



AIR HYGIENE, INC.

Testing Solutions for a Better World

**EMISSION COMPLIANCE TEST
FOR THE
MITSUBISHI, MODEL 501G, UNIT 2B
PREPARED FOR
FLORIDA POWER AND LIGHT
AT THE
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA
NOVEMBER 11 AND 13, 2009**



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FOR THE
MITSUBISHI, MODEL 501G, UNIT 2B
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**Emissions Compliance Test
Mitsubishi, Model 501G, Unit 2B
Florida Power and Light
West County Energy Center
Loxahatchee, Florida
November 11 and 13, 2009**

1.0 INTRODUCTION

Air Hygiene International, Inc. (Air Hygiene) has completed the emissions testing study for nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), ammonia (NH₃), opacity, carbon dioxide (CO₂), and oxygen (O₂) from the exhaust of the Mitsubishi, Model 501G, Unit 2B for Florida Power and Light at the West County Energy Center near Loxahatchee, Florida. This report details the background, results, process description, and the sampling/analysis methodology of the stack sampling survey conducted on November 11 and 13, 2009.

1.1 TEST PURPOSE AND OBJECTIVES

The purpose of the test was to conduct an initial compliance emission test to document levels of selected pollutants at two test loads (Base Load and Base Load with Duct Burners). The information will be used to confirm compliance with the operating permit issued by the Florida Department of Environmental Protection (FDEP). The specific objective was to determine the emission concentration of NO_x, CO, VOC, NH₃, opacity, CO₂, and O₂ from the exhaust of Florida Power and Light's Mitsubishi, Model 501G, Unit 2B at Base Load and Base Load with Duct Burners of total capacity.

1.2 SUMMARY OF TEST PROGRAM

The following list details pertinent information related to this specific project:

- 1.2.1 Participating Organizations
 - Florida Department of Environmental Protection (FDEP)
 - Florida Power and Light
 - Black and Veatch
 - Air Hygiene
- 1.2.2 Industry
 - Electric Utility / Electric Services
- 1.2.3 Air Permit and Federal Requirements
 - Permit Number: PSD-FL-354
 - Emission Unit Identification (ID): 005
- 1.2.4 Plant Location
 - West County Energy Center near Loxahatchee, Florida
- 1.2.5 Equipment Tested
 - Mitsubishi, Model 501G, Unit 2B

- 1.2.6 Emission Points
 - Exhaust from the Mitsubishi, Model 501G, Unit 2B
 - For all gases, one sample point in the exhaust duct from the Mitsubishi, Model 501G, Unit 2B, determined after conducting a stratification test (refer to Appendix F)
 - For all NH₃ testing, 24 sampling points in the exhaust duct from the Mitsubishi, Model 501G, Unit 2B (refer to Appendix A)
 - For opacity, one sample visual observation point from the exit of the exhaust duct to the atmosphere from the Mitsubishi, Model 501G, Unit 2B
- 1.2.7 Pollutants Measured
 - NO_x
 - CO
 - VOC
 - NH₃
 - Opacity
 - CO₂
 - O₂
- 1.2.8 Dates of Emission Test
 - November 11 and 13, 2009

1.3 KEY PERSONNEL

Florida Power and Light:	John Mirino	305-242-3895
Florida Power and Light:	David Fawcett	561-904-4907
Florida Power and Light:	Emmett Callow	561-904-4922
Black and Veatch:	Bill Stevenson	913-458-8549
FDEP:	Michael Helmke	561-837-5936
Air Hygiene:	Pandu Sattvika	918-307-8865
Air Hygiene:	Swanson Bierman	918-307-8865

2.0 SUMMARY OF TEST RESULTS

Results from the sampling conducted on Florida Power and Light's Mitsubishi, Model 501G, Unit 2B located at the West County Energy Center on November 11 and 13, 2009 are summarized in the following table.

**TABLE 2.1
SUMMARY OF MITSUBISHI, 501G, UNIT #2B RESULTS**

Parameter	Base W/O DB Load	Permit Limits	Base W/DB Load	Permit Limits
Run Duration (min / run)	60	–	60	–
Bar. Pressure (in. Hg)	29.88	–	29.78	–
Amb. Temp. (°F)	63	–	75	–
Rel. Humidity (%)	64	–	46	–
Spec. Humidity (lb water / lb air)	0.007856	–	0.008369	–
Turbine Fuel Flow (lb/min)	1,836	–	1,695	–
Duct Burner Fuel Flow (lb/min)	0	–	138	–
Total Fuel Flow (SCFH)	2,517,786	–	2,513,216	–
Stack Flow (RM19) (SCFH)	59,658,960	–	53,222,169	–
Stack Moisture (% Method 4)	8.6	–	9.6	–
Power Output (megawatts)	254.3	–	251.6	–
NOx (ppmvd)	2.14	–	2.74	–
NOx (ppm@15%O ₂)	1.65	2.0	1.90	2.0
NOx (ppm@15%O ₂ &ISO)	1.68	–	1.89	–
NOx (lb/hr)	15.22	20.0	17.43	24.2
NOx (ton/year) at 8760 hr/year	66.65	–	76.36	–
NOx (lb/MMBtu)	0.006	–	0.007	–
CO (ppmvd)	1.14	–	0.77	–
CO (ppm@15%O ₂)	0.88	4.1	0.53	7.6
CO (ppm@15%O ₂ &ISO)	0.90	–	0.53	–
CO (lb/hr)	4.95	23.2	2.96	52.5
CO (ton/year) at 8760 hr/year	21.66	–	12.98	–
CO (lb/MMBtu)	0.002	–	0.001	–
VOC (ppmvd)	1.19	–	1.70	–
VOC (ppm@15%O ₂)	0.92	1.2	1.18	1.5
VOC (ppm@15%O ₂ &ISO)	0.94	–	1.17	–
VOC (lb/hr)	2.95	4.1	3.76	5.4
VOC (ton/year) at 8760 hr/year	12.90	–	16.46	–
VOC (lb/MMBtu)	0.001	–	0.001	–
Sulfur (gr S/100 scf)	<0.032	2	<0.032	2
NH ₃ (ppmvd)	3.27	–	3.62	–
NH ₃ (ppm@15%O ₂)	2.54	5.0	2.51	5.0
NH ₃ (lb/hr)	8.64	–	8.52	–
Opacity (%)	0	10	0	10
CO ₂ (%)	4.24	–	4.78	–
O ₂ (%)	13.29	–	12.39	–

The results of all measured pollutant emissions were below the required limits. All testing was performed without any real or apparent errors. All testing was conducted according to the approved testing protocol. Total hydrocarbons (THC) were report as VOC.

3.0 SOURCE OPERATION

3.1 PROCESS DESCRIPTION

Florida Power and Light (FPL) owns and operates the West County Energy Center (West County) located at 20505 State Road 80 in Loxahatchee, Florida. West County is a nominal 2,500 megawatt (MW) greenfield power plant and consists of two combined cycle units (Unit 1 and 2). Each combined cycle unit consists of: three nominal 250 MW Mitsubishi Model 501G combustion turbine-electrical generator (CTGs) sets with evaporative inlet cooling systems; three supplementary-fired heat recovery steam generators (HRSGs) with selective catalytic reduction (SCR) reactors; one nominal 428 million British thermal units per hour (MMBtu/hour) based on low heat value (LHV) natural gas-fired duct burner (DB) located within each of the three HRSG's; and a common nominal 500 MW steam turbine-electrical generator (STG). The total nominal generating capacity of each of the "3 on 1" combined cycle units is approximately 1,250 MW.

Each CTG has a nominal heat input rate of 2,333 MMBtu/hr when firing natural gas and 2,117 MMBtu/hr when firing distillate fuel oil (based on a compressor inlet air temperature of 59 degrees Fahrenheit (°F), the lower heating value (LHV) of each fuel, and 100 percent load), includes an automated gas turbine control system, and has dual-fuel capability of firing natural gas as the primary fuel or ultra low sulfur distillate (ULSD) fuel oil as a restricted alternate fuel. Each HRSG recovers exhaust, heat energy from each of the CTGs. Each Unit delivers steam to each STG. The efficient combustion of natural gas and restricted firing of ULSD fuel oil minimizes the emissions of carbon monoxide (CO), particulate matter (PM), sulfuric acid mist (H₂SO₄), sulfur dioxide (SO₂) and volatile organic compounds (VOCs). Dry Low-NOx (DLN) combustors for gas firing and water injection for oil firing reduce nitrogen oxides (NOx) emissions. A selective catalyst reduction (SCR) system further reduces NOx emissions.

3.2 SAMPLING LOCATION

The 501G stack is circular and measures 21.9 feet (ft) (263 inches) in diameter at the test ports which are approximately 138 ft above grade level with an exit elevation of approximately 150 ft above grade level. The test ports are located approximately 44.3 ft (531 inches) downstream and approximately 12 ft (144 inches) upstream from the nearest disturbances. All exhaust samples for gaseous emissions were continuously drawn from the exhaust system at the sample ports from a single point determined after conducting a stratification test (Appendix F). During the stratification test three points were traversed from each of the four ports. The probe was allowed to remain at a point for two times the system response time. For NH₃ testing, an initial velocity traverse was performed across the stack at base load from 24 total points. All NH₃ sampling occurred from the same 24 points by leaving the probe at each for an equal amount of time. All opacity observations were made by viewing the point where the exhaust system exited to the atmosphere at the top of the exhaust stack.

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 TEST METHODS

The emission test on the Mitsubishi, Model 501G, Unit 2B at the West County Energy Center was performed following United States Environmental Protection Agency (EPA) methods described by the Code of Federal Regulations (CFR). Table 4.1 outlines the specific methods performed on November 11 and 13, 2009.

**TABLE 4.1
SUMMARY OF SAMPLING METHODS**

Pollutant or Parameter	Sampling Method	Analysis Method
Sample Point Location	EPA Method 1	Equal Area Method
Stack Flow Rate	EPA Method 2	Pitot
Oxygen	EPA Method 3a	Paramagnetic Cell
Carbon Dioxide	EPA Method 3a	Nondispersive Infrared Analyzer
Nitrogen Oxides	EPA Method 7e	Chemiluminescent Analyzer
Opacity	EPA Method 9	Visual Observation
Carbon Monoxide	EPA Method 10	Nondispersive Infrared Analyzer
Stack Flow Rate	EPA Method 19	Dry Oxygen F Factor
Total Hydrocarbons	EPA Method 25a	Flame Ionization Detector
Ammonia Slip	EPA CTM-027	Ion Chromatography M350.3
Sulfur Content Analysis	ASTM D 6667	Fuel Gas Sample and Laboratory Analysis

4.2 INSTRUMENT CONFIGURATION AND OPERATIONS FOR GAS ANALYSIS

The sampling and analysis procedures used during these tests conform with the methods outlined in the Code of Federal Regulations (CFR), Title 40, Part 60, Appendix A, Methods 1, 2, 3a, 7e, 9, 10, 19, 25a, and Conditional Test Method (CTM)-027.

Figure 4.1 depicts the sample system used for the NO_x, CO, THC, CO₂, and O₂ tests. A stainless steel probe was inserted into the sample ports of the stack to extract gas measurements from the emission stream at a single point in the stack determined after passing an initial stratification test. The gas sample was continuously pulled through the probe and transported, via heat-traced Teflon® tubing, to a stainless steel minimum-contact condenser designed to dry the sample. Transportation of the sample, through Teflon® tubing, continued into the sample manifold within the mobile laboratory via a stainless steel/Teflon® diaphragm pump. From the manifold, the sample was partitioned to the NO_x, CO, CO₂, and O₂ analyzers through rotameters that controlled the flow rate of the sample. Exhaust samples were routed to the THC analyzer prior to gas conditioning.

Figure 4.1 shows that the sample system was also equipped with a separate path through which a calibration gas could be delivered to the probe and back through the entire sampling system. This allowed for convenient performance of system bias checks as required by the testing methods.

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).

Table 4.2 provides a description of the analyzers used for the instrument portion of the tests. All data from the continuous monitoring instruments were recorded on a Logic Beach Portable Data Logging System Hyperlogger which retrieves calibrated electronic data from each instrument every one second and reports an average of the collected data every 30 seconds. Data records can be found in Appendix A and B of this report.

Figure 4.2 represents the sample system used for the wet chemistry tests (NH₃). A heated stainless steel probe with an inconel liner and stainless steel nozzle was inserted into the sample ports of the stack to extract gas measurements from the emission stream through a filter and glass impinger train. Flow rates are monitored with oil filled manometers and total sample volumes are measured with a dry gas meter.

Three test runs of approximately 60 minutes each were conducted on the Mitsubishi, Model 501G, Unit 2B at each of the multiple test loads for NO_x, CO, THC, CO₂, NH₃, opacity, and O₂.

The stack gas analysis for O₂ and CO₂ concentrations was performed in accordance with procedures set forth in EPA Method 3a. The O₂ analyzer uses a paramagnetic cell detector and the CO₂ analyzer uses a continuous nondispersive infrared analyzer.

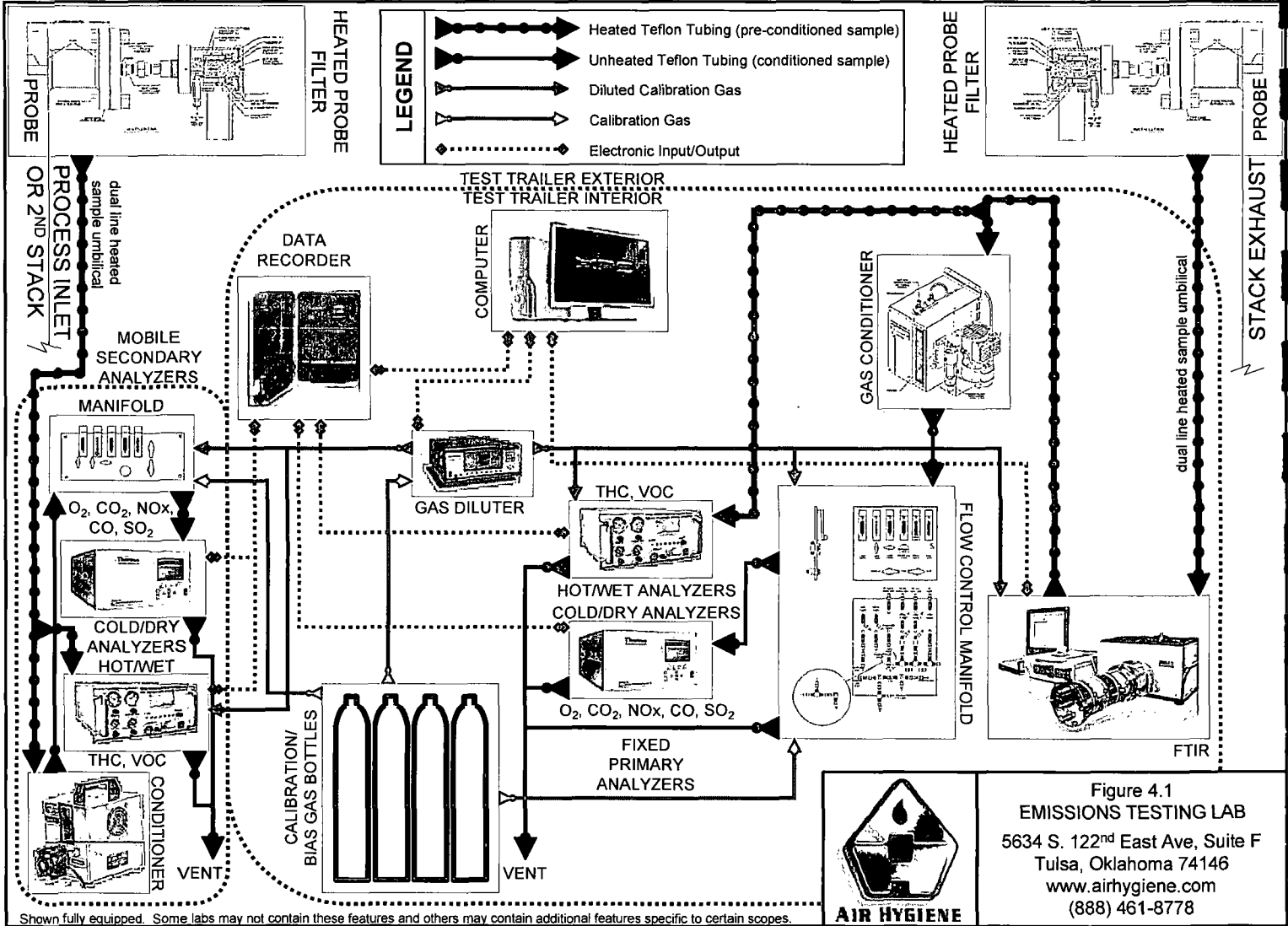
EPA Method 7e was used to determine concentrations of NO_x. A chemiluminescent analyzer was used to determine the nitrogen oxides concentration in the gas stream. A NO₂ in nitrogen certified gas cylinder was used to verify at least a 90 percent NO₂ conversion on the day of the test.

CO emission concentrations were quantified in accordance with procedures set forth in EPA Method 10. A continuous nondispersive infrared (NDIR) analyzer was used for this purpose.

THC emission concentrations were quantified in accordance with procedures set forth in EPA Method 25a. A continuous flame ionization (FID) analyzer was used for this purpose. THC emission concentrations were reported as VOC.

**TABLE 4.2
ANALYTICAL INSTRUMENTATION**

Parameter	Model and Manufacturer	Range	Sensitivity	Detection Principle
NO _x	THERMO 42i-LS	User may select up to 5,000 ppm	0.1 ppm	Thermal reduction of NO ₂ to NO. Chemiluminescence of reaction of NO with O ₃ . Detection by PMT. Inherently linear for listed ranges.
CO	THERMO 48i-LS	User may select up to 5,000 ppm	0.1 ppm	Infrared absorption, gas filter correlation detector, microprocessor based linearization.
CO ₂	THERMO 410i	0-20%	0.1%	Non-dispersive infrared.
THC	THERMO 51C-HT	User may select up to 10,000 ppm	0.1 ppm	Flame Ionization Detector.
O ₂	THERMO 42i-LS	0-25%	0.1%	Paramagnetic cell, inherently linear.



Shown fully equipped. Some labs may not contain these features and others may contain additional features specific to certain scopes.



Figure 4.1
EMISSIONS TESTING LAB
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 Tulsa, Oklahoma 74146
 www.airhygiene.com
 (888) 461-8778

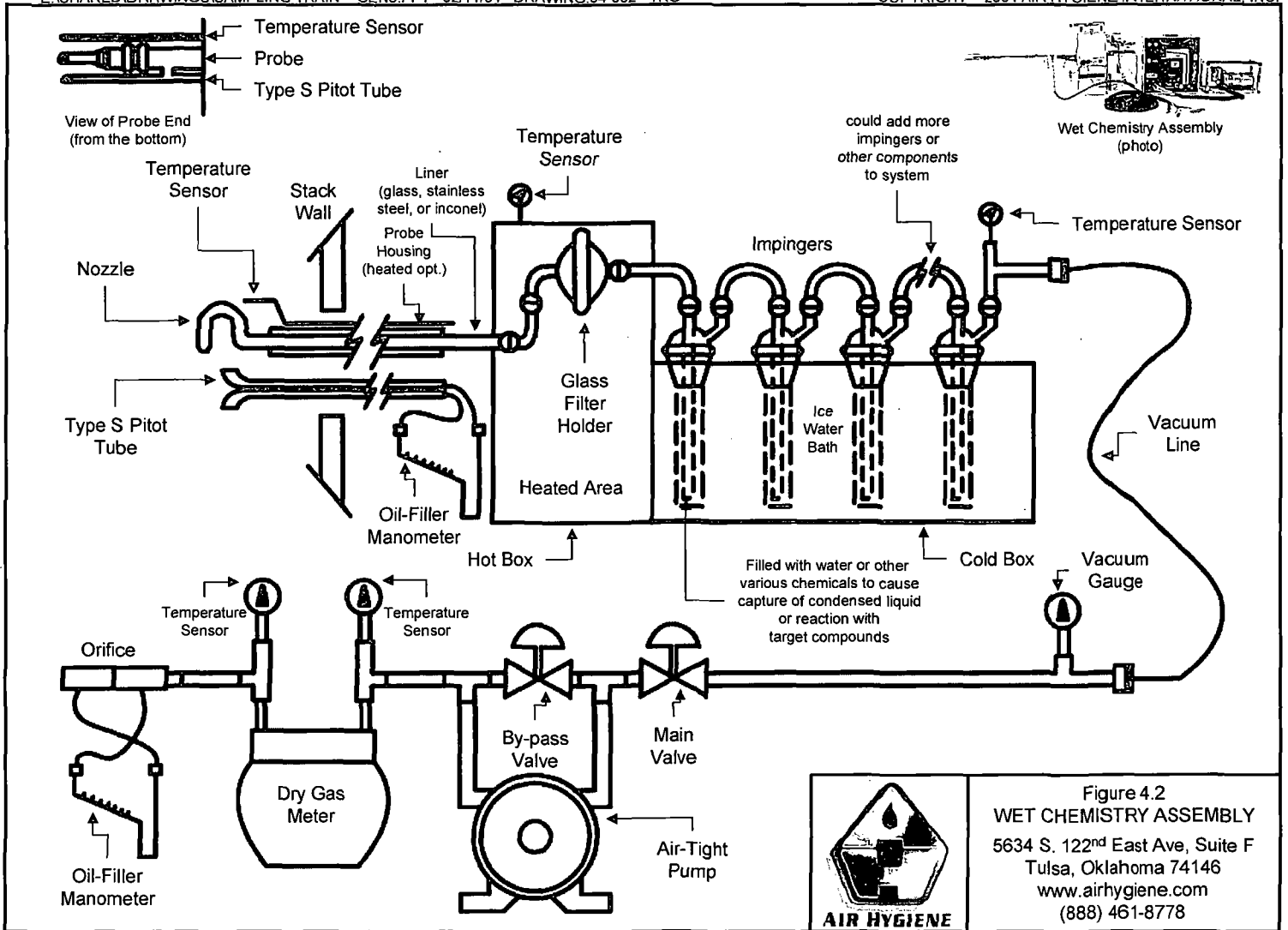


Figure 4.2
WET CHEMISTRY ASSEMBLY
5634 S. 122nd East Ave, Suite F
Tulsa, Oklahoma 74146
www.airhygiene.com
(888) 461-8778

APPENDIX A
TEST RESULTS AND CALCULATIONS

**TABLE A.1:
EMISSIONS TESTING SCHEDULE**

Unit	Load	Test Type	Run	Date	Start	Stop
2B	Normal	Stratification Test	1	11/11/09	9:55:18	10:35:18
2B	Base Load Without Db	Compliance	1	11/13/09	8:02:21	9:01:51
2B	Base Load Without Db	Compliance	2	11/13/09	9:34:21	10:33:51
2B	Base Load Without Db	Compliance	3	11/13/09	10:53:21	11:52:51
2B	Base Load With Db	Compliance	1	11/13/09	13:05:21	14:04:51
2B	Base Load With Db	Compliance	2	11/13/09	14:36:21	15:35:51
2B	Base Load With Db	Compliance	3	11/13/09	15:48:21	16:47:51
2B	Base wo DB	Preliminaries	2B-V1	11/13/09	7:25:00	7:52:00
2B	Base wo DB	Ammonia	2B-1	11/13/09	8:02:00	9:12:00
2B	Base wo DB	Ammonia	2B-2	11/13/09	9:22:00	10:35:00
2B	Base wo DB	Ammonia	2B-3	11/13/09	10:58:00	11:06:00
2B	Base with DB	Ammonia	2B-1	11/13/09	13:13:00	14:24:00
2B	Base with DB	Ammonia	2B-2	11/13/09	14:29:00	15:39:00
2B	Base with DB	Ammonia	2B-3	11/13/09	14:43:00	15:50:00
2B	Base wo DB	Opacity	1	11/13/09	7:25:00	8:24:00
2B	Base wo DB	Opacity	2	11/13/09	8:26:00	9:25:00
2B	Base wo DB	Opacity	3	11/13/09	9:28:00	10:27:00
2B	Base with DB	Opacity	1	11/13/09	13:25:00	14:24:00
2B	Base with DB	Opacity	2	11/13/09	14:26:00	15:25:00
2B	Base with DB	Opacity	3	11/13/09	15:26:00	16:25:00

TABLE A.2
MITSUBISHI, 501G, UNIT #2B BASE W/O DB LOAD DATA SUMMARY

Parameter	Base W/O Db Load, Run - 1-1	Base W/O Db Load, Run - 1-2	Base W/O Db Load, Run - 1-3	Average
Run Duration (min / run)	60	60	60	60
Bar. Pressure (in. Hg)	29.87	29.88	29.88	29.88
Amb. Temp. (°F)	58	64	68	63
Rel. Humidity (%)	77	64	52	64
Spec. Humidity (lb water / lb air)	0.007889	0.008113	0.007567	0.007856
Turbine Fuel Flow (lb/min)	1,834	1,837	1,838	1,836
Duct Burner Fuel Flow (lb/min)	0	0	0	0
Total Fuel Flow (SCFH)	2,514,663	2,518,776	2,519,918	2,517,786
Stack Flow (RM19) (SCFH)	60,277,885	59,526,955	59,172,040	59,658,960
Stack Moisture (% Method 4)	8.7	8.5	8.7	8.6
Power Output (megawatts)	254.3	254.3	254.3	254.3
NOx (ppmvd)	2.08	2.16	2.17	2.14
NOx (ppm@15%O ₂)	1.63	1.67	1.67	1.65
NOx (ppm@15%O ₂ &ISO)	1.68	1.70	1.66	1.68
NOx (lb/hr)	14.98	15.34	15.33	15.22
NOx (ton/year) at 8760 hr/year	65.63	67.17	67.14	66.65
NOx (lb/MMBtu)	0.006	0.006	0.006	0.006
CO (ppmvd)	1.81	0.79	0.81	1.14
CO (ppm@15%O ₂)	1.42	0.61	0.63	0.88
CO (ppm@15%O ₂ &ISO)	1.47	0.62	0.62	0.90
CO (lb/hr)	7.93	3.40	3.50	4.95
CO (ton/year) at 8760 hr/year	34.75	14.89	15.34	21.66
CO (lb/MMBtu)	0.003	0.001	0.001	0.002
VOC (ppmvd)	1.28	1.20	1.08	1.19
VOC (ppm@15%O ₂)	1.00	0.93	0.83	0.92
VOC (ppm@15%O ₂ &ISO)	1.03	0.95	0.83	0.94
VOC (lb/hr)	3.20	2.98	2.66	2.95
VOC (ton/year) at 8760 hr/year	14.00	13.03	11.67	12.90
VOC (lb/MMBtu)	0.001	0.001	0.001	0.001
Sulfur (gr S/100 scf)	<0.032	<0.032	<0.032	<0.032
NH ₃ (ppmvd)	3.83	2.77	3.22	3.27
NH ₃ (ppm@15%O ₂)	3.00	2.14	2.47	2.54
NH ₃ (lb/hr)	10.21	7.29	8.42	8.64
Opacity (%)	0	0	0	0
CO ₂ (%)	4.26	4.28	4.19	4.24
O ₂ (%)	13.37	13.27	13.22	13.29

TABLE A.3
mitsubishi, 501G, UNIT #2B BASE W/DB LOAD DATA SUMMARY

Parameter	Base W/Db Load, Run - 2-1	Base W/Db Load, Run - 2-2	Base W/Db Load, Run - 2-3	Average
Run Duration (min / run)	60	60	60	60
Bar. Pressure (in. Hg)	29.80	29.78	29.77	29.78
Amb. Temp. (°F)	73	75	76	75
Rel. Humidity (%)	47	45	45	46
Spec. Humidity (lb water / lb air)	0.008138	0.008340	0.008630	0.008369
Turbine Fuel Flow (lb/min)	1,702	1,693	1,691	1,695
Duct Burner Fuel Flow (lb/min)	139	138	137	138
Total Fuel Flow (SCFH)	2,523,803	2,510,321	2,505,523	2,513,216
Stack Flow (RM19) (SCFH)	53,410,153	53,176,340	53,080,014	53,222,169
Stack Moisture (% Method 4)	9.4	9.6	9.7	9.6
Power Output (megawatts)	253.2	251.1	250.6	251.6
NOx (ppmvd)	2.73	2.76	2.74	2.74
NOx (ppm@15%O ₂)	1.89	1.91	1.90	1.90
NOx (ppm@15%O ₂ &ISO)	1.88	1.90	1.89	1.89
NOx (lb/hr)	17.41	17.52	17.38	17.43
NOx (ton/year) at 8760 hr/year	76.24	76.72	76.12	76.36
NOx (lb/MMBtu)	0.007	0.007	0.007	0.007
CO (ppmvd)	0.77	0.76	0.77	0.77
CO (ppm@15%O ₂)	0.53	0.53	0.53	0.53
CO (ppm@15%O ₂ &ISO)	0.53	0.52	0.53	0.53
CO (lb/hr)	2.99	2.95	2.95	2.96
CO (ton/year) at 8760 hr/year	13.10	12.91	12.94	12.98
CO (lb/MMBtu)	0.001	0.001	0.001	0.001
VOC (ppmvd)	2.84	0.98	1.27	1.70
VOC (ppm@15%O ₂)	1.97	0.68	0.88	1.18
VOC (ppm@15%O ₂ &ISO)	1.96	0.67	0.88	1.17
VOC (lb/hr)	6.31	2.16	2.81	3.76
VOC (ton/year) at 8760 hr/year	27.64	9.44	12.29	16.46
VOC (lb/MMBtu)	0.003	0.001	0.001	0.001
Sulfur (gr S/100 scf)	<0.032	<0.032	<0.032	<0.032
NH ₃ (ppmvd)	3.95	3.89	3.01	3.62
NH ₃ (ppm@15%O ₂)	2.74	2.70	2.09	2.51
NH ₃ (lb/hr)	9.33	9.15	7.07	8.52
Opacity (%)	0	0	0	0
CO ₂ (%)	5.00	4.62	4.72	4.78
O ₂ (%)	12.39	12.40	12.40	12.39

TEST RESULTS

**NO_x, CO, VOC, CO₂, and O₂ Emissions
Base Load**

Florida Power and Light
November 13, 2009
Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data

Fuel Fd factor	8.649	SCF edy/MMBtu
Fuel Heating Value (HHV)	998	Btu/SCF fuel
Turbine Fuel Flow	1,834	lb/min
Duct Burner Fuel Flow	0	lb/min
Total Fuel Flow	2,514,663	SCFH

Weather Data

Barometric Pressure	29.87	in. Hg
Relative Humidity	77	%
Ambient Temperature	58	° F
Specific Humidity	0.007889	lb H ₂ O / lb air

Unit Data

Unit Load	254.3	megawatts
Combustor Inlet Pressure	276	psig
Meas. Stack Moisture	8.7	%
Stack Exhaust Flow (M19)	60,277,885	SCFH

Data from: NH3 Run 1

Base W/O Db Load, Run - 1-1

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmvv)	CO ₂ (%)
11/13/09 08:02:21	1380	13.28	2.29	3.22	0.27	4.23
11/13/09 08:02:51	1410	13.26	2.28	3.40	0.25	4.24
11/13/09 08:03:21	1440	13.27	2.25	3.28	0.24	4.23
11/13/09 08:03:51	1470	13.26	2.26	3.12	0.24	4.25
11/13/09 08:04:21	1500	13.26	2.23	3.09	0.25	4.25
11/13/09 08:04:51	1530	13.25	2.20	2.94	0.23	4.25
11/13/09 08:05:21	1560	13.27	2.18	2.99	0.21	4.24
11/13/09 08:05:51	1590	13.26	2.15	3.10	0.21	4.25
11/13/09 08:06:21	1620	13.25	2.13	3.08	0.23	4.25
11/13/09 08:06:51	1650	13.25	2.16	3.06	0.21	4.25
11/13/09 08:07:21	1680	13.26	2.16	2.97	0.20	4.25
11/13/09 08:07:51	1710	13.26	2.13	2.91	0.21	4.25
11/13/09 08:08:21	1740	13.26	2.13	2.89	0.20	4.25
11/13/09 08:08:51	1770	13.25	2.11	2.87	0.18	4.26
11/13/09 08:09:21	1800	13.26	2.10	2.84	0.18	4.26
11/13/09 08:09:51	1830	13.25	2.10	2.75	0.20	4.26
11/13/09 08:10:21	1860	13.24	2.08	2.65	0.21	4.26
11/13/09 08:10:51	1890	13.23	2.08	2.55	0.19	4.27
11/13/09 08:11:21	1920	13.24	2.02	2.49	0.18	4.26
11/13/09 08:11:51	1950	13.24	2.00	2.52	0.18	4.26
11/13/09 08:12:21	1980	13.24	2.00	2.58	0.19	4.26
11/13/09 08:12:51	2010	13.24	2.02	2.51	0.17	4.26
11/13/09 08:13:21	2040	13.23	2.03	2.59	0.17	4.27
11/13/09 08:13:51	2070	13.23	2.07	2.44	0.25	4.27
11/13/09 08:14:21	2100	13.23	2.07	2.42	0.29	4.28
11/13/09 08:14:51	2130	13.22	2.05	2.53	0.27	4.28
11/13/09 08:15:21	2160	13.22	2.09	2.46	0.31	4.28
11/13/09 08:15:51	2190	13.22	2.19	2.41	0.37	4.28
11/13/09 08:16:21	2220	13.22	2.11	2.17	0.35	4.28
11/13/09 08:16:51	2250	13.21	2.04	2.16	0.35	4.29
11/13/09 08:17:21	2280	13.21	2.02	2.25	0.37	4.29
11/13/09 08:17:51	2310	13.22	2.00	2.27	0.41	4.29
11/13/09 08:18:21	2340	13.23	2.05	2.23	0.39	4.28
11/13/09 08:18:51	2370	13.22	2.06	2.19	0.38	4.29
11/13/09 08:19:21	2400	13.21	2.09	2.14	0.39	4.29
11/13/09 08:19:51	2430	13.23	2.11	2.05	0.40	4.29
11/13/09 08:20:21	2460	13.21	2.09	2.07	0.37	4.29
11/13/09 08:20:51	2490	13.23	2.13	2.11	0.36	4.29
11/13/09 08:21:21	2520	13.23	2.13	2.09	0.36	4.28
11/13/09 08:21:51	2550	13.20	2.13	2.06	0.36	4.30
11/13/09 08:22:21	2580	13.20	2.13	1.95	0.33	4.30
11/13/09 08:22:51	2610	13.19	2.11	1.84	0.32	4.31
11/13/09 08:23:21	2640	13.20	2.09	1.78	0.34	4.30
11/13/09 08:23:51	2670	13.21	2.07	1.85	0.33	4.31
11/13/09 08:24:21	2700	13.21	2.09	1.97	0.31	4.30
11/13/09 08:24:51	2730	13.20	2.11	1.92	0.31	4.32
11/13/09 08:25:21	2760	13.20	2.14	1.90	0.33	4.31
11/13/09 08:25:51	2790	13.19	2.14	1.79	0.35	4.33
11/13/09 08:26:21	2820	13.20	2.16	1.82	0.33	4.32
11/13/09 08:26:51	2850	13.20	2.16	1.89	0.34	4.33
11/13/09 08:27:21	2880	13.19	2.20	1.94	0.36	4.32
11/13/09 08:27:51	2910	13.18	2.24	1.76	0.36	4.34
11/13/09 08:28:21	2940	13.17	2.25	1.82	0.35	4.33
11/13/09 08:28:51	2970	13.17	2.25	1.65	0.37	4.35
11/13/09 08:29:21	3000	13.18	2.22	1.65	0.38	4.34
11/13/09 08:29:51	3030	13.18	2.18	1.69	0.36	4.35
11/13/09 08:30:21	3060	13.19	2.17	1.74	0.38	4.33
11/13/09 08:30:51	3090	13.17	2.18	1.72	0.42	4.35
11/13/09 08:31:21	3120	13.17	2.19	1.78	0.42	4.33
11/13/09 08:31:51	3150	13.19	2.21	1.77	0.39	4.33
11/13/09 08:32:21	3180	13.19	2.20	1.78	0.40	4.33
11/13/09 08:32:51	3210	13.18	2.23	1.75	0.41	4.34
11/13/09 08:33:21	3240	13.18	2.23	1.66	0.39	4.33
11/13/09 08:33:51	3270	13.19	2.24	1.72	0.38	4.33
11/13/09 08:34:21	3300	13.19	2.25	1.67	0.40	4.32
11/13/09 08:34:51	3330	13.17	2.27	1.71	0.42	4.34
11/13/09 08:35:21	3360	13.16	2.25	1.58	0.39	4.34
11/13/09 08:35:51	3390	13.18	2.22	1.58	0.38	4.33
11/13/09 08:36:21	3420	13.19	2.16	1.64	0.40	4.33
11/13/09 08:36:51	3450	13.18	2.17	1.66	0.42	4.33
11/13/09 08:37:21	3480	13.18	2.20	1.68	0.40	4.34
11/13/09 08:37:51	3510	13.17	2.24	1.57	0.38	4.34
11/13/09 08:38:21	3540	13.17	2.24	1.62	0.39	4.34
11/13/09 08:38:51	3570	13.17	2.23	1.57	0.42	4.34
11/13/09 08:39:21	3600	13.17	2.23	1.55	0.41	4.35
11/13/09 08:39:51	3630	13.16	2.20	1.58	0.40	4.35
11/13/09 08:40:21	3660	13.18	2.20	1.53	0.42	4.35
11/13/09 08:40:51	3690	13.18	2.19	1.58	0.63	4.35
11/13/09 08:41:21	3720	13.17	2.17	1.52	0.88	4.36
11/13/09 08:41:51	3750	13.18	2.14	1.53	0.86	4.36
11/13/09 08:42:21	3780	13.18	2.11	1.57	1.04	4.36
11/13/09 08:42:51	3810	13.17	2.07	1.60	3.50	4.36
11/13/09 08:43:21	3840	13.18	2.10	1.58	2.66	4.36
11/13/09 08:43:51	3870	13.18	2.13	1.55	3.03	4.35

Florida Power and Light
November 13, 2009
Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data

Fuel Fd factor	8.649	SCF ash/MMBtu
Fuel Heating Value (HHV)	998	Btu/SCF fuel
Turbine Fuel Flow	1,834	lb/min
Duct Burner Fuel Flow	0	lb/min
Total Fuel Flow	2,514.083	SCFH

Weather Data

Barometric Pressure	29.87	in. Hg
Relative Humidity	77	%
Ambient Temperature	58	°F
Specific Humidity	0.007889	lb H ₂ O / lb air

Unit Data

Unit Load	254.3	megawatts
Combustor Inlet Pressure	276	psig
Moas. Stack Moisture	8.7	%
Stack Exhaust Flow (M19)	60,277.885	SCFH

Data from: NRG Run 1

Base W/O Db Load, Run - 1-1

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmv d)	CO (ppmv d)	VOC (ppmw w)	CO ₂ (%)
11/13/09 08:44:21	3900	13.17	2.16	1.55	3.01	4.37
11/13/09 08:44:51	3930	13.16	2.17	1.47	3.29	4.36
11/13/09 08:45:21	3950	13.16	2.14	1.50	3.67	4.37
11/13/09 08:45:51	3990	13.16	2.11	1.49	1.13	4.36
11/13/09 08:46:21	4020	13.17	2.12	1.49	2.85	4.37
11/13/09 08:46:51	4050	13.16	2.12	1.57	2.85	4.36
11/13/09 08:47:21	4080	13.16	2.14	1.54	2.85	4.37
11/13/09 08:47:51	4110	13.16	2.17	1.42	2.01	4.37
11/13/09 08:48:21	4140	13.15	2.18	1.43	3.85	4.39
11/13/09 08:48:51	4170	13.16	2.17	1.38	3.08	4.36
11/13/09 08:49:21	4200	13.17	2.15	1.43	2.97	4.37
11/13/09 08:49:51	4230	13.16	2.14	1.48	2.66	4.36
11/13/09 08:50:21	4260	13.15	2.17	1.48	2.61	4.38
11/13/09 08:50:51	4290	13.16	2.23	1.44	2.26	4.37
11/13/09 08:51:21	4320	13.16	2.24	1.38	2.00	4.39
11/13/09 08:51:51	4350	13.16	2.27	1.46	2.29	4.37
11/13/09 08:52:21	4380	13.16	2.24	1.32	3.00	4.39
11/13/09 08:52:51	4410	13.15	2.25	1.40	2.18	4.38
11/13/09 08:53:21	4440	13.17	2.24	1.38	2.95	4.38
11/13/09 08:53:51	4470	13.14	2.23	1.43	2.09	4.37
11/13/09 08:54:21	4500	13.14	2.26	1.34	2.89	4.39
11/13/09 08:54:51	4530	13.13	2.25	1.30	3.15	4.38
11/13/09 08:55:21	4560	13.13	2.22	1.20	2.52	4.40
11/13/09 08:55:51	4590	13.15	2.19	1.40	1.90	4.38
11/13/09 08:56:21	4620	13.15	2.14	1.42	1.47	4.39
11/13/09 08:56:51	4650	13.16	2.14	1.41	1.01	4.38
11/13/09 08:57:21	4680	13.15	2.20	1.35	1.63	4.40
11/13/09 08:57:51	4710	13.14	2.23	1.27	2.60	4.40
11/13/09 08:58:21	4740	13.14	2.27	1.27	2.10	4.41
11/13/09 08:58:51	4770	13.14	2.25	1.20	3.43	4.39
11/13/09 08:59:21	4800	13.15	2.21	1.22	3.04	4.40
11/13/09 08:59:51	4830	13.15	2.19	1.36	3.19	4.39
11/13/09 09:00:21	4860	13.14	2.15	1.31	2.60	4.41
11/13/09 09:00:51	4890	13.14	2.20	1.29	2.32	4.40
11/13/09 09:01:21	4920	13.14	2.20	1.28	2.31	4.42
11/13/09 09:01:51	4950	13.14	2.17	1.27	1.94	4.40

RAW AVERAGE

	O ₂ (%)	NOx (ppmv d)	CO (ppmv d)	VOC (ppmw w)	CO ₂ (%)
Serial Number: INST-N2-0001	INST-N2-0001	INST-N2-0001	INST-CO-0015	INST-TH-0009	INST-C2-0009
Initial Zero	0.16	0.16	0.12	-0.10	0.00
Final Zero	0.05	0.07	-0.12	-0.10	0.15
Avg. Zero	0.11	0.12	0.00	-0.10	0.08
Initial UpScale	11.90	4.99	5.26	2.97	8.78
Final UpScale	11.99	5.05	5.19	2.89	9.00
Avg. UpScale	11.95	5.02	5.23	2.93	8.89

Upscale Cal Gas

O ₂	12.10	4.99	4.95	3.03	8.83
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EMISSIONS DATA	O ₂	NOx	CO	VOC	CO ₂
Corrected Raw Average (ppm% dry basis)	13.37	2.08	1.81	1.28	4.26
Concentration (ppm@ 15%O ₂)	N/A	1.63	1.42	1.00	N/A
Concentration (ppm@ 15%O ₂ & ISO)	N/A	1.68	1.47	1.03	N/A
Emission Rate (lb/hr)	N/A	14.98	7.93	3.20	293,270.58
Emission Rate (tons/year) at 8760 hr/yr	N/A	65.63	34.75	14.00	1,284,525.14
Emission Rate (lb/MMBtu)	N/A	0.006	0.003	0.001	N/A

Florida Power and Light
November 13, 2009
Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data		
Fuel Fd Factor	8.649	SCF eoh/MMBtu
Fuel Heating Value (HHV)	999	Btu/SCF fuel
Turbine Fuel Flow	1,837	lb/min
Duct Burner Fuel Flow	0	lb/min
Total Fuel Flow	2,516,776	SCFH

Weather Data		
Barometric Pressure	29.88	in. Hg
Relative Humidity	64	%
Ambient Temperature	64	*F
Specific Humidity	0.008113	lb H ₂ O / lb air

Unit Data		
Unit Load	254.3	megawatts
Combustor Inlet Pressure	274	psig
Meas. Stack Moisture	8.5	%
Stack Exhaust Flow (M19)	59,526,966	SCFH

Data from: N-3 Run 2

Base W/O Db Load, Run - 1-2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmv)	CO (ppmv)	VOC (ppmv)	CO ₂ (%)
11/13/09 09:34:21	6900	13.17	2.25	0.91	0.28	4.41
11/13/09 09:34:51	6930	13.19	2.28	0.90	0.44	4.41
11/13/09 09:35:21	6960	13.21	2.27	0.93	0.37	4.42
11/13/09 09:35:51	6990	13.22	2.26	0.94	0.30	4.43
11/13/09 09:36:21	7020	13.22	2.24	0.98	0.44	4.43
11/13/09 09:36:51	7050	13.23	2.22	1.00	0.53	4.43
11/13/09 09:37:21	7080	13.22	2.19	0.96	0.43	4.43
11/13/09 09:37:51	7110	13.24	2.19	1.02	0.35	4.44
11/13/09 09:38:21	7140	13.23	2.21	1.09	0.52	4.43
11/13/09 09:38:51	7170	13.24	2.20	0.95	0.66	4.44
11/13/09 09:39:21	7200	13.24	2.23	0.97	0.61	4.44
11/13/09 09:39:51	7230	13.24	2.21	0.99	0.43	4.44
11/13/09 09:40:21	7260	13.23	2.20	0.99	0.57	4.44
11/13/09 09:40:51	7290	13.22	2.21	0.85	0.72	4.45
11/13/09 09:41:21	7320	13.22	2.25	0.84	0.75	4.45
11/13/09 09:41:51	7350	13.22	2.28	0.84	0.62	4.45
11/13/09 09:42:21	7380	13.23	2.31	0.92	0.52	4.44
11/13/09 09:42:51	7410	13.23	2.28	0.84	0.66	4.45
11/13/09 09:43:21	7440	13.22	2.24	0.91	0.71	4.45
11/13/09 09:43:51	7470	13.21	2.24	0.91	0.63	4.45
11/13/09 09:44:21	7500	13.21	2.24	0.84	0.69	4.46
11/13/09 09:44:51	7530	13.21	2.26	0.79	0.76	4.46
11/13/09 09:45:21	7560	13.22	2.24	0.80	0.74	4.46
11/13/09 09:45:51	7590	13.20	2.22	0.85	0.78	4.46
11/13/09 09:46:21	7620	13.20	2.26	0.79	0.86	4.46
11/13/09 09:46:51	7650	13.21	2.28	0.81	0.81	4.47
11/13/09 09:47:21	7680	13.22	2.28	0.79	0.76	4.46
11/13/09 09:47:51	7710	13.20	2.26	0.78	0.84	4.47
11/13/09 09:48:21	7740	13.20	2.23	0.77	0.90	4.47
11/13/09 09:48:51	7770	13.20	2.20	0.74	0.84	4.47
11/13/09 09:49:21	7800	13.21	2.21	0.74	0.85	4.47
11/13/09 09:49:51	7830	13.20	2.20	0.77	0.93	4.47
11/13/09 09:50:21	7860	13.21	2.21	0.75	0.89	4.46
11/13/09 09:50:51	7890	13.22	2.18	0.79	0.84	4.47
11/13/09 09:51:21	7920	13.22	2.18	0.79	0.87	4.46
11/13/09 09:51:51	7950	13.21	2.15	0.84	0.97	4.47
11/13/09 09:52:21	7980	13.20	2.15	0.77	0.94	4.48
11/13/09 09:52:51	8010	13.20	2.19	0.80	0.86	4.48
11/13/09 09:53:21	8040	13.21	2.21	0.70	0.89	4.48
11/13/09 09:53:51	8070	13.21	2.19	0.76	0.95	4.48
11/13/09 09:54:21	8100	13.21	2.15	0.77	0.98	4.47
11/13/09 09:54:51	8130	13.22	2.13	0.77	0.88	4.48
11/13/09 09:55:21	8160	13.22	2.13	0.79	0.81	4.48
11/13/09 09:55:51	8190	13.20	2.13	0.79	0.89	4.50
11/13/09 09:56:21	8220	13.21	2.15	0.71	0.99	4.49
11/13/09 09:56:51	8250	13.20	2.16	0.79	0.99	4.50
11/13/09 09:57:21	8280	13.20	2.15	0.81	0.97	4.50
11/13/09 09:57:51	8310	13.22	2.16	0.72	1.02	4.51
11/13/09 09:58:21	8340	13.22	2.15	0.81	1.05	4.50
11/13/09 09:58:51	8370	13.19	2.16	0.77	1.01	4.52
11/13/09 09:59:21	8400	13.19	2.19	0.68	1.01	4.52
11/13/09 09:59:51	8430	13.19	2.23	0.64	1.06	4.53
11/13/09 10:00:21	8460	13.19	2.25	0.68	1.07	4.52
11/13/09 10:00:51	8490	13.18	2.25	0.67	1.00	4.54
11/13/09 10:01:21	8520	13.19	2.25	0.65	0.99	4.53
11/13/09 10:01:51	8550	13.18	2.21	0.67	1.05	4.54
11/13/09 10:02:21	8580	13.19	2.22	0.63	1.09	4.52
11/13/09 10:02:51	8610	13.20	2.24	0.66	1.06	4.54
11/13/09 10:03:21	8640	13.20	2.25	0.65	1.02	4.53
11/13/09 10:03:51	8670	13.20	2.21	0.66	1.07	4.54
11/13/09 10:04:21	8700	13.20	2.19	0.70	1.10	4.52
11/13/09 10:04:51	8730	13.20	2.20	0.71	1.04	4.54
11/13/09 10:05:21	8760	13.20	2.20	0.76	1.05	4.53
11/13/09 10:05:51	8790	13.19	2.17	0.73	1.11	4.54
11/13/09 10:06:21	8820	13.19	2.17	0.66	1.15	4.53
11/13/09 10:06:51	8850	13.19	2.22	0.66	1.12	4.54
11/13/09 10:07:21	8880	13.19	2.24	0.66	1.06	4.54
11/13/09 10:07:51	8910	13.19	2.23	0.65	1.05	4.55
11/13/09 10:08:21	8940	13.18	2.23	0.62	0.80	4.55
11/13/09 10:08:51	8970	13.20	2.22	0.68	0.62	4.54
11/13/09 10:09:21	9000	13.20	2.21	0.64	1.30	4.54
11/13/09 10:09:51	9030	13.20	2.22	0.66	2.57	4.55
11/13/09 10:10:21	9060	13.20	2.23	0.68	2.44	4.55
11/13/09 10:10:51	9090	13.21	2.21	0.73	2.32	4.54
11/13/09 10:11:21	9120	13.21	2.17	0.71	2.01	4.54
11/13/09 10:11:51	9150	13.20	2.17	0.74	2.07	4.54
11/13/09 10:12:21	9180	13.20	2.14	0.71	1.96	4.56
11/13/09 10:12:51	9210	13.19	2.17	0.67	1.16	4.55
11/13/09 10:13:21	9240	13.19	2.21	0.63	1.77	4.56
11/13/09 10:13:51	9270	13.20	2.23	0.63	1.92	4.55
11/13/09 10:14:21	9300	13.21	2.24	0.72	1.53	4.55
11/13/09 10:14:51	9330	13.19	2.18	0.70	1.34	4.55
11/13/09 10:15:21	9360	13.20	2.18	0.65	1.88	4.55
11/13/09 10:15:51	9390	13.20	2.16	0.65	1.82	4.55

Florida Power and Light
November 13, 2009
Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data

Fuel Fd (actor)	8,649	SCF eoh/MMBtu
Fuel Heating Value (HHV)	998	Btu/SCF fuel
Turbine Fuel Flow	1,837	lb/min
Duct Burner Fuel Flow	0	lb/min
Total Fuel Flow	2,518,776	SCFH

Weather Data

Barometric Pressure	29.88	in. Hg
Relative Humidity	64	%
Ambient Temperature	64	°F
Specific Humidity	0.008113	lb H ₂ O / lb air

Unit Data

Unit Load	254.3	megawatts
Combustor Inlet Pressure	274	psig
Meas. Stack Moisture	8.5	%
Stack Exhaust Flow (M19)	59,526,955	SCFH

Data from: NH3 Run 2

Base W/O Db Load, Run - 1-2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmv)	CO (ppmv)	VOC (ppmvw)	CO ₂ (%)
11/13/09 10:16:21	9420	13.20	2.18	0.66	1.59	4.56
11/13/09 10:16:51	9450	13.18	2.16	0.65	2.09	4.56
11/13/09 10:17:21	9480	13.17	2.15	0.62	1.55	4.58
11/13/09 10:17:51	9510	13.18	2.20	0.63	1.58	4.56
11/13/09 10:18:21	9540	13.17	2.18	0.62	1.45	4.58
11/13/09 10:18:51	9570	13.17	2.22	0.55	1.14	4.57
11/13/09 10:19:21	9600	13.17	2.24	0.53	1.08	4.59
11/13/09 10:19:51	9630	13.18	2.25	0.59	1.10	4.58
11/13/09 10:20:21	9660	13.19	2.27	0.57	1.94	4.58
11/13/09 10:20:51	9690	13.17	2.23	0.60	1.04	4.58
11/13/09 10:21:21	9720	13.17	2.22	0.62	1.62	4.58
11/13/09 10:21:51	9750	13.18	2.20	0.56	1.22	4.58
11/13/09 10:22:21	9780	13.18	2.22	0.60	0.84	4.59
11/13/09 10:22:51	9810	13.18	2.20	0.61	0.81	4.59
11/13/09 10:23:21	9840	13.17	2.19	0.64	0.93	4.59
11/13/09 10:23:51	9870	13.17	2.18	0.62	0.76	4.59
11/13/09 10:24:21	9900	13.17	2.19	0.62	0.84	4.60
11/13/09 10:24:51	9930	13.18	2.19	0.60	0.64	4.59
11/13/09 10:25:21	9960	13.18	2.20	0.58	0.56	4.59
11/13/09 10:25:51	9990	13.17	2.17	0.61	1.96	4.59
11/13/09 10:26:21	10020	13.16	2.18	0.60	1.56	4.60
11/13/09 10:26:51	10050	13.18	2.20	0.50	1.05	4.60
11/13/09 10:27:21	10080	13.20	2.20	0.58	1.24	4.59
11/13/09 10:27:51	10110	13.19	2.16	0.61	1.77	4.59
11/13/09 10:28:21	10140	13.19	2.17	0.62	1.86	4.59
11/13/09 10:28:51	10170	13.19	2.15	0.64	1.11	4.59
11/13/09 10:29:21	10200	13.18	2.14	0.61	1.20	4.60
11/13/09 10:29:51	10230	13.17	2.18	0.56	1.22	4.61
11/13/09 10:30:21	10260	13.17	2.19	0.54	0.69	4.61
11/13/09 10:30:51	10290	13.17	2.21	0.54	0.39	4.61
11/13/09 10:31:21	10320	13.15	2.16	0.48	1.79	4.61
11/13/09 10:31:51	10350	13.14	2.13	0.53	1.60	4.60
11/13/09 10:32:21	10380	13.18	2.18	0.51	1.97	4.62
11/13/09 10:32:51	10410	13.16	2.19	0.55	1.77	4.62
11/13/09 10:33:21	10440	13.16	2.22	0.51	1.61	4.63
11/13/09 10:33:51	10470	13.17	2.24	0.52	1.87	4.61
RAW AVERAGE		13.20	2.20	0.72	1.09	4.62

Serial Number:	O ₂	NOx	CO	VOC	CO ₂
	(%)	(ppmv)	(ppmv)	(ppmvw)	(%)
INST-N2-0001	0.05	0.07	-0.12	-0.10	0.15
INST-N2-0001	0.16	0.06	-0.14	0.15	0.33
INST-CO-0015	0.11	0.07	-0.13	0.03	0.24
INST-TH-0009	11.99	5.05	5.19	2.89	9.00
INST-C2-0009	12.10	4.98	5.22	3.05	9.17
	12.05	5.02	5.21	2.97	9.09

Upscale Cal Gas

O ₂	12.10	4.99	4.95	3.03	8.83
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EMISSIONS DATA	O ₂	NOx	CO	VOC	CO ₂
Corrected Raw Average (ppm% dry basis)	13.27	2.16	0.79	1.20	4.28
Concentration (ppm@ 15%O ₂)	N/A	1.67	0.61	0.93	N/A
Concentration (ppm@ 15%O ₂ & ISO)	N/A	1.70	0.62	0.95	N/A
Emission Rate (lb/hr)	N/A	15.34	3.40	2.98	290,758.31
Emission Rate (tons/year) at 8760 hr/yr	N/A	67.17	14.89	13.03	1,273,521.40
Emission Rate (lb/MMBtu)	N/A	0.006	0.001	0.001	N/A

Florida Power and Light
 November 13, 2009
 Mitsubishi, 601G, Unit #2B
 West County Energy Center

Fuel Data

Fuel Fd factor	8.649	SCF ecb/MMBtu
Fuel Heating Value (HHV)	996	Btu/SCF fuel
Turbine Fuel Flow	1,838	lb/min
Duct Burner Fuel Flow	0	lb/min
Total Fuel Flow	2,518,918	SCFH

Weather Data

Barometric Pressure	29.88	in. Hg
Relative Humidity	52	%
Ambient Temperature	68	°F
Specific Humidity	0.007567	lb H ₂ O / lb air

Unit Data

Unit Load	254.3	megawatts
Combustor Inlet Pressure	272	psig
Meas. Stack Moisture	8.7	%
Stack Exhaust Flow (M19)	58,172,040	SCFH

Data from: NHG Run 3

Base W/O Db Load, Run - 1-3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmvv)	CO ₂ (%)
11/13/09 09:34:21	6900	13.17	2.25	0.91	0.28	4.41
11/13/09 09:34:51	6930	13.19	2.28	0.90	0.44	4.41
11/13/09 09:35:21	6960	13.21	2.27	0.93	0.37	4.42
11/13/09 09:35:51	6990	13.22	2.26	0.94	0.30	4.43
11/13/09 09:36:21	7020	13.22	2.24	0.98	0.44	4.43
11/13/09 09:36:51	7050	13.23	2.22	1.00	0.53	4.43
11/13/09 09:37:21	7080	13.22	2.19	0.96	0.43	4.43
11/13/09 09:37:51	7110	13.24	2.19	1.02	0.35	4.44
11/13/09 09:38:21	7140	13.23	2.21	1.09	0.52	4.43
11/13/09 09:38:51	7170	13.24	2.20	0.95	0.66	4.44
11/13/09 09:39:21	7200	13.24	2.23	0.97	0.61	4.44
11/13/09 09:39:51	7230	13.24	2.21	0.99	0.43	4.44
11/13/09 09:40:21	7260	13.23	2.20	0.99	0.57	4.44
11/13/09 09:40:51	7290	13.22	2.21	0.85	0.72	4.45
11/13/09 09:41:21	7320	13.22	2.25	0.84	0.75	4.45
11/13/09 09:41:51	7350	13.22	2.28	0.84	0.62	4.45
11/13/09 09:42:21	7380	13.23	2.31	0.92	0.52	4.44
11/13/09 09:42:51	7410	13.23	2.28	0.84	0.66	4.45
11/13/09 09:43:21	7440	13.22	2.24	0.91	0.71	4.45
11/13/09 09:43:51	7470	13.21	2.24	0.91	0.63	4.45
11/13/09 09:44:21	7500	13.21	2.24	0.84	0.69	4.46
11/13/09 09:44:51	7530	13.21	2.26	0.79	0.76	4.46
11/13/09 09:45:21	7560	13.22	2.24	0.80	0.74	4.46
11/13/09 09:45:51	7590	13.20	2.22	0.85	0.78	4.46
11/13/09 09:46:21	7620	13.20	2.26	0.79	0.86	4.46
11/13/09 09:46:51	7650	13.21	2.28	0.81	0.81	4.47
11/13/09 09:47:21	7680	13.22	2.28	0.79	0.76	4.46
11/13/09 09:47:51	7710	13.20	2.26	0.78	0.84	4.47
11/13/09 09:48:21	7740	13.20	2.23	0.77	0.90	4.47
11/13/09 09:48:51	7770	13.20	2.20	0.74	0.84	4.47
11/13/09 09:49:21	7800	13.21	2.21	0.74	0.85	4.47
11/13/09 09:49:51	7830	13.20	2.20	0.77	0.93	4.47
11/13/09 09:50:21	7860	13.21	2.21	0.75	0.89	4.46
11/13/09 09:50:51	7890	13.22	2.18	0.79	0.84	4.47
11/13/09 09:51:21	7920	13.22	2.18	0.79	0.87	4.46
11/13/09 09:51:51	7950	13.21	2.15	0.84	0.97	4.47
11/13/09 09:52:21	7980	13.20	2.15	0.77	0.94	4.48
11/13/09 09:52:51	8010	13.20	2.19	0.80	0.86	4.48
11/13/09 09:53:21	8040	13.21	2.21	0.70	0.89	4.48
11/13/09 09:53:51	8070	13.21	2.19	0.76	0.95	4.48
11/13/09 09:54:21	8100	13.21	2.15	0.77	0.98	4.47
11/13/09 09:54:51	8130	13.22	2.13	0.77	0.88	4.48
11/13/09 09:55:21	8160	13.22	2.13	0.79	0.81	4.48
11/13/09 09:55:51	8190	13.20	2.13	0.79	0.89	4.50
11/13/09 09:56:21	8220	13.21	2.15	0.71	0.99	4.49
11/13/09 09:56:51	8250	13.20	2.16	0.79	0.99	4.50
11/13/09 09:57:21	8280	13.20	2.15	0.81	0.97	4.50
11/13/09 09:57:51	8310	13.22	2.16	0.72	1.02	4.51
11/13/09 09:58:21	8340	13.22	2.15	0.81	1.05	4.50
11/13/09 09:58:51	8370	13.19	2.16	0.77	1.01	4.52
11/13/09 09:59:21	8400	13.19	2.19	0.68	1.01	4.52
11/13/09 09:59:51	8430	13.19	2.23	0.64	1.06	4.53
11/13/09 10:00:21	8460	13.19	2.25	0.68	1.07	4.52
11/13/09 10:00:51	8490	13.18	2.25	0.67	1.00	4.54
11/13/09 10:01:21	8520	13.19	2.25	0.65	0.99	4.53
11/13/09 10:01:51	8550	13.18	2.21	0.67	1.05	4.54
11/13/09 10:02:21	8580	13.19	2.22	0.63	1.09	4.52
11/13/09 10:02:51	8610	13.20	2.24	0.66	1.06	4.54
11/13/09 10:03:21	8640	13.20	2.25	0.65	1.02	4.53
11/13/09 10:03:51	8670	13.20	2.21	0.66	1.07	4.54
11/13/09 10:04:21	8700	13.20	2.19	0.70	1.10	4.52
11/13/09 10:04:51	8730	13.20	2.20	0.71	1.04	4.54
11/13/09 10:05:21	8760	13.20	2.20	0.76	1.05	4.53
11/13/09 10:05:51	8790	13.19	2.17	0.73	1.11	4.54
11/13/09 10:06:21	8820	13.19	2.17	0.66	1.15	4.53
11/13/09 10:06:51	8850	13.19	2.22	0.66	1.12	4.54
11/13/09 10:07:21	8880	13.19	2.24	0.66	1.06	4.54
11/13/09 10:07:51	8910	13.19	2.23	0.65	1.05	4.55
11/13/09 10:08:21	8940	13.18	2.23	0.62	0.80	4.55
11/13/09 10:08:51	8970	13.20	2.22	0.68	0.62	4.54
11/13/09 10:09:21	9000	13.20	2.21	0.64	1.30	4.54
11/13/09 10:09:51	9030	13.20	2.22	0.66	2.57	4.55
11/13/09 10:10:21	9060	13.20	2.23	0.68	2.44	4.55
11/13/09 10:10:51	9090	13.21	2.21	0.73	2.32	4.54
11/13/09 10:11:21	9120	13.21	2.17	0.71	2.01	4.54
11/13/09 10:11:51	9150	13.20	2.17	0.74	2.07	4.54
11/13/09 10:12:21	9180	13.20	2.14	0.71	1.96	4.56
11/13/09 10:12:51	9210	13.19	2.17	0.67	1.16	4.55
11/13/09 10:13:21	9240	13.19	2.21	0.63	1.77	4.56
11/13/09 10:13:51	9270	13.20	2.23	0.63	1.92	4.55
11/13/09 10:14:21	9300	13.21	2.24	0.72	1.53	4.55
11/13/09 10:14:51	9330	13.19	2.18	0.70	1.34	4.55
11/13/09 10:15:21	9360	13.20	2.18	0.65	1.88	4.55
11/13/09 10:15:51	9390	13.20	2.16	0.65	1.82	4.55

Florida Power and Light
November 13, 2009
Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data

Fuel Fd factor	0.649	SCF adx/MMBtu
Fuel Heating Value (H-HV)	998	Btu/SCF fuel
Turbine Fuel Flow	1,838	lb/min
Duct Burner Fuel Flow	0	lb/min
Total Fuel Flow	2,519,918	SCFH

Weather Data

Barometric Pressure	29.88	In. Hg
Relative Humidity	52	%
Ambient Temperature	68	°F
Specific Humidity	0.007567	lb H ₂ O / lb air

Unit Data

Unit Load	254.3	megawatts
Combustor Inlet Pressure	272	psig
Mass. Stack Moisture	8.7	%
Stack Exhaust Flow (M10)	58,172,040	SCFH

Data from: NH3 Run 3

Base W/O Db Load, Run - 1-3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmv d)	CO (ppmv d)	VOC (ppmv w)	CO ₂ (%)
11/13/09 10:16:21	9420	13.20	2.18	0.66	1.59	4.56
11/13/09 10:16:51	9450	13.18	2.16	0.65	2.09	4.56
11/13/09 10:17:21	9480	13.17	2.16	0.62	1.55	4.58
11/13/09 10:17:51	9510	13.18	2.20	0.63	1.58	4.56
11/13/09 10:18:21	9540	13.17	2.18	0.62	1.45	4.58
11/13/09 10:18:51	9570	13.17	2.22	0.55	1.14	4.57
11/13/09 10:19:21	9600	13.17	2.24	0.53	1.08	4.59
11/13/09 10:19:51	9630	13.18	2.25	0.59	1.10	4.58
11/13/09 10:20:21	9660	13.19	2.27	0.57	1.94	4.58
11/13/09 10:20:51	9690	13.17	2.23	0.60	1.04	4.58
11/13/09 10:21:21	9720	13.17	2.22	0.62	1.62	4.58
11/13/09 10:21:51	9750	13.18	2.20	0.56	1.22	4.58
11/13/09 10:22:21	9780	13.18	2.22	0.60	0.84	4.59
11/13/09 10:22:51	9810	13.18	2.20	0.61	0.81	4.59
11/13/09 10:23:21	9840	13.17	2.19	0.64	0.93	4.59
11/13/09 10:23:51	9870	13.17	2.18	0.62	0.76	4.59
11/13/09 10:24:21	9900	13.17	2.19	0.62	0.84	4.60
11/13/09 10:24:51	9930	13.18	2.19	0.60	0.64	4.59
11/13/09 10:25:21	9960	13.18	2.20	0.58	0.56	4.59
11/13/09 10:25:51	9990	13.17	2.17	0.61	1.96	4.59
11/13/09 10:26:21	10020	13.16	2.18	0.60	1.56	4.60
11/13/09 10:26:51	10050	13.18	2.20	0.50	1.05	4.60
11/13/09 10:27:21	10080	13.20	2.20	0.58	1.24	4.59
11/13/09 10:27:51	10110	13.19	2.16	0.61	1.77	4.59
11/13/09 10:28:21	10140	13.19	2.17	0.62	1.86	4.59
11/13/09 10:28:51	10170	13.19	2.15	0.64	1.11	4.59
11/13/09 10:29:21	10200	13.18	2.14	0.61	1.20	4.60
11/13/09 10:29:51	10230	13.17	2.18	0.56	1.22	4.61
11/13/09 10:30:21	10260	13.17	2.19	0.54	0.69	4.61
11/13/09 10:30:51	10290	13.17	2.21	0.54	0.39	4.61
11/13/09 10:31:21	10320	13.15	2.16	0.48	1.79	4.61
11/13/09 10:31:51	10350	13.14	2.13	0.53	1.60	4.60
11/13/09 10:32:21	10380	13.18	2.18	0.51	1.97	4.62
11/13/09 10:32:51	10410	13.16	2.19	0.55	1.77	4.62
11/13/09 10:33:21	10440	13.16	2.22	0.51	1.61	4.63
11/13/09 10:33:51	10470	13.17	2.24	0.52	1.87	4.61
RAW AVERAGE		13.20	2.20	0.72	1.09	4.52

Serial Number:	O ₂	NOx	CO	VOC	CO ₂
	(%)	(ppmv d)	(ppmv d)	(ppmv w)	(%)
INST-N2-0001	0.16	0.06	-0.14	0.15	0.33
INST-N2-0001	0.18	0.09	-0.20	0.20	0.34
INST-CO-0015	0.17	0.08	-0.17	0.18	0.34
INST-TH-0009	12.10	4.98	5.22	3.05	9.17
INST-C2-0009	12.09	4.97	5.22	3.02	9.16
	12.10	4.98	5.22	3.04	9.17
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83

EMISSIONS DATA	O ₂	NOx	CO	VOC	CO ₂
Corrected Raw Average (ppm% dry basis)	13.22	2.17	0.81	1.08	4.19
Concentration (ppm@ 15%O ₂)	N/A	1.67	0.63	0.83	N/A
Concentration (ppm@ 15%O ₂ & ISO)	N/A	1.66	0.62	0.83	N/A
Emission Rate (lb/hr)	N/A	15.33	3.50	2.66	283,093.70
Emission Rate (tons/year) at 8760 hr/yr	N/A	67.14	15.34	11.67	1,239,950.40
Emission Rate (lb/MMBtu)	N/A	0.006	0.001	0.001	N/A

TEST RESULTS

**NO_x, CO, VOC, CO₂, and O₂ Emissions
Base Load with Duct Burners**

Florida Power and Light
November 13, 2009
Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data

Fuel Fd factor	6,655	SCF edy/MBtu
Fuel Heating Value (HHV)	996	Btu/SCF fuel
Turbine Fuel Flow	1,702	lb/min
Duct Burner Fuel Flow	139	lb/min
Total Fuel Flow	2,523,803	SCFH

Weather Data

Barometric Pressure	29.80	in. Hg
Relative Humidity	47	%
Ambient Temperature	73	°F
Specific Humidity	0.008138	lb H ₂ O / lb air

Unit Data

Unit Load	253.2	megawatts
Combustor Inlet Pressure	270	psig
Meas. Stack Moisture	9.4	%
Stack Exhaust Flow (M19)	53,410.153	SCFH

Data from: N-3 Run 1

Base W/Db Load, Run - 2-1

Date/Time (mm/dd/yyyy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmvw)	CO ₂ (%)
11/13/09 13:05:21	19560	12.34	2.78	0.61	0.14	5.27
11/13/09 13:05:51	19590	12.36	2.78	0.67	1.50	5.28
11/13/09 13:06:21	19620	12.35	2.77	0.65	5.69	5.26
11/13/09 13:06:51	19650	12.35	2.76	0.64	3.92	5.28
11/13/09 13:07:21	19680	12.35	2.76	0.67	2.10	5.26
11/13/09 13:07:51	19710	12.36	2.78	0.63	1.45	5.27
11/13/09 13:08:21	19740	12.38	2.75	0.63	1.79	5.24
11/13/09 13:08:51	19770	12.37	2.69	0.62	1.38	5.26
11/13/09 13:09:21	19800	12.36	2.65	0.68	1.12	5.25
11/13/09 13:09:51	19830	12.37	2.65	0.68	0.90	5.28
11/13/09 13:10:21	19860	12.35	2.73	0.65	0.75	5.27
11/13/09 13:10:51	19890	12.36	2.78	0.63	0.48	5.29
11/13/09 13:11:21	19920	12.37	2.82	0.63	0.33	5.26
11/13/09 13:11:51	19950	12.39	2.76	0.65	0.85	5.25
11/13/09 13:12:21	19980	12.39	2.65	0.66	0.71	5.25
11/13/09 13:12:51	20010	12.37	2.65	0.63	0.86	5.27
11/13/09 13:13:21	20040	12.37	2.73	0.62	0.36	5.27
11/13/09 13:13:51	20070	12.36	2.79	0.66	0.29	5.28
11/13/09 13:14:21	20100	12.37	2.82	0.64	0.33	5.27
11/13/09 13:14:51	20130	12.38	2.78	0.63	1.12	5.27
11/13/09 13:15:21	20160	12.37	2.75	0.68	4.53	5.27
11/13/09 13:15:51	20190	12.38	2.73	0.63	2.60	5.27
11/13/09 13:16:21	20220	12.39	2.74	0.72	1.61	5.27
11/13/09 13:16:51	20250	12.37	2.72	0.62	1.31	5.27
11/13/09 13:17:21	20280	12.36	2.74	0.64	0.99	5.27
11/13/09 13:17:51	20310	12.36	2.76	0.62	0.47	5.29
11/13/09 13:18:21	20340	12.37	2.85	0.67	0.18	5.28
11/13/09 13:18:51	20370	12.37	2.84	0.65	0.58	5.27
11/13/09 13:19:21	20400	12.38	2.77	0.63	0.71	5.27
11/13/09 13:19:51	20430	12.39	2.71	0.66	0.38	5.26
11/13/09 13:20:21	20460	12.39	2.66	0.62	0.16	5.27
11/13/09 13:20:51	20490	12.38	2.64	0.67	0.19	5.26
11/13/09 13:21:21	20520	12.37	2.71	0.65	0.34	5.28
11/13/09 13:21:51	20550	12.36	2.84	0.68	0.63	5.28
11/13/09 13:22:21	20580	12.37	2.93	0.64	1.59	5.29
11/13/09 13:22:51	20610	12.37	2.91	0.62	0.80	5.27
11/13/09 13:23:21	20640	12.37	2.88	0.65	0.73	5.28
11/13/09 13:23:51	20670	12.37	2.85	0.64	0.54	5.28
11/13/09 13:24:21	20700	12.36	2.85	0.63	0.29	5.29
11/13/09 13:24:51	20730	12.36	2.85	0.62	0.21	5.28
11/13/09 13:25:21	20760	12.37	2.82	0.63	0.17	5.28
11/13/09 13:25:51	20790	12.37	2.80	0.65	0.01	5.28
11/13/09 13:26:21	20820	12.38	2.76	0.62	0.81	5.28
11/13/09 13:26:51	20850	12.36	2.74	0.67	2.84	5.28
11/13/09 13:27:21	20880	12.36	2.76	0.65	1.66	5.29
11/13/09 13:27:51	20910	12.37	2.80	0.63	1.38	5.27
11/13/09 13:28:21	20940	12.37	2.77	0.69	1.20	5.29
11/13/09 13:28:51	20970	12.36	2.75	0.65	0.25	5.28
11/13/09 13:29:21	21000	12.36	2.75	0.65	0.13	5.30
11/13/09 13:29:51	21030	12.37	2.78	0.69	0.05	5.27
11/13/09 13:30:21	21060	12.38	2.74	0.65	0.10	5.28
11/13/09 13:30:51	21090	12.38	2.68	0.63	0.16	5.27
11/13/09 13:31:21	21120	12.39	2.65	0.63	2.88	5.29
11/13/09 13:31:51	21150	12.38	2.62	0.61	6.47	5.28
11/13/09 13:32:21	21180	12.38	2.67	0.64	5.10	5.30
11/13/09 13:32:51	21210	12.37	2.75	0.62	4.92	5.30
11/13/09 13:33:21	21240	12.36	2.78	0.66	6.03	5.31
11/13/09 13:33:51	21270	12.37	2.77	0.68	5.10	5.31
11/13/09 13:34:21	21300	12.38	2.81	0.65	3.51	5.31
11/13/09 13:34:51	21330	12.38	2.76	0.67	3.16	5.31
11/13/09 13:35:21	21360	12.37	2.69	0.67	3.94	5.31
11/13/09 13:35:51	21390	12.36	2.68	0.66	8.66	5.32
11/13/09 13:36:21	21420	12.35	2.73	0.62	5.54	5.32
11/13/09 13:36:51	21450	12.37	2.76	0.66	3.81	5.33
11/13/09 13:37:21	21480	12.36	2.80	0.60	3.41	5.31
11/13/09 13:37:51	21510	12.38	2.80	0.61	3.62	5.32
11/13/09 13:38:21	21540	12.41	2.74	0.65	3.93	5.29
11/13/09 13:38:51	21570	12.39	2.61	0.61	3.32	5.31
11/13/09 13:39:21	21600	12.38	2.60	0.63	2.22	5.30
11/13/09 13:39:51	21630	12.35	2.70	0.61	4.31	5.33
11/13/09 13:40:21	21660	12.35	2.80	0.56	6.76	5.32
11/13/09 13:40:51	21690	12.38	2.90	0.59	4.32	5.32
11/13/09 13:41:21	21720	12.39	2.84	0.64	3.53	5.31
11/13/09 13:41:51	21750	12.38	2.77	0.60	3.12	5.31
11/13/09 13:42:21	21780	12.38	2.68	0.58	3.47	5.30
11/13/09 13:42:51	21810	12.38	2.66	0.63	3.57	5.31
11/13/09 13:43:21	21840	12.38	2.70	0.65	3.39	5.32
11/13/09 13:43:51	21870	12.36	2.75	0.59	2.40	5.32
11/13/09 13:44:21	21900	12.35	2.87	0.64	2.68	5.33
11/13/09 13:44:51	21930	12.36	2.94	0.64	2.45	5.32
11/13/09 13:45:21	21960	12.37	2.96	0.60	2.42	5.33
11/13/09 13:45:51	21990	12.38	2.86	0.63	2.70	5.30
11/13/09 13:46:21	22020	12.38	2.79	0.62	4.12	5.33
11/13/09 13:46:51	22050	12.37	2.76	0.58	10.60	5.31

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Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data		
Fuel Fd factor	0.655	SCF exH/M/MBtu
Fuel Heating Value (HHV)	956	Btu/SCF fuel
Turbine Fuel Flow	1,702	lb/min
Duct Burner Fuel Flow	139	lb/min
Total Fuel Flow	2,523,803	SCFH

Weather Data		
Barometric Pressure	29.80	in. Hg
Relative Humidity	47	%
Ambient Temperature	73	°F
Specific Humidity	0.006138	lb H ₂ O / lb air

Unit Data		
Unit Load	253.2	megawatts
Combustor Inlet Pressure	270	psig
Max. Stack Moisture	9.4	%
Stack Exhaust Flow (M19)	53,410,153	SCFH

Data from: N#3 Run 1

Base W/Db Load, Run - 2-1

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmvw)	CO ₂ (%)
11/13/09 13:47:21	22080	12.39	2.72	0.66	7.45	5.32
11/13/09 13:47:51	22110	12.38	2.67	0.63	4.86	5.31
11/13/09 13:48:21	22140	12.39	2.64	0.63	3.77	5.32
11/13/09 13:48:51	22170	12.38	2.69	0.58	3.22	5.32
11/13/09 13:49:21	22200	12.38	2.74	0.62	3.47	5.33
11/13/09 13:49:51	22230	12.37	2.78	0.58	3.43	5.33
11/13/09 13:50:21	22260	12.38	2.83	0.62	3.31	5.33
11/13/09 13:50:51	22290	12.38	2.83	0.58	2.76	5.34
11/13/09 13:51:21	22320	12.38	2.76	0.62	2.91	5.34
11/13/09 13:51:51	22350	12.38	2.71	0.63	2.55	5.36
11/13/09 13:52:21	22380	12.39	2.69	0.60	2.42	5.36
11/13/09 13:52:51	22410	12.37	2.69	0.65	2.09	5.38
11/13/09 13:53:21	22440	12.38	2.76	0.61	5.21	5.36
11/13/09 13:53:51	22470	12.37	2.81	0.66	7.93	5.38
11/13/09 13:54:21	22500	12.38	2.81	0.65	4.12	5.36
11/13/09 13:54:51	22530	12.38	2.77	0.60	3.14	5.38
11/13/09 13:55:21	22560	12.38	2.71	0.65	2.94	5.35
11/13/09 13:55:51	22590	12.37	2.70	0.63	2.36	5.38
11/13/09 13:56:21	22620	12.38	2.74	0.63	2.02	5.36
11/13/09 13:56:51	22650	12.38	2.77	0.63	2.10	5.38
11/13/09 13:57:21	22680	12.39	2.81	0.61	2.92	5.35
11/13/09 13:57:51	22710	12.39	2.76	0.64	4.10	5.36
11/13/09 13:58:21	22740	12.38	2.70	0.69	3.12	5.35
11/13/09 13:58:51	22770	12.37	2.68	0.62	2.81	5.37
11/13/09 13:59:21	22800	12.39	2.69	0.63	2.74	5.35
11/13/09 13:59:51	22830	12.40	2.67	0.63	3.35	5.36
11/13/09 14:00:21	22860	12.40	2.66	0.59	2.63	5.36
11/13/09 14:00:51	22890	12.37	2.71	0.62	1.87	5.37
11/13/09 14:01:21	22920	12.38	2.73	0.60	1.74	5.36
11/13/09 14:01:51	22950	12.39	2.75	0.64	1.88	5.36
11/13/09 14:02:21	22980	12.38	2.75	0.66	1.64	5.37
11/13/09 14:02:51	23010	12.38	2.75	0.64	1.41	5.37
11/13/09 14:03:21	23040	12.38	2.80	0.61	2.26	5.37
11/13/09 14:03:51	23070	12.39	2.80	0.64	3.31	5.37
11/13/09 14:04:21	23100	12.38	2.77	0.62	3.12	5.39
11/13/09 14:04:51	23130	12.35	2.74	0.64	2.55	5.38

RAW AVERAGE

Serial Number:	O ₂	NOx	CO	VOC	CO ₂
	(%)	(ppmvd)	(ppmvd)	(ppmvw)	(%)
INST-N2-0001	0.18	0.09	-0.20	0.20	0.34
INST-N2-0001	0.24	0.06	-0.20	0.15	0.21
INST-CO-0015	0.21	0.08	-0.20	0.18	0.28
INST-TH-0009	12.09	4.97	5.22	3.02	9.16
INST-C2-0009	12.09	4.98	5.11	2.89	9.16
	12.09	4.98	5.17	2.96	9.16
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83

EMISSIONS DATA					
Corrected Raw Average (ppm% dry basis)	O ₂	NOx	CO	VOC	CO ₂
Concentration (ppm@ 15%O ₂)	12.39	2.73	0.77	2.84	5.00
Concentration (ppm@ 15%O ₂ & ISO)	N/A	1.89	0.53	1.97	N/A
Emission Rate (lb/hr)	N/A	1.88	0.53	1.96	N/A
Emission Rate (tons/year) at 8780 hr/yr	N/A	17.41	2.99	6.31	305,227.08
Emission Rate (lb/MMBtu)	N/A	76.24	13.10	27.64	1,336,894.62
	N/A	0.007	0.001	0.003	N/A

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 West County Energy Center

Fuel Data

Fuel Fd factor	8,655	SCF exh/MMBtu
Fuel Heating Value (HHV)	996	Btu/SCF fuel
Turbine Fuel Flow	1,693	lb/min
Duct Burner Fuel Flow	136	lb/min
Total Fuel Flow	2,510.321	SCFH

Weather Data

Barometric Pressure	29.78	In. Hg
Relative Humidity	45	%
Ambient Temperature	75	°F
Specific Humidity	0.008340	lb H ₂ O / lb air

Unit Data

Unit Load	251.1	megawatts
Combustor Inlet Pressure	299	psig
Meas. Stack Moisture	9.6	%
Stack Exhaust Flow (M19)	53,176.340	SCFH

Data from: NHG Run 2

Base W/Db Load, Run - 2-2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmv)	CO (ppmv)	VOC (ppmv)	CO ₂ (%)
11/13/09 14:36:21	25020	12.39	2.78	0.62	0.54	4.78
11/13/09 14:36:51	25050	12.40	2.78	0.60	0.35	4.77
11/13/09 14:37:21	25080	12.40	2.77	0.63	0.54	4.78
11/13/09 14:37:51	25110	12.39	2.75	0.60	0.64	4.78
11/13/09 14:38:21	25140	12.38	2.79	0.60	0.47	4.78
11/13/09 14:38:51	25170	12.38	2.81	0.62	0.52	4.78
11/13/09 14:39:21	25200	12.38	2.82	0.64	0.77	4.78
11/13/09 14:39:51	25230	12.38	2.82	0.64	0.87	4.78
11/13/09 14:40:21	25260	12.39	2.80	0.65	0.73	4.77
11/13/09 14:40:51	25290	12.37	2.76	0.63	0.63	4.79
11/13/09 14:41:21	25320	12.37	2.78	0.65	0.83	4.77
11/13/09 14:41:51	25350	12.40	2.78	0.60	0.95	4.77
11/13/09 14:42:21	25380	12.40	2.77	0.62	0.83	4.76
11/13/09 14:42:51	25410	12.39	2.75	0.60	0.78	4.78
11/13/09 14:43:21	25440	12.39	2.78	0.62	0.96	4.77
11/13/09 14:43:51	25470	12.39	2.82	0.61	1.03	4.79
11/13/09 14:44:21	25500	12.39	2.85	0.62	0.92	4.77
11/13/09 14:44:51	25530	12.38	2.83	0.63	0.93	4.79
11/13/09 14:45:21	25560	12.37	2.83	0.58	1.10	4.77
11/13/09 14:45:51	25590	12.37	2.86	0.61	1.15	4.79
11/13/09 14:46:21	25620	12.38	2.87	0.63	1.00	4.77
11/13/09 14:46:51	25650	12.41	2.86	0.65	0.93	4.78
11/13/09 14:47:21	25680	12.42	2.80	0.67	1.08	4.77
11/13/09 14:47:51	25710	12.37	2.77	0.61	1.21	4.80
11/13/09 14:48:21	25740	12.36	2.85	0.57	1.15	4.79
11/13/09 14:48:51	25770	12.36	2.90	0.63	1.00	4.80
11/13/09 14:49:21	25800	12.39	2.87	0.60	1.08	4.77
11/13/09 14:49:51	25830	12.39	2.75	0.62	1.24	4.79
11/13/09 14:50:21	25860	12.39	2.65	0.65	1.27	4.79
11/13/09 14:50:51	25890	12.38	2.65	0.58	1.14	4.78
11/13/09 14:51:21	25920	12.37	2.66	0.65	1.08	4.80
11/13/09 14:51:51	25950	12.39	2.74	0.63	1.21	4.79
11/13/09 14:52:21	25980	12.39	2.76	0.58	1.23	4.80
11/13/09 14:52:51	26010	12.38	2.78	0.62	1.12	4.78
11/13/09 14:53:21	26040	12.38	2.77	0.61	1.06	4.79
11/13/09 14:53:51	26070	12.39	2.76	0.61	1.18	4.79
11/13/09 14:54:21	26100	12.39	2.74	0.61	1.21	4.81
11/13/09 14:54:51	26130	12.39	2.75	0.58	1.07	4.79
11/13/09 14:55:21	26160	12.39	2.73	0.57	1.02	4.80
11/13/09 14:55:51	26190	12.39	2.71	0.58	1.15	4.79
11/13/09 14:56:21	26220	12.39	2.71	0.63	1.19	4.81
11/13/09 14:56:51	26250	12.38	2.74	0.61	1.08	4.81
11/13/09 14:57:21	26280	12.37	2.77	0.64	1.07	4.83
11/13/09 14:57:51	26310	12.38	2.87	0.60	1.19	4.80
11/13/09 14:58:21	26340	12.38	2.86	0.63	1.14	4.83
11/13/09 14:58:51	26370	12.38	2.86	0.63	1.07	4.81
11/13/09 14:59:21	26400	12.39	2.80	0.65	1.17	4.82
11/13/09 14:59:51	26430	12.38	2.75	0.62	1.25	4.81
11/13/09 15:00:21	26460	12.37	2.73	0.62	1.18	4.83
11/13/09 15:00:51	26490	12.39	2.73	0.61	1.11	4.82
11/13/09 15:01:21	26520	12.39	2.75	0.63	1.21	4.84
11/13/09 15:01:51	26550	12.36	2.79	0.63	1.27	4.83
11/13/09 15:02:21	26580	12.36	2.84	0.65	1.16	4.85
11/13/09 15:02:51	26610	12.38	2.84	0.61	0.93	4.83
11/13/09 15:03:21	26640	12.39	2.82	0.58	0.89	4.84
11/13/09 15:03:51	26670	12.38	2.75	0.62	1.07	4.82
11/13/09 15:04:21	26700	12.38	2.75	0.59	1.24	4.85
11/13/09 15:04:51	26730	12.37	2.77	0.62	1.28	4.83
11/13/09 15:05:21	26760	12.36	2.78	0.64	1.26	4.85
11/13/09 15:05:51	26790	12.37	2.78	0.63	1.15	4.84
11/13/09 15:06:21	26820	12.38	2.76	0.68	1.21	4.84
11/13/09 15:06:51	26850	12.39	2.75	0.62	1.28	4.83
11/13/09 15:07:21	26880	12.38	2.73	0.62	1.24	4.84
11/13/09 15:07:51	26910	12.38	2.72	0.64	1.12	4.85
11/13/09 15:08:21	26940	12.40	2.74	0.61	1.20	4.83
11/13/09 15:08:51	26970	12.39	2.74	0.62	1.28	4.84
11/13/09 15:09:21	27000	12.38	2.72	0.61	1.28	4.84
11/13/09 15:09:51	27030	12.38	2.75	0.63	1.24	4.85
11/13/09 15:10:21	27060	12.40	2.80	0.62	1.28	4.83
11/13/09 15:10:51	27090	12.38	2.78	0.61	1.29	4.85
11/13/09 15:11:21	27120	12.38	2.78	0.64	1.19	4.84
11/13/09 15:11:51	27150	12.37	2.83	0.60	0.30	4.86
11/13/09 15:12:21	27180	12.38	2.88	0.66	0.66	4.84
11/13/09 15:12:51	27210	12.37	2.86	0.63	0.81	4.86
11/13/09 15:13:21	27240	12.38	2.84	0.61	0.72	4.84
11/13/09 15:13:51	27270	12.37	2.77	0.62	0.77	4.86
11/13/09 15:14:21	27300	12.37	2.77	0.61	0.95	4.86
11/13/09 15:14:51	27330	12.35	2.81	0.62	0.90	4.87
11/13/09 15:15:21	27360	12.36	2.87	0.61	0.47	4.86
11/13/09 15:15:51	27390	12.37	2.88	0.62	1.54	4.86
11/13/09 15:16:21	27420	12.39	2.82	0.59	3.72	4.85
11/13/09 15:16:51	27450	12.38	2.73	0.64	2.31	4.86
11/13/09 15:17:21	27480	12.37	2.71	0.59	2.07	4.87
11/13/09 15:17:51	27510	12.38	2.71	0.56	3.14	4.85

Florida Power and Light
November 13, 2009
Mitsubishi, 601G, Unit #2B
West County Energy Center

Fuel Data		
Fuel Fd factor	8.655	SCF esh/M/8Btu
Fuel Heating Value (HHV)	996	Btu/SCF fuel
Turbine Fuel Flow	1,693	lb/min
Duel Burner Fuel Flow	138	lb/min
Total Fuel Flow	2,510,321	SCFH

Weather Data		
Barometric Pressure	29.78	in. Hg
Relative Humidity	45	%
Ambient Temperature	75	°F
Specific Humidity	0.008340	lb H ₂ O / lb air

Unit Data		
Unit Load	251.1	megawatts
Combustor Inlet Pressure	269	psig
Meas. Stack Moisture	9.6	%
Stack Exhaust Flow (MIB)	53,176,340	SCFH

Data from: NH3 Run 2

Base W/Db Load, Run - 2-2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmvw)	CO ₂ (%)
11/13/09 15:18:21	27540	12.39	2.73	0.63	1.27	4.86
11/13/09 15:18:51	27570	12.39	2.71	0.61	0.33	4.85
11/13/09 15:19:21	27600	12.39	2.70	0.64	0.04	4.87
11/13/09 15:19:51	27630	12.37	2.74	0.63	0.58	4.86
11/13/09 15:20:21	27660	12.36	2.78	0.59	0.89	4.88
11/13/09 15:20:51	27690	12.37	2.84	0.63	0.65	4.87
11/13/09 15:21:21	27720	12.38	2.84	0.62	1.93	4.87
11/13/09 15:21:51	27750	12.39	2.80	0.62	2.25	4.85
11/13/09 15:22:21	27780	12.39	2.68	0.64	1.56	4.86
11/13/09 15:22:51	27810	12.39	2.66	0.57	1.13	4.87
11/13/09 15:23:21	27840	12.38	2.71	0.63	0.11	4.88
11/13/09 15:23:51	27870	12.38	2.78	0.64	0.43	4.87
11/13/09 15:24:21	27900	12.39	2.82	0.61	0.46	4.86
11/13/09 15:24:51	27930	12.39	2.77	0.60	0.62	4.87
11/13/09 15:25:21	27960	12.39	2.74	0.58	0.31	4.87
11/13/09 15:25:51	27990	12.38	2.74	0.58	1.67	4.87
11/13/09 15:26:21	28020	12.38	2.77	0.59	1.14	4.87
11/13/09 15:26:51	28050	12.36	2.79	0.55	0.80	4.88
11/13/09 15:27:21	28080	12.37	2.82	0.65	0.23	4.88
11/13/09 15:27:51	28110	12.37	2.88	0.62	0.10	4.87
11/13/09 15:28:21	28140	12.37	2.85	0.62	0.22	4.88
11/13/09 15:28:51	28170	12.37	2.82	0.62	0.08	4.88
11/13/09 15:29:21	28200	12.38	2.82	0.66	-0.04	4.87
11/13/09 15:29:51	28230	12.36	2.77	0.62	0.13	4.88
11/13/09 15:30:21	28260	12.37	2.84	0.62	1.30	4.88
11/13/09 15:30:51	28290	12.38	2.87	0.64	0.36	4.88
11/13/09 15:31:21	28320	12.38	2.83	0.67	0.07	4.88
11/13/09 15:31:51	28350	12.36	2.79	0.65	0.29	4.89
11/13/09 15:32:21	28380	12.37	2.79	0.66	0.12	4.87
11/13/09 15:32:51	28410	12.38	2.78	0.57	0.31	4.89
11/13/09 15:33:21	28440	12.38	2.74	0.61	0.22	4.88
11/13/09 15:33:51	28470	12.38	2.74	0.61	0.46	4.90
11/13/09 15:34:21	28500	12.39	2.74	0.62	0.51	4.88
11/13/09 15:34:51	28530	12.38	2.73	0.59	0.60	4.90
11/13/09 15:35:21	28560	12.38	2.74	0.61	0.72	4.88
11/13/09 15:35:51	28590	12.38	2.76	0.61	0.62	4.90
RAW AVERAGE		12.38	2.78	0.62	0.96	4.83

	Serial Number: INST-N2-0001 INST-N2-0001 INST-CO-0015 INST-TH-0009 INST-C2-0009				
	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmvw)	CO ₂ (%)
Initial Zero	0.24	0.06	-0.20	0.15	0.21
Final Zero	0.23	0.09	-0.19	0.14	0.14
Avg. Zero	0.24	0.08	-0.20	0.15	0.18
Bias					
Initial UpScale	12.09	4.98	5.11	2.89	9.16
Final UpScale	12.09	4.96	5.05	3.10	9.00
Avg. UpScale	12.09	4.97	5.08	3.00	9.08
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83

EMISSIONS DATA					
Corrected Raw Average (ppm% dry basis)	12.40	2.76	0.76	0.98	4.62
Concentration (ppm@ 15%O ₂)	N/A	1.91	0.53	0.68	N/A
Concentration (ppm@ 15%O ₂ & ISO)	N/A	1.90	0.52	0.67	N/A
Emission Rate (lb/hr)	N/A	17.52	2.95	2.16	280,512.63
Emission Rate (tons/year) at 8760 hr/yr	N/A	76.72	12.91	9.44	1,228,645.30
Emission Rate (lb/MMBtu)	N/A	0.007	0.001	0.001	N/A

Florida Power and Light
November 13, 2009
Mitsubishi, 501G, Unit #2B
West County Energy Center

Fuel Data

Fuel Fd factor	6,655	SCF edvMMBtu
Fuel Heating Value (Hi-V)	956	Btu/SCF fuel
Turbine Fuel Flow	1,691	lb/min
Duct Burner Fuel Flow	137	lb/min
Total Fuel Flow	2,505,523	SCFH

Weather Data

Barometric Pressure	29.77	in. Hg
Relative Humidity	45	%
Ambient Temperature	76	°F
Specific Humidity	0.008630	lb H ₂ O / lb air

Unit Data

Unit Load	250.6	megawatts
Combustor Inlet Pressure	289	psig
Meas. Stack Moisture	9.7	%
Stack Exhaust Flow (M19)	53,060,014	SCFH

Data from: N#3 Run 3

Base W/Db Load, Run - 2-3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmwv)	CO ₂ (%)
11/13/09 15:48:21	29340	12.36	2.73	0.60	0.17	4.90
11/13/09 15:48:51	29370	12.39	2.73	0.61	0.27	4.88
11/13/09 15:49:21	29400	12.38	2.71	0.64	0.13	4.91
11/13/09 15:49:51	29430	12.38	2.71	0.61	0.39	4.90
11/13/09 15:50:21	29460	12.38	2.74	0.63	0.64	4.92
11/13/09 15:50:51	29490	12.38	2.77	0.56	0.64	4.91
11/13/09 15:51:21	29520	12.38	2.77	0.59	0.40	4.92
11/13/09 15:51:51	29550	12.38	2.77	0.61	0.23	4.91
11/13/09 15:52:21	29580	12.37	2.80	0.63	0.48	4.93
11/13/09 15:52:51	29610	12.38	2.80	0.59	0.70	4.91
11/13/09 15:53:21	29640	12.39	2.78	0.59	0.61	4.91
11/13/09 15:53:51	29670	12.38	2.76	0.62	0.39	4.92
11/13/09 15:54:21	29700	12.38	2.81	0.60	0.50	4.92
11/13/09 15:54:51	29730	12.38	2.87	0.58	0.76	4.92
11/13/09 15:55:21	29760	12.40	2.85	0.67	0.88	4.91
11/13/09 15:55:51	29790	12.38	2.77	0.55	0.70	4.92
11/13/09 15:56:21	29820	12.39	2.75	0.64	0.52	4.90
11/13/09 15:56:51	29850	12.38	2.75	0.67	0.71	4.92
11/13/09 15:57:21	29880	12.36	2.76	0.63	0.91	4.91
11/13/09 15:57:51	29910	12.36	2.82	0.59	0.94	4.94
11/13/09 15:58:21	29940	12.36	2.91	0.61	0.77	4.92
11/13/09 15:58:51	29970	12.36	2.93	0.55	0.70	4.92
11/13/09 15:59:21	30000	12.38	2.86	0.56	0.88	4.90
11/13/09 15:59:51	30030	12.39	2.78	0.60	0.99	4.91
11/13/09 16:00:21	30060	12.39	2.70	0.58	0.88	4.90
11/13/09 16:00:51	30090	12.38	2.66	0.63	0.79	4.92
11/13/09 16:01:21	30120	12.38	2.68	0.61	0.94	4.91
11/13/09 16:01:51	30150	12.37	2.74	0.60	1.09	4.92
11/13/09 16:02:21	30180	12.39	2.77	0.62	1.05	4.90
11/13/09 16:02:51	30210	12.40	2.71	0.60	0.90	4.91
11/13/09 16:03:21	30240	12.39	2.64	0.61	0.95	4.91
11/13/09 16:03:51	30270	12.37	2.71	0.58	1.10	4.92
11/13/09 16:04:21	30300	12.38	2.78	0.62	1.12	4.91
11/13/09 16:04:51	30330	12.40	2.77	0.60	1.00	4.91
11/13/09 16:05:21	30360	12.40	2.77	0.62	1.00	4.91
11/13/09 16:05:51	30390	12.38	2.71	0.61	1.15	4.91
11/13/09 16:06:21	30420	12.38	2.71	0.64	1.16	4.91
11/13/09 16:06:51	30450	12.38	2.71	0.59	1.06	4.92
11/13/09 16:07:21	30480	12.37	2.72	0.58	1.11	4.92
11/13/09 16:07:51	30510	12.38	2.74	0.59	1.23	4.92
11/13/09 16:08:21	30540	12.39	2.73	0.58	1.21	4.91
11/13/09 16:08:51	30570	12.39	2.74	0.63	1.09	4.91
11/13/09 16:09:21	30600	12.40	2.75	0.60	1.13	4.92
11/13/09 16:09:51	30630	12.38	2.78	0.62	1.25	4.92
11/13/09 16:10:21	30660	12.38	2.80	0.55	1.27	4.93
11/13/09 16:10:51	30690	12.39	2.82	0.60	1.14	4.91
11/13/09 16:11:21	30720	12.39	2.80	0.61	1.08	4.93
11/13/09 16:11:51	30750	12.38	2.79	0.62	1.20	4.92
11/13/09 16:12:21	30780	12.39	2.79	0.64	1.27	4.93
11/13/09 16:12:51	30810	12.39	2.77	0.63	1.22	4.92
11/13/09 16:13:21	30840	12.39	2.77	0.57	1.13	4.94
11/13/09 16:13:51	30870	12.38	2.77	0.57	1.20	4.92
11/13/09 16:14:21	30900	12.38	2.76	0.55	1.23	4.94
11/13/09 16:14:51	30930	12.38	2.75	0.62	1.13	4.94
11/13/09 16:15:21	30960	12.37	2.78	0.57	1.18	4.95
11/13/09 16:15:51	30990	12.37	2.80	0.60	1.28	4.94
11/13/09 16:16:21	31020	12.38	2.83	0.60	1.27	4.94
11/13/09 16:16:51	31050	12.39	2.80	0.61	0.74	4.93
11/13/09 16:17:21	31080	12.40	2.74	0.61	0.30	4.93
11/13/09 16:17:51	31110	12.39	2.69	0.63	0.57	4.94
11/13/09 16:18:21	31140	12.38	2.68	0.61	0.61	4.94
11/13/09 16:18:51	31170	12.38	2.75	0.67	0.69	4.95
11/13/09 16:19:21	31200	12.39	2.79	0.57	0.72	4.94
11/13/09 16:19:51	31230	12.39	2.78	0.63	0.88	4.96
11/13/09 16:20:21	31260	12.40	2.78	0.60	0.77	4.94
11/13/09 16:20:51	31290	12.39	2.74	0.63	0.62	4.96
11/13/09 16:21:21	31320	12.39	2.77	0.60	0.77	4.96
11/13/09 16:21:51	31350	12.38	2.82	0.61	0.94	4.97
11/13/09 16:22:21	31380	12.39	2.81	0.57	5.94	4.95
11/13/09 16:22:51	31410	12.39	2.76	0.62	10.78	4.97
11/13/09 16:23:21	31440	12.39	2.76	0.59	7.97	4.95
11/13/09 16:23:51	31470	12.39	2.77	0.58	7.91	4.97
11/13/09 16:24:21	31500	12.39	2.77	0.64	5.88	4.95
11/13/09 16:24:51	31530	12.39	2.77	0.63	1.50	4.97
11/13/09 16:25:21	31560	12.38	2.79	0.63	0.78	4.96
11/13/09 16:25:51	31590	12.37	2.84	0.60	0.23	4.98
11/13/09 16:26:21	31620	12.37	2.88	0.57	0.05	4.97
11/13/09 16:26:51	31650	12.37	2.93	0.62	2.86	4.98
11/13/09 16:27:21	31680	12.38	2.91	0.59	5.23	4.96
11/13/09 16:27:51	31710	12.38	2.82	0.59	3.49	4.97
11/13/09 16:28:21	31740	12.38	2.74	0.59	2.47	4.96
11/13/09 16:28:51	31770	12.37	2.69	0.61	0.70	4.97
11/13/09 16:29:21	31800	12.38	2.68	0.58	3.21	4.97
11/13/09 16:29:51	31830	12.39	2.70	0.59	3.79	4.97

Florida Power and Light
 November 13, 2009
 Mitsubishi, 501G, Unit #2B
 West County Energy Center

Fuel Data		
Fuel Fd factor	8.655	SCF est/MMBtu
Fuel Heating Value (HHV)	990	Btu/SCF fuel
Turbine Fuel Flow	1.691	lb/min
Duct Burner Fuel Flow	137	lb/min
Total Fuel Flow	2,505,523	SCFH

Weather Data		
Barometric Pressure	29.77	In. Hg
Relative Humidity	45	%
Ambient Temperature	78	°F
Specific Humidity	0.00830	lb H ₂ O / lb air

Unit Data		
Unit Load	250.6	megawatts
Combustor Inlet Pressure	289	psig
Meas. Stack Moisture	9.7	%
Stack Exhaust Flow (M19)	53,080,014	SCFH

Data from: NHG Run 3

Base W/Db Load, Run - 2-3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O ₂ (%)	NOx (ppmvd)	CO (ppmvd)	VOC (ppmvw)	CO ₂ (%)
11/13/09 16:30:21	31860	12.40	2.69	0.63	2.43	4.96
11/13/09 16:30:51	31890	12.38	2.65	0.65	2.16	4.98
11/13/09 16:31:21	31920	12.38	2.66	0.62	2.03	4.98
11/13/09 16:31:51	31950	12.37	2.71	0.61	1.60	4.99
11/13/09 16:32:21	31980	12.37	2.74	0.60	1.02	4.98
11/13/09 16:32:51	32010	12.38	2.73	0.62	0.39	4.98
11/13/09 16:33:21	32040	12.38	2.70	0.63	1.07	4.99
11/13/09 16:33:51	32070	12.39	2.71	0.64	1.56	4.98
11/13/09 16:34:21	32100	12.38	2.72	0.60	1.55	5.00
11/13/09 16:34:51	32130	12.39	2.75	0.58	1.14	4.98
11/13/09 16:35:21	32160	12.39	2.76	0.57	1.10	4.99
11/13/09 16:35:51	32190	12.40	2.71	0.56	0.78	4.97
11/13/09 16:36:21	32220	12.40	2.67	0.63	0.45	5.00
11/13/09 16:36:51	32250	12.38	2.71	0.63	0.75	4.99
11/13/09 16:37:21	32280	12.37	2.76	0.64	1.55	5.02
11/13/09 16:37:51	32310	12.36	2.87	0.57	1.12	5.00
11/13/09 16:38:21	32340	12.38	2.90	0.58	0.62	5.01
11/13/09 16:38:51	32370	12.39	2.82	0.57	0.27	4.99
11/13/09 16:39:21	32400	12.38	2.77	0.61	0.21	5.01
11/13/09 16:39:51	32430	12.38	2.76	0.63	0.27	5.00
11/13/09 16:40:21	32460	12.38	2.80	0.57	0.10	5.02
11/13/09 16:40:51	32490	12.38	2.81	0.61	0.96	5.01
11/13/09 16:41:21	32520	12.37	2.84	0.60	0.91	5.04
11/13/09 16:41:51	32550	12.37	2.87	0.59	0.37	5.02
11/13/09 16:42:21	32580	12.38	2.86	0.59	0.07	5.03
11/13/09 16:42:51	32610	12.38	2.79	0.65	0.03	5.03
11/13/09 16:43:21	32640	12.40	2.73	0.64	0.01	5.03
11/13/09 16:43:51	32670	12.39	2.65	0.60	0.02	5.03
11/13/09 16:44:21	32700	12.39	2.64	0.60	0.18	5.04
11/13/09 16:44:51	32730	12.37	2.65	0.59	0.29	5.04
11/13/09 16:45:21	32760	12.37	2.73	0.59	0.59	5.05
11/13/09 16:45:51	32790	12.38	2.78	0.65	0.97	5.05
11/13/09 16:46:21	32820	12.39	2.77	0.61	0.50	5.04
11/13/09 16:46:51	32850	12.38	2.73	0.63	0.06	5.06
11/13/09 16:47:21	32880	12.38	2.74	0.60	0.23	5.04
11/13/09 16:47:51	32910	12.37	2.72	0.63	0.32	5.07
RAW AVERAGE		12.38	2.76	0.61	1.25	4.95

	O ₂	NOx	CO	VOC	CO ₂
	(%)	(ppmvd)	(ppmvd)	(ppmvw)	(%)
Serial Number: INST-N2-0001		INST-N2-0001	INST-CO-0015	INST-TH-0009	INST-C2-0009
Initial Zero	0.23	0.09	-0.19	0.14	0.14
Final Zero	0.23	0.08	-0.24	0.12	0.27
Avg. Zero	0.23	0.09	-0.22	0.13	0.21
Initial UpScale	12.09	4.96	5.05	3.10	9.00
Final UpScale	12.09	4.96	5.14	3.11	9.18
Avg. UpScale	12.09	4.96	5.10	3.11	9.09
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83

EMISSIONS DATA					
Corrected Raw Average (ppm% dry basis)	12.40	2.74	0.77	1.27	4.72
Concentration (ppm@ 15%O ₂)	N/A	1.90	0.53	0.88	N/A
Concentration (ppm@ 15%O ₂ & ISO)	N/A	1.89	0.53	0.88	N/A
Emission Rate (lb/hr)	N/A	17.38	2.95	2.81	286,228.89
Emission Rate (tons/year) at 8760 hr/yr	N/A	76.12	12.94	12.29	1,253,682.54
Emission Rate (lb/MMBtu)	N/A	0.007	0.001	0.001	N/A

TEST RESULTS

**NH₃ Emissions
Base Load**



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AMMONIA ANALYSIS

PARAMETER	UNITS	RUN						BLANK
		1		2		3		
		Front (f)	Back (b)	Front (f)	Back (b)	Front (f)	Back (b)	
Sample Number		U2B-R1-FH	U2B-R1-FH	U2B-R2-FH	U2B-R2-FH	U2B-R3-FH	U2B-R3-FH	Blank
Lab Log Number		91113-2B-1	91113-2B-2	91113-2B-3	91113-2B-4	91113-2B-5	91113-2B-6	91113-2B-B
Results (C_f or C_b)	(mg/L)	19.4000	0.2040	14.1000	0.1740	15.3000	0.1420	0.1000
Practical Quantitation Limit (PQL)	(mg/L)	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Sample Volume (V_{NH_3})	(ml)	250	220	240	240	250	220	100
DGM Volume (V_m) _{dscf}	(dscf)	59.32		57.43		55.63		59.32
DGM Volume (V_m) _{dstdL}	(L _{dstd})	1679.77		1626.32		1575.31		1679.77
Sum of NH ₃ Ion (N)	(mg/L)	19.4000	0.2040	14.1000	0.1740	15.3000	0.1420	0.1000
Total Sample Volume (S)	(ml)	250	220	240	240	250	220	100
Volume of NH ₃ (V_a)	(L)	0.00638	0.00006	0.00445	0.00005	0.00503	0.00004	0.00001
O ₂ Concentration	(%)	13.37		13.27		13.22		N/A
NH ₃ Concentration (C_{NH_3})	(ppmvd)	3.83		2.77		3.22		0.008
C_{NH_3} @ 15% O ₂	(ppmvd)	3.00		2.14		2.47		N/A

Equations & Constants:

Example Using Data from the 1st run

DGM Volume (L_{dstd})

$$(V_m)_{dstdL} (L_{dstd}) = (V_m)_{dscf} \times 28.31685$$

$$(V_m)_{dstdL} (L_{dstd}) = 59.32 \text{ dscf} \times 28.31685 \text{ L/ft}^3 = 1679.77 \text{ L}_{dstd}$$

$(V_m)_{dscf}$ = Volume of gas sample measured by the DGM, corrected to standard conditions.

C_f = Concentration of NH₃ ion in the front half of train (main catch)

C_b = Concentration of NH₃ ion in the back half of train (breakthrough)

MW = molecular weight (ref. ASTM D 3588)

Volume of NH₃ (L)

$$V_a (L) = \frac{N \times S}{MW \times 1000} \times 22.4$$

$$V_a (L) = \frac{19.4 \text{ mg}}{L} \times \frac{250 \text{ ml}}{L} \times \frac{L}{1000 \text{ ml}} \times \frac{22.4 \text{ L ideal gas}}{\text{g-mol substance}} \times \frac{\text{g-mol NH}_3}{17.03 \text{ g}} \times \frac{\text{g}}{1000 \text{ mg}} = 0.00638 \text{ L}$$

NH₃ Concentration (ppmvd)

$$C_{NH_3} (\text{ppmvd}) = \frac{V_{a(\text{front})} + V_{a(\text{back})}}{(V_m)_{dstdL}} \times 10^6$$

$$C_{NH_3} (\text{ppmvd}) = \frac{0.00638 \text{ L} + 0.00006 \text{ L}}{1679.77 \text{ L}_{dstd}} \times \frac{10^6 \text{ parts}}{1 \text{ part}} = 3.833 \text{ ppmvd}$$

22.4 = liters of ideal gas per mol of substance at 0°C and 1 atm (ref. Civil Engineering Reference Manual, 7th ed. - Michael R. Lindeburg)

CTM 027 (AMMONIA) - RESULTS

Plant Name	West County Energy Center	Date	11/13/09
Sampling Location	Loxahatchee, Florida	Project #	bv-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	Stack Type	Circular

Historical Data						
Run Number		2B-1	2B-2	2B-3	Average	
Run Start Time		8:02	9:22	10:58		hh:mm
Run Stop Time		9:12	10:35	11:06		hh:mm
Meter Calibration Factor	(Y)	0.992	0.992	0.992		
Pitot Tube Coefficient	(C _p)	0.840	0.840	0.840		
Average Nozzle Diameter	(D _{no})	0.250	0.250	0.250		in
Stack Test Data						
Initial Meter Volume	(V _m) _i	583.540	643.470	705.150		ft ³
Final Meter Volume	(V _m) _f	642.930	701.600	761.705		ft ³
Total Meter Volume	(V _m)	59.390	58.130	56.555	58.025	ft ³
Total Sampling Time	(t)	60.0	60.0	60.0	60.0	min
Average Meter Temperature	(t _m) _{avg}	67.5	72.9	75.3	71.9	oF
Average Stack Temperature	(t _s) _{avg}	195.5	182.5	180.0	186.0	oF
Barometric Pressure	(P _b)	29.87	29.88	29.88	29.88	in Hg
Stack Static Pressure	(P _{static})	0.75	0.75	0.75	0.75	in H ₂ O
Absolute Stack Pressure	(P _s)	29.93	29.94	29.94	29.93	in Hg
Average Orifice Pressure Drop	(ΔH) _{avg}	2.89	2.73	2.61	2.74	in H ₂ O
Absolute Meter Pressure	(P _m)	29.99	30.00	30.00	29.99	in Hg
Avg Square Root Pitot Pressure	(ΔP ^{1/2}) _{avg}	1.05	1.02	0.98	1.02	(in H ₂ O) ^{1/2}
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V _w)	104.8	101.1	101.7	102.5	ml
Impinger 4 Silica Gel Weight Gain	(W _w)	15.1	12.1	11.5	12.9	g
Total Water Volume Collected	(V _{lc})	119.9	113.2	113.2	115.4	ml
Standard Water Vapor Volume	(V _w) _{std}	5.644	5.329	5.329	5.434	scf
Standard Meter Volume	(V _m) _{std}	59.321	57.433	55.632	57.462	dscf
Calculated Stack Moisture	(B _{ws(calc)})	8.69	8.49	8.74	8.64	%
Saturated Stack Moisture	(B _{ws(svp)})	71.2	53.9	50.9	58.7	%
Reported Stack Moisture Content	(B _{ws})	8.69	8.49	8.74	8.64	%
Gas Analysis Data						
Carbon Dioxide Percentage	(%CO ₂)	4.3	4.3	4.2	4.2	%
Oxygen Percentage	(%O ₂)	13.4	13.3	13.2	13.3	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	(%N ₂)	82.4	82.4	82.6	82.5	%
Dry Gas Molecular Weight	(M _d)	29.22	29.22	29.20	29.21	lb/lb-mole
Wet Stack Gas Molecular Weight	(M _w)	28.24	28.26	28.22	28.24	lb/lb-mole
Calculated Fuel Factor	(F _o)	1.768	1.783	1.833	1.794	
Fuel F-Factor	(F _d)	8649	8649	8649	8649	dscf/MMBtu
Percent Excess Air	(%EA)	159.6	156.2	154.0	156.6	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(v _s)	66.22	63.94	61.51	63.89	ft/sec
Stack Cross-Sectional Area	(A _s)	376.17	376.17	376.17	376.17	ft ²
Actual Stack Flow Rate	(Q _{aw})	1,494,603	1,443,056	1,388,246	1,441,968	acfm
Wet Standard Stack Flow Rate	(Q _{sw})	72,250	71,189	68,757	70,732	wkscfh
Dry Standard Stack Flow Rate	(Q _{sd})	1,099,512	1,085,773	1,045,782	1,077,022	dscfm
Percent of Isokinetic Rate	(I)	99.6	97.4	98.2	98.4	%
Ammonia Rate Data						
Stack Ammonia Concentration	(C _{NH3})	3.83	2.77	3.22	3.27	ppm
	(C _{NH3})	3.00	2.14	2.47	2.54	ppm@15%O ₂

CTM 027 (AMMONIA) SOURCE SAMPLING TITLE PAGE

ALARMS exist and have been acknowledged.

Source Information				
Plant Name	West County Energy Center			
Sampling Location	Loxahatchee, Florida			
Fuel or Source Type	Gas, Natural			
Fuel F-Factor	8649	8649	8649	

Test Information			
Starting Test Date		11/13/09	
Project #		bv-10-westcounty.fl-comp#1	
Operator		Pandu Sattvika	
Standard Temperature		68	oF
Standard Pressure		29.92	in Hg
Minimum Required Sample Vol.	indust. spec.	35	scf
Run Duration	chk Subpart	60	minutes
Unit Number		2B	
Load	% or w/DB	Base wo DB	
Base Run Number		2B	
Number of Ports Available		4	
Number of Ports Used		4	
Port Inside Diameter		5.00	in
Circular Stack			

Test Equipment Information					
Run		1	2	3	
Meter Box Number	from ACS	samp-cp-0012	samp-cp-0012	samp-cp-0012	
Meter Calibration Factor	(Y)	0.992	0.992	0.992	
Orifice Meter Coefficient	($\Delta H @$)	1.597	1.597	1.597	in H ₂ O
Pitot Tube Coefficient	(C _p)	0.840	0.840	0.840	
Nozzle Diameter	(D _n)	0.250	0.250	0.250	in
Probe Length		144.00	144.00	144.00	in
(SS, Glass) Liner Material	from list	inconel	inconel	inconel	

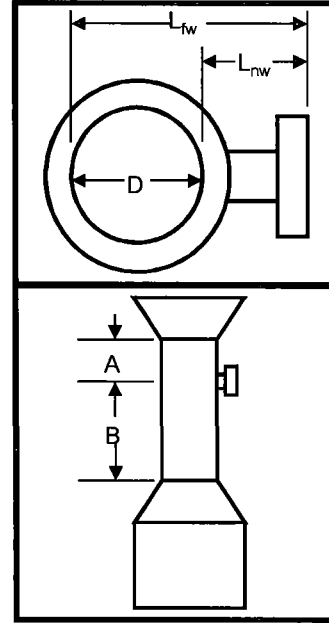
Testing Company Information	
Company Name	Air Hygiene International, Inc. (Tulsa, Oklahoma)
Address	5634 S. 122nd East Ave., Suite F
City, State Country Zip	Tulsa, Oklahoma 74146
Project Manager	Pandu Sattvika
Phone Number	(918) 307-8865
Fax Number	(918) 307-9131

METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	West County Energy Center	Date	11/13/09
Sampling Location	Loxahatchee, Florida	Project #	bv-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	# of Ports Available	4
Stack Type	Circular	# of Ports Used	4
Stack Size	Large	Port Inside Diameter	5.00

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L _{fw})	281.75	in
Distance to Near Wall of Stack	(L _{nw})	19.13	in
Diameter of Stack	(D)	262.62	in
Area of Stack	(A _s)	376.17	ft ²

Distance from Port to Disturbances			
Distance Upstream	(A)	144.00	in
Diameters Upstream	(A _D)	0.55	diameters
Distance Downstream	(B)	531.75	in
Diameters Downstream	(B _D)	2.02	diameters



Number of Traverse Points Required			
Diameters to Flow Disturbance		Minimum Number of ¹ Traverse Points	
Down Stream	Up Stream	Particulate Points	Velocity Points
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12 ²	8 or 12 ²
Upstream Spec		24	16
Downstream Spec		24	16
Traverse Pts Required		24	16

¹ Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

² 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches

Location of Traverse Points in Circular Stacks									
Traverse Point	(Fraction of Stack Dimension from Inside Wall to Traverse Point)								
	Number of Traverse Points Across the Stack								
Number	2	4	6	8	10	12	14	16	18
1	.146	.067	.044	.032	.026	.021	.018	.016	.014
2	.854	.250	.146	.105	.082	.067	.057	.049	.044
3		.750	.296	.194	.146	.118	.099	.085	.075
4		.933	.704	.323	.226	.177	.146	.125	.109
5			.854	.677	.342	.250	.201	.169	.146
6			.956	.806	.658	.356	.269	.220	.188
7				.895	.774	.644	.366	.283	.236
8				.968	.854	.750	.634	.375	.296
9					.918	.823	.731	.625	.382
10					.974	.882	.799	.717	.618
11						.933	.854	.780	.704
12						.979	.901	.831	.764

Number of Traverse Points Used			
4	Ports by	6	Across
24	Pts Used	24	Required
		Particulate Traverse	

Traverse Point Locations			
Traverse Point Number	Fraction of Stack Diameter	Distance from Inside Wall	Distance Including Reference Length
		in	in
1	0.02	5 4/8	24 5/8
2	0.07	17 5/8	36 6/8
3	0.12	31	50 1/8
4	0.18	46 4/8	65 5/8
5	0.25	65 5/8	84 6/8
6	0.36	93 4/8	112 5/8
7			
8			
9			
10			
11			
12			

METHOD 2 - DETERMINATION OF STACK GAS VELOCITY AND VOLUMETRIC FLOW RATE

Plant Name	West County Energy Center			Date	11/13/09
Sampling Location	Loxahatchee, Florida			Project #	bv-10-westcounty.fl-comp#1
Operator	Pandur Sattvika			# of Ports Used	4
Stack Type	Circular			Pitot Identification	
Pitot Leak Check	<input checked="" type="checkbox"/>	PreTest	<input checked="" type="checkbox"/>	PostTest	Pitot Coefficient (C_p) 0.84

Stack Dimensions			
Diameter or Length of Stack	(D)	262.62	in
Width of Stack	(W)		in
Area of Stack	(A _s)	376.17	ft ²

Pressures			
Barometric Pressure	(P _b)	29.59	in Hg
Static Pressure	(P _{static})	0.75	in H ₂ O
Absolute Stack Pressure	(P _s)	29.65	in Hg

Stack Gas Composition			
Composition Data:		Estimated Composition	
Carbon Dioxide Concentration	(%CO ₂)	4.3	%
Oxygen Concentration	(%O ₂)	13.3	%
Carbon Monoxide Concentration	(%CO)	0.0	%
Nitrogen Concentration	(%N ₂)	82.4	%
Stack Moisture Content	(B _{ws})	9.000	%
Stack Dry Molecular Weight	(M _d)	29.22	lb/lb-mole
Stack Wet Molecular Weight	(M _s)	28.21	lb/lb-mole

Results			
Avg Stack Gas Velocity	(v _s)	64.7	ft/sec
Avg Stack Dry Std Flow Rate	(Q _{sd})	63,452,912	dscf/hr
Avg Stack Dry Std Flow Rate	(Q _{sd})	1,057,549	dscf/min
Avg Stack Wet Flow Rate	(Q _{aw})	1,460,314	acf/min
Avg Stack Wet Std Flow Rate	(Q _{sw})	69,728,475	ascf/hr

Stack Cross Section Schematic			

Velocity Traverse Data				
Run Number		2B-V1		
Run Time	7:25	7:52	End	
Traverse Point	Velocity Head (Δp)	Null Angle (N _a)	Stack Temp (t _s)	Local Velocity (v _{s(i)})
	in H ₂ O	deg	oF	ft/sec
A-1	1.10	5	198	66.8
A-2	1.20	5	202	70.0
A-3	1.30	5	204	73.0
A-4	1.20	5	203	70.0
A-5	1.20	5	203	70.0
A-6	1.10	5	202	67.0
B-1	1.20	10	189	69.3
B-2	1.30	10	191	72.2
B-3	1.40	10	190	74.9
B-4	1.30	10	190	72.2
B-5	1.40	10	190	74.9
B-6	1.30	10	193	72.4
C-1	0.73	10	191	54.1
C-2	0.78	10	191	56.0
C-3	0.87	10	192	59.1
C-4	0.90	10	192	60.2
C-5	0.89	10	193	59.9
C-6	0.85	10	197	58.7
D-1	0.70	5	202	53.5
D-2	0.80	5	203	57.2
D-3	0.84	5	206	58.7
D-4	0.87	5	205	59.7
D-5	0.94	5	205	62.1
D-6	0.90	5	205	60.8
Average	1.04	8	197	
	1.02	= Square roots of Δp		

METHOD 3a - DETERMINATION OF DRY MOLECULAR WEIGHT BY ANALYZER

Plant Name	West County Energy Center				Date	11/13/09			
Sampling Location	Loxahatchee, Florida				Project #	bv-10-westcounty.fl-comp#1			
Operator	Pandu Sattvika				# of Ports Used	4			
Fuel Type	Gas, Natural		Minimum Fuel Factor		1.600	Maximum Fuel Factor		1.836	
Orsat Leak Check	<input checked="" type="checkbox"/>	PreTest	<input checked="" type="checkbox"/>	PostTest	Orsat Identification				

Gas Analysis Data										
Run Number		2B-1			Run Start Time		8:02	Run Stop Time		9:12
Sample Analysis Time	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (ppmCO)	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (%CO)	Nitrogen Conc. (%N ₂)	Dry Molecular Weight (M _d)	Molecular Weight Deviation (ΔM _d)	
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole	
1:10	4.3	13.4	1.8	4.3	13.4	0.0	82.4	29.22	0.00	
Results			Averages	4.3	13.4	0.0	82.4	29.22		
Average Calculated Fuel Factor			(F _o) _{avg}	1.768	Molecular Wt Deviation < 0.3?			<input checked="" type="checkbox"/>		
Average Excess Air			(%EA) _{avg}	159.6	percent	Fuel Factor in Handbook Range?			<input checked="" type="checkbox"/>	

Gas Analysis Data										
Run Number		2B-2			Run Start Time		9:22	Run Stop Time		10:35
Sample Analysis Time	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (ppmCO)	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (%CO)	Nitrogen Conc. (%N ₂)	Dry Molecular Weight (M _d)	Molecular Weight Deviation (ΔM _d)	
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole	
1:13	4.3	13.3	0.8	4.3	13.3	0.0	82.4	29.22	0.00	
Results			Averages	4.3	13.3	0.0	82.4	29.22		
Average Calculated Fuel Factor			(F _o) _{avg}	1.783	Molecular Wt Deviation < 0.3?			<input checked="" type="checkbox"/>		
Average Excess Air			(%EA) _{avg}	156.2	percent	Fuel Factor in Handbook Range?			<input checked="" type="checkbox"/>	

Gas Analysis Data										
Run Number		2B-3			Run Start Time		10:58	Run Stop Time		11:06
Sample Analysis Time	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (ppmCO)	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (%CO)	Nitrogen Conc. (%N ₂)	Dry Molecular Weight (M _d)	Molecular Weight Deviation (ΔM _d)	
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole	
0:08	4.2	13.2	0.8	4.2	13.2	0.0	82.6	29.20	0.00	
Results			Averages	4.2	13.2	0.0	82.6	29.20		
Average Calculated Fuel Factor			(F _o) _{avg}	1.833	Molecular Wt Deviation < 0.3?			<input checked="" type="checkbox"/>		
Average Excess Air			(%EA) _{avg}	154.0	percent	Fuel Factor in Handbook Range?			<input checked="" type="checkbox"/>	

Fuel Factor Fo		
Fuel Type	Minimum	Maximum
Coal, Anthracite	1.016	1.130
Coal, Lignite	1.016	1.130
Coal, Bituminous	1.083	1.230
Oil, Distillate	1.260	1.413
Oil, Residual	1.210	1.370
Gas, Natural	1.600	1.836
Gas, Propane	1.434	1.586
Gas, Butane	1.405	1.553
Wood	1.000	1.120
Wood Bark	1.003	1.130

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	West County Energy Center			Date	11/13/09		
Sampling Location	Loxahatchee, Florida			Project #	bv-10-westcounty.fl-comp#1		
Operator	Pandu Sattvika			# of Ports Used	4		
Stack Type	Circular			Meter Box Number	samp-cp-0012		
Train Leak Check	<input checked="" type="checkbox"/>	PreTest	<input checked="" type="checkbox"/>	PostTest	Meter Cal Factor (Y)	0.992	

Moisture Content Data									
Run Number	2B-1		Run Start Time		8:02		Run Stop Time		9:12
Total Meter Volume	(V _m)	59.390	dcf	Barometric Press.		(P _b)	29.87	in Hg	
Avg Stack Temp	(t _s) _{avg}	195	oF	Stack Static Press.		(P _{static})	0.75	in H2O	
Avg Meter Temp	(t _m) _{avg}	68	oF	Avg Orifice Press.		(ΔH) _{avg}	2.89	in H2O	
	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5	Impinger 6	Impinger 7	Impinger 8	
	g	g	g	g	g	g	g	g	
Contents	H2SO4		H2SO4		Sil Gel				
Final Value	(V _f),(W _f)	804.20	703.60	624.10	870.40				
Initial Value	(V _i),(W _i)	725.60	682.80	618.90	855.30				
Net Value	(V _n),(W _n)	78.6	20.8	5.2	15.1				
Results									
Total Weight	(W _t)	119.70	g	Water Vol Weighed		(V _{wsg(std)})	5.644	scf	
Std Meter Volume	(V _{m(std)})	59.290	dscf	Sat. Moisture Content		(B _{ws(svp)})	71.2	%	
Calc Moisture Content	(B _{ws(calc)})	8.7	%	Final Moisture Content		(B _{ws})	8.7	%	

Moisture Content Data									
Run Number	2B-2		Run Start Time		9:22		Run Stop Time		10:35
Total Meter Volume	(V _m)	58.130	dcf	Barometric Press.		(P _b)	29.88	in Hg	
Avg Stack Temp	(t _s) _{avg}	183	oF	Stack Static Press.		(P _{static})	0.75	in H2O	
Avg Meter Temp	(t _m) _{avg}	73	oF	Avg Orifice Press.		(ΔH) _{avg}	2.73	in H2O	
	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5	Impinger 6	Impinger 7	Impinger 8	
	g	g	g	g	g	g	g	g	
Contents	H2SO4		H2SO4		Sil Gel				
Final Value	(V _f),(W _f)	833.40	772.20	613.60	920.50				
Initial Value	(V _i),(W _i)	754.20	753.70	610.40	908.40				
Net Value	(V _n),(W _n)	79.2	18.5	3.2	12.1				
Results									
Total Weight	(W _t)	113.00	g	Water Vol Weighed		(V _{wsg(std)})	5.328	scf	
Std Meter Volume	(V _{m(std)})	57.438	dscf	Sat. Moisture Content		(B _{ws(svp)})	53.9	%	
Calc Moisture Content	(B _{ws})	8.5	%	Final Moisture Content		(B _{ws})	8.5	%	

Moisture Content Data									
Run Number	2B-3		Run Start Time		10:58		Run Stop Time		11:06
Total Meter Volume	(V _m)	56.555	dcf	Barometric Press.		(P _b)	29.88	in Hg	
Avg Stack Temp	(t _s) _{avg}	180	oF	Stack Static Press.		(P _{static})	0.75	in H2O	
Avg Meter Temp	(t _m) _{avg}	75	oF	Avg Orifice Press.		(ΔH) _{avg}	2.61	in H2O	
	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5	Impinger 6	Impinger 7	Impinger 8	
	g	g	g	g	g	g	g	g	
Contents	H2SO4		H2SO4		Sil Gel				
Final Value	(V _f),(W _f)	814.20	709.30	626.80	874.10				
Initial Value	(V _i),(W _i)	732.90	693.20	622.70	862.60				
Net Value	(V _n),(W _n)	81.3	16.1	4.1	11.5				
Results									
Total Weight	(W _t)	113.00	g	Water Vol Weighed		(V _{wsg(std)})	5.328	scf	
Std Meter Volume	(V _{m(std)})	55.621	dscf	Sat. Moisture Content		(B _{ws(svp)})	50.9	%	
Calc Moisture Content	(B _{ws})	8.7	%	Final Moisture Content		(B _{ws})	8.7	%	

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name	West County Energy Center	Date	11/13/2009
Sampling Location	Loxahatchee, Florida	Project #	bw-10-westcounty.fl-comp#1
Operator	Pandu Satvika	Run #	2B-1
# of Points Across	6	# of Ports Used	4

Leak Checks					
Train	Pre	0	ft ³ /min @	15	in Hg
OK? <input checked="" type="checkbox"/>	Post	0	ft ³ /min @	15	in Hg
Pitot	Pre	0	in. H ₂ O for	30	sec
OK? <input checked="" type="checkbox"/>	Post	0	in. H ₂ O for	30	sec
Orsat	OK? <input checked="" type="checkbox"/>				

Sampling Equipment	
Meter #	samp-cp-0012
Meterbox Cal. Factor (Y)	0.992
Nozzle #	
Average Nozzle Diameter (D _n)	0.2500 in
Rec. Nozzle Diameter (D _n)	0.2165 in
Probe # / Length	7 / 144 in
Liner Material	inconel
Sample Case / Oven #	
Impinger Case #	

Ideal Nozzle Diameter and IsoKinetic Factor Setup		
Pitot Tube Coefficient (C _p)	0.84	
Avg Stack Temp (t _s)	195	oF
Avg Gas Meter Temp (t _m)	68	
DH @ 0.75 SCFM (ΔH _{0.75})	1.60	in H ₂ O
Avg Pitot Tube Diff. Pressure (ΔP _{pit})	1.11	in H ₂ O
Stack Moisture Content (B _w)	8.69	%
Stack Dry Molecular Weight (M _d)	29.22	lb/lb-mole
Estimated Orifice Flow Rate (Q _o)	0.750	acfm
DP to DH IsoKinetic Factor (K)	2.60	

Nozzle Measurements			
Pre	0.250	0.250	PASS
Post	0.250	0.250	PASS

Pressures		
Barometric Pressure (P _b)	29.87	in Hg
Stack Static Pressure (P _{static})	0.75	in H ₂ O
Absolute Stack Pressure (P _a)	29.93	in Hg
Absolute Meter Pressure (P _m)	29.99	in Hg

Run Time	
Start	8:02
End	9:12

Weights	Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	725.60	662.80	618.90	855.30				
Post	804.20	703.60	624.10	870.40				

Wash Volume	H ₂ O	50.0	ml	Filter #
	MeCl		ml	

Traverse Point #	Sampling Time (S)	Timer Time	Dry Gas Meter Reading (V _m)	Velocity Head (ΔP)	Desired Orifice ΔH (ΔH _d)	Actual Orifice ΔH (ΔH _a)	Stack Temp (t _s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t _m)	Meter Outlet Temp (t _{mp})	Pump Vacuum	Square Root ΔP (ΔP ^{1/2})	Local Stack Velocity (V _s)	Cumulative Meter Volume (V _m) _{tot}	Cumulative Percent IsoKinetic (%)	Est-Run Meter Volume (V _m) _{est}
A-1	0.0	0:00:00	583.540	1.300	3.374	3.380	206	223	225	52	65	60	7.0	1.14	72.68	2.311	85.9	55.460	
A-2	2.5	0:02:30	585.830	1.350	3.504	3.500	206	225	223	49	66	60	7.0	1.16	74.07	5.003	92.6	60.040	
A-3	5.0	0:05:00	588.500	1.400	3.633	3.640	206	226	225	50	67	61	7.0	1.18	75.43	7.722	94.3	61.774	
A-4	7.5	0:07:30	591.200	1.400	3.633	3.640	205	228	228	51	67	61	7.0	1.18	75.37	10.460	95.3	62.762	
A-5	10.0	0:10:00	593.920	1.300	3.374	3.400	204	230	229	53	67	61	7.0	1.14	72.58	13.167	96.3	63.203	
A-6	12.5	0:12:30	596.610	1.200	3.114	3.100	203	230	227	54	68	62	7.0	1.10	69.68	15.887	97.8	63.548	
B-1	15.0	0:15:00	599.320	1.300	3.374	3.400	198	224	229	59	67	62	7.0	1.14	72.25	18.782	99.2	64.396	
B-2	17.5	0:17:30	602.200	1.200	3.114	3.200	197	228	225	58	69	62	7.0	1.10	69.36	21.410	99.5	64.229	
B-3	20.0	0:20:00	604.820	1.300	3.374	3.400	194	225	224	59	70	63	7.0	1.14	72.03	23.944	98.8	63.849	
B-4	22.5	0:22:30	607.350	1.400	3.633	3.600	193	223	228	60	71	63	7.0	1.18	74.69	26.646	98.5	63.951	
B-5	25.0	0:25:00	610.050	1.400	3.633	3.600	192	225	230	61	72	64	7.0	1.18	74.63	29.444	98.6	64.241	
B-6	27.5	0:27:30	612.850	1.400	3.633	3.600	191	224	227	62	72	64	7.0	1.18	74.57	32.191	98.5	64.383	
C-1	30.0	0:30:00	615.600	0.950	2.466	2.500	190	225	225	63	70	65	5.0	0.97	61.38	34.685	99.1	64.034	
C-2	32.5	0:32:30	618.100	1.000	2.595	2.600	189	226	223	60	71	65	5.0	1.00	62.93	37.077	99.2	63.560	
C-3	35.0	0:35:00	620.500	1.000	2.595	2.600	189	224	225	59	73	65	5.0	1.00	62.93	39.484	99.3	63.175	
C-4	37.5	0:37:30	622.920	0.950	2.466	2.500	188	226	223	60	74	65	5.0	0.97	61.29	41.879	99.5	62.818	
C-5	40.0	0:40:00	625.330	0.850	2.206	2.200	188	227	224	60	74	66	5.0	0.92	57.97	44.230	99.8	62.442	
C-6	42.5	0:42:30	627.700	0.750	1.946	2.000	185	225	223	60	75	66	4.0	0.87	54.33	46.310	99.9	61.747	
D-1	45.0	0:45:00	629.800	0.800	2.076	2.100	193	234	236	61	72	66	4.0	0.89	56.46	48.396	99.8	61.132	
D-2	47.5	0:47:30	631.900	0.900	2.336	2.300	193	243	244	59	74	67	4.0	0.95	59.88	50.429	99.4	60.514	
D-3	50.0	0:50:00	633.950	0.950	2.466	2.500	195	243	242	58	75	67	5.0	0.97	61.62	52.658	99.2	60.180	
D-4	52.5	0:52:30	636.200	0.850	2.206	2.200	195	245	244	58	75	67	5.0	0.92	58.29	55.034	99.6	60.037	
D-5	55.0	0:55:00	638.600	0.850	2.206	2.200	196	246	243	58	75	67	5.0	0.92	58.33	57.212	99.6	59.700	
D-6	57.5	0:57:30	640.800	0.800	2.076	2.100	195	243	244	58	75	67	5.0	0.89	56.55	59.321	99.6	59.321	
Last Pt	60.0	1:00:00	642.930																
Final Val	60.0	1:00:00	642.930																
Average Values				1.11		2.89	195	230	230	58		71	64	Max Vac	7.0	Final Values	59.321	99.6	

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name	West County Energy Center	Date	11/13/2009
Sampling Location	Loxahatchee, Florida	Project #	bv-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	Run #	2B-2
# of Points Across	6	# of Ports Used	4

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Tube Coefficient	(C _p)	0.84	
Avg Stack Temp	(t _s)	183	oF
Avg Gas Meter Temp	(t _g)	73	
DH @ 0.75 SCFM	(ΔH@)	1.60	in H2O
Avg Pitot Tube Diff. Pressure	(ΔP _{pit})	1.06	in H2O
Stack Moisture Content	(B _{wt})	8.49	%
Stack Dry Molecular Weight	(M _d)	29.22	lb/lb-mole
Estimated Orifice Flow Rate	(Q _m)	0.990	acfm
DP to DH Isokinetic Factor	(K)	2.68	

Leak Checks				
Train	Pre	0	ft ³ /min @	15
OK? <input checked="" type="checkbox"/>	Post	0	ft ³ /min @	15
Pitot	Pre	7	in. H ₂ O for	30
OK? <input checked="" type="checkbox"/>	Post	7	in. H ₂ O for	30
Orsat	OK? <input checked="" type="checkbox"/>			

Sampling Equipment		
Meter #	samp-cp-0012	
Meterbox Cal. Factor	(Y)	0.992
Nozzle #		
Average Nozzle Diameter	(D _m)	0.2500 in
Rec. Nozzle Diameter	(D _n)	0.2490 in
Probe # / Length	/ 144 in	
Liner Material	iniconel	
Sample Case / Oven #		
Impinger Case #		

Nozzle Measurements				
Pre	0.250	0.250	0.250	PASS
Post	0.250	0.250	0.250	PASS

Pressures			
Barometric Pressure	(P _b)	29.88	in Hg
Stack Static Pressure	(P _{st})	0.75	in H2O
Absolute Stack Pressure	(P _s)	29.94	in Hg
Absolute Meter Pressure	(P _m)	30.00	in Hg

Run Time		
Start	9:22	End 10:35

Weights	Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	754.20	753.70	610.40	908.40				
Post	833.40	772.20	613.60	920.50				

Wash Volume	H ₂ O	50.0	ml	Filter #	
	MeCl				

Traverse Point #	Sampling Time (θ)	Timer Time	Dry Gas Meter Reading (V _m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH _d)	Actual Orifice ΔH (ΔH _a)	Stack Temp (t _s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t _m)	Meter Outlet Temp (t _{mp})	Pump Vacuum	Square Root ΔP (ΔP ^{1/2})	Local Stack Velocity (V _s)	Cumulative Meter Volume (V _m) _{tot}	Cumulative Percent IsoKinetic (%)	Est-Run Meter Volume (V _m) _{av}
	min	hh:mm:ss	ft ³	in H2O	in H2O	in H2O	oF	oF	oF	oF	oF	oF	oF	in Hg	(in H2O) ^{1/2}	ft/sec	scf	%	scf
A-1	0.0	0:00:00	643.470	0.850	2.277	2.200	195	245	243	62		71	68	3.0	0.92	58.25	2.265	103.1	54.349
A-2	2.5	0:02:30	645.750	0.900	2.411	2.300	193	244	243	58		74	68	3.0	0.95	59.85	4.543	101.8	54.516
A-3	5.0	0:05:00	648.050	0.950	2.545	2.450	193	246	243	55		75	68	3.0	0.97	61.49	6.771	99.8	54.166
A-4	7.5	0:07:30	650.300	0.900	2.411	2.300	193	244	241	54		76	68	2.0	0.95	59.85	8.976	99.2	53.854
A-5	10.0	0:10:00	652.530	0.800	2.143	2.100	192	244	242	55		76	68	2.0	0.89	56.38	11.219	100.4	53.852
A-6	12.5	0:12:30	654.800	0.750	2.009	1.930	190	244	241	57		76	63	2.0	0.87	54.51	13.452	101.6	53.810
B-1	15.0	0:15:00	657.050	0.800	2.143	2.100	182	224	224	61		74	68	2.0	0.89	55.95	15.532	100.9	53.252
B-2	17.5	0:17:30	659.150	0.800	2.143	2.100	181	224	223	61		76	69	2.0	0.89	55.91	17.615	100.4	52.845
B-3	20.0	0:20:00	661.260	0.950	2.545	2.500	178	227	225	61		77	69	2.0	0.97	60.78	19.847	99.8	52.925
B-4	22.5	0:22:30	663.520	0.950	2.545	2.500	178	227	223	61		77	69	2.0	0.97	60.78	22.098	99.4	53.035
B-5	25.0	0:25:00	665.800	0.900	2.411	2.300	175	223	225	62		77	69	2.0	0.95	59.02	24.368	99.3	53.167
B-6	27.5	0:27:30	668.100	0.700	1.875	1.800	175	223	225	62		77	69	2.0	0.84	52.05	26.448	99.6	52.896
C-1	30.0	0:30:00	670.210	1.000	2.679	2.600	180	223	241	68		74	69	2.0	1.00	62.46	28.716	99.2	53.014
C-2	32.5	0:32:30	672.500	1.200	3.214	3.100	178	231	239	66		77	70	3.0	1.10	68.31	31.186	98.7	53.461
C-3	35.0	0:35:00	675.000	1.300	3.482	3.300	177	235	244	65		78	70	3.0	1.14	71.04	33.753	98.3	54.005
C-4	37.5	0:37:30	677.600	1.400	3.750	3.600	175	230	238	66		79	70	3.0	1.18	73.61	36.518	98.2	54.777
C-5	40.0	0:40:00	680.400	1.300	3.482	3.350	174	235	240	67		79	70	3.0	1.14	70.88	39.182	98.0	55.316
C-6	42.5	0:42:30	683.100	1.400	3.750	3.600	174	232	241	68		78	70	3.0	1.18	73.55	41.820	97.7	55.761
D-1	45.0	0:45:00	685.770	1.300	3.482	3.400	183	233	242	67		76	70	3.0	1.14	71.38	44.423	97.5	56.113
D-2	47.5	0:47:30	688.400	1.200	3.214	3.100	184	234	232	60		78	70	3.0	1.10	68.63	46.989	97.5	56.387
D-3	50.0	0:50:00	691.000	1.200	3.214	3.100	184	227	226	58		79	71	3.0	1.10	68.63	49.501	97.4	56.573
D-4	52.5	0:52:30	693.550	1.300	3.482	3.350	183	234	233	57		79	71	3.0	1.14	71.38	52.212	97.5	56.959
D-5	55.0	0:55:00	696.300	1.300	3.482	3.350	182	235	224	57		80	71	3.0	1.14	71.32	54.871	97.4	57.257
D-6	57.5	0:57:30	699.000	1.200	3.214	3.100	181	234	223	57		79	71	3.0	1.10	68.47	57.433	97.4	57.433
Last Pt	60.0	1:00:00	701.600																
Final Val	60.0	1:00:00	701.600											Max Vac	3.0	Final Values	57.433	97.4	
Average Values				1.06		2.73	183	233	234	61		77	69		1.02	63.94			

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name West County Energy Center		Date 11/13/2009	
Sampling Location Loxahatchee, Florida		Project # bv-10-westcounty.fl-comp#1	
Operator Pandu Satvika		Run # 2B-3	
# of Points Across 6		# of Ports Used 4	

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Tube Coefficient (C _p)	0.84		
Avg Stack Temp (t _s)	180	oF	
Avg Gas Meter Temp (t _m)	75		
DH @ 0.75 SCFM (ΔH ₉₀)	1.60	in H2O	
Avg Pitot Tube Diff. Pressure (ΔP ₉₀)	0.97	in H2O	
Stack Moisture Content (B _w)	8.74	%	
Stack Dry Molecular Weight (M _d)	29.22	lb/lb-mole	
Estimated Orifice Flow Rate (Q _e)	0.969	acfm	
DP to DH IsoKinetic Factor (K)	2.69		

Leak Checks			
Train	Pre	0	ft ³ /min @ 15 in Hg
OK? <input checked="" type="checkbox"/>	Post	0	ft ³ /min @ 15 in Hg
Pitot	Pre	8	in. H ₂ O for 15 sec
OK? <input checked="" type="checkbox"/>	Post	8	in. H ₂ O for 15 sec
Orsat	OK? <input checked="" type="checkbox"/>		

Sampling Equipment			
Meter #	samp-cp-0012		
Meterbox Cal. Factor (Y)	0.992		
Nozzle #			
Average Nozzle Diameter (D _a)	0.2500	in	
Rec. Nozzle Diameter (D _r)	0.2514	in	
Probe # / Length	1 / 144	in	
Liner Material	inconel		
Sample Case / Oven #			
Impinger Case #			

Nozzle Measurements			
Pre	0.250	0.250	PASS
Post	0.250	0.250	PASS

Run Time	
Start	10:58
End	11:06

Weights	Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	732.90	693.20	622.70	862.60				
Post	814.20	709.30	626.80	874.10				

Wash Volume	H ₂ O	50.0	ml	Filter #
	MeCl		ml	

Traverse Point #	Sampling Time (e)	Timer Time	Dry Gas Meter Reading (V _m)	Velocity Head (Δp)	Desired	Actual	Stack Temp (t _s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t _m)	Meter Outlet Temp (t _{mp})	Pump Vacuum	Square Root ΔP (Δp ^{1/2})	Local Stack Velocity (v _s)	Cumulative Meter Volume (V _m) _Σ	Cumulative Percent IsoKinetic (%)	Est-Run Meter Volume (V _m) _Σ
					in H2O	in H2O													
A-1	0.0	0:00:00	705.150	1.100	2.958	2.900	186	223	224	64		75	71	5.0	1.05	65.84	2.471	98.4	59.303
A-2	2.5	0:02:30	707.650	1.200	3.227	3.200	186	233	223	57		78	70	5.0	1.10	68.77	4.988	97.2	59.862
A-3	5.0	0:05:00	710.200	1.300	3.496	3.400	185	232	227	56		79	71	6.0	1.14	71.53	7.601	96.7	60.809
A-4	7.5	0:07:30	712.850	1.300	3.496	3.400	184	233	223	58		79	71	6.0	1.14	71.47	10.214	96.4	61.282
A-5	10.0	0:10:00	715.500	1.300	3.496	3.400	184	234	224	59		78	71	7.0	1.14	71.47	12.878	96.6	61.815
A-6	12.5	0:12:30	718.200	1.200	3.227	3.200	182	232	224	60		78	71	7.0	1.10	68.56	15.482	97.0	61.928
B-1	15.0	0:15:00	720.840	0.950	2.554	2.500	181	234	234	62		76	71	5.0	0.97	60.95	17.761	97.0	60.894
B-2	17.5	0:17:30	723.150	1.100	2.958	2.900	179	237	243	61		78	72	5.0	1.05	65.49	20.223	97.1	60.668
B-3	20.0	0:20:00	725.650	1.100	2.958	2.900	179	238	242	61		79	72	5.0	1.05	65.49	23.125	99.3	61.666
B-4	22.5	0:22:30	728.600	1.100	2.958	2.900	178	233	240	61		79	72	6.0	1.05	65.44	25.240	98.0	60.575
B-5	25.0	0:25:00	730.750	1.200	3.227	3.200	157	232	225	62		80	72	6.0	1.10	67.21	27.748	97.6	60.541
B-6	27.5	0:27:30	733.300	1.300	3.496	3.400	178	233	226	62		80	72	6.0	1.14	71.14	30.306	97.2	60.613
C-1	30.0	0:30:00	735.900	0.750	2.017	2.000	181	227	225	64		77	72	4.0	0.87	54.16	32.421	97.5	59.854
C-2	32.5	0:32:30	738.050	0.800	2.151	2.100	181	234	223	62		78	72	4.0	0.89	55.93	34.632	97.9	59.369
C-3	35.0	0:35:00	740.300	0.850	2.286	2.200	177	237	223	61		79	72	4.0	0.92	57.48	36.744	97.7	58.790
C-4	37.5	0:37:30	742.450	0.850	2.286	2.300	176	235	226	62		80	72	4.0	0.92	57.43	39.001	97.9	58.501
C-5	40.0	0:40:00	744.750	0.750	2.017	2.000	176	239	227	62		80	72	4.0	0.87	53.95	41.207	98.3	58.175
C-6	42.5	0:42:30	747.000	0.700	1.882	1.900	175	228	226	62		80	72	3.0	0.84	52.08	43.266	98.5	57.688
D-1	45.0	0:45:00	749.100	0.700	1.882	1.900	184	238	236	63		77	72	3.0	0.84	52.44	45.233	98.5	57.136
D-2	47.5	0:47:30	751.100	0.800	2.151	2.100	183	242	234	61		79	72	3.0	0.89	56.02	47.295	98.4	56.753
D-3	50.0	0:50:00	753.200	0.850	2.286	2.300	180	243	241	60		81	72	3.0	0.92	57.61	49.358	98.1	56.410
D-4	52.5	0:52:30	755.305	0.840	2.259	2.300	180	246	243	61		80	73	3.0	0.92	57.27	51.513	98.1	56.196
D-5	55.0	0:55:00	757.502	0.800	2.151	2.300	183	248	240	61		80	73	4.0	0.89	56.02	53.575	98.0	55.904
D-6	57.5	0:57:30	759.605	0.700	1.882	1.900	184	245	237	62		80	73	4.0	0.84	52.44	55.632	98.2	55.632
Last Pt	60.0	1:00:00	761.705	0.700	1.882										0.84				
Final Val	60.0	1:00:00	761.705											Max Vac	7.0	Final Values	55.632	98.2	
Average Values				0.970		2.608	180	236	231	61		79	72			0.98	61.51		

CTM 027 (AMMONIA) - SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant Name	West County Energy Center	Date	11/13/09
Sampling Location	Loxahatchee, Florida	Project #	bv-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	Acetone Lot Number	N/A

Run History Data				
Run Number	2B-1	2B-2	2B-3	
Run Start Time	8:02	9:22	10:58	(hh:mm)
Run Stop Time	9:12	10:35	11:06	(hh:mm)
Train Prepared By	AS	AS	AS	
Train Recovered By	AS	AS	AS	
Recovery Date	11/13/2009	11/13/2009	11/13/2009	(mm/dd/yy)



Moisture Content Data					
Impingers 1, 2, and 3 - Liquid Volume					
Final Volume	(V _f)	2135.7	2223.2	2154.2	ml
Initial Volume	(V _i)	2031.0	2122.1	2052.5	ml
Net Volume	(V _n)	104.8	101.1	101.7	ml
Comments					
Impinger 4 - Silica Gel Weight					
Final Weight	(W _f)	870.4	920.5	874.1	g
Initial Weight	(W _i)	855.3	908.4	862.6	g
Net Weight	(W _n)	15.1	12.1	11.5	g
Comments					
Total Water Collected					
Total Volume	(V _c)	119.9	113.2	113.2	ml

Ammonia Sample Log-In Sheet

Lab Tech: Albert Septiano
 Project: bv-10-westcounty.fl-comp#1
 Collected by: Albert Septiano
 Date Received: 11/13/2009



BLANKS

				Filter			
AHI Lab #	Sample ID	Sample Source Description	Run #	Contents	Sample Date	Comments	Volume (ml)
91113-2B-B	Blank			H ₂ SO ₄ , H ₂ O	11/13/2009		100

SAMPLES

AHI Lab #	Sample ID	Sample Source Description	Run #	Contents	Sample Date	Comments	Volume (ml)
91113-2B-1	U2B-R1-FH	Unit 2B Run 1 Impinger 1 NDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-2	U2B-R1-FH	Unit 2B Run 1 Impinger 2 NDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		220
91113-2B-3	U2B-R2-FH	Unit 2B Run 2 Impinger 1 NDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		240
91113-2B-4	U2B-R2-FH	Unit 2B Run 2 Impinger 2 NDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		240
91113-2B-5	U2B-R3-FH	Unit 2B Run 3 Impinger 1 NDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-6	U2B-R3-FH	Unit 2B Run 3 Impinger 2 NDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		220
91113-2B-7	U2B-R1-FH	Unit 2B Run 1 Impinger 1 wDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-8	U2B-R1-FH	Unit 2B Run 1 Impinger 2 wDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		200
91113-2B-9	U2B-R2-FH	Unit 2B Run 2 Impinger 1 wDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		230
91113-2B-10	U2B-R2-FH	Unit 2B Run 2 Impinger 2 wDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-11	U2B-R3-FH	Unit 2B Run 3 Impinger 1 wDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-12	U2B-R3-FH	Unit 2B Run 3 Impinger 2 wDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		240

bv-10-westcounty.fl-comp#1-NH3 Analysis U2B

Ammonia Sample Measurement

Lab Tech:	Albert Septiano
Project:	bv-10-westcounty.fl-comp#1
Date Analyzed:	11/13/2009
Time Analyzed:	1:00 PM
Analysis Method	350.3



Calibration Data		
Concentration (ppm)	Pre-Cal (ppm)	Pre-Cal (mV)
0.0	0.0	112.2
1.0	1.0	7.1
5.0	5.0	-34.0
10.0	10.0	-49.5
20.0	20.0	-66.5
Slope		
Linearity	1.0000	N/A

Sample ID	Sample Amt Used (ml)	ISA/pH Volume (ml)	Meter Reading (mg/L)	Time Analyzed (hh:mm:ss)	Dilution Factor	Sample Volume	MQL (mg/L)	PQL (mg/L)	Final Conc. (mg/L)
91113-2B-B	100.0	1.0	0.0	13:05:00	1.0	100.0	0.10	0.1	BPQL
91113-2B-1	100.0	1.0	19.4	13:12:00	1.0	250.0	0.10	0.1	19.4
91113-2B-2	100.0	1.0	0.2	13:17:00	1.0	220.0	0.10	0.1	0.2
91113-2B-3	100.0	1.0	14.1	13:29:00	1.0	240.0	0.10	0.1	14.1
91113-2B-4	100.0	1.0	0.2	13:34:00	1.0	240.0	0.10	0.1	0.2
91113-2B-5	100.0	1.0	15.3	13:42:00	1.0	250.0	0.10	0.1	15.3
91113-2B-6	100.0	1.0	0.1	13:47:00	1.0	220.0	0.10	0.1	0.1
91113-2B-7	100.0	1.0	18.6	17:07:00	1.0	250.0	0.10	0.1	18.6
91113-2B-8	100.0	1.0	0.2	17:12:00	1.0	200.0	0.10	0.1	0.2
91113-2B-9	100.0	1.0	19.5	17:17:00	1.0	230.0	0.10	0.1	19.5
91113-2B-10	100.0	1.0	0.2	17:22:00	1.0	250.0	0.10	0.1	0.2
91113-2B-11	100.0	1.0	13.7	17:27:00	1.0	250.0	0.10	0.1	13.7
91113-2B-12	100.0	1.0	0.2	17:32:00	1.0	240.0	0.10	0.1	0.2

bv-10-westcounty.fl-comp#1-NH3 Analysis U2B



Ammonia Analysis

Project Name: bv-10-westcounty.fl-comp#1
Date Received: 11/13/2009

AHI Lab No.: 91113-2B-B
Sample ID: Blank
Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	BPQL	0.10	11/13/09 13:05
Volume	Volume in ml	N/A	100	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-1
Sample ID: U2B-R1-FH
Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	19.4	0.10	11/13/09 13:12
Volume	Volume in ml	N/A	250	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-2
Sample ID: U2B-R1-FH
Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.204	0.10	11/13/09 13:17
Volume	Volume in ml	N/A	220	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-3
Sample ID: U2B-R2-FH
Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	14.1	0.10	11/13/09 13:29
Volume	Volume in ml	N/A	240	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-4
Sample ID: U2B-R2-FH
Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.174	0.10	11/13/09 13:34
Volume	Volume in ml	N/A	240	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-5
Sample ID: U2B-R3-FH
Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	15.3	0.10	11/13/09 13:42
Volume	Volume in ml	N/A	250	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-6
Sample ID: U2B-R3-FH
Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.142	0.10	11/13/09 13:47
Volume	Volume in ml	N/A	220	N/A	11/13/09 13:00

TEST RESULTS

**NH₃ Emissions
Base Load with Duct Burners**



Air Hygiene International, Inc.
 5634 S. 122nd East Ave, Suite F
 Tulsa, Oklahoma 74146
 (888) 461-8778
 www.airhygiene.com

AMMONIA ANALYSIS

PARAMETER	UNITS	RUN						BLANK
		1		2		3		
		Front (f)	Back (b)	Front (f)	Back (b)	Front (f)	Back (b)	
Sample Number		U2B-R1-FH	U2B-R1-FH	U2B-R2-FH	U2B-R2-FH	U2B-R3-FH	U2B-R3-FH	Blank
Lab Log Number		91113-2B-7	91113-2B-8	91113-2B-9	91113-2B-10	91113-2B-11	91113-2B-12	91113-2B-B
Results (C_f or C_b)	(mg/L)	18.6000	0.2300	19.5000	0.1600	13.7000	0.1900	0.1000
Practical Quantitation Limit (PQL)	(mg/L)	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Sample Volume (V_{NH_3})	(ml)	250	200	230	250	250	240	100
DGM Volume (V_m) _{dscf}	(dscf)	55.23		53.99		53.49		55.23
DGM Volume (V_m) _{dstdL}	(L _{dstd})	1563.82		1528.82		1514.81		1563.82
Sum of NH ₃ Ion (N)	(mg/L)	18.6000	0.2300	19.5000	0.1600	13.7000	0.1900	0.1000
Total Sample Volume (S)	(ml)	250	200	230	250	250	240	100
Volume of NH ₃ (V_a)	(L)	0.00612	0.00006	0.00590	0.00005	0.00450	0.00006	0.00001
O ₂ Concentration	(%)	12.39		12.40		12.40		N/A
NH ₃ Concentration (C_{NH_3})	(ppmvd)	3.95		3.89		3.01		0.008
C_{NH_3} @ 15% O ₂	(ppmvd)	2.74		2.70		2.09		N/A

Equations & Constants:

Example Using Data from the 1st run

DGM Volume (L_{dstd})

$$(V_m)_{dstdL} (L_{dstd}) = (V_m)_{dscf} \times 28.31685$$

$$(V_m)_{dstdL} (L_{dstd}) = 55.23 \text{ dscf} \times 28.31685 \text{ L/ft}^3 = 1563.82 \text{ L}_{dstd}$$

$(V_m)_{dscf}$ = Volume of gas sample measured by the DGM, corrected to standard conditions.

C_f = Concentration of NH₃ ion in the front half of train (main catch)

C_b = Concentration of NH₃ ion in the back half of train (breakthrough)

MW = molecular weight (ref. ASTM D 3588)

Volume of NH₃ (L)

$$V_a(L) = \frac{N \times S}{MW \times 1000} \times 22.4$$

$$V_a(L) = \frac{1000}{MW \times 1000}$$

$$V_a(L) = \frac{18.6 \text{ mg}}{L} \times \frac{250 \text{ ml}}{1000 \text{ ml}} \times \frac{L}{1000 \text{ ml}} \times \frac{22.4 \text{ L ideal gas}}{\text{g-mol substance}} \times \frac{\text{g-mol NH}_3}{17.03 \text{ g}} \times \frac{\text{g}}{1000 \text{ mg}} = 0.00612 \text{ L}$$

NH₃ Concentration (ppmvd)

$$C_{NH_3}(\text{ppmvd}) = \frac{V_{a(\text{front})} + V_{a(\text{back})}}{(V_m)_{dstdL}} \times 10^6$$

$$C_{NH_3}(\text{ppmvd}) = \frac{0.00612 \text{ L} + 0.00006 \text{ L}}{1563.82 \text{ L}_{dstd}} \times \frac{10^6 \text{ parts}}{1 \text{ part}} = 3.950 \text{ ppmvd}$$

22.4 = liters of ideal gas per mol of substance at 0°C and 1 atm (ref. Civil Engineering Reference Manual, 7th ed. - Michael R. Lindeburg)

CTM 027 (AMMONIA) - RESULTS

Plant Name	West County Energy Center	Date	11/13/09
Sampling Location	Loxahatchee, Florida	Project #	bv-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	Stack Type	Circular

Historical Data						
Run Number		2B-1	2B-2	2B-3	Average	
Run Start Time		13:13	14:29	14:43		hh:mm
Run Stop Time		14:24	15:39	15:50		hh:mm
Meter Calibration Factor	(Y)	0.992	0.992	0.992		
Pitot Tube Coefficient	(C _p)	0.840	0.840	0.840		
Average Nozzle Diameter	(D _{no})	0.250	0.250	0.250		in
Stack Test Data						
Initial Meter Volume	(V _m) _i	762.200	819.100	874.703		ft3
Final Meter Volume	(V _m) _f	818.703	874.410	929.560		ft3
Total Meter Volume	(V _m)	56.503	55.310	54.857	55.557	ft3
Total Sampling Time	(t)	60.0	60.0	60.0	60.0	min
Average Meter Temperature	(t _m) _{avg}	77.0	77.5	77.8	77.4	oF
Average Stack Temperature	(t _s) _{avg}	168.1	168.1	169.9	168.7	oF
Barometric Pressure	(P _b)	29.80	29.78	29.77	29.78	in Hg
Stack Static Pressure	(P _{static})	0.75	0.75	0.75	0.75	in H2O
Absolute Stack Pressure	(P _s)	29.86	29.84	29.83	29.84	in Hg
Average Orifice Pressure Drop	(ΔH) _{avg}	2.55	2.50	2.49	2.51	in H2O
Absolute Meter Pressure	(P _m)	29.92	29.90	29.89	29.90	in Hg
Avg Square Root Pitot Pressure	(ΔP ^{1/2}) _{avn}	0.99	0.94	0.95	0.96	(in H2O) ^{1/2}
Moisture Content Data						
Impingers 1-3 Water Volume Gain	(V _w)	111.4	108.0	108.2	109.2	ml
Impinger 4 Silica Gel Weight Gain	(W _w)	11.0	13.9	14.5	13.1	g
Total Water Volume Collected	(V _w) _{std}	122.4	121.9	122.7	122.4	ml
Standard Water Vapor Volume	(V _w) _{std}	5.762	5.739	5.776	5.759	scf
Standard Meter Volume	(V _m) _{std}	55.226	53.990	53.495	54.237	dscf
Calculated Stack Moisture	(B _{ws(calc)})	9.45	9.61	9.75	9.60	%
Saturated Stack Moisture	(B _{ws(svp)})	39.0	39.0	40.7	39.6	%
Reported Stack Moisture Content	(B _{ws})	9.45	9.61	9.75	9.60	%
Gas Analysis Data						
Carbon Dioxide Percentage	(%CO ₂)	5.0	4.6	4.7	4.8	%
Oxygen Percentage	(%O ₂)	12.4	12.4	12.4	12.4	%
Carbon Monoxide Percentage	(%CO)	0.0	0.0	0.0	0.0	%
Nitrogen Percentage	(%N ₂)	82.6	83.0	82.9	82.8	%
Dry Gas Molecular Weight	(M _d)	29.30	29.24	29.25	29.26	lb/lb-mole
Wet Stack Gas Molecular Weight	(M _w)	28.23	28.16	28.15	28.18	lb/lb-mole
Calculated Fuel Factor	(F _c)	1.702	1.840	1.801	1.781	
Fuel F-Factor	(F _f)	8655	8655	8655	8655	dscf/MMBtu
Percent Excess Air	(%EA)	131.5	130.4	130.8	130.9	%
Volumetric Flow Rate Data						
Average Stack Gas Velocity	(V _s)	61.22	58.91	58.94	59.69	ft/sec
Stack Cross-Sectional Area	(A _s)	376.17	376.17	376.17	376.17	ft2
Actual Stack Flow Rate	(Q _{avn})	1,381,656	1,329,589	1,330,189	1,347,145	acfm
Wet Standard Stack Flow Rate	(Q _{sw})	69,539	66,873	66,691	67,701	wkscfh
Dry Standard Stack Flow Rate	(Q _{sd})	1,049,500	1,007,461	1,003,184	1,020,048	dscfm
Percent of Isokinetic Rate	(I)	97.2	98.9	98.5	98.2	%
Ammonia Rate Data						
Stack Ammonia Concentration	(C _{NH3})	3.95	3.89	3.01	3.62	ppm
	(C _{NH3})	2.74	2.70	2.09	2.51	ppm@15%O ₂

CTM 027 (AMMONIA) SOURCE SAMPLING TITLE PAGE

ALARMS exist and have been acknowledged.

Source Information				
Plant Name	West County Energy Center			
Sampling Location	Loxahatchee, Florida			
Fuel or Source Type	Gas, Natural			
Fuel F-Factor	8655	8655	8655	

Test Information			
Starting Test Date		11/13/09	
Project #		bv-10-westcounty.fl-comp#1	
Operator		Pandu Sattvika	
Standard Temperature		68	oF
Standard Pressure		29.92	in Hg
Minimum Required Sample Vol.	indust. spec.	35	scf
Run Duration	chk Subpart	60	minutes
Unit Number		2B	
Load	% or w/DB	Base with DB	
Base Run Number		2B	
Number of Ports Available		4	
Number of Ports Used		4	
Port Inside Diameter		5.00	in
Circular Stack			

Test Equipment Information					
Run		1	2	3	
Meter Box Number	from ACS	samp-cp-0012	samp-cp-0012	samp-cp-0012	
Meter Calibration Factor	(Y)	0.992	0.992	0.992	
Orifice Meter Coefficient	($\Delta H @$)	1.597	1.597	1.597	in H ₂ O
Pitot Tube Coefficient	(C _p)	0.840	0.840	0.840	
Nozzle Diameter	(D _n)	0.250	0.250	0.250	in
Probe Length		144.00	144.00	144.00	in
(SS, Glass) Liner Material	from list	inconel	inconel	inconel	

Testing Company Information	
Company Name	Air Hygiene International, Inc. (Tulsa, Oklahoma)
Address	5634 S. 122nd East Ave., Suite F
City, State Country Zip	Tulsa, Oklahoma 74146
Project Manager	Pandu Sattvika
Phone Number	(918) 307-8865
Fax Number	(918) 307-9131

METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	West County Energy Center	Date	11/13/09
Sampling Location	Loxahatchee, Florida	Project #	by-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	# of Ports Available	4
Stack Type	Circular	# of Ports Used	4
Stack Size	Large	Port Inside Diameter	5.00

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L _{fw})	281.75	in
Distance to Near Wall of Stack	(L _{nw})	19.13	in
Diameter of Stack	(D)	262.62	in
Area of Stack	(A _s)	376.17	ft ²

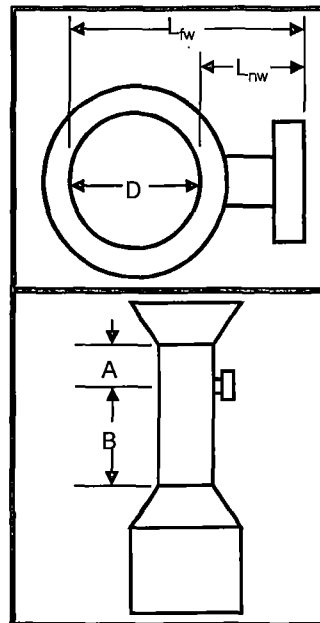
Distance from Port to Disturbances			
Distance Upstream	(A)	144.00	in
Diameters Upstream	(A _D)	0.55	diameters
Distance Downstream	(B)	531.75	in
Diameters Downstream	(B _D)	2.02	diameters

Number of Traverse Points Required			
Diameters to Flow Disturbance		Minimum Number of ¹ Traverse Points	
Down Stream	Up Stream	Particulate Points	Velocity Points
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12 ²	8 or 12 ²
Upstream Spec		24	16
Downstream Spec		24	16
Traverse Pts Required		24	16

¹ Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

² 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches

Location of Traverse Points in Circular Stacks										
Traverse Point Number	(Fraction of Stack Dimension from Inside Wall to Traverse Point)									
	Number of Traverse Points Across the Stack									
Number	2	4	6	8	10	12	14	16	18	
1	.146	.067	.044	.032	.026	.021	.018	.016	.014	
2	.854	.250	.146	.105	.082	.067	.057	.049	.044	
3		.750	.296	.194	.146	.118	.099	.085	.075	
4		.933	.704	.323	.226	.177	.146	.125	.109	
5			.854	.677	.342	.250	.201	.169	.146	
6			.956	.806	.658	.356	.269	.220	.188	
7				.895	.774	.644	.366	.283	.236	
8				.968	.854	.750	.634	.375	.296	
9					.918	.823	.731	.625	.382	
10					.974	.882	.799	.717	.618	
11						.933	.854	.780	.704	
12						.979	.901	.831	.764	



Number of Traverse Points Used			
4	Ports by	6	Across
24	Pts Used	24	Required
		Particulate Traverse	

Traverse Point Locations			
Traverse Point Number	Fraction of Stack Diameter	Distance from Inside Wall	Distance Including Reference Length
		in	in
1	0.02	5 4/8	24 5/8
2	0.07	17 5/8	36 6/8
3	0.12	31	50 1/8
4	0.18	46 4/8	65 5/8
5	0.25	65 5/8	84 6/8
6	0.36	93 4/8	112 5/8
7			
8			
9			
10			
11			
12			

METHOD 3a - DETERMINATION OF DRY MOLECULAR WEIGHT BY ANALYZER

Plant Name	West County Energy Center				Date	11/13/09	
Sampling Location	Loxahatchee, Florida				Project #	bv-10-westcounty.fl-comp#1	
Operator	Pandu Sattvika				# of Ports Used	4	
Fuel Type	Gas, Natural		Minimum Fuel Factor	1.600	Maximum Fuel Factor	1.836	
Orsat Leak Check	<input checked="" type="checkbox"/>	PreTest	<input checked="" type="checkbox"/>	PostTest	Orsat Identification		

Gas Analysis Data										
Run Number		2B-1			Run Start Time		13:13	Run Stop Time		14:24
Sample Analysis Time	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (ppmCO)	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (%CO)	Nitrogen Conc. (%N ₂)	Dry Molecular Weight (M _d)	Molecular Weight Deviation (ΔM _d)	
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole	
1:11	5.0	12.4	0.8	5.0	12.4	0.0	82.6	29.30	0.00	
Results			Averages	5.0	12.4	0.0	82.6	29.30		
Average Calculated Fuel Factor				(F _o) _{avg}	1.702	Molecular Wt Deviation < 0.3?			<input checked="" type="checkbox"/>	
Average Excess Air				(%EA) _{avg}	131.5	percent	Fuel Factor in Handbook Range?			<input checked="" type="checkbox"/>

Gas Analysis Data										
Run Number		2B-2			Run Start Time		14:29	Run Stop Time		15:39
Sample Analysis Time	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (ppmCO)	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (%CO)	Nitrogen Conc. (%N ₂)	Dry Molecular Weight (M _d)	Molecular Weight Deviation (ΔM _d)	
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole	
1:10	4.6	12.4	0.8	4.6	12.4	0.0	83.0	29.24	0.00	
Results			Averages	4.6	12.4	0.0	83.0	29.24		
Average Calculated Fuel Factor				(F _o) _{avg}	1.840	Molecular Wt Deviation < 0.3?			<input checked="" type="checkbox"/>	
Average Excess Air				(%EA) _{avg}	130.4	percent	Fuel Factor in Handbook Range?			<input checked="" type="checkbox"/>

Gas Analysis Data										
Run Number		2B-3			Run Start Time		14:43	Run Stop Time		15:50
Sample Analysis Time	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (ppmCO)	Carbon Dioxide Conc. (%CO ₂)	Oxygen Conc. (%O ₂)	Carbon Monoxide Conc. (%CO)	Nitrogen Conc. (%N ₂)	Dry Molecular Weight (M _d)	Molecular Weight Deviation (ΔM _d)	
hh:mm	percent	percent	ppm	percent	percent	percent	percent	lb/lb-mole	lb/lb-mole	
1:07	4.7	12.4	0.8	4.7	12.4	0.0	82.9	29.25	0.00	
Results			Averages	4.7	12.4	0.0	82.9	29.25		
Average Calculated Fuel Factor				(F _o) _{avg}	1.801	Molecular Wt Deviation < 0.3?			<input checked="" type="checkbox"/>	
Average Excess Air				(%EA) _{avg}	130.8	percent	Fuel Factor in Handbook Range?			<input checked="" type="checkbox"/>

Fuel Factor Fo		
Fuel Type	Minimum	Maximum
Coal, Anthracite	1.016	1.130
Coal, Lignite	1.016	1.130
Coal, Bituminous	1.083	1.230
Oil, Distillate	1.260	1.413
Oil, Residual	1.210	1.370
Gas, Natural	1.600	1.836
Gas, Propane	1.434	1.586
Gas, Butane	1.405	1.553
Wood	1.000	1.120
Wood Bark	1.003	1.130

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	West County Energy Center			Date	11/13/09
Sampling Location	Loxahatchee, Florida			Project #	bv-10-westcounty.fl-comp#1
Operator	Pandur Sattvika			# of Ports Used	4
Stack Type	Circular			Meter Box Number	samp-cp-0012
Train Leak Check	<input checked="" type="checkbox"/>	PreTest	<input checked="" type="checkbox"/>	PostTest	Meter Cal Factor (Y) 0.992

Moisture Content Data								
Run Number	2B-1		Run Start Time		13:13	Run Stop Time		14:24
Total Meter Volume	(V _m)	56.503	dcf	Barometric Press.	(P _b)	29.80	in Hg	
Avg Stack Temp	(t _s) _{avg}	168	oF	Stack Static Press.	(P _{static})	0.75	in H2O	
Avg Meter Temp	(t _m) _{avg}	77	oF	Avg Orifice Press.	(ΔH) _{avg}	2.55	in H2O	
	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5	Impinger 6	Impinger 7	Impinger 8
	g	g	g	g	g	g	g	g
Contents		H2SO4	H2SO4	Sil Gel				
Final Value	(V _i),(W _i)	858.50	756.20	618.20	922.10			
Initial Value	(V _i),(W _i)	768.60	738.80	614.30	911.10			
Net Value	(V _n),(W _n)	89.9	17.4	3.9	11.0			
Results								
Total Weight	(W _i)	122.20	g	Water Vol Weighed	(V _{wsg(std)})	5.762	scf	
Std Meter Volume	(V _{m(std)})	55.235	dscf	Sat. Moisture Content	(B _{ws(svp)})	39.0	%	
Calc Moisture Content	(B _{ws(calc)})	9.4	%	Final Moisture Content	(B _{ws})	9.4	%	

Moisture Content Data								
Run Number	2B-2		Run Start Time		14:29	Run Stop Time		15:39
Total Meter Volume	(V _m)	55.310	dcf	Barometric Press.	(P _b)	29.78	in Hg	
Avg Stack Temp	(t _s) _{avg}	168	oF	Stack Static Press.	(P _{static})	0.75	in H2O	
Avg Meter Temp	(t _m) _{avg}	77	oF	Avg Orifice Press.	(ΔH) _{avg}	2.50	in H2O	
	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5	Impinger 6	Impinger 7	Impinger 8
	g	g	g	g	g	g	g	g
Contents		H2SO4	H2SO4	Sil Gel				
Final Value	(V _i),(W _i)	805.10	717.10	626.80	927.90			
Initial Value	(V _i),(W _i)	719.30	699.30	622.60	914.00			
Net Value	(V _n),(W _n)	85.8	17.8	4.2	13.9			
Results								
Total Weight	(W _i)	121.70	g	Water Vol Weighed	(V _{wsg(std)})	5.738	scf	
Std Meter Volume	(V _{m(std)})	53.981	dscf	Sat. Moisture Content	(B _{ws(svp)})	39.0	%	
Calc Moisture Content	(B _{ws})	9.6	%	Final Moisture Content	(B _{ws})	9.6	%	

Moisture Content Data								
Run Number	2B-3		Run Start Time		14:43	Run Stop Time		15:50
Total Meter Volume	(V _m)	54.857	dcf	Barometric Press.	(P _b)	29.77	in Hg	
Avg Stack Temp	(t _s) _{avg}	170	oF	Stack Static Press.	(P _{static})	0.75	in H2O	
Avg Meter Temp	(t _m) _{avg}	78	oF	Avg Orifice Press.	(ΔH) _{avg}	2.49	in H2O	
	Impinger 1	Impinger 2	Impinger 3	Impinger 4	Impinger 5	Impinger 6	Impinger 7	Impinger 8
	g	g	g	g	g	g	g	g
Contents		H2SO4	H2SO4	Sil Gel				
Final Value	(V _i),(W _i)	849.70	792.10	619.10	954.80			
Initial Value	(V _i),(W _i)	763.00	774.40	615.50	940.30			
Net Value	(V _n),(W _n)	86.7	17.7	3.6	14.5			
Results								
Total Weight	(W _i)	122.50	g	Water Vol Weighed	(V _{wsg(std)})	5.776	scf	
Std Meter Volume	(V _{m(std)})	53.488	dscf	Sat. Moisture Content	(B _{ws(svp)})	40.7	%	
Calc Moisture Content	(B _{ws})	9.7	%	Final Moisture Content	(B _{ws})	9.7	%	

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name	West County Energy Center	Date	11/13/2009
Sampling Location	Loxahatchee, Florida	Project #	bv-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	Run #	2B-1
# of Points Across	6	# of Ports Used	4

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Tube Coefficient (C _p)	0.84		
Avg Stack Temp (t _s)	168	oF	
Avg Gas Meter Temp (t _m)	77		
DH @ 0.75 SCFM (ΔH _{0.75})	1.60	in H ₂ O	
Avg Pitot Tube Diff. Pressure (ΔP _{pit})	1.00	in H ₂ O	
Stack Moisture Content (B _w)	9.45	%	
Stack Dry Molecular Weight (M _d)	29.30	lb/lb-mole	
Estimated Orifice Flow Rate (Q _m)	0.750	acfm	
DP to DH Isokinetic Factor (K)	2.72		

Leak Checks				
Train	Pre	0	R3/min @	15
OK? <input checked="" type="checkbox"/>	Post	0	R3/min @	15
Pitot	Pre	0	in. H ₂ O for	30
OK? <input checked="" type="checkbox"/>	Post	0	in. H ₂ O for	30
Orsat	OK? <input checked="" type="checkbox"/>			

Sampling Equipment			
Meter #	samp-cp-0012		
Meterbox Cal. Factor (Y)	0.992		
Nozzle #			
Average Nozzle Diameter (D _m)	0.2500	in	
Rec. Nozzle Diameter (D _n)	0.2188	in	
Probe # / Length	/ 144		
Liner Material	inconel		
Sample Case / Oven #			
Impinger Case #			

Pressures			
Barometric Pressure (P _a)	29.80	in Hg	
Stack Static Pressure (P _{static})	0.75	in H ₂ O	
Absolute Stack Pressure (P _a)	29.86	in Hg	
Absolute Meter Pressure (P _m)	29.92	in Hg	

Nozzle Measurements				
Pre	0.250	0.250	0.250	PASS
Post	0.250	0.250	0.250	PASS

Run Time			
Start	13:13	End	14:24

Weights	Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	768.60	738.80	614.30	911.10				
Post	858.50	756.20	618.20	922.10				

Wash Volume	H ₂ O	50.0	ml	Filter #
	MeCl			

Traverse Point #	Sampling Time (t)	Timer Time	Dry Gas Meter Reading (V _m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH _d)	Actual Orifice ΔH (ΔH _a)	Stack Temp (t _s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t _m)	Meter Outlet Temp (t _{me})	Pump Vacuum	Square Root ΔP (ΔP ^{1/2})	Local Stack Velocity (v _s)	Cumulative Meter Volume (V _m) _{avg}	Cumulative Percent IsoKinetic (I)	Est-Run Meter Volume (V _m) _{est}
A-1	0.0	0:00:00	762.200	0.750	2.037	2.000	164	244	237	68		71	70	2.0	0.87	53.51	2.125	101.6	50.992
A-2	2.5	0:02:30	764.350	0.750	2.037	2.000	165	242	241	66		73	70	2.0	0.87	53.56	4.196	100.4	50.352
A-3	5.0	0:05:00	766.450	0.900	2.445	2.300	168	247	235	64		76	71	2.0	0.95	58.81	6.409	99.2	51.269
A-4	7.5	0:07:30	768.700	0.900	2.445	2.300	170	245	236	58		78	71	2.0	0.95	58.90	8.666	99.2	51.997
A-5	10.0	0:10:00	771.000	0.750	2.037	1.900	170	244	224	56		79	71	2.0	0.87	53.77	10.675	98.7	51.238
A-6	12.5	0:12:30	773.050	0.650	1.766	1.700	170	244	229	56		80	71	1.0	0.81	50.06	12.611	98.9	50.446
B-1	15.0	0:15:00	775.030	0.700	1.901	1.800	167	232	225	61		79	71	1.0	0.84	51.82	14.639	99.1	50.190
B-2	17.5	0:17:30	777.100	0.900	2.445	2.300	165	223	223	59		81	72	1.0	0.95	58.67	16.497	97.1	49.491
B-3	20.0	0:20:00	779.000	0.850	2.309	2.200	164	223	224	59		82	72	2.0	0.92	56.97	18.743	97.5	49.982
B-4	22.5	0:22:30	781.300	0.800	2.173	2.100	164	234	224	59		83	72	2.0	0.89	55.27	20.792	97.3	49.901
B-5	25.0	0:25:00	783.400	0.800	2.173	2.100	163	224	225	59		83	73	2.0	0.89	55.22	22.985	97.7	50.149
B-6	27.5	0:27:30	785.650	0.600	1.630	1.600	163	233	227	60		84	73	1.0	0.77	47.83	25.115	99.1	50.230
C-1	30.0	0:30:00	787.840	0.900	2.445	2.300	169	234	235	63		82	73	2.0	0.95	58.86	27.370	99.0	50.529
C-2	32.5	0:32:30	790.150	1.200	3.260	3.100	168	236	249	60		83	73	2.0	1.10	67.91	29.764	98.4	51.023
C-3	35.0	0:35:00	792.600	1.200	3.260	3.100	168	237	246	60		84	75	2.0	1.10	67.91	32.297	98.2	51.675
C-4	37.5	0:37:30	795.200	1.300	3.531	3.400	166	236	242	61		84	75	3.0	1.14	70.57	34.939	98.0	52.409
C-5	40.0	0:40:00	797.910	1.400	3.803	3.640	166	231	241	62		84	75	3.0	1.18	73.23	37.661	97.8	53.169
C-6	42.5	0:42:30	800.700	1.300	3.531	3.380	166	231	244	63		83	75	3.0	1.14	70.57	40.345	97.8	53.794
D-1	45.0	0:45:00	803.450	1.000	2.716	2.600	174	234	248	64		81	75	3.0	1.00	62.29	42.834	98.2	54.106
D-2	47.5	0:47:30	806.000	1.100	2.988	2.900	174	237	242	60		82	75	3.0	1.05	65.33	45.175	97.9	54.210
D-3	50.0	0:50:00	808.400	1.200	3.260	3.100	174	232	224	60		82	75	3.0	1.10	68.23	47.713	97.9	54.530
D-4	52.5	0:52:30	811.000	1.200	3.260	3.100	173	235	231	61		83	75	3.0	1.10	68.18	50.155	97.6	54.715
D-5	55.0	0:55:00	813.504	1.300	3.531	3.100	172	236	230	62		83	75	3.0	1.14	70.90	52.690	97.4	54.981
D-6	57.5	0:57:30	816.103	1.300	3.531	3.100	171	235	230	63		83	75	3.0	1.14	70.85	55.226	97.2	55.226
Last Pt	60.0	1:00:00	818.703	1.300	3.531										1.14				
Final Val	60.0	1:00:00	818.703											Max Vac	3.0	Final Values	55.226	97.2	
Average Values				1.00		2.55	168	235	234	61		81	73		0.99	61.22			

CTM 027 (AMMONIA) ISOKINETIC SAMPLING DATA

Plant Name		West County Energy Center		Date		11/13/2009	
Sampling Location		Loxahatchee, Florida		Project #		bv-10-westcounty.fl-comp#1	
Operator		Pandu Sattvika		Run #		2B-2	
# of Points Across		6		# of Ports Used		4	

Leak Checks			
Train	Pre	0	ft ³ /min @ 15 in Hg
OK?	<input checked="" type="checkbox"/>	Post	0
Pitot	Pre	7	in. H ₂ O for 30 sec
OK?	<input checked="" type="checkbox"/>	Post	7
Orsat	OK?	<input checked="" type="checkbox"/>	

Nozzle Measurements			
Pre	0.250	0.250	PASS
Post	0.250	0.250	PASS

Run Time			
Start	14:29	End	15:39

Weights		Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Pre	719.30	699.30	622.60	914.00					
Post	805.10	717.10	626.80	927.90					

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Tube Coefficient	(C _p)	0.84	
Avg Stack Temp	(t _s)	168	oF
Avg Gas Meter Temp	(t _g)	77	
DH @ 0.75 SCFM	(ΔH@)	1.60	in H2O
Avg Pitot Tube Diff. Pressure	(ΔP _{pit})	0.90	in H2O
Stack Moisture Content	(B _{st})	9.61	%
Stack Dry Molecular Weight	(M _d)	29.30	lb/lb-mole
Estimated Orifice Flow Rate	(Q _o)	0.942	acfm
DP to DH IsoKinetic Factor	(K)	2.71	

Pressures			
Barometric Pressure	(P _b)	29.78	in Hg
Stack Static Pressure	(P _{stsk})	0.75	in H2O
Absolute Stack Pressure	(P _a)	29.84	in Hg
Absolute Meter Pressure	(P _m)	29.90	in Hg

Wash		H ₂ O	50.0	ml	Filter #
Volume	MeCl				

Traverse Point #	Sampling Time (e)	Timer Time	Dry Gas Meter Reading (V _m)	Velocity Head (Δp)	Desired Orifice ΔH (ΔH _d)	Actual Orifice ΔH (ΔH _a)	Stack Temp (t _s)	Probe Temp	Filter Temp	Impinger Exit Temp	Aux Temp	Meter Inlet Temp (t _{mi})	Meter Outlet Temp (t _{mo})	Pump Vacuum	Square Root ΔP (ΔP ^{1/2})	Local Stack Velocity (V _s)	Cumulative Meter Volume (V _{m,act})	Cumulative Percent IsoKinetic (%)	Est-Run Meter Volume (V _{m,est})
A-1	0.0	0:00:00	819.100	0.900	2.437	2.500	173	227	241	68		78	74	5.0	0.95	59.08	2.202	97.0	52.846
A-2	2.5	0:02:30	821.350	1.100	2.979	3.000	174	232	241	65		81	74	6.0	1.05	65.37	4.645	97.2	55.736
A-3	5.0	0:05:00	823.850	1.200	3.250	3.300	174	235	224	60		82	74	6.0	1.10	68.28	7.087	95.9	56.695
A-4	7.5	0:07:30	826.350	1.200	3.250	3.300	173	232	226	60		81	74	6.0	1.10	68.22	9.531	95.2	57.188
A-5	10.0	0:10:00	828.850	1.200	3.250	3.300	173	234	228	61		81	74	6.0	1.10	68.22	12.074	95.6	57.954
A-6	12.5	0:12:30	831.450	1.100	2.979	3.000	171	232	223	63		82	74	7.0	1.05	65.21	14.514	95.8	58.057
B-1	15.0	0:15:00	833.950	1.000	2.708	2.500	170	236	248	67		78	74	7.0	1.00	62.13	17.156	98.0	58.822
B-2	17.5	0:17:30	836.650	1.100	2.979	3.000	168	237	241	66		80	74	6.0	1.05	65.06	19.455	97.2	58.364
B-3	20.0	0:20:00	839.000	1.100	2.979	3.000	167	235	247	66		81	74	7.0	1.05	65.01	21.702	96.4	57.872
B-4	22.5	0:22:30	841.300	1.200	3.250	3.300	166	235	244	66		81	74	7.0	1.10	67.84	24.440	97.2	58.656
B-5	25.0	0:25:00	844.100	1.200	3.250	3.300	166	235	241	67		81	74	7.0	1.10	67.84	26.982	97.2	58.870
B-6	27.5	0:27:30	846.700	1.100	2.979	3.000	165	236	246	67		81	74	7.0	1.05	64.90	29.493	97.3	58.987
C-1	30.0	0:30:00	849.270	0.650	1.760	1.800	162	232	223	67		78	74	4.0	0.81	49.77	31.574	98.0	58.291
C-2	32.5	0:32:30	851.400	0.750	2.031	2.100	160	236	223	68		80	74	4.0	0.87	53.38	33.624	98.0	57.640
C-3	35.0	0:35:00	853.500	0.900	2.166	2.200	160	240	236	68		81	74	4.0	0.89	55.13	35.671	97.8	57.074
C-4	37.5	0:37:30	855.600	0.800	2.166	2.200	160	239	234	68		82	74	4.0	0.89	55.13	37.815	97.9	56.722
C-5	40.0	0:40:00	857.800	0.650	1.760	1.800	160	239	233	68		82	74	4.0	0.81	49.69	39.859	98.2	56.271
C-6	42.5	0:42:30	859.900	0.700	1.896	1.900	160	236	236	68		82	74	4.0	0.84	51.57	41.757	98.0	55.676
D-1	45.0	0:45:00	861.850	0.650	1.760	1.800	169	238	245	67		81	74	4.0	0.81	50.05	43.754	98.3	55.269
D-2	47.5	0:47:30	863.900	0.650	1.760	1.800	172	244	241	67		82	74	4.0	0.81	50.17	45.750	98.5	54.900
D-3	50.0	0:50:00	865.950	0.800	2.166	2.200	173	251	249	63		82	74	4.0	0.89	55.70	47.796	98.4	54.624
D-4	52.5	0:52:30	868.050	0.750	2.031	2.100	174	246	245	63		81	74	4.0	0.87	53.98	49.892	98.5	54.427
D-5	55.0	0:55:00	870.200	0.750	2.031	2.100	173	247	244	62		82	75	4.0	0.87	53.93	51.935	98.5	54.193
D-6	57.5	0:57:30	872.300	0.600	1.625	1.600	171	248	248	62		81	74	4.0	0.77	48.16	53.990	98.9	53.990
Last Pt	60.0	1:00:00	874.410	0.600	1.625										0.77				
Final Val	60.0	1:00:00	874.410										Max Vac	7.0	Final Values	53.990	98.9		
Average Values				0.90	2.50		168	238	238	65		81	74		0.94	58.91			

CTM 027 (AMMONIA) - SAMPLE RECOVERY AND INTEGRITY DATA SHEET

Plant Name	West County Energy Center	Date	11/13/09
Sampling Location	Loxahatchee, Florida	Project #	bv-10-westcounty.fl-comp#1
Operator	Pandu Sattvika	Acetone Lot Number	N/A

Run History Data				
Run Number	2B-1	2B-2	2B-3	
Run Start Time	13:13	14:29	14:43	(hh:mm)
Run Stop Time	14:24	15:39	15:50	(hh:mm)
Train Prepared By	AS	AS	AS	
Train Recovered By	AS	AS	AS	
Recovery Date	11/13/2009	11/13/2009	11/13/2009	(mm/dd/yy)



Moisture Content Data					
Impingers 1, 2, and 3 - Liquid Volume					
Final Volume	(V _f)	2236.9	2152.9	2265.0	ml
Initial Volume	(V _i)	2125.5	2044.9	2156.8	ml
Net Volume	(V _n)	111.4	108.0	108.2	ml
Comments					
Impinger 4 - Silica Gel Weight					
Final Weight	(W _f)	922.1	927.9	954.8	g
Initial Weight	(W _i)	911.1	914.0	940.3	g
Net Weight	(W _n)	11.0	13.9	14.5	g
Comments					
Total Water Collected					
Total Volume	(V _{tc})	122.4	121.9	122.7	ml

Ammonia Sample Log-In Sheet

Lab Tech: Albert Septiano
 Project: bv-10-westcounty.fl-comp#1
 Collected by: Albert Septiano
 Date Received: 11/13/2009



BLANKS

AHI Lab #	Sample ID	Sample Source Description	Run #	Filter		Comments	Volume (ml)
				Contents	Sample Date		
91113-2B-B	Blank			H ₂ SO ₄ , H ₂ O	11/13/2009		100

SAMPLES

AHI Lab #	Sample ID	Sample Source Description	Run #	Contents	Sample Date	Comments	Volume (ml)
91113-2B-1	U2B-R1-FH	Unit 2B Run 1 Impinger 1 NDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-2	U2B-R1-FH	Unit 2B Run 1 Impinger 2 NDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		220
91113-2B-3	U2B-R2-FH	Unit 2B Run 2 Impinger 1 NDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		240
91113-2B-4	U2B-R2-FH	Unit 2B Run 2 Impinger 2 NDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		240
91113-2B-5	U2B-R3-FH	Unit 2B Run 3 Impinger 1 NDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-6	U2B-R3-FH	Unit 2B Run 3 Impinger 2 NDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		220
91113-2B-7	U2B-R1-FH	Unit 2B Run 1 Impinger 1 wDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-8	U2B-R1-FH	Unit 2B Run 1 Impinger 2 wDB	1	H ₂ SO ₄ , H ₂ O	11/13/2009		200
91113-2B-9	U2B-R2-FH	Unit 2B Run 2 Impinger 1 wDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		230
91113-2B-10	U2B-R2-FH	Unit 2B Run 2 Impinger 2 wDB	2	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-11	U2B-R3-FH	Unit 2B Run 3 Impinger 1 wDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		250
91113-2B-12	U2B-R3-FH	Unit 2B Run 3 Impinger 2 wDB	3	H ₂ SO ₄ , H ₂ O	11/13/2009		240

bv-10-westcounty.fl-comp#1-NH3 Analysis U2B

Ammonia Sample Measurement

Lab Tech:	Albert Septiano
Project:	bv-10-westcounty.fl-comp#1
Date Analyzed:	11/13/2009
Time Analyzed:	1:00 PM
Analysis Method	350.3



Calibration Data		
Concentration (ppm)	Pre-Cal (ppm)	Pre-Cal (mV)
0.0	0.0	112.2
1.0	1.0	7.1
5.0	5.0	-34.0
10.0	10.0	-49.5
20.0	20.0	-66.5
Slope		
Linearity	1.0000	N/A

Sample ID	Sample Amt Used (ml)	ISA/pH Volume (ml)	Meter Reading (mg/L)	Time Analyzed (hh:mm:ss)	Dilution Factor	Sample Volume	MQL (mg/L)	PQL (mg/L)	Final Conc. (mg/L)
91113-2B-8	100.0	1.0	0.0	13:05:00	1.0	100.0	0.10	0.1	BPQL
91113-2B-1	100.0	1.0	19.4	13:12:00	1.0	250.0	0.10	0.1	19.4
91113-2B-2	100.0	1.0	0.2	13:17:00	1.0	220.0	0.10	0.1	0.2
91113-2B-3	100.0	1.0	14.1	13:29:00	1.0	240.0	0.10	0.1	14.1
91113-2B-4	100.0	1.0	0.2	13:34:00	1.0	240.0	0.10	0.1	0.2
91113-2B-5	100.0	1.0	15.3	13:42:00	1.0	250.0	0.10	0.1	15.3
91113-2B-6	100.0	1.0	0.1	13:47:00	1.0	220.0	0.10	0.1	0.1
91113-2B-7	100.0	1.0	18.6	17:07:00	1.0	250.0	0.10	0.1	18.6
91113-2B-8	100.0	1.0	0.2	17:12:00	1.0	200.0	0.10	0.1	0.2
91113-2B-9	100.0	1.0	19.5	17:17:00	1.0	230.0	0.10	0.1	19.5
91113-2B-10	100.0	1.0	0.2	17:22:00	1.0	250.0	0.10	0.1	0.2
91113-2B-11	100.0	1.0	13.7	17:27:00	1.0	250.0	0.10	0.1	13.7
91113-2B-12	100.0	1.0	0.2	17:32:00	1.0	240.0	0.10	0.1	0.2

bv-10-westcounty.fl-comp#1-NH3 Analysis U2B



Ammonia Analysis

AHI Lab No.: 91113-2B-7
 Sample ID: U2B-R1-FH
 Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	18.6	0.10	11/13/09 17:07
Volume	Volume in ml	N/A	250	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-8
 Sample ID: U2B-R1-FH
 Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.23	0.10	11/13/09 17:12
Volume	Volume in ml	N/A	200	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-9
 Sample ID: U2B-R2-FH
 Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	19.5	0.10	11/13/09 17:17
Volume	Volume in ml	N/A	230	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-10
 Sample ID: U2B-R2-FH
 Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.16	0.10	11/13/09 17:22
Volume	Volume in ml	N/A	250	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-11
 Sample ID: U2B-R3-FH
 Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	13.7	0.10	11/13/09 17:27
Volume	Volume in ml	N/A	250	N/A	11/13/09 13:00

AHI Lab No.: 91113-2B-12
 Sample ID: U2B-R3-FH
 Sampling Date: 11/13/2009

Test Requested	Method Parameter	Prep Info	Result	PQL*	Analysis Date
Ammonia Nitrogen	EPA 350.3 Ammonia	N/A	0.19	0.10	11/13/09 17:32
Volume	Volume in ml	N/A	240	N/A	11/13/09 13:00

TEST RESULTS

**Opacity
Base Load**

Company: Florida Power and Light
Equipment: Mitsubishi 501G without Duct Burners
Location: West County Energy Center
Date: November 13, 2009
Project #: bv-10-westcounty.fl-comp#1

Run 1
Average Opacity: 0.00 %
Maximum Opacity: 0 %
6 Minute Average: 0.00 %
6 Minute Maximum: 0.00 %
Max Time w/ Opacity: 0.00 minutes

TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

Company: Florida Power and Light Equipment: Mitsubishi 501G without Duct Burners Location: West County Energy Center Date: November 13, 2009 Project #: bv-10-westcounty.fl-comp#1						Run 2	Average Opacity: 0.00 % Maximum Opacity: 0 % 6 Minute Average: 0.00 % 6 Minute Maximum: 0.00 % Max Time w/ Opacity: 0.00 minutes				
TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

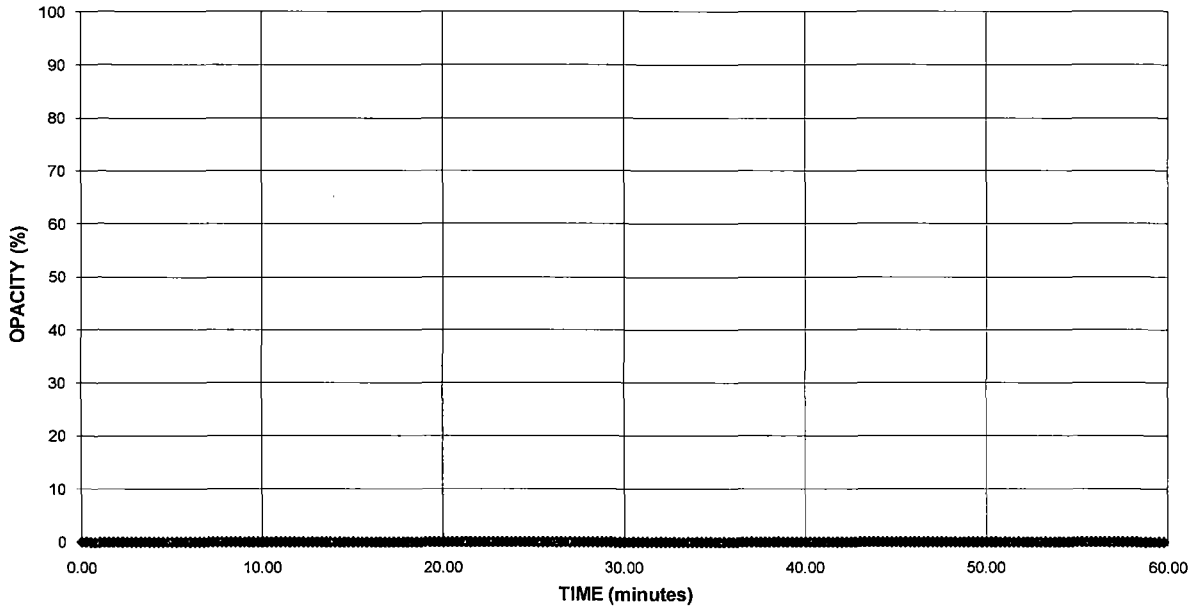
Company: Florida Power and Light Equipment: Mitsubishi 501G without Duct Burners Location: West County Energy Center Date: November 13, 2009 Project #: bv-10-westcounty.fl-comp#1						Run 3	Average Opacity: 0.00 % Maximum Opacity: 0 % 6 Minute Average: 0.00 % 6 Minute Maximum: 0.00 % Max Time w/ Opacity: 0.00 minutes				
TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

Company: Florida Power and Light
Equipment: Mitsubishi 501G without Duct Burners
Location: West County Energy Center
Date: November 13, 2009
Project #: bv-10-westcounty.fl-comp#1

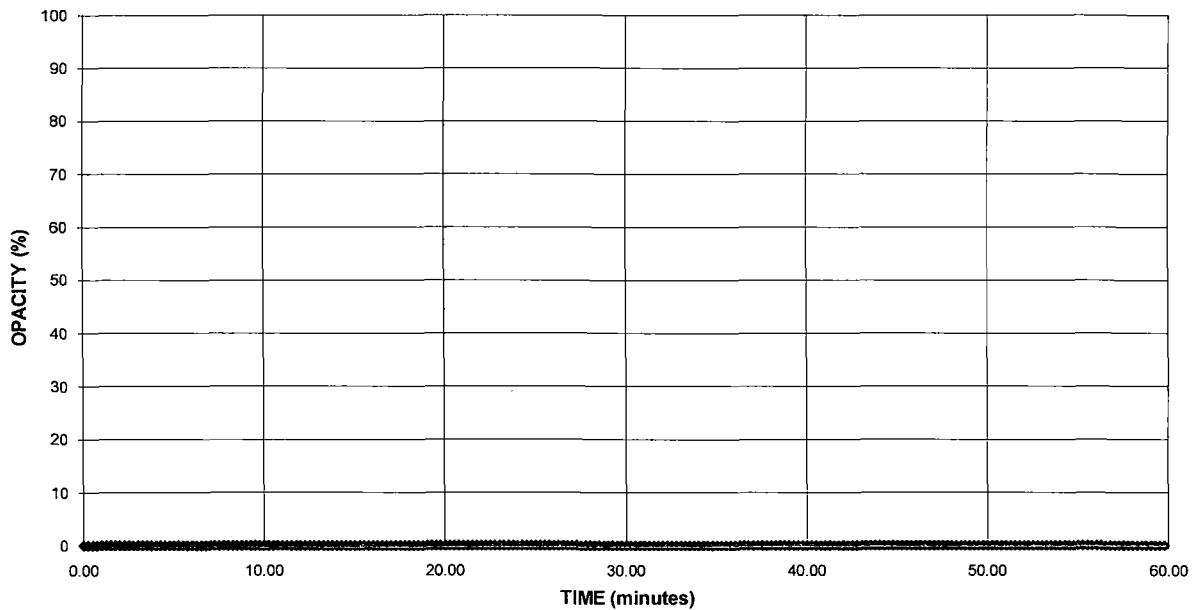
Run 1

Average Opacity: 0.00 %
Maximum Opacity: 0 %
6 Minute Average: 0.00 %
6 Minute Maximum: 0.00 %
Max Time w/ Opacity: 0.00 minutes

OPACITY READINGS (15 second intervals)



OPACITY RESULTS (6 minute averages)

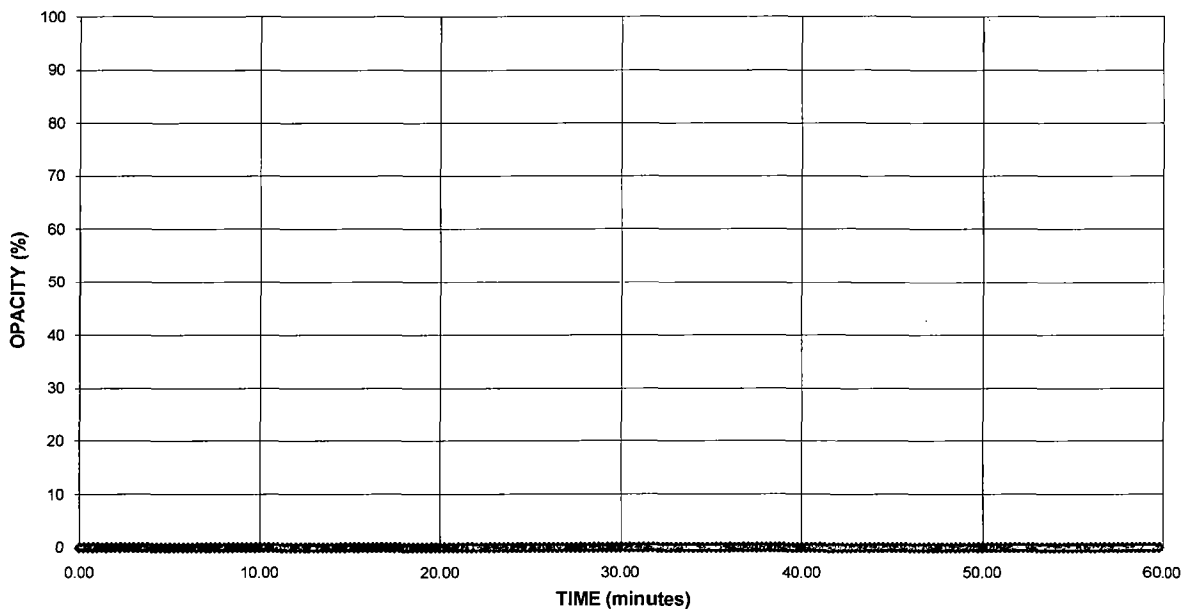


Company: Florida Power and Light
Equipment: Mitsubishi 501G without Duct Burners
Location: West County Energy Center
Date: November 13, 2009
Project #: bv-10-westcounty.fl-comp#1

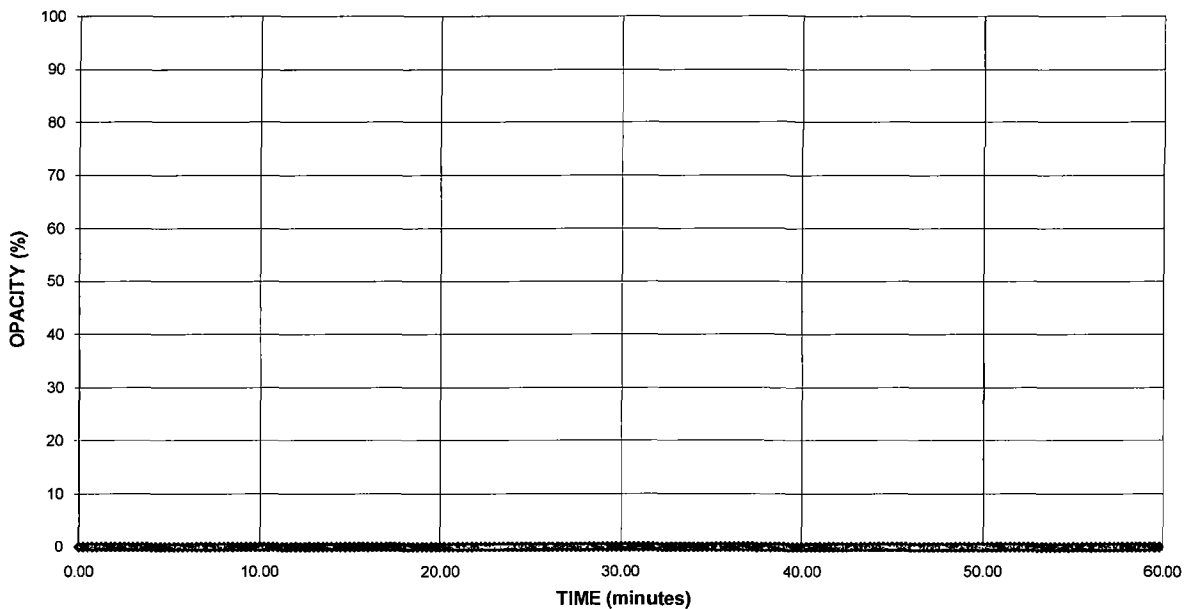
Run 2

Average Opacity: 0.00 %
Maximum Opacity: 0 %
6 Minute Average: 0.00 %
6 Minute Maximum: 0.00 %
Max Time w/ Opacity: 0.00 minutes

OPACITY READINGS (15 second intervals)



OPACITY RESULTS (6 minute averages)

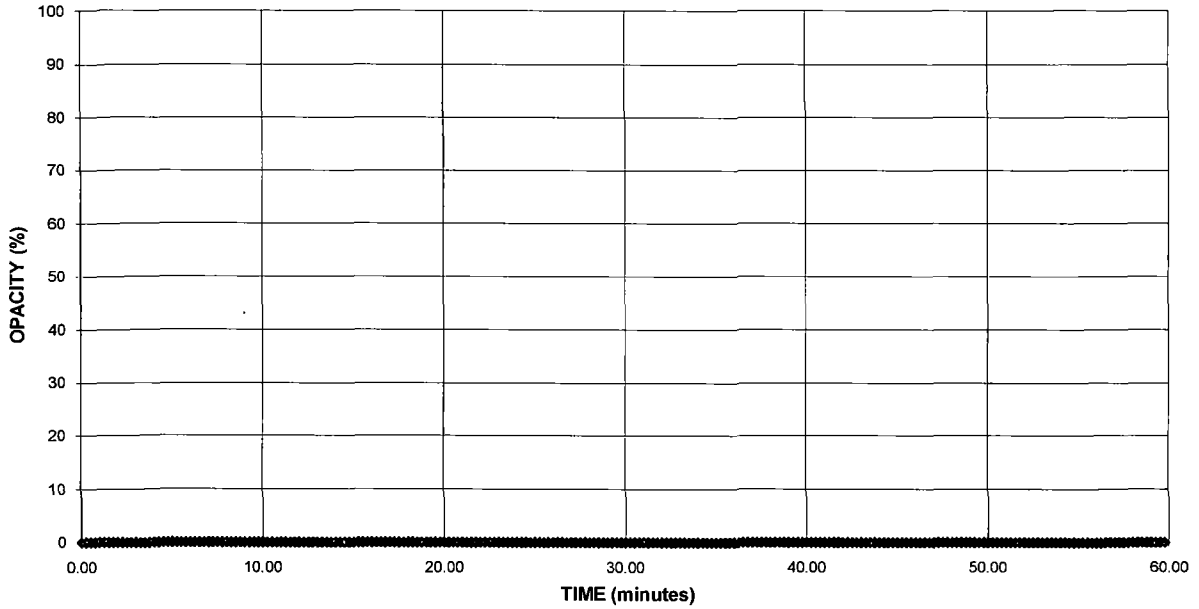


Company: Florida Power and Light
Equipment: Mitsubishi 501G without Duct Burners
Location: West County Energy Center
Date: November 13, 2009
Project #: bv-10-westcounty.fl-comp#1

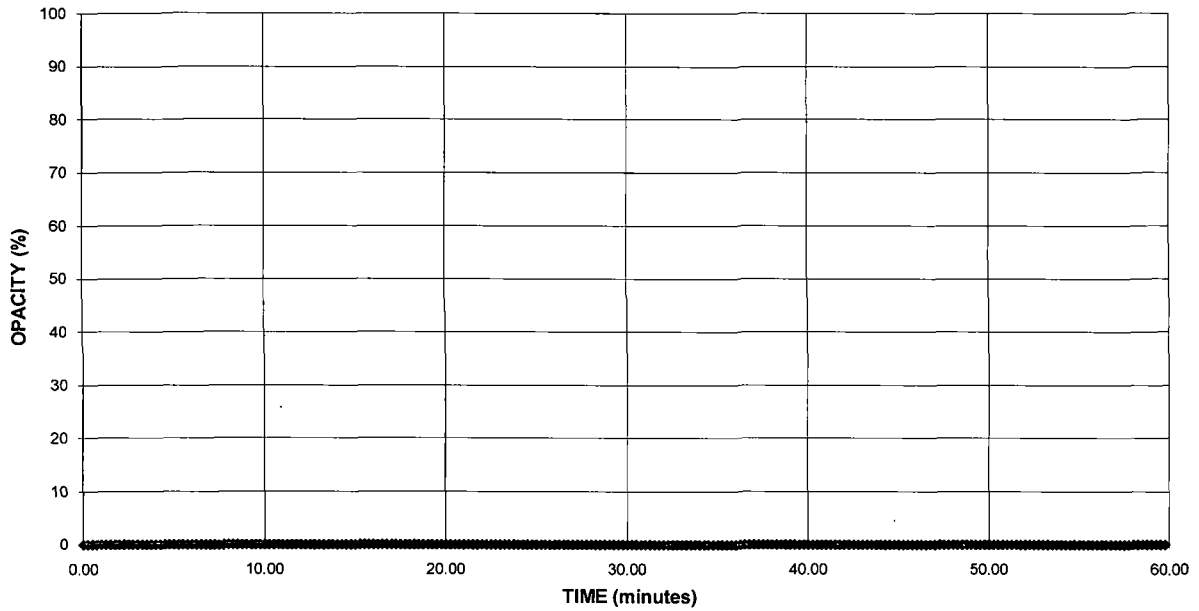
Run 3

Average Opacity: 0.00 %
Maximum Opacity: 0 %
6 Minute Average: 0.00 %
6 Minute Maximum: 0.00 %
Max Time w/ Opacity: 0.00 minutes

**OPACITY READINGS
(15 second intervals)**



**OPACITY RESULTS
(6 minute averages)**



Method Used (Circle One) Method 9 203A 203B Other: _____

Company Name Florida Power and Light
 Facility Name West county Energy Center
 Street Address 20505 State Road 80
 City Loxahatchee State FL Zip 33470

Process Natural Gas Unit # 213 Operating Mode Base Load
 Control Equipment HRSG Operating Mode Base

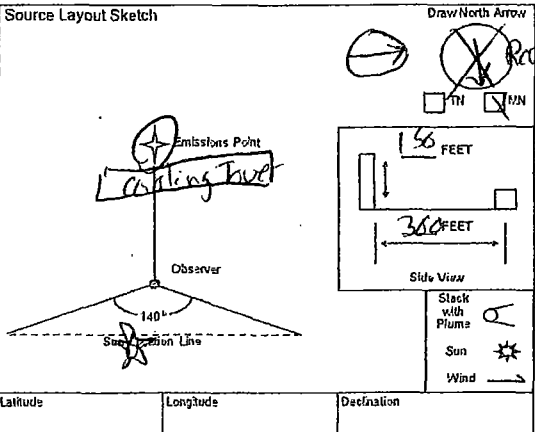
Describe Emissions Point

Height of Emiss. Pt. Start 150ft End 150ft Height of Emiss. Pt. Rel. to Observer Start 145 End 145
 Distance to Emiss. Pt. Start 300ft End 300ft Direction to Emiss. Pt. (Degrees) Start 277 End 277

Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start 97 End 97
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

Describe Emissions Start NONE visible End NONE visible
 Emission Color Start clear End clear Water Droplet Plume Start NONE End NONE

Describe Plume Background Start sky End sky
 Background Color Start blue End blue Sky Conditions Start clear End clear
 Wind Speed Start 5-10 End 5-10 Wind Direction Start S End S
 Ambient Temp. Start 56 End 65 Wet Bulb Temp. N/A RH Percent _____



Additional Information

VISUAL EMISSIONS OBSERVATION FORM

Form Number _____ Page 1 of 6

Continued on Form Number _____

Observation Date	Time Zone	Start Time	End Time	Comments
<u>11-13-09</u>	<u>Eastern</u>	<u>0725</u>	<u>0821</u>	
15: Sec	0 15 30 45			
1	0	0	0	
2	0	0	0	
3	0	0	0	
4	0	0	0	
5	0	0	0	
6	0	0	0	
7	0	0	0	
8	0	0	0	
9	0	0	0	
10	0	0	0	
11	0	0	0	
12	0	0	0	
13	0	0	0	
14	0	0	0	
15	0	0	0	
16	0	0	0	
17	0	0	0	
18	0	0	0	
19	0	0	0	
20	0	0	0	
21	0	0	0	
22	0	0	0	
23	0	0	0	
24	0	0	0	
25	0	0	0	
26	0	0	0	
27	0	0	0	
28	0	0	0	
29	0	0	0	
30	0	0	0	

Observer's Name (Print) Roy White
 Observer's Signature _____ Date 11-13-09
 Organization AHI
 Certified By ETA Date 10-21-09

Method Used (Circle One) Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Company Name Florida Power and Light
 Facility Name West county Energy Center
 Street Address 20505 State Road 86
 City Yallahatchee State FL Zip 32476

Form Number _____ Page 2 of 6
 Continued on Form Number _____

Process Natural Gas Unit # 213 Operating Mode W/B
 Control Equipment HRSG Operating Mode Basic

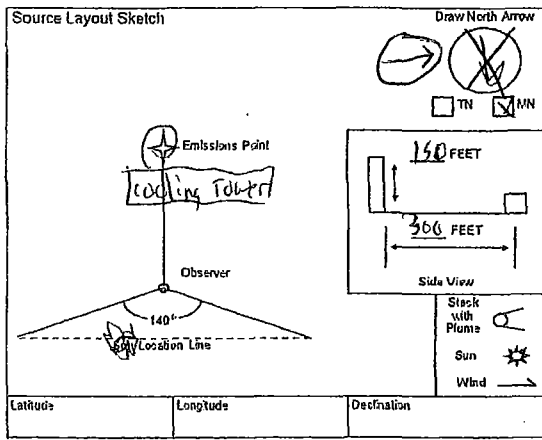
Min	Time Zone				Comments
	0	15	30	45	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Describe Emissions Point
 Height of Emiss. Pt. Start 150ft End 150ft Height of Emiss. Pt. Rel. to Observer Start 145 End 145
 Distance to Emiss. Pt. Start 500ft End 500ft Direction to Emiss. Pt. (Degrees) Start 277 End 277

Vertical Angle to Obs. PL Start _____ End _____ Direction to Obs. PL (Degrees) Start 97 End 97
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

Describe Emissions Start NONE visible End NV
 Emission Color Start clear End clear Water Droplet Plume Start NONE End NONE

Describe Plume Background Start sky End sky
 Background Color Start Blue End Blue Sky Conditions Start Clear End clear
 Wind Speed Start 5-10 End 5-10 Wind Direction Start S End S
 Ambient Temp. Start 56 End 65 Wet Bulb Temp. NA RH Percent _____



Observer's Name (Print) Rob White
 Observer's Signature _____ Date 11-13-09
 Organization AHF
 Certified By EPA 09-21-09

Additional Information _____

Method Used (Circle One)
 Method 9... 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Company Name: Florida Power and Light
 Facility Name: West county Energy Center
 Street Address: 20505 State Road 86
 City: Loxahatchee State: FL Zip: 33476

Form Number _____ Page 3 of 6
 Continued on Form Number _____

Process: Natural Gas Unit #: 213 Operating Mode: Base Load
 Control Equipment: AKSU Operating Mode: Base Load

Observation Date: 11-13-09 Time Zone: Eastern Start Time: 0826 End Time: 0929

Describe Emissions Point
 Height of Emiss. Pt. Start: 150ft End: 150ft Height of Emiss. Pt. Rel. to Observer Start: 145 End: 145
 Distance to Emiss. Pt. Start: 800ft End: 800ft Direction to Emiss. Pt. (Degrees) Start: 277 End: 277

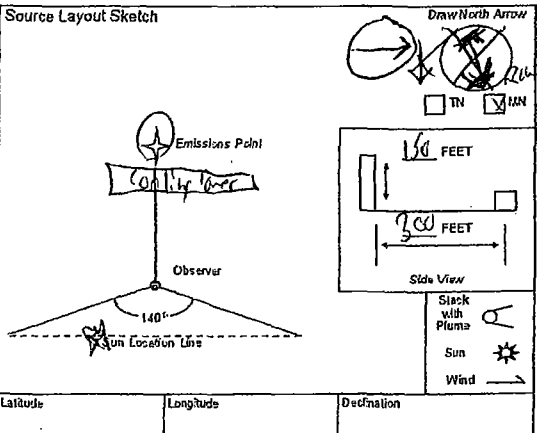
Min	Sec	0	15	30	45	Comments
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Vertical Angle to Obs. Pt. Start: _____ End: _____ Direction to Obs. Pt. (Degrees) Start: 97 End: 97
 Distance and Direction to Observation Point from Emission Point Start: _____ End: _____

1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Describe Emissions
 Start: clear End: clear Water Droplet Plume Start: NONE End: NONE

Describe Plume Background
 Start: ky End: ky Sky Conditions Start: clear End: clear
 Background Color Start: Blue End: Blue Wind Direction Start: S End: S
 Wind Speed Start: 5-10 End: 5-10 Ambient Temp. Start: 64 End: 65 Wet Bulb Temp. Start: NA End: NA RH Percent



Observer's Name (Print): Rob White
 Observer's Signature: _____ Date: 11-13-09
 Organization: AHI
 Certified By: BTA Date: 10-21-09

Additional Information

Method Used (Circle One) Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Company Name Florida Power and Light
 Facility Name West county Energy Center
 Street Address 20505 State Road 86
 City Loxahatchee State FL Zip 33476

Form Number _____ Page 4 of 6

Continued on Form Number _____

Process Natural Gas Unit # 213 Operating Mode 150% 150%
 Control Equipment HRSG Operating Mode 130%

Observation Date 11-13-09 Time Zone Eastern Start Time 0826 End Time 0925

Describe Emissions Point
 Height of Emiss. Pt. Start 150ft End 150ft Height of Emiss. Pt. Rel. to Observer Start 146 End 145
 Distance to Emiss. Pt. Start 500ft End 500ft Direction to Emiss. Pt. (Degrees) Start 277° End 277°

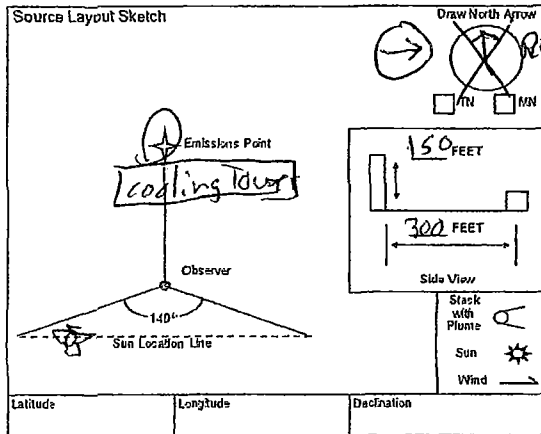
Sec	0	15	30	45	Comments
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Vertical Angle to Obs. Pt. Start 97° End 97° Direction to Obs. Pt. (Degrees) Start 97° End 97°
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Describe Emissions Start NV End NV Water Droplet Plume Start NONE End NONE
 Emission Color Start clear End clear

Describe Plume Background Start sky End sky Sky Conditions Start clear End clear
 Background Color Start blue End blue Wind Direction Start 5-10 End 5-10
 Wind Speed Start 64 End 65 Ambient Temp. Start NA End NA
 Wet Bulb Temp. _____ RH Percent _____



Observer's Name (Print) Rob White Date 11-13-09

Observer's Signature _____ Date 11-13-09

Additional Information _____

Organization AHI

Certified By ETA Date 10-21-09

Method Used (Circle One) Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Form Number _____ Page 5 of 6
Continued on Form Number _____

Company Name Florida Power and Light
Facility Name West county Energy Center
Street Address 20505 State Road 80
City Loxahatchee State FL Zip 33470

Observation Date 11-13-09 Time Zone Eastern Start Time 0928 End Time 1027

Process Natural Gas Unit # 213 Operating Mode Base
Control Equipment HRSG Operating Mode Base

1 min 5-sec 0 15 30 45 Comments

Describe Emissions Point

1 0 0 0 0

Height of Emiss. Pt. Start 150ft End 150ft Height of Emiss. Pt. Rel. to Observer Start 145 End 145
Distance to Emiss. Pt. Start 300 End 300 Direction to Emiss. Pt. (Degrees) Start 270 End 270

2 0 0 0 0

Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start 90 End 90
Distance and Direction to Observation Point from Emission Point Start _____ End _____

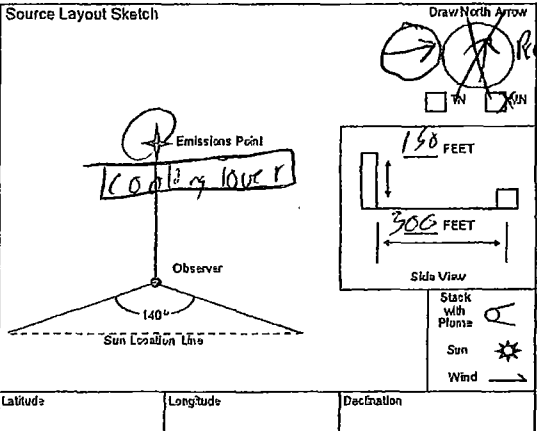
3 0 0 0 0

Describe Emissions Start NU End NU
Emission Color Start Clear End _____ Water Droplet Plume Start _____ End _____

4 0 0 0 0

Describe Plume Background Start sky End sky
Background Color Start Blue End Blue Sky Conditions Start clear End clear
Wind Speed Start 6-10 End 5-10 Wind Direction Start S End S
Ambient Temp. Start 69 End 69 Wet Bulb Temp. _____ RH Percent _____

5 0 0 0 0



6 0 0 0 0

7 0 0 0 0

8 0 0 0 0

9 0 0 0 0

10 0 0 0 0

11 0 0 0 0

12 0 0 0 0

13 0 0 0 0

14 0 0 0 0

15 0 0 0 0

16 0 0 0 0

17 0 0 0 0

18 0 0 0 0

19 0 0 0 0

20 0 0 0 0

21 0 0 0 0

22 0 0 0 0

23 0 0 0 0

24 0 0 0 0

25 0 0 0 0

26 0 0 0 0

27 0 0 0 0

28 0 0 0 0

29 0 0 0 0

30 0 0 0 0

Additional Information

Observer's Name (Print) Rob White

Observer's Signature _____ Date 11-13-09

Organization FLA AHT

Certified By ETA Date 10-21-09

Method Used (Circle One) Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Company Name Florida Power and Light
 Facility Name West county Energy Center
 Street Address 20505 State Road 80
 City Loxahatchee State FL Zip 33470

Form Number _____ Page 6 of 6
 Continued on Form Number _____

Process Natural Gas Unit # 213 Operating Mode Base
 Control Equipment AK50 Operating Mode Base

Observation Date 11-13-09 Time Zone Eastern Start Time 0920 End Time 0927

Describe Emissions Point
 Height of Emiss. Pt. Start 150ft End 150ft Height of Emiss. Pt. Rel. to Observer Start 145 End 145
 Distance to Emiss. Pt. Start 300ft End 300ft Direction to Emiss. Pt. (Degrees) Start 277 End 277

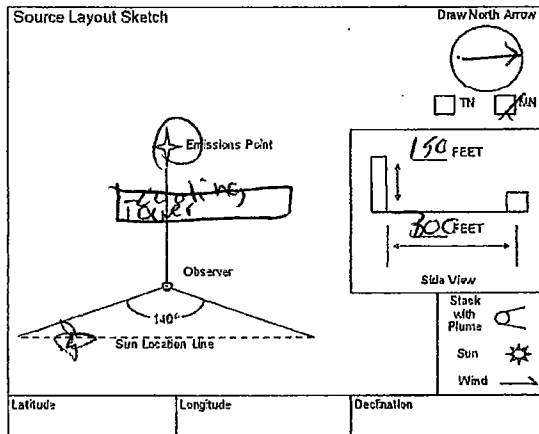
Min	Sec	0	15	30	45	Comments
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Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start 970 End 970
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Describe Emissions Start NONE visible End NONE visible
 Emission Color Start clear End clear Water Droplet Plume Start NONE End NONE

Describe Plume Background Start sky End sky
 Background Color Start Blue End Blue Sky Conditions Start clear End clear
 Wind Speed Start 5-10 End 5-10 Wind Direction Start 5 End 5
 Ambient Temp. Start 67 End 69 Wet Bulb Temp. NA RH Percent _____



Observer's Name (Print) Rob White
 Observer's Signature [Signature] Date 11-13-09
 Organization AHT
 Certified By EIA Date 10-21-09

Additional Information _____

TEST RESULTS

**Opacity
Base Load with Duct Burners**

Company: Florida Power and Light Equipment: Mitsubishi 501G with Duct Burners Location: West County Energy Center Date: November 13, 2009 Project #: bv-10-westcounty.fl-comp#1						Run 1	Average Opacity: 0.00 % Maximum Opacity: 0 % 6 Minute Average: 0.00 % 6 Minute Maximum: 0.00 % Max Time w/ Opacity: 0.00 minutes				
TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

Company: Florida Power and Light
 Equipment: Mitsubishi 501G with Duct Burners
 Location: West County Energy Center
 Date: November 13, 2009
 Project #: bv-10-westcounty.fl-comp#1

Run 2

Average Opacity: 0.00 %
 Maximum Opacity: 0 %
 6 Minute Average: 0.00 %
 6 Minute Maximum: 0.00 %
 Max Time w/ Opacity: 0.00 minutes

TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

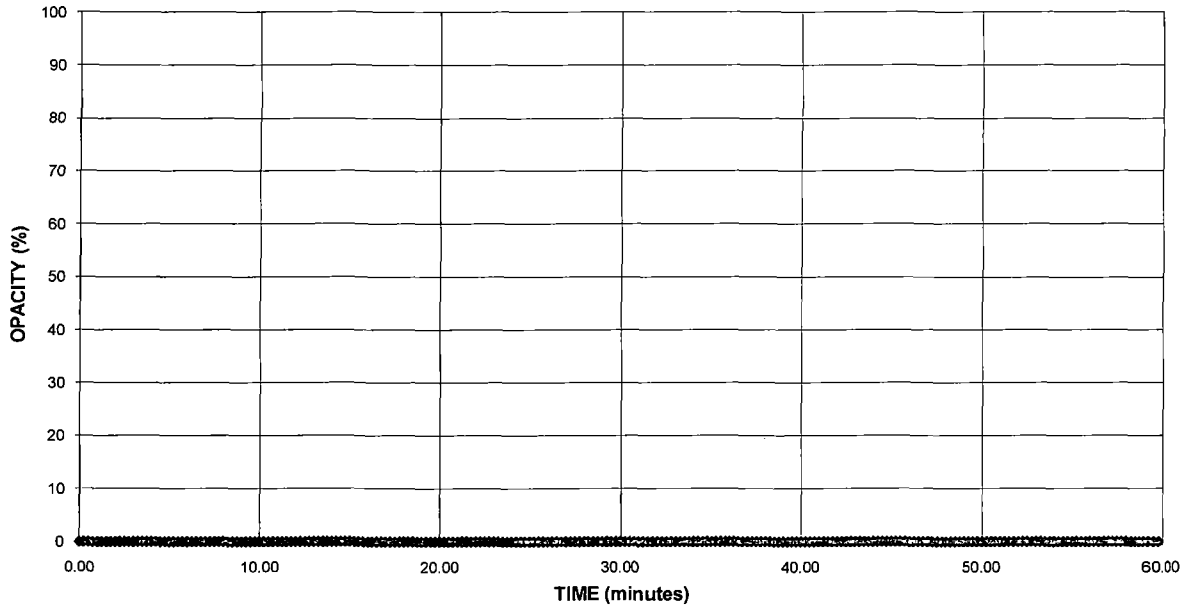
Company: Florida Power and Light Equipment: Mitsubishi 501G with Duct Burners Location: West County Energy Center Date: November 13, 2009 Project #: bv-10-westcounty.fl-comp#1						Run 3		Average Opacity: 0.00 % Maximum Opacity: 0 % 6 Minute Average: 0.00 % 6 Minute Maximum: 0.00 % Max Time w/ Opacity: 0.00 minutes			
TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.	TIME (min)	OPACITY (%)	6 MIN AVG.
0.00	0	N/A	15.00	0	0.00	30.00	0	0.00	45.00	0	0.00
0.25	0	N/A	15.25	0	0.00	30.25	0	0.00	45.25	0	0.00
0.50	0	N/A	15.50	0	0.00	30.50	0	0.00	45.50	0	0.00
0.75	0	N/A	15.75	0	0.00	30.75	0	0.00	45.75	0	0.00
1.00	0	N/A	16.00	0	0.00	31.00	0	0.00	46.00	0	0.00
1.25	0	N/A	16.25	0	0.00	31.25	0	0.00	46.25	0	0.00
1.50	0	N/A	16.50	0	0.00	31.50	0	0.00	46.50	0	0.00
1.75	0	N/A	16.75	0	0.00	31.75	0	0.00	46.75	0	0.00
2.00	0	N/A	17.00	0	0.00	32.00	0	0.00	47.00	0	0.00
2.25	0	N/A	17.25	0	0.00	32.25	0	0.00	47.25	0	0.00
2.50	0	N/A	17.50	0	0.00	32.50	0	0.00	47.50	0	0.00
2.75	0	N/A	17.75	0	0.00	32.75	0	0.00	47.75	0	0.00
3.00	0	N/A	18.00	0	0.00	33.00	0	0.00	48.00	0	0.00
3.25	0	N/A	18.25	0	0.00	33.25	0	0.00	48.25	0	0.00
3.50	0	N/A	18.50	0	0.00	33.50	0	0.00	48.50	0	0.00
3.75	0	N/A	18.75	0	0.00	33.75	0	0.00	48.75	0	0.00
4.00	0	N/A	19.00	0	0.00	34.00	0	0.00	49.00	0	0.00
4.25	0	N/A	19.25	0	0.00	34.25	0	0.00	49.25	0	0.00
4.50	0	N/A	19.50	0	0.00	34.50	0	0.00	49.50	0	0.00
4.75	0	N/A	19.75	0	0.00	34.75	0	0.00	49.75	0	0.00
5.00	0	N/A	20.00	0	0.00	35.00	0	0.00	50.00	0	0.00
5.25	0	N/A	20.25	0	0.00	35.25	0	0.00	50.25	0	0.00
5.50	0	N/A	20.50	0	0.00	35.50	0	0.00	50.50	0	0.00
5.75	0	0.00	20.75	0	0.00	35.75	0	0.00	50.75	0	0.00
6.00	0	0.00	21.00	0	0.00	36.00	0	0.00	51.00	0	0.00
6.25	0	0.00	21.25	0	0.00	36.25	0	0.00	51.25	0	0.00
6.50	0	0.00	21.50	0	0.00	36.50	0	0.00	51.50	0	0.00
6.75	0	0.00	21.75	0	0.00	36.75	0	0.00	51.75	0	0.00
7.00	0	0.00	22.00	0	0.00	37.00	0	0.00	52.00	0	0.00
7.25	0	0.00	22.25	0	0.00	37.25	0	0.00	52.25	0	0.00
7.50	0	0.00	22.50	0	0.00	37.50	0	0.00	52.50	0	0.00
7.75	0	0.00	22.75	0	0.00	37.75	0	0.00	52.75	0	0.00
8.00	0	0.00	23.00	0	0.00	38.00	0	0.00	53.00	0	0.00
8.25	0	0.00	23.25	0	0.00	38.25	0	0.00	53.25	0	0.00
8.50	0	0.00	23.50	0	0.00	38.50	0	0.00	53.50	0	0.00
8.75	0	0.00	23.75	0	0.00	38.75	0	0.00	53.75	0	0.00
9.00	0	0.00	24.00	0	0.00	39.00	0	0.00	54.00	0	0.00
9.25	0	0.00	24.25	0	0.00	39.25	0	0.00	54.25	0	0.00
9.50	0	0.00	24.50	0	0.00	39.50	0	0.00	54.50	0	0.00
9.75	0	0.00	24.75	0	0.00	39.75	0	0.00	54.75	0	0.00
10.00	0	0.00	25.00	0	0.00	40.00	0	0.00	55.00	0	0.00
10.25	0	0.00	25.25	0	0.00	40.25	0	0.00	55.25	0	0.00
10.50	0	0.00	25.50	0	0.00	40.50	0	0.00	55.50	0	0.00
10.75	0	0.00	25.75	0	0.00	40.75	0	0.00	55.75	0	0.00
11.00	0	0.00	26.00	0	0.00	41.00	0	0.00	56.00	0	0.00
11.25	0	0.00	26.25	0	0.00	41.25	0	0.00	56.25	0	0.00
11.50	0	0.00	26.50	0	0.00	41.50	0	0.00	56.50	0	0.00
11.75	0	0.00	26.75	0	0.00	41.75	0	0.00	56.75	0	0.00
12.00	0	0.00	27.00	0	0.00	42.00	0	0.00	57.00	0	0.00
12.25	0	0.00	27.25	0	0.00	42.25	0	0.00	57.25	0	0.00
12.50	0	0.00	27.50	0	0.00	42.50	0	0.00	57.50	0	0.00
12.75	0	0.00	27.75	0	0.00	42.75	0	0.00	57.75	0	0.00
13.00	0	0.00	28.00	0	0.00	43.00	0	0.00	58.00	0	0.00
13.25	0	0.00	28.25	0	0.00	43.25	0	0.00	58.25	0	0.00
13.50	0	0.00	28.50	0	0.00	43.50	0	0.00	58.50	0	0.00
13.75	0	0.00	28.75	0	0.00	43.75	0	0.00	58.75	0	0.00
14.00	0	0.00	29.00	0	0.00	44.00	0	0.00	59.00	0	0.00
14.25	0	0.00	29.25	0	0.00	44.25	0	0.00	59.25	0	0.00
14.50	0	0.00	29.50	0	0.00	44.50	0	0.00	59.50	0	0.00
14.75	0	0.00	29.75	0	0.00	44.75	0	0.00	59.75	0	0.00

Company: Florida Power and Light
Equipment: Mitsubishi 501G with Duct Burners
Location: West County Energy Center
Date: November 13, 2009
Project #: bv-10-westcounty.fl-comp#1

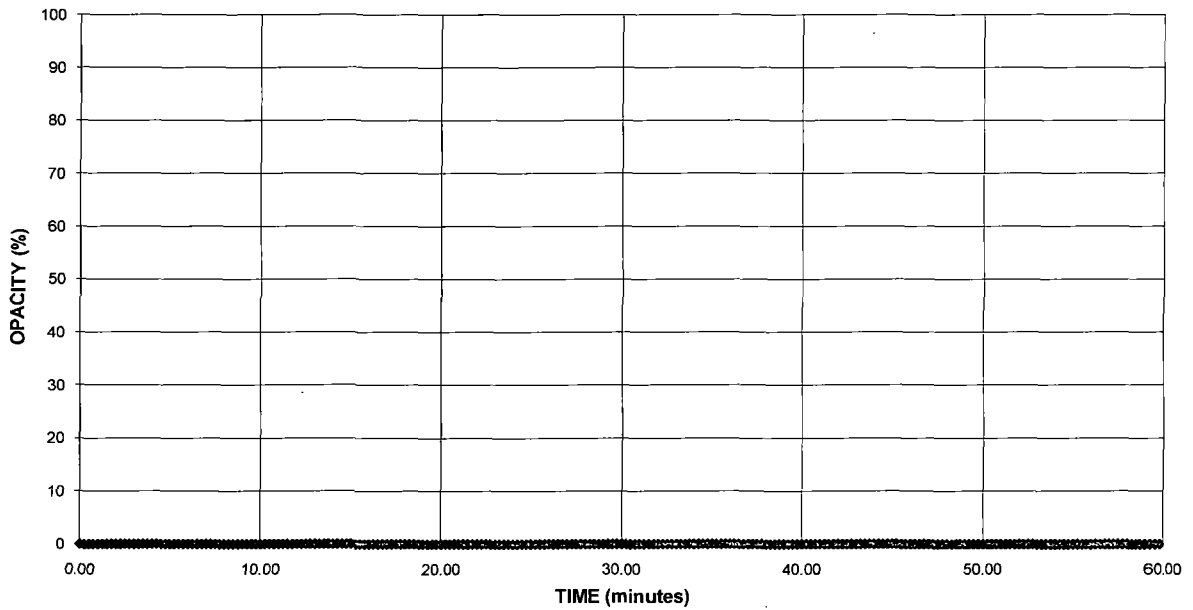
Run 1

Average Opacity: 0.00 %
Maximum Opacity: 0 %
6 Minute Average: 0.00 %
6 Minute Maximum: 0.00 %
Max Time w/ Opacity: 0.00 minutes

OPACITY READINGS (15 second intervals)



OPACITY RESULTS (6 minute averages)

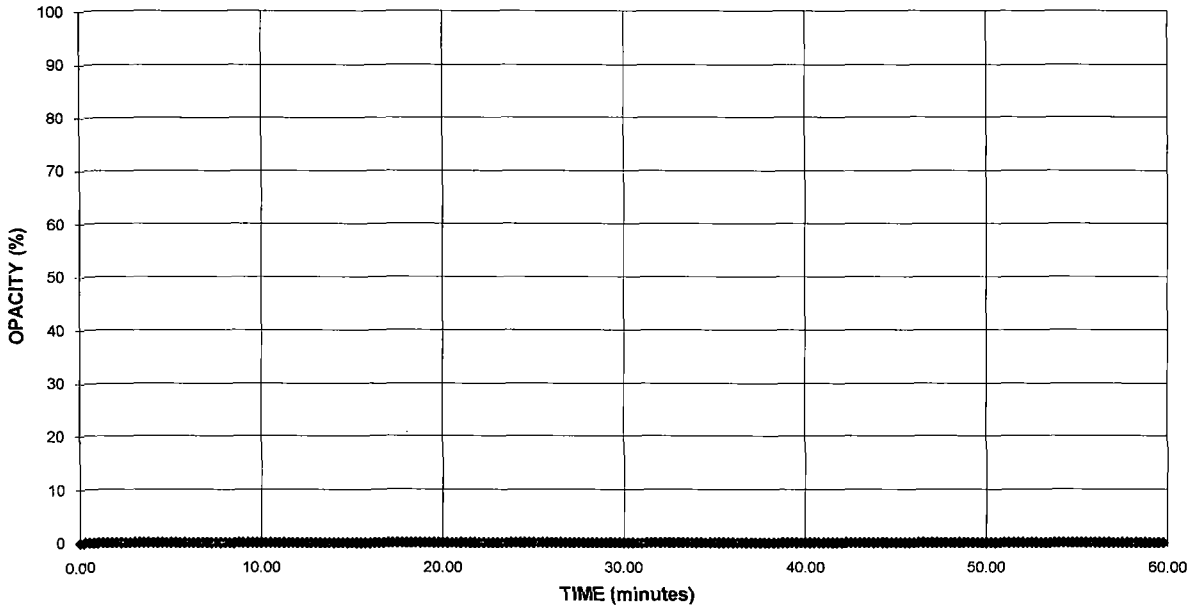


Company: Florida Power and Light
Equipment: Mitsubishi 501G with Duct Burners
Location: West County Energy Center
Date: November 13, 2009
Project #: bv-10-westcounty.fl-comp#1

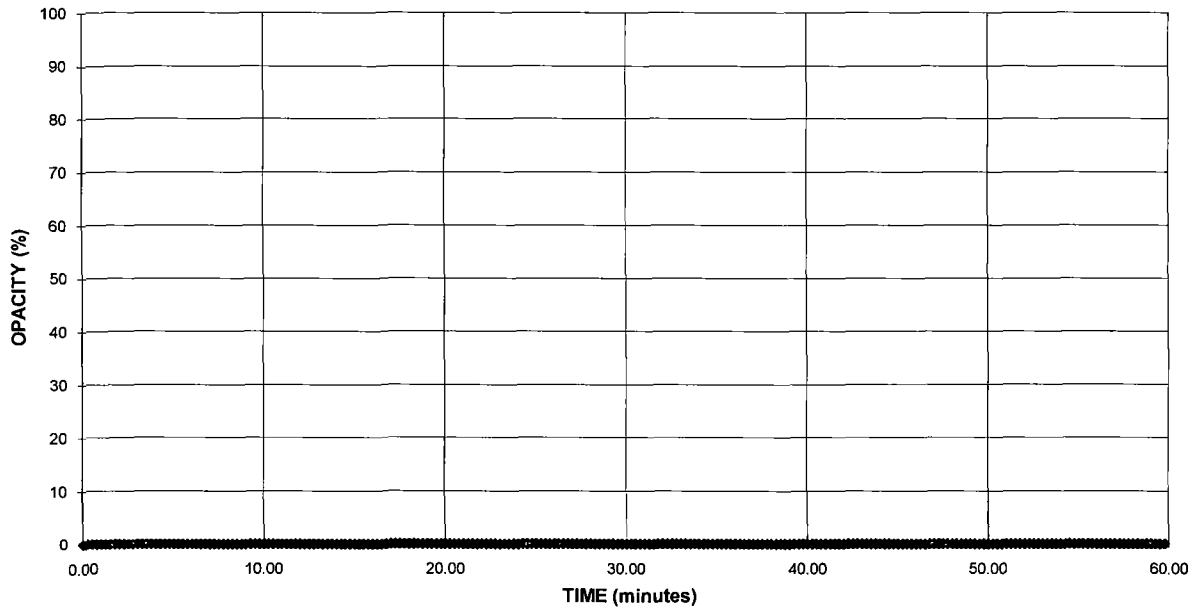
Run 2

Average Opacity: 0.00 %
Maximum Opacity: 0 %
6 Minute Average: 0.00 %
6 Minute Maximum: 0.00 %
Max Time w/ Opacity: 0.00 minutes

OPACITY READINGS (15 second intervals)



OPACITY RESULTS (6 minute averages)

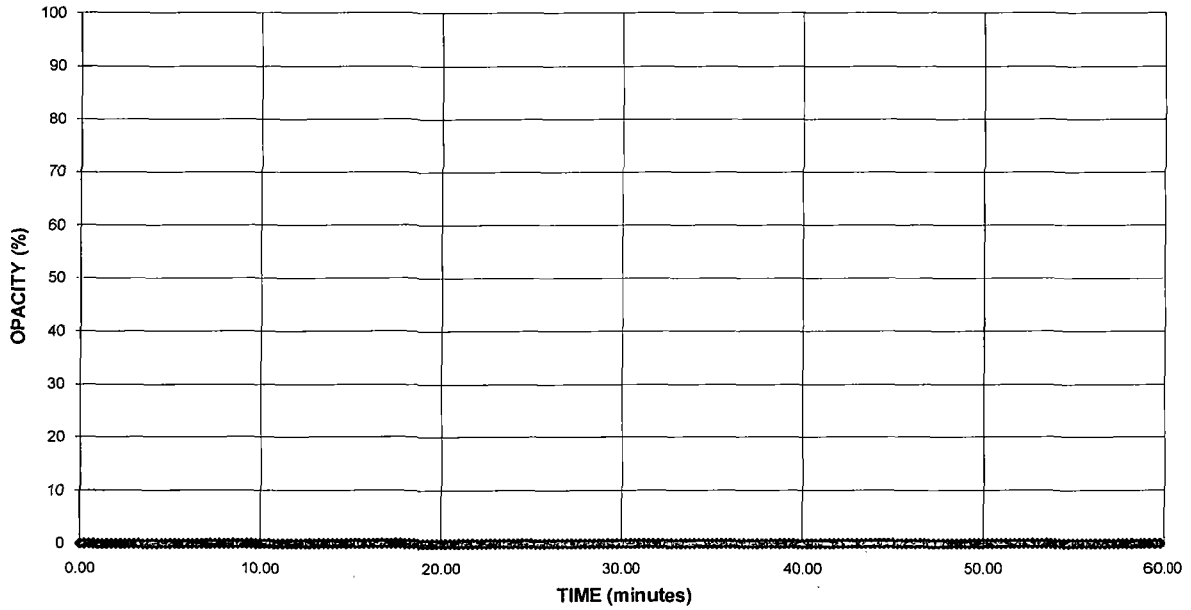


Company: Florida Power and Light
Equipment: Mitsubishi 501G with Duct Burners
Location: West County Energy Center
Date: November 13, 2009
Project #: bv-10-westcounty.fl-comp#1

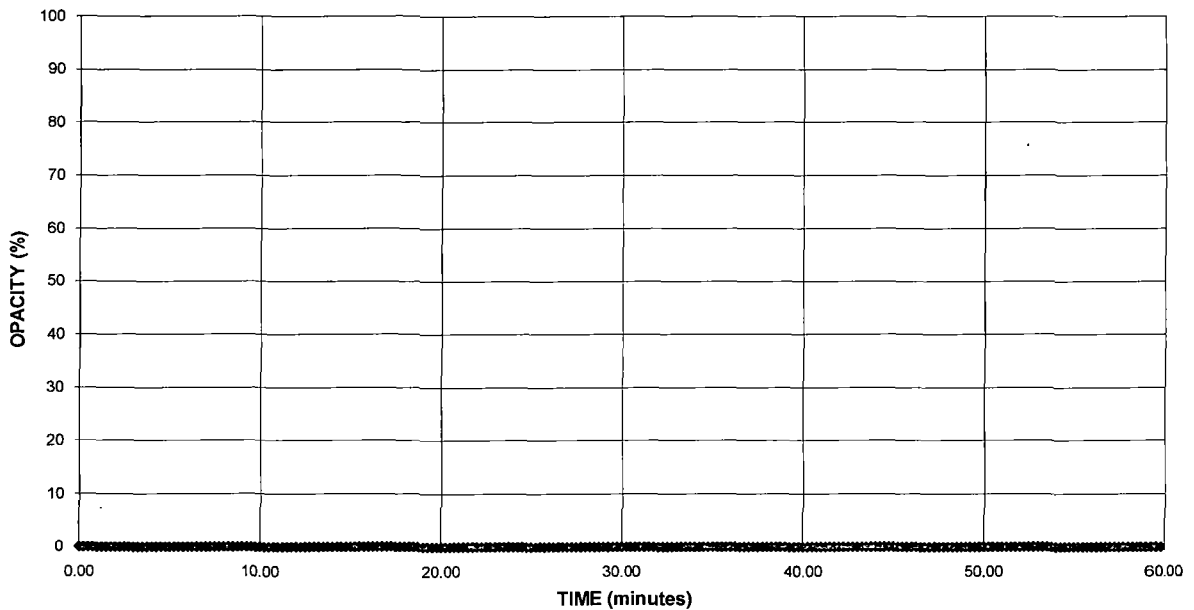
Run 3

Average Opacity: 0.00 %
Maximum Opacity: 0 %
6 Minute Average: 0.00 %
6 Minute Maximum: 0.00 %
Max Time w/ Opacity: 0.00 minutes

OPACITY READINGS (15 second intervals)



OPACITY RESULTS (6 minute averages)



Method Used (Circle One)
 Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Company Name: Florida Power and Light
 Facility Name: West County Energy Center
 Street Address: 20505 State Rd 20
 City: Loxahatchee State: FL Zip: 33470

Form Number _____ Page 1 of 6

Continued on Form Number _____

Process: Natural Gas Unit #: 26 Operating Mode: Base Load DB
 Control Equipment: HRSG Operating Mode: Base

Observation Date: 11-13-09 Time Zone: Eastern Start Time: 13:25 End Time: 14:24

Describe Emissions Point
 Height of Emiss. Pt. Start: 300ft End: 300ft Height of Emiss. Pt. Rel. to Observer Start: 145 End: 145
 Distance to Emiss. Pt. Start: 500ft End: 500ft Direction to Emiss. Pt. (Degrees) Start: 20° End: 20°

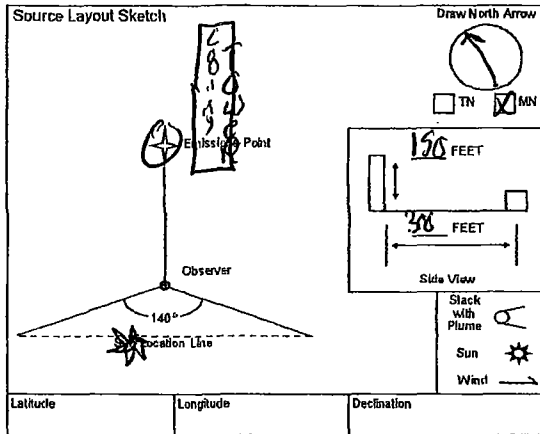
Min.	Sec.	0	15	30	45	Comments
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Vertical Angle to Obs. Pt. Start: _____ End: _____ Direction to Obs. Pt. (Degrees) Start: 200° End: 200°
 Distance and Direction to Observation Point from Emission Point Start: _____ End: _____

1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Describe Emissions Start: not visible End: not visible
 Emission Color Start: clear End: clear Water Droplet Plume Start: none End: none

Describe Plume Background Start: sky End: sky
 Background Color Start: blue End: blue Sky Conditions Start: clear End: clear
 Wind Speed Start: 5-10 End: 5-10 Wind Direction Start: S End: S
 Ambient Temp. Start: 76 End: 75 Wet Bulb Temp. NA RH Percent _____



Observer's Name (Print) Rob White

Observer's Signature _____ Date: 11-13-09

Organization AH I

Certified By ETA Date: 10-21-09

Additional Information

Method Used (Circle One)
 Method A 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Form Number _____ Page **2 of 6**

Company Name **Florida Power & Light**
 Facility Name **West county Energy Center**
 Street Address **20603 State Rd 80**
 City **Loxahatchee** State **FL** Zip **33470**

Continued on Form Number _____

Process **Natural Gas** Unit # **26** Operating Mode **Base**
 Control Equipment **HRSG** Operating Mode **Base**

Observation Date **11-13-09** Time Zone **Eastern** Start Time **1325** End Time **1424**

Describe Emissions Point

Height of Emiss. Pt. Start **160** End **150** Height of Emiss. Pt. Rel. to Observer Start **145** End **145**
 Distance to Emiss. Pt. Start **500** End **500 ft** Direction to Emiss. Pt. (Degrees) Start **20°** End **20°**

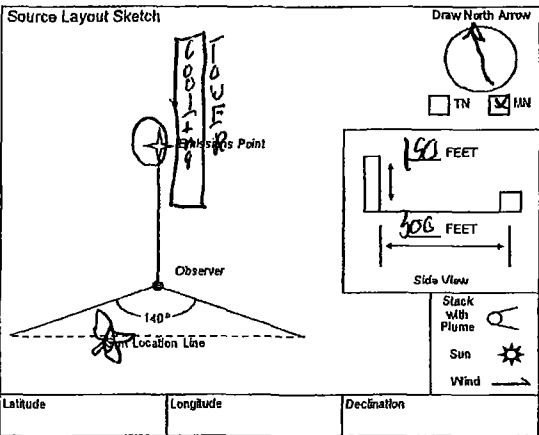
No.	Sec.	0	15	30	45	Comments
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Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start **200°** End **200°**
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Describe Emissions Start **not visible** End **no**
 Emission Color Start **clear** End **clear** Water Droplet Plume Start **none** End **none**

Describe Plume Background Start **sky** End **sky**
 Background Color Start **blue** End **blue** Sky Conditions Start **clear** End **clear**
 Wind Speed Start **5-10** End **5-10** Wind Direction Start **S** End **S**
 Ambient Temp. Start **76** End **75** Wet Bulb Temp. **NA** RH Percent _____



Observer's Name (Print) **Rob White**

Additional Information

Observer's Signature **[Signature]** Date **11-13-09**

Organization **AHI**

Certified By **FIA** Date **10-21-09**

Method Used (Circle One)
 Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Company Name Florida Power & Light
 Facility Name West County Energy Center
 Street Address 20505 St. Rd 80
 City Loxahatchee State FL Zip 33760

Form Number _____ Page 3 of 6

Continued on Form Number _____

Process Natural Gas Unit # 26 Operating Mode Base
 Control Equipment HRSG Operating Mode Base

Observation Date 11-13-09 Time Zone Eastern Start Time 1426 End Time 1525

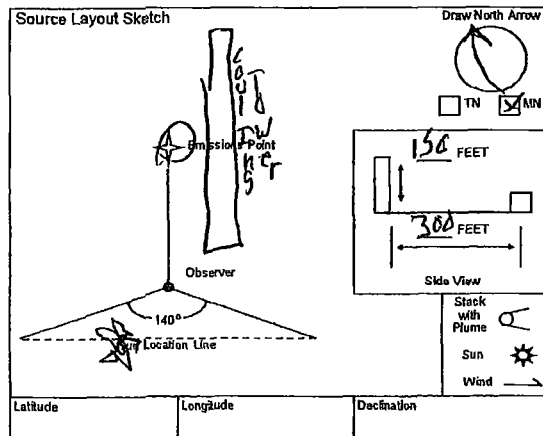
Describe Emissions Point
 Height of Emiss. Pt. Start 150 End 150 Height of Emiss. Pt. Rel. to Observer Start 145 End 145
 Distance to Emiss. Pt. Start 500 End 500 Direction to Emiss. Pt. (Degrees) Start 20 End 20

Min.	Sec.	Time				Comments
		0	15	30	45	
1	0	0	0	0	0	
2	0	0	0	0	0	
3	0	0	0	0	0	
4	0	0	0	0	0	
5	0	0	0	0	0	
6	0	0	0	0	0	
7	0	0	0	0	0	
8	0	0	0	0	0	
9	0	0	0	0	0	
10	0	0	0	0	0	
11	0	0	0	0	0	
12	0	0	0	0	0	
13	0	0	0	0	0	
14	0	0	0	0	0	
15	0	0	0	0	0	
16	0	0	0	0	0	
17	0	0	0	0	0	
18	0	0	0	0	0	
19	0	0	0	0	0	
20	0	0	0	0	0	
21	0	0	0	0	0	
22	0	0	0	0	0	
23	0	0	0	0	0	
24	0	0	0	0	0	
25	0	0	0	0	0	
26	0	0	0	0	0	
27	0	0	0	0	0	
28	0	0	0	0	0	
29	0	0	0	0	0	
30	0	0	0	0	0	

Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start 20 End 20
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

Describe Emissions Start NOT Visible End NU
 Emission Color Start Clear End Clear Water Droplet Plume Start NONE End NONE

Describe Plume Background Start sky End sky
 Background Color Start Blue End Blue Sky Conditions Start Clear End Clear
 Wind Speed Start 5-16 End 5-16 Wind Direction Start S End S
 Ambient Temp. Start 75 End 78 Wet Bulb Temp. _____ RH Percent _____



Observer's Name (Print) Rob White

Observer's Signature _____ Date 11-13-09

Organization AHI

Certified By ETA Date 10-21-09

Additional Information _____

Method Used (Circle One) Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Form Number _____ Page 4 of 6

Company Name Florida Power & Light
 Facility Name West County Energy Center
 Street Address 20505 State Rd 20
 City Cocoa State FL Zip 32940

Continued on Form Number _____

Process Natural Gas Unit # 26 Operating Mode Base
 Control Equipment HRSG Operating Mode Base

Observation Date 11-13-09 Time Zone Eastern Start Time 1426 End Time 1525

Describe Emissions Point
 Height of Emis. Pt. Start 150 End 150 Height of Emis. Pt. Rel. to Observer Start 145 End 145
 Distance to Emis. Pt. Start 500 End 500 Direction to Emis. Pt. (Degrees) Start 20° End 20°

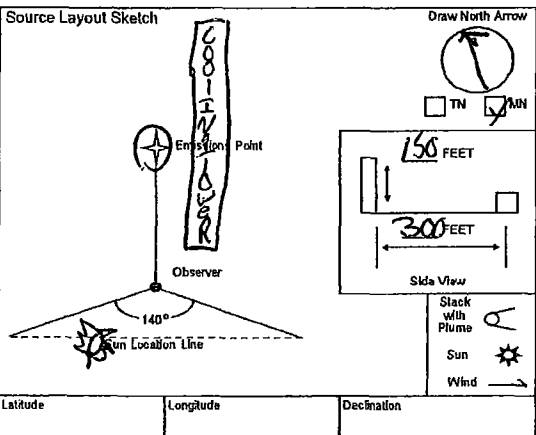
Th	Sec	0	15	30	45	Comments
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Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start 200° End 200°
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Describe Emissions Start not visible End NV
 Emission Color Start clear End clear Water Droplet Plume Start NONE End NONE

Describe Plume Background Start sky End sky
 Background Color Start Blue End Blue Sky Conditions Start clear End clear
 Wind Speed Start 5-10 End 5-10 Wind Direction Start 5 End 5
 Ambient Temp. Start 76 End 78 Wet Bulb Temp. NA RH Percent _____



Observer's Name (Print) Rob White

Observer's Signature _____ Date 11-13-09

Additional Information _____

Organization AHE

Certified By ETA Date 10-21-09

Method Used (Circle One) Method 9 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Company Name: Florida Power & Light
 Facility Name: West County Energy Center
 Street Address: 20505 State Rd 80
 City: Lodowatchee State: FL Zip: 33746

Form Number _____ Page 5 of 6
 Continued on Form Number _____

Process: Natural gas Unit#: 26 Operating Mode: Base Load
 Control Equipment: HRSG Operating Mode: Base

Observation Date: 11-13-09 Time Zone: Eastern Start Time: 15:26 End Time: 16:25

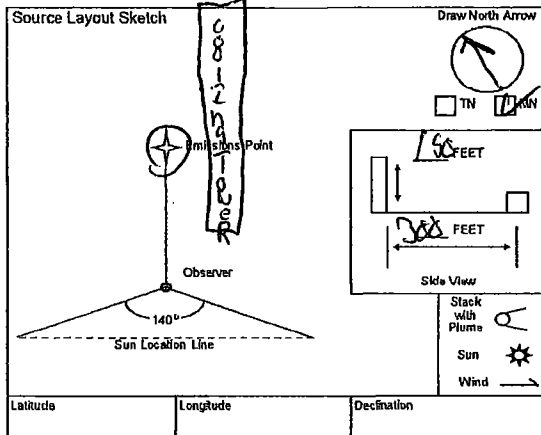
Describe Emissions Point
 Height of Emiss. Pt. Start: 150 End: 150 Height of Emiss. Pt. Rel. to Observer Start: 195 End: 195
 Distance to Emiss. Pt. Start: 500 End: 500 Direction to Emiss. Pt. (Degrees) Start: 20 End: 20

Min	Sec.				Comments
	0	15	30	45	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Vertical Angle to Obs. Pt. Direction to Obs. Pt. (Degrees) Start: 200 End: 200
 Distance and Direction to Observation Point from Emission Point Start: _____ End: _____

Describe Emissions Start: WV End: clear WV
 Emission Color: Water Droplet Plume
 Start: WV End: WV Start: NONE End: NONE

Describe Plume Background Start: sky End: sky
 Background Color: Blue Sky Conditions: clear
 Wind Speed: 5-10 Wind Direction: S
 Ambient Temp.: 79 Wet Bulb Temp.: NA RH Percent: _____



Observer's Name (Print): Rob White
 Observer's Signature: [Signature] Date: 11-13-09
 Organization: AHI
 Certified By: ETA Date: 10-21-09

Additional Information

Method Used (Circle One)
 Method A 203A 203B Other: _____

VISUAL EMISSIONS OBSERVATION FORM

Form Number _____ Page 6 of 6
 Continued on Form Number _____

Company Name Florida Power & Light
 Facility Name West County Energy Center
 Street Address 20505 State Rd 90
 City Loxahatchee State FL Zip 32740

Observation Date 11-13-09 Time Zone Kashim Start Time 1526 End Time 1625

Process Natural Gas Unit # 26 Operating Mode W/ Base with DB
 Control Equipment HRSG Operating Mode Base

Min	Sec	0	15	30	45	Comments
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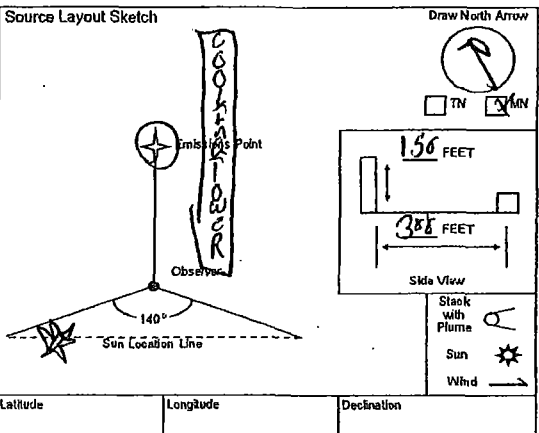
Describe Emissions Point
 Height of Emiss. Pt. Start 150 End 150 Height of Emiss. Pt. Rel. to Observer Start 145 End 145
 Distance to Emiss. Pt. Start 800 End 800 Direction to Emiss. Pt. (Degrees) Start 20 End 20

1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Vertical Angle to Obs. Pt. Start _____ End _____ Direction to Obs. Pt. (Degrees) Start 200 End 200
 Distance and Direction to Observation Point from Emission Point Start _____ End _____

Describe Emissions Start Not visible End NV
 Emission Color Start clear End clear Water Droplet Plume Start NONE End NONE

Describe Plume Background Start sky End sky
 Background Color Start Blue End Blue Sky Conditions Start clear End clear
 Wind Speed Start 5-10 End 5-10 Wind Direction Start S End S
 Ambient Temp. Start 79 End _____ Wet Bulb Temp. NA RH Percent _____



Observer's Name (Print) Rob White
 Observer's Signature _____ Date 11-13-09
 Organization AHI
 Certified By ETA Date 10-21-09

Additional Information _____

CALCULATIONS

EXAMPLE CALCULATIONS (FFACTOR)

RM 19, (07-19-06), 2.0 Summary of Method, 2.1 Emission Rates. Oxygen (O₂) or carbon dioxide (CO₂) concentrations and appropriate F factors (ratios of combustion gas volumes to heat inputs) are used to calculate pollutant emission rates from pollutant concentrations.

Mark's Std Hdbk, 10th ed., pg 4-26
High Heat Value Dry (HHV_{dry}), calc for Methane (single component for the fuel gas)

$$HHV_{dry} (Btu / SCF) = \left[\left(\frac{M\%}{100} \right) \times GCM \right] \quad HHV_{dry} = \frac{95.91 \%}{100.00} \times \frac{994.85 \text{ Btu}}{\text{SCF}} = \frac{954.12 \text{ Btu}}{\text{SCF}}$$

Mark's Std Hdbk, 10th ed., pg 4-26
Low Heat Value Dry (LHV_{dry}), calc for Methane (single component for the fuel gas)

$$LHV_{dry} (Btu / SCF) = \left[\left(\frac{M\%}{100} \right) \times NCM \right] \quad LHV_{dry} = \frac{95.91 \%}{100.00} \times \frac{895.75 \text{ Btu}}{\text{SCF}} = \frac{859.08 \text{ Btu}}{\text{SCF}}$$

RM 19, (07-19-06), 12.2 Emission Rates of PM, SO₂, and NOx. Select from the following sections the applicable procedure to compute the PM, SO₂, or NOx emission rate (E) in lb/MMBtu. The pollutant concentration must be in lb/scf and the F factor must be in scf/MMBtu. If the pollutant concentration (C) is not in the appropriate units, use Table 19-1 in Section 17.0 to make the proper conversion. An F factor is the ratio of the gas volume of the products of combustion to the heat content of the fuel. The dry F factor (F_d) includes all components of combustion less water, the wet F factor (F_w) includes all components of combustion, and the carbon F factor (F_c) includes only carbon dioxide.

Civil Eng. Ref. Man., 7th Ed., pg 14-9/GPA Ref. Bulletin 181-86, App. C
High Heat Value Wet (HHV_{wet}), calc for entire sample (all components of the fuel gas)

$$HHV_{wet} (Btu / SCF) = \frac{HHV_{dry}}{W / D. \text{ factor}} \quad HHV_{wet} = \frac{997.90 \text{ Btu/SCF}}{1.0236} = 974.89 \text{ Btu/SCF}$$

Civil Eng. Ref. Man., 7th Ed., pg 14-9/GPA Ref. Bulletin 181-86, App. C
Low Heat Value Wet (LHV_{wet}), calc for entire sample (all components of the fuel gas)

$$LHV_{wet} (Btu / SCF) = \frac{LHV_{dry}}{W / D. \text{ factor}} \quad LHV_{wet} = \frac{899.21 \text{ Btu/SCF}}{1.0236} = 878.47 \text{ Btu/SCF}$$

Lbs Component per Lb-Mol of Gas (CM), calc for Methane (single component for the fuel gas)

$$CM (lb / lb - mol) = \left[\left(\frac{M\%}{100} \right) \times MW \right] \quad CM = \frac{95.91 \%}{100.00} \times \frac{16.04 \text{ lb}}{\text{lb-mol}} = 15.39 \text{ lb/lb-mol}$$

ASTM D 3588
Fuel Molecular Weight (MW_{Fuel})

$$MW_{Fuel} (lb / lb \cdot mol) = \left[\sum (CM) \right] \quad MW_{Fuel} = 15.39 \text{ lb/lb-mol} + 0.57 \text{ lb/lb-mol} + \text{etc.} = 16.859 \text{ lb/lb-mol}$$

Btu per Lb of Gas Gross (GCV)

$$GCV (Btu / lb) = \left[\frac{HHV_{dry} \times G}{MW_{Fuel}} \right] \quad GCV = \frac{997.90 \text{ Btu/SCF} \times 385.23 \text{ ft}^3/\text{lbmol}}{16.859 \text{ lb/lb-mol}} = 22,802.21 \text{ Btu/lb}$$

ASTM D 3588 (SG)
Specific Gravity

$$SG = \left[\frac{MW_{Fuel}}{MW_{AIR}} \right] \quad SG = \frac{16.86 \text{ lb/lb-mol}}{28.96 \text{ lb/lb-mol}} = 0.5821$$

Btu per Lb of Gas Net (NCV)

$$NCV (Btu / lb) = \left[\frac{LHV_{dry} \times G}{MW_{Fuel}} \right] \quad NCV = \frac{899.21 \text{ Btu/SCF} \times 385.23 \text{ ft}^3/\text{lbmol}}{16.859 \text{ lb/lb-mol}} = 20,547.03 \text{ Btu/lb}$$

Weight Percent of Component (C%), methane

$$C\% (\%) = \left[\left(\frac{CM}{MW_{Fuel}} \right) \times 100 \right] \quad C\% = \frac{15.39 \text{ lb/lb-mol}}{16.86 \text{ lb/lb-mol}} \times 100 = 91.26 \%$$

RM 19, (07-19-06), **Weight Percent of Volatile Organic Compounds (VOC%)**

$$VOC\% (\%) = \left[\sum_{C_2H_4}^{C_6H_{14}} M\% \right] \quad VOC\% = 0.63 \% + 0.14 \% + 0.13 \% + \text{etc.} = 1.13 \%$$

RM 19, (07-19-06), 12.3.2 **Determined F Factors**. If the fuel burned is not listed in Table 19-2 or if the owner or operator chooses to determine an F factor rather than use the values in Table 19-2, use the procedure below: 12.3.2.1 Equations. Use the eq

RM 19, (07-19-06), 12.1 Nomenclature
K (scf/lb)%

H	3.64
C	1.53
S	0.57
N ₂	0.14
O ₂	0.46

$$F_d = \frac{K(K_{hd} \%H + K_c \%C + K_s \%S + K_n \%N - K_o \%O)}{GCV} \quad \text{Eq. 19-13}$$

$$F_d = \frac{10^6 \text{ Btu}}{\text{MMBtu}} \times \left[\frac{3.64 \text{ SCF}}{\text{lb} \cdot \%} \times 23.82 \% + \frac{1.53 \text{ SCF}}{\text{lb} \cdot \%} \times 72.86 \% + \frac{0.57 \text{ SCF}}{\text{lb} \cdot \%} \times 0.00 \% + \frac{0.14 \text{ SCF}}{\text{lb} \cdot \%} \times 0.97 \% - \frac{0.46 \text{ SCF}}{\text{lb} \cdot \%} \times 2.36 \% \right] \times \frac{\text{lb}}{22,802.21 \text{ Btu}} = \frac{8,649.37 \text{ SCF}}{\text{MMBtu}}$$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (INFORMATION)

Specific Humidity (RH_{sp})

Note: RH_{sp} (gr/lb) calculated using temperature, relative humidity, and barometric pressure with psychrometric chart, psychrometric calculator, or built in psychrometric algorithm.

$$RH_{sp} (lb/lb) = \left[\left(\frac{gr}{lb} \right) \times \frac{lb}{7000gr} \right]$$

$$RH_{sp} = \frac{55.22 \text{ gr}}{lb} \times \frac{1 \text{ lb}}{7000 \text{ gr}} = 0.007889 \frac{\text{lb H}_2\text{O}}{\text{lb Air}}$$

Fuel Flow Conversion (Q_f)

Note: Q_f(lb/min) is a value updated from the source operator.

$$Q_f = \left[Q_f \times G \times \left(\frac{1}{MW_{Fuel}} \right) \right]$$

$$Q_f = \frac{1,834.17 \text{ lb}}{\text{min}} \times \frac{60 \text{ min}}{\text{hr}} \times \frac{385.23 \text{ ft}^3}{\text{lb-mol}} \times \frac{\text{lb-mol}}{16.86 \text{ lb}} = 2,514,663 \text{ SCFH}$$

Combustor Inlet Pressure / Compressor Discharge Pressure (CIP / CDP)
(corrected from gauge to atmospheric pres. and conv. to mm Hg.)

Note: CIP / CDP (psig) is a value obtained from the source operator.

$$CIP / CDP = \left[(psig + P) \times \frac{51.71493 \text{ mmHg}}{1 \text{ psi}} \right]$$

$$CIP / CDP = (275.7 \text{ psig} + 14.6708) \times \frac{51.71493 \text{ mmHg}}{1 \text{ psia}} = 15,018 \text{ mmHg (abs)}$$

EXAMPLE CALCULATIONS (CALIBRATION)

Analyzer Calibration Error

RM 7E, (08-15-06), 12.2 Analyzer Calibration Error. For non-dilution systems, use Equation 7E-1 to calculate the analyzer calibration error for the low-, mid-, and high-level calibration gases. (calc for NO_x analyzer mid gas, if applicable)

$$ACE = \left(\frac{C_{Dir} - C_V}{CS} \right) \times 100 \quad \text{Eq. 7E-1}$$

$$ACE = \frac{5.25 \text{ ppm} - 4.99 \text{ ppm}}{9.11 \text{ ppm}} \times 100 = 2.85 \%$$

Calibration Error and Estimated Point, RM 25A, THC Analyzer

RM 25A, (07-19-06), 8.4 Calibration Error Test. Immediately prior to the test series (within 2 hours of the start of the test), introduce zero gas and high-level calibration gas at the calibration valve assembly. Adjust the analyzer output to the appropriate levels, if necessary. Calculate the predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level response. Then introduce low-level and mid-level calibration gases successively to the measurement system. ... These differences must be less than 5 percent of the respective calibration gas value. (calc for THC analyzer mid gas, if applicable)

$$E_p = \frac{C_{Dir(H)} - C_{Dir(Z)}}{C_{V(H)} - C_{V(Z)}} \times C_{Dir(M)} + C_{Dir(Z)}$$

Eq. of a line
y=mx+b

$$E_p = \frac{8.60 \text{ ppm} - 0.03 \text{ ppm}}{8.40 \text{ ppm} - 0.00 \text{ ppm}} \times 4.94 \text{ ppm} + 0.03 = 5.07 \text{ ppm}$$

$$ACE = \left(\frac{C_{Dir} - C_V}{CS} \right) \times 100 \quad \text{Eq. 7E-1}$$

$$ACE_{THC} = \frac{4.85 \text{ ppm} - 5.07 \text{ ppm}}{4.94 \text{ ppm}} \times 100 = -4.45 \%$$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (BIAS, DRIFT, AND CORRECTED RAW AVERAGE)

System Bias

RM 7E, (08-15-06), 12.3 System Bias. For non-dilution systems, use Equation 7E-2 to calculate the system bias separately for the low-level and upscale calibration gases. (calc for NOx analyzer upscale gas, Run 1 initial bias, if applicable)

$$SB = \left(\frac{C_S - C_{Dir}}{C_S} \right) \times 100 \quad \text{Eq. 7E-2} \quad SB = \frac{4.99 \text{ ppm} - 5.25 \text{ ppm}}{9.11 \text{ ppm}} \times 100 = -2.85 \%$$

Drift Assessment

RM 7E, (08-15-06), 12.5 Drift Assessment. Use Equation 7E-4 to separately calculate the low-level and upscale drift over each test run. (calc for NOx analyzer upscale drift, Run 1, if applicable)

$$D = |SB_{final} - SB_i| \quad \text{Eq. 7E-4} \quad D = | -2.20 \% - -2.85 \% | = 0.66 \%$$

Alternative Drift and Bias

RM 7E, (08-15-06), 13.2 / 13.3 System Bias and Drift. Alternatively, the results are acceptable if $|C_s - C_{dir}|$ is ≤ 0.5 ppmv or $|C_s - C_v|$ is ≤ 0.5 ppmv (as applicable). (calc for NOx analyzer initial upscale, Run 1, if applicable)

$$SB / D_{Alt} = |C_S - C_{Dir}| \quad \text{Eq. Section 13.2 and 13.3} \quad SB / D_{Alt} = | 4.99 \text{ ppm} - 5.25 \text{ ppm} | = 0.26 \text{ ppm}$$

Bias Adjusted Average

RM 7E, (08-15-06), 12.6 Effluent Gas Concentration. For each test run, calculate C_{avg} , the arithmetic average of all valid NOx concentration values (e.g., 1-minute averages). Then adjust the value of C_{avg} for bias, using Equation 7E-5. (calc for NOx analyzer, Run 1, if applicable)

$$C_{Gas} = (C_{Avg} - C_O) \times \left(\frac{C_{MA}}{C_M - C_O} \right) \quad \text{Eq. 7E-5} \quad C_{Gas} = \left[2.16 \text{ ppm} - 0.12 \text{ ppm} \right] \times \left(\frac{4.99 \text{ ppm}}{5.02 \text{ ppm} - 0.12 \text{ ppm}} \right) = 2.08 \text{ ppm}$$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (RUNS)

Stack Exhaust Flow (Q_s) - RM19

$$Q_s = \left(\frac{FFactor \times Q_f \times HHV}{1,000,000} \right) \times \left(\frac{20.9\%}{20.9\% - C_{Gas(O_2)}} \right) \quad Q_s = \frac{8,649.37 \text{ SCF}}{\text{MMBtu}} \times \frac{2,514,662.86 \text{ SCF}}{\text{hr}} \times \frac{997.90 \text{ Btu}}{\text{SCF}}$$

$$\times \frac{\text{MMBtu}}{10^6 \text{ Btu}} \times \left(\frac{20.90\%}{20.9\% - 13.4\%} \right) = 60,277,884.83 \text{ SCFH}$$

Diluent-Corrected Pollutant Concentration, O₂ Based

RM 20, (11-26-02), 7.3.1 Correction of Pollutant Concentration Using O₂ Concentration. Calculate the O₂ corrected pollutant concentration, as follows: (calc for NOx gas, Run 1, if applicable)

$$C_{adj} = C_{Gas(T_{meas})} \times \left(\frac{20.9\% - AdjFactor}{20.9\% - C_{Gas(O_2)}} \right) \quad \text{Eq. 20-4} \quad C_{adj} = 2.08 \text{ ppm} \times \left(\frac{20.9\% - 15.00\%}{20.9\% - 13.37\%} \right) = 1.63 \text{ ppm@15\%O}_2$$

Diluent-Corrected Pollutant Concentration Corrected to ISO Conditions

40CFR60.335(b)(1), Conversion for conc. at ISO Conditions (68°F, 1 atm). Calculate, as follows: (calc for NOx@15% with Run 1 data, if applicable)

$$C_{ISO} = C_{Adj} \times \sqrt{\frac{P_r}{P_o}} \times e^{(19 \times (T_o - 0.00633))} \times \left(\frac{288}{T_a} \right)^{1.53}$$

$$C_{ISO} = 1.63 \text{ ppm@15\%O}_2 \times \left(\frac{275.7 \text{ psig} + 14.69232 \text{ psi}}{0.01933677 \text{ psi/mm Hg.}} \right) \times \left(\frac{275.7 \text{ psig} + 14.6708 \text{ psi}}{0.01933677 \text{ psi/mm Hg.}} \right) \times 2.718 \times \left(\frac{288 \text{ K}}{288 \text{ K}} \right)^{1.53} = 1.68 \text{ ppm@15\% and ISO}$$

EXAMPLE CALCULATIONS (RUNS)

Emissions Rate (lb/hr)

Calculation for pound per hour emission rate. Calculate, as follows: (calc for NOx gas Run 1, if applicable)

$$E_{lb/hr} = \frac{C_{Gas} \times Q_s \times MW}{10^6 \times G} \quad E_{lb/hr} = \frac{2.08 \text{ ppm}}{10^6 \text{ ppm/part}} \times \frac{60,277,885 \text{ SCFH} \times 46.01 \text{ lb/lb-mol}}{385.23 \text{ SCF/lb-mol}} = \frac{14.98 \text{ lb}}{\text{hr}}$$

Emissions Rate (ton/year)

Calculation for tons per year emission rate based on 8760 hours per year. Calculate, as follows: (calc for NOx gas Run 1, if applicable)

$$E_{ton/yr} = \frac{E_{lb/hr} \times hr_{year}}{2000} \quad E_{ton/yr} = \frac{14.98 \text{ lb}}{\text{hr}} \times \frac{8,760 \text{ hr}}{\text{year}} \times \frac{\text{ton}}{2000 \text{ lb}} = \frac{65.63 \text{ ton}}{\text{year}}$$

Emissions Rate (lb/MMBtu)

RM 19, (07-19-06), 12.2 Emission Rates of PM, SO₂, and NOx. Select from the following sections the applicable procedure to compute the PM, SO₂, or NOx emission rate (E) in ng/J (lb/million Btu). (calc for NOx gas Run 1, if applicable)

Oxygen Based

12.2.1 Oxygen-Based F Factor, Dry Basis. When measurements are on a dry basis for both O₂ (%O₂d) and pollutant (Cd) concentrations, use the following equation:

$$E_{lb/MMBtu} = \frac{C_{Gas} \times F_d Factor \times Conv_c \times 20.9\%}{20.9\% - C_{Gas(O_2)}} \quad \text{Eq. 19-1}$$

$$E_{lb/MMBtu} = \frac{2.08 \text{ ppm} \times 8,649.37 \text{ SCF/MMBtu} \times 0.0000001194 \text{ lb/ppm} \cdot \text{ft}^3 \times 20.9\%}{20.9\% - 13.37\%} = \frac{0.006 \text{ lb}}{\text{MMBtu}}$$

Conversion Constant

Conv_c for NOx

$$Conv_c (\text{lb} / \text{ppm} \cdot \text{ft}^3) = \frac{MW}{10^6} \quad Conv_c = \frac{46.01 \text{ lb}}{\text{lb} \cdot \text{mole}} \times \frac{\text{lb} \cdot \text{mole}}{385.23 \text{ SCF}} = \frac{0.0000001194 \text{ lb}}{\text{ppm} \cdot \text{ft}^3}$$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

RM 7E, (08-15-06), 12.1 Nomenclature. The terms used in the equations are defined as follows:

ACE = Analyzer calibration error, percent of calibration span.
B_{WS} = Moisture content of sample gas as measured by Method 4 or other approved method, percent/100.
C_{AVG} = Average unadjusted gas concentration indicated by data recorder for the test run.
C_D = Pollutant concentration adjusted to dry conditions.
C_{Dir} = Measured concentration of a calibration gas (low, mid, or high) when introduced in direct calibration mode.
C_{Gas} = Average effluent gas concentration adjusted for bias.
C_M = Average of initial and final system calibration bias (or 2-point system calibration error) check responses for the upscale calibration gas.
C_{MA} = Actual concentration of the upscale calibration gas, ppmv.
C_O = Average of the initial and final system calibration bias (or 2-point system calibration error) check responses from the low-level (or zero) calibration gas.
C₃ = Measured concentration of a calibration gas (low, mid, or high) when introduced in system calibration mode.
C_{SS} = Concentration of NOx measured in the spiked sample.
C_{Spike} = Concentration of NOx in the undiluted spike gas.
C_{Calc} = Calculated concentration of NOx in the spike gas diluted in the sample.
C_v = Manufacturer certified concentration of a calibration gas (low, mid, or high).
C_w = Pollutant concentration measured under moist sample conditions, wet basis.
CS = Calibration span.
D = Drift assessment, percent of calibration span.
E_p = The predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level response.
Eff_{NO2} = NO₂ to NO converter efficiency, percent.
H = High calibration gas, designator.
L = Low calibration gas, designator.
M = Mid calibration gas, designator.
NO_{Final} = The average NO concentration observed with the analyzer in the NO mode during the converter efficiency test in Section 16.2.2.
NO_xCorr = The NO_x concentration corrected for the converter efficiency.
NO_xFinal = The final NO_x concentration observed during the converter efficiency test in Section 16.2.2.
NO_xPeak = The highest NO_x concentration observed during the converter efficiency test in Section 16.2.2.
Q_{Spike} = Flow rate of spike gas introduced in system calibration mode, L/min.
Q_{Total} = Total sample flow rate during the spike test, L/min.
R = Spike recovery, percent.
SB = System bias, percent of calibration span.
SB_i = Pre-run system bias, percent of calibration span.
SB_f = Post-run system bias, percent of calibration span.
SB / D_{Alt} = Alternative absolute difference criteria to pass bias and/or drift checks.
SCE = System calibration error, percent of calibration span.
SCE_i = Pre-run system calibration error, percent of calibration span.
SCE_f = Post-run system calibration error, percent of calibration span.
Z = Zero calibration gas, designator.

40CFR60.355(b)(1), (09-20-06), Nomenclature. The terms used in the equations are defined as follows:

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg
P_a = observed combustor inlet absolute pressure at test, mm Hg
H_a = observed humidity of ambient air, g H₂O/g air
e = transcendental constant, 2.718
T_a = ambient temperature, K

RM 19, (07-29-06), 12.1 Nomenclature. The terms used in the equations are defined as follows:

AdjFactor = Percent oxygen or carbon dioxide adjustment applied to a target pollutant
 E_{ma} = Moisture fraction of ambient air, percent.
 Btu = British thermal unit
 $\%_C$ = Concentration of carbon from an ultimate analysis of fuel, weight percent.
 $\%_{CO_{2d}}, \%_{CO_{2w}}$ = Concentration of carbon dioxide on a dry and wet basis, respectively, percent.
 CIP / CDP = Combustor inlet pressure / compressor discharge pressure (mm Hg); note, some manufactures reference as PCD.
 E = Pollutant emission rate, ng/J (lb/million Btu).
 E_a = Average pollutant rate for the specified performance test period, ng/J (lb/million Btu).
 E_{in}, E_{out} = Average pollutant rate of the control device, outlet and inlet, respectively, for the performance test period, ng/J (lb/million Btu).
 E_{st} = Pollutant rate from the steam generating unit, ng/J (lb/million Btu).
 E_{st} = Pollutant emission rate from the steam generating unit, ng/J (lb/million Btu).
 E_{cl} = Pollutant rate in combined effluent, ng/J (lb/million Btu).
 E_{ce} = Pollutant emission rate in combined effluent, ng/J (lb/million Btu).
 E_d = Average pollutant rate for each sampling period (e.g., 24-hr Method 6B sample or 24-hr fuel sample) or for each fuel lot (e.g., amount of fuel bunkered), ng/J (lb/million Btu).
 E_{di} = Average inlet SO₂ rate for each sampling period d, ng/J (lb/million Btu).
 E_g = Pollutant rate from gas turbine, ng/J (lb/million Btu).
 E_{gm} = Daily geometric average pollutant rate, ng/J (lbs/million Btu) or ppm corrected to 7 percent O₂.
 E_{jo}, E_{ji} = Matched pair hourly arithmetic average pollutant rate, outlet and inlet, respectively, ng/J (lb/million Btu) or ppm corrected to 7 percent O₂.
 E_h = Hourly average pollutant, ng/J (lb/million Btu).
 E_{hj} = Hourly arithmetic average pollutant rate for hour "j," ng/J (lb/million Btu) or ppm corrected to 7 percent O₂.
 EXP = Natural logarithmic base (2.718) raised to the value enclosed by brackets.
 Fc = Ratio of the volume of carbon dioxide produced to the gross calorific value of the fuel from Method 19
 F_d, F_w, F_c = Volumes of combustion components per unit of heat content, scfm/J (scf/million Btu).
 ft^3 = cubic feet
 G = ideal gas conversion factor
 (385.23 SCF/lb-mol at 68 deg F & 14.696 psia)
 GCM = gross Btu per SCF (constant, compound based)
 GCV = Gross calorific value of the fuel consistent with the ultimate analysis, kJ/kg (Btu/lb).
 GCV_p, GCV_r = Gross calorific value for the product and raw fuel lots, respectively, dry basis, kJ/kg (Btu/lb).
 $\%_H$ = Concentration of hydrogen from an ultimate analysis of fuel, weight percent.
 H_b = Heat input rate to the steam generating unit from fuels fired in the steam generating unit, J/hr (million Btu/hr).
 H_g = Heat input rate to gas turbine from all fuels fired in the gas turbine, J/hr (million Btu/hr).
 $\%_{H_2O}$ = Concentration of water from an ultimate analysis of fuel, weight percent.
 H_t = Total numbers of hours in the performance test period (e.g., 720 hours for 30-day performance test period).
 K = volume of combustion component per pound of component (constant)
 K = Conversion factor, $10^{-6} (kJ/J)/(%) [10^6 \text{ Btu/million Btu}]$.
 $K_c = (9.57 \text{ scm/kg})/ \% [(1.53 \text{ scf/lb})/ \%]$.
 $K_{cc} = (2.0 \text{ scm/kg})/ \% [(0.321 \text{ scf/lb})/ \%]$.
 $K_{cd} = (22.7 \text{ scm/kg})/ \% [(3.64 \text{ scf/lb})/ \%]$.
 $K_{cw} = (34.74 \text{ scm/kg})/ \% [(5.57 \text{ scf/lb})/ \%]$.
 $K_r = (0.86 \text{ scm/kg})/ \% [(0.14 \text{ scf/lb})/ \%]$.
 $K_o = (2.85 \text{ scm/kg})/ \% [(0.46 \text{ scf/lb})/ \%]$.
 $K_s = (3.54 \text{ scm/kg})/ \% [(0.57 \text{ scf/lb})/ \%]$.
 $K_{sur} = 2 \times 10^4 \text{ Btu/At\% -MMBtu}$
 $K_w = (1.30 \text{ scm/kg})/ \% [(0.21 \text{ scf/lb})/ \%]$.
 lb = pound
 ln = Natural log of indicated value.
 L_p, L_r = Weight of the product and raw fuel lots, respectively, metric ton (ton).
 $\%_N$ = Concentration of nitrogen from an ultimate analysis of fuel, weight percent.
 M_w = mole percent
 mol = mole
 MW = molecular weight (lb/lb-mol)
 MW_{AIR} = molecular weight of air (28.9625 lb/lb-mole)¹
 NCM = net Btu per SCF (constant based on compound)
 $\%_O$ = Concentration of oxygen from an ultimate analysis of fuel, weight percent.
 $\%_{O_{2d}}, \%_{O_{2w}}$ = Concentration of oxygen on a dry and wet basis, respectively, percent.
 P_b = barometric pressure, in Hg
 P_s = Potential SO₂ emissions, percent.
 $\%_S$ = Sulfur content of as-fired fuel lot, dry basis, weight percent.
 S_o = Standard deviation of the hourly average pollutant rates for each performance test period, ng/J (lb/million Btu).
 $\%_{Sf}$ = Concentration of sulfur from an ultimate analysis of fuel, weight percent.
 $S(\text{wt}\%)$ = weight percent of sulfur, per lab analysis by appropriate ASTM standard
 S_i = Standard deviation of the hourly average inlet pollutant rates for each performance test period, ng/J (lb/million Btu).
 S_o = Standard deviation of the hourly average emission rates for each performance test period, ng/J (lb/million Btu).
 $\%S_p, \%S_r$ = Sulfur content of the product and raw fuel lots respectively, dry basis, weight percent.
 SCF = standard cubic feet
 SH = specific humidity, pounds of water per pound of air
 $t_{0.95}$ = Values shown in Table 19-3 for the indicated number of data points n.
 T_{amb} = ambient temperature, °F
 W/D Factor = 1.0236 = conv. at 14.696 psia and
 68 deg F (ref. Civil Eng. Ref. Manual, 7th Ed.)
 X_{CO_2} = CO₂ Correction factor, percent.
 X_k = Fraction of total heat input from each type of fuel k.

Calculations, Formulas, and Constants

The following information supports the spreadsheets for this testing project.

Given Data:

Ideal Gas Conversion Factor = 385.23 SCF/lb-mol at 68 deg F & 14.696 psia

Fuel Heating Value is based upon Air Hygiene's fuel gas calculation sheet. All calculations are based upon a correction to 68 deg F & 14.696 psia

High Heating Values (HHV) are used for the Fuel Heating Value, F-Factor, and Fuel Flow Data per EPA requirements.

80.06

0.0000002078239

ASTM D 3588

Molecular Weight of NOx (lb/lb-mole) = 46.01

Molecular Weight of CO (lb/lb-mole) = 28.00

Molecular Weight of SO₂ (lb/lb-mole) = 64.00

Molecular Weight of THC (propane) (lb/lb-mole) = 44.00

Molecular Weight of VOC (methane) (lb/lb-mole) = 16.00

Molecular Weight of NH₃ (lb/lb-mole) = 17.03

Molecular Weight of HCHO (lb/lb-mole) = 30.03

40CFR60, App. A, RM 19, Table 19-1

Conversion Constant for NOx = 0.0000001194351

Conversion Constant for CO = 0.0000000726839

Conversion Constant for SO₂ = 0.0000001661345

Conversion Constant for THC = 0.0000001142175

Conversion Constant for VOC (methane) = 0.0000000415336

Conversion Constant for NH₃ = 0.0000000442074

Conversion Constant for HCHO = 0.0000000779534

NOTE: units are lb/ppm*ft³

Formulas:

1. Corrected Raw Average (C_{Gas}), 40CFR60, App. A, RM 7E, Eq. 7E-5 (08/15/06)

$$C_{Gas} = (C_{Avg} - C_O) \times \left(\frac{C_{MA}}{C_M - C_O} \right)$$

2. Correction to % O₂, 40CFR60, App. A, RM 20, Eq. 20-5 (11/26/02)

$$C_{adj} = C_{Gas(Target)} \times \left(\frac{20.9\% - AdjFactor}{20.9\% - C_{Gas(O_2)}} \right)$$

3. Correction to % O₂ and ISO Conditions

$$C_{ISO} = C_{Adj} \times \sqrt{\frac{P_r}{P_o}} \times e^{(19 \times (H_o - 0.00633))} \times \left(\frac{288}{T_a} \right)^{1.53}$$

4. Method 19 stack exhaust flow (scfh)

$$Q_s = \left(\frac{FFactor \times Q_f \times HHV}{1,000,000} \right) \times \left(\frac{20.9\%}{20.9\% - C_{Gas(O_2)}} \right)$$

5. Emission Rate in lb/hr

$$E_{lb/hr} = \frac{C_{Gas}}{10^6} \times \frac{Q_s \times MW}{G}$$

6. Emission Rate in tons per year

$$E_{ton/yr} = \frac{E_{lb/hr} \times hr_{year}}{2000}$$

7. Emission Concentration in lb/MMBtu (O₂ based)

$$E_{lb/MMBtu} = \frac{C_{Gas} \times F_d Factor \times Conv_C \times 20.9\%}{20.9\% - C_{Gas(O_2)}}$$

8. Emission Concentration in g/hp*hr

$$E_{g/hp-hr} = \frac{E_{lb/hr} \times 453.6}{mw \times 1314.022} \text{ OR } \frac{E_{lb/hr} \times 453.6}{hp}$$

APPENDIX B
UNIT OPERATION PARAMETERS

Florida Power and Light

Air Permit # :	PSD-FL-354
Plant Name or Location:	West County Energy Center
Date:	November 13, 2009
Project Number:	bv-10-westcounty.fl-comp#1
Manufacturer & Equipment:	Mitsubishi
Model:	501G
Unit Number:	2B
Test Load:	Base with and without Duct Burners
Tester(s) / Test Unit(s):	PS/RW/SB/AS/KM/206

		RUN					
	UNITS	1-1	1-2	1-3	2-1	2-2	2-3
Start Time	hh:mm:ss	08:02:21	09:34:21	10:53:21	13:05:21	14:36:21	15:48:21
End Time	hh:mm:ss	09:01:51	10:33:51	11:52:51	14:04:51	15:35:51	16:47:51
Bar. Pressure	in. Hg	29.87	29.88	29.88	29.80	29.78	29.77
Amb. Temp.	°F	58	64	68	73	75	76
Rel. Humidity	%	77	64	52	47	45	45
Spec. Humidity	lb water / lb air	0.007889	0.008113	0.007567	0.008138	0.008340	0.008630
Comb. Inlet Pres.	psig	275.7	273.5	272.4	270.3	268.8	268.6
Turbine Fuel Flow	lb/min	1,834	1,837	1,838	1,702	1,693	1,691
Duct Burner Fuel Flow	lb/min	0	0	0	139	138	137
Total Fuel Flow	SCFH	2,514,663	2,518,776	2,519,918	2,523,803	2,510,321	2,505,523
Stack Moisture	% Method 4	8.7	8.5	8.7	9.4	9.6	9.7
Power Output	megawatts	254.3	254.3	254.3	253.2	251.1	250.6

UNIT OPERATION PARAMETERS

Base Load

	Combustor Inlet	CT B		CT B
	Pressure B	FG	DB B FG	Load
	psig	Flow	Flow	MW
		KPPH	KPPH	
13-Nov-09 08:02:21	276.80	109.24	0.00	254.18
13-Nov-09 08:03:21	276.71	111.12	0.00	254.37
13-Nov-09 08:04:21	276.70	110.96	0.00	254.47
13-Nov-09 08:05:21	276.67	109.31	0.00	254.05
13-Nov-09 08:06:21	276.89	109.17	0.00	253.91
13-Nov-09 08:07:21	276.93	109.89	0.00	254.71
13-Nov-09 08:08:21	276.56	110.21	0.00	253.98
13-Nov-09 08:09:21	276.69	109.26	0.00	254.19
13-Nov-09 08:10:21	276.66	111.07	0.00	254.81
13-Nov-09 08:11:21	276.35	109.22	0.00	253.61
13-Nov-09 08:12:21	276.64	110.91	0.00	254.69
13-Nov-09 08:13:21	276.56	111.25	0.00	255.24
13-Nov-09 08:14:21	276.32	109.12	0.00	254.21
13-Nov-09 08:15:21	276.28	109.13	0.00	253.77
13-Nov-09 08:16:21	276.15	111.00	0.00	254.39
13-Nov-09 08:17:21	276.04	108.67	0.00	253.54
13-Nov-09 08:18:21	276.29	111.51	0.00	254.70
13-Nov-09 08:19:21	276.08	108.70	0.00	254.03
13-Nov-09 08:20:21	276.24	108.91	0.00	254.53
13-Nov-09 08:21:21	275.77	109.33	0.00	253.89
13-Nov-09 08:22:21	275.97	110.65	0.00	254.31
13-Nov-09 08:23:21	275.99	110.75	0.00	254.43
13-Nov-09 08:24:21	275.86	108.85	0.00	253.96
13-Nov-09 08:25:21	275.90	110.65	0.00	254.55
13-Nov-09 08:26:21	275.88	111.26	0.00	254.45
13-Nov-09 08:27:21	275.53	108.73	0.00	253.70
13-Nov-09 08:28:21	275.83	110.87	0.00	254.55
13-Nov-09 08:29:21	275.43	108.72	0.00	253.70
13-Nov-09 08:30:21	275.57	111.05	0.00	254.32
13-Nov-09 08:31:21	275.38	108.99	0.00	254.16
13-Nov-09 08:32:21	275.52	111.56	0.00	254.69
13-Nov-09 08:33:21	275.31	108.95	0.00	253.82
13-Nov-09 08:34:21	275.72	111.21	0.00	254.96
13-Nov-09 08:35:21	275.27	108.82	0.00	253.82
13-Nov-09 08:36:21	275.69	111.54	0.00	254.61
13-Nov-09 08:37:21	275.38	109.25	0.00	254.06
13-Nov-09 08:38:21	275.67	111.78	0.00	254.98
13-Nov-09 08:39:21	275.37	111.05	0.00	254.06
13-Nov-09 08:40:21	275.29	109.10	0.00	253.80
13-Nov-09 08:41:21	275.27	110.81	0.00	254.40
13-Nov-09 08:42:21	275.04	109.09	0.00	253.57
13-Nov-09 08:43:21	275.32	111.69	0.00	254.81
13-Nov-09 08:44:21	275.55	108.67	0.00	254.36
13-Nov-09 08:45:21	275.45	108.92	0.00	254.06
13-Nov-09 08:46:21	275.37	111.66	0.00	254.99
13-Nov-09 08:47:21	275.12	108.63	0.00	253.77
13-Nov-09 08:48:21	275.25	111.14	0.00	254.67
13-Nov-09 08:49:21	275.01	108.97	0.00	253.90
13-Nov-09 08:50:21	274.96	109.67	0.00	254.10
13-Nov-09 08:51:21	275.54	110.77	0.00	254.90
13-Nov-09 08:52:21	275.12	109.56	0.00	254.06
13-Nov-09 08:53:21	275.14	111.48	0.00	254.74
13-Nov-09 08:54:21	275.03	109.00	0.00	253.91
13-Nov-09 08:55:21	275.02	109.69	0.00	254.31
13-Nov-09 08:56:21	274.95	111.14	0.00	254.74
13-Nov-09 08:57:21	274.90	110.74	0.00	254.77
13-Nov-09 08:58:21	274.95	109.02	0.00	254.16
13-Nov-09 08:59:21	274.89	110.51	0.00	254.35
13-Nov-09 09:00:21	274.54	109.25	0.00	253.81
13-Nov-09 09:01:21	274.74	110.76	0.00	254.53
Average	275.72	110.05	0.00	254.29

	Combustor Inlet Pressure B psig	CT B FG Flow KPPH	DB B FG Flow KPPH	CT B Load MW
13-Nov-09 09:34:21	274.10	110.00	0.00	254.35
13-Nov-09 09:35:21	274.00	109.22	0.00	253.79
13-Nov-09 09:36:21	273.96	110.53	0.00	254.47
13-Nov-09 09:37:21	274.32	111.25	0.00	254.83
13-Nov-09 09:38:21	274.27	109.27	0.00	254.10
13-Nov-09 09:39:21	274.33	109.55	0.00	254.67
13-Nov-09 09:40:21	274.23	109.21	0.00	254.00
13-Nov-09 09:41:21	273.87	109.40	0.00	253.65
13-Nov-09 09:42:21	273.84	109.74	0.00	253.80
13-Nov-09 09:43:21	274.19	109.82	0.00	254.54
13-Nov-09 09:44:21	274.02	109.43	0.00	254.15
13-Nov-09 09:45:21	274.09	111.46	0.00	254.30
13-Nov-09 09:46:21	273.76	110.71	0.00	254.33
13-Nov-09 09:47:21	273.66	110.08	0.00	253.78
13-Nov-09 09:48:21	273.66	110.64	0.00	254.51
13-Nov-09 09:49:21	273.91	109.62	0.00	254.37
13-Nov-09 09:50:21	273.65	109.69	0.00	253.74
13-Nov-09 09:51:21	273.44	110.29	0.00	254.35
13-Nov-09 09:52:21	273.67	109.34	0.00	254.16
13-Nov-09 09:53:21	273.63	109.98	0.00	253.87
13-Nov-09 09:54:21	273.67	112.03	0.00	254.58
13-Nov-09 09:55:21	273.93	111.79	0.00	255.10
13-Nov-09 09:56:21	273.71	109.27	0.00	254.03
13-Nov-09 09:57:21	273.82	110.00	0.00	254.30
13-Nov-09 09:58:21	273.71	110.04	0.00	254.12
13-Nov-09 09:59:21	273.61	110.14	0.00	254.17
13-Nov-09 10:00:21	273.56	109.53	0.00	253.89
13-Nov-09 10:01:21	273.16	111.21	0.00	254.84
13-Nov-09 10:02:21	273.22	109.96	0.00	254.35
13-Nov-09 10:03:21	273.24	109.56	0.00	254.10
13-Nov-09 10:04:21	273.13	110.98	0.00	254.26
13-Nov-09 10:05:21	273.34	109.46	0.00	254.34
13-Nov-09 10:06:21	273.60	110.95	0.00	254.68
13-Nov-09 10:07:21	273.31	109.23	0.00	253.69
13-Nov-09 10:08:21	273.63	110.80	0.00	254.31
13-Nov-09 10:09:21	273.52	109.51	0.00	254.13
13-Nov-09 10:10:21	273.21	109.79	0.00	254.13
13-Nov-09 10:11:21	273.36	109.39	0.00	254.11
13-Nov-09 10:12:21	273.35	109.90	0.00	254.03
13-Nov-09 10:13:21	273.45	110.52	0.00	254.12
13-Nov-09 10:14:21	273.27	109.36	0.00	253.97
13-Nov-09 10:15:21	273.49	111.04	0.00	254.95
13-Nov-09 10:16:21	273.34	109.55	0.00	254.26
13-Nov-09 10:17:21	273.37	109.99	0.00	254.20
13-Nov-09 10:18:21	273.32	109.37	0.00	254.23
13-Nov-09 10:19:21	273.04	110.80	0.00	254.40
13-Nov-09 10:20:21	272.92	111.20	0.00	254.68
13-Nov-09 10:21:21	272.89	110.45	0.00	254.29
13-Nov-09 10:22:21	273.23	110.29	0.00	254.31
13-Nov-09 10:23:21	273.00	109.44	0.00	253.96
13-Nov-09 10:24:21	272.94	109.72	0.00	253.97
13-Nov-09 10:25:21	272.97	111.05	0.00	254.47
13-Nov-09 10:26:21	272.87	109.71	0.00	254.10
13-Nov-09 10:27:21	272.93	110.15	0.00	254.04
13-Nov-09 10:28:21	273.05	110.96	0.00	254.67
13-Nov-09 10:29:21	273.09	113.31	0.00	254.78
13-Nov-09 10:30:21	273.11	113.52	0.00	254.24
13-Nov-09 10:31:21	273.12	110.30	0.00	254.41
13-Nov-09 10:32:21	273.00	110.28	0.00	254.49
13-Nov-09 10:33:21	272.94	110.21	0.00	254.26
Average	273.50	110.23	0.00	254.26

	Combustor Inlet Pressure B psig	CT B FG Flow KPPH	DB B FG Flow KPPH	CT B Load MW
13-Nov-09 10:53:21	272.44	109.91	0.00	254.34
13-Nov-09 10:54:21	272.43	110.27	0.00	254.36
13-Nov-09 10:55:21	272.84	110.30	0.00	254.23
13-Nov-09 10:56:21	272.67	110.37	0.00	254.23
13-Nov-09 10:57:21	272.61	110.14	0.00	254.06
13-Nov-09 10:58:21	272.74	110.40	0.00	254.39
13-Nov-09 10:59:21	272.80	110.25	0.00	254.44
13-Nov-09 11:00:21	272.52	110.36	0.00	254.34
13-Nov-09 11:01:21	272.45	110.61	0.00	254.60
13-Nov-09 11:02:21	272.57	110.15	0.00	254.58
13-Nov-09 11:03:21	272.40	110.24	0.00	254.36
13-Nov-09 11:04:21	272.57	110.29	0.00	254.34
13-Nov-09 11:05:21	272.41	110.50	0.00	254.32
13-Nov-09 11:06:21	272.59	110.74	0.00	254.79
13-Nov-09 11:07:21	272.68	110.53	0.00	254.83
13-Nov-09 11:08:21	272.59	110.60	0.00	254.48
13-Nov-09 11:09:21	272.61	110.23	0.00	254.40
13-Nov-09 11:10:21	272.48	110.35	0.00	254.16
13-Nov-09 11:11:21	272.63	110.57	0.00	254.17
13-Nov-09 11:12:21	272.82	110.22	0.00	254.19
13-Nov-09 11:13:21	272.62	110.36	0.00	254.17
13-Nov-09 11:14:21	272.32	110.41	0.00	254.07
13-Nov-09 11:15:21	272.40	110.14	0.00	254.28
13-Nov-09 11:16:21	272.43	110.21	0.00	254.18
13-Nov-09 11:17:21	272.48	110.17	0.00	254.45
13-Nov-09 11:18:21	272.20	110.31	0.00	254.29
13-Nov-09 11:19:21	272.33	110.22	0.00	254.23
13-Nov-09 11:20:21	272.44	110.34	0.00	254.50
13-Nov-09 11:21:21	272.51	109.99	0.00	254.26
13-Nov-09 11:22:21	272.57	109.96	0.00	254.29
13-Nov-09 11:23:21	272.73	109.85	0.00	254.36
13-Nov-09 11:24:21	272.62	110.07	0.00	254.32
13-Nov-09 11:25:21	272.49	109.81	0.00	254.05
13-Nov-09 11:26:21	272.41	110.35	0.00	254.16
13-Nov-09 11:27:21	272.40	110.13	0.00	254.01
13-Nov-09 11:28:21	272.60	110.15	0.00	254.47
13-Nov-09 11:29:21	272.61	110.37	0.00	254.31
13-Nov-09 11:30:21	272.36	110.36	0.00	254.20
13-Nov-09 11:31:21	272.59	110.17	0.00	254.14
13-Nov-09 11:32:21	272.59	110.34	0.00	254.33
13-Nov-09 11:33:21	272.37	110.39	0.00	254.54
13-Nov-09 11:34:21	272.13	110.51	0.00	254.23
13-Nov-09 11:35:21	272.30	110.17	0.00	254.08
13-Nov-09 11:36:21	272.22	110.19	0.00	254.37
13-Nov-09 11:37:21	272.32	110.35	0.00	254.32
13-Nov-09 11:38:21	272.49	110.35	0.00	254.49
13-Nov-09 11:39:21	272.13	110.31	0.00	254.10
13-Nov-09 11:40:21	272.17	110.36	0.00	254.19
13-Nov-09 11:41:21	272.28	110.48	0.00	254.25
13-Nov-09 11:42:21	272.36	110.55	0.00	254.50
13-Nov-09 11:43:21	272.11	110.35	0.00	254.18
13-Nov-09 11:44:21	272.02	110.52	0.00	254.01
13-Nov-09 11:45:21	272.22	110.03	0.00	254.18
13-Nov-09 11:46:21	271.92	110.38	0.00	254.37
13-Nov-09 11:47:21	271.88	110.55	0.00	254.52
13-Nov-09 11:48:21	271.92	110.31	0.00	254.43
13-Nov-09 11:49:21	272.02	110.29	0.00	254.18
13-Nov-09 11:50:21	272.36	110.25	0.00	254.44
13-Nov-09 11:51:21	272.06	109.82	0.00	254.06
13-Nov-09 11:52:21	272.06	110.09	0.00	254.43
Average	272.41	110.28	0.00	254.31

UNIT OPERATION PARAMETERS

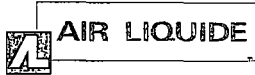
Base Load with Duct Burners

	Combustor Inlet Pressure B psig	CT B FG Flow KPPH	DB B FG Flow KPPH	CT B Load MW
13-Nov-09 13:05:21	271.08	102.52	8.50	254.75
13-Nov-09 13:06:21	271.10	102.34	8.48	254.05
13-Nov-09 13:07:21	270.83	102.41	8.45	254.03
13-Nov-09 13:08:21	270.93	102.32	8.43	254.48
13-Nov-09 13:09:21	270.77	102.32	8.40	253.86
13-Nov-09 13:10:21	270.68	102.41	8.37	253.33
13-Nov-09 13:11:21	270.71	101.90	8.36	253.49
13-Nov-09 13:12:21	270.73	102.42	8.34	254.00
13-Nov-09 13:13:21	270.23	102.10	8.34	253.28
13-Nov-09 13:14:21	270.80	102.31	8.32	253.13
13-Nov-09 13:15:21	271.11	102.41	8.30	253.68
13-Nov-09 13:16:21	270.97	102.56	8.30	253.81
13-Nov-09 13:17:21	270.89	102.37	8.30	253.60
13-Nov-09 13:18:21	270.62	102.19	8.30	253.42
13-Nov-09 13:19:21	270.76	102.41	8.30	253.74
13-Nov-09 13:20:21	270.62	102.71	8.30	253.97
13-Nov-09 13:21:21	270.34	102.38	8.30	253.15
13-Nov-09 13:22:21	270.61	102.14	8.30	252.85
13-Nov-09 13:23:21	270.93	102.37	8.30	253.95
13-Nov-09 13:24:21	270.74	102.66	8.30	253.88
13-Nov-09 13:25:21	270.58	102.47	8.29	253.85
13-Nov-09 13:26:21	270.65	102.20	8.30	253.72
13-Nov-09 13:27:21	270.44	102.42	8.30	253.59
13-Nov-09 13:28:21	270.62	102.09	8.30	253.64
13-Nov-09 13:29:21	270.68	102.44	8.29	254.05
13-Nov-09 13:30:21	270.44	102.14	8.29	253.45
13-Nov-09 13:31:21	270.29	101.95	8.29	253.26
13-Nov-09 13:32:21	270.26	101.60	8.30	252.63
13-Nov-09 13:33:21	270.52	101.96	8.29	253.21
13-Nov-09 13:34:21	270.45	102.14	8.30	253.47
13-Nov-09 13:35:21	270.31	102.04	8.30	253.24
13-Nov-09 13:36:21	270.26	102.36	8.30	253.42
13-Nov-09 13:37:21	270.30	101.84	8.30	253.26
13-Nov-09 13:38:21	270.14	102.16	8.29	253.37
13-Nov-09 13:39:21	269.92	102.36	8.29	252.58
13-Nov-09 13:40:21	269.94	101.65	8.30	251.81
13-Nov-09 13:41:21	270.10	102.02	8.29	252.78
13-Nov-09 13:42:21	269.99	102.27	8.30	253.30
13-Nov-09 13:43:21	270.02	101.92	8.29	252.94
13-Nov-09 13:44:21	270.15	101.86	8.29	252.53
13-Nov-09 13:45:21	270.35	102.02	8.30	253.26
13-Nov-09 13:46:21	270.31	102.16	8.30	253.72
13-Nov-09 13:47:21	270.18	102.08	8.30	253.59
13-Nov-09 13:48:21	270.12	102.27	8.30	252.77
13-Nov-09 13:49:21	270.01	101.68	8.30	252.57
13-Nov-09 13:50:21	270.13	101.74	8.29	252.68
13-Nov-09 13:51:21	270.06	102.23	8.29	253.00
13-Nov-09 13:52:21	269.83	102.11	8.30	252.62
13-Nov-09 13:53:21	269.99	102.16	8.30	252.41
13-Nov-09 13:54:21	270.25	101.90	8.30	252.66
13-Nov-09 13:55:21	270.19	101.98	8.30	252.86
13-Nov-09 13:56:21	269.97	102.09	8.30	252.91
13-Nov-09 13:57:21	269.79	101.72	8.29	252.54
13-Nov-09 13:58:21	269.68	102.16	8.29	252.55
13-Nov-09 13:59:21	269.64	102.16	8.29	252.20
13-Nov-09 14:00:21	269.34	101.84	8.29	251.68
13-Nov-09 14:01:21	269.42	101.56	8.29	251.79
13-Nov-09 14:02:21	269.36	101.56	8.29	251.61
13-Nov-09 14:03:21	269.63	101.83	8.29	252.43
13-Nov-09 14:04:21	269.80	102.08	8.29	252.48
Average	270.33	102.14	8.31	253.18

	Combustor Inlet Pressure B psig	CT B FG Flow KPPH	DB B FG Flow KPPH	CT B Load MW
13-Nov-09 14:36:21	269.15	101.89	8.29	251.65
13-Nov-09 14:37:21	269.08	101.89	8.28	251.91
13-Nov-09 14:38:21	269.04	101.99	8.29	252.02
13-Nov-09 14:39:21	269.40	101.88	8.28	252.03
13-Nov-09 14:40:21	269.38	101.90	8.29	251.96
13-Nov-09 14:41:21	269.26	101.79	8.29	251.45
13-Nov-09 14:42:21	268.98	101.46	8.28	251.38
13-Nov-09 14:43:21	268.91	101.91	8.28	251.55
13-Nov-09 14:44:21	269.12	101.70	8.28	251.16
13-Nov-09 14:45:21	269.08	101.77	8.28	251.56
13-Nov-09 14:46:21	268.98	101.85	8.28	251.35
13-Nov-09 14:47:21	268.80	102.03	8.28	251.35
13-Nov-09 14:48:21	268.77	101.59	8.28	251.16
13-Nov-09 14:49:21	268.98	101.41	8.29	251.09
13-Nov-09 14:50:21	269.07	101.82	8.29	251.86
13-Nov-09 14:51:21	268.69	101.75	8.29	250.65
13-Nov-09 14:52:21	268.73	101.41	8.29	251.04
13-Nov-09 14:53:21	268.85	101.56	8.28	251.00
13-Nov-09 14:54:21	268.90	101.51	8.29	250.90
13-Nov-09 14:55:21	269.01	101.98	8.28	251.14
13-Nov-09 14:56:21	268.98	101.73	8.28	251.36
13-Nov-09 14:57:21	268.94	101.30	8.29	251.12
13-Nov-09 14:58:21	269.05	101.64	8.29	250.97
13-Nov-09 14:59:21	269.01	101.66	8.28	251.21
13-Nov-09 15:00:21	269.05	101.23	8.28	251.48
13-Nov-09 15:01:21	269.08	101.14	8.28	251.59
13-Nov-09 15:02:21	269.05	101.17	8.29	250.95
13-Nov-09 15:03:21	269.08	101.47	8.29	251.38
13-Nov-09 15:04:21	268.80	101.67	8.28	251.21
13-Nov-09 15:05:21	268.78	101.43	8.29	250.84
13-Nov-09 15:06:21	269.00	101.87	8.29	251.48
13-Nov-09 15:07:21	269.02	101.72	8.29	251.45
13-Nov-09 15:08:21	268.80	101.53	8.29	251.19
13-Nov-09 15:09:21	268.72	101.48	8.29	250.77
13-Nov-09 15:10:21	268.71	101.20	8.29	250.67
13-Nov-09 15:11:21	268.87	101.41	8.29	250.51
13-Nov-09 15:12:21	268.97	101.71	8.28	251.05
13-Nov-09 15:13:21	268.94	101.81	8.28	251.40
13-Nov-09 15:14:21	268.84	101.80	8.29	251.21
13-Nov-09 15:15:21	268.69	101.47	8.29	251.08
13-Nov-09 15:16:21	268.58	101.46	8.28	250.98
13-Nov-09 15:17:21	268.54	101.78	8.28	251.47
13-Nov-09 15:18:21	268.47	101.28	8.28	250.42
13-Nov-09 15:19:21	268.58	101.70	8.28	250.74
13-Nov-09 15:20:21	268.45	101.40	8.28	250.52
13-Nov-09 15:21:21	268.78	101.69	8.28	250.70
13-Nov-09 15:22:21	268.76	101.53	8.28	251.16
13-Nov-09 15:23:21	268.43	101.50	8.28	250.50
13-Nov-09 15:24:21	268.47	101.36	8.28	249.95
13-Nov-09 15:25:21	268.45	101.47	8.28	250.48
13-Nov-09 15:26:21	268.36	101.47	8.27	250.17
13-Nov-09 15:27:21	268.38	101.18	8.28	250.29
13-Nov-09 15:28:21	268.55	101.58	8.27	250.64
13-Nov-09 15:29:21	268.35	101.47	8.28	250.65
13-Nov-09 15:30:21	268.42	101.61	8.28	250.31
13-Nov-09 15:31:21	268.45	101.16	8.28	250.32
13-Nov-09 15:32:21	268.54	101.63	8.28	250.74
13-Nov-09 15:33:21	268.44	101.50	8.28	250.76
13-Nov-09 15:34:21	268.48	101.53	8.29	250.78
13-Nov-09 15:35:21	268.52	101.27	8.28	250.71
Average	268.81	101.58	8.28	251.06

	Combustor Inlet Pressure B psig	CT B FG Flow KPPH	DB B FG Flow KPPH	CT B Load MW
13-Nov-09 15:48:21	268.56	101.70	8.29	250.90
13-Nov-09 15:49:21	268.64	101.46	8.29	250.51
13-Nov-09 15:50:21	268.82	101.81	8.29	251.01
13-Nov-09 15:51:21	268.75	101.74	8.28	250.79
13-Nov-09 15:52:21	268.87	101.87	8.28	251.07
13-Nov-09 15:53:21	268.76	101.97	8.29	250.63
13-Nov-09 15:54:21	268.76	101.37	8.28	250.52
13-Nov-09 15:55:21	268.83	101.37	8.29	250.65
13-Nov-09 15:56:21	268.87	101.57	8.29	251.22
13-Nov-09 15:57:21	268.74	101.65	8.28	250.82
13-Nov-09 15:58:21	268.77	101.92	8.28	250.93
13-Nov-09 15:59:21	268.76	101.63	8.28	250.80
13-Nov-09 16:00:21	268.69	101.87	8.29	251.35
13-Nov-09 16:01:21	268.48	101.22	8.28	250.52
13-Nov-09 16:02:21	268.56	101.33	8.28	250.26
13-Nov-09 16:03:21	268.59	101.36	8.28	250.73
13-Nov-09 16:04:21	268.44	101.44	8.28	250.37
13-Nov-09 16:05:21	268.35	101.17	8.28	249.94
13-Nov-09 16:06:21	268.42	101.70	8.28	250.42
13-Nov-09 16:07:21	268.64	101.20	8.28	250.59
13-Nov-09 16:08:21	268.52	101.39	8.28	250.30
13-Nov-09 16:09:21	268.30	101.16	8.28	250.28
13-Nov-09 16:10:21	268.15	101.11	8.28	249.88
13-Nov-09 16:11:21	268.27	101.38	8.28	250.33
13-Nov-09 16:12:21	268.39	101.55	8.28	250.37
13-Nov-09 16:13:21	268.39	101.39	8.28	250.74
13-Nov-09 16:14:21	268.56	101.50	8.28	250.55
13-Nov-09 16:15:21	268.65	101.47	8.28	250.91
13-Nov-09 16:16:21	268.62	101.36	8.28	250.36
13-Nov-09 16:17:21	268.52	101.41	8.28	250.67
13-Nov-09 16:18:21	268.48	101.19	8.28	250.65
13-Nov-09 16:19:21	268.30	101.08	8.28	249.79
13-Nov-09 16:20:21	268.37	101.40	8.28	250.48
13-Nov-09 16:21:21	268.20	101.30	8.28	250.19
13-Nov-09 16:22:21	268.37	101.28	8.28	250.14
13-Nov-09 16:23:21	268.41	101.26	8.28	250.38
13-Nov-09 16:24:21	268.43	101.43	8.29	250.45
13-Nov-09 16:25:21	268.39	101.36	8.28	250.27
13-Nov-09 16:26:21	268.63	101.46	8.28	250.70
13-Nov-09 16:27:21	268.73	101.69	8.28	250.86
13-Nov-09 16:28:21	268.76	101.72	8.28	250.96
13-Nov-09 16:29:21	268.69	101.47	8.28	250.75
13-Nov-09 16:30:21	268.50	101.35	8.28	250.64
13-Nov-09 16:31:21	268.41	101.44	8.28	250.51
13-Nov-09 16:32:21	268.43	101.12	8.28	250.24
13-Nov-09 16:33:21	268.60	101.41	8.28	250.63
13-Nov-09 16:34:21	268.60	101.40	8.28	250.63
13-Nov-09 16:35:21	268.59	101.25	8.28	250.58
13-Nov-09 16:36:21	268.49	101.14	8.28	250.35
13-Nov-09 16:37:21	268.59	101.19	8.28	250.46
13-Nov-09 16:38:21	268.73	101.21	8.28	250.58
13-Nov-09 16:39:21	268.80	101.56	8.28	251.33
13-Nov-09 16:40:21	268.70	101.65	8.28	250.84
13-Nov-09 16:41:21	268.75	101.41	8.28	250.79
13-Nov-09 16:42:21	268.77	101.75	8.28	251.17
13-Nov-09 16:43:21	268.69	101.91	8.28	251.56
13-Nov-09 16:44:21	268.41	101.48	8.28	250.75
13-Nov-09 16:45:21	268.50	101.41	8.28	250.52
13-Nov-09 16:46:21	268.67	101.30	8.27	250.62
13-Nov-09 16:47:21	268.76	101.49	8.28	250.71
Average	268.57	101.45	8.28	250.62

APPENDIX C
CALIBRATION GAS CERTIFICATIONS



Air Liquide America
Specialty Gases LLC



RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

P.O. No.: 9081310
AIR LIQUIDE AMERICA SPECIALTY GASES LLC Project No.: 05-79607-011
1290 COMBERMERE STREET
TROY, MI 48083

Customer

AIR LIQUIDE AMERICA L.P.
AIR HYGIENE
1319 NORTH PEORIA AVE
TULSA OK 74106

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: ALM010501 Certification Date: 09Sep2009 Exp. Date: 08Sep2012
Cylinder Pressure***: 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	8.83 %	+/- 1%	Direct NIST and VSL
OXYGEN	12.1 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1674	01May2010	K003066	7.016 %	CARBON DIOXIDE
NTRM 2658	01Jan2010	K001290	10.03 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
PIR/2000/609015	26Aug2009	NDIR
CAI/110P/V03018	04Sep2009	PARAMAGNETIC

ANALYZER READINGS

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

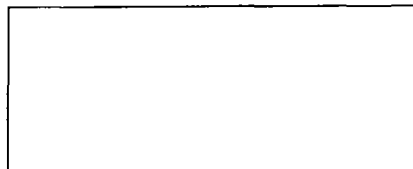
First Triad Analysis

Second Triad Analysis

Calibration Curve

CARBON DIOXIDE

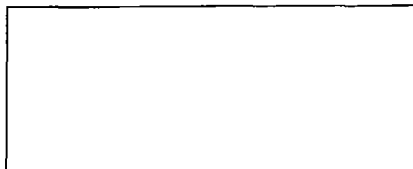
Date: 09Sep2009	Response Unit:%
Z1=0.00000	R1=49.22000 T1=58.34000
R2=49.22000	Z2=0.00000 T2=58.34000
Z3=0.00000	T3=58.34000 R3=49.22000
Avg. Concentration:	8.832 %



Concentration = A + Bx + Cx ² + Dx ³ + Ex ⁴	
r = 0.999997	
Constants:	A = 0.00330273
	B = 0.109712583 C = 0.0003454
	D = 0.000599 E =

OXYGEN

Date: 08Sep2009	Response Unit:09080
Z1=0.00000	R1=10.07000 T1=12.08000
R2=10.07000	Z2=0.00000 T2=12.08000
Z3=0.00000	T3=12.08000 R3=10.07000
Avg. Concentration:	12.06 %



Concentration = A + Bx + Cx ² + Dx ³ + Ex ⁴	
r = 0.9999980	
Constants:	A = -0.02226588
	B = 1.000347036 C =
	D = E =

APPROVED BY: _____

adrci



Air Liquide America
Specialty Gases LLC



RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

P.O. No.: 9091310
AIR LIQUIDE AMERICA SPECIALTY GASES LLC Project No.: 05-80447-011
1290 COMBERMERE STREET
TROY, MI 48083

Customer

AIR LIQUIDE AMERICA L.P.
801 W NORTH CARRIER PKWY
GRAND PRAIRIE TX 75050-1003

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: ALM014788 Certification Date: 05Oct2009 Exp. Date: 04Oct2012
Cylinder Pressure***: 1950 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	19.2 %	+/- 1%	Direct NIST and VSL
OXYGEN	21.1 %	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2300	01Nov2010	1D002807	23.04 %	CARBON DIOXIDE
NTRM 2350	01Dec2011	K016398	23.20 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3700/10880-13	30Sep2009	THERMAL CONDUCTIVITY
CAI/110P/V03018	01Oct2009	PARAMAGNETIC

ANALYZER READINGS

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

First Triad Analysis

Second Triad Analysis

Calibration Curve

CARBON DIOXIDE

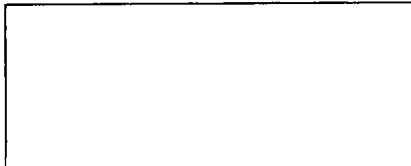
Date: 05Oct2009	Response Unit: MV	
Z1 = 0.00000	R1 = 121825.0	T1 = 101395.0
R2 = 121842.0	Z2 = 0.00000	T2 = 101331.0
Z3 = 0.00000	T3 = 101045.0	R3 = 121788.0
Avg. Concentration: 19.24 %		



Concentration = A + Bx + Cx ² + Dx ³ + Ex ⁴	
r = 0.9999	
Constants:	A = -0.3033388
B = 0.0001956	C = 0
D = 0	E = 0

OXYGEN

Date: 05Oct2009	Response Unit: MV	
Z1 = 0.00000	R1 = 23.20000	T1 = 21.13000
R2 = 23.20000	Z2 = 0.00000	T2 = 21.10000
Z3 = 0.00000	T3 = 21.10000	R3 = 23.20000
Avg. Concentration: 21.10 %		



Concentration = A + Bx + Cx ² + Dx ³ + Ex ⁴	
r = 0.9999	
Constants:	A = -0.02466393
B = 1.000647921	C = 0
D = 0	E = 0

APPROVED BY:

HILARY THATCHER



AIR LIQUIDE

Air Liquide America
Specialty Gases LLC



Scott



RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: 9062801 AIR HYGIENE
Project No.: 05-78099-007

Customer

AIR HYGIENE

JOHN FALLS
1319 N. PEORIA AVENUE
TULSA OK 74106

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: **CC66639** Certification Date: **29Jul2009** Exp. Date: **27Jan2010**
Cylinder Pressure***: **2000 PSIG**

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE	4.95 PPM	+/- 1%	Direct NIST and NMI
NITRIC OXIDE	4.95 PPM	+/- 1%	Direct NIST and NMI
NITROGEN - OXYGEN FREE	BALANCE		
TOTAL OXIDES OF NITROGEN	4.99 PPM		Reference Value Only

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1677	01Jun2012	KAL003969	9.855 PPM	CARBON MONOXIDE
NTRM 2629	15Aug2013	KAL003016	19.83 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HORIBA/APMA-360/42244670011	28Jul2009	NDIR
ECO PHYSICS/CLD 84M/84M0359	13Jul2009	CHEMI

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: 21Jul2009 Response Unit: PPM
Z1=0.00000 R1=9.85500 T1=4.95500
R2=9.83700 Z2=0.00000 T2=4.98600
Z3=0.00000 T3=4.96600 R3=9.84400
Avg. Concentration: 4.927 PPM

Date: 29Jul2009 Response Unit: PPM
Z1=0.00000 R1=9.84000 T1=5.01500
R2=9.84000 Z2=0.00000 T2=5.01500
Z3=0.00000 T3=5.01500 R3=9.84000
Avg. Concentration: 4.977 PPM

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.999999
Constants: A = -0.00161482
B = 1.00404143 C = -0.004485
D = 0.000426615 E = 0

NITRIC OXIDE

Date: 21Jul2009 Response Unit: MV
Z1=0.00000 R1=19.76000 T1=4.93000
R2=19.86000 Z2=0.00000 T2=4.92900
Z3=0.00000 T3=4.93500 R3=19.86000
Avg. Concentration: 4.940 PPM

Date: 28Jul2009 Response Unit: MV
Z1=0.00000 R1=19.84000 T1=4.95400
R2=19.83000 Z2=0.00000 T2=4.95300
Z3=0.00000 T3=4.95000 R3=19.86000
Avg. Concentration: 4.960 PPM

Concentration = A + Bx + Cx² + Dx³ + Ex⁴
r = 0.999998
Constants: A = 0.0151146
B = 0.999480696 C = 0
D = 0 E = 0

APPROVED BY:


JEFF CROTEAU



CERTIFICATION OF ANALYSIS

Interference Free Multi-Component EPA Protocol Gases

Note: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/121
Section 2.2, Procedure G-1

Customer: AIR HYGIENE
Location: TULSA, OK

Cylinder S/N: EB0011495

Shipping Order Number: 30277953
Transfer Number: 30277953
Lot Number: SFS123410
Valve: CGA 660
Cylinder Pressure*: 2000 PSIG
*Cylinder should not be used when gas pressure is below 150 psig

P.O. Number: 8071601
Item Number: SGZCAH071

Assay Date: 10-Aug-2008

Expiration Date: 10-Aug-2010

Components	Requested Concentration	Assay Concentration
Nitrogen	Balance	Balance
Carbon Monoxide	9 ppm	9.05 ± 0.16 ppm
Nitric Oxide	9 ppm	9.11 ± 0.13 ppm
NOx		9.11 ppm

Reference Standard(s) Employed For Analysis

Certified Concentration and Uncertainty	Component	Balance	Cyl. No.	SRM/PRM/Mix No.	Exp. Date	Sample No.	Type
2.52 ± 0.03 ppm	Carbon Monoxide	Nitrogen	CC109330	SFS97696	18-Oct-2008	XZ	GMIS
10.03 ± 0.10 ppm	Nitric Oxide	Nitrogen	CC171193	SFS109913	31-Jan-2010	ZV	GMIS

Analytical Data

Component: Carbon Monoxide		FIRST TRIAD ANALYSIS 3-Aug-2008				SECOND TRIAD ANALYSIS 10-Aug-2008					
Analyzer Information		Trial 1	Trial 2	Trial 3	Units	Trial 1	Trial 2	Trial 3	Units		
Analyzer Type:	Fourier Transform IR	Zero	0.0045	-0.0028	-0.0028	ppm	Zero	-0.0032	-0.0051	-0.0139	ppm
Manufacturer:	MKS Instruments	Reference	2.5073	2.5003	2.4988	ppm	Reference	2.4734	2.4845	2.4772	ppm
Model Number:	2031	Candidate	8.9613	8.9602	8.9568	ppm	Candidate	8.9533	8.9518	8.9491	ppm
Serial Number:	10387278	Result	9.018	9.024	9.033	ppm	Result	9.113	9.088	9.067	ppm
MPR Last Calibrated:	30-Jul-2008	Evaluation	Valid	Valid	Valid		Evaluation	Valid	Valid	Valid	
Analytical Principle:	FTIR	Mean Analytical Result: 9.025 ppm				Mean Analytical Result: 9.082 ppm					

Component: Nitric Oxide		FIRST TRIAD ANALYSIS 3-Aug-2008				SECOND TRIAD ANALYSIS 10-Aug-2008					
Analyzer Information		Trial 1	Trial 2	Trial 3	Units	Trial 1	Trial 2	Trial 3	Units		
Analyzer Type:	Fourier Transform IR	Zero	0.0153	0.0086	0.0181	ppm	Zero	-0.0141	0.0095	0.0012	ppm
Manufacturer:	MKS Instruments	Reference	9.7835	9.7858	9.7885	ppm	Reference	9.7835	9.7728	9.7698	ppm
Model Number:	2031	Candidate	8.8950	8.8980	8.8748	ppm	Candidate	8.8575	8.8552	8.8984	ppm
Serial Number:	10387278	Result	9.118	9.117	9.094	ppm	Result	9.101	9.088	9.135	ppm
MPR Last Calibrated:	21-Jul-2008	Evaluation	Valid	Valid	Valid		Evaluation	Valid	Valid	Valid	
Analytical Principle:	FTIR	Mean Analytical Result: 9.110 ppm				Mean Analytical Result: 9.108 ppm					

Analyst:  Tan Ngo

Approved by:  Thuan Tran



AIR LIQUIDE

CERTIFICATION OF ANALYSIS

Interference Free Multi-Component EPA Protocol Gases

Note: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/121
Section 2.2, Procedure G-1

Cylinder S/N: CC150921

Customer: AIR HYGIENE
Location: TULSA, OK

Shipping Order Number: 30555150
Transfer Number: 30555150
Lot Number: SFS124130
Valve: CGA 350
Cylinder Pressure*: 2000 PSIG
*Cylinder should not be used when
gas pressure is below 150 psig

P.O. Number: 8080801
Item Number: SGZCAH001

Assay Date: 25-Aug-2008

Expiration Date: 25-Aug-2011

Components	Requested Concentration	Assay Concentration
Nitrogen	Balance	Balance
Methane	3 ppm	3.00 ± 0.03 ppm

Reference Standard(s) Employed For Analysis

Certified Concentration and Uncertainty	Component	Balance	Cyl. No.	SRM/PRM/Mix No.	Exp. Date	Sample No.	Type
9.863 ± 0.030 ppm	Methane	Air	FF28576	1659a	25-Apr-2012	11-G-24	SRM

Analytical Data

Component: Methane		FIRST TRIAD ANALYSIS 25-Aug-2008			Units	
Analyzer Information		Trial 1	Trial 2	Trial 3		
Analyzer Type:	Gas Chromatograph	Zero	0.058	0.0000	0.161	Area
Manufacturer:	Hewlett Packard	Reference	87.038	87.257	87.485	Area
Model Number:	G1540A	Candidate	28.557	28.535	26.651	Area
Serial Number:	US00003390/Meth	Result	3.005	2.999	2.992	ppm
MPR Last Calibrated:	12-Aug-2008	Evaluation	Valid	Valid	Valid	
Analytical Principle:	FID & TCD	Mean Analytical Result: 2.999				ppm

Analyst:  Tan Ngo

Approved by:  Thuan Tran



CERTIFICATION OF ANALYSIS

Interference Free Multi-Component EPA Protocol Gases

Note: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/121
Section 2.2, Procedure G-1

Cylinder S/N: CC150841

Customer: AIR HYGIENE
Location: TULSA, OK

Shipping Order Number: 30336104
Transfer Number: 30336104
Lot Number: SFS123631
Valve: CGA 350
Cylinder Pressure*: 2000 PSIG
*Cylinder should not be used when
gas pressure is below 150 psig

P.O. Number: 8071801
Item Number: SGZCAH002

Assay Date: 4-Aug-2008

Expiration Date: 4-Aug-2011

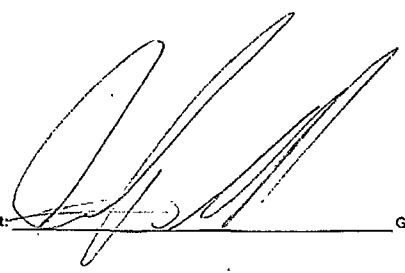
Components	Requested Concentration	Assay Concentration
Nitrogen	Balance	Balance
Methane	5 ppm	4.94 ± 0.06 ppm

Reference Standard(s) Employed For Analysis

Certified Concentration and Uncertainty	Component	Balance	Cyl. No.	SRM/PRM/Mix No.	Exp. Date	Sample No.	Type
9.863 ± 0.030 ppm	Methane	Air	FF28576	1659a	25-Apr-2012	11-G-24	SRM

Analytical Data

Component:	Methane	FIRST TRIAD ANALYSIS 4-Aug-2008			Units.	
		Zero	Trial 1	Trial 2		Trial 3
Analyzer Type:	Gas Chromatograph	0.114	0.073	0.022	Area	
Manufacturer:	Hewlett Packard	Reference	91.233	91.401	91.269	Area
Model Number:	G1540A	Candidate	45.834	45.729	45.799	Area
Serial Number:	US00003390/Meth	Result	4.949	4.931	4.948	ppm
MPR Last Calibrated:	11-Jul-2008	Evaluation	Valid	Valid	Valid	
Analytical Principle:	FID & TCD	Mean Analytical Result:			4.943	ppm

Analyst:  Gary Williams

Approved by:  Thuan Tran



CERTIFICATION OF ANALYSIS

Interference Free Multi-Component EPA Protocol Gases

Note: Analytical uncertainty and NIST traceability are in compliance with EPA-600/R-97/121
Section 2.2, Procedure G-1

Cylinder S/N: CC53032

Customer: AIR HYGIENE
Location: TULSA, OK

Shipping Order Number: 30736937
Transfer Number: 30736937
Lot Number: SFS125022
Valve: CGA 350
Cylinder Pressure*: 2000 PSIG
*Cylinder should not be used when
gas pressure is below 150 psig

P.O. Number: 8082701
Item Number: SGZCAH006

Assay Date: 25-Sep-2008

Expiration Date: 25-Sep-2011

Components	Requested Concentration	Assay Concentration
Nitrogen	Balance	Balance
Methane	8.5 ppm	8.40 ± 0.10 ppm

Reference Standard(s) Employed For Analysis

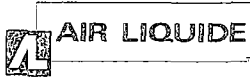
Certified Concentration and Uncertainty	Component	Balance	Cyl. No.	SRM/PRM/Mix No.	Exp. Date	Sample No.	Type
10.06 ± 0.04 ppm	Methane	Air	CC52347	SFS103877	18-Mar-2010	NK	GMIS

Analytical Data

Component:	Methane	FIRST TRIAD ANALYSIS 25-Sep-2008				Units
		Zero	Trial 1	Trial 2	Trial 3	
Analyzer Type:	Gas Chromatograph	Zero	0.0000	0.009	0.0000	Area
Manufacturer:	Hewlett Packard	Reference	95.357	95.042	95.188	Area
Model Number:	G1540A	Candidate	79.484	79.558	79.410	Area
Serial Number:	US00003390/Meth	Result	8.385	8.421	8.392	ppm
MPR Last Calibrated:	24-Sep-2008	Evaluation	Valid	Valid	Valid	
Analytical Principle:	FID & TCD	Mean Analytical Result: 8.399 ppm				

Analyst: Tan Ngo

Approved by: Thuan Tran



Air Liquide America
Specialty Gases LLC



COMPLIANCE CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083

Phone: 248-589-2950

Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

P.O. No.: 9092010
AIR LIQUIDE AMERICA SPECIALTY GASES LLC Project No.: 05-80747-012
1290 COMBERMERE STREET
TROY, MI 48083

Customer

AIR LIQUIDE AMERICA L.P.
801 W NORTH CARRIER PKWY
GRAND PRAIRIE TX 75050-1003

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: ALM010682 Certification Date: 13Oct2009 Exp. Date: 13Apr2010
Cylinder Pressure***: 1950 PSIG

<u>COMPONENT</u>	<u>CERTIFIED CONCENTRATION (Moles)</u>	<u>ANALYTICAL ACCURACY**</u>	<u>TRACEABILITY</u>
NITROGEN DIOXIDE	48.1 PPM	+/- 2%	NIST and VSL
NITROGEN	BALANCE		

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

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

REFERENCE STANDARD

<u>TYPE/SRM NO.</u>	<u>EXPIRATION DATE</u>	<u>CYLINDER NUMBER</u>	<u>CONCENTRATION</u>	<u>COMPONENT</u>
GMIS NO2/AIR	03Dec2010	ALM058077	107.0 PPM	NITROGEN DIOXIDE

INSTRUMENTATION

<u>INSTRUMENT/MODEL/SERIAL#</u>	<u>DATE LAST CALIBRATED</u>	<u>ANALYTICAL PRINCIPLE</u>
AMETEK 921/921 CE NO2/AW-921-S281	18Sep2009	UV

APPROVED BY:

HILARY THATCHER

APPENDIX D

QUALITY ASSURANCE AND QUALITY CONTROL DATA

QA/QC PROGRAM

Air Hygiene ensures the quality and validity of its emission measurement and reporting procedures through a rigorous quality assurance (QA) program. The program is developed and administered by an internal QA team and encompasses five major areas:

1. QA reviews of reports, laboratory work, and field testing
2. Equipment calibration and maintenance
3. Chain-of-custody
4. Training
5. Knowledge of current test methods

Each of these areas is discussed individually below.

QA Reviews

Air Hygiene's review procedure includes review of each source test report, along with laboratory and fieldwork, by the QA Team. The most important review is the one that takes place before a test program begins. The QA Team works closely with technical division personnel to prepare and review test protocols. Test protocol review includes selection of appropriate test procedures, evaluation of interferences or other restrictions that might preclude use of standard test procedures, and evaluation and/or development of alternate procedures.

Equipment Calibration and Maintenance

The equipment used to conduct the emission measurements is maintained according to the manufacturer's instructions to ensure proper operation. In addition to the maintenance program, calibrations are carried out on each measurement device according to the schedule outlined by the Environmental Protection Agency. Quality control checks are also conducted in the field for each test program.

Chain-of-Custody

Air Hygiene maintains full chain-of-custody documentation on all samples and data sheets. In addition to normal documentation of changes between field sample custodians, laboratory personnel, and field test personnel, Air Hygiene documents every individual who handles any test component in the field (e.g., probe wash, impinger loading and recovery, filter loading and recovery, etc.). Samples are stored in a locked area to which only Air Hygiene personnel have access. Field data sheets are secured at Air Hygiene's offices upon return from the field.

Training

Personnel's training is essential to ensure quality testing. Air Hygiene has formal and informal training programs, which include:

1. Attendance at EPA-sponsored training courses
2. Enrollment in EPA correspondence courses
3. A requirement for all technicians to read and understand Air Hygiene's QA manual
4. In-house training and QA meetings on a regular basis
5. Maintenance of training records

Knowledge of Current Test Methods

With the constant updating of standard test methods and the wide variety of emerging test procedures, it is essential that any qualified source tester keep abreast of new developments. Air Hygiene subscribes to services, which provide updates on EPA reference methods, rules, and regulations. Additionally, source test personnel regularly attend and present papers at testing and emission-related seminars and conferences. Air Hygiene personnel maintain membership in the Air and Waste Management Association and the American Industrial Hygiene Association.

COMBUSTION TESTING 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 Appendix C describes each of those activities.

Each instrument's response was checked and adjusted in the field prior to the collection of data via multi-point calibration. The instrument's linearity was checked by adjusting its 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 and accepted as being linear if the response of the other calibration gases agreed within plus or minus two percent of the range of predicted values. NO₂ to NO conversion was checked via direct connect with an EPA Protocol certified concentration of NO₂ in a balance of nitrogen. Conversion was verified to be between 90 and 110 percent.

After each test run, the analyzers were checked for zero and span drift. This allowed each test run to be bracketed by calibrations and documents the precision of the data just collected. The criterion for acceptable data is that the instrument drift is no more than three percent of the full-scale response. The quality assurance worksheets in the following pages summarize all multipoint calibration checks and zero to span checks performed during the tests. These worksheets (as prepared from the data records of Appendix A) show that no drifts in excess of three percent occurred in the zero to span checks following each test run.

The sampling systems were leak checked by demonstrating that a vacuum greater than 10 in Hg could be held for at least one minute with a decline of less than one inch of Hg. A leak test was conducted after the sample system was set up and before the system was dismantled. This test was conducted to ensure that ambient air had not diluted the sample. Any leakage detected prior to the tests would be repaired and another leak check conducted before testing commenced. No leaks were found during the pre or post-test leak checks.

The absence of leaks in the sampling system was also verified by a sampling system bias check. The sampling system's integrity was tested by comparing the responses of the analyzers to the calibration gases introduced via two paths. The first path was directly into the analyzer and the second path via the sample system at the sample probe. Any difference in the instrument responses by these two methods was attributed to sampling system bias or leakage. The criterion for acceptance is agreement within five percent of the span of the analyzer.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to plus or minus one percent accuracy for all gases. EPA Protocol No. 1 was used, where applicable 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 C.

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

INSTRUMENTAL ANALYSIS QUALITY ASSURANCE DATA

Date: November 11 and 13, 2009
Company: Florida Power and Light
Location: Loxahatchee, Florida
Techs: PS/SB

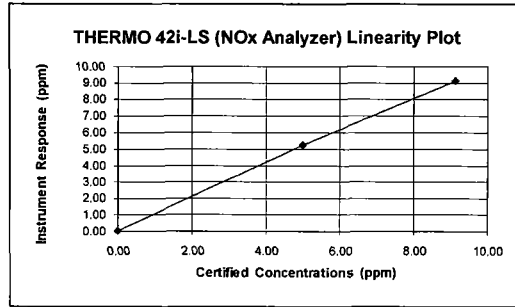
Sample System Leak Check

Date	Sample System	Leak Rate (l/min)
November 11 and 13, 2009	1	0

Calibration Date: November 13, 2009
 Client: Florida Power and Light

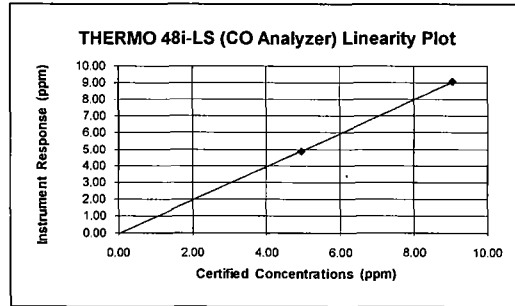
NOx Span (ppm) = 9.11

THERMO 42i-LS (NOx Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Absolute Conc. (ppm)	Pass or Fail (±2% ≤0.5ppm)
0.00	0.04	0.44	0.04	YES (%)
4.99	5.25	2.85	0.26	YES (abs)
9.11	9.12	0.11	0.01	YES (%)
Linearity = 1.001				



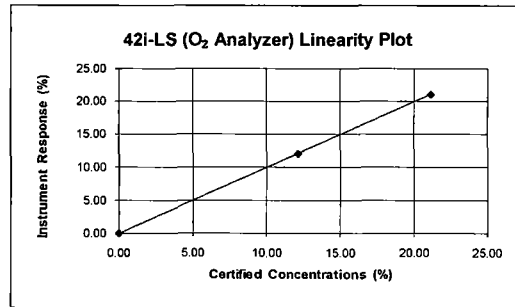
CO Span (ppm) = 9.05

THERMO 48i-LS (CO Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Absolute Conc. (ppm)	Pass or Fail (±2% ≤0.5ppm)
0.00	-0.07	-0.77	0.07	YES (%)
4.95	4.89	-0.66	0.06	YES (%)
9.05	9.06	0.11	0.01	YES (%)
Linearity = 0.991				



O₂ Span (%) = 21.10

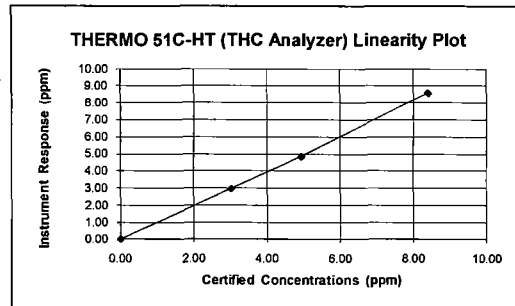
42i-LS (O ₂ Analyzer)				
Certified Concentration (%)	Instrument Response (%)	Calibration Error (%)	Absolute Conc. (%)	Pass or Fail (±2% ≤0.5%)
0.00	0.03	0.14	0.03	YES (%)
12.10	12.07	-0.14	0.03	YES (%)
21.10	21.09	-0.05	0.01	YES (%)
Linearity = 1.002				



THC Range (ppm) = 10

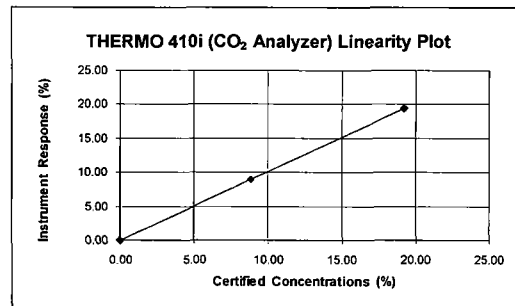
THERMO 51C-HT (THC Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Estimated Point (ppm)	Pass or Fail (±2.5% ¹)
0.00	0.03	0.30	N/A	YES
3.03	2.97	-4.99	3.12	YES
4.94	4.85	-4.45	5.07	YES
8.40	8.60	2.00	N/A	YES
Linearity = 0.949				

¹-zero/high based on 2% of span, low/mid based on 5% of concentration



CO₂ Span (%) = 19.20

THERMO 410i (CO ₂ Analyzer)				
Certified Concentration (%)	Instrument Response (%)	Calibration Error (%)	Absolute Conc. (%)	Pass or Fail (±2% ≤0.5%)
0.00	0.03	0.16	0.03	YES (%)
8.83	9.00	0.89	0.17	YES (%)
19.20	19.39	0.99	0.19	YES (%)
Linearity = 0.992				



NOx Converter Efficiency

Date: November 13, 2009

Analyzer: INST-N2-0001

RM 7E, (08-15-06), 8.2.4.1 Introduce a concentration of 40 to 60 ppmv NO₂ to the analyzer in direct calibration mode and record the NOx concentration displayed by the analyzer. ... Calculate the converter efficiency using Equation 7E-7 in Section 12.7. The specification for converter efficiency in Section 13.5 must be met. ... The NO₂ must be prepared according to the EPA Traceability Protocol and have an accuracy within 2.0 percent.

Audit Gas:	NO ₂ Concentration (C _v), ppmvd	48.10
Converter Efficiency Calculations:		
	Analyzer Reading, NO Channel, ppmvd	2.22
	Analyzer Reading, NOx Channel, ppmvd	47.01
	Analyzer Reading, NO ₂ Channel (C _{Dir(NO2)}), ppmvd	44.79
	Converter Efficiency, %	93.12

RM 7E, (08-15-06), 13.5 NO₂ to NO Conversion Efficiency Test (as applicable). The NO₂ to NO conversion efficiency, calculated according to Equation 7E-7 or Equation 7E-9, must be greater than or equal to 90 percent.

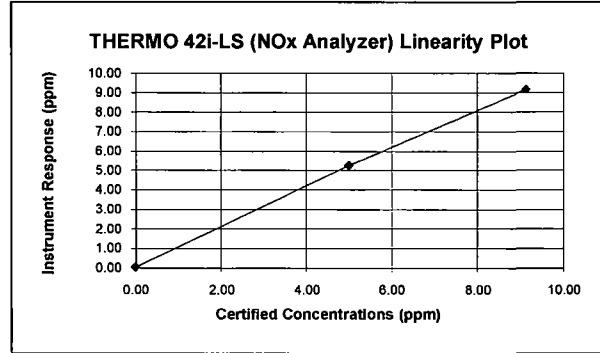
$$Eff_{NO2} = \left(\frac{C_{Dir}}{C_V} \right) \times 100 \quad \text{Eq. 7E-7} = \frac{44.79 \text{ ppmvd}}{48.10 \text{ ppmvd}} \times 100 = 93.12\%$$

Date/Time	Elapsed Time	NOx	NO
mm/dd/yy hh:mm:ss	Seconds	ppmvd	ppmvd
11/13/09 06:46:50	1510	34.82	1.62
11/13/09 06:47:00	1520	39.72	2.32
11/13/09 06:47:10	1530	41.78	2.65
11/13/09 06:47:20	1540	41.98	2.88
11/13/09 06:47:30	1550	41.75	2.94
11/13/09 06:47:40	1560	42.20	2.95
11/13/09 06:47:50	1570	42.82	2.91
11/13/09 06:48:00	1580	43.38	2.85
11/13/09 06:48:10	1590	43.94	2.79
11/13/09 06:48:20	1600	44.34	2.73
11/13/09 06:48:30	1610	44.70	2.66
11/13/09 06:48:40	1620	45.07	2.58
11/13/09 06:48:50	1630	45.40	2.53
11/13/09 06:49:00	1640	45.69	2.49
11/13/09 06:49:10	1650	45.92	2.45
11/13/09 06:49:20	1660	46.18	2.41
11/13/09 06:49:30	1670	46.45	2.36
11/13/09 06:49:40	1680	46.66	2.31
11/13/09 06:49:50	1690	46.83	2.26
11/13/09 06:50:00	1700	47.01	2.22

Calibration Date: November 11, 2009
 Client: Florida Power and Light

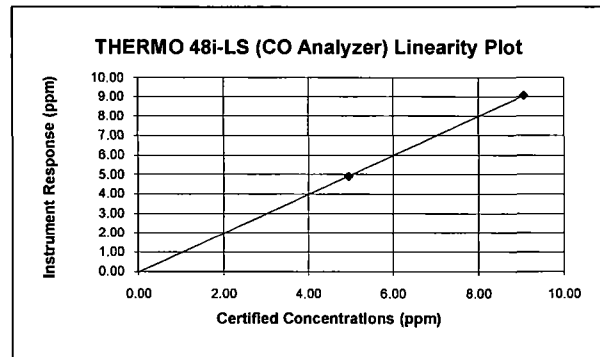
NOx Span (ppm) = 9.11

THERMO 42i-LS (NOx Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Absolute Conc. (ppm)	Pass or Fail (±2%, ≤0.5ppm)
0.00	0.05	0.55	0.05	YES (%)
4.99	5.25	2.85	0.26	YES (abs)
9.11	9.17	0.66	0.06	YES (%)
Linearity = 0.997				



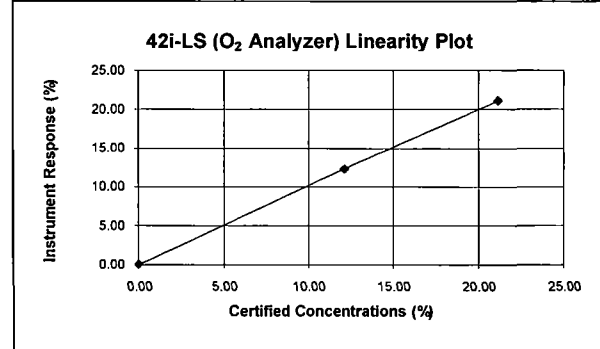
CO Span (ppm) = 9.05

THERMO 48i-LS (CO Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Absolute Conc. (ppm)	Pass or Fail (±2%, ≤0.5ppm)
0.00	-0.02	-0.22	0.02	YES (%)
4.95	4.94	-0.11	0.01	YES (%)
9.05	9.05	0.00	0.00	YES (%)
Linearity = 0.998				



O2 Span (%) = 21.10

42i-LS (O ₂ Analyzer)				
Certified Concentration (%)	Instrument Response (%)	Calibration Error (%)	Absolute Conc. (%)	Pass or Fail (±2%, ≤0.5%)
0.00	0.04	0.19	0.04	YES (%)
12.10	12.31	1.00	0.21	YES (%)
21.10	21.13	0.14	0.03	YES (%)
Linearity = 1.000				



NOx Converter Efficiency

Date: November 11, 2009

Analyzer: INST-N2-0001

RM 7E, (08-15-06), 8.2.4.1 Introduce a concentration of 40 to 60 ppmv NO₂ to the analyzer in direct calibration mode and record the NOx concentration displayed by the analyzer. ... Calculate the converter efficiency using Equation 7E-7 in Section 12.7. The specification for converter efficiency in Section 13.5 must be met. ... The NO₂ must be prepared according to the EPA Traceability Protocol and have an accuracy within 2.0 percent.

Audit Gas:	NO ₂ Concentration (C _v), ppmvd	48.10
Converter Efficiency Calculations:		
	Analyzer Reading, NO Channel, ppmvd	2.11
	Analyzer Reading, NOx Channel, ppmvd	47.24
	Analyzer Reading, NO ₂ Channel (C _{Dir(NO2)}), ppmvd	45.13
	Converter Efficiency, %	93.83

RM 7E, (08-15-06), 13.5 NO₂ to NO Conversion Efficiency Test (as applicable). The NO₂ to NO conversion efficiency, calculated according to Equation 7E-7 or Equation 7E-9, must be greater than or equal to 90 percent.

$$Eff_{NO_2} = \left(\frac{C_{Dir}}{C_v} \right) \times 100 \quad \text{Eq. 7E-7} = \frac{45.13 \text{ ppmvd}}{48.10 \text{ ppmvd}} \times 100 = 93.83\%$$

Date/Time	Elapsed Time	NOx	NO
mm/dd/yy hh:mm:ss	Seconds	ppmvd	ppmvd
11/11/09 09:22:58	1360	38.60	2.32
11/11/09 09:23:08	1370	40.04	2.73
11/11/09 09:23:18	1380	40.92	2.89
11/11/09 09:23:28	1390	41.52	2.90
11/11/09 09:23:38	1400	42.22	2.85
11/11/09 09:23:48	1410	42.96	2.78
11/11/09 09:23:58	1420	43.59	2.70
11/11/09 09:24:08	1430	44.12	2.64
11/11/09 09:24:18	1440	44.60	2.57
11/11/09 09:24:28	1450	45.08	2.48
11/11/09 09:24:38	1460	45.46	2.42
11/11/09 09:24:48	1470	45.82	2.35
11/11/09 09:24:58	1480	46.09	2.30
11/11/09 09:25:08	1490	46.36	2.25
11/11/09 09:25:18	1500	46.61	2.21
11/11/09 09:25:28	1510	46.82	2.19
11/11/09 09:25:38	1520	47.04	2.15
11/11/09 09:25:48	1530	47.24	2.11

DRIFT AND BIAS CHECK		
Strat Test Pre and Post QA/QC Check	O2	NOx
Initial Zero	0.16	0.06
Final Zero	0.14	0.13
Avg. Zero	0.15	0.10
Initial UpScale	12.21	5.07
Final UpScale	12.24	5.12
Avg. UpScale	12.23	5.10
Sys Resp (Zero)	0.04	0.05
Sys Resp (Upscale)	12.31	5.25
Upscale Cal Gas	12.10	4.99
Initial Zero Bias	0.57%	0.11%
Final Zero Bias	0.47%	0.88%
Zero Drift	0.09%	0.77%
Initial Upscale Bias	-0.47%	-1.98%
Final Upscale Bias	-0.33%	-1.43%
Upscale Drift	0.14%	0.55%
Alternative Specification Abs Diff	Initial Zero	0.12
	Final Zero	0.10
	Initial Upscale	0.10
	Final Upscale	0.07
Calibration Span	21.10	9.11
3% of Range (drift)	0.63	0.27
5% of Range (bias)	1.06	0.46

Response Time (min)	0.8	1.5
Sys. Response (min)	1.5	

INJECTIONS

Date/Time mm/dd/yy hh:mm:ss	z	O ₂	s	z	NOx	s
11/11/09 09:50:38		0.16			0.08	
11/11/09 09:50:48		0.17			0.07	
11/11/09 09:50:58		0.16	x		0.06	x
11/11/09 09:51:08		0.16			0.07	
11/11/09 09:51:18		0.15			0.07	
11/11/09 09:51:28		0.16			0.06	
11/11/09 09:51:38		0.16			0.06	
11/11/09 09:51:48		0.15			-0.03	
11/11/09 09:51:58		0.14			1.40	
11/11/09 09:52:08		0.16			3.59	
11/11/09 09:52:18		0.15			4.48	
11/11/09 09:52:28		0.15			4.87	x
11/11/09 09:52:38		0.15			5.03	
11/11/09 09:52:48		0.14			5.05	
11/11/09 09:52:58		0.15			5.07	
11/11/09 09:53:08		0.15			5.06	
11/11/09 09:53:28		0.14			5.07	
11/11/09 09:53:38	x	0.14			5.08	x
11/11/09 09:53:48		0.14			5.08	
11/11/09 09:53:58		0.13			5.08	
11/11/09 09:54:08		0.11			5.02	
11/11/09 09:54:18		7.07			5.09	
11/11/09 09:54:28		11.83	x		5.12	
11/11/09 09:54:38		11.98			3.45	
11/11/09 09:54:48		12.17			1.64	
11/11/09 09:54:58		12.20			0.80	
11/11/09 09:55:08		12.21			0.34	
11/11/09 09:55:18		12.21			0.16	
11/11/09 09:55:28		12.23			0.13	

DRIFT AND BIAS CHECK						
Base W/O Db Load, Run - 1-1	O ₂	NOx	CO	VOC	CO ₂	
Raw Average	13.19	2.16	1.91	1.07	4.33	
Corrected Average	13.37	2.08	1.81	1.28	4.26	
Initial Zero	0.16	0.16	0.12	-0.10	0.00	
Final Zero	0.05	0.07	-0.12	-0.10	0.15	
Avg. Zero	0.11	0.12	0.00	-0.10	0.08	
Initial UpScale	11.90	4.99	5.26	2.97	8.78	
Final UpScale	11.99	5.05	5.19	2.89	9.00	
Avg. UpScale	11.95	5.02	5.23	2.93	8.89	
Sys Resp (Zero)	0.03	0.04	-0.07	0.03	0.03	
Sys Resp (Upscale)	12.07	5.25	4.89	2.97	9.00	
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83	
Initial Zero Bias	0.62%	1.32%	2.10%	-1.30%	-0.16%	
Final Zero Bias	0.09%	0.33%	-0.55%	-1.30%	0.63%	
Zero Drift	0.52%	0.99%	2.65%	0.00%	0.78%	
Initial Upscale Bias	-0.81%	-2.85%	4.09%	0.00%	-1.15%	
Final Upscale Bias	-0.38%	-2.20%	3.31%	-0.80%	0.00%	
Upscale Drift	0.43%	0.66%	0.77%	0.80%	1.15%	
Alternative Specification Abs Diff	Initial Zero	0.13	0.12	0.19	--	0.03
	Final Zero	0.02	0.03	0.05	--	0.12
	Initial Upscale	0.17	0.26	0.37	--	0.22
	Final Upscale	0.08	0.20	0.30	--	0.00
Calibration Span	21.10	9.11	9.05	10.00	19.20	
3% of Cal. Span (drift)	0.63	0.27	0.27	0.30	0.58	
5% of Cal. Span (bias)	1.06	0.46	0.45	0.50	0.96	

DRIFT AND BIAS CHECK						
Base W/O Db Load, Run - 1-2	O ₂	NOx	CO	VOC	CO ₂	
Raw Average	13.20	2.20	0.72	1.09	4.52	
Corrected Average	13.27	2.16	0.79	1.20	4.28	
Initial Zero	0.05	0.07	-0.12	-0.10	0.15	
Final Zero	0.16	0.06	-0.14	0.15	0.33	
Avg. Zero	0.11	0.07	-0.13	0.03	0.24	
Initial UpScale	11.99	5.05	5.19	2.89	9.00	
Final UpScale	12.10	4.98	5.22	3.05	9.17	
Avg. UpScale	12.05	5.02	5.21	2.97	9.09	
Sys Resp (Zero)	0.03	0.04	-0.07	0.03	0.03	
Sys Resp (Upscale)	12.07	5.25	4.89	2.97	9.00	
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83	
Initial Zero Bias	0.09%	0.33%	-0.55%	-1.30%	0.63%	
Final Zero Bias	0.62%	0.22%	-0.77%	1.20%	1.56%	
Zero Drift	0.52%	0.11%	0.22%	2.50%	0.94%	
Initial Upscale Bias	-0.38%	-2.20%	3.31%	-0.80%	0.00%	
Final Upscale Bias	0.14%	-2.96%	3.65%	0.80%	0.89%	
Upscale Drift	0.52%	0.77%	0.33%	1.60%	0.89%	
Alternative Specification Abs Diff	Initial Zero	0.02	0.03	0.05	--	0.12
	Final Zero	0.13	0.02	0.07	--	0.30
	Initial Upscale	0.08	0.20	0.30	--	0.00
	Final Upscale	0.03	0.27	0.33	--	0.17
Calibration Span	21.10	9.11	9.05	10.00	19.20	
3% of Cal. Span (drift)	0.63	0.27	0.27	0.30	0.58	
5% of Cal. Span (bias)	1.06	0.46	0.45	0.50	0.96	

DRIFT AND BIAS CHECK						
Base W/O Db Load, Run - 1-3	O ₂	NOx	CO	VOC	CO ₂	
Raw Average	13.20	2.20	0.72	1.09	4.52	
Corrected Average	13.22	2.17	0.81	1.08	4.19	
Initial Zero	0.16	0.06	-0.14	0.15	0.33	
Final Zero	0.18	0.09	-0.20	0.20	0.34	
Avg. Zero	0.17	0.08	-0.17	0.18	0.34	
Initial UpScale	12.10	4.98	5.22	3.05	9.17	
Final UpScale	12.09	4.97	5.22	3.02	9.16	
Avg. UpScale	12.10	4.98	5.22	3.04	9.17	
Sys Resp (Zero)	0.03	0.04	-0.07	0.03	0.03	
Sys Resp (Upscale)	12.07	5.25	4.89	2.97	9.00	
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83	
Initial Zero Bias	0.62%	0.22%	-0.77%	1.20%	1.56%	
Final Zero Bias	0.71%	0.55%	-1.44%	1.70%	1.61%	
Zero Drift	0.09%	0.33%	0.66%	0.50%	0.05%	
Initial Upscale Bias	0.14%	-2.96%	3.65%	0.80%	0.89%	
Final Upscale Bias	0.09%	-3.07%	3.65%	0.50%	0.83%	
Upscale Drift	0.05%	0.11%	0.00%	0.30%	0.05%	
Alternative Specification Abs Diff	Initial Zero	0.13	0.02	0.07	--	0.30
	Final Zero	0.15	0.05	0.13	--	0.31
	Initial Upscale	0.03	0.27	0.33	--	0.17
	Final Upscale	0.02	0.28	0.33	--	0.16
Calibration Span	21.10	9.11	9.05	10.00	19.20	
3% of Cal. Span (drift)	0.63	0.27	0.27	0.30	0.58	
5% of Cal. Span (bias)	1.06	0.46	0.45	0.50	0.96	

DRIFT AND BIAS CHECK						
Base W/Db Load, Run - 2-1	O ₂	NOx	CO	VOC	CO ₂	
Raw Average	12.37	2.75	0.64	2.52	5.31	
Corrected Average	12.39	2.73	0.77	2.84	5.00	
Initial Zero	0.18	0.09	-0.20	0.20	0.34	
Final Zero	0.24	0.06	-0.20	0.15	0.21	
Avg. Zero	0.21	0.08	-0.20	0.18	0.28	
Initial UpScale	12.09	4.97	5.22	3.02	9.16	
Final UpScale	12.09	4.98	5.11	2.89	9.16	
Avg. UpScale	12.09	4.98	5.17	2.96	9.16	
Sys Resp (Zero)	0.03	0.04	-0.07	0.03	0.03	
Sys Resp (Upscale)	12.07	5.25	4.89	2.97	9.00	
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83	
Initial Zero Bias	0.71%	0.55%	-1.44%	1.70%	1.61%	
Final Zero Bias	1.00%	0.22%	-1.44%	1.20%	0.94%	
Zero Drift	0.28%	0.33%	0.00%	0.50%	0.68%	
Initial Upscale Bias	0.09%	-3.07%	3.65%	0.50%	0.83%	
Final Upscale Bias	0.09%	-2.96%	2.43%	-0.80%	0.83%	
Upscale Drift	0.00%	0.11%	1.22%	1.30%	0.00%	
Alternative Specification Abs Diff	Initial Zero	0.15	0.05	0.13	--	0.31
	Final Zero	0.21	0.02	0.13	--	0.18
	Initial Upscale	0.02	0.28	0.33	--	0.16
	Final Upscale	0.02	0.27	0.22	--	0.16
Calibration Span	21.10	9.11	9.05	10.00	19.20	
3% of Cal. Span (drift)	0.63	0.27	0.27	0.30	0.58	
5% of Cal. Span (bias)	1.06	0.46	0.45	0.50	0.96	

DRIFT AND BIAS CHECK						
Base W/Db Load, Run - 2-2	O ₂	NOx	CO	VOC	CO ₂	
Raw Average	12.38	2.78	0.62	0.96	4.83	
Corrected Average	12.40	2.76	0.76	0.98	4.62	
Initial Zero	0.24	0.06	-0.20	0.15	0.21	
Final Zero	0.23	0.09	-0.19	0.14	0.14	
Avg. Zero	0.24	0.08	-0.20	0.15	0.18	
Initial UpScale	12.09	4.98	5.11	2.89	9.16	
Final UpScale	12.09	4.96	5.05	3.10	9.00	
Avg. UpScale	12.09	4.97	5.08	3.00	9.08	
Sys Resp (Zero)	0.03	0.04	-0.07	0.03	0.03	
Sys Resp (Upscale)	12.07	5.25	4.89	2.97	9.00	
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83	
Initial Zero Bias	1.00%	0.22%	-1.44%	1.20%	0.94%	
Final Zero Bias	0.95%	0.55%	-1.33%	1.10%	0.57%	
Zero Drift	0.05%	0.33%	0.11%	0.10%	0.36%	
Initial Upscale Bias	0.09%	-2.96%	2.43%	-0.80%	0.83%	
Final Upscale Bias	0.09%	-3.18%	1.77%	1.30%	0.00%	
Upscale Drift	0.00%	0.22%	0.66%	2.10%	0.83%	
Alternative Specification Abs Diff	Initial Zero	0.21	0.02	0.13	--	0.18
	Final Zero	0.20	0.05	0.12	--	0.11
	Initial Upscale	0.02	0.27	0.22	--	0.16
	Final Upscale	0.02	0.29	0.16	--	0.00
Calibration Span	21.10	9.11	9.05	10.00	19.20	
3% of Cal. Span (drift)	0.63	0.27	0.27	0.30	0.58	
5% of Cal. Span (bias)	1.06	0.46	0.45	0.50	0.96	

DRIFT AND BIAS CHECK						
Base W/Db Load, Run - 2-3	O ₂	NOx	CO	VOC	CO ₂	
Raw Average	12.38	2.76	0.61	1.25	4.95	
Corrected Average	12.40	2.74	0.77	1.27	4.72	
Initial Zero	0.23	0.09	-0.19	0.14	0.14	
Final Zero	0.23	0.08	-0.24	0.12	0.27	
Avg. Zero	0.23	0.09	-0.22	0.13	0.21	
Initial UpScale	12.09	4.96	5.05	3.10	9.00	
Final UpScale	12.09	4.96	5.14	3.11	9.18	
Avg. UpScale	12.09	4.96	5.10	3.11	9.09	
Sys Resp (Zero)	0.03	0.04	-0.07	0.03	0.03	
Sys Resp (Upscale)	12.07	5.25	4.89	2.97	9.00	
Upscale Cal Gas	12.10	4.99	4.95	3.03	8.83	
Initial Zero Bias	0.95%	0.55%	-1.33%	1.10%	0.57%	
Final Zero Bias	0.95%	0.44%	-1.88%	0.90%	1.25%	
Zero Drift	0.00%	0.11%	0.55%	0.20%	0.68%	
Initial Upscale Bias	0.09%	-3.18%	1.77%	1.30%	0.00%	
Final Upscale Bias	0.09%	-3.18%	2.76%	1.40%	0.94%	
Upscale Drift	0.00%	0.00%	0.99%	0.10%	0.94%	
Alternative Specification Abs Diff	Initial Zero	0.20	0.05	0.12	--	0.11
	Final Zero	0.20	0.04	0.17	--	0.24
	Initial Upscale	0.02	0.29	0.16	--	0.00
	Final Upscale	0.02	0.29	0.25	--	0.18
Calibration Span	21.10	9.11	9.05	10.00	19.20	
3% of Cal. Span (drift)	0.63	0.27	0.27	0.30	0.58	
5% of Cal. Span (bias)	1.06	0.46	0.45	0.50	0.96	

METERING SYSTEM CALIBRATION SHEET

EPA Reference Method 5

Metering System Pre-Test Calibration

Air Hygiene Asset ID: samp-cp-0012

Filename: \\SERVER2\public\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.0\Current\{SAMP-CP-0012 Calibraton 9-30-09.xls}Original (5 point)

Make: Thermo Environmental
 Model #: MST-C1
 Serial #: 90699

Date: 09/30/09
 Barometric Pressure: 29.00 (in. Hg)
 Theoretical Critical Vacuum: 13.68 (in. Hg)

DRY GAS METER READINGS						
ΔH (in H ₂ O)	Time (min)	Volume			Initial Temps.	
		Initial (cu ft)	Final (cu ft)	Total (cu ft)	Inlet (deg F)	Outlet (deg F)
0.24	17.00	142.640	147.900	5.260	71.0	70.0
0.55	12.00	147.900	153.420	5.520	74.0	71.0
0.97	10.00	153.420	159.420	6.000	76.0	72.0
1.70	10.00	159.420	167.170	7.750	77.0	73.0
3.00	10.00	167.170	177.630	10.460	79.0	74.0

Final Temps.		Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Ambient Temperature		
Inlet (deg F)	Outlet (deg F)				Initial (deg F)	Final (deg F)	Average (deg F)
74.0	71.0	40	0.2354	16.0	71.2	72.1	71.7
77.0	72.0	48	0.3491	16.0	72.3	72.7	72.5
80.0	73.0	55	0.4530	16.0	72.9	73.0	73.0
81.0	74.0	63	0.5840	16.0	73.2	73.6	73.4
83.0	75.0	73	0.7945	15.0	73.6	73.8	73.7

RESULTS				
DRY GAS METER		ORIFICE		
VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL
Vm(std) (cu ft)	Vm(std) (liters)	Vcr(std) (cu ft)	Vcr(std) (liters)	Vcr (cu ft)
5.066	143.46	5.033	142.5	5.231
5.300	150.11	5.265	149.1	5.480
5.749	162.80	5.691	161.2	5.928
7.425	210.28	7.333	207.7	7.646
10.026	283.94	9.973	282.4	10.405

DRY GAS METER CALIBRATION FACTOR Y		ORIFICE CALIBRATION FACTOR ΔH@		
Variation (number)	Value (number)	Value (in H ₂ O)	Value (mm H ₂ O)	Variation (in H ₂ O)
0.002	0.994	1.486	37.74	-0.111
0.001	0.993	1.548	39.31	-0.049
-0.002	0.990	1.619	41.13	0.023
-0.004	0.988	1.706	43.33	0.109
0.003	0.995	1.624	41.26	0.028
AVERAGE:	0.992	1.597	40.55	PASSED

Notes: 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. For Orifice Calibration Factor ΔH@, the orifice differential pressure in inches of H₂O 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. For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units, (ft)³*(deg R)^{0.5}/((in.Hg)*(min)).

SIGNATURE: Craig McCarty

DATE: 09/30/09

METERING SYSTEM CALIBRATION SHEET

EPA Reference Method 5

Metering System Post-Test Calibration

Air Hygiene Asset ID: samp-cp-0012

Filename: \\SERVER2\public\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.0\Current\SAMP-CP-0012 Calibrat 9-30-09.xls|11-25-09 (3 point)

Make: Thermo Environmental
 Model #: MST-C1
 Serial #: 90699

Date: 11/25/09
 Barometric Pressure: 29.06 (in. Hg)
 Theoretical Critical Vacuum: 13.71 (in. Hg)

DRY GAS METER READINGS							
-H (in H ₂ O)	Time (min)	Volume			Initial Temps.		
		Initial (cu ft)	Final (cu ft)	Total (cu ft)	Inlet (deg F)	Outlet (deg F)	
1.70	10.00	792.260	800.230	7.970	72.0	72.0	
1.70	10.00	800.230	808.160	7.930	69.0	71.0	
1.70	10.00	808.160	816.070	7.910	70.0	70.0	

Final Temps.		Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Ambient Temperature		
Inlet (deg F)	Outlet (deg F)				Initial (deg F)	Final (deg F)	Average (deg F)
68.0	72.0	63	0.584	16.0	60.4	60.8	60.6
70.0	70.0	63	0.584	16.0	60.8	60.8	60.8
70.0	69.0	63	0.584	16.0	60.8	61.0	60.9

RESULTS				
DRY GAS METER		ORIFICE		
VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME CORRECTED	VOLUME NOMINAL
Vm(std) (cu ft)	Vm(std) (liters)	Vcr(std) (cu ft)	Vcr(std) (liters)	Vcr (cu ft)
7.727	218.83	7.438	210.6	7.554
7.703	218.15	7.437	210.6	7.555
7.687	217.70	7.436	210.6	7.556

DRY GAS METER CALIBRATION FACTOR Y		ORIFICE CALIBRATION FACTOR -H@		
Variation (number)	Value (number)	Value (in H ₂ O)	Value (mm H ₂ O)	Variation (in H ₂ O)
-0.003	0.963	1.666	42.32	-0.005
0.000	0.965	1.671	42.46	0.001
0.002	0.967	1.675	42.54	0.004
AVERAGE:	0.965	1.671	42.44	PASSED

LAST 5-PT:	0.992	1.597	PASSED	5-PT Date:
% DIFF:	2.8%	4.7%		09/30/09

40 CFR - CHAPTER I - PART 60

Appendix A, Method 5

10.3.2 Calibration After Use

After each field use, the calibration of the metering system shall be checked by performing three calibration runs at a single, intermediate orifice setting (based on the previous field test).... Calculate the average value of the DGM calibration factor. If the value has changed by more than 5 percent, recalibrate the meter over the full range of orifice settings, as detailed in Section 10.3.1.

10.3.3 Acceptable Variation in Calibration

If the DGM coefficient values obtained before and after a test series differ by more than 5 percent, the test series shall either be voided, or calculations for the test series shall be performed using whichever meter coefficient value (i.e., before or after) gives the lower value of total sample volume.

Notes: 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. For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H₂O 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. For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units, (ft)³*(deg R)^{0.5}/((in.Hg)*(min)).

SIGNATURE: Craig McCarty

DATE: 11/25/09

VISIBLE EMISSIONS EVALUATOR

This is to certify that

ROB WHITE

met the specifications of Federal Reference Method 9 and qualifies 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, NC. This certificate is valid for six months from date of issue.

379435

CERT NUMBER

10/21/2009

DATE OF SCHOOL

TULSA, OK

SCHOOL LOCATION

4/22/2010

CERTIFICATION EXP DATE

WHI886376

STUDENT ID NUMBER

Michael W. Longford

MANAGER OF TRAINING SERVICES

EASTERN TECHNICAL ASSOCIATES

ROB WHITE

WHI886376 STUDENT ID NUMBER

met the specifications of Federal Reference Method 9 and qualifies 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, NC. This certificate is valid for six months from date of issue and expires on the date below.

Customer Support

Debbie or Sheila

919-878-3188

www.eta-is-opacity.com

TULSA, OK
SCHOOL LOCATION

10/21/2009
DATE OF SCHOOL

379435
CERT NUMBER

TULF06
LAST LECTURE

4/22/2010
CERTIFICATION EXP DATE

BEARER

APPENDIX E
FUEL ANALYSIS RECORDS

Client: Florida Power and Light
 Location: West County Energy Center
 Date: November 13, 2009
 Project #: bv-10-westcounty.fl-comp#1

Natural Gas - Fuel Analysis

Standardized to 68 deg F and 14.696 psia - EPA Standards

Gas Component		Mole (%)	Molecular ¹ Weight (lb/lb-mole)	Lbs Component per Lb-Mole of Gas	Wt. % of Component	Ideal Gross ^{1,3} Heating Value (Btu/ft ³)	Fuel Heat Value [HHV] (Btu/SCF)	Ideal Net ^{1,3} Heating Value (Btu/ft ³)	Fuel Heat Value [LHV] (Btu/SCF)
Methane	CH ₄	95.906	16.0430	15.39	91.26	994.85	954.12	895.75	859.08
Ethane	C ₂ H ₆	1.902	30.0700	0.57	3.39	1,743.15	33.15	1,594.41	30.33
Propane	C ₃ H ₈	0.240	44.0970	0.11	0.63	2,478.35	5.95	2,280.17	5.47
iso-Butane	iC ₄ H ₁₀	0.042	58.1230	0.02	0.14	3,203.11	1.35	2,955.38	1.24
n-Butane	nC ₄ H ₁₀	0.038	58.1230	0.02	0.13	3,213.35	1.22	2,965.62	1.13
Iso-Pentane	iC ₅ H ₁₂	0.012	72.1500	0.01	0.05	3,940.87	0.47	3,643.50	0.44
n-Pentane	nC ₅ H ₁₂	0.006	72.1500	0.00	0.03	3,948.75	0.24	3,648.32	0.22
Hexanes	C ₆ H ₁₄	0.030	86.1770	0.03	0.15	4,684.54	1.41	4,337.82	1.30
Heptanes	C ₇ H ₁₆	0.000	100.2040	0.00	0.00	5,419.94	0.00	5,023.77	0.00
Octanes	C ₈ H ₁₈	0.000	114.2310	0.00	0.00	6,155.14	0.00	5,709.23	0.00
Carbon Dioxide	CO ₂	1.242	44.0100	0.55	3.24	0.00	0.00	0.00	0.00
Nitrogen	N ₂	0.582	28.0134	0.16	0.97	0.00	0.00	0.00	0.00
Hydrogen Sulfide	H ₂ S	0.000	34.0800	0.00	0.00	627.54	0.00	578.00	0.00
Oxygen	O ₂	0.000	31.9988	0.00	0.00	0.00	0.00	0.00	0.00
Helium	He	0.000	4.0026	0.00	0.00	0.00	0.00	0.00	0.00
Hydrogen	H ₂	0.000	2.0159	0.00	0.00	319.34	0.00	269.82	0.00
Totals		100.000		16.86	100.00	dry	997.90	dry	899.21
						wet^{2,5}	974.89	wet^{2,5}	878.47

Characteristics of Fuel Gas	
Molecular Weight of gas =	16.859 lb/lb-mole
Btu per lb. of gas ⁴ =	22,802.206 gross (HHV)
Btu per lb. of gas ⁴ =	20,547.025 net (LHV)
Density of fuel gas ² =	0.0438 lb/cu. ft
Wt % VOC in fuel gas =	1.13 %
Specific Gravity ¹ =	0.5821

Component	Wt%
carbon	72.86
oxygen	2.36
hydrogen	23.82
nitrogen	0.97
helium	0.00
sulfur	0.00
Total	100.00

F-Factor (SCF dry exhaust per MMBtu [HHV]) = 8,649.37
 (Based on EPA RM-19) at 68 deg F and 14.696 psia

F-Factor Calculation:

$$F\text{-Factor} = 1,000,000 * ((3.64\%H) + (1.53\%C) + (0.57\%S) + (0.14\%N) - (0.46\%O)) / GCV$$

GCV = Gross Btu per lb. of gas (HHV)

%H, %C, %S, %N, & %O are percent weight values calculated from fuel analysis and have units of (scf/lb)/%

Density of natural gas based on specific gravity multiplied by density of air at 68 deg F and 14.696 psia.

References:

- ¹ ASTM D 3588
- ² Civil Engineering Reference Manual, 7th ed. - Michael R. Lindeburg
- ³ Mark's Standard Handbook for Mechanical Engineers, 10th ed. - Eugene A. Avallone, Theodore Baumeister III
- ⁴ Introduction to Fluid Mechanics, 3rd ed. - William S. Janna
- ⁵ GPA Reference Bulletin 181-86, revised 1986, reprinted 1995



HOUSTON LABORATORIES
 8820 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis

Number: 1030-2009110393-001A

Albert Septiano
 Air Hygiene
 5634 S. 122nd East Ave.
 Suite F
 Tulsa OK 74146

November 24, 2009

Sample ID:		Sampled By:	PS
Station Name :	Unit 2B NG w/o DB	Sample Of:	Gas Spot
Station Number :		Sample Date:	11/13/2009 13:00
Station Location :	Tulsa, Oklahoma	Sample Conditions:	N.G. Pres. , N.G. Temp.
Sample Point:	Bleed Valve	PO / Ref. No:	
		COC. No:	

ANALYTICAL DATA

Components	Mol %	Wt %	GPM at 14.696 psia	Method	Lab Tech.	Date Analyzed
				GPA-2261 M	DK	11/23/2009 2:16:29
Nitrogen	0.582	0.967				
Carbon Dioxide	1.242	3.242				
Methane	95.906	91.252				
Ethane	1.902	3.392	0.507			
Propane	0.240	0.628	0.066			
Iso Butane	0.042	0.145	0.014			
n-Butane	0.038	0.131	0.012			
Iso Pentane	0.012	0.051	0.004			
n-Pentane	0.006	0.026	0.002			
Hexanes Plus	0.030	0.166	0.013			
	<u>100.000</u>	<u>100.000</u>	<u>0.618</u>			
	C2 +	C3 +	IC5 +			
GPM TOTAL :	0.618	0.111	0.019			
Relative Density	Real Gas			0.5831		
Calculated Molecular Weight				16.86		
Compressibility Factor				0.9979		
Calculated Gross BTU per ft ³ @14.696 psia & 60°F						
Real Gas	Dry Basis	1015				
	Saturated Basis	998				

Comments :

Cylinder Number 2882

Albert Septiano

Hydrocarbon Laboratory Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP or GPA guidelines for quality assurance, unless otherwise stated



HOUSTON LABORATORIES
 8820 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis

Number: 1030-2009110393-001A

- Albert Septiano
 Air Hygiene
 5634 S. 122nd East Ave.
 Suite F
 Tulsa OK 74146

November 24, 2009

Sample ID:		Sampled By:	PS
Station Name:	Unit 2B NG w/o DB	Sample Of:	Gas
Station Number :		Sample Date:	11/13/2009 13:00
Location:	Tulsa, Oklahoma	Sample Condition:	
Sample Point:	Bleed Valve	PO / Ref. No:	

ANALYTICAL DATA

Test	Method	Result	Unit	Detection Limit	Lab Tech.	Date Analyzed
Total Sulfur By UV	ASTM-D-6667	<1.0	PPMW	1.0	EM	11/24/09
Total Sulfur By UV	ASTM-D-6667	<0.0001	Wt%.		EM	11/24/09
Total Sulfur By UV	ASTM-D-6667	<0.032	gr/100 cu.ft.		EM	11/24/09

Comments: Cylinder Number: 2882
 Sample On: 11/13/2009 13:00

Chris Staley

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP or GPA guidelines for quality assurance, unless otherwise stated.

Client: Florida Power and Light
 Location: West County Energy Center
 Date: November 13, 2009
 Project #: bv-10-westcounty.fl-comp#1

Natural Gas - Fuel Analysis

Standardized to 68 deg F and 14.696 psia - EPA Standards

Gas Component		Mole (%)	Molecular ¹ Weight (lb/lb-mole)	Lbs Component per Lb-Mole of Gas	Wt. % of Component	Ideal Gross ^{1,3} Heating Value (Btu/ft ³)	Fuel Heat Value [HHV] (Btu/SCF)	Ideal Net ^{1,3} Heating Value (Btu/ft ³)	Fuel Heat Value [LHV] (Btu/SCF)
Methane	CH ₄	95.258	16.0430	15.28	90.00	994.85	947.67	895.75	853.28
Ethane	C ₂ H ₆	2.031	30.0700	0.61	3.60	1,743.15	35.40	1,594.41	32.38
Propane	C ₃ H ₈	0.271	44.0970	0.12	0.70	2,478.35	6.72	2,280.17	6.18
iso-Butane	iC ₄ H ₁₀	0.049	58.1230	0.03	0.17	3,203.11	1.57	2,955.38	1.45
n-Butane	nC ₄ H ₁₀	0.045	58.1230	0.03	0.15	3,213.35	1.45	2,965.62	1.33
Iso-Pentane	iC ₅ H ₁₂	0.013	72.1500	0.01	0.06	3,940.87	0.51	3,643.50	0.47
n-Pentane	nC ₅ H ₁₂	0.007	72.1500	0.01	0.03	3,948.75	0.28	3,648.32	0.26
Hexanes	C ₆ H ₁₄	0.047	86.1770	0.04	0.24	4,684.54	2.20	4,337.82	2.04
Heptanes	C ₇ H ₁₆	0.000	100.2040	0.00	0.00	5,419.94	0.00	5,023.77	0.00
Octanes	C ₈ H ₁₈	0.000	114.2310	0.00	0.00	6,155.14	0.00	5,709.23	0.00
Carbon Dioxide	CO ₂	1.375	44.0100	0.61	3.56	0.00	0.00	0.00	0.00
Nitrogen	N ₂	0.904	28.0134	0.25	1.49	0.00	0.00	0.00	0.00
Hydrogen Sulfide	H ₂ S	0.000	34.0800	0.00	0.00	627.54	0.00	578.00	0.00
Oxygen	O ₂	0.000	31.9988	0.00	0.00	0.00	0.00	0.00	0.00
Helium	He	0.000	4.0026	0.00	0.00	0.00	0.00	0.00	0.00
Hydrogen	H ₂	0.000	2.0159	0.00	0.00	319.34	0.00	269.82	0.00
Totals		100.000		16.98	100.00	dry wet ^{2,5}	995.80 972.84	dry wet ^{2,5}	897.39 876.70

Characteristics of Fuel Gas	
Molecular Weight of gas =	16.980 lb/lb-mole
Btu per lb. of gas ⁴ =	22,591.331 gross (HHV)
Btu per lb. of gas ⁴ =	20,358.844 net (LHV)
Density of fuel gas ² =	0.0441 lb/cu. ft
Wt % VOC in fuel gas =	1.35 %
Specific Gravity ¹ =	0.5863

Component	Wt%
carbon	72.34
oxygen	2.59
hydrogen	23.58
nitrogen	1.49
helium	0.00
sulfur	0.00
Total	100.00

F-Factor (SCF dry exhaust per MMBtu [HHV]) = 8,654.86
 (Based on EPA RM-19) at 68 deg F and 14.696 psia

F-Factor Calculation:

F-Factor = 1,000,000*((3.64*%H)+(1.53*%C)+(0.57*%S)+(0.14*%N)-(0.46*%O))/GCV

GCV = Gross Btu per lb. of gas (HHV)

%H, %C, %S, %N, & %O are percent weight values calculated from fuel analysis and have units of (scf/lb)/%

Density of natural gas based on specific gravity multiplied by density of air at 68 deg F and 14.696 psia.

References:

- ¹ ASTM D 3588
- ² Civil Engineering Reference Manual, 7th ed. - Michael R. Lindeburg
- ³ Mark's Standard Handbook for Mechanical Engineers, 10th ed. - Eugene A. Avallone, Theodore Baumeister III
- ⁴ Introduction to Fluid Mechanics, 3rd ed. - William S. Janna
- ⁵ GPA Reference Bulletin 181-86, revised 1986, reprinted 1995



HOUSTON LABORATORIES
 8820 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 860-0901

Certificate of Analysis

Number: 1030-2009110393-002A

Albert Septiano
 Air Hygiene
 5634 S. 122nd East Ave.
 Suite F
 Tulsa OK 74146

November 24, 2009

Sample ID:
 Station Name : Unit 2B NG with DB
 Station Number :
 Station Location : Tulsa, Oklahoma
 Sample Point: Bleed Valve

Sampled By: PS
 Sample Of: Gas Spot
 Sample Date: 11/13/2009 10:30
 Sample Conditions: N.G. Pres. , N.G. Temp.
 PO / Ref. No:
 COC. No:

ANALYTICAL DATA

Components	Mol %	Wt %	GPM at 14.696 psia	Method	Lab Tech.	Date Analyzed
				GPA-2261 M	PW	11/23/2009 2:17:51
Nitrogen	0.904	1.491				
Carbon Dioxide	1.375	3.563				
Methane	95.258	89.981				
Ethane	2.031	3.596	0.542			
Propane	0.271	0.704	0.074			
Iso Butane	0.049	0.168	0.016			
n-Butane	0.045	0.154	0.014			
Iso Pentane	0.013	0.055	0.005			
n-Pentane	0.007	0.030	0.003			
Hexanes Plus	0.047	0.258	0.021			
	<u>100.000</u>	<u>100.000</u>	<u>0.675</u>			
	C2 +	C3 +	IC5 +			
GPM TOTAL :	0.675	0.133	0.029			
Relative Density	Real Gas			0.5874		
Calculated Molecular Weight				16.98		
Compressibility Factor				0.9979		
Calculated Gross BTU per ft ³ @14.696 psia & 60°F						
Real Gas	Dry Basis	1013				
	Saturated Basis	996				

Comments :

Cylinder Number 2653

Hydrocarbon Laboratory Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP or GPA guidelines for quality assurance, unless otherwise stated



HOUSTON LABORATORIES
 8820 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis

Number: 1030-2009110393-002A

Albert Septiano
 Air Hygiene
 5634 S. 122nd East Ave.
 Suite F
 Tulsa OK 74146

November 24, 2009

Sample ID:		Sampled By:	PS
Station Name:	Unit 2B NG with DB	Sample Of:	Gas
Station Number :		Sample Date:	11/13/2009 10:30
Location:	Tulsa, Oklahoma	Sample Condition:	
Sample Point:	Bleed Valve	PO / Ref. No:	

ANALYTICAL DATA

Test	Method	Result	Unit	Detection Limit	Lab Tech.	Date Analyzed
Total Sulfur By UV	ASTM-D-6667	<1.0	PPMW	1.0	EM	11/24/09
Total Sulfur By UV	ASTM-D-6667	<0.0001	Wt%.		EM	11/24/09
Total Sulfur By UV	ASTM-D-6667	<0.032	gr/100 cu.ft.		EM	11/24/09

Comments: Cylinder Number: 2653

Sample On: 11/13/2009 10:30

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP or GPA guidelines for quality assurance, unless otherwise stated.

SAMPLE DESCRIPTION AND CHAIN OF CUSTODY RECORD



Air Hygiene International, Inc.
5634 S. 122nd East Ave, Suite F
Tulsa, Oklahoma 74146
(888) 461-8778
www.airhygiene.com

Project Number:		bv-10-westcounty.fl-comp#1		Laboratory Analysis Requested:			
Person Taking Samples:			Pandu Sattvika		C1 - C6 mol wt%, Sulfur Content		
Cylinder Tag	Location	Date	Pressure	Analysis Method			
				GPA-2261	ASTM-D-2267		
002882	Unit 2B NG w/o DB, Bleed Valve	11/13/2009		X	X		
002653	Unit 2B NG with DB, Bleed Valve	11/13/2009		X	X		
001191	Unit 2A NG w/o DB, Bleed Valve	11/15/2009		X	X		
000165	Unit 2A NG with DB, Bleed Valve	11/16/2009		X	X		
000377	Unit 2C NG w/o DB, Bleed Valve	11/17/2009		X	X		
003061	Unit 2C NG with DB, Bleed Valve	11/17/2009		X	X		
Email results to: psattvika@airhygiene.com, jake@airhygiene.com, aseptiano@airhygiene.com Any questions, comments, concerns, please call Pandu (832-368-9297)							
<i>Pandu Sattvika</i> <small>Relinquished by: (Signature)</small>		11/17/09 <small>Date:</small>	16:00 <small>Time:</small>	<i>Martin Cisneros</i> <small>Received by: (Signature)</small>		11/23/09 <small>Date:</small>	12:05 <small>Time:</small>
<small>Relinquished by: (Signature)</small>		<small>Date:</small>	<small>Time:</small>	<small>Received by: (Signature)</small>		<small>Date:</small>	<small>Time:</small>

bv-10-westcounty.fl-comp#1-Unit2A-NH3_with_DB

APPENDIX F
STRATIFICATION TEST DATA

Source Information	
Company	Florida Power and Light
Plant Name	West County Energy Center
Equipment	Mitsubishi 501G
Location	Loxahatchee, Florida

Test Information	
Date	11/11/09
Project #	bv-10-westcounty.fl-comp#1
Unit Number	2B
Load	Normal
Number of Ports Available	4
Number of Ports Used	4

Stack and Test Type	
<input type="radio"/> Isokinetic Traverse (Wet Chemistry Testing) <input type="radio"/> Velocity Traverse (Flow and Flow RATA Test) <input type="radio"/> Stratification Traverse (Compliance Test) <input type="checkbox"/> RM 20 <input checked="" type="radio"/> Stratification Traverse (RATA) <input type="checkbox"/> Part 60 <input checked="" type="checkbox"/> Part 75	Circular Stack

METHOD 1 - STRATIFICATION TEST FOR A CIRCULAR SOURCE

Company	Florida Power and Light	Date	11/11/09
Plant Name	West County Energy Center	Project #	bv-10-westcounty.fl-comp#1
Equipment	Mitsubishi 501G	# of Ports Available	4
Location	Loxahatchee, Florida	# of Ports Used	4

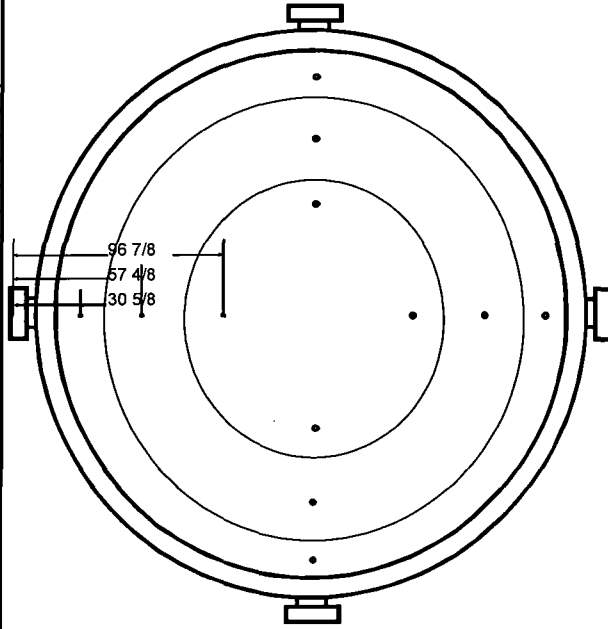
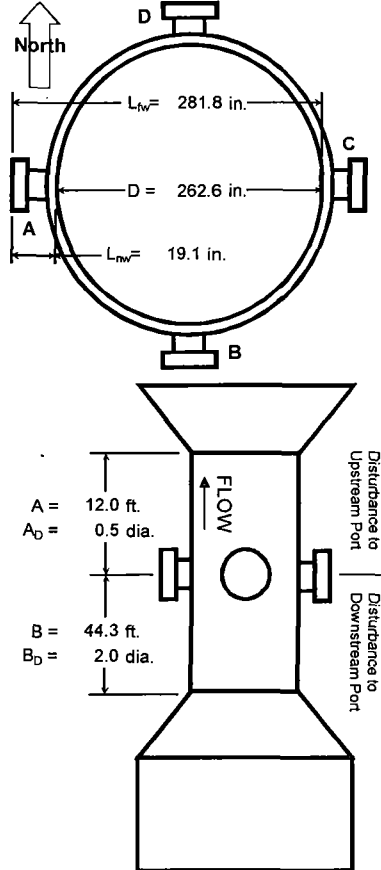
Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L _{fw})	281.75	in.
Distance to Near Wall of Stack	(L _{nw})	19.13	in.
Diameter of Stack	(D)	262.63	in.
Area of Stack	(A _s)	376.18	ft ²

Distance from Disturbances to Port			
Distance Upstream	(A)	144.00	in.
Diameters Upstream	(A _D)	0.55	diameters
Distance Downstream	(B)	531.75	in.
Diameters Downstream	(B _D)	2.02	diameters

Number of Traverse Points Required					
Distances to Flow Disturbance		Minimum Number of ¹ Traverse Points		Minimum Number of Traverse Points	
Down (B _D)	Up (A _D)	Particulate	Velocity	Comp Stratification	
Stream	Stream	Points	Points	Criteria	Points
2.00-4.99	0.50-1.24	24	16	RM 7E 8.1.2	12 RM1 pts
5.00-5.99	1.25-1.49	20	16	All 7E 8.1.2	3 points
6.00-6.99	1.50-1.74	16	12		
7.00-7.99	1.75-1.99	12	12		
>= 8.00	>= 2.00	8 or 12 ²	8 or 12 ²		
Upstream Spec		24	16	Minimum Number of Traverse Points	
Downstream Spec		24	16	RATA Stratification	
Traverse Pts Required		24	16	Criteria	Points
¹ Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.				Part 75/60	12 RM1 pts
² 8 for Circular Stacks 12 to 24 inches				75 abr (a)	3 points
12 for Circular Stacks over 24 inches				75 abr (b)	6 points
					12 points

Number of Traverse Points Used				
4	Ports by	3	Pts / port	Stratification Traverse
12	Pts Used	12	Required	(RATA)

Traverse Point Locations			
Traverse Point Number	Percent of Stack Diameter	Distance from Inside Wall	Distance Including Reference Length
	%	in.	in.
1	4.4%	11 4/8	30 5/8
2	14.6%	38 3/8	57 4/8
3	29.6%	77 6/8	96 7/8
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
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20			
21			
22			
23			
24			



STRATIFICATION TRAVERSE (RATA) RESULTS

Company	Florida Power and Light	Date	11/11/09
Plant Name	West County Energy Center	Project #	bv-10-westcounty.fl-comp#1
Equipment	Mitsubishi 501G	# of Ports Available	4
Location	Loxahatchee, Florida	# of Ports Used	4

Stack Dimensions				Traverse Data			
Diameter or Length of Stack	(D)	262.63	in.	4	Ports by	3	Pts / port
Width of Stack	(W)		in.	12	Pts Used	12	Required
Area of Stack	(A _s)	376.18	ft ²	Run Start	9:55:18	Run End	10:35:18

Traverse Point	Time Per Point	Point Start Time	Point Stop Time (Reading)	O ₂	Percent Difference	NOx	Percent Difference
	min.	hh:mm:ss	hh:mm:ss	%	%	ppm	%
D-3	3.00	9:55:18	9:58:18	12.48	0.30%	3.23	9.96%
D-2	3.00	9:58:18	10:01:18	12.43	0.70%	3.11	5.87%
D-1	3.00	10:01:18	10:04:18	12.45	0.54%	2.93	0.26%
C-3	4.00	10:04:18	10:08:18	12.59	0.58%	2.89	1.62%
C-2	3.00	10:08:18	10:11:18	12.52	0.02%	2.81	4.34%
C-1	3.00	10:11:18	10:14:18	12.43	0.70%	2.79	5.02%
B-3	4.00	10:14:18	10:18:18	12.60	0.66%	2.81	4.34%
B-2	3.00	10:18:18	10:21:18	12.56	0.34%	2.78	5.36%
B-1	3.00	10:21:18	10:24:18	12.55	0.26%	2.78	5.36%
A-3	5.00	10:24:18	10:29:18	12.55	0.26%	3.22	9.62%
A-2	3.00	10:29:18	10:32:18	12.52	0.02%	3.01	2.47%
A-1	3.00	10:32:18	10:35:18	12.53	0.10%	2.89	1.62%
Average				12.52		2.94	

RATA SAMPLE POINTS FOR CIRCULAR STACK

Company	Florida Power and Light	Date	11/11/09
Plant Name	West County Energy Center	Project #	bv-10-westcounty.fl-comp#1
Equipment	Mitsubishi 501G	# of Ports Available	4
Location	Loxahatchee, Florida	# of Ports Used	4

Stack Dimensions				Traverse Data			
Diameter or Length of Stack	(D)	262.63	in.	4	Ports by	3	Pts / port
Width of Stack	(W)		in.	12	Pts Used	12	Required
Area of Stack	(A _s)	376.18	ft ²	Run Start	9:55:18	Run End	10:35:18

40 CFR 75 Criteria											
Stratification Results		Traverse Point Number	Percent of Stack Diameter	Distance from Inside Wall	Distance Including Reference Length						
Maximum Percent Difference	9.96 % for NOx										
Maximum Pollutant Conc. Diff.	0.29 ppm for NOx										
Maximum Diluent Conc. Diff.	0.09 % for O2										
Stack Diameter	262.63 in.		%	in.	in.						
Stratification Conclusions		1	>14.99%	>39.37	>58.495						
Maximum % Diff.	Percent Diff. ≤10% Passed 6.5.6.3(a) Criteria	2									
Maximum Conc. Diff.	Conc. Diff. ≤ 0.3% Passed 6.5.6.3(b) Criteria	3									
Stack Diameter	D > 93.6 in.										
Passed Strat. Test Under 6.5.6.3(b) Criteria		<table border="0"> <tr> <td><input type="checkbox"/> Moisture, for MW</td> <td><input type="checkbox"/> Use 6.5.6.3(a) points?</td> </tr> <tr> <td><input type="checkbox"/> Moisture, for wet-to-dry</td> <td><input type="checkbox"/> 6.5.6(b)(2) alt. points could apply</td> </tr> <tr> <td><input checked="" type="checkbox"/> Gas</td> <td></td> </tr> </table>				<input type="checkbox"/> Moisture, for MW	<input type="checkbox"/> Use 6.5.6.3(a) points?	<input type="checkbox"/> Moisture, for wet-to-dry	<input type="checkbox"/> 6.5.6(b)(2) alt. points could apply	<input checked="" type="checkbox"/> Gas	
<input type="checkbox"/> Moisture, for MW	<input type="checkbox"/> Use 6.5.6.3(a) points?										
<input type="checkbox"/> Moisture, for wet-to-dry	<input type="checkbox"/> 6.5.6(b)(2) alt. points could apply										
<input checked="" type="checkbox"/> Gas											

