0.8      0.6    152.6   1630.7
2000        4.4       3.9     0.011      3.0        0.6      0.5    153.9   1639.6
2100        4.4       3.9     0.011      3.0        0.6      0.5    154.8   1648.8
2200        4.4       3.9     0.011      3.0        0.6      0.5    155.4   1654.3
2300        4.4       3.9     0.011      3.0        0.6      0.5    156.2   1660.5
2400        4.4       3.9     0.011      3.0        0.6      0.5    157.1   1665.5

 AVG        4.4       3.9     0.011      3.0        0.7      0.5    152.4   1627.1
```

Tampa Electric Company
Bayside CT1C
Hillsborough County, Florida

Today's Date: 05/20/2003
Time: 07:11:23

Reporting Period
Day: 05/09/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.4	3.9	0.011	3.0	0.6	0.5	157.4	1668.2
0200	4.4	4.0	0.011	3.1	0.7	0.5	157.5	1667.5
0300	4.4	3.9	0.011	3.0	0.6	0.5	158.0	1671.9
0400	4.4	3.9	0.011	3.0	0.6	0.5	158.3	1672.9
0500	4.4	3.9	0.011	3.0	0.7	0.5	158.0	1669.4
0600	4.4	3.9	0.011	3.0	0.7	0.5	158.1	1669.7
0700	4.3	3.8	0.011	3.0	0.7	0.5	141.1	1532.6
0800	4.3	3.9	0.011	3.1	0.8	0.6	156.4	1656.8
0900	4.3	3.8	0.011	3.0	0.7	0.5	125.5	1409.8
1000	4.3	3.9	0.011	3.1	0.8	0.6	154.4	1643.8
1100	4.3	3.8	0.011	3.0	0.8	0.6	152.0	1623.7
1200	4.3	3.9	0.011	3.1	0.8	0.6	151.7	1623.3
1300	4.3	3.8	0.011	3.0	0.8	0.6	150.3	1612.2
1400	4.3	3.9	0.011	3.1	0.8	0.6	147.4	1587.8
1500	4.3	3.9	0.011	3.1	0.8	0.6	150.6	1616.8
1600	4.3	3.9	0.011	3.1	0.8	0.6	150.7	1618.0
1700	4.3	3.9	0.011	3.1	0.8	0.6	150.3	1611.4
1800	4.3	3.8	0.011	3.0	0.8	0.6	142.8	1546.5
1900	4.3	3.8	0.011	3.0	0.7	0.5	136.7	1495.6
2000	4.3	3.9	0.011	3.1	0.7	0.5	150.5	1609.7
2100	4.4	3.9	0.011	3.0	0.7	0.5	154.4	1643.4
2200	4.3	3.9	0.011	3.1	0.6	0.5	153.7	1636.2
2300	4.3	3.8	0.011	3.0	0.7	0.5	153.2	1632.2
2400	4.3	3.8	0.011	3.0	0.7	0.5	147.4	1582.1
AVG	4.3	3.9	0.011	3.0	0.7	0.5	150.7	1612.6

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================================================================================
                           Tampa Electric Company
                           Bayside CT1C
                           Hillsborough County, Florida
================================================================================

 Today's Date: 05/20/2003                                   Reporting Period
 Time: 07:11:41                                             Day: 05/10/2003

                          Daily Emissions Log
Time      CO2       NOx      NOx       NOx         CO       CO      Gen      HTIP
           %        ppm   lb/mmBtu   @15% O2       ppm    @15% O2    MW    lb/mmBtu

0100      4.3       4.0    0.012       3.1         0.7      0.5    130.7    1448.3
0200      4.3       3.9    0.011       3.1         0.8      0.6    143.4    1545.6
0300      4.3       3.9    0.011       3.1         0.7      0.5    129.6    1437.1
0400      4.3       3.9    0.011       3.1         0.7      0.5    118.2    1351.6
0500      4.3       3.9    0.011       3.1         0.7      0.5    119.5    1361.8
0600      4.3       3.9    0.011       3.1         0.7      0.5    139.0    1511.6
0700      4.3       3.9    0.011       3.1         0.7      0.5    114.5    1327.7
0800      4.3       3.8    0.011       3.0         0.7      0.5    138.7    1510.8
0900      4.4       3.9    0.011       3.0         0.7      0.5    154.4    1639.7
1000      4.4       3.9    0.011       3.0         0.7      0.5    153.2    1630.8
1100      4.3       3.9    0.011       3.1         0.7      0.5    148.7    1594.9
1200      4.4       3.9    0.011       3.0         0.8      0.6    151.4    1619.2
1300      4.3       3.9    0.011       3.1         0.8      0.6    150.4    1611.7
1400      4.3       3.9    0.011       3.1         0.8      0.6    149.8    1606.2
1500      4.4       3.9    0.011       3.0         0.8      0.6    150.2    1610.7
1600      4.4       3.9    0.011       3.0         0.8      0.6    150.4    1613.4
1700      4.4       3.9    0.011       3.0         0.8      0.6    151.0    1616.6
1800      4.4       3.9    0.011       3.0         0.8      0.6    151.6    1620.5
1900      4.4       3.9    0.011       3.0         0.7      0.5    152.4    1626.2
2000      4.4       3.9    0.011       3.0         0.7      0.5    153.1    1631.6
2100      4.4       3.9    0.011       3.0         0.7      0.5    150.4    1607.1
2200      4.4       3.9    0.011       3.0         0.6      0.5    144.9    1561.5
2300      4.4       3.9    0.011       3.0         0.6      0.5    153.0    1628.9
2400      4.3       3.9    0.011       3.1         0.8      0.6    144.4    1555.4

 AVG      4.4       3.9    0.011       3.0         0.7      0.5    143.5    1552.9
```

Tampa Electric Company
Bayside CT1C
Hillsborough County, Florida

Today's Date: 05/20/2003
Time: 07:11:56

Reporting Period
Day: 05/11/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	4.4	3.9	0.011	3.0	0.7	0.5	143.9	1551.9
0200	4.4	3.9	0.011	3.0	0.8	0.6	144.4	1554.2
0300	4.4	3.9	0.011	3.0	0.7	0.5	145.7	1564.1
0400	4.4	3.9	0.011	3.0	0.6	0.5	145.2	1560.7
0500	4.4	3.9	0.011	3.0	0.6	0.5	146.2	1568.6
0600	4.4	3.9	0.011	3.0	0.6	0.5	132.2	1456.8
0700	4.3	3.9	0.011	3.1	0.7	0.5	126.9	1414.0
0800	4.4	3.9	0.011	3.0	0.7	0.5	154.3	1633.2
0900	4.4	3.9	0.011	3.0	0.7	0.5	155.1	1643.3
1000	4.4	3.9	0.011	3.0	0.8	0.6	153.8	1633.7
1100	4.4	3.9	0.011	3.0	0.9	0.7	152.9	1628.3
1200	4.3	3.9	0.011	3.1	1.0	0.8	151.8	1618.6
1300	4.3	3.8	0.011	3.0	1.0	0.8	150.9	1612.8
1400	4.3	3.9	0.011	3.1	1.1	0.9	150.5	1610.0
1500	4.4	3.9	0.011	3.0	1.1	0.8	150.8	1611.4
1600	4.3	3.9	0.011	3.1	1.0	0.8	150.6	1608.7
1700	4.3	3.9	0.011	3.1	0.8	0.6	151.0	1611.7
1800	4.4	3.9	0.011	3.0	0.7	0.5	152.3	1620.5
1900	4.4	3.9	0.011	3.0	0.7	0.5	152.9	1625.0
2000	4.4	3.9	0.011	3.0	0.7	0.5	153.5	1630.5
2100	4.4	3.9	0.011	3.0	0.7	0.5	154.5	1638.5
2200	3.4	8.2	0.030	8.1	182.9	181.3	99.0	1100.7
2300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
AVG	4.0	3.8	0.011	3.0	8.3	8.1	134.1	1437.4

Tampa Electric Company
Bayside CT1C
Hillsborough County, Florida

Today's Date: 05/20/2003
Time: 07:12:13

Reporting Period
Day: 05/12/2003

Daily Emissions Log

Time	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0500	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0600	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0700	3.3	20.5	0.077	20.9	123.9	126.6	66.6	908.5
0800	4.3	10.4	0.030	8.2	3.9	3.1	121.7	1387.6
0900	4.4	3.9	0.011	3.0	0.7	0.5	155.3	1647.8
1000	4.4	3.9	0.011	3.0	0.8	0.6	153.9	1636.4
1100	4.4	3.9	0.011	3.0	0.7	0.5	153.1	1631.1
1200	4.4	3.9	0.011	3.0	0.7	0.5	152.4	1626.2
1300	4.4	3.9	0.011	3.0	0.7	0.5	151.9	1621.8
1400	4.4	3.9	0.011	3.0	0.7	0.5	152.3	1623.9
1500	4.4	3.9	0.011	3.0	0.7	0.5	152.4	1624.2
1600	4.3	3.8	0.011	3.0	0.6	0.5	152.6	1625.6
1700	4.3	3.5	0.010	2.7	0.6	0.5	152.7	1626.9
1800	4.3	2.9	0.008	2.3	0.6	0.5	147.1	1578.8
1900	4.3	2.3	0.007	1.8	0.6	0.5	139.0	1510.8
2000	4.3	2.0	0.006	1.6	0.6	0.5	138.3	1505.7
2100	4.3	3.4	0.010	2.7	0.6	0.5	108.2	1281.8
2200	4.3	2.9	0.008	2.3	0.6	0.5	118.2	1352.8
2300	3.2	19.9	0.077	21.0	276.2	290.9	47.1	703.2
2400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
AVG	3.0	4.1	0.013	3.6	17.2	17.8	94.3	1037.2

APPENDIX H:
AMMONIA LABORATORY RESULTS

Atmospheric Analysis & Consulting, Inc.

CLIENT : CUBIX
PROJECT NO. : 7445-FL1
AAC PROJECT NO. : 030147
REPORT DATE : 5/11/2003

On April 25, 2003, Atmospheric Analysis & Consulting, Inc. received seven (7) Impingers for Ammonia analysis by IC. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Volume mL
1A-NH3-2, Imp 1	030147-796	200
1A-NH3-2, Imp 2	030147-797	200
1A-NH3-3, Imp 1	030147-798	200
1A-NH3-3, Imp 2	030147-799	200
1A-NH3-4, Imp 1	030147-800	200
1A-NH3-4, Imp 2	030147-801	200
1A-NH3-Blank	030147-802	200

IC Analysis – Up to a 4 mL aliquot of sample is introduced into Dionex IC unit. Which separates and quantifies the ionic species of interest.

No problems were encountered during receiving, preparation and/ or analysis of these samples. conditions of the contract. Release of the data contained in this hardcopy data package and its electronic data deliverable submitted on diskette has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Sucha S. Parmar, PhD
Technical Director

This report consists of 4 pages.

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	: **Cubix Corporation**		**SAMPLING DATE**	: 4/23/2003
PROJECT NO	: 030147		**RECEIVING DATE**	: 4/25/2003
MEDIA	: 0.4N H2SO4		**ANALYSIS DATE**	: 5/7/2003
			REPORT DATE	: 5/11/2003

Analysis Method			**Ammonia by IC**		
Analyte			**NH_3**		
Detection Limit			**0.2 ug/ml X DF**		
Client ID#	**Lab No.**	**DF**	**Vol. (ml)+**	**ug/ml**	**ug/sample**
1A-NH3-2,Imp 1	030147-796	2	200	1.3	263
1A-NH3-2,Imp 2	030147-797	2	200	ND	ND
1A-NH3-2,Imp 1	030147-798	2	200	1.1	214
1A-NH3-2,Imp 1	030147-799	2	200	ND	ND
1A-NH3-2,Imp 1	030147-800	2	200	1.1	220
1A-NH3-2,Imp 1	030147-801	2	200	ND	ND
1A-NH3-2,Imp 1	030147-802	2	200	ND	ND
Lab Blank	Blank	1	20	ND	ND

D - Lab Duplicate

+ Cubix collected 250 ml samples and split the samples prior to shipment to the lab. Samples shipped to the lab were all @ 200 ml of Volume.

Sucha Parmar
Dr. Sucha Parmar
Technical Director

* Note: Cubix used the following calculation to determine NH_3 sample concentrations.

$$\text{Cubix } \mu g/ml = \frac{\text{AAC } \mu g/\text{sample}}{\text{AAC Volue}}$$

For ID 1A-NH_3-2, Imp I

$$\text{Cubix } \mu g/ml = \frac{263}{200} = 1.31(5) \Rightarrow 1.32$$

Total Cubix concentration:

$$\text{Conc(mg)} = \frac{\text{Cubix } \mu g/ml \times \text{Cubix ml}}{1000 \frac{\mu g}{mg}}$$

$$\text{Conc(mg)} = \frac{1.315 \times 250}{1000} = 0.329$$

Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL/QUALITY ASSURANCE REPORT

SAMPLE ID	**: IC-NH3-1,IMP 1**		**ANALYSIS DATE**	**: 5/7/2003**
LAB NO.	**: 030146-789**		**REPORT DATE**	**: 5/11/2003**

I-Duplicate Analysis

Analyte	Units	Sample Analysis	Duplicate Analysis	Mean	% RPD
NH4	**ug/sample**	1.8	1.9	2	8.1

II-Spiked Sample -030145-782

Analyte	Units	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
NH4	**ug/ml**	0.9	10	11.5	11.8	106	109	3.1

III-Laboratory Control Spike -

Analyte	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
NH4	20	21.63	21.04	108	105	2.8

* Must be 70-130%

** Must be < 25%

Dr. Sucha Parmar
Technical Director

030147 **BEST AVAILABLE COPY**

Chain Of Custody Record

Report To: Cubix Corporation, SE Regional Office
Lab Contact: Leonard Brenner
3709 SW 42nd Avenue, Suite 2
Gainesville, Florida 32608
Telephone: (352) 378-0332

Bill To: Cubix Corporation
9225 US Hwy 183 South
Austin, Texas 78747
Project Reference: 7445-FL1
P.O. No.:

Page 1 of 1

Sample ID	Sample Description	Date Collected	Container Type	Required Analyses	Special Instructions	
1A-NH3-2, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/23/03	HDPE Bottle	CTM-027	Do not adjust sample volume	030147-796
1A-NH3-2, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/23/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-797
1A-NH3-3, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/23/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-798
1A-NH3-3, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/23/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-799
1A-NH3-4, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/23/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-800
1A-NH3-4, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/23/03	HDPE Bottle	CTM-027	Do not adjust sample volume	801
1A-NH3-BLANK	200ml, ~0.4 N H2SO4 Solution	4/23/03	HDPE Bottle	CTM-027	Do not adjust sample volume	802

Turnaround Time Required:
[✓ Normal] Rush Report By:

Hazard Identification:
Acid Solution

Relinquished by: James Hastings JH Date: 4/24/03
Affiliation: Cubix Corporation, SE Regional Office

Received by: Thomas Jor Date: 4/25/03
Affiliation: AAC

Other Instructions:

Cubix Corporation

9225 US Hwy 183 South, Austin, Texas 78747
(512) 243-0202
3709 SW 42nd Avenue, Suite 2, Gainesville, Florida 32608
(352) 378-0332

Atmospheric Analysis & Consulting, Inc.

CLIENT : CUBIX
PROJECT NO. : 7445-FL1
AAC PROJECT NO. : 030145
REPORT DATE : 5/11/2003

On April 25, 2003, Atmospheric Analysis & Consulting, Inc. received seven (7) Impingers for Ammonia analysis by IC. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Volume mL
1B-NH3-1, Imp 1	030145-782	200
1B-NH3-1,Imp 2	030145-783	200
1B-NH3-2, Imp 1	030145-784	200
1B-NH3-2, Imp 2	030145-785	200
1B-NH3-3, Imp 1	030145-786	200
1B-NH3-3, Imp 2	030145-787	200
1B-NH3-Blank	030145-788	200

IC Analysis – Up to a 4 mL aliquot of sample is introduced into Dionex IC unit. Which separates and quantifies the ionic species of interest.

No problems were encountered during receiving, preparation and/ or analysis of these samples. conditions of the contract. Release of the data contained in this hardcopy data package and its electronic data deliverable submitted on diskette has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Sucha S. Parmar, PhD
Technical Director

This report consists of 5 pages.

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	: **Cubix Corporation**	**SAMPLING DATE**	: 4/17/2003
PROJECT NO	: 030145	**RECEIVING DATE**	: 4/25/2003
MEDIA	: 0.4N H2SO4	**ANALYSIS DATE**	: 5/7/2003
		REPORT DATE	: 5/11/2003

Analysis Method			Ammonia by IC		
Analyte			NH_3		
Detection Limit			0.2 ug/ml X DF		
Client ID#	Lab No.	DF	Vol. (ml)	ug/ml	ug/sample
IB-NH3-1,Imp1	030145-782	2	200	1.7	336
IB-NH3-1,Imp2	030145-783	2	200	ND	ND
IB-NH3-2,Imp1	030145-784	2	200	1.4	287
IB-NH3-2,Imp2	030145-785	2	200	ND	ND
IB-NH3-3,Imp1	030145-786	2	200	1.4	289
IB-NH3-3,Imp2	030145-787	2	200	ND	ND
IB-NH3-Blank	030145-788	2	200	ND	ND
Lab Blank	Blank	1	20	ND	ND

D - Lab Duplicate

Sucha Parmar

Dr. Sucha Parmar
Technical Director

Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL/QUALITY ASSURANCE REPORT

SAMPLE ID : IC-NH3-1,IMP 1
LAB NO. : 030146-789

ANALYSIS DATE : 5/7/2003
REPORT DATE : 5/11/2003

I-Duplicate Analysis

Analyte	Units	Sample Analysis	Duplicate Analysis	Mean	% RPD
NH4	ug/sample	1.8	1.9	2	8.1

II-Spiked Sample -030145-782

Analyte	Units	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
NH4	ug/ml	0.9	10	11.5	11.8	106	109	3.1

III-Laboratory Control Spike -

Analyte	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
NH4	20	21.63	21.04	108	105	2.8

* Must be 70-130%
** Must be < 25%

Dr. Sucha Parmar
Technical Director

SAMPLE RECEIPT/ LOG-IN REPORT

AAC Project No.: 030145 **Received by: Vanessa de Vera**

Sample Receipt Date/Time	Client/Project	Sample ID.	Matrix or Media	Sample Date/time	Sampled by:	Lab No.	Analysis Requested
04/25/03 10:00 am	CUBIX CORPORATION SE REGIONAL OFFICE 7445-FL1	1B-NH3-1, Imp-1	Liquid	04-17-03	Client	030145-782	AMMONIA
04/25/03 10:00 am	CUBIX CORPORATION SE REGIONAL OFFICE 7445-FL1	1B-NH3-1, Imp-2	Liquid	04-17-03	Client	030145-783	AMMONIA
04/25/03 10:00 am	CUBIX CORPORATION SE REGIONAL OFFICE 7445-FL1	1B-NH3-2, Imp-1	Liquid	04-17-03	Client	030145-784	AMMONIA
04/25/03 10:00 am	CUBIX CORPORATION SE REGIONAL OFFICE 7445-FL1	1B-NH3-2, Imp-2	Liquid	04-17-03	Client	030145-785	AMMONIA
04/25/03 10:00 am	CUBIX CORPORATION SE REGIONAL OFFICE 7445-FL1	1B-NH3-3, Imp-1	Liquid	04-17-03	Client	030145-786	AMMONIA
04/25/03 10:00 am	CUBIX CORPORATION SE REGIONAL OFFICE 7445-FL1	1B-NH3-3, Imp-2	Liquid	04-17-03	Client	030145-787	AMMONIA
04/25/03 10:00 am	CUBIX CORPORATION SE REGIONAL OFFICE 7445-FL1	1B-NH3-BLANK	Liquid	04-17-03	Client	030145-788	AMMONIA

Total Samples Recorded: 7

030145

BEST AVAILABLE COPY

Chain Of Custody Record

Report To: Cubix Corporation, SE Regional Office
Lab Contact: Leonard Brenner
3709 SW 42nd Avenue, Suite 2
Gainesville, Florida 32608
Telephone: (352) 378-0332

Bill To: Cubix Corporation
9225 US Hwy 183 South
Austin, Texas 78747
Project Reference: 7445-FL1
P.O. No.:

Page 1 of 1

Sample ID	Sample Description	Date Collected	Container Type	Required Analyses	Special Instructions	
1B-NH3-1, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/17/03	HDPE Bottle	CTM-027	Do not adjust sample volume	030145-78
1B-NH3-1, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/17/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-783
1B-NH3-2, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/17/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-78
1B-NH3-2, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/17/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-785
1B-NH3-3, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/17/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-786
1B-NH3-3, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/17/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-787
1B-NH3-BLANK	200ml, ~0.4 N H2SO4 Solution	4/17/03	HDPE Bottle	CTM-027	Do not adjust sample volume	-78

Turnaround Time Required:
[✓ Normal] Rush Report By:

Relinquished by: James Hastings JH Date: 4/24/03
Affiliation: Cubix Corporation, SE Regional Office

Received by: Vanessa Jo Date: 4/25/03
Affiliation: NHC

Hazard Identification:
Acid Solution

Other Instructions:

Cubix Corporation

9225 US Hwy 183 South, Austin, Texas 78747
(512) 243-0202
3709 SW 42nd Avenue, Suite 2, Gainesville, Florida 32608
(352) 378-0332

Atmospheric Analysis & Consulting, Inc.

CLIENT : CUBIX
PROJECT NO. : 7445-FL1
AAC PROJECT NO. : 030146
REPORT DATE : 5/11/2003

On April 25, 2003, Atmospheric Analysis & Consulting, Inc. received seven (7) Impingers for Ammonia analysis by IC. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Volume mL
1C-NH3-1, Imp 1	030146-789	200
1C-NH3-1, Imp 2	030146-790	200
1C-NH3-2, Imp 1	030146-791	200
1C-NH3-2, Imp 2	030146-792	200
1C-NH3-3, Imp 1	030146-793	200
1C-NH3-3, Imp 2	030146-794	200
1C-NH3-Blank	030146-795	200

IC Analysis – Up to a 4 mL aliquot of sample is introduced into Dionex IC unit. Which separates and quantifies the ionic species of interest.

No problems were encountered during receiving, preparation and/ or analysis of these samples. conditions of the contract. Release of the data contained in this hardcopy data package and its electronic data deliverable submitted on diskette has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Sucha S. Parmar

Sucha S. Parmar, PhD
Technical Director

This report consists of 4 pages.

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	**: Cubix Corporation**		**SAMPLING DATE**	: 4/18/2003	
PROJECT NO	: 030146		**RECEIVING DATE**	: 4/25/2003	
MEDIA	: 0.4N H2SO4		**ANALYSIS DATE**	: 5/7/2003	
			REPORT DATE	: 5/11/2003	

Analysis Method			**Ammonia by IC**		
Analyte			**NH_3**		
Detection Limit			**0.2 ug/ml X DF**		
Client ID#	**Lab No.**	**DF**	**Vol. (ml)**	**ug/ml**	**ug/sample**
1C-NH3-1,Imp 1	**030146-789**	**2**	200	1.7	350
1C-NH3-1,Imp 2	**030146-790**	**2**	200	ND	ND
1C-NH3-2,Imp 1	**030146-791**	**2**	200	0.9	180
1C-NH3-2,Imp 2	**030146-792**	**2**	200	ND	ND
1C-NH3-3,Imp 1	**030146-793**	**2**	200	2.0	404
1C-NH3-3,Imp 2	**030146-794**	**2**	200	ND	ND
1C-NH3-Blank	**030146-795**	**2**	200	ND	ND
Lab Blank	**Blank**	**1**	20	ND	ND

D - Lab Duplicate

Sucha Parmar

Dr. Sucha Parmar
Technical Director

Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL/QUALITY ASSURANCE REPORT

SAMPLE ID : IC-NH3-1,IMP 1 **ANALYSIS DATE : 5/7/2003**
LAB NO. : 030146-789 **REPORT DATE : 5/11/2003**

I-Duplicate Analysis

Analyte	Units	Sample Analysis	Duplicate Analysis	Mean	% RPD
NH4	ug/sample	1.8	1.9	2	8.1

II-Spiked Sample -030145-782

Analyte	Units	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
NH4	ug/ml	0.9	10	11.5	11.8	106	109	3.1

III-Laboratory Control Spike -

Analyte	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
NH4	20	21.63	21.04	108	105	2.8

* Must be 70-130%
** Must be < 25%

Dr. Sucha Parmar
Technical Director

030146

Chain Of Custody Record

Page 3

Report To: Cubix Corporation, SE Regional Office
Lab Contact: Leonard Brenner
3709 SW 42nd Avenue, Suite 2
Gainesville, Florida 32608
Telephone: (352) 378-0332

Bill To: Cubix Corporation
9225 US Hwy 183 South
Austin, Texas 78747
Project Reference: 7445-FL1
P.O. No.:

Page 1 of 1

Sample ID	Sample Description	Date Collected	Container Type	Required Analyses	Special Instructions
1C-NH3-1, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/18/03	HDPE Bottle	CTM-027 030146-789	Do not adjust sample volume
1C-NH3-1, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/18/03	HDPE Bottle	CTM-027 -790	Do not adjust sample volume
1C-NH3-2, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/18/03	HDPE Bottle	CTM-027 -791	Do not adjust sample volume
1C-NH3-2, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/18/03	HDPE Bottle	CTM-027 -792	Do not adjust sample volume
1C-NH3-3, Imp-1	200ml, ~0.4 N H2SO4 Solution	4/18/03	HDPE Bottle	CTM-027 -793	Do not adjust sample volume
1C-NH3-3, Imp-2	200ml, ~0.4 N H2SO4 Solution	4/18/03	HDPE Bottle	CTM-027 -794	Do not adjust sample volume
1C-NH3-BLANK	200ml, ~0.4 N H2SO4 Solution	4/18/03	HDPE Bottle	CTM-027 -795	Do not adjust sample volume

Turnaround Time Required:
[✓ Normal] Rush Report By:

Relinquished by: James Hastings JH Date: 4/24/03
Affiliation: Cubix Corporation, SE Regional Office

Received by: Date: 4/25/03
Affiliation: AAC

Hazard Identification:
Acid Solution

Other Instructions:

Cubix Corporation

9225 US Hwy 183 South, Austin, Texas 78747
(512) 243-0202
3709 SW 42nd Avenue, Suite 2, Gainesville, Florida 32608
(352) 378-0332

APPENDIX I:
OPACITY OBSERVATIONS

EPA VISIBLE EMISSION OBSERVATION FORM

Form #						Page	Of
1	A -	N	H	3 -	1	1	1

Continued on VEO Form Number →

EPA Method Used: (Circle One) [✓ Method 9] Method 22 Other:

Company Name BAYSIDE POWER PROJECT

Facility Name TAMPA ELECTRIC COMPANY

Street Address 3602 PORT SUTTON ROAD

City TAMPA State FL Zip 33619

Process COMBUSTION GAS TURBINE GENERATOR SET

Unit# 1A

Operating Mode 161.4 MW/ 1673.7 MMBtu/hr

Control Equipment DRY LOW NOx AMMONIA INJECTION

Operating Mode 15.63 lbs/hr

Describe Emiss. Pt. 1st 150' STACK EAST OF CONTROL ROOM, UNIT 1A

Height of Emiss. Pt. Start ~150' End SAME

Hgt of Emiss. Pt. Rel. to Observer Start ~150' End SAME

Distance to Emiss. Pt. Start ~500' End SAME

Direction to Emiss. Pt. (Degrees) Start ~242° End SAME

Vertical Angle to Obs. Pt. Start ~16.7° End SAME

Direction to Obs. Pt. (Degrees) Start ~242° End SAME

Distance and Direction to Observation Point from Emission Point Start DIRECTLY ABOVE End EXIT

Describe Emissions Start NONE SEEN End SAME

Emission Color Start NONE SEEN End SAME

Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background Start SKY End SAME

Background Color Start BLUE End SAME

Sky Conditions Start PARTLY CLOUDY End SAME

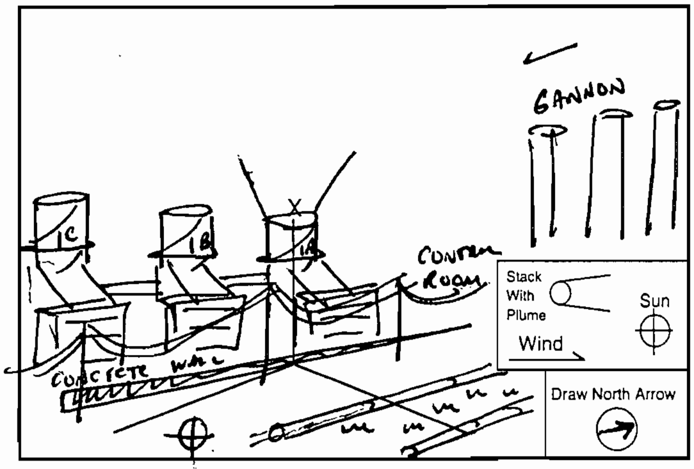
Wind Speed Start ~5 MPH End SAME

Wind Direction Start NW End SAME

Ambient Temp. Start ~75° End ~78°

Wet Bulb Temp. ~60°

R.H. % 40



Observation Date	Time Zone	Start Time	Stop Time
4/23/03	CST	10:20	11:20

Min/Sec	0	15	30	45	Min/Sec	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

Observer's Name JAMES HASTINGS

Observer's Signature James Hast

Date 4/23/03

Organization CUBIX CORPORATION

Certified By ETA

Date 1/8/03

Additional Information

Longitude	Latitude	Declination
3087.5 km N	360 km E	NA

EPA VISIBLE EMISSION OBSERVATION FORM

Form # 1 B-N H 3-1 Page 1 Of 1

Continued on VEO Form Number

EPA Method Used: (Circle One) [✓ Method 9] Method 22 Other:

Company Name: TAMPA ELECTRIC COMPANY

Facility Name: BAYSIDE POWER PROJECT

Street Address: 3602 PORT SUTTON ROAD

City: TAMPA State: FL Zip: 33619

Process: COMBUSTION GAS TURBINE GENERATOR SET

Unit#: 1B

Operating Mode: 163MW/ 1677 MMBtu/hr

Control Equipment: DRY LOW NOx AMMONIA INJ (SCR)

Operating Mode: 9.27 lbs/hr

Describe Emiss. Pt.: TURBINE ⟶ UNIT 1B, 2nd UNIT EAST OF CONTROL ROOM

Height of Emiss. Pt.: Start ~150' End SAME

Hgt of Emiss. Pt. Rel. to Observer: Start ~150' End SAME

Distance to Emiss. Pt.: Start ~500' End SAME

Direction to Emiss. Pt. (Degrees): Start ~238° End SAME

Vertical Angle to Obs. Pt.: Start ~16.7° End SAME

Direction to Obs. Pt. (Degrees): Start ~238° End SAME

Distance and Direction to Observation Point from Emission Point: Start OBSERVED End DIRECTLY ABOVE

Describe Emissions: Start NONE SEEN End SAME

Emission Color: Start NONE SEEN End SAME

Water Droplet Plume: Attached ☐ Detached ☐ None ☒

Describe Plume Background: Start SKY End SAME

Background Color: Start BLUE End SAME

Sky Conditions: Start CLEAR End SAME

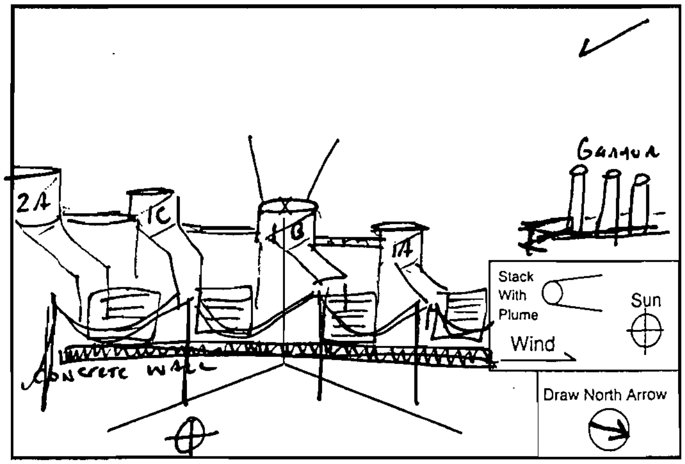
Wind Speed: Start ~1 MPH End SAME

Wind Direction: Start NW End SAME

Ambient Temp.: Start 70 End 77

Wet Bulb Temp.: 65.2

R.H. %: 77%



Observation Date: 4/17/03 Time Zone: CST Start Time: 7:26 Stop Time: 8:26

Min/Sec	0	15	30	45	Min/Sec	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

Observer's Name: James Hastings

Observer's Signature: James Hastings Date: 4-17-03

Organization: CUBIX CORPORATION

Certified By: ETA Date: 1/8/03

Additional Information: TEST TIME COORDINATED WITH CEMS TIME

Longitude	Latitude	Declination
3087.5 KM N	360 KM E	NA

EPA VISIBLE EMISSION OBSERVATION FORM

Form # 1 C-NH3-1
Page 1 Of 1
Continued on VEO Form Number →

EPA Method Used: (Circle One) [✓ Method 9] Method 22 Other:

Company Name TAMPA ELECTRIC COMPANY

Facility Name BAYSIDE POWER PROJECT

Street Address 3602 Port Sutton Rd

City TAMPA State FL Zip 33619

Process COMBUSTION GAS TURBINE GENERATOR SET
Unit# 1C
Operating Mode 167.6 MW/1702.2 MMBtu/hr

Control Equipment DRY LOW NOx AMMONIA INJ (SCR)
Operating Mode 9.12 lbs/hr

Describe Emiss. Pt. 3rd 150' ft stack EAST OF CONTROL ROOM, UNIT 1C

Height of Emiss. Pt. Start ~150' End SAME
Hgt of Emiss. Pt. Rel. to Observer Start ~150' End SAME

Distance to Emiss. Pt. Start ~500' End SAME
Direction to Emiss. Pt. (Degrees) Start ~226° End SAME

Vertical Angle to Obs. Pt. Start ~16.7 End SAME
Direction to Obs. Pt. (Degrees) Start ~226° End SAME

Distance and Direction to Observation Point from Emission Point
Start DIRECTLY ~~End~~ ABOVE EXIT

Describe Emissions
Start NONE SEEN End SAME

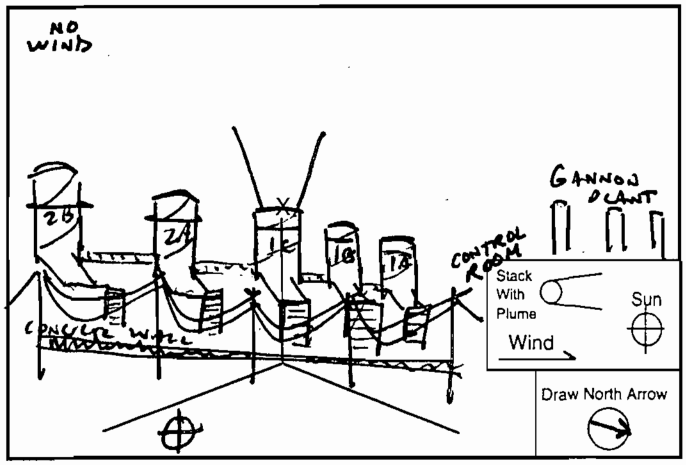
Emission Color Start NA End SAME
Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background
Start SKY End SAME

Background Color Start BLUE End SAME
Sky Conditions Start CLEAR End SAME

Wind Speed Start NONE End SAME
Wind Direction Start NA End SAME

Ambient Temp. Start ~65° End 66.9
Wet Bulb Temp. 62.5
R.H. % 86%



Observation Date 4/18/03
Time Zone CST
Start Time 6:27
Stop Time 7:27

Min/Sec	0	15	30	45	Min/Sec	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

Observer's Name James Hastings

Observer's Signature James Hastings
Date 4/18/03

Organization CUBIX CORPORATION

Certified By ETA
Date 1/8/03

Additional Information TEST TIME COORDINATED WITH CEMS TIME

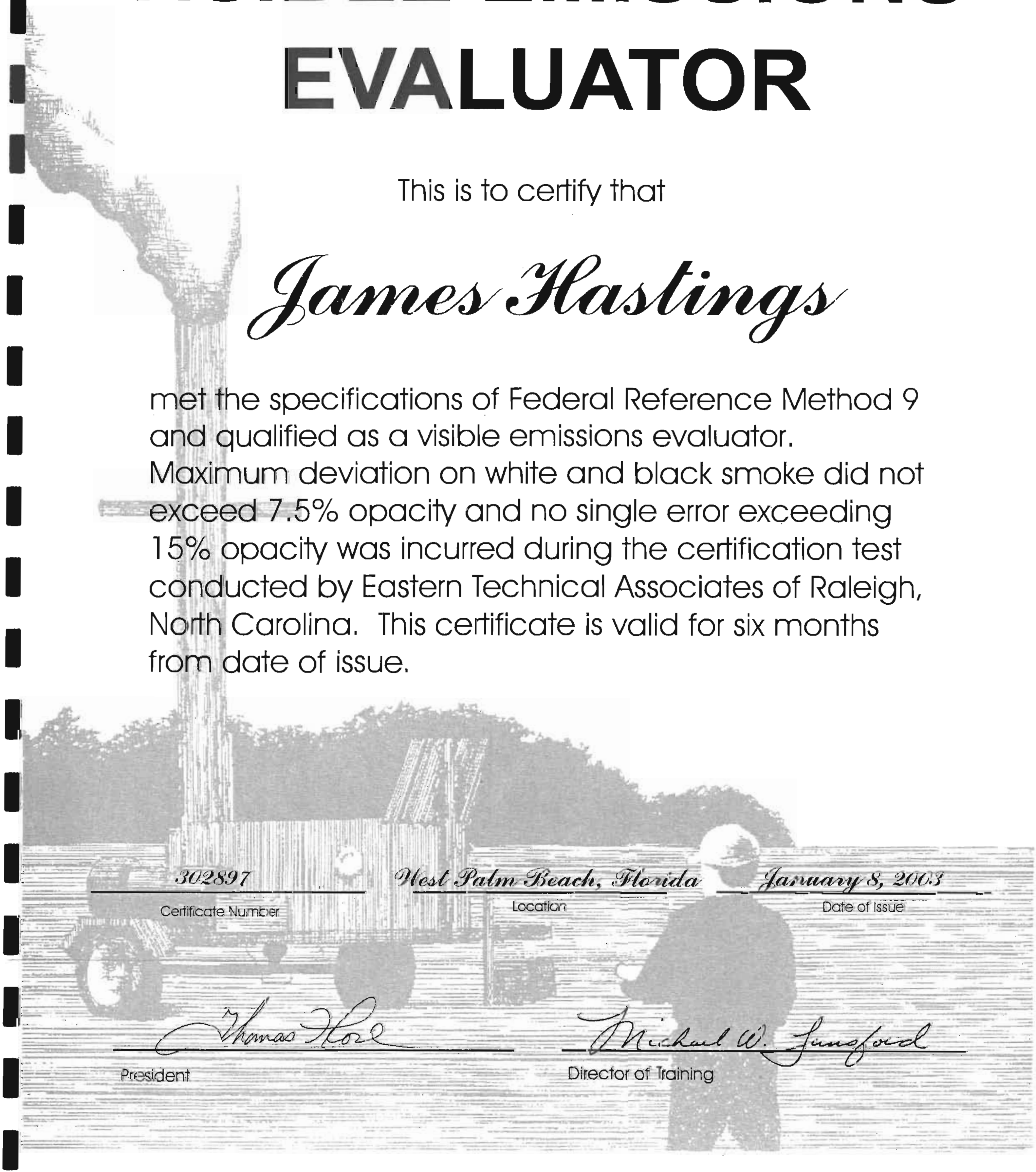
Longitude 3087.5 km N
Latitude 360 km E
Declination NA

VISIBLE EMISSIONS EVALUATOR

This is to certify that

James Hastings

met the specifications of Federal Reference Method 9 and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, North Carolina. This certificate is valid for six months from date of issue.



302897
Certificate Number

West Palm Beach, Florida
Location

January 8, 2003
Date of Issue

Thomas Rose
President

Michael W. Lunsford
Director of Training

Visible Emissions Evaluation

This certifies that...

James Hastings

...successfully completed a course in the methods of measurement of visible emissions from sources as specified by Federal Reference Methods 9 and 22 conducted by Eastern Technical Associates of Raleigh, North Carolina.

West Palm Beach, Florida
Course Location

July 9, 2002
Date

President

Michael W. Lunsford
Director of Training

Michael A.
Instructor

Cubix Corporation
http://www.cubixcorp.com

Headquarters
Austin, Texas
(512) 243-0202

Southeast Atlantic Region
Gainesville, Florida
(352) 378-0332

West Coast Region
Cameron Park, California
(530) 676-0832

Rocky Mtn. Region
Albuquerque, New Mexico
(505) 872-0114

Congratulations, Here is your wallet card signifying your successful certification at the recent Florida Department of Environmental Protection Smoke School conducted by Eastern Technical Associates.

JAMES HASTINGS

has completed the STATE OF FLORIDA visible emissions evaluation training and is a qualified observer of visible emissions as specified by EPA Reference Method 9.

7/10/2003
FIELD EXPIRATION DATE

WPBF03
LECTURE EXPIRATION DATE

302897
CERTIFICATION NUMBER

BEARER'S SIGNATURE

Your field certificate is valid for (6) months. To keep your certification current, you must recertify on or before the field expiration date on the

Your classroom requirements are separate and independent for certification purposes. You must attend the lecture on or before your lecture expiration date on the card.

If you have any questions about your certification, please contact Eastern Technical Associates, 919-878-3188.

Joe Kahn, Florida Department of Environmantal Protection

APPENDIX J:
FDEP PSD PERMIT

FLORIDA

Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Jeb Bush
Governor

David B. Struhs
Secretary

PERMITTEE:

Tampa Electric Company – Bayside Power Station
Port Sutton Road
Tampa, FL 33619

Authorized Representative:
Ms. Karen Sheffield, General Manager

Project No. 0570040-015-AC
Air Permit No. PSD-FL-301A
Facility ID No. 0570040
SIC No. 4911
Expires: July 1, 2005

PROJECT AND LOCATION

This permit authorizes construction of eleven new combined cycle gas turbines with an approximate electrical production capacity of 2845 MW. The new units will be used to re-power the steam-electrical generators for Units 3, 4, 5, and 6 at the existing F. J. Gannon Station. The re-powered plant will be renamed the "Bayside Power Station". The project will be located within the existing plant boundaries on Tampa's Port Sutton Road in Hillsborough County, Florida. The UTM coordinates are: Zone 17, 360.00 km E, 3087.50 km N.

STATEMENT OF BASIS

The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department. This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and 40 CFR 52.21. Specifically, this permit is issued pursuant to the Chapter 62-212, F.A.C. requirements for Preconstruction Review of Stationary Sources and the Prevention of Significant Deterioration (PSD) of Air Quality. The conditions of this permit do not relieve the permittee from any applicable requirement of the DEP/TEC Consent Final Judgment or the EPA/TEC Consent Decree.

APPENDICES

The following Appendices are attached as part of this permit.

Appendix A - Terminology
Appendix B - Final BACT Determinations and Emissions Standards
Appendix E - Summary of Mass Emissions Rates
Appendix GC - General Conditions
Appendix GG - NSPS Subpart GG Requirements for Gas Turbines
Appendix XS - Semi-Annual Continuous Monitor Systems Report

Howard L Rhodes

Howard L. Rhodes, Director
Division of Air Resources Management

1/8/02

Effective Date

PROJECT DESCRIPTION

Upon completion of construction and shutdown of all coal-fired units, the new Bayside Power Station will have an approximate electrical production capacity of 2845 MW based on the nominal capacities for Bayside Unit 1 (746 MW), Bayside Unit 2 (1090 MW), Bayside Unit 3 (501 MW), and Bayside Unit 4 (508 MW). Note that the final design may not fully utilize the nameplate capacities of the existing steam-electrical turbines. The following table summarizes the emission units regulated by this air construction permit.

EU No.	Emission Unit Description
001	Gannon Unit 1 – existing coal fired boiler with 125 MW steam electrical generator
002	Gannon Unit 2 – existing coal fired boiler with 125 MW steam electrical generator
003	Gannon Unit 3 – existing coal fired boiler with 180 MW steam electrical generator
004	Gannon Unit 4 – existing coal fired boiler with 188 MW steam electrical generator
005	Gannon Unit 5 – existing coal fired boiler with 239 MW steam electrical generator
006	Gannon Unit 6 – existing coal fired boiler with 414 MW steam electrical generator
008	Gannon Station Coal Yard – Serves existing Gannon Units 1 – 6
020	Bayside Unit 1A – 169 MW combined cycle gas turbine fired with natural gas
021	Bayside Unit 1B – 169 MW combined cycle gas turbine fired with natural gas
022	Bayside Unit 1C – 169 MW combined cycle gas turbine fired with natural gas
023	Bayside Unit 2A – 169 MW combined cycle gas turbine fired with natural gas
024	Bayside Unit 2B – 169 MW combined cycle gas turbine fired with natural gas
025	Bayside Unit 2C – 169 MW combined cycle gas turbine fired with natural gas
026	Bayside Unit 2D – 169 MW combined cycle gas turbine fired with natural gas
027	Bayside Unit 3A – 169 MW combined cycle gas turbine fired with natural gas
028	Bayside Unit 3B – 169 MW combined cycle gas turbine fired with natural gas
029	Bayside Unit 4A – 169 MW combined cycle gas turbine fired with natural gas
030	Bayside Unit 4B – 169 MW combined cycle gas turbine fired with natural gas

Notes:

a. Gannon Unit 5 (EU 005) must be shutdown before operating Bayside Unit 1 (EUs 020, 021, and 022).

b. Gannon Unit 6 (EU 006) must be shutdown before operating Bayside Unit 2 (EU 023, 024, 025, and 026).

c. Gannon Unit 3 (EU 003) must be shutdown before operating Bayside Unit 3 (EU 027 and 028).

d. Gannon Unit 4 (EU 004) must be shutdown before operating Bayside Unit 4 (EU 029 and 030).

e. EUs 001, 002, 003, 004, 005, and 006 must be shut down before January 1, 2005. The Department expects that other coal-related activities will also cease operation shortly after the shutdown of these coal-fired boilers.

REGULATORY CLASSIFICATION

Title III: The existing facility is a major source of hazardous air pollutants (HAPs). Based on the available information, this project is not subject to the requirements of a 112(g) case-by-case determination of the Maximum Available Control Technology (MACT).

Title IV: The existing facility has several emissions units, including the new combined cycle gas turbines, which are subject to the Acid Rain provisions of the Clean Air Act.

Title V: The existing facility is a Title V major source of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

PPSC: The existing Gannon Station was constructed prior to the power plant site certification requirements of Chapter 62-17, F.A.C. The re-powering project is not subject to power plant site certification because there will be no expansion of the steam electrical generating capacity.

PSD: The existing facility is located in an area that is in attainment with, or designated as unclassifiable for, each pollutant subject to a National Ambient Air Quality Standard. It is classified as a fossil fuel-fired steam electric plant, which is one of the 28 PSD Major Facility Categories identified in Table 62-212.400-1, F.A.C. Emissions from the facility are greater than 100 tons per year for at least one regulated pollutant. Therefore, the facility is "major" with respect to Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

NESHAP: The permittee did not identify any emission unit as being subject to a National Emissions Standard for Hazardous Air Pollutants (NESHAP).

NSPS: The new combined cycle gas turbines are subject to the New Source Performance Standards (NSPS) of 40 CFR 60, Subpart GG.

RELEVANT DOCUMENTS

- DEP/TEC Consent Final Judgment signed on December 7, 1999.
- EPA/TEC Consent Decree entered on October 5, 2000.
- PSD permit application (Bayside Units 1 and 2) received on September 21, 2000 and all related correspondence.
- Original PSD air construction Permit No. PSD-FL-301 issued on March 30, 2001.
- PSD permit application (Bayside Units 3 and 4) received on June 26, 2001 and all related correspondence.

ADMINISTRATIVE REQUIREMENTS

1. Effective Date: The effective date of this permit is specified on the placard page (page 1).
2. Permitting Authority: All documents related to applications for permits to construct, operate or modify an emissions unit shall be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (DEP), at 2600 Blair Stone Road - MS #5505, Tallahassee, Florida 32399-2400 and phone number 850/488-0114. Copies shall also be provided to the Compliance Authority.
3. Compliance Authority: All documents related compliance activities such as reports, tests, and notifications shall be submitted to the Air Management Division of the Environmental Protection Commission of Hillsborough County, 1410 North 21 Street, Tampa, FL 33605. The phone number is 813/272-5530 and the fax number is 813/272-5605. Copies of all such documents shall be submitted to the Air Resources Section of the Southwest District Office, Florida Department of Environmental Protection, 3804 Coconut Palm Drive, Tampa, Florida 33619-8218. The phone number is 813/744-6100 and the fax number is 813/744-6084.
4. Terminology: The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. *Appendix A* lists frequently used abbreviations and explains the format used to cite rules and regulations in this permit.
5. General Conditions: The owner and operator are subject to, and shall operate under, the attached General Conditions listed in *Appendix GC* of this permit. [Rule 62-4.160, F.A.C.]
6. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 52, 60, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
7. PSD Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months of the effective date of this permit, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. Such an extension does not relieve the permittee from any applicable requirement of the DEP/TEC Consent Final Judgment or the EPA/TEC Consent Decree. [40 CFR 52.21(r)(2)]
8. Permit Expiration: For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. Such an extension does not relieve the permittee from any applicable requirement of the DEP/TEC Consent Final Judgment or the EPA/TEC Consent Decree. [Rules 62-4.070(4), 62-4.080, and 62-210.300(1), F.A.C.]
9. BACT Determination: In conjunction with an extension of the 18-month period to commence or continue construction, phasing of the project, or an extension of the permit expiration date, the permittee may be required to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for the source. [Rule 62-212.400(6)(b), F.A.C. and 40 CFR 51.166(j)(4)]
10. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The

Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

11. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.200 (Definitions) and 62-210.300(1), F.A.C.]

12. Application for Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Region 4 office of the U.S. Environmental Protection Agency in Atlanta, Georgia and a copy to the Department's Bureau of Air Regulation in Tallahassee. [40 CFR 72]

13. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least ninety days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Department's Bureau of Air Regulation with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

EMISSIONS AND CONTROLS

13. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

14. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

15. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited. [Rule 62-210.700(4), F.A.C.]

16. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify the Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]

TESTING REQUIREMENTS

17. Sampling Facilities: The permittee shall provide stack testing facilities and sampling locations in accordance with Rule 62-297.310(6), F.A.C.

18. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.

    a. Required Sampling Time. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

b. Minimum Sample Volume. Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

c. Calibration of Sampling Equipment. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

[Rule 62-297.310(4), F.A.C.]

19. Test Notification: The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. [Rule 62-297.310(7)(a)9, F.A.C.; 40 CFR 60.7; 40 CFR 60.8]

20. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

21. Determination of Process Variables

a. Required Equipment. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards. [Rule 62-297.310(5)(a), F.A.C.]

b. Accuracy of Equipment. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5)(b), F.A.C.]

22. Special Compliance Tests: When the Compliance Authority, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Compliance Authority. [Rule 62-297.310(7)(b), F.A.C.]

RECORDS AND REPORTS

23. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Compliance Authority upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]

24. Emissions Performance Test Reports: A report indicating the results of any required emissions performance test shall be submitted to the Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Compliance Authority to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.]

25. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

A. COMBINED CYCLE GAS TURBINES

This section of the permit addresses the following new emissions units.

Emissions Units 020 – 030: Combined Cycle Gas Turbines

Description: Each emissions unit consists of a General Electric Model PG7241(FA) gas turbine-electrical generator set, an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, an unfired heat recovery steam generator (HRSG), a single exhaust stack that is 150 feet tall and 19.0 feet in diameter, and associated support equipment. The project also includes electric fuel heaters and cooling towers. Natural gas is the exclusive fuel.

Heat Input: At a compressor inlet air temperature of 59° F and firing 1842 MMBtu (HHV) per hour of natural gas, each unit produces a nominal 169 MW of shaft-driven electricity. Exhaust gases exit the stack with a volumetric flow rate of approximately 1,030,000 acfm at 220° F.

Generating Capacity: The following table summarizes the electrical generating capacity for each combination of combined cycle gas turbines and steam-electrical turbines.

EU No.	Bayside GT Unit	GT MW, Shaft	Existing Gannon ST	MW, ST	Total
020	1A	169 MW	No. 5	239	746
021	1B	169 MW			
022	1C	169 MW			
023	2A	169 MW	No. 6	414	1090
024	2B	169 MW			
025	2C	169 MW			
026	2D	169 MW			
027	3A	169 MW	No. 3	163	501
028	3B	169 MW			
029	4A	169 MW	No. 4	170	508
030	4B	169 MW			
Totals	11 GTs	1859 MW	4 STs	986	2845

Note: GT means gas turbine. The nameplate generating capacity is shown for the steam-electrical turbines (ST). The final design may not fully utilize the nameplate generating capacity.

Controls: The efficient combustion of natural gas at high temperatures minimizes the emissions of CO, PM/PM_{10}, and VOC. Firing natural gas as the only authorized fuel minimizes emissions of SAM and SO_2 because natural gas contains only small amounts of sulfur. A selective catalytic reduction (SCR) system combined with dry low-NOx (DLN) combustion technology reduces NOx emissions.

Continuous Monitors: Each gas turbine is equipped with continuous emissions monitoring systems (CEMS) to measure and record CO and NOx emissions as well as flue gas carbon dioxide content.

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emissions units addressed in this section are subject to Best Available Control Technology (BACT) determinations for carbon monoxide (CO), particulate matter (PM/PM_{10}), and volatile organic compounds (VOC). [Rule 62-212.400(BACT), F.A.C.]

2. NSPS Requirements: Each gas turbine shall comply with all applicable requirements of 40 CFR 60, adopted by reference in Rule 62-204.800(7)(b), F.A.C.

   a. Subpart A, General Provisions, including: 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements).

   b. Subpart GG, Standards of Performance for Stationary Gas Turbines as specified in *Appendix GG* of this permit.

EQUIPMENT

3. Schedule: Bayside Unit 1 is scheduled for completion in May of 2003 and Bayside Units 2, 3, and 4 are scheduled for completion in May of 2004. The permittee shall inform the Department and Compliance Authority of any substantial changes to the construction schedule. [Application; Rule 62-212.400(BACT), F.A.C.]

4. Combined Cycle Gas Turbines: The permittee is authorized to install, tune, operate and maintain eleven new General Electric Model PG7241(FA) gas turbines with electrical generator sets, each designed to produce a nominal 169 MW of shaft-driven electrical power. Each unit shall be designed as a combined cycle system to include an automated gas turbine control system, an inlet air filtration system, an unfired heat recovery steam generator (HRSG), a single exhaust stack that is 150 feet tall and 19.0 feet in diameter, and associated support equipment. [Applicant Request; Design]

5. Heat Recovery Steam Generators (HRSG): The preliminary design of the HRSGs provides three levels of steam conditions when firing natural gas (high pressure, intermediate pressure, and low pressure). The permittee shall submit the final design data with the Title V application. [Design]

6. Automated Control System: The permittee shall install, calibrate, tune, operate, and maintain a Speedtronic™ Mark VI automated control system (or better) for each gas turbine. Each system shall be designed and operated to monitor and control the gas turbine combustion process and operating parameters including, but not limited to: air/fuel distribution and staging, turbine speed, load conditions, temperatures, heat input, and fully automated startup and shutdown. [Design; 62-212.400(BACT), F.A.C.]

7. DLN Combustion Technology: The permittee shall install, tune, operate and maintain the General Electric dry low-NOx combustion system (DLN 2.6 or better) to provide efficient lean premix combustion. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce CO and NOx emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations. [Design; Rule 62-212.400(BACT), F.A.C.]

8. SCR System: The permittee shall install, tune, operate and maintain a selective catalytic reduction (SCR) system to reduce NOx emissions from each combined cycle gas turbine. The SCR system shall consist of an ammonia injection grid, catalyst, ammonia storage, a monitoring and control system, electrical system, piping, and other ancillary equipment. The SCR system shall be designed to reduce NOx emissions while minimizing ammonia slip within the permitted levels. [DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree; Rule 62-4.070(3), F.A.C.]

9. Evaporative Inlet Air-Cooling System: Each gas turbine may have an evaporative cooling system designed to reduce the temperature of the inlet air to the gas turbine compressor. The reduced temperature provides a greater mass flow rate and increases power production with additional fuel combustion. The preliminary

design is for a water distribution system with packed media blocks of corrugated layers of fibrous material. Air passing over the system wicks moisture away from the media to create the cooling effect. The permittee shall submit the final design data with the Title V application. [Applicant Request; Design]

PERFORMANCE RESTRICTIONS

10. Permitted Capacity: The maximum heat input rate to each gas turbine shall not exceed 1842 MMBtu per hour while producing approximately 169 MW (shaft). The maximum heat input rate is based on a compressor inlet air temperature of 59° F, the higher heating value (HHV) of natural gas and expected performance levels. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, and evaporative cooling. The permittee shall provide the manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Design; Rule 62-210.200(PTE), F.A.C.]

11. Allowable Fuels: Each gas turbine shall fire only pipeline-quality natural gas. The fuel sulfur content shall not exceed 2 grains per 100 SCF of natural gas based on a 12-month rolling average. Compliance shall be demonstrated each month by compiling the daily fuel sulfur analyses provided by the pipeline vendor. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 or equivalent methods. No other fuels are allowed. [Design; Rules 62-210.200(PTE); DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree]

12. Restricted Operation: The hours of operation for each gas turbine are not limited (8760 hours per year).

    [Rules 62-212.400(BACT) and 62-210.200(PTE), F.A.C.; EPA/TEC Consent Decree]

13. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to minimize emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the gas turbines and pollution control systems in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating practices as well as methods to minimize emissions during startup and shutdown. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

EMISSIONS STANDARDS

{Permitting Note: A summary table of the emissions standards is provided in Appendix B of this permit.}

14. Emissions Standards Based on Performance Tests: The following standards apply to each combined cycle gas turbine as determined by emissions performance tests conducted at permitted capacity. The mass emission limits are based on a compressor inlet temperature of 59° F. The permittee shall provide the manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data shall be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department.

    a. **Ammonia Slip:** Subject to the requirements of Condition No. 22 in this section, each SCR system shall be designed and operated for an ammonia slip target of less than 5 ppmvd corrected to 15% oxygen based on the average of three test runs. [Rule 62-4.070(3), F.A.C.]

    b. **Carbon Monoxide (CO):** CO emissions shall not exceed 28.7 pounds per hour and 7.8 ppmvd corrected to 15% oxygen based on the average of three test runs as determined by EPA Method 10. [Rule 62-212.400(BACT), F.A.C.]

c. **Nitrogen Oxides (NOx)**: NOx emissions shall not exceed 23.1 pounds per hour and 3.5 ppmvd corrected to 15% oxygen based on the average of three test runs as determined by EPA Method 7E. NOx emissions are defined as oxides of nitrogen reported as NO_2. [DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree; 40 CFR 60.332]

d. **Particulate Matter (PM/PM_{10})**: The exclusive firing of pipeline-quality natural gas combined with the efficient combustion design and operation of each gas turbine represent the Best Available Control Technology (BACT) requirements for particulate matter emissions. Compliance with carbon monoxide and visible emissions standards shall serve as continuous indicators of efficient combustion to minimize particulate matter emissions. No performance tests are required. [Rule 62-212.400(BACT), F.A.C.]

e. **Sulfuric Acid Mist** (SAM) **and Sulfur Dioxide** (SO_2): The exclusive firing of pipeline-quality natural gas effectively limits potential emissions of SO_2 and SAM. No performance tests are required. [Design; DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree; 40 CFR 60.333]

f. **Visible Emissions**: Visible emissions shall not exceed 10% opacity, based on a 6-minute average as determined by EPA Method 9. Except as allowed by Condition No. 17 of this section, this standard applies to all loads. [Rule 62-212.400(BACT), F.A.C.]

g. **Volatile Organic Compounds** (VOC): The exclusive firing of pipeline-quality natural gas combined with the efficient combustion design and operation of each gas turbine represent the Best Available Control Technology (BACT) requirements for VOC emissions. Compliance with carbon monoxide standards shall serve as a continuous indicator of efficient combustion to minimize VOC emissions. No performance tests are required. [Design; Rule 62-212.400(BACT), F.A.C.]

15. Emissions Standards Based on CEMS Data: The following standards apply to each gas turbine based on data collected from each required Continuous Emissions Monitoring System (CEMS).

a. **Carbon Monoxide (CO)**: CO emissions shall not exceed 9.0 ppmvd corrected to 15% oxygen based on a 24-hour block average of CEMS data.

b. **Nitrogen Oxides (NOx)**: NOx emissions shall not exceed 3.5 ppmvd corrected to 15% oxygen based on a 24-hour block average of CEMS data.

Each 24-hour block average shall start at midnight each operating day and shall be calculated from 24 consecutive 1-hour averages. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of the available valid 1-hour averages. [Rules 62-212.400(BACT) and 62-4.070(3), F.A.C.]

STARTUP, SHUTDOWN, MALFUNCTION, AND LOW LOAD OPERATION

16. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited. All such preventable emissions shall be included in the compliance averages determined from the CO and NOx CEMS data. [Rule 62-210.700(4), F.A.C.]

17. Alternate Standards and CEMS Data Exclusion: The following permit conditions establish alternate standards or allow the exclusion of monitoring data for specifically defined periods of startup, shutdown, and documented malfunction of a gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of emissions during such incidents.

a. **Opacity During Startup and Shutdown**: During startup and shutdown, the opacity of the exhaust gases shall not exceed 10%, except for up to ten 6-minute averaging periods in a calendar day during which the opacity shall not exceed 20%. Data for each 6-minute averaging period shall be exclusive from other 6-minute averaging periods.

b. **Low Load Operation**: Excluding startup, shutdown, and documented malfunction, each gas turbine is allowed up to three hours of operation below 50% base load in any 24-hour block, providing: the gas turbine is firing natural gas; the CO and NOx CEMS are functioning properly during such periods and recording valid emissions data within the span range of the monitors; and the gas turbine remains in compliance with the CO and NOx emissions standards based on 24-hour block averages of valid CEMS data.

c. **CEMS Data Exclusion**: For the following identified operational periods, CO and NOx emissions data may be excluded from the 24-hour block compliance averages in accordance with the corresponding requirements.

(1) *Startup, Shutdown, and Malfunction*: Periods of data excluded for gas turbine startup (excluding steam turbine cold startup), shutdown, or documented malfunction shall not exceed four 1-hour emission averages in any 24-hour block due to all such episodes. Gas turbine startup is the commencement of operation of a gas turbine that has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, or pollution control device imbalances, which may result in elevated emissions. Shutdown is the process of bringing a gas turbine off line and ending fuel combustion. A malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner. A documented malfunction is a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.

(2) *Steam Turbine Cold Startup*: Periods of data excluded for a steam turbine cold startup shall not exceed sixteen 1-hour emission averages in any 24-hour block. A "steam turbine cold startup" is defined as startup after the steam turbine has been offline for 24 hours or more or the first stage turbine metal temperature is 250° F or less. Based on actual operating data and experience, the Department may modify this period of data exclusion in the Title V air operation permit without modifying this PSD permit.

(3) *Tuning*: If the permittee provides at least five days advance notice prior to a major tuning session performed by the manufacturer's representative, monitoring data during tuning may be excluded from the 24-hour block compliance averages. Periods of data excluded for such episodes shall not exceed a total of three 1-hour averages in any 24-hour block. Tuning sessions must be performed in accordance with the manufacturer's recommendations. {Permitting Note: As an example, a major tuning session would occur after a combustor change-out. A tuning session may take a few hours each day over a few days. No more than two major tuning sessions would be expected during any year.}

If a CEMS reports emissions in excess of a CO or NOx standard, the permittee shall notify the Compliance Authority within one working day with a preliminary report of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Compliance Authority may request a written summary report of the incident.

d. **Startup and Shutdown Plan**: A "steam turbine cold startup" is defined as startup after the steam turbine has been offline for 24 hours or more or the first stage turbine metal temperature is 250° F or less. To minimize emissions, no more than one gas turbine for each Bayside Unit shall be operated during each steam turbine cold startup. The permittee shall notify the Compliance Authority at least 24 hours in advance of a steam turbine cold startup. For each Bayside Unit, the permittee shall provide a Startup and Shutdown Plan as part of the application for a Title V air operation permit. The plan shall identify startup and shutdown procedures, the duration of each procedure, and the methods used to minimize emissions during these periods. Within 90 days of completing eight steam turbine cold startups following commencement of commercial operation or within 90 days after 12 months of commercial operation (whichever occurs first), the permittee shall submit a revised plan to the Department based on actual operating data and experience. The Department shall review the actual operational data and determine whether data exclusion allowed for a steam turbine cold startup defined in Condition 23 of this section shall be modified to represent good operational practices. The Department shall also evaluate the operational information and determine whether a separate "warm startup" requirement shall be specified in the Title V operation permit for startup after the steam turbine has been offline for 24 hours or more, but less than 48 hours.

As provided by the authority in Rule 62-210.700(5), F.A.C., the above requirements are established in lieu of the provisions of Rule 62-210.700(1), F.A.C. [Design; Rules 62-210.700(5), 62-4.130, and Rule 62-212.400 (BACT), F.A.C.]

EMISSIONS PERFORMANCE TESTING

18. Operating Rate During Testing: Emissions performance testing shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]

19. Test Methods: Any required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source • This is an EPA conditional test method. • The minimum detection limit shall be 1 ppm.
5	Determination of Particulate Matter Emissions from Stationary Sources • The minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run.
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources • The method shall use a continuous sampling train.
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography • EPA Method 18 may be used concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Volatile Organic Concentrations

Except for Method CTM-027, the above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Method CTM-027 is published on EPA's Technology Transfer

Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". Although no specific tests are required for emissions of particulate matter and volatile organic compounds, the test methods are included for completeness. No other methods may be used for compliance testing unless prior written approval is received from the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

20. Initial Compliance Tests: Each gas turbine shall be tested to demonstrate compliance with the emission standards for CO, NOx, visible emissions and ammonia slip. The tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of each gas turbine. Tests for CO and NOx shall be conducted concurrently. Certified CEMS data may be used to demonstrate compliance with the initial CO and NOx standards. The test results for ammonia slip shall also report the CO and NOx emissions recorded by the CEMS during each test run. [Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.335]

21. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), each gas turbine shall be tested to demonstrate compliance with the emission standards for ammonia slip and visible emissions. The test results for ammonia slip shall also report the CO and NOx emissions recorded by the CEMS during each test run. {Permitting Note: Continuous compliance with the CO and NOx standards is demonstrated with certified CEMS data.} [Rules 62-212.400(BACT) and 62-297.310(7)(a)4, F.A.C.]

22. Additional Ammonia Slip Testing: If the tested ammonia slip rate for a gas turbine exceeds 5 ppmvd corrected to 15% oxygen when firing natural gas during the annual test, the permittee shall:

    a. Begin testing and reporting the ammonia slip for each subsequent calendar quarter;

    b. Before the ammonia slip exceeds 7 ppmvd corrected to 15% oxygen, take corrective actions that result in lowering the ammonia slip to less than 5 ppmvd corrected to 15% oxygen; and

    c. Test and demonstrate that the ammonia slip is less than 5 ppmvd corrected to 15% oxygen within 15 days after completing the corrective actions.

    Corrective actions may include, but are not limited to, adding catalyst, replacing catalyst, or other SCR system maintenance or repair. After demonstrating that the ammonia slip level is less than 5 ppmvd corrected to 15% oxygen, testing and reporting shall resume on an annual basis. [Rules 62-4.070(3) and 62-297.310(7)(b), F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

23. Continuous Emissions Monitoring Systems: The permittee shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) in the exhaust stack of each emissions unit to measure and record emissions of CO and NOx in a manner sufficient to demonstrate compliance with the CEMS emission standards of this permit. The carbon dioxide (CO_2) content of the flue gas shall also be monitored at the location where CO and NOx are monitored to correct the measured emissions rates to 15% oxygen. The oxygen content of the flue gas shall be calculated by the CEMS using the CO_2 content of the flue gas and an F-factor that is appropriate for natural gas.

    a. **Emission Averages.** Compliance with the 24-hour standards for CO and NOx emissions shall be based on data collected by the required CEMS. The 24-hour block shall start at midnight of each operating day and consist of 24 consecutive 1-hour blocks. If a unit operates continuously throughout the day, the 24-hour block average shall be the average of 24 consecutive 1-hour emission averages. If a unit operates less than 24 hours during the day, the 24-hour block average shall be the average of available valid 1-hour emission averages collected during operation. If monitoring data is authorized for exclusion (due to startup, shutdown, malfunction, or tuning), the 24-hour block average shall be the average of the remaining available valid 1-hour emission averages collected during operation. Upon a request from the Compliance Authority, the NOx emission rate shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.

b. *Data Collection.* The CEMS shall be designed and operated to sample, analyze, and record CO, CO_2, and NOx data evenly spaced over the hour. Each 1-hour emission average shall be computed using at least one data point in each fifteen minute quadrant of the 1-hour block during which the unit combusted fuel. Notwithstanding this requirement, each 1-hour emission average shall be computed from at least two data points separated by a minimum of 15 minutes. If the unit does not operate in more than one quadrant of a 1-hour block, the data is insufficient to determine a 1-hour emission average and shall be ignored. (Example: Unit begins startup with only ten minutes remaining in the 1-hour block. Data is insufficient to determine a 1-hour average and is ignored.) All valid measurements or data points collected during a 1-hour block shall be used to calculate the 1-hour emission averages. If the CEMS measures concentration on a wet basis, the CEMS shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, a curve of the flue gas moisture content versus load may be developed through manual stack test measurements and used in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). The CO and NOx CEMS shall express the 1-hour emission averages and the 24-hour block averages in terms of "ppmvd corrected to 15% oxygen".

c. *Data Exclusion.* CO, CO_2, and NOx emissions data shall be recorded by the CEMS at all times including episodes of startup, shutdown, malfunction, and tuning. CO and NOx emissions data recorded during such episodes may be excluded from the 24-hour block compliance averages in accordance with the requirements of Condition No. 17 of this section. All periods of data excluded due to startup, shutdown or malfunction shall be consecutive for each episode. The permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction shall not be excluded if the episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during startup, shutdown and malfunction. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited. Excluded emissions shall be summarized in the required semiannual report.

d. *NOx Certification.* The NOx monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. For purposes of determining compliance with the CEMS emission standards of this permit, missing data shall not be substituted. Instead the 24-hour block average shall be determined using the remaining hourly data in the 24-hour block. Record keeping and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. The RATA tests required for the NOx monitor shall be performed using EPA Method 7E or 20 as defined in Appendix A of 40 CFR 60. The span for the NOx monitor shall not be greater than 10 ppmvd corrected to 15% O_2. A dual span monitor may be used.

e. *CO and CO_2 Certification.* The CO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. Quality assurance procedures for each monitor shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semi-annually to the Compliance Authority. The RATA tests required for the CO_2 monitor shall be performed using EPA Method 3A, of Appendix A in 40 CFR 60. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A in 40 CFR 60. The Method 10 analysis shall use a continuous sampling train. The span for the CO monitor shall not be greater than 25 ppm corrected to 15% oxygen. A dual span CO monitor may be used.

0-10 PPM
0-1000 PPM

f. *Monitor Availability*: Monitor availability shall not be less than 95% in any calendar quarter. The report required in Condition 23e above shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the permittee shall provide the Compliance Authority with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

{Permitting Note: Compliance with these requirements will ensure compliance with the other applicable CEMS requirements such as: NSPS Subpart GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.}

[Rules 62-4.070(3), 62-210.700(5), and 62-212.400(BACT), F.A.C.]

24. Ammonia Monitoring Requirements: The permittee shall install, calibrate, maintain and operate, in accordance with the manufacturer's specifications, an ammonia flow meter to measure and record the ammonia injection rate through each SCR system. The permittee shall document the general range of ammonia flow rates required to meet emissions limitations over the range of gas turbine load conditions allowed in this permit by comparing NOx emissions recorded by the NOx monitor with ammonia flow rates recorded using the ammonia flow meter. During NOx monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the gas turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

RECORDS AND REPORTS

25. Semiannual CEMS Report: In addition to the reports required pursuant to 40 CFR 60.7, the permittee shall submit semiannual reports for each gas turbine summarizing the CEMS data and equipment. For each calendar quarter, the report shall include: the 24-hour block compliance averages for each day of operation; the number of 1-hour emission averages excluded from each 24-hour compliance average; the emissions rate of the excluded monitoring data; the reason for excluding monitoring data; the hours of missing data due to monitor downtime; the reason for any monitor downtime; unusual maintenance or repair of the CEMS; and a summary of any RATA tests performed. Based on operational data, the permittee shall also update the general range of ammonia flow rates required to meet NOx emissions limitations over the range of gas turbine load conditions. A report covering operations from January through June shall be submitted by July 30th of each year. A report covering operations from July through December shall be submitted by January 30th of each year. The report due dates may be modified by the Title V permit. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

26. Monitoring of Operations: To demonstrate compliance with the gas turbine capacity requirements, the permittee shall monitor and record the operating rate of each gas turbine on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEMS required above, or by monitoring daily rates of consumption and heat content of natural gas in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

B. EXISTING GANNON UNITS

The following conditions supplement all other valid air construction and operation permits for these units.

EU ID	Emission Unit Description
001	Gannon Unit 1 – existing coal fired boiler with 125 MW steam electrical generator
002	Gannon Unit 2 – existing coal fired boiler with 125 MW steam electrical generator
003	Gannon Unit 3 – existing coal fired boiler with 180 MW steam electrical generator
004	Gannon Unit 4 – existing coal fired boiler with 188 MW steam electrical generator
005	Gannon Unit 5 – existing coal fired boiler with 239 MW steam electrical generator
006	Gannon Unit 6 – existing coal fired boiler with 414 MW steam electrical generator
008	Gannon Station Coal Yard – Serves existing Gannon Units 1 – 6

SHUTDOWN REQUIREMENTS

1. Shutdown of Coal-Fired Gannon Units

   a. *Shutdown of Gannon Unit 3*: The Gannon Unit 3 (EU 003) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 3 gas turbine (EU 027 and EU 028). Upon first fire in any Bayside Unit 3 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by 9.06 x 10^{+06} MMBtu per calendar year.

   b. *Shutdown of Gannon Unit 4*: The Gannon Unit 4 (EU 004) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 4 gas turbine (EU 029 and EU 030). Upon first fire in any Bayside Unit 4 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by 8.70 x 10^{+06} MMBtu per calendar year.

   c. *Shutdown of Gannon Unit 5*: The Gannon Unit 5 (EU 005) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 1 gas turbine (EU 020 – EU 022). Upon first fire in any Bayside Unit 1 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by 13.2 x 10^{+06} MMBtu per calendar year.

   d. *Shutdown of Gannon Unit 6*: The Gannon Unit 6 (EU 006) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 2 gas turbine (EU 023 – EU 026). Upon first fire in any Bayside Unit 2 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by 21.4 x 10^{+06} MMBtu per calendar year.

   e. *Shutdown of Gannon Units 1 - 6*: The permittee shall shutdown and cease any and all operation of coal-fired Gannon Units 1 through 6 (EU 001 - 006) no later than December 31, 2004. "Shutdown" shall mean the permanent disabling of a coal-fired boiler such that it cannot burn any fuel (including wood-derived fuel) nor produce any steam for electricity production, other than through re-powering as specified in this permit.

   [Rule 62-212.400(BACT), F.A.C.; EPA/TEC Consent Decree]

2. Permanent Bar on Combustion of Coal: Commencing on January 1, 2005, the permittee shall not combust coal in the operation of any unit at this plant. [EPA/TEC Consent Decree]

3. Notification: Before January 1, 2005, the permittee shall notify the Department and Compliance Authority of plans for the coal storage and handling facilities. Additional permits may be required. [Rule 62-210.300, F.A.C.]

4. Revisions or Extensions: The provisions of this section shall not be extended or revised the without prior written approval of the U.S. EPA. [EPA/TEC Consent Decree]

TERMINOLOGY

ABBREVIATIONS AND ACRONYMS

CCGT - Combined Cycle Gas Turbine
CEMS - Continuous Emissions Monitoring System
DARM - Division of Air Resource Management
DEP - State of Florida, Department of Environmental Protection
DLN - Dry Low-NOx Combustion Technology
EPA - United States Environmental Protection Agency
°F - Degrees Fahrenheit
F.A.C. - Florida Administrative Code
F.S. - Florida Statute
HRSG - Heat Recovery Steam Generator
UTM - Universal Transverse Mercator
SCR - Selective Catalytic Reduction

FORMATS FOR PERMIT REFERENCES AND RULE CITATIONS

The following examples illustrate the methods used in this permit to abbreviate and cite the references of rules, regulations, permit numbers, and identification numbers.

Florida Administrative Code (F.A.C.) Rules:

Example: [Rule 62-213.205, F.A.C.]
Where: 62 - identifies the specific Title of the F.A.C.
62-213 - identifies the specific Chapter of the F.A.C.
62-213.205 - identifies the specific Rule of the F.A.C.

Facility Identification (ID) Number:

Example: Facility ID No. 099-0001
Where: 099 - identifies the specific county location
0221 - identifies the specific facility

New Permit Numbers:

Example: Permit No. 099-2222-001-AC or 099-2222-001-AV
Where: AC - identifies the permit as an Air Construction Permit
AV - identifies the permit as a Title V Major Source Air Operation Permit
099 - identifies the specific county that project is located in
2222 - identifies the specific facility
001 - identifies the specific permit project

Old Permit Numbers:

Example: Permit No. AC50-123456 or AO50-123456
Where: AC - identifies the permit as an Air Construction Permit
AO - identifies the permit as an Air Operation Permit
123456 - identifies the specific permit project

FINAL BACT DETERMINATIONS AND EMISSIONS STANDARDS

Table B-1. Emissions Standards for Bayside Units 1 - 4
Eleven General Electric Model PG7241(FA) Combined Cycle Gas Turbines Firing Natural Gas

Pollutant	Controls and Standards[a]
Standards based on emissions performance tests at permitted capacity and an inlet temperature of 59° F:	
Ammonia	*Standard*: 5 ppmvd @ 15% O_2 [b]
Fuel Specification (BACT)	*Standard*: Pipeline-quality natural gas
CO (BACT)	*Control*: DLN combustion technology and exclusive firing of natural gas *Standard*: 7.8 ppmvd @ 15% O_2 *Standard*: 28.7 lb/hour
NOx	*Controls*: SCR with DLN combustion technology and exclusive firing of natural gas *Standard*: 3.5 ppmvd @ 15% O_2 *Standard*: 23.1 lb/hour
PM/PM_{10} (BACT)	*Controls*: DLN combustion technology and exclusive firing of natural gas *Standard*: 10% opacity, 6-minute average *Comments*: The CO CEMS standard serves as a continuous indicator of efficient combustion. The estimated maximum emissions are 12 lb/hour (front-half catch only).
SAM/SO_2	*Standard*: Exclusive firing of natural gas (< 2 grains per 100 SCF, 12 month rolling average)
VOC (BACT)	*Controls*: DLN combustion technology and exclusive firing of natural gas *Comments*: The CO CEMS standard serves as a continuous indicator of efficient combustion. The estimated maximum emissions are 3 lb/hour (1.3 ppmvd @ 15% O_2).
Standards based on CEMS data:	
CO (BACT)	*Control*: DLN combustion technology and exclusive firing of natural gas *Standard*: 9.0 ppmvd @ 15% O_2, 24-hour block average
NOx	*Controls*: SCR with DLN combustion technology and exclusive firing of natural gas *Standard*: 3.5 ppmvd @ 15% O_2, 24-hour block average

Notes:

a. "BACT" means Best Available Control Technology. "SCR" means selective catalytic reduction system. "DLN" means dry low-NOx combustion technology.

b. If the tested ammonia slip rate exceeds 5 ppmvd corrected to 15% oxygen during the required annual test, the permittee shall begin testing and reporting the ammonia slip for each subsequent calendar quarter. Before the ammonia slip exceeds 7 ppmvd corrected to 15% oxygen, the permittee shall take corrective actions that result in lowering the ammonia slip to less than 5 ppmvd corrected to 15% oxygen. The permittee shall test and demonstrate that the ammonia slip is less than 5 ppmvd corrected to 15% oxygen within 15 days after completing the corrective actions.

A detailed description of each BACT evaluation is presented in the Technical Evaluation and Preliminary Determination. Any changes are noted in the Department's Final Determination issued simultaneously with the final permit.

FINAL BACT DETERMINATIONS

Actual emissions of NOx and SO_2 from the re-powered plant will decrease due to the shutdown of existing coal-fired units. Therefore, the project nets out of PSD for NOx and SO_2 emissions. However, each gas turbine is required to fire natural gas as the primary fuel and to incorporate an SCR system as a result of the DEP/TEC Consent Final Judgment and the EPA/TEC Consent Decree. The gas turbines are subject to the acid rain requirements, which require a continuous emissions monitoring system (CEMS) for NOx emissions. The NOx CEMS will also be used to demonstrate compliance with the specified permit standards.

The project did result in significant net actual emissions increases of carbon monoxide (CO) and volatile organic compounds (VOC). Based on an interpretation by EPA Region 4, emissions of particulate matter (PM/PM_{10}) would also be significant if BACT-level controls had previously been installed on the existing Gannon Units. For CO, PM/PM_{10}, and VOC emissions, the Department determines that the efficient combustion of pipeline-quality natural gas and good operating practices represent BACT for the combined cycle units. In addition to the control requirements, the CO, PM/PM_{10}, and VOC emissions standards specified in the permit and summarized in Table B-1 represent the determination of Best Available Control Technology (BACT). A continuous emission monitoring system (CEMS) is required to demonstrate continuous compliance with the CO standards. The CO CEMS will also serve as a continuous indicator of efficient combustion to minimize PM and VOC emissions. The Department's detailed technical review and rationale for the determinations of Best Available Control Technology (BACT) are presented in Technical Evaluation and Preliminary Determination issued with the draft permit package.

Determination By:

Jeffery F. Koerner 1-8-02

Jeffery F. Koerner, P.E., Project Engineer (Date)
New Source Review Section

Recommended By:

1/8/02

for Clair H. Fancy, Chief (Date)
Bureau of Air Regulation

Approved By:

Howard L Rhodes 1/8/02

Howard L. Rhodes, Director (Date)
Division of Air Resources Management

Table E-1. Summary of Mass Emission Rates Vs. Compressor Inlet Temperatures

Pollutant	Compressor Inlet Temperature	Mass Emission Rate lb/hour
CO	18° F	31.1
	35° F	30.0
	59° F	28.7
	72° F	27.8
	93° F	26.9
NOx	18° F	24.7
	35° F	23.8
	59° F	23.1
	72° F	22.6
	93° F	21.9
PM/PM$_{10}$	18° F	11.5
	35° F	11.4
	59° F	11.3
	72° F	11.3
	93° F	11.2
VOC	18° F	3.0
	35° F	3.0
	59° F	2.8
	72° F	2.7
	93° F	2.7

Notes:

- This table represents the mass emission rates for the General Electric Model PG7241(FA) gas turbine (combined cycle) firing natural gas with a selective catalytic reduction system to reduce NOx emissions.
- NOx emission rates are reported as NO_2 and are based on control with DLN combustion and an SCR system.
- PM emission rates are based on EPA Method 5 (front-half catch only).
- VOC emission rates are measure as methane.

GENERAL CONDITIONS

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

(a) Have access to and copy and records that must be kept under the conditions of the permit;
(b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
(c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

(a) A description of and cause of non-compliance; and
(b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by

Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

(a) Determination of Best Available Control Technology (X);

(b) Determination of Prevention of Significant Deterioration (X); and

(c) Compliance with New Source Performance Standards (X).

G.14 The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

(c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

NSPS SUBPART GG REQUIREMENTS

[Note: Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference to the original rules. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown in bold immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.]

Pursuant to 40 CFR 60.332, Standard for Nitrogen Oxides:

(a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraph (b) section shall comply with:

(1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

Where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

F = NOx emission allowance for fuel-bound nitrogen as de-fined in paragraph (a)(3) of this section.

(3) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NOx percent by volume)
$N \le 0.015$	0
$0.015 < N \le 0.1$	0.04(N)
$0.1 < N \le 0.25$	0.004+0.0067(N–0.1)
$N > 0.25$	0.005

Where, N = the nitrogen content of the fuel (percent by weight).

Department requirement: For natural gas, the "F" value shall be assumed to be 0.

{Note: This is required by EPA's March 12, 1993 determination regarding the use of NOx CEMS. The "Y" value provided by the applicant is approximately 10.0 for natural gas. The equivalent emission standard is 108 ppmvd @ 15% oxygen. The permit standards are more stringent than this requirement.}

(b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.

Pursuant to 40 CFR 60.333, Standard for Sulfur Dioxide:

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with:

(b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel that contains sulfur in excess of 0.8 percent by weight.

{Note: The permit specifies a much lower fuel sulfur content for natural gas.}

Pursuant to 40 CFR 60.334, Monitoring of Operations:

(b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:

(2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.

Department requirement: The requirement to monitor the nitrogen content of pipeline quality natural gas fired is waived. For purposes of complying with the sulfur content monitoring requirements of this rule, the owner or operator shall obtain a monthly report from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation.

{Note: This is consistent with EPA's custom fuel monitoring policy and guidance from EPA Region 4.}

(c) For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) *Nitrogen oxides.* Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

Department requirement: NOx CEMS data shall substitute for the above requirement because NOx monitoring is required to demonstrate compliance with the permit standards. NOx CEMS data shall be used to determine "excess emissions" for purposes of 40 CFR 60.7 subject to the conditions of the permit.

{Note: As required by EPA's March 12, 1993 determination, the NOx monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NOx emissions concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEMS specified by the specific conditions of this permit satisfy these requirements.}

(2) *Sulfur dioxide.* Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

Pursuant to 40 CFR 60.335, Test Methods and Procedures:

(a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.

(b) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as pro-vided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.

(c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in 40 CFR 60.332 and 60.333(a) as follows:

(1) The nitrogen oxides emission rate (NOx) shall be computed for each run using the following equation:

$$NOx = (NOxo)\ (Pr/Po)^{0.5}\ e^{19(Ho-0.00633)}\ (288°K/Ta)^{1.53}$$

Where:

NOx = emission rate of NOx at 15 percent O2 and ISO standard ambient conditions, volume percent

NOxo = observed NOx concentration, ppm by volume
Pr = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg
Po = observed combustor inlet absolute pressure at test, mm Hg
Ho = observed humidity of ambient air, g H_2O/g air
e = transcendental constant, 2.718
Ta = ambient temperature, °K

Department requirement: **The owner or operator is not required to have the NOx monitor continuously correct NOx emissions concentrations to ISO conditions. However, the owner or operator shall keep records of the data needed to make the correction, and shall make the correction when required by the Department or Administrator.**

{Note: This is consistent with guidance from EPA Region 4.}

(2) The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with 40 CFR 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

Department requirement: **The permittee is allowed to conduct initial performance tests at a single load because a NOx monitor shall be used to demonstrate compliance with the specified NOx limits.**

{Note: This is consistent with guidance from EPA Region 4.}

(3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NOx emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

Department requirement: **The permittee is allowed to make the initial compliance demonstration for NOx emissions using certified CEMS data, provided that compliance is based on a minimum of three test runs representing a total of at least three hours of data, and that the CEMS be calibrated in accordance with the procedure in section 6.2.3 of Method 20 following each run. Alternatively, initial compliance may be demonstrated using data collected during the initial relative accuracy test audit (RATA) performed on the NOx monitor. The span value specified in the permit shall be used instead of that specified in paragraph (c)(3) above.**

{Note: These initial compliance demonstration requirements are consistent with guidance from EPA Region 4. The span value is changed in the permit pursuant to Department authority and is consistent with guidance from EPA Region 4.}

(d) The owner or operator shall determine compliance with the sulfur content standard in 40 CFR 60.333(b) as follows: ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference – see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.

Department requirement: **The permit species sulfur monitoring methods.**

(e) To meet the requirements of 40 CFR 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

{Note: The fuel analysis requirements of the permit meet or exceed the requirements of this rule and will ensure compliance with this rule.}

SEMIANNUAL CONTINUOUS MONITOR SYSTEMS REPORT

{Note: This form is based on 40 CFR 60.7, Subpart A, General Provisions.}

Pollutant *(Circle One)*: Nitrogen Oxides (NOx) Carbon Monoxide (CO)

Reporting period dates: From ______________________ to ______________________

Company: ____

Emission Limitation: ____

Address: ____

Monitor Manufacturer and Model No.: ____

Date of Latest CMS Certification or Audit: ______________________________

Process Units Description: ____

Total source operating time in reporting period [a]: ______________________________

Emission data summary [a]		**CMS performance summary** [a]	
1. Duration of Excess Emissions In Reporting Period Due To:		1. CMS downtime in reporting period due to:	
a. Startup/Shutdown		a. Monitor Equipment Malfunctions	
b. Control Equipment Problems		b. Non-Monitor Equipment Malfunctions	
c. Process Problems		c. Quality Assurance Calibration	
d. Other Known Causes		d. Other Known Causes	
e. Unknown Causes		e. Unknown Causes	
2. Total Duration of Excess Emissions		2. Total CMS Downtime	
3. [Total Duration of Excess Emissions] x (100%) [Total Source Operating Time] [b]		3. [Total CMS Downtime] x (100%) [Total source operating time]	

[a] For opacity, record all times in minutes. For gases, record all times in hours.

[b] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

<u>Note</u>: *On a separate page, describe any changes to CMS, process or controls during last 6 months. For each quarter, summarize the ammonia injection rates over various loads and the data excluded due to startups, shutdowns, and malfunctions.*

I certify that the information contained in this report is true, accurate, and complete.

____
Name

____
Title

____ ______________________
Signature *Date*