EMISSIONS TEST REPORT

POLK POWER STATION
FACILITY ID NUMBER: 1050233

IGCC – UNIT 1, EMISSIONS UNIT ID -001

NITROGEN OXIDES, SULFUR DIOXIDE, SULFURIC ACID MIST, CARBON MONOXIDE, AND VISIBLE EMISSIONS

SULFURIC ACID PLANT, EMISSIONS UNIT ID -004

SULFUR DIOXIDE, SULFURIC ACID MIST AND VISIBLE EMISSIONS

December 1, 2006

Prepared For:
Tampa Electric Company
Polk Power Station
P.O. Box 111
Tampa, Florida 33601-0111

Prepared By:
Tampa Electric Company
Environmental, Health and Safety
Environmental Services
Air Services Group

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TAMPA ELECTRIC

Environmental Services
Air Services Group
5010 Causeway Boulevard
Tampa, Florida 33619- 6130

2.0 DISCUSSION OF RESULTS

Executive Summary
Tampa Electric Company
Polk Power Station
IGCC Combustion Turbine Unit 1 and Sulfuric Acid Plant
Emission Unit -001 and -004
Firing Petroleum Coke/Coal Gasification Syngas Fuel

IGCC Combustion Turbine		
Compliance Parameter	**Test Result**	**FDEP Permit Limit**
NO_X, ppmvd @ 15% O_2	13	15
NO_X, lbs/hr	113.37	132
SO_2, lb/mmBtu	0.12	0.17
SO_2, lbs/hr	207	357
H_2SO_4, lbs/hr	0.000	55
CO, ppmvd	2	25
CO, lbs/hr	12	98
VE, % Opacity	0	10
Calculated Heat Input, mmBtu/hr	1673	--
Permitted Heat Input, mmBtu/hr[1]	1733	--
Unit Capacity Factor, % of Permit[2]	97%	90 – 100 %
Sulfuric Acid Plant		
SO_2, lbs/ton of acid produced	Three	Four
H_2SO_4, lbs/ton of acid produced	0.05	0.15
VE, % Opacity	0	10

[1] Permitted Heat Input Corrected to Inlet Vane Temperature.
[2] Calculated Heat Input divided by Permitted Heat Input, result times 100.

IGCC Combustion Turbine

Nitrogen Oxides (NO_X)

During the Sulfuric Acid Mist test time period (9:00 to 13:25) on the IGCC, the average NO_X concentration was 13 ppmvd @ 15% O_2, and the average emission rate was 113.37 lbs/hr. The permitted concentration and emission rate is 15 ppmvd @ 15% O2, and 132 lbs/hr.

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JAN 17 2007

BUREAU OF AIR REGULATION

January 12, 2007

Mr. J. Koerner
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, FL 32301

Via FedEx
Airbill No. 7922 7199 5220

Mr. Robert Soich
Florida Department of Environmental Protection, Southwest District
13051 N. Telecom Parkway
Temple Terrace, FL 33637

Via FedEx
Airbill No. 7912 0911 5024

Re: Tampa Electric Company (TEC)
Polk Power Station
Combustion Turbine Unit 1 and Sulfuric Acid Plant (SAP)
Stack Emission Compliance Test Trial #1
Permit No. 1050233-016-AV, 1050233-019-AC
AIRS #1050233, E.U. ID #001, #004

Dear Mr. J. Koerner and Mr. R. Soich:

According to Condition 10 of Construction Air Permit No. 1050233-019-AC for each trial burn TEC is required to conduct emissions tests on the combustion turbine Unit 1 (E.U. 001) for CO, SAM, and visible emissions with the existing continuous emissions monitoring systems (CEMS) used to determine NO_x and SO_2 emissions. Additionally TEC is required to conduct emissions tests on the sulfuric acid plant (SAP) (E.U. 004) for SAM and SO_2 emissions concurrent to emissions tests on the combustion turbine.

The trial #1 burn testing was conducted while gasifying and firing a coal/petroleum coke blend of approximately (25/75). Per Condition 14, TEC shall file a report to the Compliance and Permitting Authority of the results of each test within 45 days of completing the last emissions test required for each test scenario.

Enclosed please find the emissions tests report for trial test #1 performed on December 1, 2006.

In addition to this letter, enclosed please find a revised page 2 for the baseline Stack Emission Compliance Test Report submitted to your department on December 19, 2006.

If you have any questions, please contact me Joshua Ellwein at (813) 228-4433.

Sincerely,

Joshua D. Ellwein
Air Programs
Environmental, Health & Safety

ENVP\Admin/STAKTEST\2007\ PPS102 Polk U1 & SAP Trial #1 Stacktest Report

Enclosures

EMISSIONS TEST REPORT

POLK POWER STATION
FACILITY ID NUMBER: 1050233

IGCC – UNIT 1, EMISSIONS UNIT ID -001

NITROGEN OXIDES, SULFUR DIOXIDE, SULFURIC ACID MIST, CARBON MONOXIDE, AND VISIBLE EMISSIONS

SULFURIC ACID PLANT, EMISSIONS UNIT ID -004

SULFUR DIOXIDE, SULFURIC ACID MIST AND VISIBLE EMISSIONS

December 1, 2006

Prepared For:
Tampa Electric Company
Polk Power Station
P.O. Box 111
Tampa, Florida 33601-0111

Prepared By:
Tampa Electric Company
Environmental, Health and Safety
Environmental Services
Air Services Group

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Environmental Services
Air Services Group
5010 Causeway Boulevard
Tampa, Florida 33619- 6130

REPORT CERTIFICATION

The sampling and subsequent data entry/reduction detailed in this report was conducted at my direction, and I hereby certify that this test report is authentic and accurate to the best of my knowledge.

Signature: _____

Charles R. Dufeny
Environmental Technician
Test Team Lead
Air Services Group
Environmental Health & Safety
Tampa Electric Company

I have reviewed the test performance, associated quality assurance activities, the resultant calculations, and the contents of this report, and certify that all project quality objectives have been met. This report is approved for submittal.

Signature: _____ 8-JAN-07

Raymond A. McDarby, Jr.
Senior Environmental Technician
Quality Assurance/Quality Control Specialist
Air Services Group
Environmental Health & Safety
Tampa Electric Company

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

Signature: _____

David A. Smith
Coordinator – Air Services Group
Environmental Health & Safety
Tampa Electric Company

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LIST OF TABLES

APPENDICIES

1.0 INTRODUCTION

On December 01, 2006, Tampa Electric Company's Air Services Group (ASG), and Trigon Engineering Consultants performed relative concurrent emissions testing on Polk Power Station's Integrated Gasification and Combined Cycle (IGCC) Combustion Turbine (Unit 1, E.U. 001), and it's attendant Sulfuric Acid Plant (SAP, E.U. 004). Testing was conducted as part of the project specified in Florida Department of Environmental Protection (FDEP) Draft Air Permit No. 1050233-019-AC. The permitted emissions limits and test methodologies are consistent with the requirements of Title V Permit No. 1050233-016-AV. This specific test was conducted with a blended fuel content of 75% petroleum coke/25% coal gasification. For the purposes of Permit No. 1050233-019-AC this test establishes emissions for test burn scenario number 1 for Nitrogen Oxides (NO_x, IGCC only), Sulfur Dioxide (SO_2, SAP and IGCC), Sulfuric Acid Mist (H_2SO_4, SAP and IGCC), Carbon Monoxide (CO, IGCC), and Visible Emissions (SAP and IGCC). All testing was performed using approved United States Environmental Protection Agency (USEPA) Reference Methods. SO_2 and NO_x for E.U. 001 were provided by the installed, certified Continuous Emissions Monitoring (CEM) system.

2.0 *DISCUSSION OF RESULTS*

Executive Summary
Tampa Electric Company
Polk Power Station
IGCC Combustion Turbine Unit 1 and Sulfuric Acid Plant
Emission Unit -001 and -004
Firing Petroleum Coke/Coal Gasification Syngas Fuel

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[1] Permitted Heat Input Corrected to Inlet Vane Temperature.
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IGCC Combustion Turbine

Nitrogen Oxides (NO_X)

During the Sulfuric Acid Mist test time period (9:00 to 13:25) on the IGCC, the average NO_X concentration was 13 ppmvd @ 15% O_2, and the average emission rate was 113.37 lbs/hr. The permitted concentration and emission rate is 15 ppmvd @ 15% O2, and 132 lbs/hr.

was 207 lbs/hr. The permitted concentration and emission rate is 0.17 lb/mmBtu and 357 lbs/hr.

Sulfuric Acid Mist (H_2SO_4)

The Sulfuric Acid Mist test was conducted from 9:00 to 13:25. The average H2SO4 emission rate for the test period was 34 pounds per hour. The permitted emission rate is 55 lbs/hr.

Carbon Monoxide (CO)

During the Sulfuric Acid Mist test time period (9:00 to 13:25) on the IGCC, the average CO concentration was 2 ppmvd, and the average emission rate was 12 lbs/hr. The permitted concentration and emission rate is 25 ppmvd, and 98 lbs/hr.

Visible Emissions

The Visible Emissions test was conducted from 10:10 through 10:40. The average opacity from the IGCC was 0%. The permitted opacity from this source is 10%.

Heat Input

During the test the IGCC was operated at an average heat input of 1673 mmBtu/hr. The FDEP permitted heat input is 1755 mmBtu/hr, at an ambient temperature of 59° (corrected to 1733 mmBtu/hr based on an average inlet vane temperature of 81°F, and the manufacturer's heat input correction curve for this unit). The calculated capacity factor during the test was 97% of the FDEP permitted heat input.

Sulfuric Acid Plant

Sulfur Dioxide SO_2

During the Sulfuric Acid Mist test time period (9:00 to 13:32) on the SAP, the average SO2 emission rate was three pounds per ton of 100% acid produced. The permitted emission rate is four pounds per ton of 100 percent acid produced.

Sulfuric Acid Mist (H_2SO_4)

The Sulfuric Acid Mist test was conducted from 9:00 to 13:32. The average H2SO4 emission rate for the test period was 0.05 pound per ton of 100 percent

acid produced. The permitted emission rate is 0.15 pound per ton of 100 percent acid produced.

Visible Emissions

The Visible Emissions test was conducted from 10:10 through 10:40. The average opacity from the Sulfuric Acid Plant was 0%. The permitted opacity from this source is 10%.

3.0 SOURCE DESCRIPTION

The Polk Power Station facility is located at 9995 State Road 37 South, Mulberry, Polk County, Florida. The UTM Coordinates are, Zone 17, 402.45 km East and 3067.35 km North. Title V Air Operation Permit No. 1050233-016-AV regulates the emissions from this facility.

The Sulfuric Acid Plant at this facility takes the sulfur gas stream from the solid fuel gasification plant's hot or cold gas cleanup systems and converts it to sulfuric acid using a double contact process. The sulfuric acid plant has a 15 MMBtu/hr, propane fired, H_2S to SO_2 conversion furnace, and a 9 MMBtu/hr, propane fired non-contact SO_2 to SO_3 converter pre-heater, which vents to the atmosphere through a 198-foot exhaust stack. The exhaust stack is designed to maintain ultra low flow velocities to prevent sulfuric acid liquid from becoming entrained in the exhaust stream, eliminating the emissions of acid droplets. A diagram of the exhaust stack is included as Figure 1 in this report.

Unit No. 1 is an Integrated Gasification Combined Cycle Combustion Turbine generating unit, with a net capacity of 192 MW when fired with Syngas fuel. The source sampling location consists of a circular stack 19 feet in diameter with four sample ports located 90 degrees apart on the stack circumference. A diagram of the stack sampling location is included as Figure 2 in this report.

4.0 FUEL INFORMATION

Blending Procedure

Coal and petroleum coke for Polk Power Station are blended at Tampa Electric's Big Bend Power Station and delivered by truck to the Polk site. Blending is accomplished as follows. Polk's blend coal is stored in a dedicated pile at Big Bend Power Station. As each petroleum coke barge is received and unloaded using a conveyor system with a calibrated scale, coal is reclaimed from the coal pile, weighed and blended with the petroleum coke on the unloading conveyor. The blended fuel is stored in a separate dedicated blended fuel bin for Polk. The sulfur content and other parameters of the blended fuel are measured using ASTM methods on each barge of petroleum coke and coal (individually) and calculated based on their ratio in the blended fuel.

Coal

The coal portion of the blended fuel for the November 8 stack tests was assumed to be an equal mixture of the previous two coal shipments (August 9, 2006 and October 4, 2006) for Polk Power Station. The composition of each shipment is shown in Table 1 below.

Fuel Analysis (As Received Basis)	Units	Coal Shipment 8/9/06	Coal Shipment 10/4/06	Coal Mixture
Total Moisture	Wt %	11.10	14.06	12.58
Ash	Wt %	10.96	10.88	10.92
Carbon	Wt %	62.03	59.83	60.93
Hydrogen	Wt %	4.29	4.13	4.21
Nitrogen	Wt %	1.40	1.37	1.39
Sulfur	Wt %	0.64	0.64	0.64
Chlorine	Wt %	0.02	0.02	0.02
Oxygen (By Difference)	Wt %	9.56	9.08	9.32
Volatiles	Wt %	33.10	32.90	33.00
Fixed Carbon	Wt %	44.84	42.16	43.50
HHV	Btu/lb	11,044	10,651	10,848

Table 1 Blend Coal

Blended Fuel

The fuel consumed during this stack test was from the blend the petroleum coke barge received on November 17, 2006, as well as the coal blend detailed in Table 1. The petroleum coke analysis, the calculated composition of the coal blend, and the calculated composition of the final blend are shown in Table 2. The tonnages of both the petroleum coke and coal blend from the Big Bend certified scales used in the blending operation are also included in Table 2.

Fuel Analysis (As Received Basis)	Units	Blend Coal	Petroleum Coke Barge	Blended Fuel
Quantity	Tons	4,154	12,396	16,550
Total Moisture	Wt %	12.58	5.59	7.34
Ash	Wt %	10.92	0.49	3.11
Carbon	Wt %	60.93	82.54	77.12
Hydrogen	Wt %	4.21	3.49	3.67
Nitrogen	Wt %	1.39	1.68	1.61
Sulfur	Wt %	0.64	4.97	3.88
Chlorine	Wt %	0.02	0.01	0.01
Oxygen	Wt %	9.32	1.23	3.26
Volatiles	Wt %	33.00	9.42	15.34
Fixed Carbon	Wt %	43.50	84.50	74.21
HHV	BTU/Lb	10,848	14,272	13,412

Table 2 Blended Fuel

5.0 TESTING PROCEDURES

Nitrogen Oxides (NOx) and Sulfur Dioxide (SO2) data for the IGCC for the test period was supplied by the installed, certified CEM system on that unit.

Sulfur Dioxide (SO2) data for the SAP was derived from 3 United States Environmental Protection Agency (USEPA) Reference Method 6C – "DETERMINATION OF SULFUR DIOXIDE EMISSIONS FROM STATIONARY SOURCES (INSTRUMENTAL ANALYZER PROCEDURE)" test runs.

Sulfuric Acid Mist (H2SO4) data for the IGCC, and the SAP were derived from 3 USEPA Reference Method 8 – "DETERMINATION OF SULFURIC ACID MIST AND SULFUR DIOXIDE EMISSIONS FROM STATIONARY SOURCES" test runs.

Carbon Monoxide (CO) data for the IGCC was derived from 3 USEPA Reference Method 10 – "DETERMINATION OF CARBON MONOXIDE EMISSIONS FROM STATIONARY SOURCES (INSTRUMENTAL ANALYZER PROCEDURE)" test runs.

Visible Emissions data for the IGCC and SAP were derived from 30-minute visible emissions observations using USEPA Reference Method 9 – "VISUAL DETERMINATION OF THE OPACITY OF EMISSIONS FROM STATIONARY SOURCES" test runs. These tests were conducted concurrently.

6.0 TABULATED RESULTS

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POLK POWER STATION - INTEGRATED GASIFICATION COMBINED CYCLE
NITROGEN OXIDES FROM CEMS DATA SUMMARY

IGCC COMBUSTION TURBINE - UNIT 1
December 01, 2006

Test Period Start Time: 9:00 Test Period Stop Time: 13:20

CEMS Data

Average NO_X, ppmvw for Test Period:	19.41 ppmvw
Average NO_X, ppmvd @ 15% O_2 for Test Period:	12.97 ppmvd@ 15% O_2
Average Stack Flow for Test Period:	815.39 kscfm

Calculated Data

NO_X, lbs/hr:	113.37 lbs/hr

NO_X in lbs/hr is calculated as:
NO_X, ppmvw x 1.194E-07 x Stack Flow, kscfm x 1,000/k x 60 min/hr

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POLK POWER STATION - INTEGRATED GASIFICATION COMBINED CYCLE
SULFUR DIOXIDE FROM CEMS DATA SUMMARY

IGCC COMBUSTION TURBINE - UNIT 1
December 01, 2006

Test Period Start Time: 9:00 Test Period Stop Time: 13:20

CEMS Data

Average SO_2, ppmvw for Test Period:	38.62 ppmvw
Average CO_2, % volume for Test Period:	8.42 % volume

Calculated Data

Heat Input:	1673 mmBtu/hr
SO_2, lb/mmBtu	0.12 lb/mmBtu
SO_2, lbs/hr:	206.69 lbs/hr

SO_2 in lb/mmBtu is calculated as:

SO_2, ppmvw x 1.660E-07 x Fc x (100/CO_2, %)

Where:

Fc= 2310 scf/mmBtu

SO_2 in lbs/hr is calculated as:

SO_2, lb/mmBtu x Heat Input, mmBtu/hr

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POLK POWER STATION - INTEGRATED GASIFICATION COMBINED CYCLE
SULFURIC ACID MIST DATA SUMMARY

IGCC COMBUSTION TURBINE - UNIT 1
December 01, 2006

	Run #1	Run #2	Run #3	Average
Gas Flow Rates				
Q_s, acfm:	1349432.0	1382717.2	1363572.9	1365240.71
$Q_{s(std)}$, dscfm:	870502.8	894697.9	891298.5	885499.77
Sampled Volume, $V_{m(std)}$, dscf:	43.56	45.34	44.34	44.417
Stack Moisture, B_{ws} x 100, %:	5.83	5.61	5.22	5.554
Isokinetic Sampling Rate, I, %:	99.3	98.6	98.7	98.87
C_{H2SO4}, lb/dscf:	7.922E-07	6.100E-07	4.931E-07	6.318E-07
$Q_{s(std)}$, dscfm:	870502.8	894697.9	891298.5	885499.8
E_{H2SO4}, lbs/hr:	41.377	32.748	26.369	33.566

Emission Rate Calculated as C_{H2SO4} x Qs(std) x 60 minutes/hr

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POLK POWER STATION - INTEGRATED GASIFICATION COMBINED CYCLE CARBON MONOXIDE DATA SUMMARY

IGCC COMBUSTION TURBINE - UNIT 1
December 01, 2006

Run	Test Times		CO	O2	CO	CO
Number	Start	Stop	ppmvd	% volume	ppmvd@15% O2	lbs/hr
1	9:00	10:00	3.490	11.916	2.292	12.381
2	10:45	11:45	3.236	11.969	2.138	11.480
3	12:20	13:20	3.168	11.998	2.100	11.239
				Averages :	2.1765	11.6998

CO, ppmvd @ 15% O2 is calculated as:

CO, ppmvd x (5.9 / (20.9 - O2, % volume))

CO, lbs/hr is calculated as:

CO, ppmvd x Cf x Stack Flow x 1000/k x 60 minutes/hr

Where:

Cf = 7.272E-08

Stack Flow = 813.0043 kscfm

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POLK POWER STATION - INTEGRATED GASIFICATION COMBINED CYCLE HEAT INPUT CALCULATION

IGCC COMBUSTION TURBINE - UNIT 1
December 01, 2006

Average fuel flow:	6653.6337	Kcfh
Mole weight correction to meter cal:	0.9883	mole weight correction factor
Corrected fuel flow: [1]	6575.7862	Kcfh, corrected for density
Average moisture:	0.0380883	% H_20 added to fuel
Corrected fuel flow: [2]	6400.2082	Kscfh, corrected for moisture
Gross heating value of fuel (HHV):	261.44	Btu/scf
Heat Input:	1673	mmBtu/hr

Average fuel flow from Plant Information Data Base.
Mole weight correction factor to meter calibration is taken from ratio of syngas mole weight to calibration gas mole weight.
[1]Average fuel flow times mole weight correction factor.
[2]Corrected fuel flow times (1 - (Average moisture / 100)).
Gross Heating value of fuel (HHV) is from fuel analysis.
Heat input is (HHV x Corrected fuel flow) / 1000.

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POLK POWER STATION
SULFUR DIOXIDE CALCULATIONS

SULFURIC ACID PLANT
December 1, 2006

Data Calculated from Plant Operational Measurements:

	Run 1	Run 2	Run 3	
Gallons of Acid Produced During The Test Period, P_{gal} =	1420.310	1429.168	1445.304	gallons
Density of Water, D =	8.345	8.345	8.345	lbs/gallon
Specific Gravity of Sulfuric Acid, SG =	1.84	1.84	1.84	dimensonless
Average Concentration of Acid Produced, C_{acid} =	93.502	93.505	93.497	%
Tons of Acid Produced During The Test Period, P_{st} =	10.196	10.260	10.375	short tons

Where:

Tons of acid produced = (P_{gal} x D x SG x (C_{acid})) / 2000 lbs/ton

Data Calculated from Stack Measurements:

Volumeteric Flow Rate Through Stack , Q_{std} =	1041010.5	1044157.8	1099216.3	dscf/hr
Sulfur Dioxide Concentration in Stack, C_{SO2} =	186.36	189.31	193.86	ppmvd
Sulfur Dioxide Concentration in Stack, C_{SO2} =	3.094E-05	3.143E-05	3.218E-05	lbs/scf
Sulfur Dioxide Emission Rate, E_{SO2} =	3.16	3.20	3.41	lbs/ton of acid
Average Sulfur Dioxide Emission Rate, E_{SO2} =			3.26	lbs/ton of acid

Where:

C_{SO2} lbs/scf = C_{SO2}, ppm x 1.66E-07

E_{SO2} = (C_{SO2}, lbs/scf x Q_{std}) / tons of acid produced

40 CFR 60, Appendix A - Test Methods
Reference Method 8
Test Summary

Customer: Polk Power Station
Facility: Acid Plant
Sampling Location: Stack
Operating Conditions: Compliance Load
Test Date: December 1, 2006

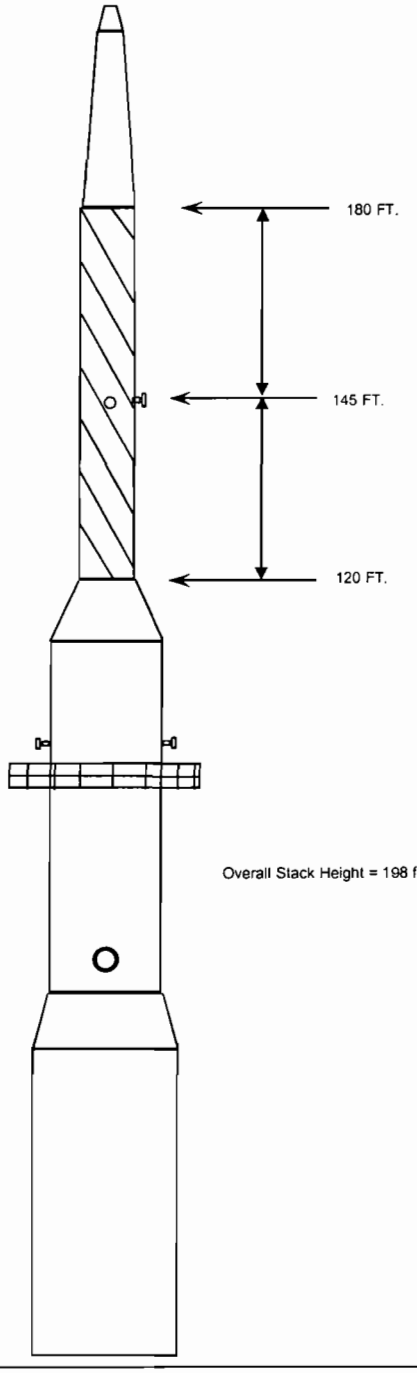
	Run #1	Run #2	Run #3	Average
Gas Flow Rates				
Q_s, acfm:	19131.0	19441.3	19290.9	19287.72
$Q_{s(std)}$, dscfm:	16368.1	16729.3	16459.3	16518.89
Sampled Volume, $V_{m(std)}$, dscf:	45.70	47.18	46.91	46.6
Stack Moisture, B_{ws} x 100, %:	0.46	-0.05	0.81	0.41
Isokinetic Sampling Rate, I, %:	94.2	95.2	96.2	95.2
C_{H2SO4}, lbs/dscf:	5.76602E-07	5.7521E-07	5.33604E-07	5.62E-07
Tons of Acid Produced:	12.23	11.21	11.17	11.535
E lbs H_2SO_4/ton of 100% acid:	0.049	0.055	0.050	0.0516

E_{H2SO4}, lbs/ton of acid is calculated as:

(C_{H2SO4}, lb/dscf x $Q_{s(std)}$, dscfm x 60 minutes/hr) / Tons of Acid Produced

7.0 FIGURES

POLK POWER STATION
UNIT NO.1 ACID PLANT TEST LOCATION
SAMPLING TRAVERSE POINTS



Overall Stack Height = 198 feet

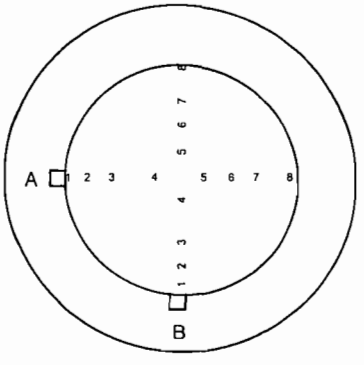
TRAVERSE POINTS	% OF STACK DIAMETER	IN. FROM STACK WALL
1	3.2 %	2.30
2	10.5 %	7.56
3	19.4 %	13.97
4	32.3 %	23.26
5	67.7 %	48.74
6	80.6 %	58.03
7	89.5 %	64.44
8	96.8 %	69.70

STACK DIAMETERS DOWNSTREAM FROM DISTURBANCE = 4.2

STACK DIAMETERS UPSTREAM FROM DISTURBANCE = 5.8

STACK DIAMETER = 6.0 FT. ID.
STACK AREA = 28.274 SQ. FT

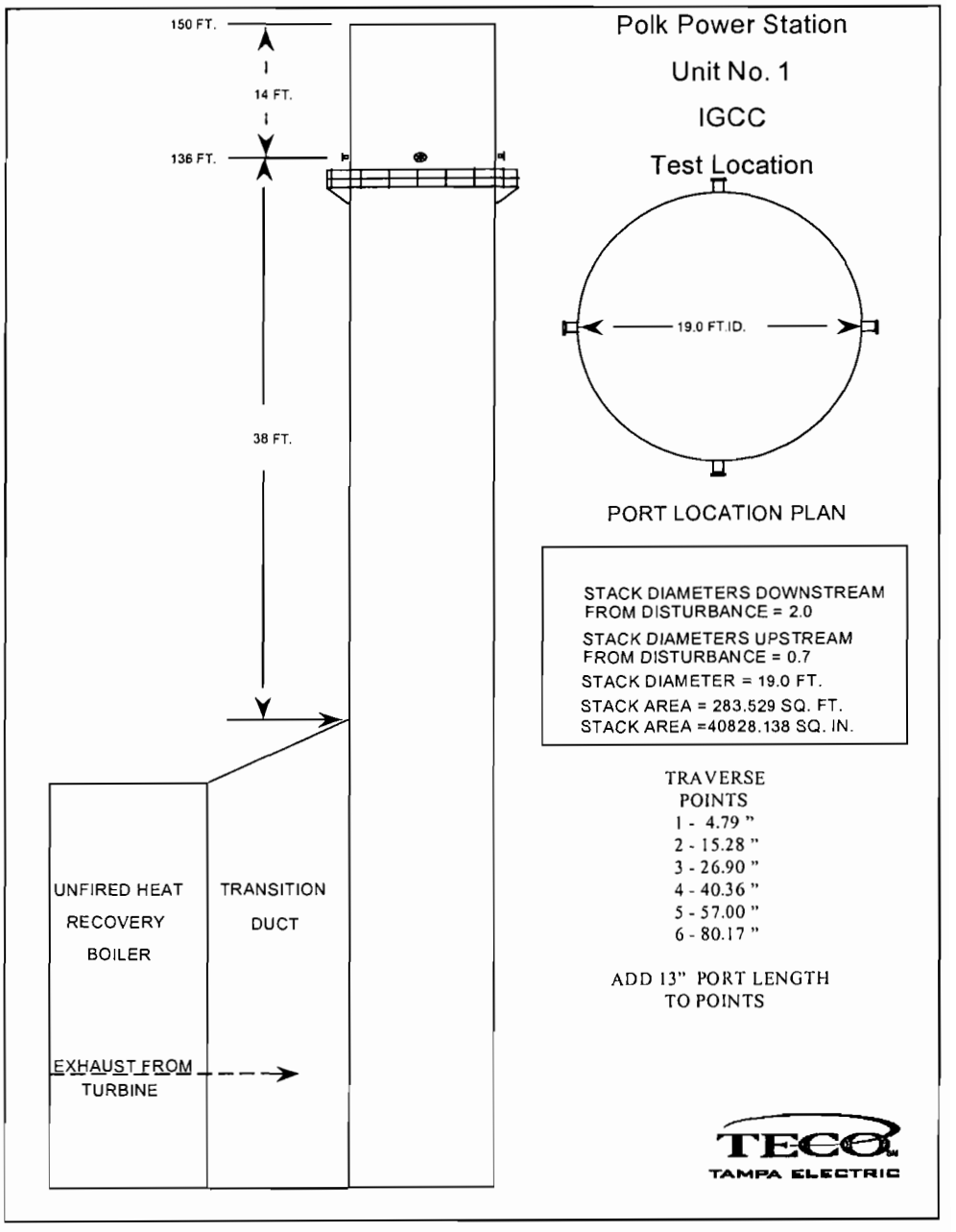
PORT LENGTH = 5.0 IN.



PORT LOCATION PLAN

Source is Monsanto Enviro-Chem Drawing no. 511-150 v. 2

Figure 1


150 FT.
14 FT.
136 FT.
38 FT.
UNFIRED HEAT RECOVERY BOILER
TRANSITION DUCT
EXHAUST FROM TURBINE
Polk Power Station
Unit No. 1
IGCC
Test Location
19.0 FT.ID.
PORT LOCATION PLAN
STACK DIAMETERS DOWNSTREAM FROM DISTURBANCE = 2.0
STACK DIAMETERS UPSTREAM FROM DISTURBANCE = 0.7
STACK DIAMETER = 19.0 FT.
STACK AREA = 283.529 SQ. FT.
STACK AREA =40828.138 SQ. IN.
TRAVERSE POINTS
1 - 4.79 "
2 - 15.28 "
3 - 26.90 "
4 - 40.36 "
5 - 57.00 "
6 - 80.17 "
ADD 13" PORT LENGTH TO POINTS
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APPENDIX A

IGCC CEMS DATA
SO_2, NO_X, CO_2, STACK FLOW

HRSG CEMS Data

Date Time	SO21	NOX1	PC1NOXC1	FLO1	CO21
12/1/2006 9:00	34.8	18.2	12.103	815.8	8.6
12/1/2006 9:01	33.69	19.1	12.629	808.4	8.6
12/1/2006 9:02	35.26	19.7	13.097	817.1	8.6
12/1/2006 9:03	34.88	19.9	13.308	827.5	8.6
12/1/2006 9:04	35.12	19.6	12.986	800.9	8.6
12/1/2006 9:05	35.79	18.3	12.213	795.3	8.6
12/1/2006 9:06	35.05	18.1	11.905	804.4	8.6
12/1/2006 9:07	36.82	18.7	12.371	819	8.6
12/1/2006 9:08	37.65	19	12.502	812.8	8.6
12/1/2006 9:09	37.65	19.3	12.796	817.5	8.6
12/1/2006 9:10	38.79	17.8	11.795	813.2	8.5
12/1/2006 9:11	36.15	17.9	11.751	808.2	8.5
12/1/2006 9:12	37.01	18.8	12.268	818.2	8.5
12/1/2006 9:13	37.37	19.3	12.769	795.7	8.5
12/1/2006 9:14	37.99	19.7	13.097	809	8.5
12/1/2006 9:15	38.36	19.2	12.881	817.9	8.5
12/1/2006 9:16	38.76	19	12.708	804.2	8.5
12/1/2006 9:17	39.7	19.3	12.828	799.6	8.5
12/1/2006 9:18	39.26	19.6	13.003	811	8.5
12/1/2006 9:19	40.05	19.3	12.918	809.3	8.5
12/1/2006 9:20	37.73	18	11.883	818.2	8.5
12/1/2006 9:21	35.59	19	12.495	822.3	8.5
12/1/2006 9:22	35.44	19.7	13.142	826.7	8.5
12/1/2006 9:23	36.38	19.7	13.075	826.9	8.5
12/1/2006 9:24	37.57	20	13.287	814.6	8.4
12/1/2006 9:25	36.21	18.7	12.532	809.5	8.5
12/1/2006 9:26	35.85	18.3	12.038	813.9	8.5
12/1/2006 9:27	36.37	18.8	12.485	816.5	8.4
12/1/2006 9:28	38.04	19.6	12.952	817.4	8.4
12/1/2006 9:29	38.34	19.8	13.201	800.4	8.5
12/1/2006 9:30	37.06	18.2	12.179	800.2	8.4
12/1/2006 9:31	34.55	18	11.751	804.5	8.5
12/1/2006 9:32	35.43	18.8	12.423	807.6	8.5
12/1/2006 9:33	37.54	18.9	12.56	802.2	8.5
12/1/2006 9:34	37.59	19.3	12.8	811.4	8.4
12/1/2006 9:35	38.17	19.1	12.62	802.6	8.5
12/1/2006 9:36	37.86	18.8	12.479	813.7	8.5
12/1/2006 9:37	39.02	19.1	12.708	826.2	8.5
12/1/2006 9:38	39.14	19.4	12.863	826	8.4
12/1/2006 9:39	38.48	19.4	12.92	822.9	8.4

HRSG CEMS Data

Date Time	SO21	NOX1	PC1NOXC1	FLO1	CO21
12/1/2006 9:40	38.42	18.1	12.093	816.7	8.5
12/1/2006 9:41	36.99	18.8	12.396	806.2	8.5
12/1/2006 9:42	37.08	19.5	12.986	808.2	8.5
12/1/2006 9:43	38.53	20.1	13.342	811	8.5
12/1/2006 9:44	39.21	20.1	13.381	804.9	8.5
12/1/2006 9:45	39.34	18.7	12.511	803.1	8.5
12/1/2006 9:46	36.84	18.4	12.229	806.1	8.5
12/1/2006 9:47	36.51	19.1	12.674	811.2	8.5
12/1/2006 9:48	36.88	19.6	13.088	815.4	8.5
12/1/2006 9:49	38.98	19.9	13.234	803.5	8.5
12/1/2006 9:50	38.1	18.4	12.366	818.9	8.5
12/1/2006 9:51	37.4	18	11.896	830.4	8.5
12/1/2006 9:52	36.99	19.2	12.763	821.4	8.5
12/1/2006 9:53	38.35	19.6	13.03	817.8	8.5
12/1/2006 9:54	38.15	19.4	12.997	811.1	8.5
12/1/2006 9:55	38.39	19.4	12.975	794.1	8.5
12/1/2006 9:56	38.69	19.5	13.008	814.5	8.5
12/1/2006 9:57	38.28	19.6	13.086	815.8	8.5
12/1/2006 9:58	40.38	19.5	13.008	818.5	8.5
12/1/2006 9:59	39.88	19.3	12.807	815	8.5
12/1/2006 10:00	38.52	18.4	12.282	812.7	8.5
12/1/2006 10:01	37.67	19.1	12.685	817.3	8.5
12/1/2006 10:02	38.14	19.9	13.231	817.4	8.5
12/1/2006 10:03	38.39	20.3	13.542	823.2	8.5
12/1/2006 10:04	37.85	19.9	13.308	818.2	8.5
12/1/2006 10:05	36.29	19	12.852	818.6	8.5
12/1/2006 10:06	35.85	18.9	12.529	826.2	8.5
12/1/2006 10:07	36.68	19.4	12.919	814.5	8.5
12/1/2006 10:08	37.61	19.4	12.919	821.5	8.5
12/1/2006 10:09	38.05	19.7	13.05	799.8	8.5
12/1/2006 10:10	37.02	18.7	12.499	807.6	8.5
12/1/2006 10:11	35.88	18.3	12.095	807.8	8.5
12/1/2006 10:12	36.17	19	12.629	815.2	8.5
12/1/2006 10:13	37.55	19.6	13.03	824.5	8.5
12/1/2006 10:14	36.85	20	13.353	794.8	8.5
12/1/2006 10:15	36.52	19.6	13.108	832.3	8.5
12/1/2006 10:16	37.27	19.3	12.897	799.6	8.5
12/1/2006 10:17	38.22	19.7	13.075	813.1	8.5
12/1/2006 10:18	37.81	20	13.308	818.2	8.5
12/1/2006 10:19	37.75	20	13.32	784	8.5

HRSG CEMS Data

Date Time	SO21	NOX1	PC1NOXC1	FLO1	CO21
12/1/2006 10:20	36.72	18.4	12.339	818.3	8.5
12/1/2006 10:21	38.12	19.4	12.808	817.1	8.5
12/1/2006 10:22	36.33	19.8	13.208	808.4	8.5
12/1/2006 10:23	37.84	20.1	13.386	828	8.5
12/1/2006 10:24	38.7	20.1	13.442	818.6	8.5
12/1/2006 10:25	37.6	19.2	12.975	836.5	8.5
12/1/2006 10:26	37.12	19	12.574	825.6	8.5
12/1/2006 10:27	36.27	19.5	12.997	829.3	8.5
12/1/2006 10:28	37.84	19.8	13.231	830.8	8.5
12/1/2006 10:29	38.24	20	13.326	819.7	8.5
12/1/2006 10:30	39.28	18.8	12.645	816.4	8.5
12/1/2006 10:31	37.41	18.2	12.106	807.5	8.5
12/1/2006 10:32	37.22	19.3	12.752	798.2	8.5
12/1/2006 10:33	39.15	19.7	13.175	805.1	8.5
12/1/2006 10:34	38.18	19.6	13.153	792.1	8.5
12/1/2006 10:35	39.78	19.7	13.164	809.6	8.5
12/1/2006 10:36	37.88	19.7	13.186	813.6	8.5
12/1/2006 10:37	38.02	19.7	13.142	805.6	8.5
12/1/2006 10:38	39.94	20.1	13.427	800.8	8.5
12/1/2006 10:39	38.72	19.9	13.32	811.4	8.5
12/1/2006 10:40	38.06	18.5	12.348	805.1	8.5
12/1/2006 10:41	36.68	19.4	12.808	814.5	8.5
12/1/2006 10:42	38.53	19.8	13.247	811	8.5
12/1/2006 10:43	40.43	20.2	13.464	801.9	8.5
12/1/2006 10:44	39.46	20	13.412	801.8	8.5
12/1/2006 10:45	41.16	19.3	12.986	826.1	8.5
12/1/2006 10:46	37.08	19.2	12.741	824.2	8.5
12/1/2006 10:47	38.24	19.8	13.186	820.1	8.5
12/1/2006 10:48	37.76	20	13.308	820.9	8.5
12/1/2006 10:49	39.51	20.2	13.495	816.1	8.5
12/1/2006 10:50	38.31	19	12.73	803.8	8.5
12/1/2006 10:51	38.44	18.4	12.274	827.6	8.5
12/1/2006 10:52	37.13	19.2	12.752	817.1	8.5
12/1/2006 10:53	39.58	19.7	13.141	809.8	8.5
12/1/2006 10:54	40.02	20	13.364	813.7	8.5
12/1/2006 10:55	38.56	19.7	13.197	810.8	8.5
12/1/2006 10:56	37.83	19.4	12.964	810.3	8.5
12/1/2006 10:57	38.63	19.7	13.119	812.6	8.5
12/1/2006 10:58	39.02	19.8	13.255	802.2	8.5
12/1/2006 10:59	40.59	19.9	13.286	803.2	8.5

Date Time	SO21	NOX1	PC1NOXC1	FLO1	CO21
12/1/2006 11:00	39.45	18.6	12.496	813.6	8.5
12/1/2006 11:01	37.26	19.2	12.818	818.4	8.5
12/1/2006 11:02	38.14	20	13.461	817	8.5
12/1/2006 11:03	39.73	20.4	13.663	823.1	8.5
12/1/2006 11:04	41.34	20.6	13.851	813	8.5
12/1/2006 11:05	42.09	19.7	13.264	815	8.5
12/1/2006 11:06	38.89	19.3	12.863	822	8.5
12/1/2006 11:07	38.05	19.8	13.164	810.1	8.5
12/1/2006 11:08	39.79	19.9	13.359	823.6	8.5
12/1/2006 11:09	40.48	20.1	13.412	810.4	8.5
12/1/2006 11:10	39.15	19	12.815	816.4	8.5
12/1/2006 11:11	38.2	18.7	12.396	820.2	8.5
12/1/2006 11:12	38.66	19.6	13.019	817.3	8.5
12/1/2006 11:13	39.93	20	13.331	813.7	8.5
12/1/2006 11:14	41.11	20	13.353	820.2	8.5
12/1/2006 11:15	40.19	19.8	13.208	820.7	8.5
12/1/2006 11:16	41.19	20.1	13.356	827	8.5
12/1/2006 11:17	41.04	20.3	13.52	823.5	8.5
12/1/2006 11:18	41.59	20.2	13.497	827.3	8.5
12/1/2006 11:19	41.86	19.8	13.242	825.9	8.5
12/1/2006 11:20	39.7	18.6	12.496	819.8	8.5
12/1/2006 11:21	37.86	19.4	12.808	821	8.5
12/1/2006 11:22	40.31	20	13.458	810.6	8.5
12/1/2006 11:23	40.91	20.2	13.618	795.1	8.5
12/1/2006 11:24	40.92	20.7	13.865	815.8	8.5
12/1/2006 11:25	40.49	19.8	13.475	823.2	8.5
12/1/2006 11:26	40.04	19	12.663	821.7	8.5
12/1/2006 11:27	38.35	19.6	13.117	833.8	8.5
12/1/2006 11:28	40.4	20.1	13.4	803.6	8.5
12/1/2006 11:29	40.59	20.2	13.535	821.4	8.5
12/1/2006 11:30	39.55	19.2	12.98	813.8	8.5
12/1/2006 11:31	38.4	18.7	12.418	817.3	8.5
12/1/2006 11:32	38.38	19.5	12.875	811	8.5
12/1/2006 11:33	38.7	20	13.37	816.2	8.5
12/1/2006 11:34	38.83	20.1	13.426	830.4	8.5
12/1/2006 11:35	39.94	19.8	13.253	818.4	8.5
12/1/2006 11:36	40.8	19.9	13.211	823.4	8.5
12/1/2006 11:37	40.09	20.4	13.753	817.5	8.5
12/1/2006 11:38	39.7	20.1	13.512	817.5	8.5
12/1/2006 11:39	40.99	20	13.431	815	8.5

HRSG CEMS Data

Date Time	SO21	NOX1	PC1NOXC1	FLO1	CO21
12/1/2006 11:40	39.22	18.8	12.607	811	8.5
12/1/2006 11:41	37.29	19.3	12.835	816.8	8.5
12/1/2006 11:42	38.64	20	13.517	812.8	8.5
12/1/2006 11:43	39.19	20.4	13.694	829.2	8.5
12/1/2006 11:44	39.45	20.6	13.791	837.7	8.5
12/1/2006 11:45	41.77	19.4	13.13	813.1	8.5
12/1/2006 11:46	39.85	18.9	12.574	832.3	8.5
12/1/2006 11:47	40.24	19.7	13.053	831.5	8.5
12/1/2006 11:48	40.35	20	13.393	819.8	8.5
12/1/2006 11:49	39.44	20.4	13.627	796.9	8.5
12/1/2006 11:50	38.95	19.3	12.973	803.8	8.5
12/1/2006 11:51	37.53	18.5	12.318	792	8.5
12/1/2006 11:52	37.53	19.4	12.875	797.4	8.5
12/1/2006 11:53	37.93	19.6	13.111	793	8.5
12/1/2006 11:54	38.49	19.8	13.317	818.5	8.5
12/1/2006 11:55	38.35	19.8	13.247	809.6	8.5
12/1/2006 11:56	39.14	19.6	13.147	798.9	8.5
12/1/2006 11:57	39.83	20.1	13.448	832.7	8.5
12/1/2006 11:58	40.15	20.2	13.498	823.1	8.5
12/1/2006 11:59	40.63	20.2	13.433	823.3	8.5
12/1/2006 12:00	39.59	18.5	12.471	824	8.5
12/1/2006 12:01	37.36	19.4	12.819	826.5	8.5
12/1/2006 12:02	37.82	20	13.345	814.6	8.5
12/1/2006 12:03	38.64	20	13.379	824.8	8.5
12/1/2006 12:04	40.52	20.3	13.486	833.9	8.5
12/1/2006 12:05	39.86	19.5	13.141	799.1	8.5
12/1/2006 12:06	38.66	19.1	12.73	788.8	8.5
12/1/2006 12:07	37.46	19.6	13.119	800	8.5
12/1/2006 12:08	40.02	19.9	13.396	813.4	8.5
12/1/2006 12:09	40.41	19.9	13.3	809.7	8.5
12/1/2006 12:10	41.14	18.8	12.73	800.4	8.5
12/1/2006 12:11	39.08	18	11.984	803.2	8.5
12/1/2006 12:12	38.82	18.9	12.496	827.2	8.5
12/1/2006 12:13	39.55	19.5	13.019	813.8	8.5
12/1/2006 12:14	40.69	20.1	13.331	824.3	8.5
12/1/2006 12:15	40.47	19.9	13.364	820	8.5
12/1/2006 12:16	41.2	19.7	13.119	798.9	8.5
12/1/2006 12:17	42.08	19.8	13.36	810.4	8.5
12/1/2006 12:18	42.53	20.2	13.585	819.3	8.5
12/1/2006 12:19	42.9	20.1	13.534	801.8	8.5

HRSG CEMS Data

Date Time	SO21	NOX1	PC1NOXC1	FLO1	CO21
12/1/2006 12:20	42.23	19	12.823	822.4	8.5
12/1/2006 12:21	39.84	19.6	13.135	818.9	8.5
12/1/2006 12:22	39.68	20.3	13.607	820.5	8.5
12/1/2006 12:23	39.46	20.8	14.001	824.4	8.5
12/1/2006 12:24	39.66	20.9	14.098	829	8.5
12/1/2006 12:25	39.16	20	13.609	834.2	8.5
12/1/2006 12:26	31.83	12.3	10.325	810.7	3.4
12/1/2006 12:27	2.83	0.4	0.27	807.6	0
12/1/2006 12:28	16.43	11.4	6.156	815.9	6.8
12/1/2006 12:29	39.2	20.1	13.415	819.6	8.4
12/1/2006 12:30	40.79	19.4	13.047	818.7	8.4
12/1/2006 12:31	37.6	18.7	12.418	818.1	8.4
12/1/2006 12:32	38.08	19.5	12.963	826.3	8.4
12/1/2006 12:33	39.49	19.9	13.326	827.1	8.4
12/1/2006 12:34	39.29	20	13.378	824.3	8.4
12/1/2006 12:35	39.37	19.9	13.308	830.4	8.4
12/1/2006 12:36	39.24	19.7	13.314	827.6	8.4
12/1/2006 12:37	40.67	20.3	13.578	794.2	8.4
12/1/2006 12:38	40.78	20.5	13.832	819	8.4
12/1/2006 12:39	41.27	20.2	13.518	820	8.4
12/1/2006 12:40	40.06	18.8	12.663	818.8	8.4
12/1/2006 12:41	37.33	19.5	13.089	822.1	8.4
12/1/2006 12:42	38.87	20	13.506	828.5	8.4
12/1/2006 12:43	39.51	20.4	13.753	812.7	8.4
12/1/2006 12:44	40.5	20.6	13.813	826	8.4
12/1/2006 12:45	40.66	19.9	13.453	822.4	8.4
12/1/2006 12:46	39.2	19.2	12.811	817.2	8.4
12/1/2006 12:47	39	19.8	13.278	806.1	8.4
12/1/2006 12:48	39.99	20.5	13.787	833.3	8.4
12/1/2006 12:49	40.64	20.5	13.817	814.1	8.4
12/1/2006 12:50	41.79	19.5	13.231	820.5	8.4
12/1/2006 12:51	39.31	18.6	12.374	814.9	8.4
12/1/2006 12:52	38.62	19.5	12.98	805.4	8.4
12/1/2006 12:53	40.35	20	13.41	824	8.4
12/1/2006 12:54	41.28	20.2	13.507	825.6	8.4
12/1/2006 12:55	41.17	19.8	13.331	823.6	8.4
12/1/2006 12:56	41.22	19.9	13.285	819	8.4
12/1/2006 12:57	42.26	20.3	13.615	830.9	8.4
12/1/2006 12:58	41.15	20.1	13.607	832.6	8.4
12/1/2006 12:59	41.4	20	13.408	821.5	8.5

HRSG CEMS Data

Date Time	SO21	NOX1	PC1NOXC1	FLO1	CO21
12/1/2006 13:00	41.28	19	12.73	819.2	8.4
12/1/2006 13:01	38.97	19.5	13.033	821.2	8.4
12/1/2006 13:02	39.31	20.3	13.618	827.1	8.4
12/1/2006 13:03	40.77	20.7	13.967	821	8.4
12/1/2006 13:04	40	20.4	13.765	823.1	8.4
12/1/2006 13:05	39.76	20	13.453	806.1	8.4
12/1/2006 13:06	38.59	19.3	12.948	811.6	8.4
12/1/2006 13:07	36.86	20.1	13.472	819.7	8.4
12/1/2006 13:08	38.67	20.6	13.877	835.7	8.4
12/1/2006 13:09	40.48	20.2	13.669	818.8	8.4
12/1/2006 13:10	40.46	19.3	13.014	812.1	8.3
12/1/2006 13:11	38.47	18.5	12.352	803.3	8.3
12/1/2006 13:12	38.51	19.4	12.929	808.8	8.3
12/1/2006 13:13	39.55	19.7	13.281	812.1	8.3
12/1/2006 13:14	41.51	19.9	13.379	831.7	8.3
12/1/2006 13:15	39.95	20	13.434	833.1	8.3
12/1/2006 13:16	40.09	19.9	13.326	817.4	8.3
12/1/2006 13:17	40.94	20.1	13.518	821.7	8.3
12/1/2006 13:18	42.58	20.2	13.675	796.1	8.3
12/1/2006 13:19	44.21	20.2	13.517	810.3	8.3
12/1/2006 13:20	43.38	18.6	12.563	821.8	8.3

APPENDIX B

SULFURIC ACID MIST TEST DATA – IGCC

FIELD DATA SHEETS

Isokinetic Field Data Sheet - EPA Method 5

Client TECO — Run Number 1

City/State Tampa FL — Date ~~12-30-06~~ 12-1-06

Sampling Location UNIT #1 — Operators JAB

Bar. Press., In. Hg 29.97 — *NOMOGRAPH SET-UP: K Factor* ~~.908~~ 1.358 — *LEAK CHECKS*

Static Press., In. H_2O -0.50 — ΔH @ 1.88 Y = .979 — Avg. ΔP 1.40 — Pre-Test .004 @ 15 In. Hg.

Meter Box No. 300.390 — Meter Temp. 85 — Ref. ΔP — — Post-Test .003 @ 5 In. Hg.

Sample Box No. 5 — Stack Temp. 314 — Desired Nozzle .209 .222 — Pre-Test Pitot <0.1 @ +5.2 / -3.4 In. H_2O

Probe/Pitot No. 200 109 — Pitot Coeff. 0.84 — Nozzle No. 200 ~~.209~~ .222 — Post-Test Pitot <0.1 @ +6.8/-4.9 In. H_2O

Probe Temp. Setting 250 — % Moisture 6 — Nozzle Calibration ~~.189~~ .209 ~~.187~~ .209 ~~.190~~ .209

Sample ID No. 061206-C1/C2 — C Factor — — Nozzle Diameter ~~.189~~ .209 — Observer —

Filter No. N/A — Start Time ~~0854~~ 0900 — End Time ~~1006~~ 1006 — Agency —

Sample Point		Clock Time	Dry Gas Meter Cubic Feet	Pitot Reading ΔP In. H_2O	Orifice Setting ΔH Inches H_2O Ideal	Orifice Setting ΔH Inches H_2O Actual	Dry Gas Meter Temp °F	Pump Vacuum Inches Hg	Stack Temp °F	Probe Temp °F	Filter Box °F	Imp. Temp °F
A	1	0	79.900	1.3	1.77	1.80	77	1.0	312	248	N/A	59
	2	2.5	81.55	1.30	1.77	1.80	77	1.0	312	247		55
	3	5	83.37	1.40	1.90	1.90	77	1.0	311	248		53
	4	7.5	85.22	1.40	1.90	1.90	78	1.0	312	248		55
	5	10	87.07	1.40	1.90	1.90	78	1.0	311	247		56
	6	12.5	88.92	1.30	1.77	1.80	79	1.0	311	247		59
B	1	15	90.83	1.40	1.90	1.90	80	1.0	311	246		59
	2	17.5	92.53	1.30	1.77	1.80	80	1.0	311	245		59
	3	20	94.35	1.40	1.90	1.90	80	1.0	311	247		60
	4	22.5	96.23	1.40	1.90	1.90	81	1.0	311	249		59
	5	25	98.12	1.30	1.77	1.80	82	1.0	311	246		58
	6	27.5	99.95	1.30	1.77	1.80	82	1.0	311	245		57
C	1	30	101.763	1.30	1.77	1.80	82	1.0	308	246		60
	2	32.5	103.58	1.40	1.90	1.90	82	1.0	311	243		56
	3	35	105.44	1.40	1.90	1.90	83	1.0	311	245		56
	4	37.5	107.30	1.40	1.90	1.90	83	1.0	311	248		58
	5	40	109.16	1.30	1.77	1.80	83	1.0	311	248		58
	6	42.5	111.00	1.30	1.77	1.80	83	1.0	311	249		59
D	1	45	112.845	1.40	1.90	1.90	83	1.0	312	249		58
	2	47.5	114.74	1.40	1.90	1.90	83	1.0	312	250		58
	3	50	116.65	1.50	2.03	2.05	84	1.0	311	247		58
	4	52.5	118.73	1.60	2.17	2.15	84	1.5	311	249		58
	5	55	120.77	1.60	2.17	2.15	84	1.5	312	250		58
	6	57.5	122.75	1.40	1.90	1.90	84	1.5	311	250		58
		60	124.631	—	—	—	—	—	—	—	—	—
			44.731	1.383		1.890	81.2		311.1			

Comments: 57.2

Isokinetic Check: 99.435

Audited by: ZBL Date: 12/11/06

02 11.6
CO2 8.6

67.2 H_2O → COLLECTED

TRIGON

Isokinetic Field Data Sheet - EPA Method 8

Client TECO | Run Number 2

City/State Tampa, FL | Date 12/1/2006

Sampling Location UNIT # | Operators JAB

Bar. Press., In. Hg 29.97 | *NOMOGRAPH SET-UP: K Factor* 1.409 | *LEAK CHECKS*

Static Press., In. H_2O -0.50 | ΔH @ 1.878 Y = .992 | Avg. Δ P 1.40 | Pre-Test .002 @ 11 In. Hg.

Meter Box No. 300.390 | Meter Temp. 85 | Ref. Δ P — | Post-Test 0.001 @ 5 In. Hg.

Sample Box No. 5 | Stack Temp. 314 | Desired Nozzle .209 | Pre-Test Pitot <0.1 @ +5.6/-4.2 In. H_2O

Probe/Pitot No. 200.108 | Pitot Coeff. 0.84 | Nozzle No. 300.217 | Post-Test Pitot <0.1 @ +6.2/-5.1 In. H_2O

Probe Temp. Setting 250 | % Moisture 6 | Nozzle Calibration .211, .211, .211

Sample ID No. 6120103104 | C Factor — | Nozzle Diameter .211 | Observer —

Filter No. N/A | Start Time 10:48 | End Time 11:51 | Agency —

	Sample Point	Clock Time	Dry Gas Meter Cubic Feet	Pitot Reading Δ P In. H_2O	Orifice Setting ΔH Inches H_2O Ideal	Orifice Setting ΔH Inches H_2O Actual	Dry Gas Meter Temp °F	Pump Vacuum Inches Hg	Stack Temp °F	Probe Temp °F	Filter Box °F	Imp. Temp °F
A	1	0	124.900	1.60	2.25	2.25	85	2.0	311	242	N/A	58
	2	2.5	126.74	1.56	2.11	2.10	85	2.0	312	253		57
	3	5	128.77	1.50	2.11	2.10	85	2.0	312	254		55
	4	7.5	130.88	1.60	2.25	2.25	86	2.0	312	255		55
	5	10	132.86	1.50	2.11	2.10	86	2.0	311	253		56
	6	12.5	134.89	1.40	1.97	2.00	87	2.0	310	251		57
B	1	15	136.854	1.40	1.97	2.00	87	2.0	308	250		58
	2	17.5	138.80	1.50	2.11	2.10	87	2.0	310	252		57
	3	20	140.88	1.40	1.97	2.00	87	2.0	312	252		56
	4	22.5	142.67	1.40	1.97	2.00	87	2.0	312	255		56
	5	25	144.68	1.40	1.97	2.00	87	2.0	312	254		57
	6	27.5	146.50	1.40	1.97	2.00	88	2.0	311	252		58
C	1	30	148.436	1.40	1.97	2.00	88	2.0	309	246		59
	2	32.5	150.37	1.40	1.97	2.00	88	2.0	308	250		57
	3	35	152.30	1.40	1.97	2.00	88	2.0	311	251		56
	4	37.5	154.24	1.40	1.97	2.00	88	2.0	312	253		56
	5	40	156.26	1.40	1.97	2.00	89	2.0	309	254		57
	6	42.5	158.10	1.40	1.97	2.00	89	2.0	308	251		58
D	1	45	160.035	1.40	1.97	2.00	89	2.0	305	251		58
	2	47.5	161.95	1.50	2.11	2.10	89	2.0	310	252		57
	3	50	163.92	1.50	2.11	2.10	89	2.0	312	252		57
	4	52.5	165.94	1.50	2.11	2.10	89	2.0	312	254		58
	5	55	167.96	1.50	2.11	2.10	90	2.0	312	255		58
	6	57.5	169.99	1.50	2.11	2.10	90	2.0	312	253	↓	58
		60	171.992	—	—	—	—	—	—	—	—	—
			47.092	1.454		2.058	87.6		310.5			

Comments: 57.2

Isokinetic Check: 99.000 | O_2 11.6

Audited by: [signature] Date: 12/1/06 | CO_2 8.8

TRIGON

Isokinetic Field Data Sheet - EPA Method 8

Client TECO | Run Number 3
City/State TAMPA, FL | Date 12/01/2006
Sampling Location UNIT #1 | Operators JAB

Bar. Press., In. Hg (SS) ~~29.97~~ 29.91 | *NOMOGRAPH SET-UP: K Factor* 1.369 | *LEAK CHECKS*
Static Press., In. H_2O -0.50 | ΔH @ 1.878 Y = .992 | Avg. ΔP 1.45 | Pre-Test 0.004 @ 15 In. Hg.
Meter Box No. 300.390 | Meter Temp. 90 | Ref. ΔP — | Post-Test 0.003 @ 5 In. Hg.
Sample Box No. 5 | Stack Temp. 314 | Desired Nozzle .206 | Pre-Test Pitot <0.1 @ 14.5/14.9 In. H_2O
Probe/Pitot No. 200.109 | Pitot Coeff. 0.84 | Nozzle No. (B) ~~.208~~ 200 .222 | Post-Test Pitot <0.1 @ 13.8/13.2 In. H_2O
Probe Temp. Setting 250 | % Moisture 10 | Nozzle Calibration .209, .209, .209
Sample ID No. 6120/05/06 | C Factor — | Nozzle Diameter .209 | Observer —
Filter No. N/A | Start Time 1220 | End Time 1325 | Agency —

	Sample Point	Clock Time	Dry Gas Meter Cubic Feet	Pitot Reading ΔP In. H_2O	Orifice Setting ΔH Inches H_2O Ideal	Orifice Setting ΔH Inches H_2O Actual	Dry Gas Meter Temp. °F	Pump Vacuum Inches Hg	Stack Temp °F	Probe Temp °F	Filter Box °F	Imp. Temp °F
A	1	0	173.100	1.40	1.91	1.90	87	1.0	313	246	N/A	57
	2	2.5	174.99	1.40	1.91	1.90	87	1.0	313	246		57
	3	5	176.82	1.50	2.05	2.05	87	1.0	313	247		57
	4	7.5	178.78	1.50	2.05	2.05	87	1.0	313	248		58
	5	10	180.77	1.50	2.05	2.05	87	1.0	313	249		58
	6	12.5	182.75	1.40	1.91	1.90	87	1.0	313	245		58
B	1	15	184.666	1.40	1.91	1.90	87	1.0	313	250		57
	2	17.5	186.68	1.40	1.91	1.90	87	1.0	312	252		58
	3	20	188.47	1.30	1.78	1.80	88	1.0	312	253		58
	4	22.5	190.36	1.40	1.91	1.90	88	1.0	312	250		59
	5	25	192.29	1.40	1.91	1.90	88	1.0	312	246		59
	6	27.5	194.22	1.30	1.78	1.80	88	1.0	312	249		60
C	1	30	196.100	1.40	1.91	1.90	87	1.0	309	250		57
	2	32.5	197.99	1.40	1.91	1.90	87	1.0	312	247		58
	3	35	199.900	1.40	1.91	1.90	87	1.0	311	244		59
	4	37.5	201.800	1.40	1.91	1.90	87	1.0	312	243		59
	5	40	203.71	1.40	1.91	1.90	87	1.0	312	250		59
	6	42.5	205.61	1.40	1.91	1.90	87	1.0	312	248		59
D	1	45	207.528	1.40	1.91	1.90	87	1.0	312	245		59
	2	47.5	209.45	1.40	1.91	1.90	87	1.0	312	250		59
	3	50	211.35	1.50	2.05	2.05	88	1.0	312	251		59
	4	52.5	213.29	1.60	2.19	2.20	88	1.5	311	253		59
	5	55	215.31	1.50	2.05	2.05	88	1.5	311	247		59
	6	57.5	217.27	1.50	2.05	2.05	88	1.5	311	249		59
		60	219.234	—	—	—	—	—	—	—	—	—
			46.134	1.425		1.942	87.3		312.8			

Comments: 518

Isokinetic Check: 99.877 | O_2 11.6 | CO 8.8

Checked by: _____ Date: / /

EPA Methods 4 and 8 - Moisture Determination and Sample Recovery - Data Analysis

Client Name TECO
City/State Polk Co. FL
Sampling Location Unit 1
Clean-Up Box Number 1
Chain of Custody: Date Received 12/1/06

Project Number 046-06-120
Sample Date 11/30/06
Samples Recovered By ISD
Recovery Date ~~11/30/06~~ 12/1/06
Received By _____ Locked? _____

Equipment Documentation

Run Number	~~04~~ 1	2	3	
Sample ID Number	6120-01/02	6120-03/04	6120-05/06	
Sample Box Number	5	5	5	
Probe Number	200.109	200.104	200.109	

Analysis of Moisture and Sample Recovery - Sulfuric Acid

Reagent Recovery Container #	6120-01	6120-03	6120-05	6120-~~09~~ 10
Impinger Absorbing Solution	80% IPA	80% IPA	80% IPA	
Description of Reagent	clear	clear	clear	
Reagent Level Marked?	✓	✓	✓	
Final Volume, ml	60	68	60	
Initial Volume, ml	100	100	100	
Net Condensed Volume, ml	-40	-32	-40	
80% Isopropanol Rinse?	✓	✓	✓	
Dilute to 250 ml in Isopropanol?	✓	✓	✓	

Analysis of Moisture and Sample Recovery - Sulfur Dioxide

Reagent Recovery Container #	6120-02	6120-04	6120-06	
Impinger Absorbing Solution	H_2O_2 (3%)	3% H_2O_2	3% H_2O_2	
Description of Reagent	clear	clear	clear	
Reagent Level Marked?	✓	✓	✓	
Final Volume, ml	275	270	270	
Initial Volume, ml	200	200	200	
Net Condensed Volume, ml	75	70	70	
Distilled Water Rinse?	✓	✓	✓	
Dilute to 1000 ml in DI Water?	✓	✓	✓	

Analysis of Moisture Recovery

Silica Gel Recovery Container #	1	2	3	
Percent Silica Gel Spent	15	15	10	
Final Weight, g	222.2	219.2	221.8	
Initial Weight, g	200	200	200	
Net Absorbed Water, g	22.2	19.2	21.8	
Total Moisture Collected, ml	57.2	57.2	57.8	

Reagent Blanks

Absorbing Reagent Blank	80% IPA	Rinsing Reagent Blank	
Absorbing Blank Identification #	6120-07	Rinsing Blank Identification #	~~6120-08~~ 10
Absorbing Reagent Blank	H_2O_2	Rinsing Reagent Blank	~~H_2O_2~~ 10
Absorbing Blank Identification #	6120-08	Rinsing Blank Identification #	~~6120-09~~

EPA Method 2
Determination of Stack Gas Velocity, Volumetric Flow Rate and Cyclonic Flow

Client TECO - POLK POWER STATION
Sampling Location UNIT #1
Run Date 11/30/2006
Barometric Pressure, in. Hg 29.97
Static Pressure, in. H_2O -0.50
Pitot Tube Coefficient 0.84

City, State POLK COUNTY, FL
Operators LGR / JAB
Time 0930
Pitot Tube I.D. No. 200.109
Date Calibrated 01-09-06
Leak Check, in. H_2O <0.1 @ -6.5 / -4.5

Field Data

Traverse Point Number	Velocity Head Δp Inches H_2O		Stack Temperature °F		Cyclonic Flow Determination			
					Δp, at 0° Reference		Angle Which Yields a Null Δp	
1	1.40		314					
2	1.40		314					
3	~~1.40~~ 1.30		314					
4	1.30		314					
5	1.30		314					
6	1.30		314					
Averages	1.40		314					

Stack Temperature, Dry, °F (A) _____ Stack Temperature, Wet °F (B) _____

Difference (A - B) _____ Preliminary Percent Moisture _____

Comments _____

Audited by: _____ Date: / /

TRIGON

CALCULATED DATA

TECO
TAMPA ELECTRIC

Environmental Services
Air Services Group

40 CFR 60, Appendix A - Test Methods
Reference Method 8
Test Calculations

Customer: Polk Power Station
Facility: Acid Plant
Sampling Location: Stack
Operating Conditions: Full Load
Run Number: 1
Date: 12/01/06

Sample Time, θ:	60 minutes	Nozzle Diameter, D_n:	0.209 inches
Barometric Pressure, P_b:	29.97 "Hg	Nozzle Area, A_n:	0.0002382 ft^2
Stack Pressure, P_s:	29.93 "Hg	Average Orifice Meter, ΔH:	1.890 "H_2O
Effective Stack Area, A_s:	283.529 ft^2	Sample Volume, V_m:	44.731 ft^3
Pitot Coefficient, Cp:	0.84 dimensionless	Average Meter Temp., T_m:	81.2 °F
Gas Analysis:	8.8 % CO_2	Average Stack Temp., T_s:	311.1 °F
	11.6 % O_2	Average $\sqrt{\Delta p}$:	1.176 "H_2O
	0.0 % CO	Condensate Volume, V_{lc}:	57.2 ml
	79.6 % N_2	Meter Box Y:	0.992 dimensionless

Data Calculated from Source Measurements:

$V_{w(std)} = 4.714E\text{-}02 \times V_{lc}$	2.696 scf
$V_{m(std)} = 17.647 \times V_m \times Y \times (P_b + (\Delta H / 13.6)) / (T_m + 460)$	43.563 dscf
$B_{ws} = V_{w(std)} / (V_{m(std)} + V_{w(std)})$	0.058 %
$FDA = 1.0 - B_{ws}$	0.942 %
$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times (\%N_2 + \% CO))$	29.87 lb./lb. mole
$M_s = (M_d \times FDA) + (18.0 \times B_{ws})$	29.18 lb./lb. mole
$v_s = 85.49 \times C_p \times (\sqrt{\Delta p}) \times (\sqrt{(T_s + 460)} / (M_s \times P_s))$	79.32 ft/second
$Q_s = v_s \times A_s \times 60$	1349432.0 acf/minute
$Q_{s(std)} = Q_s \times FDA \times (528 / (T_s + 460)) \times (P_s / 29.92))$	870502.8 dscf/minute
$I = (T_s + 460) \times ((2.67E\text{-}03 \times V_{lc}) + (V_{m(std)} / 17.647)) \times 100 / (\theta \times P_s \times A_n \times v_s \times 60)$	99.3 %

Data from Laboratory Analysis:	**H_2SO_4**
Normality of Barium Chloride titrant, N	0.00975
Volume Titrant Blank, V_{tb}	0.1
Volume Titrant Sample, V_t	500
Volume of Sample Aliquot, V_a	100
Total Volume of Solution, V_{soln}	6.55

Calculated Concentration and Emission Rate Data:

$C_{H2SO4} = 1.081E\text{-}04 \times (N \times (V_t - V_{tb}) \times (V_{soln} / V_a)) / V_{m(std)} =$	7.922E-07 lb/dscf
F_c-factor =	2310 dscf/mmBtu
$E_{H2SO4} = C_{H2SO4} \times F_c\text{-factor} \times (100/\%CO_2) =$	0.02080 lb/mmBtu
$E_{H2SO4} = C_{H2SO4} \times Q_{s(std)} \times 60 =$	41.3765 lb/hr

TECO
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Air Services Group

40 CFR 60, Appendix A - Test Methods
Reference Method 8
Test Calculations

Customer: Polk Power Station
Facility: Acid Plant
Sampling Location: Stack
Operating Conditions: Full Load
Run Number: 2
Date: 12/01/06

Sample Time, θ:	60 minutes	Nozzle Diameter, D_n:	0.211 inches
Barometric Pressure, P_b:	29.97 "Hg	Nozzle Area, A_n:	0.00024281 ft^2
Stack Pressure, P_s:	29.93 "Hg	Average Orifice Meter, ΔH:	2.058 "H_2O
Effective Stack Area, A_s:	283.529 ft^2	Sample Volume, V_m:	47.092 ft^3
Pitot Coefficient, Cp:	0.84 dimensionless	Average Meter Temp., T_m:	87.6 °F
Gas Analysis:	8.8 % CO_2	Average Stack Temp., T_s:	310.5 °F
	11.6 % O_2	Average $\sqrt{\Delta p}$:	1.206 "H_2O
	0.0 % CO	Condensate Volume, V_{lc}:	57.2 ml
	79.6 % N_2	Meter Box Y:	0.992 dimensionless

Data Calculated from Source Measurements:

$V_{w(std)} = 4.714E\text{-}02 \times V_{lc}$	2.696 scf
$V_{m(std)} = 17.647 \times V_m \times Y \times (P_b + (\Delta H / 13.6)) / (T_m + 460)$	45.344 dscf
$B_{ws} = V_{w(std)} / (V_{m(std)} + V_{w(std)})$	0.056 %
$FDA = 1.0 - B_{ws}$	0.944 %
$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times (\%N_2 + \%\ CO))$	29.87 lb./lb. mole
$M_s = (M_d \times FDA) + (18.0 \times B_{ws})$	29.21 lb./lb. mole
$v_s = 85.49 \times C_p \times (\sqrt{\Delta p}) \times (\sqrt{(T_s + 460)} / (M_s \times P_s))$	81.28 ft/second
$Q_s = v_s \times A_s \times 60$	1382717.2 acf/minute
$Q_{s(std)} = Q_s \times FDA \times (528 / (T_s + 460)) \times (P_s / 29.92))$	894697.9 dscf/minute
$I = (T_s + 460) \times ((2.67E\text{-}03 \times V_{lc}) + (V_{m(std)} / 17.647)) \times 100 / \theta \times P_s \times A_n \times v_s \times 6$	98.6 %

Data from Laboratory Analysis:	**H_2SO_4**
Normality of Barium Chloride titrant, N	0.00975
Volume Titrant Blank, V_{tb}	0.1
Volume Titrant Sample, V_t	500
Volume of Sample Aliquot, V_a	100
Total Volume of Solution, V_{soln}	5.25

Calculated Concentration and Emission Rate Data:

$C_{H2SO4} = 1.081E\text{-}04 \times (N \times (V_t - V_{tb}) \times (V_{soln} / V_a)) / V_{m(std)} =$	6.100E-07 lb/dscf
F_c-factor =	2310 dscf/MMBtu
$E_{H2SO4} = C_{H2SO4} \times F_c\text{-factor} \times (100/\%CO_2) =$	0.01601 lb/MMBtu
$E_{H2SO4} = C_{H2SO4} \times Q_{s(std)} \times 60 =$	32.7476 lb/hr

TECO
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Environmental Services
Air Services Group

40 CFR 60, Appendix A - Test Methods
Reference Method 8
Test Calculations

Customer: Polk Power Station
Facility: Acid Plant
Sampling Location: Stack
Operating Conditions: Full Load
Run Number: 3
Date: 12/01/06

Sample Time, θ:	60 minutes	Nozzle Diameter, D_n:	0.209 inches
Barometric Pressure, P_b:	29.91 "Hg	Nozzle Area, A_n:	0.00023823 ft^2
Stack Pressure, P_s:	29.87 "Hg	Average Orifice Meter, ΔH:	1.942 "H_2O
Effective Stack Area, A_s:	283.529 ft^2	Sample Volume, V_m:	46.134 ft^3
Pitot Coefficient, Cp:	0.84 *dimensionless*	Average Meter Temp., T_m:	87.3 °F
Gas Analysis:	8.8 % CO_2	Average Stack Temp., T_s:	304.4 °F
	11.6 % O_2	Average $\sqrt{\Delta p}$:	1.193 "H_2O
	0.0 % *CO*	Condensate Volume, V_{lc}:	51.8 *ml*
	79.6 % N_2	Meter Box Y:	0.992 dimensionless

Data Calculated from Source Measurements:

$V_{w(std)} = 4.714E\text{-}02 \times V_{lc}$	2.442 scf
$V_{m(std)} = 17.647 \times V_m \times Y \times (P_b + (\Delta H / 13.6)) / (T_m + 460)$	44.344 dscf
$B_{ws} = V_{w(std)} / (V_{m(std)} + V_{w(std)})$	0.052 %
$FDA = 1.0 - B_{ws}$	0.948 %
$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times (\%N_2 + \%\ CO))$	29.87 lb./lb. mole
$M_s = (M_d \times FDA) + (18.0 \times B_{ws})$	29.25 lb./lb. mole
$v_s = 85.49 \times C_p \times (\sqrt{\Delta p}) \times (\sqrt{(T_s + 460) / (M_s \times P_s)})$	80.15 ft/second
$Q_s = v_s \times A_s \times 60$	1363572.9 acf/minute
$Q_{s(std)} = Q_s \times FDA \times (528 / (T_s + 460)) \times (P_s / 29.92))$	891298.5 dscf/minute
$I = (T_s + 460) \times ((2.67E\text{-}03 \times V_{lc}) + (V_{m(std)} / 17.647)) \times 100 / (\theta \times P_s \times A_n \times v_s \times 6$	98.7 %

Data from Laboratory Analysis:	**H_2SO_4**
Normality of Barium Chloride titrant, N	0.00975
Volume Titrant Blank, V_{tb}	0.1
Volume Titrant Sample, V_t	500
Volume of Sample Aliquot, V_a	100
Total Volume of Solution, V_{soln}	4.15

Calculated Concentration and Emission Rate Data:

$C_{H2SO4} = 1.081E\text{-}04 \times (N \times (V_t - V_{tb}) \times (V_{soln} / V_a)) / V_{m(std)} =$	4.931E-07 lb/dscf
F_c-factor =	2310 dscf/MMBtu
$E_{H2SO4} = C_{H2SO4} \times F_c\text{-factor} \times (100/\%CO_2) =$	0.01294 lb/MMBtu
$E_{H2SO4} = C_{H2SO4} \times Q_{s(std)} \times 60 =$	26.3694 lb/hr

LABORATORY ANALYSIS

TECO TAMPA ELECTRIC

Laboratory Services

5012 Causeway Blvd * Tampa Fl. 33619 * Ph (813)630-7378 * Fax (813)630-7360 * DOH #E54272

Report For:

Report Date: 1/3/2007

Laboratory ID: AA85903

Location Code: TE_PPS_1_SAM_SYNGAS

Sample Information

Description: Polk No. 1 Acid Mist Comp on Syngas

Project Account Code:

Sample Collection Method:

Sampled By: TRIGON

Date and Time Collected: 12/1/2006 1:30:00 PM

Date of Sample Receipt: 12/4/2006

Laboratory Results

PARAMETER	Result	Units	MDL	Qualifier Code	Test Method	Analyst	Analysis Date & Time	Lower Limit	Upper Limit	Violation Check
Normality of BaCl2 * 2H2O	0.00975		0.0001			MM	12/4/2006 7:15:00 AM			
SO3 emission rate, lbs/hr	34	lbs/hr			EPA - RM8	RAM	1/3/2007 8:28:00 AM			
SO3, Avg. of Blank Titrations	0.1	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Run #1, Avg. of Titrations	6.55	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Run #2, Avg. of Titrations	5.25	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Run #3, Avg. of Titrations	4.15	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Volume of Contained Sample	500	milliliters	1		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Volume of Sample Aliquot	100	milliliters	0.1		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			

Comments

All results calculated on a wet to wet basis, unless otherwise indicated.

Data Qualifier Codes Explanation:

Subcontracted Laboratories:

Robert Dorey,
Manager, Laboratory Services

CALIBRATION DATA

Meter Console Information

Console Number	300.200
Dry Gas Meter Number:	7811505
Calibration Date:	10/25/2006
Expiration Date:	10/25/2007

Calibration Condition

Time:	
Barometric Pressure (P_b):	29.18
Calibration Technician	S. Marquis
Wet Test Meter ID	11088.00
Wet Test Meter Verification Date	8/1/2006

Pass Positive Leak Check?	Yes
Pass Negative Leak Check?	Yes

		Console Meter						Wet Test Meter						Run
DGM Orifice Setting	Vacuum Setting	Meter Initial Volume	Meter Final Volume	Sample Volume	Outlet Temp. Initial	Outlet Temp. Final	Outlet Temp Average	Wet Test Initial Volume	Wet Test Final Volume	Wet Test Volume	Wet Test Temp Initial	Wet Test Temp Final	Wet Test Temp. Average	Elapsed
(P_m)	(2-4 in Hg)	(V_{di})	(V_{df})	(V_m)	(T_{di})	(T_{df})	(T_d)	(V_{wi})	(V_{wf})	(V_w)	(T_{wi})	(T_{wf})	(T_w)	Θ
in. H_2O	in Hg	cubic feet	cubic feet	cubic feet	°F	°F	°F	cubic feet	cubic feet	cubic feet	°F	°F	°F	minutes
0.5	3.0	0	4.945	4.945	76	76	76.0	0	5	5.000	68	68	68.0	12.32
1.0	3.3	0	7.834	7.834	80	76	78.0	0	8	8.000	68	68	68.0	13.7
1.5	3.0	0	9.63	9.630	68	78	73.0	0	10	10.000	68	68	68.0	14.17
2.0	3.0	0	30.403	30.403	80	88	84.0	0	31	31.000	68	68	68.0	39
3.0	3.0	0	11.316	11.316	85	90	87.5	0	11.51	11.510	68	68	68.0	12
4.0	3.0	0	9.834	9.834	90	91	90.5	0	10	10.000	68	68	68.0	9.1

DGM Orifice Setting	DGM Factor	DGM Factor	Orifice Meter	Orifice Meter
(P_m)	γ_i	$\Delta\gamma$	$\Delta H_@$	$\Delta\Delta H_@$
in. H_2O			in. H_2O	in. H_2O
0.5	1.025	-0.016	1.715	-0.029
1	1.038	-0.004	1.651	-0.093
1.5	1.044	0.003	1.711	-0.033
2	1.045	0.004	1.762	0.018
3	1.047	0.005	1.804	0.059
4	1.050	0.008	1.822	0.078
	1.042	γ Average	1.744	$\Delta H@$ Average

Meter Box Thermocouple Calibration.

Test Points	30	50	75	90	120
Reading	31	51	75	90	120

$\gamma = V_w * P_b * (T_d + 460) / V_d * (P_b - \Delta H/13.6) * (T_w + 460)$

$\Delta H_@ = ((0.0319 * \Delta H) / (P_b * (T_d + 460))) * (((T_a - 460) * 0) / V_w)^2$

Note: For Calibration Factor γ, the ratio of the calibration meter to dry gas meter, acceptable tolerance of individual values from the average is ±0.02

Note: For $\Delta H_@$, orifice pressure differential that equates to 0.75 cfm (0.0212 m3/min) at standard temperature and pressure.
acceptable tolerance of individual values from the average is ±0.2 inches (5.1mm) H2O

APPENDIX C

SULFURIC ACID MIST TEST DATA – SULFURIC ACID PLANT

FIELD DATA SHEETS

ISOKINETIC FIELD DATA SHEET

Plant	Polk Power Station	Run No	1	Dry Gas Meter Volume	
Location	Acid Plant Stack	Nozzle I.D. No	74	Final	710.521 Ft.
Date	12-1-06	Nozzle Diameter	0.490	Initial	663.114 Ft.³
Method No.	RM-8	Pitot Tube No.	1705	Net	47.410 Ft.³
Box Operator	DAS	Pitot Tube (C_p)	2.84		
Probe Operator	SEB	Probe Length	9'	Equipment Leak Checks	
Time - Start	0900 End 1016	Probe Liner Material	6/a SS	Initial	0.0 CFM @ 15 "Hg
Sampling Time	64 min	Pressure	Pb ("Hg) 30.15 Pg ("H2O)	Final	0.0 CFM @ 10 "H2O
Min.\ Pt.	4 min.	Assumed Moisture (%)	6.0%	Pitot Tube	Ø "H2O
Meter Box No.	MB07	Filter Holder No.			
Pyrometer No.	PY07	Comments		Moisture Determination	
Barometer No		Start	Imp#1 200 Imp#2 100 Imp#3 100	Impinger	-10.0 ml
Meter Cal (ΔH)	1.670	Finish	Imp#1 160 Imp#2 170 Imp#3 170	Silica Gel	14.5 gm
Meter Cal. (ΔY)	0.999	O_2 8.9	CO_2 17.4	Total	4.5

Traverse Point No	Clock Time	Gas Sample Volume (Ft³)	Stack Temp Ts (F)	Meter Temp. (F)	Δ P (In. H2O)	Δ H (In. H2O)	Probe Temp (F)	Filter Box Temp. Tm (F)	Last Imp. Temp. (F)	Vacuum (In Hg)
1	9:00	666.0	151	87	0.034	1.60	209	~~62~~	62	6
2		668.96	160	92	0.042	1.63	214		62	6
3		671.82	163	93	.035	1.63	224		63	6
4		674.83	162	92	.038	1.76	218		63	6.5
6		677.77	161	93	.038	1.76	221		63	6.5
6		680.59	161	93	.040	1.86	213		61	7
7		683.92	160	93	.046	2.14	204		62	8
8	0932	687.035	158	93	.040	1.87	205		62	8
1	0944	~~687.~~ 690.017	159	90	.037	1.75	169		58	7
2		693.05	160	95	.038	1.77	172		59	7
3		696.06	160	96	.035	1.64	172		60	7
4		698.91	160	94	.035	1.64	171		60	6
5		701.89	160	94	.031	1.45	176		60	6
6		704.62	160	96	.036	1.68	174		60	6
7		707.52	160	96	.035	1.64	169		61	6
8	1016	710.521	155	96	.037	1.74	170		61	6

Quality Assurance / Quality Control Information

Console Operator Signature: [signature] Date: 1-3-07

Complete: ✓ Legible: ✓ Accurate: ✓ Project Scope: ✓ Reasonableness: ✓

Reviewer's Signature: [signature] Title: QA/QC Date: 3 JAN-07

ISOKINETIC FIELD DATA SHEET

Plant	Polk
Location	Acid Plant 1
Date	12-1-06
Method No.	RM-5
Box Operator	DMS
Probe Operator	SEC
Time - Start:	10:45 End: 11:57
Sampling Time	64 min.
Min.\ Pt.	4 min.
Meter Box No.	MB57
Pyrometer No.	PY07
Barometer No.	
Meter Cal. (Δ H)	.9997
Meter Cal. (Δ Y)	1.670

Run No.	2
Nozzle I.D. No.	174
Nozzle Diameter	0.490
Pitot Tube No.	P105
Pitot Tube (C_p)	
Probe Length	9'
Probe Liner Material	Glass
Pressure	Pb ("Hg): 30.15 Pg ("H_2O):
Assumed Moisture (%)	22
Filter Holder No.	
Comments	
Start	Imp#1 200 Imp#2 100 Imp#3 100
Finish	Imp#1 140 Imp#2 130 Imp#3 112
O_2 3.8	CO_2 17.8

Dry Gas Meter Volume

Final	760.072	$Ft.^3$
Initial	713.801	$Ft.^3$
Net	46.271	$Ft.^3$

Equipment Leak Checks

Initial	.00 CFM @ 10	"Hg
Final	.00 CFM @ 12	"H_2O
Pitot Tube	✓	"H_2O

Moisture Determination

Impinger	-18.0	ml
Silica Gel	17.5	gm
Total	-0.5	

Traverse Point No.	Clock Time	Gas Sample Volume (Ft³)	Stack Temp. Ts (°F)	Meter Temp. (°F)	Δ P (In. H_2O)	Δ H (In. H_2O)	Probe Temp. (°F)	Filter Box Temp. Tm (°F)	Last Imp Temp. (°F)	Vacuum (In Hg)
1	1045	713.801	158	87	.035	1.62	210		63	8
2		716.83	160	97	.037	1.83	213		61	8
3		719.65	161	98	.036	1.69	213		62	8
4		722.84	164	98	.036	1.75	205		62	8
5		726.01	160	98	~~.044~~ .038	~~2.07~~ 1.81	214		63	8
6		728.97	~~159~~ 160	98	~~.039~~ .044	~~1.83~~ 2.07	213		63	8
7		732.07	~~159~~ 160	98	~~.043~~ .039	~~2.05~~ 1.83	209		63	10
8	1117	735.27	159	98	.043	2.05	210		62	10
1	1125	738.6	160	91	.037	1.71	178		62	9
2		741.35	160	97	.034	1.57	177		62	8.5
3		744.42	160	98	.041	1.92	171		63	9
4		747.52	160	98	.038	1.81	177		62	9
5		750.65	161	100	.040	1.88	178		60	9
6		753.77	159	101	.041	1.94	174		61	9.5
7		757.08	155	101	.040	1.90	178		63	9.5
8	1157	760.072	154	101	.036	1.74	176		63	9

Quality Assurance / Quality Control Information

Console Operator Signature: _____ Date: 1-3-07

Complete: ✓ Legible: ✓ Accurate: ✓ Project Scope: ✓ Reasonableness: ✓

Reviewer's Signature: _____ Title: QA/QC Date: 3-JAN-07

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ISOKINETIC FIELD DATA SHEET

Plant	Polk Power	Run No.	3			Dry Gas Meter Volume	
Location	Acid Plant	Nozzle I.D. No.	74			Final	809,615 Ft.³
Date	12-1-06	Nozzle Diameter	0.490			Initial	760,338 Ft.³
Method No.	RM-8	Pitot Tube No.	PT05			Net	49,260 Ft.³
Box Operator	DAS	Pitot Tube (C_p)					
Probe Operator	SEG	Probe Length	9'			Equipment Leak Checks	
Time - Start:	12:21 End: 13:52	Probe Liner Material	Glass			Initial	0.6 CFM @ 12 "Hg
Sampling Time	64 min.	Pressure	Pb ("Hg): 30.15 Pg ("H2O): .5			Final	0.0 CFM @ 10 "H2O
Min.\ Pt.	1.34 m³	Assumed Moisture (%)	2.8			Pitot Tube	Ø "H2O
Meter Box No.	MB07	Filter Holder No.					
Pyrometer No.	Pyr9	Comments				Moisture Determination	
Barometer No.		Start	Imp#1 200	Imp#2 100	Imp#3 100	Impinger	-15 ml
Meter Cal (Δ H)	.999	Finish	Imp#1 148	Imp#2 126	Imp#3 111	Silica Gel	18.4 gm
Meter Cal. (Δ Y)	1.670	O_2 7.4	CO_2 18.7			Total	3.4

Traverse Point No.	Clock Time	Gas Sample Volume (Ft³)	Stack Temp. Ts (°F)	Meter Temp. (°F)	Δ P (In. H_2O)	Δ H (In. H_2O)	Probe Temp. (°F)	Filter Box Temp. Tm (°F)	Last Imp. Temp. (°F)	Vacuum (In. Hg)
1	1221	763.52	159	90	.039	1.81	215		60	8
2		766.67	159	101	.040	1.89	215		59	8
3		769.72	159	101	.038	1.82	227		59	8
4		772.74	163	102	.035	1.65	219		60	7.5
5		775.58	163	102	.031	1.46	213		63	7
6		778.51	160	101	.041	1.93	211		61	7
7		781.48	159	102	.039	1.85	216		62	8
8	1253	784.81	156	102	.041	1.95	207		65	8.5
1	1300	788.07	154	94	.043	2.05	180		61	8.5
2		791.16	161	100	.039	1.86	184		63	8
3		794.28	160	102	.041	1.94	183		64	8.5
4		797.15	160	102	.030	1.44	187		62	6.5
5		800.23	162	102	.041	1.93	190		66	8
6		803.42	160	102	.039	1.87	196		66	8
7		806.47	157	103	.036	1.71	191		65	8
8	1332	809.615	157	103	.036	1.71	180		65	8

Quality Assurance / Quality Control Information

Console Operator Signature: _____ Date: 1-3-07

Complete: ✓ Legible: ✓ Accurate: ✓ Project Scope: ✓ Reasonableness: ✓

Reviewer's Signature: _____ Title: QA/QC Date: 3-JAN-07

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CALCULATED DATA

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40 CFR 60, Appendix A - Test Methods
Reference Method 8
Test Calculations

Customer: Polk Power Station
Facility: Acid Plant
Sampling Location: Stack
Operating Conditions: Compliance Load
Run Number: 1
Date: 12/01/06

Sample Time, θ:	64 minutes	Nozzle Diameter, D_n:	0.490 inches
Barometric Pressure, P_b:	30.15 "Hg	Nozzle Area, A_n:	0.00130946 ft^2
Stack Pressure, P_s:	30.19 "Hg	Average Orifice Meter, ΔH:	1.743 "H_2O
Effective Stack Area, A_s:	28.274 ft^2	Sample Volume, V_m:	47.407 ft^3
Pitot Coefficient, Cp:	0.84 *dimensionless*	Average Meter Temp., T_m:	93.8 °F
Gas Analysis:	17.4 % CO_2	Average Stack Temp., T_s:	159.8 °F
	8.9 % O_2	Average $\sqrt{\Delta p}$:	0.193 "H_2O
	0.0 % CO	Condensate Volume, V_{lc}:	4.5 *ml*
	73.7 % N_2	Meter Box Y:	0.999 dimensionless

Data Calculated from Source Measurements:

$V_{w(std)} = 4.714E\text{-}02 \times V_{lc}$	0.212 scf
$V_{m(std)} = 17.647 \times V_m \times Y \times (P_b + (\Delta H / 13.6)) / (T_m + 460)$	45.698 dscf
$B_{ws} = V_{w(std)} / (V_{m(std)} + V_{w(std)})$	0.005 %
$FDA = 1.0 - B_{ws}$	0.995 %
$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times (\%N_2 + \%\ CO))$	31.14 lb./lb. mole
$M_s = (M_d \times FDA) + (18.0 \times B_{ws})$	31.08 lb./lb. mole
$v_s = 85.49 \times C_p \times (\sqrt{\Delta p}) \times (\sqrt{(T_s + 460) / (M_s \times P_s)})$	11.28 ft/second
$Q_s = v_s \times A_s \times 60$	19131.0 acf/minute
$Q_{s(std)} = Q_s \times FDA \times (528 / (T_s + 460)) \times (P_s / 29.92))$	16368.1 dscf/minute
$I = (T_s + 460) \times \{(2.67E\text{-}03 \times V_{lc}) + (V_{m(std)} / 17.647)\} \times 100 / (\theta \times P_s \times A_n \times v_s \times 60)$	94.2 %

Data from Laboratory Analysis:	H_2SO_4
Normality of Barium Chloride titrant, N	0.00975
Volume Titrant Blank, V_{tb}	0.1
Volume Titrant Sample, V_t	5.1
Volume of Sample Aliquot, V_a	100
Total Volume of Solution, V_{soln}	500

Data Calculated from Plant Operational Measurements:

Gallons of Acid Produced During The Test Period,	P_{gal}	1702.90063	gallons
Density of Water,	D	8.345	lbs/gallon
Specific Gravity of Sulfuric Acid,	SG	1.84	dimensonless
Average Concentration of Acid Produced,	C_{acid}	93.5088026	%
Tons of Acid Produced During The Test Period,	P_{st}	12.2251999	short tons
Volumeteric Flow Rate Through Stack ,	Q_{std}	16368.1	dscf/min
Total Sampling Time During Test Period,	θ	64	minutes

$C_{H2SO4} = 1.081E\text{-}04 \times (N \times (V_t - V_{tb}) \times (V_{soln} / V_a)) / Vm_{(std)}$ = 5.766E-07 lbs/dscf

Calculated H_2SO_4 Emission Rate, E= 0.04941 lbs H_2SO_4/ton of acid

Where;
Tons of Acid Produced, $P_{st} = (P_{gal} \times D \times SG \times C_{acid}) / 2000$
Emission Rate, $E = (Q_{std} \times \theta \times C_{sample}) / P_{st}$

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40 CFR 60, Appendix A - Test Methods
Reference Method 8
Test Calculations

Customer: Polk Power Station
Facility: Acid Plant
Sampling Location: Stack
Operating Conditions: Compliance Load
Run Number: 2
Date: 12/01/06

Sample Time, θ:	64 minutes	Nozzle Diameter, D_n:	0.490 inches
Barometric Pressure, P_b:	30.15 "Hg	Nozzle Area, A_n:	0.00130946 ft^2
Stack Pressure, P_s:	30.19 "Hg	Average Orifice Meter, ΔH:	1.821 "H_2O
Effective Stack Area, A_s:	28.274 ft^2	Sample Volume, V_m:	49.264 ft^3
Pitot Coefficient, Cp:	0.84 dimensionless	Average Meter Temp., T_m:	97.4 °F
Gas Analysis:	17.8 % CO_2	Average Stack Temp., T_s:	159.4 °F
	8.8 % O_2	Average √Δp:	0.197 "H_2O
	0.0 % CO	Condensate Volume, V_{lc}:	-0.5 ml
	73.4 % N_2	Meter Box Y:	0.999 dimensionless

Data Calculated from Source Measurements:

$V_{w(std)} = 4.714E\text{-}02 \times V_{lc}$	-0.024 scf
$V_{m(std)} = 17.647 \times V_m \times Y \times (P_b + (\Delta H / 13.6)) / (T_m + 460)$	47.183 dscf
$B_{ws} = V_{w(std)} / (V_{m(std)} + V_{w(std)})$	0.000 %
$FDA = 1.0 - B_{ws}$	1.000 %
$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times (\%N_2 + \%\ CO))$	31.20 lb./lb. mole
$M_s = (M_d \times FDA) + (18.0 \times B_{ws})$	31.21 lb./lb. mole
$v_s = 85.49 \times C_p \times (\sqrt{\Delta p}) \times (\sqrt{(T_s + 460)} / (M_s \times P_s))$	11.46 ft/second
$Q_s = v_s \times A_s \times 60$	19441.3 acf/minute
$Q_{s(std)} = Q_s \times FDA \times (528 / (T_s + 460)) \times (P_s / 29.92))$	16729.3 dscf/minute
$I = (T_s + 460) \times ((2.67E\text{-}03 \times V_{lc}) + (V_{m(std)} / 17.647)) \times 100 / (\theta \times P_s \times A_n \times v_s$	95.2 %

Data from Laboratory Analysis:	**H_2SO_4**
Normality of Barium Chloride titrant, N	0.00975
Volume Titrant Blank, V_{tb}	0.1
Volume Titrant Sample, V_t	5.25
Volume of Sample Aliquot, V_a	100
Total Volume of Solution, V_{soln}	500

Data Calculated from Plant Operational Measurements:

Gallons of Acid Produced During The Test Period,	P_{gal}	1560.977516	gallons
Density of Water,	D	8.345	lbs/gallon
Specific Gravity of Sulfuric Acid,	SG	1.84	dimensonless
Average Concentration of Acid Produced,	C_{acid}	93.51097609	%
Tons of Acid Produced During The Test Period,	P_{st}	11.20658801	short tons
Volumeteric Flow Rate Through Stack ,	Q_{std}	16729.3	dscf/min
Total Sampling Time During Test Period,	θ	64	minutes

$C_{H2SO4} = 1.081E\text{-}04 \times (N \times (V_t - V_{tb}) \times (V_{soln} / V_a)) / Vm_{(std)} =$ 5.752E-07 lbs/dscf

Calculated H_2SO_4 Emission Rate, E= **0.05496** lbs H_2SO_4/ton of acid

Where;
Tons of Acid Produced, $P_{st} = (P_{gal} \times D \times SG \times C_{acid}) / 2000$
Emission Rate, $E = (Q_{std} \times \theta \times C_{sample}) / P_{st}$

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40 CFR 60, Appendix A - Test Methods
Reference Method 8
Test Calculations

Customer: Polk Power Station
Facility: Acid Plant
Sampling Location: Stack
Operating Conditions: Compliance Load
Run Number: 3
Date: 12/01/06

Sample Time, θ:	64 minutes	Nozzle Diameter, D_n:	0.490 inches
Barometric Pressure, P_b:	30.15 "Hg	Nozzle Area, A_n:	0.00130946 ft^2
Stack Pressure, P_s:	30.19 "Hg	Average Orifice Meter, ΔH:	1.804 "H_2O
Effective Stack Area, A_s:	28.274 ft^2	Sample Volume, V_m:	49.257 ft^3
Pitot Coefficient, Cp:	0.84 dimensionless	Average Meter Temp., T_m:	100.6 °F
Gas Analysis:	18.7 % CO_2	Average Stack Temp., T_s:	159.3 °F
	7.9 % O_2	Average $\sqrt{\Delta p}$:	0.195 "H_2O
	0.0 % CO	Condensate Volume, V_{lc}:	8.1 ml
	73.4 % N_2	Meter Box Y:	0.999 dimensionless

Data Calculated from Source Measurements:

$V_{w(std)} = 4.714E\text{-}02 \times V_{lc}$	0.382 scf
$V_{m(std)} = 17.647 \times V_m \times Y \times (P_b + (\Delta H / 13.6)) / (T_m + 460)$	46.911 dscf
$B_{ws} = V_{w(std)} / (V_{m(std)} + V_{w(std)})$	0.008 %
$FDA = 1.0 - B_{ws}$	0.992 %
$M_d = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \times (\%N_2 + \% CO))$	31.31 lb./lb. mole
$M_s = (M_d \times FDA) + (18.0 \times B_{ws})$	31.20 lb./lb. mole
$v_s = 85.49 \times C_p \times (\sqrt{\Delta p}) \times (\sqrt{(T_s + 460)} / (M_s \times P_s))$	11.37 ft/second
$Q_s = v_s \times A_s \times 60$	19290.9 acf/minute
$Q_{s(std)} = Q_s \times FDA \times (528 / (T_s + 460)) \times (P_s / 29.92))$	16459.3 dscf/minute
$I = (T_s + 460) \times ((2.67E\text{-}03 \times V_{lc}) + (V_{m(std)} / 17.647)) \times 100 / (\theta \times P_s \times A_n \times v_s$	96.2 %

Data from Laboratory Analysis:	H_2SO_4	
Normality of Barium Chloride titrant, N	0.00975	meq/ml
Volume Titrant Blank, V_{tb}	0.1	ml
Volume Titrant Sample, V_t	4.85	ml
Volume of Sample Aliquot, V_a	100	ml
Total Volume of Solution, V_{soln}	500	ml

Data Calculated from Plant Operational Measurements:

Gallons of Acid Produced During The Test Period,	P_{gal}	1556.541618	gallons
Density of Water,	D	8.345	lbs/gallon
Specific Gravity of Sulfuric Acid,	SG	1.84	dimensonless
Average Concentration of Acid Produced,	C_{acid}	93.50460243	%
Tons of Acid Produced During The Test Period,	P_{st}	11.1739801	short tons
Volumeteric Flow Rate Through Stack ,	Q_{std}	16459.3	dscf/min
Total Sampling Time During Test Period,	θ	64	minutes

$C_{H2SO4} = 1.081E\text{-}04 \times (N \times (V_t - V_{tb}) \times (V_{soln} / V_a)) / Vm_{(std)} =$ 5.336E-07 lbs/dscf

Calculated H_2SO_4 Emission Rate, E= **0.05030** lbs H_2SO_4/ton of acid

Where;
Tons of Acid Produced, $P_{st} = (P_{gal} \times D \times SG \times C_{acid}) / 2000$
Emission Rate, $E = (Q_{std} \times \theta \times C_{sample}) / P_{st}$

LABORATORY ANALYSIS

TECO TAMPA ELECTRIC

Laboratory Services

5012 Causeway Blvd * Tampa Fl. 33619 * Ph (813)630-7378 * Fax (813)630-7360 * DOH #E54272

Report For:

Report Date: 1/3/2007

Laboratory ID: AA85904

Location Code: TE_PPS_SAP_COMP_SYNGAS

Sample Information

Description: Polk Sulfuric Acid Plant Compliance

Project Account Code:

Sample Collection Method:

Sampled By: ASG

Date and Time Collected: 12/1/2006 1:30:00 PM

Date of Sample Receipt: 12/4/2006

Laboratory Results

PARAMETER	Result	Units	MDL	Qualifier Code	Test Method	Analyst	Analysis Date & Time	Lower Limit	Upper Limit	Violation Check
Normality of BaCl2 * 2H2O	0.00975		0.0001			MM	12/4/2006 7:15:00 AM			
SO2 emission rate, lbs/ton of acid	3	lbs/ton acid			EPA - RM6C	RAM	1/3/2007 8:30:00 AM			
SO3 emission rate, lbs/ton of acid	0.05	lbs/ton acid			EPA - RM8	RAM	1/3/2007 8:30:00 AM			
SO3, Avg. of Blank Titrations	0.05	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Run #1, Avg. of Titrations	5.1	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Run #2, Avg. of Titrations	5.25	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Run #3, Avg. of Titrations	4.85	milliliters	0.01		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Volume of Contained Sample	500	milliliters	1		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			
SO3, Volume of Sample Aliquot	100	milliliters	0.1		EPA - Meth.8	MM	12/4/2006 7:15:00 AM			

Comments

All results calculated on a wet to wet basis, unless otherwise indicated.

Data Qualifier Codes Explanation:

Subcontracted Laboratories:

Robert Dorey,
Manager, Laboratory Services

CALIBRATION DATA

TECO
TAMPA ELECTRIC

Environmental Services
Air Services Group

SUMMARY OF EQUIPMENT CALIBRATIONS

EQUIPMENT	CAL DATE	METHOD	RESULTS
CONSOLE (MB 07)		USEPA RM 5	
INITIAL	10/03/2006	(ORIFICE)	0.999
POST TEST	12/04/2006		0.976
NOZZLE (SN74)			
INITIAL	10/02/2006	CALIPER	0.490
POST TEST	12/04/2006	MEASUREMENTS	0.490
PYROMETER (PY 09)	10/02/2006	ASTM THERMOMETER	$\pm$ 2° F
PITOT TUBE (PT 05)	10/03/2006	USEPA RM 2	C_p = 0.84
BAROMETER (BR 07)	10/02/2006	NWS COMPARISON	$\pm$ 0.01" Hg

TECO
TAMPA ELECTRIC

USEPA Reference Method 5
Dry Gas Meter Calibration
Critical Orifice Method
Quarterly Calibration

Environmental Services
Air Services Group

Blue Team

Manufacturer: Thermo Anderson
Model Number: MST-C1
Instrument Code Number: ^MB07
LabWorks Sample Number:

Calibration Date: 10/3/2006
Barometric Pressure: 30.15 "Hg
Theoretical Critical Vacuum: 14.22 "Hg
Calibrated By: JAV

IMPORTANT

For valid test results, the Actual Vacuum should be 1 to 2 "Hg greater than the Theoretical Critical Vacuum Shown above. The Critical Orifice Coefficient, K', should be in English units.

IMPORTANT

Dry Gas Meter Readings

ΔH "H_2O	Time Minutes	Initial Volume ft^3	Final Volume ft^3	Total Volume ft^3	Initial Temperatures Inlet °F	Initial Temperatures Outlet °F	Final Tempertures Inlet °F	Final Tempertures Outlet °F
0.60	15	356.984	363.887	6.903	79	77	79	77
1.10	15	347.782	356.984	9.202	81	78	80	78
1.90	15	335.841	347.782	11.941	81	78	83	78
3.50	15	319.720	335.841	16.121	80	75	88	78

Critical Orifice Readings

Orifice Serial Number	K' Orifice Coefficient	Actual Vacuum "Hg	Ambient Temperatures Initial °F	Ambient Temperatures Final °F	Ambient Temperatures Average °F
48	0.3483	22.0	72	72	72.0
55	0.4660	21.0	72	72	72.0
63	0.5971	19.0	72	72	72.0
73	0.8177	16.5	72	72	72.0

CALCULATED DATA

Dry Gas Meter Volume Corrected $Vm_{(std)}$, ft^3	Critical Orifice Volume Corrected $Vcr_{(std)}$, ft^3	Critical Orifice Volume Nominal $Vcr_{(std)}$, ft^3	Calibration Y Value (ratio)	QA/QC ± 0.02	Calibration ΔHα Value "H_2O	QA/QC ± 0.2
6.834	6.829	6.831	0.999	0.000	1.610	-0.060
9.100	9.137	9.140	1.004	0.005	1.645	-0.025
11.815	11.708	11.711	0.991	-0.008	1.729	0.058
16.006	16.033	16.038	1.002	0.003	1.697	0.027
		Averages:	**0.999**		**1.670**	

For Calibration Y, the ratio of the reading of the calibration orifice to the dry gas meter, acceptable tolerance from average is± 0.02.
For Calibration ΔHα, the acceptable tolerance of individual values from the average is + 0.2.

Review/Approval: 5-Oct-06

TECO
TAMPA ELECTRIC

Environmental Services
Air Services Group

USEPA Reference Method 5
Dry Gas Meter Calibration
Critical Orifice Method
POST - TEST CALIBRATION CHECK

Manufacturer: Thermo
Model Number: MST
Instrument Code Number: MB07
LabWorks Sample Number:
Associated Test: Polk Acid Plant

Calibration Date: 12/4/2006
Barometric Pressure: 30.4 "Hg
Theoretical Critical Vacuum: 14.34 "Hg
Calibrated By: GDB
Team: BLUE

IMPORTANT

For valid test results, the Actual Vacuum should be 1 to 2 "Hg greater than the Theoretical Critical Vacuum Shown above. The Critical Orifice Coefficient, K', should be in English units.

IMPORTANT

Dry Gas Meter Readings

ΔH "H_2O	Time Minutes	Initial Volume ft^3	Final Volume ft^3	Total Volume ft^3	Initial Temperatures Inlet °F	Initial Temperatures Outlet °F	Final Tempertures Inlet °F	Final Tempertures Outlet °F
2	10	827.100	834.998	7.898	74	68	75	71
2	10	834.998	842.717	7.719	75	71	75	74
2	10	842.717	850.675	7.958	75	74	78	74

Critical Orifice Readings

Orifice Serial Number	K' Orifice Coefficient	Actual Vacuum "Hg	Ambient Temperatures Initial °F	Ambient Temperatures Final °F	Ambient Temperatures Average °F
63	0.5877	19.0	72	72	72.0
63	0.5877	19.0	72	72	72.0
63	0.5877	19.0	72	72	72.0

CALCULATED DATA

Dry Gas Meter Volume Corrected $Vm_{(std)}$, ft^3	Critical Orifice Volume Corrected $Vcr_{(std)}$, ft^3	Critical Orifice Volume Nominal $Vcr_{(std)}$, ft^3	Calibration Y Value (ratio)	QA/QC ± 0.02	Calibration ΔHα Value "H_2O	QA/QC ± 0.2
8.000	7.746	7.684	0.968	-0.008	1.891	0.006
7.793	7.746	7.684	0.994	0.018	1.885	0.000
8.012	7.746	7.684	0.967	-0.010	1.879	-0.006
		Averages:	**0.976**		**1.885**	
		Prior Y:	**0.999**			
		% Difference:	**2.27%**			

For Calibration Y, the ratio of the reading of the calibration orifice to the dry gas meter, acceptable tolerance from average is± 0.02.
For Calibration ΔHα, the acceptable tolerance of individual values from the average is + 0.2.

Review/Approval [signature] Date: 7-Dec-06

TECO
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Environmental Services
Air Services Group

QUARTERLY NOZZLE CALIBRATIONS

Shared Resource

STEEL NOZZLE SET

Calibration Date: 10/2/2006 Responsible Party: **SEG**

Nozzle I.D.	Nozzle Diameter, D_n (cm)			Maximum Difference, "	Average D_n, inches
	D_1	D_2	D_3		
^SN01	0.296	0.294	0.290	0.002	0.115
^SN04	0.320	0.320	0.320	0.000	0.126
^SN05	0.380	0.380	0.378	0.001	0.149
^SN06	0.500	0.496	0.500	0.002	0.196
^SN09	0.695	0.689	0.690	0.002	0.272
^SN10	0.755	0.750	0.755	0.002	0.297
^SN12	0.985	0.985	0.983	0.001	0.388
^SN15	0.420	0.420	0.420	0.000	0.165
^SN16	0.504	0.505	0.505	0.000	0.199
^SN19	0.717	0.714	0.715	0.001	0.282
^SN22	0.932	0.930	0.934	0.002	0.367
^SN30	0.795	0.792	0.795	0.001	0.313
^SN36	0.480	0.477	0.477	0.001	0.188
^SN37	0.535	0.534	0.532	0.001	0.210
^SN38	0.635	0.640	0.640	0.002	0.251
^SN46	0.482	0.485	0.483	0.001	0.190
^SN47	0.515	0.516	0.516	0.000	0.203
^SN48	0.645	0.640	0.640	0.002	0.253
^SN50	0.788	0.790	0.791	0.001	0.311
^SN58	0.619	0.611	0.615	0.003	0.242
^SN68	0.630	0.625	0.632	0.003	0.248
^SN69	0.950	0.950	0.950	0.000	0.374
^SN70	1.565	1.565	1.565	0.000	0.616
^SN71	1.558	1.560	1.560	0.001	0.614
^SN72	0.955	0.953	0.950	0.002	0.375
^SN73	1.277	1.280	1.280	0.001	0.504
^SN74	1.245	1.240	1.245	0.002	0.490

Data Notations: All micometer readings are converted from cm to inches by multiplying by 0.393700787. Maximum Difference must be $\leq$ 0.004".

QA/QC Review by:  5-Oct-06

TECO
TAMPA ELECTRIC

Environmental Services
Air Services Group

POST TEST NOZZLE CALIBRATION

Shared Resource

Calibration Date: 12/4/2006
Calibration Personnel: SEG
Test Designation: POLK ACID PLANT

Nozzle Identifier	Nozzle Diameter, D_n (cm)			Maximum Difference, "	Average D_n, inches
	D_1	D_2	D_3		
^SN74	1.245	1.245	1.240	0.002	0.490

Data Notations: All micometer readings are converted from cm to inches by multiplying by 0.393700787. Maximum Difference must be $\leq$ 0.004".

Quarterly (pre-test) value for nozzle ID ^SN74 was 0.490

Difference (Pre-test/Post-test) is: 0.000

QA/QC Review by: 7-Dec-06

TECO
TAMPA ELECTRIC

Environmental Services
Air Services Group

Pyrometer Calibration

Blue Team

Pyrometer Under Test

Pyrometer Number: ^PY09
Labworks Sample # 0
Calibration Date: 10/2/2006

Calibrator Information

Calibrator Type/Manufacturer: Hart Scientific
Calibrator Serial Number: AOA024
Date of Last Calibration: 7/11/2006
Calibration Personnel (Typed and Signature): JAV

Calibration Data

Calibration Point	Reference Temperature	Pyrometer Indication	Difference
1	400	399	1
2	212	213	-1
3	32	33	-1

Reference temperatures must encompass the expected range of measurement. These three points should be ~ 32 degrees, ~212 degrees, and ~ 400 degrees Farenheit.
Difference is calculated as follows:

(reference temperature) – (pyrometer indication)

Qaulity Control Data

Calibration Point	Difference
1	Pass
2	Pass
3	Pass

Reviewer: 5-Oct-06

TECO
TAMPA ELECTRIC

PITOT TUBE CALIBRATION DATA SHEET

Environmental Services
Air Services Group

Pitot Tube ID # PT05
Calibration Date 10/3/2006 Operating Quarter/Year: _____ Red Team
Openings Damaged? ☐ Y ☑ N Repaired? ☐ Y ☑ N ☐ N/A

Labworks #: 0

Alpha and Beta Angle Determinations

α_1	2	degrees	*Pass*
α_2	0.8	degrees	*Pass*
β_1	2.1	degrees	*Pass*
β_2	3.1	degrees	*Pass*

Gamma, Theta, A, Z, and W Determinations

ψ	0.3	degrees	
A	2.31	cm	
Z	0.012	cm	*Pass*
o	0.1	degrees	
W	0.004	cm	*Pass*

Acceptable Limits:
Dt 0.48 < Dt > 0.95 cm
α < 10 degrees
(α_1 measured across top impact openings)
(α_2 measured across bottom impact openings)
β_1 < 5 degrees (alongside top impact openings)
β_2 < 5 degrees (alongside bottom impact openings)
Z < 0.32 cm (Asinψ)
W < 0.08 cm (Asino)
A distance between tips
o angle of plane on side of pitots
ψ angle between tips

NOTES

All measurements are taken in accordance with the requirements of 40 CFR 60, Appendix A - Test Methods, Method 2, "Determination of stack gas velocity and volumetric flow rate (Type S pitot tube)". Measurement details are found in EPA/600/4-77/027b, "Quality Assurance Handbook for Air Pollution Measurement Systems: Stationary Source Specific Methods", sub-section 3.1.1, Procuement of Apparatus and Supplies.

Comments: REMOVABLE

Calibrated by: _____

Quality Assurance Review / Approval:  16-Oct-06

TECO
TAMPA ELECTRIC

Environmental Services
Air Services Group

BAROMETER CALIBRATION

Blue Team

Instrument Number: ^BR04
Calibration Date: 10/2/2006
Calibration Personnel: JAV
Labworks #:

Time	Barometer Reading Inches Mercury	Reference Reading Inches Mercury	Difference "Hg
11:00	30.25	30.18	0.07
13:00	30.2	30.15	0.05
14:50	30.2	30.12	0.08
		Average Difference:	0.07

Note: Barometric readings must agree within ± 0.1 "Hg.
Current Reference is National Weather Service, TIA.
Current Conditions at Tampa International Airport

Comments (Note any adjustments):

QA/QC Review by: [signature] Date: 5-Oct-06

APPENDIX D

INSTRUMENTAL REFERENCE METHOD TEST DATA – IGCC

OXYGEN, CARBON DIOXIDE, CARBON MONOXIDE DATA

Calibration Error Test, Run 1 STRATA Version 2.01

	O2 OT %	CO2 OT %	CO ppm
12-01-2006 07:34:41	9.135	6.605	-0.101
12-01-2006 07:35:41	21.896	17.456	-1.407
12-01-2006 07:36:40	21.919	17.552	-2.381*
12-01-2006 07:37:41	21.902	17.575	-2.402*
12-01-2006 07:38:40	18.771	14.771	-2.356*
12-01-2006 07:39:41	12.463	9.949	-1.777
12-01-2006 07:40:41	3.870	2.940	-0.796
12-01-2006 07:41:41	0.127	0.049	3.921
12-01-2006 07:42:41	0.015	0.018	6.644
12-01-2006 07:43:41	0.015	0.009	8.672
12-01-2006 07:44:41	0.016	0.009	9.032
12-01-2006 07:45:41	0.017	0.009	9.131
12-01-2006 07:46:41	0.018	0.009	10.894
12-01-2006 07:47:41	0.018	0.013	15.974
12-01-2006 07:48:41	0.018	0.029	16.016
12-01-2006 07:49:41	0.019	0.029	15.959
12-01-2006 07:50:41	0.019	0.029	15.691
12-01-2006 07:51:41	0.173	0.070	17.469
12-01-2006 07:52:41	0.019	0.029	17.377
12-01-2006 07:53:41	0.020	0.019	15.944
12-01-2006 07:54:41	0.020	0.019	15.830
12-01-2006 07:55:41	0.019	0.018	12.653
12-01-2006 07:56:41	0.019	0.017	9.195

Calibration Error Test at Run 1
Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1

	Reference Cylinder Numbers			
	Zero	Low-range	Mid-range	High-range
O2 OT	CC-136551		CC-107096	CC-250656
CO2 OT	CC-136551		CC-107096	CC-250656
CO	CC-136551	CC-165111	CC-150548	CC-50737

Date/Time 12-01-2006 07:57:40 PASSED

Analyte	O2 OT	CO2 OT	CO
Units	%	%	ppm
Zero Ref Cyl	0.000	0.000	0.000
Zero Avg	0.004	0.000	0.013
Zero Error%	0.0%	0.0%	0.1%
Low Ref Cyl			9.260
Low Avg			9.286
Low Error%			0.2%
Mid Ref Cyl	12.500	9.810	15.900
Mid Avg	12.460	9.948	15.921
Mid Error%	0.2%	0.7%	0.1%
High Ref Cyl	21.900	17.700	
High Avg	21.904	17.580	
High Error%	0.0%	0.6%	

Calibration Error Test End

Initial System Bias Check, Run 1 STRATA Version 2.01

	O2 OT	CO2 OT	CO
	%	%	ppm
12-01-2006 07:59:02	20.711	0.117	5.555
12-01-2006 08:00:02	20.694	0.129	0.443
12-01-2006 08:01:02	20.679	0.130	-0.058
12-01-2006 08:02:01	19.888	0.202	0.005
12-01-2006 08:03:01	0.275	0.102	0.558
12-01-2006 08:04:02	0.002	0.096	0.149
12-01-2006 08:05:02	-0.013	0.075	-0.185
12-01-2006 08:06:02	5.774	4.635	-0.094
12-01-2006 08:07:02	12.284	9.826	-1.114
12-01-2006 08:08:02	7.463	5.968	-1.522
12-01-2006 08:09:01	-0.002	0.152	3.734
12-01-2006 08:10:01	-0.018	0.120	8.256
12-01-2006 08:11:02	-0.023	0.118	8.642
12-01-2006 08:12:01	-0.026	0.109	8.708
12-01-2006 08:13:01	-0.026	0.109	8.609
12-01-2006 08:14:01	-0.026	0.106	8.705

Initial System Bias Check for Run 1
Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1

	Reference Cylinder Numbers	
	Zero	Span
O2 OT	CC-136551	CC-107096
CO2 OT	CC-136551	CC-107096
CO	CC-136551	CC-165111

Date/Time 12-01-2006 08:14:08 PASSED

Analyte	O2 OT	CO2 OT	CO
Units	%	%	ppm
Zero Ref Cyl	0.000	0.000	0.000
Zero Cal	0.004	0.000	0.013
Zero Avg	-0.010	0.079	-0.185
Zero Bias%	0.1%	0.4%	1.2%
Zero Drift%			
Span Ref Cyl	12.500	9.810	9.260
Span Cal	12.460	9.948	9.286
Span Avg	12.281	9.812	8.769
Span Bias%	0.7%	0.7%	3.3%
Span Drift%			

System Bias Check End

Test Run 1 STRATA Version 2.01

	O2 OT %	CO2 OT %	CO ppm
12-01-2006 08:59:39	11.711	8.837	3.268
12-01-2006 09:00:39	11.711	8.844	3.256
Begin calculating run averages			
12-01-2006 09:01:46	11.715	8.837	3.094
12-01-2006 09:02:47	11.719	8.832	3.065
12-01-2006 09:03:47	11.707	8.835	2.979
12-01-2006 09:04:47	11.684	8.824	3.289
12-01-2006 09:05:47	11.609	8.829	3.284
12-01-2006 09:06:47	11.669	8.842	3.543
12-01-2006 09:07:47	11.716	8.840	3.358
12-01-2006 09:08:47	11.738	8.845	3.211
12-01-2006 09:09:47	11.713	8.867	3.127
12-01-2006 09:10:46	11.639	8.873	3.081
12-01-2006 09:11:46	11.642	8.884	3.280
12-01-2006 09:12:46	11.663	8.899	3.198
12-01-2006 09:13:46	11.701	8.879	2.988
12-01-2006 09:14:46	11.689	8.880	3.356
12-01-2006 09:15:46	11.617	8.841	3.499
12-01-2006 09:16:47	11.606	8.854	3.710
12-01-2006 09:17:47	11.673	8.844	3.655
12-01-2006 09:18:47	11.699	8.836	3.500
12-01-2006 09:19:47	11.740	8.825	3.205
12-01-2006 09:20:47	11.717	8.829	2.885
12-01-2006 09:21:46	11.705	8.836	3.048
12-01-2006 09:22:46	11.716	8.843	2.986
12-01-2006 09:23:46	11.731	8.847	3.085
12-01-2006 09:24:46	11.708	8.839	3.178
12-01-2006 09:25:46	11.623	8.853	3.201
12-01-2006 09:26:46	11.689	8.839	3.624
12-01-2006 09:27:46	11.738	8.821	3.478
12-01-2006 09:28:46	11.759	8.817	2.945
12-01-2006 09:29:46	11.771	8.804	2.659
12-01-2006 09:30:46	11.676	8.815	2.735
12-01-2006 09:31:46	11.658	8.828	3.158
12-01-2006 09:32:46	11.701	8.830	3.126
12-01-2006 09:33:46	11.733	8.833	2.946
12-01-2006 09:34:46	11.742	8.827	3.189
12-01-2006 09:35:46	11.638	8.825	3.028
12-01-2006 09:36:46	11.617	8.846	3.527
12-01-2006 09:37:46	11.693	8.816	3.430
12-01-2006 09:38:46	11.699	8.812	3.123
12-01-2006 09:39:46	11.724	8.809	3.100
12-01-2006 09:40:46	11.694	8.809	2.836
12-01-2006 09:41:47	11.675	8.811	3.218
12-01-2006 09:42:47	11.695	8.813	3.244
12-01-2006 09:43:47	11.741	8.818	3.229
12-01-2006 09:44:46	11.727	8.820	3.007
12-01-2006 09:45:46	11.633	8.827	3.190
12-01-2006 09:46:46	11.688	8.831	3.576
12-01-2006 09:47:46	11.735	8.823	3.223
12-01-2006 09:48:46	11.750	8.824	2.978
12-01-2006 09:49:46	11.743	8.810	3.152
12-01-2006 09:50:46	11.667	8.796	3.068
12-01-2006 09:51:46	11.663	8.795	3.346
12-01-2006 09:52:46	11.717	8.796	3.203
12-01-2006 09:53:46	11.747	8.796	2.982
12-01-2006 09:54:46	11.769	8.804	2.721
12-01-2006 09:55:46	11.654	8.812	2.778
12-01-2006 09:56:46	11.625	8.827	3.424
12-01-2006 09:57:47	11.705	8.823	3.362
12-01-2006 09:58:47	11.733	8.816	3.086
12-01-2006 09:59:47	11.736	8.799	3.047
12-01-2006 10:00:47	11.726	8.793	2.713

Run Averages	O2 OT %	CO2 OT %	CO ppm
12-01-2006 10:00:47	11.697	8.830	3.171

Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1
Test Run 1 End

Final System Bias Check, Run 1 STRATA Version 2.01

	O2 OT %	CO2 OT %	CO ppm
12-01-2006 10:02:14	4.656	3.219	3.068
12-01-2006 10:03:14	-0.025	0.192	1.134
12-01-2006 10:04:14	-0.035	0.167	-0.163
12-01-2006 10:05:14	-0.019	0.170	-0.228
12-01-2006 10:06:14	11.704	9.449	-0.778
12-01-2006 10:07:14	12.267	9.927	-1.867
12-01-2006 10:08:14	4.153	3.451	-0.961
12-01-2006 10:09:14	-0.024	0.212	5.731
12-01-2006 10:10:14	-0.034	0.185	8.584
12-01-2006 10:11:14	-0.037	0.158	8.560
12-01-2006 10:12:14	-0.039	0.149	8.666

Final System Bias Check for Run 1
Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1

	Reference Cylinder Numbers Zero	Span
O2 OT	CC-136551	CC-107096
CO2 OT	CC-136551	CC-107096
CO	CC-136551	CC-165111

Date/Time 12-01-2006 10:12:38 PASSED

Analyte	O2 OT	CO2 OT	CO
Units	%	%	ppm
Zero Ref Cyl	0.000	0.000	0.000
Zero Cal	0.004	0.000	0.013
Zero Avg	-0.036	0.163	-0.245
Zero Bias%	0.2%	0.8%	1.6%
Zero Drift%	-0.1%	0.4%	-0.4%
Span Ref Cyl	12.500	9.810	9.260
Span Cal	12.460	9.948	9.286
Span Avg	12.262	9.911	8.768
Span Bias%	0.8%	0.2%	3.3%
Span Drift%	-0.1%	0.5%	0.0%
Ini Zero Avg	-0.010	0.079	-0.185
Ini Span Avg	12.281	9.812	8.769
Run Avg	11.697	8.830	3.171
Co	-0.023	0.121	-0.215
Cm	12.271	9.862	8.769
Correct Avg	11.916	8.771	3.490

System Bias Check End

Test Run 2 STRATA Version 2.01

	O2 OT %	CO2 OT %	CO ppm
12-01-2006 10:13:39	0.387	0.430	8.564
12-01-2006 10:14:40	11.489	8.597	6.702
12-01-2006 10:15:39	11.679	8.736	3.535
12-01-2006 10:16:39	11.636	8.783	3.486
12-01-2006 10:17:39	11.693	8.790	3.624
12-01-2006 10:18:39	11.729	8.786	3.468
12-01-2006 10:19:39	11.763	8.783	2.958
12-01-2006 10:20:39	11.737	8.779	2.574
12-01-2006 10:21:40	11.731	8.770	2.727
12-01-2006 10:22:40	11.728	8.769	2.890
12-01-2006 10:23:39	11.746	8.774	2.984
12-01-2006 10:24:39	11.759	8.761	3.060
12-01-2006 10:25:39	11.665	8.771	2.946
12-01-2006 10:26:39	11.705	8.785	2.975
12-01-2006 10:27:39	11.755	8.795	2.962
12-01-2006 10:28:39	11.751	8.824	2.766
12-01-2006 10:29:39	11.764	8.817	2.736
12-01-2006 10:30:39	11.726	8.814	2.877
12-01-2006 10:31:39	11.697	8.822	3.027
12-01-2006 10:32:39	11.732	8.817	3.149
12-01-2006 10:33:39	11.747	8.794	2.925
12-01-2006 10:34:39	11.750	8.792	2.664
12-01-2006 10:35:40	11.691	8.778	2.888
12-01-2006 10:36:39	11.674	8.758	2.859
12-01-2006 10:37:39	11.737	8.763	2.688
12-01-2006 10:38:39	11.749	8.780	2.647
12-01-2006 10:39:39	11.744	8.783	2.899
12-01-2006 10:40:39	11.746	8.788	2.672
12-01-2006 10:41:39	11.768	8.767	2.625
12-01-2006 10:42:39	11.758	8.780	2.419
12-01-2006 10:43:39	11.765	8.783	2.593
12-01-2006 10:44:39	11.768	8.765	2.626
Begin calculating run averages			
12-01-2006 10:46:05	11.668	8.771	2.919
12-01-2006 10:47:05	11.750	8.759	3.003
12-01-2006 10:48:05	11.773	8.758	2.703
12-01-2006 10:49:05	11.774	8.757	2.506
12-01-2006 10:50:05	11.766	8.765	2.549
12-01-2006 10:51:04	11.707	8.780	2.902
12-01-2006 10:52:04	11.723	8.775	3.095
12-01-2006 10:53:04	11.746	8.777	3.064
12-01-2006 10:54:04	11.750	8.778	3.031
12-01-2006 10:55:04	11.745	8.775	2.894
12-01-2006 10:56:04	11.657	8.753	2.885
12-01-2006 10:57:04	11.669	8.761	3.222
12-01-2006 10:58:04	11.718	8.750	3.138
12-01-2006 10:59:04	11.750	8.754	2.945
12-01-2006 11:00:04	11.734	8.757	2.775
12-01-2006 11:01:04	11.719	8.762	2.898
12-01-2006 11:02:05	11.714	8.783	3.131
12-01-2006 11:03:05	11.737	8.772	2.921
12-01-2006 11:04:05	11.750	8.779	2.947
12-01-2006 11:05:05	11.723	8.771	2.854
12-01-2006 11:06:05	11.671	8.776	3.290
12-01-2006 11:07:05	11.734	8.763	3.083
12-01-2006 11:08:05	11.766	8.750	2.816
12-01-2006 11:09:05	11.780	8.757	2.563
12-01-2006 11:10:05	11.782	8.745	2.581
12-01-2006 11:11:05	11.703	8.759	2.570
12-01-2006 11:12:05	11.721	8.764	3.056
12-01-2006 11:13:05	11.735	8.787	2.781
12-01-2006 11:14:05	11.739	8.798	2.433
12-01-2006 11:15:05	11.750	8.776	2.645
12-01-2006 11:16:05	11.664	8.777	2.956
12-01-2006 11:17:05	11.692	8.788	3.150
12-01-2006 11:18:05	11.733	8.777	2.907
12-01-2006 11:19:05	11.738	8.767	2.690
12-01-2006 11:20:05	11.750	8.751	2.738
12-01-2006 11:21:05	11.733	8.754	2.712
12-01-2006 11:22:05	11.762	8.749	2.690
12-01-2006 11:23:05	11.743	8.772	2.743
12-01-2006 11:24:05	11.725	8.789	2.911
12-01-2006 11:25:05	11.701	8.776	3.106
12-01-2006 11:26:05	11.678	8.786	3.106
12-01-2006 11:27:05	11.734	8.795	2.932
12-01-2006 11:28:05	11.769	8.781	2.584
12-01-2006 11:29:05	11.798	8.759	2.609
12-01-2006 11:30:05	11.793	8.760	2.333
12-01-2006 11:31:05	11.713	8.753	2.452
12-01-2006 11:32:05	11.687	8.776	2.787
12-01-2006 11:33:05	11.752	8.757	2.961
12-01-2006 11:34:05	11.753	8.765	2.849
12-01-2006 11:35:04	11.759	8.777	2.864

12-01-2006 11:36:05	11.677	8.768	2.580
12-01-2006 11:37:05	11.688	8.787	2.988
12-01-2006 11:38:04	11.738	8.779	3.134
12-01-2006 11:39:04	11.764	8.775	2.822
12-01-2006 11:40:04	11.762	8.766	2.685
12-01-2006 11:41:04	11.748	8.757	2.599
12-01-2006 11:42:04	11.759	8.762	2.690
12-01-2006 11:43:04	11.771	8.763	2.535
12-01-2006 11:44:04	11.766	8.771	2.570
12-01-2006 11:45:04	11.725	8.781	2.679
Run Averages	O2 DT	CO2 DT	CO
	%	%	ppm
12-01-2006 11:45:04	11.734	8.769	2.826

Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1
Test Run 2 End

Final System Bias Check, Run 2 STRATA Version 2.01

	O2 OT %	CO2 OT %	CO ppm
12-01-2006 11:47:04	8.454	6.058	3.028
12-01-2006 11:48:04	-0.016	0.284	1.581
12-01-2006 11:49:04	-0.034	0.247	-0.482
12-01-2006 11:50:04	1.360	1.328	-0.452
12-01-2006 11:51:04	12.208	9.871	-1.100
12-01-2006 11:52:04	12.258	9.942	-1.675
12-01-2006 11:53:04	1.510	1.400	0.062
12-01-2006 11:54:04	-0.027	0.247	6.694
12-01-2006 11:55:04	-0.035	0.224	8.255
12-01-2006 11:56:04	-0.037	0.220	8.358
12-01-2006 11:57:05	-0.039	0.227	8.642

Final System Bias Check for Run 2
Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1

Reference Cylinder Numbers

	Zero	Span
O2 OT	CC-136551	CC-107096
CO2 OT	CC-136551	CC-107096
CO	CC-136551	CC-165111

Date/Time 12-01-2006 11:57:30 PASSED

Analyte	O2 OT	CO2 OT	CO
Units	%	%	ppm
Zero Ref Cyl	0.000	0.000	0.000
Zero Cal	0.004	0.000	0.013
Zero Avg	-0.034	0.245	-0.564
Zero Bias%	0.2%	1.2%	3.6%
Zero Drift%	0.0%	0.4%	-2.0%
Span Ref Cyl	12.500	9.810	9.260
Span Cal	12.460	9.948	9.286
Span Avg	12.249	9.925	8.914
Span Bias%	0.8%	0.1%	2.3%
Span Drift%	-0.1%	0.1%	0.9%
Ini Zero Avg	-0.036	0.163	-0.245
Ini Span Avg	12.262	9.911	8.768
Run Avg	11.734	8.769	2.826
Co	-0.035	0.204	-0.405
Cm	12.255	9.918	8.841
Correct Avg	11.969	8.650	3.236

System Bias Check End

Test Run 3 STRATA Version 2.01

	O2 OT %	CO2 OT %	CO ppm
12-01-2006 12:17:01	11.640	8.740	3.143
12-01-2006 12:18:00	11.705	8.737	3.038
12-01-2006 12:19:00	11.730	8.740	2.841
12-01-2006 12:20:00	11.748	8.765	2.670
Begin calculating run averages			
12-01-2006 12:21:21	11.737	8.758	2.820
12-01-2006 12:22:21	11.733	8.763	2.877
12-01-2006 12:23:21	11.751	8.764	3.100
12-01-2006 12:24:21	11.761	8.763	2.860
12-01-2006 12:25:21	11.728	8.747	2.710
12-01-2006 12:26:21	11.709	8.750	2.975
12-01-2006 12:27:20	11.763	8.729	2.843
12-01-2006 12:28:20	11.791	8.727	2.655
12-01-2006 12:29:20	11.812	8.713	2.634
12-01-2006 12:30:20	11.775	8.724	2.448
12-01-2006 12:31:21	11.709	8.733	2.645
12-01-2006 12:32:21	11.714	8.739	2.726
12-01-2006 12:33:21	11.753	8.751	2.721
12-01-2006 12:34:21	11.768	8.739	2.780
12-01-2006 12:35:20	11.748	8.736	2.556
12-01-2006 12:36:20	11.653	8.748	2.960
12-01-2006 12:37:20	11.692	8.753	3.243
12-01-2006 12:38:21	11.728	8.733	3.066
12-01-2006 12:39:21	11.733	8.731	2.734
12-01-2006 12:40:21	11.738	8.724	2.822
12-01-2006 12:41:21	11.741	8.713	2.925
12-01-2006 12:42:20	11.777	8.711	2.766
12-01-2006 12:43:20	11.764	8.756	2.652
12-01-2006 12:44:20	11.779	8.740	2.660
12-01-2006 12:45:20	11.718	8.739	2.847
12-01-2006 12:46:20	11.698	8.750	3.080
12-01-2006 12:47:21	11.763	8.739	2.797
12-01-2006 12:48:21	11.779	8.744	2.561
12-01-2006 12:49:21	11.783	8.743	2.620
12-01-2006 12:50:21	11.769	8.728	2.714
12-01-2006 12:51:21	11.721	8.719	2.742
12-01-2006 12:52:20	11.733	8.732	2.842
12-01-2006 12:53:20	11.761	8.735	2.899
12-01-2006 12:54:21	11.789	8.718	2.648
12-01-2006 12:55:21	11.771	8.729	2.370
12-01-2006 12:56:21	11.680	8.731	2.574
12-01-2006 12:57:21	11.705	8.747	2.777
12-01-2006 12:58:21	11.744	8.745	2.894
12-01-2006 12:59:20	11.756	8.737	2.728
12-01-2006 13:00:20	11.752	8.732	2.781
12-01-2006 13:01:21	11.728	8.752	2.742
12-01-2006 13:02:21	11.760	8.738	2.850
12-01-2006 13:03:21	11.772	8.736	2.488
12-01-2006 13:04:21	11.771	8.740	2.412
12-01-2006 13:05:21	11.726	8.741	2.686
12-01-2006 13:06:21	11.716	8.742	2.821
12-01-2006 13:07:21	11.765	8.751	2.895
12-01-2006 13:08:21	11.792	8.740	2.598
12-01-2006 13:09:21	11.793	8.734	2.460
12-01-2006 13:10:20	11.769	8.735	2.640
12-01-2006 13:11:20	11.727	8.724	2.886
12-01-2006 13:12:21	11.748	8.728	2.899
12-01-2006 13:13:20	11.784	8.721	2.768
12-01-2006 13:14:20	11.795	8.703	2.294
12-01-2006 13:15:20	11.762	8.707	2.015
12-01-2006 13:16:20	11.674	8.710	2.799
12-01-2006 13:17:20	11.714	8.712	3.015
12-01-2006 13:18:21	11.752	8.714	2.735
12-01-2006 13:19:21	11.780	8.718	2.425
12-01-2006 13:20:21	11.764	8.737	2.303

Run Averages	O2 OT %	CO2 OT %	CO ppm
12-01-2006 13:20:21	11.748	8.735	2.730

Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1
Test Run 3 End

Final System Bias Check, Run 3 STRATA Version 2.01

	O2 OT	CO2 OT	CO
	%	%	ppm
12-01-2006 13:21:28	4.919	3.523	2.629
12-01-2006 13:22:28	-0.021	0.299	0.899
12-01-2006 13:23:28	-0.033	0.274	-0.315
12-01-2006 13:24:28	4.819	4.069	-0.391
12-01-2006 13:25:28	12.239	9.876	-1.419
12-01-2006 13:26:28	6.082	4.985	-1.571
12-01-2006 13:27:28	-0.018	0.296	4.431
12-01-2006 13:28:28	-0.031	0.262	8.447

Final System Bias Check for Run 3

Operator: Ian T. DeVivi
Plant Name: TECO Polk Plant
Location: Unit 1

	Reference Cylinder Numbers	
	Zero	Span
O2 OT	CC-136551	CC-107096
CO2 OT	CC-136551	CC-107096
CO	CC-136551	CC-165111

Date/Time 12-01-2006 13:28:54 PASSED

Analyte	O2 OT	CO2 OT	CO
Units	%	%	ppm
Zero Ref Cyl	0.000	0.000	0.000
Zero Cal	0.004	0.000	0.013
Zero Avg	-0.032	0.278	-0.341
Zero Bias%	0.1%	1.4%	2.2%
Zero Drift%	0.0%	0.2%	1.4%
Span Ref Cyl	12.500	9.810	9.260
Span Cal	12.460	9.948	9.286
Span Avg	12.232	9.861	8.785
Span Bias%	0.9%	0.4%	3.2%
Span Drift%	-0.1%	-0.3%	-0.8%
Ini Zero Avg	-0.034	0.245	-0.564
Ini Span Avg	12.249	9.925	8.914
Run Avg	11.748	8.735	2.730
Co	-0.033	0.261	-0.453
Cm	12.240	9.893	8.849
Correct Avg	11.998	8.631	3.168

System Bias Check End

CALIBRATION GAS CERTIFICATIONS

Certificate of Analysis

EPA Protocol

Performed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Maumee Specialty Gas Plant
6421 Monclova Road
MAUMEE OH 43537
419-893-7226

Produced for customer:

MFD/HOLOX LTD
4236 STATESVILLE RD
CHARLOTTE NC 28269-4298
USA
704-596-6262

Material:	6132 EPA CO/N2 3-9.9 PPM A31	**Blend Tolerance:**	5 % Relative
Production #:	100065596	**Store/Use Temp:**	35 to 90 F
Lot #:	02499D3040GD	**Blend Type:**	EPA Protocol
Cylinder #:	CC165111	**Cyl. Pressure:**	2000 psig
Expiration Date:	11/16/2009	**Balance Gas:**	Nitrogen
Shelf Life:	36 months	**CGA:**	350
		Analytical Accuracy:	1.00 % Relative

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
630-08-0	Carbon Monoxide	9	9.28 +/- 0.1 ppm	11/16/2006
7727-37-9	Nitrogen		Balance	11/16/2006
630-08-0	Carbon Monoxide	9	9.26 +/- 0.18 ppm	04/15/2003
7727-37-9	Nitrogen		Balance	04/15/2003

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
630-08-0	Carbon Monoxide	CC180333 , NTRM	10.17 ppm	07/11/2009

Instrument	Serial #	Analytical Principle	Calibration Date
MCTa FTIR	AET0600294	FTIR	11/16/2006

All analyses are performed under controlled environmental conditions.This product is manufactured using equipment which has been calibrated with NIST traceable, or equivalent, standards, weights, or equipment.

Analytical expert approved by Greg Eccleston

Linde Gas LLC
6055 Rockside Woods Blvd.
Independence, OH 44131
USA
Phone: (216) 642-6600
Fax: (216) 447-9673
www.us.lindegas.com

HiQ Analysis Certificate

NATIONAL SPECIALTY GASES

P. O. Box 12013
Research Triangle Park, N.C. 27709
Phone 919/544-3772

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS MIXTURE

Customer:	National Welders, Charlotte, NC	Reference #	88-94904
NSG PO#	4704164	Certification Date:	12/28/04
Customer PO#		Expiration Date:	12/28/07
Cylinder #	CC50737	Pressure, psig*	2000

ANALYTICAL INFORMATION

METHOD: This standard was analyzed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards: Procedure G1 (September 1997)

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Accuracy**
Carbon Monoxide	29.8 ppm	+/-1%
Balance - Nitrogen		

REFERENCE STANDARD

Type/SRM Sample #	Cylinder #	Concentration	
GMIS (Traceable to SRM # 1678c)	CC87177	50.2 ppm	CO/N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Method
Rosemount 880A CO 00172	12/06/04	Non-dispersive Infrared

Analyst: Jeremy Kenworthy

This report states accurately the results of the investigation made upon the material submitted to the analytical laboratory. Every effort has been made to determine objectively the information requested. However, in connection with this report, National Specialty Gases shall have no liability in excess of established charge for this service. Assayed at National Specialty Gases, 630 United Drive, Durham, NC 27713 (919) 544-3772

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

**Analytical accuracy includes typical known error sources which, at least, include precision of the analytical instrument.

NSG 020149L

Certificate of Analysis

EPA Protocol

HiQ® Certificate

Performed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Charlotte
4236 Statesville Road
CHARLOTTE NC 28269

Material:	18225		**Blend Tolerance:**	5 % Relative
EPA 20-25% O2/16-20% CO2/N2		A31	**Blend Type:**	EPA Protocol
Production #:	100124043		**Cyl. Pressure:**	2000 psig
Lot #:	30499H6210DC		**Balance Gas:**	Nitrogen
Cylinder #:	CC250656		**CGA:**	590
Expiration Date:	8/25/2009		**Analytical Accuracy:**	1.00 % Relative
Shelf Life:	36 months		**Confidence:**	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
124-38-9	Carbon Dioxide	18	17.7 +/- 0.17 %	08/25/2006
7782-44-7	Oxygen	22	21.9 +/- 0.2 %	08/25/2006
7727-37-9	Nitrogen		Balance	

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
7782-44-7	Oxygen	AT9284 , GMIS	21.04 %	03/17/2009
124-38-9	Carbon Dioxide	CC234661 , GMIS	18.11 %	03/29/2009

Instrument	Serial #	Analytical Principle	Calibration Date
Teledyne 3000M	240141	Paramagnetic	05/24/2005
HORIBA MODEL VIA-510 CO2	4285416002	NDIR	11/22/2005

All analyses are performed under controlled environmental conditions.This product is manufactured using equipment which has been calibrated with NIST traceable, or equivalent, standards, weights, or equipment.

Analytical report approved by Lance Crayton

HiQ certificate

Linde Gas

Certificate of Analysis

EPA Protocol

Performed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Charlotte
4236 Statesville Road
CHARLOTTE NC 28269

Material:	18224		**Blend Tolerance:**	5 % Relative
EPA 10-15% O2/8-12% CO2/N2		A31	**Blend Type:**	EPA Protocol
Production #:	100118070		**Cyl. Pressure:**	2000 psig
Lot #:	30499E6010CC		**Balance Gas:**	Nitrogen
Cylinder #:	CC107096		**CGA:**	590
Expiration Date:	5/8/2009		**Analytical Accuracy:**	1.00 % Relative
Shelf Life:	36 months		**Confidence:**	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
7782-44-7	Oxygen	10 to 15	12.5 +/- 0.09 %	05/08/2006
124-38-9	Carbon Dioxide	8 to 12	9.81 +/- 0.09 %	05/08/2006
7727-37-9	Nitrogen		Balance	

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
7782-44-7	Oxygen	112347 , GMIS	10.01 %	05/02/2009
124-38-9	Carbon Dioxide	HO2290685Y , GMIS	14.01 %	05/02/2009

Instrument	Serial #	Analytical Principle	Calibration Date
Teledyne 3000M	240141	Paramagnetic	05/08/2006
HORIBA MODEL VIA-510 CO2	4285416002	NDIR	05/08/2006

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Analytical report approved by Lance Crayton

HiQ Analysis Certificate

Certificate of Analysis

EPA Protocol

HiQ® Certificate

formed according to EPA-600/R-97/121 Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Charlotte
4236 Statesville Road
CHARLOTTE NC 28269

Material:	13968		**Blend Tolerance:**	5 % Relative
EPA 13 - 18 PPM CO/N2		A31	**Blend Type:**	GRAVIMETRIC
Production #:	100121715		**Cyl. Pressure:**	2000 psig
Lot #:	30499G6060DC		**Balance Gas:**	Nitrogen
Cylinder #:	CC150548		**CGA:**	350
Expiration Date:	7/19/2009		**Analytical Accuracy:**	1.00 % Relative
Shelf Life:	36 months		**Confidence:**	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
630-08-0	Carbon Monoxide	13 to 18	15.9 +/- 0.18 ppm	07/19/2006
7727-37-9	Nitrogen		Balance	07/19/2006

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
630-08-0	Carbon Monoxide	CC180333 , NTRM	10.17 ppm	07/11/2009

Instrument	Serial #	Analytical Principle	Calibration Date
HORIBA MODEL VIA-510 CO	4345887002	NDIR	07/19/2006

All analyses are performed under controlled environmental conditions.This product is manufactured using equipment which has been calibrated with NIST traceable, or equivalent, standards, weights, or equipment.

Analytical report approved by Greg Eccleston

HiQ certificate

Certificate of Analysis

EPA Protocol

HiQ® Certificate

formed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Charlotte
4236 Statesville Road
CHARLOTTE NC 28269

Material:	13970		**Blend Tolerance:**	5 % Relative
EPA 43 - 47 PPM CO/N2		A31	**Blend Type:**	GRAVIMETRIC
Production #:	100121717		**Cyl. Pressure:**	2000 psig
Lot #:	30499G6060DB		**Balance Gas:**	Nitrogen
Cylinder #:	CC149754		**CGA:**	350
Expiration Date:	7/19/2009		**Analytical Accuracy:**	1.00 % Relative
Shelf Life:	36 months		**Confidence:**	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
630-08-0	Carbon Monoxide	43 to 47	46.3 +/- 0.3 ppm	07/19/2006
7727-37-9	Nitrogen		Balance	07/19/2006

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
630-08-0	Carbon Monoxide	CC179892 , NTRM	49.33 ppm	07/11/2009

Instrument	Serial #	Analytical Principle	Calibration Date
HORIBA MODEL VIA-510 CO	4345887002	NDIR	07/19/2006

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Analytical report approved by Greg Eccleston

HiQ certificate

Certificate of Analysis

EPA Protocol

HiQ® Certificate formed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Charlotte
4236 Statesville Road
CHARLOTTE NC 28269

Material:	18246		**Blend Tolerance:**	5 % Relative
EPA 60 PPM CO/N2 (+/-2%)		A31	**Blend Type:**	EPA Protocol
Production #:	100118386		**Cyl. Pressure:**	2000 psig
Lot #:	30499E6050DD		**Balance Gas:**	Nitrogen
Cylinder #:	CC174902		**CGA:**	350
Expiration Date:	7/12/2009		**Analytical Accuracy:**	1.00 % Relative
Shelf Life:	36 months		**Confidence:**	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
630-08-0	Carbon Monoxide	60	61.7 ppm	07/12/2006
7727-37-9	Nitrogen		Balance	

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
630-08-0	Carbon Monoxide	CC179892 , NTRM	49.33 ppm	07/11/2009

Instrument	Serial #	Analytical Principle	Calibration Date
HORIBA MODEL VIA-510 CO	4345887002	NDIR	07/12/2006

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Analytical report approved by Lance Crayton

HiQ certificate

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EPA Protocol

Performed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Charlotte
4236 Statesville Road
CHARLOTTE NC 28269

Material:	6198 EPA CO/N2 100-999 PPM A31	**Blend Tolerance:**	5 % Relative
Production #:	100117213	**Blend Type:**	EPA Protocol
Lot #:	30499D6060DD	**Cyl. Pressure:**	2000 psig
Cylinder #:	CC237798	**Balance Gas:**	Nitrogen
Expiration Date:	4/18/2009	**CGA:**	350
Shelf Life:	36 months	**Analytical Accuracy:**	1.00 % Relative
		Confidence:	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
630-08-0	Carbon Monoxide	100	101 +/- 0.7 ppm	04/18/2006
7727-37-9	Nitrogen		Balance	

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
630-08-0	Carbon Monoxide	CC179992 , NTRM	99.49 ppm	07/11/2009

Instrument	Serial #	Analytical Principle	Calibration Date
HORIBA MODEL VIA-510 CO	4345887002	NDIR	04/18/2006

All analyses are performed under controlled environmental conditions. This product is manufactured using equipment which has been calibrated with NIST traceable, or equivalent, standards, weights, or equipment.

Analytical report approved by Lance Crayton

HiQ Analysis Certificate

Linde Gas

Certificate of Analysis

EPA Protocol

Performed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas LLC
Charlotte
4236 Statesville Road
CHARLOTTE NC 28269

Material:	2179		**Blend Tolerance:**	5 % Relative
MISC 3 COMPONENT EPA		A31	**Blend Type:**	EPA Protocol
Production #:	100115060		**Cyl. Pressure:**	2000 psig
Lot #:	30499B6100DB		**Balance Gas:**	Nitrogen
Cylinder #:	CC7551		**CGA:**	590
Expiration Date:	2/21/2009		**Analytical Accuracy:**	1.00 % Relative
Shelf Life:	36 months		**Confidence:**	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
630-08-0	Carbon Monoxide	100	101 +/- 0.7 ppm	02/21/2006
7782-44-7	Oxygen	11	11.0 +/- 0.08 %	02/14/2006
7727-37-9	Nitrogen		Balance	

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expire Date
7782-44-7	Oxygen	CC73289 , NTRM	9.90 %	06/13/2009
630-08-0	Carbon Monoxide	CC179992 , NTRM	99.49 ppm	07/11/2009

Instrument	Serial #	Analytical Principle	Calibration Date
Teledyne 3000M	240141	Paramagnetic	02/14/2006
HORIBA MODEL VIA-510 CO	4345887002	NDIR	02/21/2006

All analyses are performed under controlled environmental conditions.This product is manufactured using equipment which has been calibrated with NIST traceable, or equivalent, standards, weights, or equipment.

Analytical report approved by Lance Crayton

HiQ Analysis Certificate

NATIONAL SPECIALTY GASES

P. O. Box 12015
Research Triangle Park, N.C. 27709
Phone 919/544-3772

CERTIFICATE OF ANALYSIS

CERTIFIED MIXTURE

Customer: National Welders
Charlotte, NC

Reference #: 88-99088
Cylinder #: CC85291
Order #: 5031323
Date Reported: 8/8/2005
Expiration Date: 8/8/2008

Component	Specification	Concentration / *Cert. Accuracy	Analytical Method
Oxygen	12%	12.0% +/- 2%	Paramagnetic
Carbon Dioxide	10%	10.0% +/- 2%	Non-Dispersive Infrared
Balance - Nitrogen			

Carolyn S. Williams
Analyst Carolyn S. Williams

* CERTIFICATION ACCURACY IS A PERCENTAGE (+/-) OF THE COMPONENT

NSG020149K

APPENDIX E

INSTRUMENTAL REFERENCE METHOD TEST DATA – SULFURIC ACID PLANT

SULFUR DIOXIDE, OXYGEN, CARBON DIOXIDE SUMMARY

Polk Acid Plant - Report			
RUN 1			
12/1/2006	**9:00:01**		
Linearity Check - Calibration Error	O2	SO2	CO22
Analyzer Range	25	300	50
Units	%	%	%
Low Level Certified Value (PPM or %)			
Mid Level Certified Value (PPM or %)	10.1	152.2	25.07
High Level Certified Value (PPM or %)	20.9	269	45.1
Zero Level Observed	0.002	-0.003	0.12
Low Level Observed	-	-	-
Mid Level Observed	10.195	152.166	25.024
High Level Observed	21.243	268.599	45.167
Initial Readings			
Zero	0.002	0.583	0.12
Span	10.134	152.166	25.024
Final Readings			
Zero	0.002	0.583	-0.002
Span	10.134	151.873	25.024
Run Results			
Raw Results	8.83	186.01	17.71
Corrected Results (ppmv)	8.8	186.36	17.73
Polk Acid Plant - Report			
RUN 2			
12/1/2006	**10:37:40**		
Initial Readings			
Zero	0.002	0.583	-0.002
Span	10.134	151.873	25.024
Final Readings			
Zero	0.002	0.437	-0.002
Span	10.195	152.166	25.024
Run Results			
Raw Results	8.71	188.96	17.87
Corrected Results (ppmv)	8.65	189.31	17.9
Polk Acid Plant - Report			
RUN 3			
12/1/2006	**12:09:56**		
Initial Readings			
Zero	0.002	0.437	-0.002
Span	10.195	152.166	25.024
Final Readings			
Zero	0.002	0.437	0.12
Span	10.195	152.605	24.902
Run Results			
Raw Results	8.63	193.98	17.94
Corrected Results (ppmv)	8.55	193.86	18

QUALITY ASSURANCE ACTIVITIES

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POLK POWER STATION
EMISSIONS UNIT ID 004
INSTRUMENTAL REFERENCE METHOD QUALITY ASSURANCE CALCULATIONS

SULFURIC ACID PLANT
Analyzer Calibration Error

ACE = $((C_{Dir} - C_V) / CS) \times 100$ Eq. 7E-1

		O_2	SO_2	CO_2
Low-level gas	C_{Dir} =	n/a	n/a	n/a
	C_V =	n/a	n/a	n/a
	CS =	n/a	n/a	n/a
	$C_{Dir} - C_V$ =	n/a	n/a	n/a
	$(C_{Dir} - C_V) / CS$ =	n/a	n/a	n/a
	$((C_{Dir} - C_V) / CS) \times 100$ =	n/a	n/a	n/a

		O_2	SO_2	CO_2
Mid-level gas	C_{Dir} =	10.195	152.166	25.024
	C_V =	10.1	152.2	25.07
	CS =	20.9	269	45.1
	$C_{Dir} - C_V$ =	0.095	-0.034	-0.046
	$(C_{Dir} - C_V) / CS$ =	0.00455	-0.00013	-0.00102
	$((C_{Dir} - C_V) / CS) \times 100$ =	0.45	-0.01	-0.10

		O_2	SO_2	CO_2
High-level gas	C_{Dir} =	21.243	268.599	45.167
	C_V =	20.9	269	45.1
	CS =	20.9	269	45.1
	$C_{Dir} - C_V$ =	0.343	-0.401	0.067
	$(C_{Dir} - C_V) / CS$ =	0.01641	-0.00149	0.00149
	$((C_{Dir} - C_V) / CS) \times 100$ =	1.64	-0.15	0.15

Performance Specification is:

ACE ± 2% or $|C_{Dir} - C_V| \leq 0.5$ ppm or 0.5 % volume

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EMISSIONS UNIT ID 004
INSTRUMENTAL REFERENCE METHOD QUALITY ASSURANCE CALCULATIONS

COMBINED CYCLE COMBUSTION TURBINE - CT1A
System Bias Calculations

SB = $((C_S - C_{Dir}) / CS) \times 100$ **Eq. 7E-2**

		O_2	SO_2	CO_2
Initial Zero	C_S =	0.002	0.583	0.12
	C_{Dir} =	0.002	-0.003	0.12
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	0.000	0.586	0.000
	$(C_S - C_{Dir}) / CS$ =	0.00000	0.00218	0.00000
	$((C_S - C_{Dir}) / CS) \times 100$ =	0.00	0.22	0.00

		O_2	SO_2	CO_2
Initial Span	C_S =	10.134	152.166	25.024
	C_{Dir} =	10.195	152.166	25.024
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	-0.061	0.000	0.000
	$(C_S - C_{Dir}) / CS$ =	-0.00292	0.00000	0.00000
	$((C_S - C_{Dir}) / CS) \times 100$ =	-0.29	0.00	0.00

		O_2	SO_2	CO_2
Run 1 Post Run Zero	C_S =	0.002	0.583	-0.002
	C_{Dir} =	0.002	-0.003	0.12
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	0.000	0.586	-0.122
	$(C_S - C_{Dir}) / CS$ =	0.00000	0.00218	-0.00271
	$((C_S - C_{Dir}) / CS) \times 100$ =	0.00	0.22	-0.27

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INSTRUMENTAL REFERENCE METHOD QUALITY ASSURANCE CALCULATIONS

COMBINED CYCLE COMBUSTION TURBINE - CT1A
System Bias Calculations

		O_2	SO_2	CO_2
Run 1 Post Run Span	C_S =	*10.134*	*151.873*	*25.024*
	C_{Dir} =	10.195	152.166	25.024
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	-0.061	-0.293	0.000
	$(C_S - C_{Dir}) / CS$ =	-0.00292	-0.00109	0.00000
	$((C_S - C_{Dir}) / CS) \times 100$ =	-0.29	-0.11	0.00

		O_2	SO_2	CO_2
Run 2 Post Run Zero	C_S =	0.002	0.437	-0.002
	C_{Dir} =	0.002	-0.003	0.12
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	0.000	0.440	-0.122
	$(C_S - C_{Dir}) / CS$ =	0.00000	0.00164	-0.00271
	$((C_S - C_{Dir}) / CS) \times 100$ =	0.00	0.16	-0.27

		O_2	SO_2	CO_2
Run 2 Post Run Span	C_S =	10.195	152.166	25.024
	C_{Dir} =	10.195	152.166	25.024
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	0.000	0.000	0.000
	$(C_S - C_{Dir}) / CS$ =	0.00000	0.00000	0.00000
	$((C_S - C_{Dir}) / CS) \times 100$ =	*0.00*	*0.00*	0.00

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INSTRUMENTAL REFERENCE METHOD QUALITY ASSURANCE CALCULATIONS

COMBINED CYCLE COMBUSTION TURBINE - CT1A
System Bias Calculations

		O_2	SO_2	CO_2
Run 3 Post Run Zero	C_S =	0.002	0.437	0.12
	C_{Dir} =	0.002	-0.003	0.12
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	0.000	0.440	0.000
	$(C_S - C_{Dir})$ / CS =	0.00000	0.00164	0.00000
	$((C_S - C_{Dir})$ / CS) x 100 =	0.00	0.16	0.00

		O_2	SO_2	CO_2
Run 3 Post Run Span	C_S =	10.195	152.605	24.902
	C_{Dir} =	10.195	152.166	25.024
	CS =	20.9	269	45.1
	$(C_S - C_{Dir})$ =	0.000	0.439	-0.122
	$(C_S - C_{Dir})$ / CS =	0.00000	0.00163	-0.00271
	$((C_S - C_{Dir})$ / CS) x 100 =	0.00	0.16	-0.27

Performance Specification is:
SB **± 5% or $|C_S - Cdir| \leq$ 0.5 ppm or 0.5 % volume**

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EMISSIONS UNIT ID 004
INSTRUMENTAL REFERENCE METHOD QUALITY ASSURANCE CALCULATIONS

COMBINED CYCLE COMBUSTION TURBINE - CT1A
Drift Assessment Calculations

$D = |SB_{final} - SB_i|$ Eq. 7E-4

		O_2	SO_2	CO_2
Run 1 Zero	SB_{final} =	0.00	0.22	-0.27
	SB_i =	0.00	0.22	0.00
	$\|SB_{final} - SB_i\|$ =	0.00	0.00	0.27
		O_2	SO_2	CO_2
Run 1 Span	SB_{final} =	-0.29	-0.11	0.00
	SB_i =	-0.29	0.00	0.00
	$\|SB_{final} - SB_i\|$ =	0.00	0.11	0.00
		O_2	SO_2	CO_2
Run 2 Zero	SB_{final} =	0.00	0.16	-0.27
	SB_i =	0.00	0.22	-0.27
	$\|SB_{final} - SB_i\|$ =	0.00	0.05	0.00
		O_2	SO_2	CO_2
Run 2 Span	SB_{final} =	0.00	0.00	0.00
	SB_i =	-0.29	-0.11	0.00
	$\|SB_{final} - SB_i\|$ =	0.29	0.11	0.00
		O_2	SO_2	CO_2
Run 3 Zero	SB_{final} =	0.00	0.16	0.00
	SB_i =	0.00	0.16	-0.27
	$\|SB_{final} - SB_i\|$ =	0.00	0.00	0.27
		O_2	SO_2	CO_2
Run 3 Span	SB_{final} =	0.00	0.16	-0.27
	SB_i =	0.00	0.00	0.00
	$\|SB_{final} - SB_i\|$ =	0.00	0.16	0.27

Performance Specification is:

D ± 3% of CS or $|C_{S\ post\text{-}run} - C_{S\ pre\text{-}run}| \leq$ 0.5 ppmv 0r 0.5 % volume

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POLK POWER STATION
EMISSIONS UNIT ID 004
INSTRUMENTAL REFERENCE METHOD QUALITY ASSURANCE CALCULATIONS

COMBINED CYCLE COMBUSTION TURBINE - CT1A
Effluent Gas Concentration

$C_{Gas} = (C_{Avg} - C_0) \times (C_{MA} / (C_M - C_0))$ **Eq. 7E-5**

		O_2	SO_2	CO_2
Run 1	C_{Avg} =	8.83	186.01	17.71
	C_O =	0.002	0.583	0.059
	C_{MA} =	10.1	152.2	25.07
	C_M =	10.134	152.02	25.024
	$(C_{Avg} - C_0)$ =	8.828	185.427	17.651
	$(C_M - C_0)$ =	10. 132	151.437	24.965
	$(C_{MA} / (C_M - C_0)$ =	0.99684	1.00504	1.00421
	$(C_{Avg} - C_0) \times (C_{MA} / (C_M - C_0))$ =	8.80	186.36	17.73

		O_2	SO_2	CO_2
Run 2	C_{Avg} =	8.71	188.96	17.87
	C_O =	0.002	0.51	-0.002
	C_{MA} =	10.1	152.2	25.07
	C_M =	10.1645	152.02	25.024
	$(C_{Avg} - C_0)$ =	8.708	188.45	17.872
	$(C_M - C_0)$ =	10.1625	151.51	25.026
	$(C_{MA} / (C_M - C_0)$ =	0.99385	1.00456	1.00176
	$(C_{Avg} - C_0) \times (C_{MA} / (C_M - C_0))$ =	8.65	189.31	17.90

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TAMPA ELECTRIC

POLK POWER STATION
EMISSIONS UNIT ID 004
INSTRUMENTAL REFERENCE METHOD QUALITY ASSURANCE CALCULATIONS

COMBINED CYCLE COMBUSTION TURBINE - CT1A
Effluent Gas Concentration

		O_2	SO_2	CO_2
Run 3	C_{Avg} =	8.63	193.98	17.94
	C_0 =	0.002	0.437	0.059
	C_{MA} =	10.1	152.2	25.07
	C_M =	10.195	152.386	24.963
	$(C_{Avg} - C_0)$ =	8.628	193.543	17.881
	$(C_M - C_0)$ =	10. 193	151.949	24.904
	$(C_{MA} / (C_M - C_0)$ =	*0.99088*	*1.00166*	*1.00667*
	$(C_{Avg} - C_0) \times (C_{MA} / (C_M - C_0))$ =	8.55	193.86	18.00

RUN LOG

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	7:53:00 AM		9.16	181.46	17.45
12/1/2006	7:53:30 AM		9.16	180.73	17.45
12/1/2006	7:54:00 AM		9.04	180.43	17.58
12/1/2006	7:54:30 AM		9.1	181.02	17.7
12/1/2006	7:55:00 AM		9.04	182.19	17.58
12/1/2006	7:55:30 AM		9.04	114.09	17.45
12/1/2006	7:56:00 AM		3.18	3.07	6.47
12/1/2006	7:56:30 AM		0.06	-0.15	0.12
12/1/2006	7:57:00 AM	Linearity Check	0	-0.3	0.12
12/1/2006	7:57:30 AM	Linearity Check	0	0	0.12
12/1/2006	7:58:00 AM	Linearity Check	0.06	0	10.62
12/1/2006	7:58:30 AM	Linearity Check	-0.06	0	35.89
12/1/2006	7:59:00 AM	Linearity Check	-0.12	0	44.56
12/1/2006	7:59:30 AM	Linearity Check	-0.12	-0.15	45.41
12/1/2006	8:00:00 AM	Linearity Check	7.45	-0.44	19.41
12/1/2006	8:00:30 AM	Linearity Check	10.13	-0.3	9.15
12/1/2006	8:01:00 AM	Linearity Check	10.2	-0.44	8.67
12/1/2006	8:01:30 AM	Linearity Check	6.04	-0.15	15.75
12/1/2006	8:02:00 AM	Linearity Check	0.12	-0.15	24.66
12/1/2006	8:02:30 AM	Linearity Check	-0.06	-0.15	25.02
12/1/2006	8:03:00 AM	Linearity Check	1.04	-0.3	24.78
12/1/2006	8:03:30 AM	Linearity Check	18.62	-0.59	11.72
12/1/2006	8:04:00 AM	Linearity Check	20.27	-0.44	14.04
12/1/2006	8:04:30 AM	Linearity Check	21.24	-0.44	17.21
12/1/2006	8:05:00 AM	Linearity Check	21.24	87.14	17.45
12/1/2006	8:05:30 AM	Linearity Check	3.85	128.59	8.67
12/1/2006	8:06:00 AM	Linearity Check	-0.06	151.73	9.52
12/1/2006	8:06:30 AM	Linearity Check	-0.06	151.14	9.89
12/1/2006	8:07:00 AM	Linearity Check	-0.06	154.51	10.01
12/1/2006	8:07:30 AM	Linearity Check	0.06	20.21	11.47
12/1/2006	8:08:00 AM	Linearity Check	-0.06	225.98	12.94
12/1/2006	8:08:30 AM	Linearity Check	-0.06	262.59	17.45
12/1/2006	8:09:00 AM	Linearity Check	-0.06	267.87	17.82
12/1/2006	8:09:30 AM	Linearity Check	-0.06	269.18	17.82
12/1/2006	8:10:00 AM	Linearity Check	1.28	169.45	17.58
12/1/2006	8:10:30 AM	Linearity Check	5.19	8.49	8.05
12/1/2006	8:11:00 AM	Linearity Check	0.06	1.46	0.36
12/1/2006	8:11:30 AM	- ZERO	-0.06	1.17	0
12/1/2006	8:12:00 AM	- ZERO	-0.06	0.73	0
12/1/2006	8:12:30 AM	- ZERO	-0.06	0.44	0
12/1/2006	8:13:00 AM	- ZERO	-0.06	0.44	12.08
12/1/2006	8:13:30 AM	- ZERO	-0.06	0.73	23.56
12/1/2006	8:14:00 AM	- ZERO	-0.06	0.29	24.9
12/1/2006	8:14:30 AM	- Span	-0.12	0.44	24.9
12/1/2006	8:15:00 AM	- Span	-0.06	0.14	25.02
12/1/2006	8:15:30 AM	- Span	8.3	0	12.45
12/1/2006	8:16:00 AM	- Span	10.2	-0.15	8.79
12/1/2006	8:16:30 AM	- Span	10.2	41.74	8.79
12/1/2006	8:17:00 AM	- Span	2.08	148.94	9.52
12/1/2006	8:17:30 AM	- Span	0	150.41	9.89

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	8:18:00 AM	- Span	-0.06	152.31	9.89
12/1/2006	8:18:30 AM	- Span	-0.06	151.14	10.01
12/1/2006	8:19:00 AM	- Span	0.8	178.53	10.37
12/1/2006	8:19:30 AM	- Span	8.12	182.63	16.72
12/1/2006	8:20:00 AM	- Span	8.73	182.92	17.58
12/1/2006	8:20:30 AM	- Span	8.79	181.02	17.58
12/1/2006	8:21:00 AM	- Span	8.79	182.63	17.58
12/1/2006	8:21:30 AM	- Span	8.91	181.02	17.58
12/1/2006	8:22:00 AM	- Span	8.85	182.92	17.58
12/1/2006	8:22:30 AM	- Span	8.97	182.34	17.58
12/1/2006	8:23:00 AM	- Span	8.97	182.63	17.58
12/1/2006	8:23:30 AM	- Span	8.97	182.92	17.58
12/1/2006	8:24:00 AM	- Span	8.91	183.07	17.7
12/1/2006	8:24:30 AM	- Span	8.91	182.48	17.58
12/1/2006	8:25:00 AM	- Span	8.91	182.63	17.58
12/1/2006	8:25:30 AM	- Span	8.97	183.07	17.7
12/1/2006	8:26:00 AM	- Span	8.91	183.8	17.58
12/1/2006	8:26:30 AM	- Span	8.91	183.65	17.58
12/1/2006	8:27:00 AM	- Span	8.91	182.48	17.58
12/1/2006	8:27:30 AM	- Span	9.04	181.16	17.45
12/1/2006	8:28:00 AM	- Span	8.97	180.58	17.58
12/1/2006	8:28:30 AM	- Span	8.97	181.9	17.7
12/1/2006	8:29:00 AM	- Span	8.97	181.9	17.7
12/1/2006	8:29:30 AM	- Span	8.91	181.75	17.7
12/1/2006	8:30:00 AM	- Span	8.79	182.19	17.82
12/1/2006	8:30:30 AM	- Span	8.73	182.19	17.7
12/1/2006	8:31:00 AM	- Span	8.79	183.07	17.7
12/1/2006	8:31:30 AM	- Span	8.73	184.39	17.7
12/1/2006	8:32:00 AM	- Span	8.73	184.83	17.7
12/1/2006	8:32:30 AM	- Span	8.73	183.36	17.82
12/1/2006	8:33:00 AM	- Span	8.73	182.63	17.7
12/1/2006	8:33:30 AM	- Span	8.79	181.9	17.7
12/1/2006	8:34:00 AM	- Span	8.79	182.92	17.7
12/1/2006	8:34:30 AM	- Span	8.79	184.39	17.7
12/1/2006	8:35:00 AM	- Span	8.85	183.8	17.58
12/1/2006	8:35:30 AM	- Span	8.91	182.78	17.7
12/1/2006	8:36:00 AM	- Span	8.85	183.51	17.7
12/1/2006	8:36:30 AM	- Span	8.85	184.97	17.7
12/1/2006	8:37:00 AM	- Span	8.79	184.68	17.58
12/1/2006	8:37:30 AM	- Span	8.91	183.8	17.58
12/1/2006	8:38:00 AM	- Span	8.79	183.51	17.7
12/1/2006	8:38:30 AM	- Span	8.85	183.95	17.58
12/1/2006	8:39:00 AM	- Span	8.85	184.83	17.58
12/1/2006	8:39:30 AM	- Span	8.85	185.7	17.58
12/1/2006	8:40:00 AM	- Span	8.91	185.41	17.45
12/1/2006	8:40:30 AM	- Span	8.91	184.83	17.58
12/1/2006	8:41:00 AM	- Span	8.97	184.53	17.45
12/1/2006	8:41:30 AM	- Span	9.04	184.53	17.45
12/1/2006	8:42:00 AM	- Span	9.1	184.24	17.33
12/1/2006	8:42:30 AM	- Span	9.04	184.24	17.45

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	8:43:00 AM	- Span	9.1	184.09	17.45
12/1/2006	8:43:30 AM	- Span	9.1	183.21	17.45
12/1/2006	8:44:00 AM	- Span	9.04	183.65	17.45
12/1/2006	8:44:30 AM	- Span	8.91	184.24	17.45
12/1/2006	8:45:00 AM	- Span	8.97	183.8	17.58
12/1/2006	8:45:30 AM	- Span	8.91	183.36	17.45
12/1/2006	8:46:00 AM	- Span	8.97	183.51	17.45
12/1/2006	8:46:30 AM	- Span	8.91	183.95	17.7
12/1/2006	8:47:00 AM	- Span	8.79	184.09	17.7
12/1/2006	8:47:30 AM	- Span	8.85	184.24	17.7
12/1/2006	8:48:00 AM	- Span	8.79	184.83	17.7
12/1/2006	8:48:30 AM	- Span	8.79	184.09	17.7
12/1/2006	8:49:00 AM	- Span	8.73	184.68	17.7
12/1/2006	8:49:30 AM	- Span	8.73	185.12	17.7
12/1/2006	8:50:00 AM	- Span	8.73	184.53	17.7
12/1/2006	8:50:30 AM	- Span	8.85	183.8	17.45
12/1/2006	8:51:00 AM	- Span	8.85	183.51	17.58
12/1/2006	8:51:30 AM	- Span	9.1	183.36	17.33
12/1/2006	8:52:00 AM	- Span	9.22	183.21	17.33
12/1/2006	8:52:30 AM	- Span	9.16	183.65	17.45
12/1/2006	8:53:00 AM	- Span	9.1	183.8	17.45
12/1/2006	8:53:30 AM	- Span	8.97	183.95	17.58
12/1/2006	8:54:00 AM	- Span	8.97	183.21	17.58
12/1/2006	8:54:30 AM	- Span	8.85	184.24	17.7
12/1/2006	8:55:00 AM	- Span	8.73	184.53	17.82
12/1/2006	8:55:30 AM	- Span	8.67	183.95	17.7
12/1/2006	8:56:00 AM	- Span	8.67	184.68	17.82
12/1/2006	8:56:30 AM	- Span	8.67	184.68	17.7
12/1/2006	8:57:00 AM	- Span	8.61	185.41	17.7
12/1/2006	8:57:30 AM	- Span	8.61	185.27	17.7
12/1/2006	8:58:00 AM	- Span	8.67	185.12	17.7
12/1/2006	8:58:30 AM	- Span	8.73	185.56	17.7
12/1/2006	8:59:00 AM	- Span	8.73	184.97	17.7
12/1/2006	8:59:30 AM	- Span	8.73	185.85	17.58
12/1/2006	9:00:00 AM	- Span	8.85	186.44	17.45
12/1/2006	9:00:30 AM	Run 1 - 1	8.85	186.14	17.45
12/1/2006	9:01:00 AM	Run 1 - 1	8.85	186	17.58
12/1/2006	9:01:30 AM	Run 1 - 1	8.91	185.12	17.58
12/1/2006	9:02:00 AM	Run 1 - 1	8.97	184.83	17.45
12/1/2006	9:02:30 AM	Run 1 - 1	8.97	185.12	17.45
12/1/2006	9:03:00 AM	Run 1 - 1	8.91	185.41	17.58
12/1/2006	9:03:30 AM	Run 1 - 1	8.91	184.97	17.58
12/1/2006	9:04:00 AM	Run 1 - 1	8.85	185.27	17.58
12/1/2006	9:04:30 AM	Run 1 - 1	8.91	185.85	17.58
12/1/2006	9:05:00 AM	Run 1 - 1	8.85	186	17.58
12/1/2006	9:05:30 AM	Run 1 - 1	8.79	186	17.7
12/1/2006	9:06:00 AM	Run 1 - 1	8.73	185.27	17.82
12/1/2006	9:06:30 AM	Run 1 - 1	8.79	185.56	17.58
12/1/2006	9:07:00 AM	Run 1 - 1	8.73	185.85	17.7
12/1/2006	9:07:30 AM	Run 1 - 1	8.73	185.12	17.7

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	9:08:00 AM	Run 1 - 1	8.67	185.56	17.7
12/1/2006	9:08:30 AM	Run 1 - 1	8.73	185.27	17.7
12/1/2006	9:09:00 AM	Run 1 - 1	8.73	185.12	17.7
12/1/2006	9:09:30 AM	Run 1 - 1	8.73	185.56	17.7
12/1/2006	9:10:00 AM	Run 1 - 1	8.73	185.7	17.7
12/1/2006	9:10:30 AM	Run 1 - 1	8.73	186.73	17.58
12/1/2006	9:11:00 AM	Run 1 - 1	8.73	186.58	17.7
12/1/2006	9:11:30 AM	Run 1 - 1	8.73	186.29	17.58
12/1/2006	9:12:00 AM	Run 1 - 1	8.73	186.44	17.7
12/1/2006	9:12:30 AM	Run 1 - 1	8.85	185.85	17.58
12/1/2006	9:13:00 AM	Run 1 - 1	8.91	186	17.58
12/1/2006	9:13:30 AM	Run 1 - 1	8.85	186	17.58
12/1/2006	9:14:00 AM	Run 1 - 1	8.91	186	17.58
12/1/2006	9:14:30 AM	Run 1 - 1	8.91	186	17.58
12/1/2006	9:15:00 AM	Run 1 - 1	9.04	186	17.58
12/1/2006	9:15:30 AM	Run 1 - 1	9.1	185.56	17.58
12/1/2006	9:16:00 AM	Run 1 - 1	8.97	185.85	17.58
12/1/2006	9:16:30 AM	Run 1 - 1	9.04	185.56	17.58
12/1/2006	9:17:00 AM	Run 1 - 1	9.1	185.41	17.58
12/1/2006	9:17:30 AM	Run 1 - 1	9.04	184.83	17.58
12/1/2006	9:18:00 AM	Run 1 - 1	8.97	184.39	17.7
12/1/2006	9:18:30 AM	Run 1 - 1	8.91	184.83	17.7
12/1/2006	9:19:00 AM	Run 1 - 1	8.85	184.97	17.82
12/1/2006	9:19:30 AM	Run 1 - 1	8.73	185.85	17.7
12/1/2006	9:20:00 AM	Run 1 - 1	8.73	185.12	17.82
12/1/2006	9:20:30 AM	Run 1 - 1	8.73	184.68	17.82
12/1/2006	9:21:00 AM	Run 1 - 1	8.73	183.95	17.7
12/1/2006	9:21:30 AM	Run 1 - 1	8.79	183.95	17.7
12/1/2006	9:22:00 AM	Run 1 - 1	8.85	184.53	17.7
12/1/2006	9:22:30 AM	Run 1 - 1	8.79	185.56	17.7
12/1/2006	9:23:00 AM	Run 1 - 1	8.91	185.12	17.7
12/1/2006	9:23:30 AM	Run 1 - 1	8.91	184.68	17.7
12/1/2006	9:24:00 AM	Run 1 - 1	8.91	184.53	17.7
12/1/2006	9:24:30 AM	Run 1 - 1	8.85	185.41	17.7
12/1/2006	9:25:00 AM	Run 1 - 1	8.85	185.12	17.7
12/1/2006	9:25:30 AM	Run 1 - 1	8.79	184.83	17.7
12/1/2006	9:26:00 AM	Run 1 - 1	8.79	185.56	17.82
12/1/2006	9:26:30 AM	Run 1 - 1	8.73	186.29	17.82
12/1/2006	9:27:00 AM	Run 1 - 1	8.67	186.58	17.82
12/1/2006	9:27:30 AM	Run 1 - 1	8.85	185.85	17.7
12/1/2006	9:28:00 AM	Run 1 - 1	8.85	186.58	17.7
12/1/2006	9:28:30 AM	Run 1 - 1	8.85	186.44	17.82
12/1/2006	9:29:00 AM	Run 1 - 1	8.91	186.14	17.7
12/1/2006	9:29:30 AM	Run 1 - 1	8.85	186	17.7
12/1/2006	9:30:00 AM	Run 1 - 1	8.73	186	17.82
12/1/2006	9:30:30 AM	Run 1 - 1	8.73	186.88	17.7
12/1/2006	9:31:00 AM	Run 1 - 1	8.67	187.75	17.7
12/1/2006	9:31:30 AM	Run 1 - 1	8.67	187.75	17.82
12/1/2006	9:32:00 AM	Run 1 - 1	8.67	188.49	17.7
12/1/2006	9:32:30 AM	Run 1 - 1	8.67	188.49	17.82

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	9:33:00 AM	Run 1 - 1	8.73	187.32	17.82
12/1/2006	9:33:30 AM	Run 1 - 1	8.67	187.9	17.7
12/1/2006	9:34:00 AM	Run 1 - 1	8.73	189.22	17.7
12/1/2006	9:34:30 AM	Run 1 - 1	8.73	189.51	17.7
12/1/2006	9:35:00 AM	Run 1 - 1	8.73	188.78	17.7
12/1/2006	9:35:30 AM	Run 1 - 1	8.73	188.93	17.7
12/1/2006	9:36:00 AM	Run 1 - 1	8.79	189.22	17.7
12/1/2006	9:36:30 AM	Run 1 - 1	8.79	189.22	17.7
12/1/2006	9:37:00 AM	Run 1 - 1	8.85	189.37	17.7
12/1/2006	9:37:30 AM	Run 1 - 1	8.85	189.37	17.7
12/1/2006	9:38:00 AM	Run 1 - 1	8.85	188.93	17.58
12/1/2006	9:38:30 AM	Run 1 - 1	8.85	188.93	17.7
12/1/2006	9:39:00 AM	Run 1 - 1	8.91	188.34	17.7
12/1/2006	9:39:30 AM	Run 1 - 1	8.97	187.9	17.45
12/1/2006	9:40:00 AM	Run 1 - 1	9.1	187.02	17.45
12/1/2006	9:40:30 AM	Run 1 - 1	9.22	186.58	17.45
12/1/2006	9:41:00 AM	Run 1 - 1	9.22	185.85	17.33
12/1/2006	9:41:30 AM	Run 1 - 1	9.28	184.97	17.45
12/1/2006	9:42:00 AM	Run 1 - 1	9.22	184.83	17.45
12/1/2006	9:42:30 AM	Run 1 - 1	9.1	184.97	17.58
12/1/2006	9:43:00 AM	Run 1 - 1	9.04	185.56	17.7
12/1/2006	9:43:30 AM	Run 1 - 1	8.85	185.41	17.82
12/1/2006	9:44:00 AM	Run 1 - 1	8.85	185.12	17.82
12/1/2006	9:44:30 AM	Run 1 - 1	8.73	185.27	17.94
12/1/2006	9:45:00 AM	Run 1 - 1	8.73	185.12	17.82
12/1/2006	9:45:30 AM	Run 1 - 1	8.61	185.12	17.94
12/1/2006	9:46:00 AM	Run 1 - 1	8.67	185.7	17.82
12/1/2006	9:46:30 AM	Run 1 - 1	8.61	185.41	17.82
12/1/2006	9:47:00 AM	Run 1 - 1	8.61	184.97	17.94
12/1/2006	9:47:30 AM	Run 1 - 1	8.61	184.83	17.94
12/1/2006	9:48:00 AM	Run 1 - 1	8.67	185.7	17.94
12/1/2006	9:48:30 AM	Run 1 - 1	8.67	186.29	17.82
12/1/2006	9:49:00 AM	Run 1 - 1	8.73	186.58	17.82
12/1/2006	9:49:30 AM	Run 1 - 1	8.73	186.58	17.82
12/1/2006	9:50:00 AM	Run 1 - 1	8.79	186.14	17.7
12/1/2006	9:50:30 AM	Run 1 - 1	8.85	185.85	17.7
12/1/2006	9:51:00 AM	Run 1 - 1	8.97	185.85	17.7
12/1/2006	9:51:30 AM	Run 1 - 1	8.97	186.14	17.58
12/1/2006	9:52:00 AM	Run 1 - 1	9.04	185.7	17.58
12/1/2006	9:52:30 AM	Run 1 - 1	9.1	184.53	17.58
12/1/2006	9:53:00 AM	Run 1 - 1	9.1	184.09	17.58
12/1/2006	9:53:30 AM	Run 1 - 1	8.97	185.41	17.7
12/1/2006	9:54:00 AM	Run 1 - 1	8.91	185.56	17.7
12/1/2006	9:54:30 AM	Run 1 - 1	8.91	185.27	17.82
12/1/2006	9:55:00 AM	Run 1 - 1	8.73	184.97	17.82
12/1/2006	9:55:30 AM	Run 1 - 1	8.73	185.41	17.82
12/1/2006	9:56:00 AM	Run 1 - 1	8.73	185.27	17.94
12/1/2006	9:56:30 AM	Run 1 - 1	8.67	185.27	17.82
12/1/2006	9:57:00 AM	Run 1 - 1	8.67	184.97	17.94
12/1/2006	9:57:30 AM	Run 1 - 1	8.61	184.97	17.94

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	9:58:00 AM	Run 1 - 1	8.61	184.97	17.94
12/1/2006	9:58:30 AM	Run 1 - 1	8.67	186.44	17.94
12/1/2006	9:59:00 AM	Run 1 - 1	8.73	187.02	17.82
12/1/2006	9:59:30 AM	Run 1 - 1	8.79	186.58	17.82
12/1/2006	10:00:00 AM	Run 1 - 1	8.79	185.7	17.7
12/1/2006	10:00:30 AM		8.91	130.93	17.58
12/1/2006	10:01:00 AM		3.3	5.86	7.2
12/1/2006	10:01:30 AM		0.06	1.32	0.24
12/1/2006	10:02:00 AM	- ZERO	0	1.02	0
12/1/2006	10:02:30 AM	- ZERO	0	0.88	0
12/1/2006	10:03:00 AM	- ZERO	0	0.44	0
12/1/2006	10:03:30 AM	- ZERO	0	0.73	0
12/1/2006	10:04:00 AM	- ZERO	-0.06	0.44	13.67
12/1/2006	10:04:30 AM	- ZERO	-0.12	0.58	24.05
12/1/2006	10:05:00 AM	- Span	-0.06	0.29	25.02
12/1/2006	10:05:30 AM	- Span	-0.06	0.14	25.02
12/1/2006	10:06:00 AM	- Span	6.41	0	16.11
12/1/2006	10:06:30 AM	- Span	10.13	0	8.91
12/1/2006	10:07:00 AM	- Span	10.26	0	8.67
12/1/2006	10:07:30 AM	- Span	10.2	14.06	8.67
12/1/2006	10:08:00 AM	- Span	4.27	147.92	9.28
12/1/2006	10:08:30 AM	- Span	-0.06	151.58	10.01
12/1/2006	10:09:00 AM	- Span	-0.06	152.31	9.89
12/1/2006	10:09:30 AM	- Span	2.32	183.65	11.84
12/1/2006	10:10:00 AM	- Span	8.24	184.97	17.58
12/1/2006	10:10:30 AM	- Span	8.49	186.88	17.82
12/1/2006	10:11:00 AM	- Span	8.61	186.44	17.7
12/1/2006	10:11:30 AM	- Span	8.67	187.32	17.7
12/1/2006	10:12:00 AM	- Span	8.61	186.58	17.82
12/1/2006	10:12:30 AM	- Span	8.67	186	17.7
12/1/2006	10:13:00 AM	- Span	8.73	186.88	17.7
12/1/2006	10:13:30 AM	- Span	8.79	187.46	17.7
12/1/2006	10:14:00 AM	- Span	8.73	187.75	17.82
12/1/2006	10:14:30 AM	- Span	8.79	187.75	17.82
12/1/2006	10:15:00 AM	- Span	8.79	187.9	17.7
12/1/2006	10:15:30 AM	- Span	8.79	187.32	17.7
12/1/2006	10:16:00 AM	- Span	8.73	187.46	17.82
12/1/2006	10:16:30 AM	- Span	8.73	188.63	17.82
12/1/2006	10:17:00 AM	- Span	8.85	188.19	17.7
12/1/2006	10:17:30 AM	- Span	8.85	188.05	17.7
12/1/2006	10:18:00 AM	- Span	8.79	187.9	17.82
12/1/2006	10:18:30 AM	- Span	8.79	188.19	17.82
12/1/2006	10:19:00 AM	- Span	8.85	187.75	17.82
12/1/2006	10:19:30 AM	- Span	8.91	186.44	17.7
12/1/2006	10:20:00 AM	- Span	8.85	187.17	17.82
12/1/2006	10:20:30 AM	- Span	8.85	187.32	17.7
12/1/2006	10:21:00 AM	- Span	8.85	187.17	17.7
12/1/2006	10:21:30 AM	- Span	8.91	187.46	17.7
12/1/2006	10:22:00 AM	- Span	8.97	187.32	17.58
12/1/2006	10:22:30 AM	- Span	8.97	186.73	17.7

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	10:23:00 AM	- Span	8.91	186.29	17.7
12/1/2006	10:23:30 AM	- Span	8.85	186.73	17.7
12/1/2006	10:24:00 AM	- Span	8.85	186.44	17.7
12/1/2006	10:24:30 AM	- Span	8.73	186.58	17.94
12/1/2006	10:25:00 AM	- Span	8.67	187.02	17.82
12/1/2006	10:25:30 AM	- Span	8.55	187.02	17.82
12/1/2006	10:26:00 AM	- Span	8.67	187.32	17.94
12/1/2006	10:26:30 AM	- Span	8.67	187.32	17.82
12/1/2006	10:27:00 AM	- Span	8.67	187.17	17.82
12/1/2006	10:27:30 AM	- Span	8.79	187.17	17.7
12/1/2006	10:28:00 AM	- Span	8.91	186.29	17.58
12/1/2006	10:28:30 AM	- Span	8.97	186.14	17.7
12/1/2006	10:29:00 AM	- Span	9.04	185.56	17.7
12/1/2006	10:29:30 AM	- Span	9.04	186	17.7
12/1/2006	10:30:00 AM	- Span	8.97	186.14	17.7
12/1/2006	10:30:30 AM	- Span	8.91	186.58	17.82
12/1/2006	10:31:00 AM	- Span	8.79	187.75	17.82
12/1/2006	10:31:30 AM	- Span	8.73	187.17	17.94
12/1/2006	10:32:00 AM	- Span	8.73	186.88	17.94
12/1/2006	10:32:30 AM	- Span	8.67	186.58	18.07
12/1/2006	10:33:00 AM	- Span	8.55	187.75	18.07
12/1/2006	10:33:30 AM	- Span	8.49	188.34	17.94
12/1/2006	10:34:00 AM	- Span	8.49	187.75	17.94
12/1/2006	10:34:30 AM	- Span	8.43	187.75	17.94
12/1/2006	10:35:00 AM	- Span	8.43	188.93	17.94
12/1/2006	10:35:30 AM	- Span	8.49	188.93	17.94
12/1/2006	10:36:00 AM	- Span	8.55	188.93	17.82
12/1/2006	10:36:30 AM	- Span	8.67	188.49	17.82
12/1/2006	10:37:00 AM	- Span	8.79	187.75	17.82
12/1/2006	10:37:30 AM	- Span	8.85	187.75	17.7
12/1/2006	10:38:00 AM	Run 2 - 1	9.04	187.61	17.7
12/1/2006	10:38:30 AM	Run 2 - 1	9.04	187.46	17.58
12/1/2006	10:39:00 AM	Run 2 - 1	9.04	187.32	17.7
12/1/2006	10:39:30 AM	Run 2 - 1	8.85	188.49	17.82
12/1/2006	10:40:00 AM	Run 2 - 1	8.79	188.34	17.82
12/1/2006	10:40:30 AM	Run 2 - 1	8.79	188.05	17.82
12/1/2006	10:41:00 AM	Run 2 - 1	8.73	188.19	17.94
12/1/2006	10:41:30 AM	Run 2 - 1	8.73	187.61	17.82
12/1/2006	10:42:00 AM	Run 2 - 1	8.79	187.9	17.82
12/1/2006	10:42:30 AM	Run 2 - 1	8.79	187.61	17.82
12/1/2006	10:43:00 AM	Run 2 - 1	8.73	187.32	17.82
12/1/2006	10:43:30 AM	Run 2 - 1	8.73	187.46	17.82
12/1/2006	10:44:00 AM	Run 2 - 1	8.73	187.02	17.82
12/1/2006	10:44:30 AM	Run 2 - 1	8.73	187.17	17.7
12/1/2006	10:45:00 AM	Run 2 - 1	8.73	187.17	17.82
12/1/2006	10:45:30 AM	Run 2 - 1	8.73	187.17	17.7
12/1/2006	10:46:00 AM	Run 2 - 1	8.73	187.17	17.82
12/1/2006	10:46:30 AM	Run 2 - 1	8.85	186.29	17.7
12/1/2006	10:47:00 AM	Run 2 - 1	8.85	186.73	17.82
12/1/2006	10:47:30 AM	Run 2 - 1	8.79	186.88	17.82

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	10:48:00 AM	Run 2 - 1	8.73	186.44	17.82
12/1/2006	10:48:30 AM	Run 2 - 1	8.67	186.88	17.82
12/1/2006	10:49:00 AM	Run 2 - 1	8.67	187.32	17.82
12/1/2006	10:49:30 AM	Run 2 - 1	8.73	187.17	17.94
12/1/2006	10:50:00 AM	Run 2 - 1	8.67	187.61	17.82
12/1/2006	10:50:30 AM	Run 2 - 1	8.67	187.32	17.82
12/1/2006	10:51:00 AM	Run 2 - 1	8.73	186.44	17.82
12/1/2006	10:51:30 AM	Run 2 - 1	8.73	187.17	17.82
12/1/2006	10:52:00 AM	Run 2 - 1	8.73	188.78	17.82
12/1/2006	10:52:30 AM	Run 2 - 1	8.79	188.05	17.7
12/1/2006	10:53:00 AM	Run 2 - 1	8.85	187.02	17.7
12/1/2006	10:53:30 AM	Run 2 - 1	8.91	186.29	17.7
12/1/2006	10:54:00 AM	Run 2 - 1	8.79	186.58	17.82
12/1/2006	10:54:30 AM	Run 2 - 1	8.79	187.61	17.82
12/1/2006	10:55:00 AM	Run 2 - 1	8.79	187.9	17.82
12/1/2006	10:55:30 AM	Run 2 - 1	8.55	188.34	18.07
12/1/2006	10:56:00 AM	Run 2 - 1	8.49	187.75	18.07
12/1/2006	10:56:30 AM	Run 2 - 1	8.55	187.61	17.94
12/1/2006	10:57:00 AM	Run 2 - 1	8.49	188.49	18.07
12/1/2006	10:57:30 AM	Run 2 - 1	8.55	189.07	17.94
12/1/2006	10:58:00 AM	Run 2 - 1	8.49	189.07	18.07
12/1/2006	10:58:30 AM	Run 2 - 1	8.55	189.07	18.07
12/1/2006	10:59:00 AM	Run 2 - 1	8.67	188.05	17.82
12/1/2006	10:59:30 AM	Run 2 - 1	8.67	188.34	17.94
12/1/2006	11:00:00 AM	Run 2 - 1	8.73	188.49	17.82
12/1/2006	11:00:30 AM	Run 2 - 1	8.73	189.07	17.7
12/1/2006	11:01:00 AM	Run 2 - 1	8.79	188.34	17.82
12/1/2006	11:01:30 AM	Run 2 - 1	8.79	188.78	17.7
12/1/2006	11:02:00 AM	Run 2 - 1	8.79	188.93	17.82
12/1/2006	11:02:30 AM	Run 2 - 1	8.85	188.34	17.82
12/1/2006	11:03:00 AM	Run 2 - 1	8.85	187.17	17.7
12/1/2006	11:03:30 AM	Run 2 - 1	8.91	187.75	17.7
12/1/2006	11:04:00 AM	Run 2 - 1	8.85	188.34	17.82
12/1/2006	11:04:30 AM	Run 2 - 1	8.79	188.49	17.7
12/1/2006	11:05:00 AM	Run 2 - 1	8.85	188.34	17.7
12/1/2006	11:05:30 AM	Run 2 - 1	8.79	188.19	17.7
12/1/2006	11:06:00 AM	Run 2 - 1	8.73	188.05	17.82
12/1/2006	11:06:30 AM	Run 2 - 1	8.79	188.05	17.82
12/1/2006	11:07:00 AM	Run 2 - 1	8.73	188.34	17.94
12/1/2006	11:07:30 AM	Run 2 - 1	8.79	188.19	17.82
12/1/2006	11:08:00 AM	Run 2 - 1	8.73	187.32	17.82
12/1/2006	11:08:30 AM	Run 2 - 1	8.73	187.02	17.82
12/1/2006	11:09:00 AM	Run 2 - 1	8.73	187.61	17.94
12/1/2006	11:09:30 AM	Run 2 - 1	8.73	187.9	17.82
12/1/2006	11:10:00 AM	Run 2 - 1	8.79	188.19	17.82
12/1/2006	11:10:30 AM	Run 2 - 1	8.67	187.61	17.82
12/1/2006	11:11:00 AM	Run 2 - 1	8.73	187.9	17.82
12/1/2006	11:11:30 AM	Run 2 - 1	8.79	187.75	17.82
12/1/2006	11:12:00 AM	Run 2 - 1	8.79	187.75	17.82
12/1/2006	11:12:30 AM	Run 2 - 1	8.73	188.93	17.82

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	11:13:00 AM	Run 2 - 1	8.79	188.49	17.82
12/1/2006	11:13:30 AM	Run 2 - 1	8.79	188.93	17.82
12/1/2006	11:14:00 AM	Run 2 - 1	8.79	189.22	17.82
12/1/2006	11:14:30 AM	Run 2 - 1	8.67	189.66	17.94
12/1/2006	11:15:00 AM	Run 2 - 1	8.61	190.39	17.94
12/1/2006	11:15:30 AM	Run 2 - 1	8.61	190.1	17.94
12/1/2006	11:16:00 AM	Run 2 - 1	8.61	189.95	17.94
12/1/2006	11:16:30 AM	Run 2 - 1	8.67	190.24	17.82
12/1/2006	11:17:00 AM	Run 2 - 1	8.73	189.81	17.82
12/1/2006	11:17:30 AM	Run 2 - 1	8.79	189.81	17.7
12/1/2006	11:18:00 AM	Run 2 - 1	8.79	189.51	17.82
12/1/2006	11:18:30 AM	Run 2 - 1	8.73	189.95	17.82
12/1/2006	11:19:00 AM	Run 2 - 1	8.67	190.39	17.94
12/1/2006	11:19:30 AM	Run 2 - 1	8.67	191.27	17.94
12/1/2006	11:20:00 AM	Run 2 - 1	8.67	191.42	17.94
12/1/2006	11:20:30 AM	Run 2 - 1	8.61	190.83	17.94
12/1/2006	11:21:00 AM	Run 2 - 1	8.67	191.12	17.94
12/1/2006	11:21:30 AM	Run 2 - 1	8.61	191.12	17.94
12/1/2006	11:22:00 AM	Run 2 - 1	8.67	190.98	17.94
12/1/2006	11:22:30 AM	Run 2 - 1	8.67	191.71	17.94
12/1/2006	11:23:00 AM	Run 2 - 1	8.67	190.98	17.82
12/1/2006	11:23:30 AM	Run 2 - 1	8.67	190.68	17.94
12/1/2006	11:24:00 AM	Run 2 - 1	8.73	190.98	17.94
12/1/2006	11:24:30 AM	Run 2 - 1	8.73	190.24	17.94
12/1/2006	11:25:00 AM	Run 2 - 1	8.61	191.12	17.82
12/1/2006	11:25:30 AM	Run 2 - 1	8.61	190.98	17.94
12/1/2006	11:26:00 AM	Run 2 - 1	8.67	191.12	17.94
12/1/2006	11:26:30 AM	Run 2 - 1	8.67	190.24	17.94
12/1/2006	11:27:00 AM	Run 2 - 1	8.61	190.68	17.94
12/1/2006	11:27:30 AM	Run 2 - 1	8.55	191.27	17.94
12/1/2006	11:28:00 AM	Run 2 - 1	8.55	190.39	17.94
12/1/2006	11:28:30 AM	Run 2 - 1	8.55	190.24	17.94
12/1/2006	11:29:00 AM	Run 2 - 1	8.55	190.54	18.07
12/1/2006	11:29:30 AM	Run 2 - 1	8.55	190.39	17.94
12/1/2006	11:30:00 AM	Run 2 - 1	8.49	191.12	17.94
12/1/2006	11:30:30 AM	Run 2 - 1	8.55	190.98	18.07
12/1/2006	11:31:00 AM	Run 2 - 1	8.55	191.12	18.07
12/1/2006	11:31:30 AM	Run 2 - 1	8.55	190.83	17.94
12/1/2006	11:32:00 AM	Run 2 - 1	8.55	190.98	18.07
12/1/2006	11:32:30 AM	Run 2 - 1	8.61	190.83	17.94
12/1/2006	11:33:00 AM	Run 2 - 1	8.67	190.68	17.94
12/1/2006	11:33:30 AM	Run 2 - 1	8.67	190.24	17.94
12/1/2006	11:34:00 AM	Run 2 - 1	8.61	190.24	17.94
12/1/2006	11:34:30 AM	Run 2 - 1	8.61	191.42	18.07
12/1/2006	11:35:00 AM	Run 2 - 1	8.67	190.98	17.94
12/1/2006	11:35:30 AM	Run 2 - 1	8.61	190.98	18.07
12/1/2006	11:36:00 AM	Run 2 - 1	8.61	191.42	17.94
12/1/2006	11:36:30 AM	Run 2 - 1	8.61	191.42	17.94
12/1/2006	11:37:00 AM	Run 2 - 1	8.67	191.42	17.94
12/1/2006	11:37:30 AM	Run 2 - 1	8.61	191.71	17.94

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	11:38:00 AM		8.61	191.56	17.94
12/1/2006	11:38:30 AM		7.51	31.63	16.36
12/1/2006	11:39:00 AM		0.73	2.34	2.2
12/1/2006	11:39:30 AM	- ZERO	0	1.17	0.24
12/1/2006	11:40:00 AM	- ZERO	-0.06	0.88	0.12
12/1/2006	11:40:30 AM	- ZERO	0	0.73	0.12
12/1/2006	11:41:00 AM	- ZERO	-0.06	0.73	3.9
12/1/2006	11:41:30 AM	- ZERO	-0.12	0.58	20.75
12/1/2006	11:42:00 AM	- ZERO	-0.06	0.44	24.9
12/1/2006	11:42:30 AM	- Span	-0.06	0.29	25.02
12/1/2006	11:43:00 AM	- Span	-0.06	0.29	24.9
12/1/2006	11:43:30 AM	- Span	16.67	0.14	18.43
12/1/2006	11:44:00 AM	- Span	21.18	0	17.33
12/1/2006	11:44:30 AM	- Span	21.3	-0.15	17.58
12/1/2006	11:45:00 AM	- Span	14.65	0	12.82
12/1/2006	11:45:30 AM	- Span	10.26	-0.15	8.79
12/1/2006	11:46:00 AM	- Span	10.2	-0.15	8.67
12/1/2006	11:46:30 AM	- Span	10.2	27.09	8.67
12/1/2006	11:47:00 AM	- Span	2.99	148.36	9.28
12/1/2006	11:47:30 AM	- Span	-0.06	150.99	9.89
12/1/2006	11:48:00 AM	- Span	-0.06	150.7	10.01
12/1/2006	11:48:30 AM	- Span	-0.06	157.15	10.01
12/1/2006	11:49:00 AM	- Span	5.19	188.49	14.28
12/1/2006	11:49:30 AM	- Span	8.67	189.37	17.7
12/1/2006	11:50:00 AM	- Span	8.67	190.24	17.82
12/1/2006	11:50:30 AM	- Span	8.67	189.37	17.94
12/1/2006	11:51:00 AM	- Span	8.67	190.54	17.94
12/1/2006	11:51:30 AM	- Span	8.61	190.83	17.94
12/1/2006	11:52:00 AM	- Span	8.55	191.42	17.94
12/1/2006	11:52:30 AM	- Span	8.55	191.12	18.07
12/1/2006	11:53:00 AM	- Span	8.55	192.15	17.94
12/1/2006	11:53:30 AM	- Span	8.55	191.86	18.07
12/1/2006	11:54:00 AM	- Span	8.55	191.71	18.07
12/1/2006	11:54:30 AM	- Span	8.49	191.71	18.07
12/1/2006	11:55:00 AM	- Span	8.55	191.12	18.07
12/1/2006	11:55:30 AM	- Span	8.55	191.12	17.94
12/1/2006	11:56:00 AM	- Span	8.61	191.12	17.94
12/1/2006	11:56:30 AM	- Span	8.61	191.71	17.94
12/1/2006	11:57:00 AM	- Span	8.61	192.3	17.82
12/1/2006	11:57:30 AM	- Span	8.67	191.56	17.82
12/1/2006	11:58:00 AM	- Span	8.67	192.3	17.82
12/1/2006	11:58:30 AM	- Span	8.67	192	17.82
12/1/2006	11:59:00 AM	- Span	8.73	192.59	17.7
12/1/2006	11:59:30 AM	- Span	8.73	192.59	17.7
12/1/2006	12:00:00 PM	- Span	8.73	191.12	17.7
12/1/2006	12:00:30 PM	- Span	8.79	190.68	17.7
12/1/2006	12:01:00 PM	- Span	8.85	190.83	17.7
12/1/2006	12:01:30 PM	- Span	8.91	190.24	17.7
12/1/2006	12:02:00 PM	- Span	8.91	189.95	17.7
12/1/2006	12:02:30 PM	- Span	8.97	189.22	17.7

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	12:03:00 PM	- Span	8.91	188.93	17.7
12/1/2006	12:03:30 PM	- Span	8.97	189.07	17.7
12/1/2006	12:04:00 PM	- Span	8.91	188.49	17.7
12/1/2006	12:04:30 PM	- Span	8.73	189.22	17.94
12/1/2006	12:05:00 PM	- Span	8.73	188.93	17.82
12/1/2006	12:05:30 PM	- Span	8.73	188.19	17.7
12/1/2006	12:06:00 PM	- Span	8.79	187.75	17.82
12/1/2006	12:06:30 PM	- Span	8.73	187.17	17.82
12/1/2006	12:07:00 PM	- Span	8.73	187.32	17.94
12/1/2006	12:07:30 PM	- Span	8.73	188.19	17.94
12/1/2006	12:08:00 PM	- Span	8.67	188.05	17.94
12/1/2006	12:08:30 PM	- Span	8.49	189.22	18.07
12/1/2006	12:09:00 PM	- Span	8.36	189.81	18.19
12/1/2006	12:09:30 PM	- Span	8.36	190.83	18.07
12/1/2006	12:10:00 PM	Run 3 - 1	8.36	192	18.07
12/1/2006	12:10:30 PM	Run 3 - 1	8.3	191.42	17.94
12/1/2006	12:11:00 PM	Run 3 - 1	8.3	191.71	18.07
12/1/2006	12:11:30 PM	Run 3 - 1	8.36	192.3	17.94
12/1/2006	12:12:00 PM	Run 3 - 1	8.55	192	17.94
12/1/2006	12:12:30 PM	Run 3 - 1	8.61	192	17.94
12/1/2006	12:13:00 PM	Run 3 - 1	8.61	192.88	17.94
12/1/2006	12:13:30 PM	Run 3 - 1	8.67	193.47	17.94
12/1/2006	12:14:00 PM	Run 3 - 1	8.79	193.47	17.7
12/1/2006	12:14:30 PM	Run 3 - 1	8.73	193.61	17.94
12/1/2006	12:15:00 PM	Run 3 - 1	8.79	193.03	17.82
12/1/2006	12:15:30 PM	Run 3 - 1	8.73	193.17	17.82
12/1/2006	12:16:00 PM	Run 3 - 1	8.79	193.03	17.7
12/1/2006	12:16:30 PM	Run 3 - 1	8.79	193.47	17.82
12/1/2006	12:17:00 PM	Run 3 - 1	8.85	193.61	17.82
12/1/2006	12:17:30 PM	Run 3 - 1	8.85	193.17	17.82
12/1/2006	12:18:00 PM	Run 3 - 1	8.85	192.3	17.82
12/1/2006	12:18:30 PM	Run 3 - 1	8.85	191.42	17.82
12/1/2006	12:19:00 PM	Run 3 - 1	8.91	191.12	17.82
12/1/2006	12:19:30 PM	Run 3 - 1	8.85	191.71	17.7
12/1/2006	12:20:00 PM	Run 3 - 1	8.91	191.42	17.7
12/1/2006	12:20:30 PM	Run 3 - 1	9.04	190.54	17.58
12/1/2006	12:21:00 PM	Run 3 - 1	9.04	189.07	17.58
12/1/2006	12:21:30 PM	Run 3 - 1	9.04	188.34	17.58
12/1/2006	12:22:00 PM	Run 3 - 1	8.97	187.61	17.7
12/1/2006	12:22:30 PM	Run 3 - 1	8.97	188.34	17.7
12/1/2006	12:23:00 PM	Run 3 - 1	8.97	187.9	17.82
12/1/2006	12:23:30 PM	Run 3 - 1	8.85	188.34	17.82
12/1/2006	12:24:00 PM	Run 3 - 1	8.73	188.19	17.82
12/1/2006	12:24:30 PM	Run 3 - 1	8.67	188.05	17.82
12/1/2006	12:25:00 PM	Run 3 - 1	8.61	187.61	18.07
12/1/2006	12:25:30 PM	Run 3 - 1	8.61	188.49	17.94
12/1/2006	12:26:00 PM	Run 3 - 1	8.55	188.34	18.07
12/1/2006	12:26:30 PM	Run 3 - 1	8.55	188.78	17.94
12/1/2006	12:27:00 PM	Run 3 - 1	8.55	189.37	17.94
12/1/2006	12:27:30 PM	Run 3 - 1	8.49	189.37	18.07

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	12:28:00 PM	Run 3 - 1	8.55	188.63	18.07
12/1/2006	12:28:30 PM	Run 3 - 1	8.55	189.22	17.94
12/1/2006	12:29:00 PM	Run 3 - 1	8.67	189.51	17.94
12/1/2006	12:29:30 PM	Run 3 - 1	8.55	189.81	17.94
12/1/2006	12:30:00 PM	Run 3 - 1	8.61	191.12	17.82
12/1/2006	12:30:30 PM	Run 3 - 1	8.73	190.98	17.7
12/1/2006	12:31:00 PM	Run 3 - 1	8.67	191.12	17.94
12/1/2006	12:31:30 PM	Run 3 - 1	8.55	191.56	17.94
12/1/2006	12:32:00 PM	Run 3 - 1	8.43	193.03	18.07
12/1/2006	12:32:30 PM	Run 3 - 1	8.43	193.32	18.07
12/1/2006	12:33:00 PM	Run 3 - 1	8.36	193.47	18.19
12/1/2006	12:33:30 PM	Run 3 - 1	8.3	194.35	18.31
12/1/2006	12:34:00 PM	Run 3 - 1	8.24	194.35	18.31
12/1/2006	12:34:30 PM	Run 3 - 1	8.3	195.08	18.19
12/1/2006	12:35:00 PM	Run 3 - 1	8.36	195.22	18.19
12/1/2006	12:35:30 PM	Run 3 - 1	8.36	195.22	18.07
12/1/2006	12:36:00 PM	Run 3 - 1	8.43	195.52	18.07
12/1/2006	12:36:30 PM	Run 3 - 1	8.55	195.96	17.94
12/1/2006	12:37:00 PM	Run 3 - 1	8.61	196.54	17.82
12/1/2006	12:37:30 PM	Run 3 - 1	8.61	196.54	17.94
12/1/2006	12:38:00 PM	Run 3 - 1	8.67	196.25	17.94
12/1/2006	12:38:30 PM	Run 3 - 1	8.73	196.69	17.94
12/1/2006	12:39:00 PM	Run 3 - 1	8.85	196.25	17.7
12/1/2006	12:39:30 PM	Run 3 - 1	8.85	195.96	17.82
12/1/2006	12:40:00 PM	Run 3 - 1	8.79	195.37	17.82
12/1/2006	12:40:30 PM	Run 3 - 1	8.85	195.37	17.7
12/1/2006	12:41:00 PM	Run 3 - 1	8.91	194.35	17.7
12/1/2006	12:41:30 PM	Run 3 - 1	8.91	194.49	17.7
12/1/2006	12:42:00 PM	Run 3 - 1	8.85	194.2	17.82
12/1/2006	12:42:30 PM	Run 3 - 1	8.91	193.03	17.82
12/1/2006	12:43:00 PM	Run 3 - 1	8.91	192.59	17.82
12/1/2006	12:43:30 PM	Run 3 - 1	8.85	192.44	17.82
12/1/2006	12:44:00 PM	Run 3 - 1	8.79	191.86	17.82
12/1/2006	12:44:30 PM	Run 3 - 1	8.73	192.3	17.82
12/1/2006	12:45:00 PM	Run 3 - 1	8.73	192.73	17.82
12/1/2006	12:45:30 PM	Run 3 - 1	8.67	193.17	17.94
12/1/2006	12:46:00 PM	Run 3 - 1	8.55	192.44	17.94
12/1/2006	12:46:30 PM	Run 3 - 1	8.55	192.44	17.94
12/1/2006	12:47:00 PM	Run 3 - 1	8.61	191.42	17.94
12/1/2006	12:47:30 PM	Run 3 - 1	8.61	191.71	17.94
12/1/2006	12:48:00 PM	Run 3 - 1	8.55	192.59	17.94
12/1/2006	12:48:30 PM	Run 3 - 1	8.55	193.47	17.94
12/1/2006	12:49:00 PM	Run 3 - 1	8.55	193.47	17.94
12/1/2006	12:49:30 PM	Run 3 - 1	8.55	193.03	18.07
12/1/2006	12:50:00 PM	Run 3 - 1	8.49	193.32	18.07
12/1/2006	12:50:30 PM	Run 3 - 1	8.43	195.08	18.07
12/1/2006	12:51:00 PM	Run 3 - 1	8.49	195.52	17.94
12/1/2006	12:51:30 PM	Run 3 - 1	8.55	195.52	17.94
12/1/2006	12:52:00 PM	Run 3 - 1	8.55	195.08	18.07
12/1/2006	12:52:30 PM	Run 3 - 1	8.49	195.66	18.07

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	12:53:00 PM	Run 3 - 1	8.55	196.4	18.07
12/1/2006	12:53:30 PM	Run 3 - 1	8.61	196.98	18.07
12/1/2006	12:54:00 PM	Run 3 - 1	8.61	197.57	17.94
12/1/2006	12:54:30 PM	Run 3 - 1	8.61	196.98	18.07
12/1/2006	12:55:00 PM	Run 3 - 1	8.61	196.69	18.07
12/1/2006	12:55:30 PM	Run 3 - 1	8.61	196.84	17.94
12/1/2006	12:56:00 PM	Run 3 - 1	8.67	197.27	18.07
12/1/2006	12:56:30 PM	Run 3 - 1	8.49	197.71	18.19
12/1/2006	12:57:00 PM	Run 3 - 1	8.43	199.18	18.19
12/1/2006	12:57:30 PM	Run 3 - 1	8.43	199.62	18.19
12/1/2006	12:58:00 PM	Run 3 - 1	8.43	199.91	18.07
12/1/2006	12:58:30 PM	Run 3 - 1	8.43	199.76	18.07
12/1/2006	12:59:00 PM	Run 3 - 1	8.55	199.33	18.07
12/1/2006	12:59:30 PM	Run 3 - 1	8.73	198.74	17.94
12/1/2006	1:00:00 PM	Run 3 - 1	8.73	198.59	17.94
12/1/2006	1:00:30 PM	Run 3 - 1	8.67	198.89	17.94
12/1/2006	1:01:00 PM	Run 3 - 1	8.67	198.59	17.94
12/1/2006	1:01:30 PM	Run 3 - 1	8.73	198.74	17.94
12/1/2006	1:02:00 PM	Run 3 - 1	8.73	198.59	17.94
12/1/2006	1:02:30 PM	Run 3 - 1	8.67	197.57	17.82
12/1/2006	1:03:00 PM	Run 3 - 1	8.67	198.15	17.94
12/1/2006	1:03:30 PM	Run 3 - 1	8.67	197.57	17.94
12/1/2006	1:04:00 PM	Run 3 - 1	8.73	197.71	17.94
12/1/2006	1:04:30 PM	Run 3 - 1	8.67	197.57	17.94
12/1/2006	1:05:00 PM	Run 3 - 1	8.61	197.42	18.07
12/1/2006	1:05:30 PM	Run 3 - 1	8.67	196.98	17.94
12/1/2006	1:06:00 PM	Run 3 - 1	8.61	196.54	17.94
12/1/2006	1:06:30 PM	Run 3 - 1	8.61	196.54	17.94
12/1/2006	1:07:00 PM	Run 3 - 1	8.49	197.71	17.94
12/1/2006	1:07:30 PM	Run 3 - 1	8.49	198.15	18.07
12/1/2006	1:08:00 PM	Run 3 - 1	8.49	197.57	18.07
12/1/2006	1:08:30 PM	Run 3 - 1	8.49	197.27	18.19
12/1/2006	1:09:00 PM	Run 3 - 1	8.43	196.69	18.07
12/1/2006	1:09:30 PM	Run 3 - 1	8.49	197.57	18.07
12/1/2006	1:10:00 PM		8.49	198.15	18.07
12/1/2006	1:10:30 PM		7.69	23.28	14.28
12/1/2006	1:11:00 PM		0.67	1.9	1.46
12/1/2006	1:11:30 PM	- ZERO	0	1.02	0.12
12/1/2006	1:12:00 PM	- ZERO	0	0.58	0.12
12/1/2006	1:12:30 PM	- ZERO	0	0.44	0.12
12/1/2006	1:13:00 PM	- ZERO	0	0.88	0
12/1/2006	1:13:30 PM	- ZERO	-0.06	0.44	16.84
12/1/2006	1:14:00 PM	- ZERO	-0.06	0.44	24.54
12/1/2006	1:14:30 PM	- Span	-0.06	0.14	24.78
12/1/2006	1:15:00 PM	- Span	-0.06	0	24.9
12/1/2006	1:15:30 PM	- Span	4.27	0	18.68
12/1/2006	1:16:00 PM	- Span	10.07	0	8.91
12/1/2006	1:16:30 PM	- Span	10.2	-0.15	8.79
12/1/2006	1:17:00 PM	- Span	10.13	77.91	8.67
12/1/2006	1:17:30 PM	- Span	1.59	150.55	9.4

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	1:18:00 PM	- Span	-0.06	152.31	9.89
12/1/2006	1:18:30 PM	- Span	-0.06	161.83	10.01
12/1/2006	1:19:00 PM	- Span	5.62	196.84	14.77
12/1/2006	1:19:30 PM	- Span	8.61	196.98	17.82
12/1/2006	1:20:00 PM	- Span	8.67	197.57	17.94
12/1/2006	1:20:30 PM	- Span	8.73	196.25	17.94
12/1/2006	1:21:00 PM	- Span	8.67	198.59	18.07
12/1/2006	1:21:30 PM	- Span	8.61	196.84	18.07
12/1/2006	1:22:00 PM	- Span	8.55	198.15	18.07
12/1/2006	1:22:30 PM	- Span	8.49	197.86	18.07
12/1/2006	1:23:00 PM	- Span	8.43	197.42	18.07
12/1/2006	1:23:30 PM	- Span	8.36	198.74	17.94
12/1/2006	1:24:00 PM	- Span	8.36	198.74	17.94
12/1/2006	1:24:30 PM	- Span	8.43	198.45	17.94
12/1/2006	1:25:00 PM	- Span	8.43	199.03	17.82
12/1/2006	1:25:30 PM	- Span	8.43	199.03	17.94
12/1/2006	1:26:00 PM	- Span	8.49	198.01	17.94
12/1/2006	1:26:30 PM	- Span	8.61	198.01	17.82
12/1/2006	1:27:00 PM	- Span	8.61	197.71	17.82
12/1/2006	1:27:30 PM	- Span	8.67	197.86	17.82
12/1/2006	1:28:00 PM	- Span	8.61	198.45	17.94
12/1/2006	1:28:30 PM	- Span	8.61	199.33	17.82
12/1/2006	1:29:00 PM	- Span	8.61	200.06	17.94
12/1/2006	1:29:30 PM	- Span	8.55	199.76	17.94
12/1/2006	1:30:00 PM	- Span	8.43	199.33	17.94
12/1/2006	1:30:30 PM	- Span	8.36	199.91	17.94
12/1/2006	1:31:00 PM	- Span	8.36	199.62	18.07
12/1/2006	1:31:30 PM	- Span	8.36	199.76	18.07
12/1/2006	1:32:00 PM	- Span	8.36	200.35	18.19
12/1/2006	1:32:30 PM	- Span	8.36	200.64	18.07
12/1/2006	1:33:00 PM	- Span	8.36	200.2	18.07
12/1/2006	1:33:30 PM	- Span	8.49	199.47	18.07
12/1/2006	1:34:00 PM	- Span	8.43	200.35	18.07
12/1/2006	1:34:30 PM	- Span	8.49	201.23	18.07
12/1/2006	1:35:00 PM	- Span	8.49	201.81	18.07
12/1/2006	1:35:30 PM	- Span	8.43	202.11	18.07
12/1/2006	1:36:00 PM	- Span	8.36	202.84	18.19
12/1/2006	1:36:30 PM	- Span	8.36	203.87	18.07
12/1/2006	1:37:00 PM	- Span	8.36	204.01	18.19
12/1/2006	1:37:30 PM	- Span	8.24	204.45	18.31
12/1/2006	1:38:00 PM	- Span	8.3	206.79	18.31
12/1/2006	1:38:30 PM	- Span	8.3	206.5	18.19
12/1/2006	1:39:00 PM	- Span	8.36	206.06	18.07
12/1/2006	1:39:30 PM	- Span	8.49	205.92	17.94
12/1/2006	1:40:00 PM	- Span	8.55	205.48	17.94
12/1/2006	1:40:30 PM	- Span	8.61	205.92	17.82
12/1/2006	1:41:00 PM	- Span	8.73	205.92	17.7
12/1/2006	1:41:30 PM	- Span	8.85	205.18	17.7
12/1/2006	1:42:00 PM	- Span	8.97	204.45	17.7
12/1/2006	1:42:30 PM	- Span	8.97	204.3	17.7

LabView Run Log
Polk Acid Plant

Date	Time	Status	O2 (%)	SO2 (%)	CO22 (%)
12/1/2006	1:43:00 PM	- Span	9.04	203.43	17.58
12/1/2006	1:43:30 PM	- Span	9.1	202.25	17.7
12/1/2006	1:44:00 PM	- Span	9.1	202.25	17.7
12/1/2006	1:44:30 PM	- Span	8.97	201.67	17.82
12/1/2006	1:45:00 PM	- Span	8.85	201.52	17.94
12/1/2006	1:45:30 PM	- Span	8.73	201.96	17.82
12/1/2006	1:46:00 PM	- Span	8.61	202.11	17.94
12/1/2006	1:46:30 PM	- Span	8.67	199.91	17.82
12/1/2006	1:47:00 PM	- Span	8.49	99.29	17.94
12/1/2006	1:47:30 PM	- Span	4.21	6.15	6.59
12/1/2006	1:48:00 PM	- Span	0.06	1.17	0.24
12/1/2006	1:48:30 PM	- Span	0	1.02	0
12/1/2006	1:49:00 PM	- Span	0	0.73	0
12/1/2006	1:49:30 PM	- Span	0	0.73	0
12/1/2006	1:50:00 PM	- Span	0	0.58	0
12/1/2006	1:50:30 PM	- Span	0	0.44	0
12/1/2006	1:51:00 PM	- Span	0	0.29	0
12/1/2006	1:51:30 PM	- Span	0	0.14	0
12/1/2006	1:52:00 PM	- Span	-0.06	0.14	0
12/1/2006	1:52:30 PM	- Span	0	0.14	0.12

CALIBRATION GAS CERTIFICATIONS

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: E-N06925
Project No.: 01-58671-002

Customer

TAMPA ELECTRIC COMPANY
CHARLES DUFENY
5010 CAUSEWAY BLVD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: ALM022018 **Certification Date:** 12Oct2006 **Exp. Date:** 11Oct2009

Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	18.0	%	+/- 1%	Direct NIST and NMi
OXYGEN	20.9	%	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1675	04Jul2008	K001509	13.93 %	CARBON DIOXIDE
NTRM 2659	04Jul2008	K004610	20.85 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
MTI/M200/170927	20Sep2006	GC-TCD
MTI/M200/170927	20Sep2006	GC-TCD

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: 12Oct2006	Response Unit:AREA		
Z1 = 0.00000	R1 = 643255.0	T1 = 826324.0	
R2 = 643437.0	Z2 = 0.00000	T2 = 826277.0	
Z3 = 0.00000	T3 = 826351.0	R3 = 643355.0	
Avg. Concentration	18.00	%	

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = .999988	1675
Constants:	A = -2.56089E-02
B = 2.1778E-05	C =
D =	E =

OXYGEN

Date: 12Oct2006	Response Unit:AREA		
Z1 = 0.00000	R1 = 536285.0	T1 = 549300.0	
R2 = 536629.0	Z2 = 0.00000	T2 = 549027.0	
Z3 = 0.00000	T3 = 548522.0	R3 = 537922.0	
Avg. Concentration:	20.90	%	

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = .999998	2659
Constants:	A = 1.9132E-02
B = 3.8059E-05	C =
D =	E =

APPROVED BY: _____
JOHN C. FITZ

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

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

P.O. No.: E-N06925
Project No.: 01-58671-001

Customer

TAMPA ELECTRIC COMPANY
CHARLES DUFENY
5010 CAUSEWAY BLVD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: AAL20064 **Certification Date:** 12Oct2006 **Exp. Date:** 11Oct2009
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	8.96	%	+/- 1%	Direct NIST and NMi
OXYGEN	10.1	%	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1675	04Jul2008	K001509	13.93 %	CARBON DIOXIDE
NTRM 2658	02Oct2010	ALM065248	9.930 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
MTI/M200/170927	20Sep2006	GC-TCD
MTI/M200/170927	20Sep2006	GC-TCD

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: 12Oct2006	Response Unit:AREA	
Z1 = 0.00000	R1 = 643432.0	T1 = 412451.0
R2 = 643593.0	Z2 = 0.00000	T2 = 412322.0
Z3 = 0.00000	T3 = 412407.0	R3 = 643560.0
Avg. Concentration:	8.960	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = .999988	1675
Constants:	A = -2.56089E-02
B = 2.1778E-05	C =
D =	E =

OXYGEN

Date: 12Oct2006	Response Unit:AREA	
Z1 = 0.00000	R1 = 255181.0	T1 = 263879.0
R2 = 255371.0	Z2 = 0.00000	T2 = 263727.0
Z3 = 0.00000	T3 = 263736.0	R3 = 254821.0
Avg. Concentration:	10.10	%

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = .999998	2658
Constants:	A = 1.9132E-02
B = 3.8059E-05	C =
D =	E =

APPROVED BY: JOHN C. FITZ

BL501

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY,MI 48083

P.O. No.: E-N06925
Project No.: 05-27508-004

Customer

TAMPA ELECTRIC COMPANY
CHARLES DUFENY
5010 CAUSEWAY BLVD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: ALM042687 **Certification Date:** 07Feb2005 **Exp. Date:** 07Feb2008

Cylinder Pressure*:** 1850 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	25.07 %	+/- 1%	Direct NIST and NMI
NITROGEN	BALANCE		

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

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

Product certified to +/- 1% analytical accuracy is directly traceable to NIST or NMI standards

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2308	01Jan2008	ALM019443	23.34 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/CM00/150894	28Jan2005	THERMAL CONDUCTIVITY

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: 07Feb2005	Response Unit:AREA		
Z1 = 0.00000	R1 = 1214880.	T1 = 1303805.	
R2 = 1213747.	Z2 = 0.00000	T2 = 1304386	
Z3 = 0.00000	T3 = 1304309.	R3 = 1214512	
Avg. Concentration:	25.07	%	

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = .999999	
Constants:	A = -.026098232
B = 1.94E-05	C = 0
D = 0	E = 0

APPROVED BY: _____

DAVID BABCOCK

BL502

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: E-N06925
Project No. 05-27508-005

Customer

TAMPA ELECTRIC COMPANY
CHARLES DUFENY
5010 CAUSEWAY BLVD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: ALM016344 **Certification Date:** 07Feb2005 **Exp. Date:** 07Feb2008

Cylinder Pressure*:** 1850 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	45.10 %	+/- 1%	Direct NIST and NMi
NITROGEN	BALANCE		

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

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

Product certified as +/- 1% analytical accuracy & directly traceable to NIST or NMi standards

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2303	01Jan2008	ALM045143	20.34 %	CARBON DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/4900/063	26Jan2005	THERMAL CONDUCTIVITY

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: 07Feb2005	Response Units: MV		
Z1 = 0.000000	R1 = 1214000.	T1 = 2344788.	
R2 = 1213747.	Z2 = 0.000000	T2 = 2345040.	
Z3 = 0.000000	T3 = 2345068.	R3 = 1214512.	
Avg. Concentration:	45.10	%	

Concentration = A + Ra + Ca2 + Da3 + Ea4

r = .999999

Constants:	A = -.026098732
B = 1.94E-05	C = 0
D = 0	E = 0

APPROVED BY: _____

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

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

Assay Laboratory

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

P.O. No.: E-N06925
Project No.: 01-52729-001

Customer

TAMPA ELECTRIC COMPANY

5010 CAUSEWAY BLVD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: ALM009682 **Certification Date:** 27Jun2006 **Exp. Date:** 26Jun2008
Cylinder Pressure*:** 1999 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	10.21	%	+/- 1%	Direct NIST and NMi
SULFUR DIOXIDE *	152.2	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

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

* This Protocol has been certified using corrected NIST SO2 standard values, per EPA guidance dated 7/24/96 and will not correlate with uncorrected Prot

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1675	04Jul2008	K012148	13.93 %	CARBON DIOXIDE
NTRM 0260	02Oct2006	ALM057284	266.6 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000928781	08Jun2006	FTIR
FTIR//000928781	08Jun2006	FTIR

ANALYZER READINGS

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

CARBON DIOXIDE

First Triad Analysis			Second Triad Analysis			Calibration Curve	
Date: 20Jun2006	Response Unit:%					Concentration = A + Bx + Cx2 + Dx3 + Ex4	
Z1 = -0.00878	R1 = 13.97749	T1 = 10.24188	Z1 = 0.00000	R1 = 0.00000	T1 = 0.00000	r = 9.99997E-1	
R2 = 13.98411	Z2 = -0.00769	T2 = 10.24781	R2 = 0.00000	Z2 = 0.00000	T2 = 0.00000	Constants:	A = 0.00000E+0
Z3 = -0.00535	T3 = 10.25074	R3 = 13.99919	Z3 = 0.00000	T3 = 0.00000	R3 = 0.00000	B = 9.73447E-1	C = 3.63400E-3
Avg. Concentration:	10.21 %		Avg. Concentration:	0.000		D = 1.70000E-5	E = 0.00000E+0

SULFUR DIOXIDE *

Date: 20Jun2006	Response Unit:PPM		Date: 27Jun2006	Response Unit: PPM		Concentration = A + Bx + Cx2 + Dx3 + Ex4	
Z1 = -0.03225	R1 = 266.0084	T1 = 151.8536	Z1 = -0.05180	R1 = 265.8178	T1 = 151.7932	r = 9.99998E-1	
R2 = 266.1603	Z2 = -0.01621	T2 = 151.9421	R2 = 265.9785	Z2 = -0.04659	T2 = 151.8102	Constants:	A = 0.00000E+0
Z3 = 0.01808	T3 = 152.0154	R3 = 266.2468	Z3 = 0.06517	T3 = 151.8972	R3 = 266.0725	B = 9.98458E-1	C = 1.00000E-5
Avg. Concentration:	152.2 PPM		Avg. Concentration:	152.2 PPM		D = 0.00000E+0	E = 0.00000E+0

APPROVED BY: Michael A. Kuhns

Michael A. Kuhns

RDDO 8

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

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

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

Assay Laboratory

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

P.O. No.: E-N06925
Project No.: 01-22406-002

Customer

TAMPA ELECTRIC COMPANY
CHARLES DUFENY
5010 CAUSEWAY BLVD
TAMPA FL 33619

ANALYTICAL INFORMATION

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

Cylinder Number: ALM029767 **Certification Date:** 27Dec2004 **Exp. Date:** 27Dec2006
Cylinder Pressure*:** 1939 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	17.97	%	+/- 1%	Direct NIST and NMi
SULFUR DIOXIDE *	369	PPM	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

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

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.
Product certified as +/- 1% analytical accuracy is directly traceable to NIST or NMi standards.

* This Protocol has been certified using corrected NIST SO2 standard values, per EPA guidance dated 7/24/98 and will not correlate with uncorrected Protocols.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1869	04Jul2008	KD05053	17.87 %	CARBON DIOXIDE
NTRM 0289	02Dec2008	ALM057251	268.8 PPM	SULFUR DIOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
[illegible]	16Dec2004	FID
MKS Output:2030/MG-99-149	17Dec2004	FTIR

ANALYZER READINGS

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

First Triad Analysis **Second Triad Analysis** **Calibration Curve**

CARBON DIOXIDE

Date: 20Dec2004	Response Units:%	
Z1 = -0.00101	R1 = 17.93724	T1 = 17.94741
R2 = 17.86229	Z2 = 0.00020	T2 = 17.95372
Z3 = 0.00274	T3 = 17.96579	R3 = 17.88173
Avg. Concentration:	17.97	%

Concentration = A + B1 + C2 + D3 + E4	
r = 9.99994E-1	
Constants:	A = 0.00000E+0
B = 9.27482E-1	C = 1.31520E-2
D = 0.00000E+0	E = 0.00000E+0

SULFUR DIOXIDE *

Date: 20Dec2004	Response Unit:PPM	
Z1 = 0.00220	R1 = 268.3541	T1 = 268.7267
R2 = 268.4207	Z2 = 0.04133	T2 = 268.8201
Z3 = 0.04774	T3 = 268.8626	R3 = 268.5224
Avg. Concentration:	269.0	PPM

Date: 27Dec2004	Response Unit: PPM	
Z1 = 0.00048	R1 = 268.1719	T1 = 268.7051
R2 = 268.1933	Z2 = 0.03636	T2 = 268.8017
Z3 = 0.05315	T3 = 268.8629	R3 = 268.4709
Avg. Concentration:	269.1	PPM

Concentration = A + B1 + C2 + D3 + E4	
r = 9.99974E-1	
Constants:	A = 0.00000E+0
B = 9.70110E-1	C = 1.20090E-5
D = 0.00000E+0	E = 0.00000E+0

APPROVED BY:

APPENDIX F

FUEL ANALYSIS

SYNTHETIC GAS ANALYSIS – DECEMBER 1, 2006

UNIT 1 STACK TEST 12/01/06
CT & ACID PLANT

Calibration Standard Check

	% CO2	% O2	% N2	% CH4	% CO	Calc. % H2	% H2S/COS
True Value	14.70	1.010	2.99	0.1040	45.20	36.00	N.A.
Std. 1	14.94	1.022	3.00	0.1011	45.28	35.66	N.A.
Std. 2	14.77	0.991	2.95	0.1049	45.28	35.90	N.A.
Std. 3	14.69	0.999	2.95	0.1048	45.31	35.95	N.A.
Avg.	**14.80**	**1.004**	**2.97**	**0.1036**	**45.29**	**35.84**	**N.A.**

Clean Syngas Sampled @ 0915 12/01/06

	% CO2	% O2	% N2	% CH4	% CO	Calc. % H2	% H2S/COS
1st Bomb	14.32	0.880	3.79	0.0293	47.24	33.74	N.A.
2nd Bomb	14.34	0.850	3.83	0.0287	46.90	34.05	N.A.
Avg.	**14.33**	**0.87**	**3.81**	**0.0290**	**47.07**	**33.90**	**N.A.**

Clean Syngas Sampled @ 1020 12/01/06

	% CO2	% O2	% N2	% CH4	% CO	Calc. % H2	% H2S/COS
1st Bomb	14.50	0.850	3.87	0.0275	47.12	33.63	N.A.
2nd Bomb	14.47	0.860	3.96	0.0323	46.89	33.79	N.A.
Avg.	**14.49**	**0.86**	**3.92**	**0.0299**	**47.01**	**33.71**	**N.A.**

Clean Syngas Sampled @ 1140 12/01/06

	% CO2	% O2	% N2	% CH4	% CO	Calc. % H2	% H2S/COS
1st Bomb	14.44	0.850	3.97	0.0304	46.78	33.96	N.A.
2nd Bomb	14.48	0.860	3.94	< 0.0050	47.03	33.69	N.A.
Avg.	**14.46**	**0.86**	**3.96**	**0.0304**	**46.91**	**33.83**	**N.A.**

Clean Syngas Sampled @ 1255 12/01/06

	% CO2	% O2	% N2	% CH4	% CO	Calc. % H2	% H2S/COS
1st Bomb	14.56	0.870	3.67	0.0272	47.16	33.74	N.A.
2nd Bomb	14.53	0.860	4.02	0.0299	47.13	33.43	N.A.
Avg.	**14.55**	**0.87**	**3.85**	**0.0286**	**47.15**	**33.59**	**N.A.**

Average for All Syngas Samples Using all Results

	% CO2	% O2	% N2	% CH4	% CO	Calc. % H2	% H2S/COS
Avg.	14.46	0.86	3.88	0.0293	47.03	33.75	0

Mole Wt.	21.65

HHV	BTU/SCF	260.5

HHV	BTU/Lb	4565

TECO TAMPA ELECTRIC

Coal Derived Gas and Heating Value Calculations

Customer: Tampa Electric Company **Sample ID: Polk GC**

Facility: Polk Power Station **Analysis Date: 12/1/2006**

Source: Unit 1

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

Component	% Volume	Molecular Wt.	Density * (lb/ft^3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross * Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen	33.7540	2.016	0.0053	0.00179	3.1313	61100	1913.21	325.0	109.7006
Oxygen	0.8600	32.000	0.0846	0.00073	1.2735	0	0.00	0.0	0
Argon	0.0000	39.948	0.1065	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	3.8813	28.016	0.0744	0.00289	5.0543	0	0.00	0.0	0
CO2	14.4550	44.010	0.1170	0.01691	29.6022	0	0.00	0.0	0
CO	47.0313	28.010	0.0740	0.03480	60.9170	4347	2648.06	322.0	151.4406
COS	0.0000	60.070	0.1602	0.00000	0.0000	0	0.00	0.0	0
Methane	0.0293	16.041	0.0424	0.00001	0.0218	23879	5.20	1013.0	0.297098
Ethane	0.000	30.067	0.0803	0.00000	0.0000	22320	0.00	1792.0	0
Ethylene	0.000	28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.000	44.092	0.1196	0.00000	0.0000	21661	0.00	2590.0	0
propylene	0.000	42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.000	58.118	0.1582	0.00000	0.0000	21257	0.00	3363.0	0
n-butane	0.000	58.118	0.1582	0.00000	0.0000	21308	0.00	3370.0	0
Isobutene	0.000	56.102	0.1480	0.00000	0.0000	20730	0.00	3068.0	0
Isopentane	0.000	72.144	0.1904	0.00000	0.0000	21052	0.00	4008.0	0
n-pentane		72.144	0.1904	0.00000	0.0000	21091	0.00	4016.0	0
n-hexane		86.169	0.2274	0.00000	0.0000	20940	0.00	4762.0	0
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
Total:	100.01				100.0000				

Average Density	0.05713
Specific Gravity	0.74682

Gross Heating Value			
Btu/lb	**4566**	**Btu/SCF**	**261.44**
Net Heating Values			
Btu/lb	**4276**	**Btu/SCF**	**244**

* Density (lb/ft^3) and Gross Heating Value (Btu/scf) data from Perry's Chemical Engineering Hanbook.

Net Heating Value (Lower Heating Value), Btu/lb, calculated as Gross Heating Value (Higher Heating Value) - 10.30 (%H_2 x 8.94)

TECO TAMPA ELECTRIC

Coal Derived Gas and Heating Value Calculations

Customer: Tampa Electric Company **Sample ID: Polk GC**

Facility: Polk Power Station **Analysis Date: 12/1/2006**

Source: Unit 1

CALCULATION OF F FACTORS

						Weight Percents			
Component	**Mol. Wt.**	**C Factor**	**H Factor**	**% volume**	**Fract. Wt.**	**Carbon**	**Hydrogen**	**Nitrogen**	**Oxygen**
Hydrogen	2.016	0	1	33.754	68.0481		3.1528793		
Oxygen	32.000	0	0	0.860	27.5200				1.2750861
Argon	39.948	0	0	0.000	0.0000				
Nitrogen	28.016	0	0	3.881	108.7371			5.038123867	
CO2	44.010	0.272273	0	14.455	636.1646	8.02537132			21.428658
CO	28.010	0.42587	0	47.031	1317.3453	25.9936803			35.077766
COS	60.070	0.1998	0	0.000	0.0000	0			0
Methane	16.041	0.75	0.25	0.029	0.4705	0.01634838	0.0054495		
Ethane	30.067	0.8	0.2	0.000	0.0000	0	0		
Ethylene	28.051	0.85714	0.14286	0.000	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.000	0.0000	0	0		
Propene	42.077	0.85714	0.14286	0.000	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.000	0.0000	0	0		
n-butane	58.118	0.82759	0.17247	0.000	0.0000	0	0		
Isobutene	56.102	0.85714	0.14286	0.000	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.000	0.0000	0	0		
n-pentane	72.144	0.83333	0.16667	0.000	0.0000	0	0		
n-hexane	86.169	0.83721	0.16279	0.000	0.0000	0	0		
H2S	34.076	0	0.0586923	0.000	0.0000	0	0		
Totals				100.01087	2158.2856	34.0354	3.16	5.038123867	57.78151

CALCULATED VALUES		
O2 F Factor (dry), Fd	**8255**	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet), Fw	**9590**	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	**1335**	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	**13.92**	volume % water in flue gas @ 0% excess air
CO2 F Factor, Fc	**2393**	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	**28.98**	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**0.72**	EPA Method 3a Fo value

APPENDIX G

PLANT OPERATIONS DATA

IGCC

IGCC Operations Data

Plant Information Source: polk-1pisrv
Start Time: 12/1/2006 9:00
End Time: 12/1/2006 13:20
Time Interval: 1 Min

Tag Name:	1pwrji900	1TSYFI100	1tmsti922m	1tsyai202
Tag Explanation:	Unit Load	Fuel Flow	Inlet Temp	Satuator
Tag Units:	Mwe	KCFH	°F	% H2O
Run Average:	174.995426	6653.63375	80.8493319	3.80882985
01-Dec-06 09:00:00	174.470459	6633.5249	74.2104568	3.79977226
01-Dec-06 09:01:00	174.686264	6632.97461	74.2362137	3.79914117
01-Dec-06 09:02:00	174.623215	6654.13818	74.377121	3.79851031
01-Dec-06 09:03:00	174.195465	6687.87305	74.377121	3.79787922
01-Dec-06 09:04:00	174.495041	6696.52637	74.377121	3.79724813
01-Dec-06 09:05:00	175.543274	6675.56445	74.377121	3.79661703
01-Dec-06 09:06:00	175.009918	6658.86816	74.377121	3.79598594
01-Dec-06 09:07:00	175.660873	6649.70117	74.377121	3.79535484
01-Dec-06 09:08:00	173.732758	6727.37646	74.5942841	3.79472399
01-Dec-06 09:09:00	173.983841	6726.27637	74.4352951	3.79409289
01-Dec-06 09:10:00	175.104111	6637.52148	74.6406174	3.7934618
01-Dec-06 09:11:00	174.183777	6620.97559	74.8459396	3.79283071
01-Dec-06 09:12:00	174.256973	6650.60742	74.8572388	3.79219961
01-Dec-06 09:13:00	175.714584	6667.93799	74.690239	3.79156852
01-Dec-06 09:14:00	175.500656	6645.60693	74.690239	3.79093766
01-Dec-06 09:15:00	174.813995	6636.17773	74.9863434	3.79030657
01-Dec-06 09:16:00	175.45488	6630.8916	74.8842392	3.78967547
01-Dec-06 09:17:00	175.473633	6678.96191	74.782135	3.78904438
01-Dec-06 09:18:00	174.117706	6699.03223	74.7004471	3.78841329
01-Dec-06 09:19:00	173.548721	6613.25195	74.8025513	3.78778219
01-Dec-06 09:20:00	175.353867	6619.07129	74.9046555	3.78715134
01-Dec-06 09:21:00	174.683823	6608.38867	74.9930878	3.78652024
01-Dec-06 09:22:00	174.967224	6634.0957	74.6928253	3.78588915
01-Dec-06 09:23:00	174.950867	6681.8335	74.8480911	3.78525805
01-Dec-06 09:24:00	175.874084	6675.61035	75.0033569	3.78462696
01-Dec-06 09:25:00	175.08316	6668.45996	75.4140854	3.78399587
01-Dec-06 09:26:00	175.33316	6611.37109	75.5133591	3.78336501
01-Dec-06 09:27:00	175.970901	6652.23145	75.6126251	3.78273392
01-Dec-06 09:28:00	176.21405	6729.38086	75.3464203	3.78210282
01-Dec-06 09:29:00	175.446335	6698.58545	75.5904541	3.78147173
01-Dec-06 09:30:00	175.013901	6665.95117	75.400589	3.78084064
01-Dec-06 09:31:00	174.331848	6656.75342	75.4958115	3.78020954
01-Dec-06 09:32:00	174.416641	6623.43457	75.5910339	3.77957845
01-Dec-06 09:33:00	175.672333	6702.88965	75.6862564	3.77894759

IGCC Operations Data

Tag Name:	1pwrji900	1TSYFI100	1tmsti922m	1tsyai202
Tag Explanation:	Unit Load	Fuel Flow	Inlet Temp	Satuator
Tag Units:	Mwe	KCFH	°F	% H2O
01-Dec-06 09:34:00	176.294952	6673.76855	75.7814789	3.7783165
01-Dec-06 09:35:00	175.424057	6668.73779	75.8767014	3.7776854
01-Dec-06 09:36:00	174.500305	6591.61279	75.9719315	3.77705431
01-Dec-06 09:37:00	174.139038	6647.99023	76.0671539	3.77642322
01-Dec-06 09:38:00	174.692871	6784.71143	76.1623764	3.77579212
01-Dec-06 09:39:00	174.04837	6625.97803	76.2575989	3.77516127
01-Dec-06 09:40:00	174.132462	6627.45313	76.3528214	3.77453017
01-Dec-06 09:41:00	175.186462	6628.92773	76.4480438	3.77389908
01-Dec-06 09:42:00	175.559494	6638.46875	76.5432663	3.77326798
01-Dec-06 09:43:00	175.404602	6694.0332	76.6384888	3.77263689
01-Dec-06 09:44:00	175.073883	6695.1084	76.7337112	3.7720058
01-Dec-06 09:45:00	174.729004	6622.76758	76.8289337	3.77137494
01-Dec-06 09:46:00	174.97998	6616.48193	76.7063751	3.77074385
01-Dec-06 09:47:00	174.819992	6626.12109	76.6423874	3.77011275
01-Dec-06 09:48:00	175.444366	6745.46582	76.7963791	3.76948166
01-Dec-06 09:49:00	175.045135	6705.61182	76.9503784	3.76885056
01-Dec-06 09:50:00	175.351212	6665.16309	77.1043701	3.76821947
01-Dec-06 09:51:00	175.378784	6633.62842	76.9001541	3.76758862
01-Dec-06 09:52:00	176.151001	6691.69824	76.9619598	3.76695752
01-Dec-06 09:53:00	175.837341	6669.56299	77.0237579	3.76632643
01-Dec-06 09:54:00	175.158234	6682.53125	77.085556	3.76569533
01-Dec-06 09:55:00	175.908722	6673.51709	77.1473618	3.76506424
01-Dec-06 09:56:00	175.522827	6631.53223	77.5302048	3.76443315
01-Dec-06 09:57:00	174.798233	6662.13281	77.6175842	3.76380229
01-Dec-06 09:58:00	174.989777	6680.95459	77.7049713	3.7631712
01-Dec-06 09:59:00	174.569443	6610.58887	77.7923508	3.7625401
01-Dec-06 10:00:00	173.824265	6602.146	77.8797302	3.76190901
01-Dec-06 10:01:00	175.880081	6628.8252	77.9671173	3.76127791
01-Dec-06 10:02:00	174.617599	6606.71387	78.0544968	3.76064682
01-Dec-06 10:03:00	173.902237	6674.54639	78.0973969	3.76001596
01-Dec-06 10:04:00	175.076828	6697.57764	77.942131	3.75938487
01-Dec-06 10:05:00	176.251419	6692.61523	77.8273697	3.75875378
01-Dec-06 10:06:00	175.900208	6643.79834	77.9151611	3.75812268
01-Dec-06 10:07:00	174.423355	6612.64209	78.0029526	3.75799751
01-Dec-06 10:08:00	174.984787	6699.10547	78.090744	3.75863123
01-Dec-06 10:09:00	174.549683	6717.06738	78.1785355	3.75926495
01-Dec-06 10:10:00	174.158325	6631.79883	78.2663269	3.75989866
01-Dec-06 10:11:00	173.802612	6614.40771	78.3541183	3.76053238
01-Dec-06 10:12:00	175.396835	6693.94336	78.4595108	3.7611661
01-Dec-06 10:13:00	175.774124	6678.521	78.7520981	3.76179981

IGCC Operations Data

Tag Name:	1pwrji900	1TSYFI100	1tmsti922m	1tsyai202
Tag Explanation:	Unit Load	Fuel Flow	Inlet Temp	Satuator
Tag Units:	Mwe	KCFH	°F	% H2O
01-Dec-06 10:14:00	175.164658	6669.9834	79.0551147	3.76243353
01-Dec-06 10:15:00	174.409866	6634.89111	78.7625351	3.76306725
01-Dec-06 10:16:00	174.380371	6615.72266	78.8510666	3.76370096
01-Dec-06 10:17:00	175.964539	6650.37354	78.9534531	3.76433468
01-Dec-06 10:18:00	175.233047	6690.43359	79.0558319	3.7649684
01-Dec-06 10:19:00	175.34024	6683.375	79.1582184	3.76560211
01-Dec-06 10:20:00	175.758209	6653.13281	79.2606049	3.76623583
01-Dec-06 10:21:00	176.176178	6642.6792	79.3629837	3.76686931
01-Dec-06 10:22:00	175.823196	6649.47266	79.438942	3.76750302
01-Dec-06 10:23:00	174.768204	6646.74902	79.8723755	3.76813674
01-Dec-06 10:24:00	174.280014	6677.98633	79.9958801	3.76877046
01-Dec-06 10:25:00	174.66124	6668.36523	79.9958801	3.76940417
01-Dec-06 10:26:00	175.042465	6631.39795	79.9958801	3.77003789
01-Dec-06 10:27:00	175.039276	6641.55469	79.9958801	3.77067161
01-Dec-06 10:28:00	175.185181	6711.24219	80.4167938	3.77130532
01-Dec-06 10:29:00	174.4254	6689.63379	80.5707855	3.77193904
01-Dec-06 10:30:00	174.717865	6629.04492	80.3089981	3.77257276
01-Dec-06 10:31:00	176.086319	6678.13135	80.6421051	3.77320647
01-Dec-06 10:32:00	175.233276	6642.08643	80.6728516	3.77384019
01-Dec-06 10:33:00	175.464035	6652.52441	80.703598	3.77447391
01-Dec-06 10:34:00	175.554123	6683.47266	80.7343521	3.77510762
01-Dec-06 10:35:00	174.419556	6653.24609	80.7650986	3.77574134
01-Dec-06 10:36:00	174.823593	6610.0083	80.795845	3.77637506
01-Dec-06 10:37:00	174.97818	6659.17383	80.8265991	3.77700877
01-Dec-06 10:38:00	175.497498	6704.27539	80.8573456	3.77764249
01-Dec-06 10:39:00	174.966171	6679.7998	80.888092	3.77827621
01-Dec-06 10:40:00	174.744202	6634.69824	80.9188461	3.77890992
01-Dec-06 10:41:00	175.244003	6634.08691	80.7578049	3.7795434
01-Dec-06 10:42:00	175.211884	6613.70557	80.6862793	3.78017712
01-Dec-06 10:43:00	174.360413	6658.31836	80.8402786	3.78081083
01-Dec-06 10:44:00	174.834122	6684.75146	80.8171768	3.78144455
01-Dec-06 10:45:00	175.459229	6656.16699	80.8995056	3.78207827
01-Dec-06 10:46:00	174.82164	6620.96582	80.7974014	3.78271198
01-Dec-06 10:47:00	176.260101	6612.45898	80.6952896	3.7833457
01-Dec-06 10:48:00	175.39415	6703.854	80.6513672	3.78397942
01-Dec-06 10:49:00	175.075943	6726.73486	80.7545929	3.78461313
01-Dec-06 10:50:00	174.757751	6616.78955	80.8578186	3.78524685
01-Dec-06 10:51:00	174.009521	6597.09082	81.22612	3.78588057
01-Dec-06 10:52:00	174.522217	6620.0957	81.1234512	3.78651428
01-Dec-06 10:53:00	175.098267	6643.10059	81.0207901	3.787148

IGCC Operations Data

Tag Name:	1pwrji900	1TSYFI100	1tmsti922m	1tsyai202
Tag Explanation:	Unit Load	Fuel Flow	Inlet Temp	Satuator
Tag Units:	Mwe	KCFH	°F	% H2O
01-Dec-06 10:54:00	175.125275	6666.10547	80.960907	3.78778172
01-Dec-06 10:55:00	175.647583	6647.56445	81.1148987	3.78841543
01-Dec-06 10:56:00	174.793747	6634.06494	81.2688904	3.78904915
01-Dec-06 10:57:00	174.767303	6672.82813	81.4228821	3.78968287
01-Dec-06 10:58:00	175.684357	6755.67676	81.5512695	3.79031658
01-Dec-06 10:59:00	174.207428	6689.42773	81.4491653	3.7909503
01-Dec-06 11:00:00	175.216537	6643.66846	81.3470612	3.79158378
01-Dec-06 11:01:00	174.65535	6607.96094	81.255127	3.79221749
01-Dec-06 11:02:00	175.027557	6623.54492	81.4582367	3.79285121
01-Dec-06 11:03:00	175.015701	6656.08496	81.6613388	3.79348493
01-Dec-06 11:04:00	175.694763	6682.85547	81.8644409	3.79411864
01-Dec-06 11:05:00	176.081589	6673.21387	81.8745956	3.79475236
01-Dec-06 11:06:00	175.471848	6649.7583	81.2988663	3.79538608
01-Dec-06 11:07:00	175.446167	6633.98486	81.5306778	3.79601979
01-Dec-06 11:08:00	174.823456	6694.38916	81.4695816	3.79665351
01-Dec-06 11:09:00	174.735641	6696.58691	81.3674774	3.79728723
01-Dec-06 11:10:00	175.189362	6666.3584	81.2653732	3.79792094
01-Dec-06 11:11:00	175.573318	6652.6875	81.3506851	3.79855466
01-Dec-06 11:12:00	174.888168	6643.39844	81.4734802	3.79918838
01-Dec-06 11:13:00	174.831711	6634.10938	81.5962677	3.79982209
01-Dec-06 11:14:00	174.698639	6649.78467	81.7190628	3.80045581
01-Dec-06 11:15:00	175.809662	6640.01953	81.8418503	3.80108953
01-Dec-06 11:16:00	175.347748	6650.58154	81.6449738	3.80172324
01-Dec-06 11:17:00	175.021118	6652.77539	81.8745956	3.80235696
01-Dec-06 11:18:00	175.22464	6719.68799	81.8745956	3.80299067
01-Dec-06 11:19:00	174.535721	6653.41162	82.2903824	3.80362439
01-Dec-06 11:20:00	174.003342	6614.42676	82.4443741	3.80425787
01-Dec-06 11:21:00	173.831985	6600.29102	82.263443	3.80489159
01-Dec-06 11:22:00	174.297012	6615.95459	82.3862305	3.8055253
01-Dec-06 11:23:00	175.898697	6690.06689	82.5090256	3.80615902
01-Dec-06 11:24:00	175.419968	6715.75098	82.631813	3.80679274
01-Dec-06 11:25:00	174.933762	6684.13281	82.7546082	3.80742645
01-Dec-06 11:26:00	174.551926	6595.64063	82.6548309	3.80806017
01-Dec-06 11:27:00	174.430969	6613.21631	82.6548309	3.80869389
01-Dec-06 11:28:00	176.102219	6719.97852	82.6473007	3.8093276
01-Dec-06 11:29:00	175.910095	6742.00684	82.6730576	3.80996132
01-Dec-06 11:30:00	175.717987	6649.75635	82.1877213	3.81059504
01-Dec-06 11:31:00	175.317245	6604.49072	82.1877213	3.81122875
01-Dec-06 11:32:00	174.530167	6617.63818	82.4418106	3.81186247
01-Dec-06 11:33:00	174.126724	6639.08887	82.2878189	3.81249619

IGCC Operations Data

Tag Name:	1pwrji900	1TSYFI100	1tmsti922m	1tsyai202
Tag Explanation:	Unit Load	Fuel Flow	Inlet Temp	Satuator
Tag Units:	Mwe	KCFH	°F	% H2O
01-Dec-06 11:34:00	174.78157	6624.23975	82.2946396	3.8131299
01-Dec-06 11:35:00	175.719498	6688.48682	82.6001205	3.81376362
01-Dec-06 11:36:00	175.20488	6642.10156	82.7677612	3.81439734
01-Dec-06 11:37:00	175.106369	6628.63525	82.6137695	3.81503105
01-Dec-06 11:38:00	173.977173	6676.42578	82.5280685	3.81566477
01-Dec-06 11:39:00	173.856934	6634.60645	82.6301727	3.81629848
01-Dec-06 11:40:00	174.095276	6616.63916	82.7322769	3.81693196
01-Dec-06 11:41:00	175.01796	6619.0835	82.7893982	3.81756568
01-Dec-06 11:42:00	175.883087	6621.52783	82.6666107	3.8181994
01-Dec-06 11:43:00	174.65834	6647.84326	82.5438156	3.81883311
01-Dec-06 11:44:00	175.009552	6688.1416	82.4210281	3.81946683
01-Dec-06 11:45:00	174.306992	6631.27539	82.298233	3.82010055
01-Dec-06 11:46:00	174.654129	6599.19092	82.1877213	3.82073426
01-Dec-06 11:47:00	174.855621	6609.69678	82.4923782	3.82136798
01-Dec-06 11:48:00	175.015121	6687.83154	82.3908234	3.8220017
01-Dec-06 11:49:00	175.583664	6721.72949	82.2892761	3.82263541
01-Dec-06 11:50:00	175.163727	6693.23193	82.1877213	3.82326913
01-Dec-06 11:51:00	174.072845	6630.17578	82.2184677	3.82390285
01-Dec-06 11:52:00	174.967377	6612.60547	82.2492142	3.82453656
01-Dec-06 11:53:00	174.340302	6629.65625	82.2799683	3.82517028
01-Dec-06 11:54:00	174.277267	6610.4668	82.3107147	3.825804
01-Dec-06 11:55:00	174.566483	6621.00879	82.3414612	3.82643771
01-Dec-06 11:56:00	174.530273	6649.70117	82.3722076	3.82707143
01-Dec-06 11:57:00	174.494049	6611.21094	82.4029541	3.82770514
01-Dec-06 11:58:00	174.346756	6691.64355	82.4337082	3.82833886
01-Dec-06 11:59:00	174.452866	6644.86133	82.4644547	3.82897258
01-Dec-06 12:00:00	174.822098	6620.51953	82.4952011	3.82960606
01-Dec-06 12:01:00	174.934052	6622.53662	82.5008392	3.83023977
01-Dec-06 12:02:00	175.418106	6630.6001	82.9755707	3.83087349
01-Dec-06 12:03:00	174.90921	6639.87305	82.8882599	3.83150721
01-Dec-06 12:04:00	174.92691	6698.12109	83.2400131	3.83214092
01-Dec-06 12:05:00	175.101166	6643.30273	83.3940048	3.83277464
01-Dec-06 12:06:00	174.488739	6607.31299	83.2210159	3.83340836
01-Dec-06 12:07:00	175.3004	6627.24805	83.4102097	3.83404207
01-Dec-06 12:08:00	176.263153	6706.2959	83.3663101	3.83467579
01-Dec-06 12:09:00	175.413681	6717.01904	83.3224182	3.83530951
01-Dec-06 12:10:00	174.971405	6642.05273	83.2785187	3.83594322
01-Dec-06 12:11:00	174.779617	6622.65283	83.2346268	3.83657694
01-Dec-06 12:12:00	174.990997	6666.1167	83.1907272	3.83721066
01-Dec-06 12:13:00	175.643555	6669.88086	83.1468353	3.83784437

IGCC Operations Data

Tag Name:	1pwrji900	1TSYFI100	1tmsti922m	1tsyai202
Tag Explanation:	Unit Load	Fuel Flow	Inlet Temp	Satuator
Tag Units:	Mwe	KCFH	°F	% H2O
01-Dec-06 12:14:00	175.363327	6643.99365	83.2759399	3.83847809
01-Dec-06 12:15:00	174.789627	6631.12256	83.2066422	3.8391118
01-Dec-06 12:16:00	174.116028	6646.93896	83.3606415	3.83974552
01-Dec-06 12:17:00	174.503296	6646.25	83.2913437	3.84037924
01-Dec-06 12:18:00	174.765152	6721.78467	83.2223816	3.84101295
01-Dec-06 12:19:00	174.289841	6664.04053	83.42659	3.84164643
01-Dec-06 12:20:00	174.007843	6595.29834	83.6307907	3.84228015
01-Dec-06 12:21:00	174.753738	6608.86523	83.6917191	3.84291387
01-Dec-06 12:22:00	175.057129	6642.96631	83.5377274	3.84354758
01-Dec-06 12:23:00	174.988098	6657.26709	83.1270828	3.8441813
01-Dec-06 12:24:00	176.064255	6704.80713	82.8139572	3.84481502
01-Dec-06 12:25:00	174.494003	6623.25146	82.8139572	3.84544873
01-Dec-06 12:26:00	174.997711	6624.74951	82.991394	3.84608245
01-Dec-06 12:27:00	176.119949	6628.95947	83.1882553	3.84671617
01-Dec-06 12:28:00	175.307114	6683.43018	83.43293	3.84734988
01-Dec-06 12:29:00	174.619278	6702.95508	83.6776047	3.8479836
01-Dec-06 12:30:00	174.896545	6642.28223	83.9222794	3.84861732
01-Dec-06 12:31:00	174.702057	6628.4707	84.1669617	3.84925103
01-Dec-06 12:32:00	176.013367	6659.91943	84.3877792	3.84988475
01-Dec-06 12:33:00	176.049393	6683.41162	84.4893341	3.85051847
01-Dec-06 12:34:00	175.065475	6635.76758	84.590889	3.85115218
01-Dec-06 12:35:00	175.198059	6629.21631	84.6578903	3.8517859
01-Dec-06 12:36:00	174.601578	6598.59082	84.694252	3.85241961
01-Dec-06 12:37:00	173.834351	6595.35352	84.8482437	3.85305333
01-Dec-06 12:38:00	175.593872	6761.47754	84.981842	3.85368705
01-Dec-06 12:39:00	175.578094	6680.38623	84.5241394	3.85432053
01-Dec-06 12:40:00	175.220947	6668.94629	84.0664368	3.85495424
01-Dec-06 12:41:00	174.948273	6603.1084	83.7636108	3.85558796
01-Dec-06 12:42:00	174.358307	6590.67822	84.0664368	3.85622168
01-Dec-06 12:43:00	173.931458	6616.45557	84.5012589	3.85685539
01-Dec-06 12:44:00	173.441116	6671.01758	84.9589615	3.85748911
01-Dec-06 12:45:00	174.217834	6631.92969	85.2475967	3.85812283
01-Dec-06 12:46:00	175.613678	6629.14307	85.1331253	3.85875654
01-Dec-06 12:47:00	175.456223	6622.24951	85.287117	3.85939026
01-Dec-06 12:48:00	175.410156	6672.80225	85.4411087	3.86002398
01-Dec-06 12:49:00	175.491211	6737.35889	85.595108	3.86065769
01-Dec-06 12:50:00	175.302536	6673.64258	85.2491226	3.86129141
01-Dec-06 12:51:00	175.00853	6659.93164	84.7909012	3.86192513
01-Dec-06 12:52:00	174.967667	6645.22803	84.6839828	3.86255884
01-Dec-06 12:53:00	174.131165	6634.11768	84.6839828	3.86319256

IGCC Operations Data

Tag Name:	1pwrji900	1TSYFI100	1tmsti922m	1tsyai202
Tag Explanation:	Unit Load	Fuel Flow	Inlet Temp	Satuator
Tag Units:	Mwe	KCFH	°F	% H2O
01-Dec-06 12:54:00	174.578201	6625.5249	84.5952606	3.86382627
01-Dec-06 12:55:00	175.372025	6660.30371	84.7815094	3.86445999
01-Dec-06 12:56:00	176.013367	6648.59424	84.7892075	3.86509371
01-Dec-06 12:57:00	174.448975	6621.36279	84.9432068	3.86572742
01-Dec-06 12:58:00	174.090698	6699.06836	85.5052795	3.86636114
01-Dec-06 12:59:00	174.610733	6657.95117	85.4334106	3.86699462
01-Dec-06 13:00:00	174.717117	6610.52539	85.4950104	3.86762834
01-Dec-06 13:01:00	175.748611	6620.06885	85.5042191	3.86826205
01-Dec-06 13:02:00	175.213684	6601.28711	85.3000107	3.86889577
01-Dec-06 13:03:00	174.136185	6616.83936	85.0958023	3.86952949
01-Dec-06 13:04:00	174.006882	6674.3457	84.9971008	3.8701632
01-Dec-06 13:05:00	174.290543	6649.06299	84.9971008	3.87079692
01-Dec-06 13:06:00	174.758163	6623.78027	85.2948227	3.87143064
01-Dec-06 13:07:00	175.047455	6617.2915	85.3447266	3.87206435
01-Dec-06 13:08:00	174.830963	6680.33301	85.4214096	3.87269807
01-Dec-06 13:09:00	175.122986	6715.47754	85.4980927	3.87333179
01-Dec-06 13:10:00	174.658798	6638.01465	85.5747681	3.8739655
01-Dec-06 13:11:00	174.669601	6629.50977	85.5085297	3.87459922
01-Dec-06 13:12:00	174.370392	6603.40186	85.5155411	3.87523293
01-Dec-06 13:13:00	175.394821	6657.3042	85.4124603	3.87586665
01-Dec-06 13:14:00	175.693634	6671.67871	85.7191925	3.87650037
01-Dec-06 13:15:00	175.992447	6684.94141	86.0259247	3.87713408
01-Dec-06 13:16:00	176.158966	6624.24902	86.3326492	3.8777678
01-Dec-06 13:17:00	176.187775	6660.03564	86.448143	3.87840152
01-Dec-06 13:18:00	175.853073	6694.70313	85.9899139	3.879035
01-Dec-06 13:19:00	174.915909	6668.76514	85.7164993	3.87966871
01-Dec-06 13:20:00	175.416946	6595.62793	86.1822968	3.88030243

SULFURIC ACID PLANT

Ops Run 1

Start Time: 12/1/2006 9:00
Stop Time: 12/1/2006 10:16
Interval: 1m

PI Tag	1SRGFI487	1SRGAI446b
PI Desriptor	Acid Flow	Acid Concentration
Tag Units	Gallons	%
01-Dec-06 09:00:00	27.78502464	93.46537018
01-Dec-06 09:01:00	28.21019173	93.46440125
01-Dec-06 09:02:00	27.30363846	93.46343231
01-Dec-06 09:03:00	27.74376678	93.48878479
01-Dec-06 09:04:00	26.32045364	93.53107452
01-Dec-06 09:05:00	25.4934082	93.51403046
01-Dec-06 09:06:00	25.05070877	93.49699402
01-Dec-06 09:07:00	23.44331169	93.47994995
01-Dec-06 09:08:00	23.06603813	93.47263336
01-Dec-06 09:09:00	21.71669769	93.48336792
01-Dec-06 09:10:00	21.56954765	93.49411011
01-Dec-06 09:11:00	20.98880005	93.50484467
01-Dec-06 09:12:00	20.64504814	93.51558685
01-Dec-06 09:13:00	19.20642853	93.52632904
01-Dec-06 09:14:00	18.51779556	93.5370636
01-Dec-06 09:15:00	16.84566498	93.54780579
01-Dec-06 09:16:00	16.32238579	93.55854034
01-Dec-06 09:17:00	16.25473404	93.56928253
01-Dec-06 09:18:00	15.3859396	93.56995392
01-Dec-06 09:19:00	15.08987713	93.55193329
01-Dec-06 09:20:00	15.58015728	93.53390503
01-Dec-06 09:21:00	16.24164581	93.5158844
01-Dec-06 09:22:00	16.61151695	93.49786377
01-Dec-06 09:23:00	16.17938805	93.4932251
01-Dec-06 09:24:00	16.89535141	93.51346588
01-Dec-06 09:25:00	17.78787613	93.53369904
01-Dec-06 09:26:00	18.1586647	93.54548645
01-Dec-06 09:27:00	19.26957703	93.54159546
01-Dec-06 09:28:00	19.75726318	93.53770447
01-Dec-06 09:29:00	19.57340813	93.53381348
01-Dec-06 09:30:00	21.62596893	93.52992249
01-Dec-06 09:31:00	21.8271389	93.52603149
01-Dec-06 09:32:00	22.465168	93.51528168
01-Dec-06 09:33:00	23.99054718	93.49177551
01-Dec-06 09:34:00	24.92076683	93.46826935
01-Dec-06 09:35:00	25.34622765	93.46255493

Ops Run 1

PI Tag	1SRGFI487	1SRGAI446b
PI Desriptor	Acid Flow	Acid Concentration
Tag Units	Gallons	%
01-Dec-06 09:36:00	26.06377983	93.48987579
01-Dec-06 09:37:00	27.87441063	93.47788239
01-Dec-06 09:38:00	28.12085152	93.42681885
01-Dec-06 09:39:00	28.41798973	93.43437958
01-Dec-06 09:40:00	28.63371849	93.44194031
01-Dec-06 09:41:00	28.64352798	93.44950104
01-Dec-06 09:42:00	28.61082458	93.45706177
01-Dec-06 09:43:00	28.77627182	93.4646225
01-Dec-06 09:44:00	28.40077972	93.47218323
01-Dec-06 09:45:00	28.09085274	93.47974396
01-Dec-06 09:46:00	28.31199455	93.48730469
01-Dec-06 09:47:00	28.50691032	93.49289703
01-Dec-06 09:48:00	28.59101486	93.49484253
01-Dec-06 09:49:00	28.65052223	93.4967804
01-Dec-06 09:50:00	27.66983414	93.49871826
01-Dec-06 09:51:00	27.88570786	93.50066376
01-Dec-06 09:52:00	26.84090042	93.50260162
01-Dec-06 09:53:00	26.51586342	93.50454712
01-Dec-06 09:54:00	26.07448006	93.50648499
01-Dec-06 09:55:00	25.29698753	93.50843048
01-Dec-06 09:56:00	23.51574326	93.51036835
01-Dec-06 09:57:00	22.8305912	93.51231384
01-Dec-06 09:58:00	21.59775925	93.51425171
01-Dec-06 09:59:00	23.51412964	93.5161972
01-Dec-06 10:00:00	19.68430328	93.51813507
01-Dec-06 10:01:00	18.87592697	93.52008057
01-Dec-06 10:02:00	17.57759285	93.52201843
01-Dec-06 10:03:00	12.52952671	93.52396393
01-Dec-06 10:04:00	25.03555489	93.52590179
01-Dec-06 10:05:00	18.85072708	93.52784729
01-Dec-06 10:06:00	17.41357803	93.5300293
01-Dec-06 10:07:00	17.33560181	93.5326767
01-Dec-06 10:08:00	17.02531433	93.5353241
01-Dec-06 10:09:00	16.19791603	93.5379715
01-Dec-06 10:10:00	17.89147568	93.54061127
01-Dec-06 10:11:00	16.56319237	93.54325867
01-Dec-06 10:12:00	16.99263	93.54590607
01-Dec-06 10:13:00	17.93761253	93.54855347
01-Dec-06 10:14:00	16.9590435	93.55120087
01-Dec-06 10:15:00	17.81960487	93.5430603

Ops Run 1

PI Tag	1SRGFI487	1SRGAI446b
PI Desriptor	Acid Flow	Acid Concentration
Tag Units	Gallons	%
01-Dec-06 10:16:00	17.58545113	93.51488495

Ops Run 2

Start Time: 12/1/2006 10:45
Stop Time: 12/1/2006 11:57
Interval: 1m

PI Tag	1SRGFI487	1SRGAI446b
PI Desriptor	Acid Flow	Acid Concentration
Tag Units	Gallons	%
01-Dec-06 10:45:00	24.81376076	93.49940491
01-Dec-06 10:46:00	22.89592934	93.50131226
01-Dec-06 10:47:00	22.39478683	93.51085663
01-Dec-06 10:48:00	19.93430901	93.52039337
01-Dec-06 10:49:00	20.27495766	93.52993011
01-Dec-06 10:50:00	19.91744614	93.53947449
01-Dec-06 10:51:00	17.54257393	93.54901123
01-Dec-06 10:52:00	15.76693058	93.55854797
01-Dec-06 10:53:00	17.40314102	93.56251526
01-Dec-06 10:54:00	17.51663208	93.55686951
01-Dec-06 10:55:00	15.8992281	93.55121613
01-Dec-06 10:56:00	16.36616135	93.54556274
01-Dec-06 10:57:00	14.41671467	93.53990936
01-Dec-06 10:58:00	15.16575336	93.53425598
01-Dec-06 10:59:00	15.83239174	93.5286026
01-Dec-06 11:00:00	17.52677345	93.52294922
01-Dec-06 11:01:00	16.08989334	93.51730347
01-Dec-06 11:02:00	16.55682564	93.51165009
01-Dec-06 11:03:00	17.40995026	93.5059967
01-Dec-06 11:04:00	18.0328064	93.50034332
01-Dec-06 11:05:00	19.1630497	93.49468994
01-Dec-06 11:06:00	19.24752808	93.48903656
01-Dec-06 11:07:00	19.30465698	93.48339081
01-Dec-06 11:08:00	21.30342293	93.47773743
01-Dec-06 11:09:00	22.13223076	93.47208405
01-Dec-06 11:10:00	23.21401215	93.46643066
01-Dec-06 11:11:00	23.57389832	93.46077728
01-Dec-06 11:12:00	24.00601196	93.45965576
01-Dec-06 11:13:00	25.48270798	93.46634674
01-Dec-06 11:14:00	26.53207397	93.47303772
01-Dec-06 11:15:00	26.79130936	93.4797287
01-Dec-06 11:16:00	27.18885994	93.48642731
01-Dec-06 11:17:00	27.77987671	93.49311829
01-Dec-06 11:18:00	28.35927582	93.49980927
01-Dec-06 11:19:00	28.644104	93.50650024
01-Dec-06 11:20:00	28.51919937	93.51319122

Ops Run 2

PI Tag	1SRGFI487	1SRGAI446b
PI Desriptor	Acid Flow	Acid Concentration
Tag Units	Gallons	%
01-Dec-06 11:21:00	28.37153244	93.51651001
01-Dec-06 11:22:00	28.29162216	93.51397705
01-Dec-06 11:23:00	28.53301239	93.51145172
01-Dec-06 11:24:00	28.68195534	93.50892639
01-Dec-06 11:25:00	28.33005905	93.50640106
01-Dec-06 11:26:00	28.58103561	93.5038681
01-Dec-06 11:27:00	27.98178291	93.50134277
01-Dec-06 11:28:00	28.30842972	93.49881744
01-Dec-06 11:29:00	27.58072853	93.49629211
01-Dec-06 11:30:00	27.33546066	93.49375916
01-Dec-06 11:31:00	27.68540001	93.49123383
01-Dec-06 11:32:00	26.34355164	93.4887085
01-Dec-06 11:33:00	26.12300491	93.48618317
01-Dec-06 11:34:00	25.06778526	93.48365021
01-Dec-06 11:35:00	24.06972504	93.48112488
01-Dec-06 11:36:00	23.51172638	93.47859955
01-Dec-06 11:37:00	22.74806786	93.47607422
01-Dec-06 11:38:00	24.20674706	93.47722626
01-Dec-06 11:39:00	21.73978424	93.48474884
01-Dec-06 11:40:00	23.1600399	93.49227142
01-Dec-06 11:41:00	15.42840385	93.49978638
01-Dec-06 11:42:00	18.66775322	93.50730896
01-Dec-06 11:43:00	17.12492752	93.51483154
01-Dec-06 11:44:00	15.49215794	93.5223465
01-Dec-06 11:45:00	15.16769886	93.52954102
01-Dec-06 11:46:00	15.07560921	93.53612518
01-Dec-06 11:47:00	14.57235909	93.54271698
01-Dec-06 11:48:00	16.19573021	93.54930115
01-Dec-06 11:49:00	16.36071396	93.55588531
01-Dec-06 11:50:00	16.49975586	93.54155731
01-Dec-06 11:51:00	15.58853817	93.52974701
01-Dec-06 11:52:00	15.35196209	93.5707016
01-Dec-06 11:53:00	16.36379242	93.56061554
01-Dec-06 11:54:00	18.06073952	93.55052185
01-Dec-06 11:55:00	16.72803497	93.54043579
01-Dec-06 11:56:00	18.81069946	93.5303421
01-Dec-06 11:57:00	19.83800507	93.52025604

Ops Run 3

Start Time: 12/1/2006 12:21
Stop Time: 12/1/2006 13:32
Interval: 1m

PI Tag	1SRGFI487	1SRGAI446b
PI Desriptor	Acid Flow	Acid Concentration
Tag Units	Gallons	%
01-Dec-06 12:21:00	26.54945564	93.49086761
01-Dec-06 12:22:00	25.19431114	93.49350739
01-Dec-06 12:23:00	24.24565887	93.49614716
01-Dec-06 12:24:00	22.80313301	93.49803162
01-Dec-06 12:25:00	22.75828362	93.49861145
01-Dec-06 12:26:00	22.10820198	93.49919128
01-Dec-06 12:27:00	20.77284241	93.49977112
01-Dec-06 12:28:00	18.99655151	93.5063324
01-Dec-06 12:29:00	19.28838539	93.52399445
01-Dec-06 12:30:00	15.91479206	93.537323
01-Dec-06 12:31:00	16.9459362	93.54315186
01-Dec-06 12:32:00	16.83309555	93.54828644
01-Dec-06 12:33:00	16.1206665	93.55219269
01-Dec-06 12:34:00	15.37219906	93.55609894
01-Dec-06 12:35:00	15.17158985	93.56001282
01-Dec-06 12:36:00	15.81984901	93.56391907
01-Dec-06 12:37:00	15.24163055	93.55861664
01-Dec-06 12:38:00	16.76564789	93.53620148
01-Dec-06 12:39:00	17.13660049	93.51995087
01-Dec-06 12:40:00	15.7085638	93.51512909
01-Dec-06 12:41:00	15.51271057	93.51031494
01-Dec-06 12:42:00	17.26226044	93.50549316
01-Dec-06 12:43:00	17.39624405	93.50067902
01-Dec-06 12:44:00	17.804142	93.49585724
01-Dec-06 12:45:00	18.58090973	93.49103546
01-Dec-06 12:46:00	18.83090019	93.48622131
01-Dec-06 12:47:00	20.51719666	93.48139954
01-Dec-06 12:48:00	22.39820099	93.47658539
01-Dec-06 12:49:00	23.038517	93.47176361
01-Dec-06 12:50:00	24.13442993	93.44772339
01-Dec-06 12:51:00	25.30501366	93.43882751
01-Dec-06 12:52:00	26.69705772	93.48272705
01-Dec-06 12:53:00	26.84956932	93.48361969
01-Dec-06 12:54:00	28.03206253	93.48451233
01-Dec-06 12:55:00	27.90480804	93.48540497
01-Dec-06 12:56:00	28.63759232	93.48629761

Ops Run 3

PI Tag	1SRGFI487	1SRGAI446b
PI Desriptor	Acid Flow	Acid Concentration
Tag Units	Gallons	%
01-Dec-06 12:57:00	28.75903893	93.48719025
01-Dec-06 12:58:00	28.92666435	93.48808289
01-Dec-06 12:59:00	28.66518211	93.48897552
01-Dec-06 13:00:00	28.90792084	93.48986816
01-Dec-06 13:01:00	28.16115189	93.4907608
01-Dec-06 13:02:00	28.71001625	93.49165344
01-Dec-06 13:03:00	28.66949844	93.51124573
01-Dec-06 13:04:00	28.29980469	93.53730011
01-Dec-06 13:05:00	28.68383217	93.51535797
01-Dec-06 13:06:00	27.99263954	93.4934082
01-Dec-06 13:07:00	27.95467758	93.47146606
01-Dec-06 13:08:00	27.81062317	93.46382904
01-Dec-06 13:09:00	26.01124954	93.4827652
01-Dec-06 13:10:00	25.93829155	93.50170135
01-Dec-06 13:11:00	25.59587479	93.48405457
01-Dec-06 13:12:00	25.18997192	93.43802643
01-Dec-06 13:13:00	24.30197716	93.45662689
01-Dec-06 13:14:00	23.38766861	93.47522736
01-Dec-06 13:15:00	22.1136837	93.49382782
01-Dec-06 13:16:00	22.16335869	93.51242828
01-Dec-06 13:17:00	29.52200317	93.53102112
01-Dec-06 13:18:00	18.22222137	93.54092407
01-Dec-06 13:19:00	17.28057098	93.53466797
01-Dec-06 13:20:00	18.38953781	93.52841187
01-Dec-06 13:21:00	17.45567131	93.52214813
01-Dec-06 13:22:00	15.32042503	93.51589203
01-Dec-06 13:23:00	16.06765747	93.51211548
01-Dec-06 13:24:00	16.5723896	93.51295471
01-Dec-06 13:25:00	15.15758228	93.51378632
01-Dec-06 13:26:00	15.86031723	93.51461792
01-Dec-06 13:27:00	15.58404827	93.51545715
01-Dec-06 13:28:00	14.35834789	93.51628876
01-Dec-06 13:29:00	16.65799332	93.51712036
01-Dec-06 13:30:00	14.79674625	93.51795959
01-Dec-06 13:31:00	20.45280075	93.5187912
01-Dec-06 13:32:00	19.95116997	93.5196228

APPENDIX H

VISIBLE EMISSIONS OBSERVATIONS

IGCC

TAMPA ELECTRIC
A TECO ENERGY COMPANY

VISIBLE EMISSION OBSERVATION

E-496 A 10/85

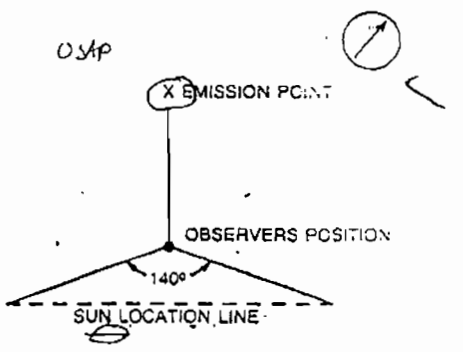
SOURCE NAME	SOURCE LOCATION	OBSERVATION DATE	START TIME	STOP TIME
Polk Power Station	Polk Co FL	12/1/2006	10:10	10:40

TYPE OF FACILITY: HRSG - firing synthetic gas

DISTANCE FROM OBSERVER: ~1200'

SKY CONDITIONS/PLUME BACKGROUND: Overcast / wh. to gray

SOURCE LAYOUT SKETCH — DRAW NORTH ARROW



AVERAGE OPACITY: 0

WIND SPEED (EST.)	WIND DIRECTION (EST.)
moderate ~20 mph	~ENE

OBSERVER'S NAME (PRINT): K.A. McDarby

OBSERVER'S SIGNATURE: K.A. McDarby — DATE: 1-DEC-2006

COMMENTS: sky ~70°

COPY OF VISIBLE EMISSIONS CERTIFICATION CARD

re-certified 8/15/2006 ETA-Tampa

EASTERN TECHNICAL ASSOCIATES

RAY MCDARBY

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

2/14/06 — 8/15/06 — TMPEC4

DATE OF SCHOOL — EXPIRATION DATE — LAST LECTURE

337141 — Michael Langford, TRAINING MANAGER — K.A. McDarby, BEARER

CERT. NUMBER

SEC. MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

SULFURIC ACID PLANT

TAMPA ELECTRIC
A TECO ENERGY COMPANY

VISIBLE EMISSION OBSERVATION

E-496 R 10/85

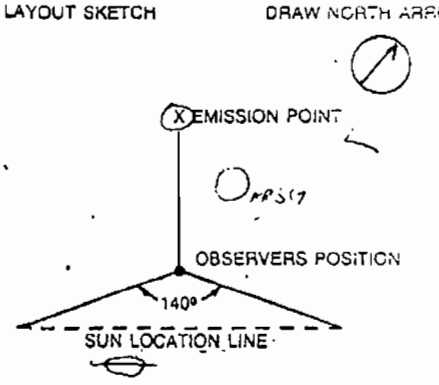
SOURCE NAME	SOURCE LOCATION	OBSERVATION DATE	START TIME	STOP TIME
Polk Power Station	Polk Co. FL	12/1/2006	10:15	10:40

TYPE OF FACILITY: Sulfuric Acid Plant

DISTANCE FROM OBSERVER: ~150'

SKY CONDITIONS/PLUME BACKGROUND: Clear / white, gray

SOURCE LAYOUT SKETCH



AVERAGE OPACITY: 0

WIND SPEED (EST.)	WIND DIRECTION (EST.)
moderate ~5 mph	~ENE

OBSERVER'S NAME (PRINT): R. A. McDarby

OBSERVER'S SIGNATURE: R A McDarby

DATE: 1-DEC-2006

COMMENTS: SA ~74

COPY OF VISIBLE EMISSIONS CERTIFICATION CARD

re-certified 8/15/2006 ETA - Tampa

EASTERN TECHNICAL ASSOCIATES

RAY MCDARBY

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.

2/14/06 — DATE OF SCHOOL — 8/16/06 — EXPIRATION DATE — TMP5C4 — LAST LECTURE

337141 — CERT. NUMBER — Michael A. Lunsford — TRAINING MANAGER — R A McDarby — BEARER

SEC. MIN	0	15	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21	0	0	0	0	51				
22	0	0	0	0	52				
23	0	0	0	0	53				
24	0	0	0	0	54				
25	0	0	0	0	55				
26	0	0	0	0	56				
27	0	0	0	0	57				
28	0	0	0	0	58				
29	0	0	0	0	59				
30	0	0	0	0	60				

APPENDIX I

CHAIN OF CUSTODY

Trigon Engineering Consultants, Inc. *Chain of Custody* **Sampler's Signature** _____

Company: TECO City, State: Polk Co. Florida Contact: David Smith	Laboratory: TECO Project No. 046-06-120 Purchase Order No. _____	No. of Containers 8	Sampling Methods: 8

Sample Description		Sample ID	Date	Time	Sample Disposition and Remarks
Unit 1	Run 1	6120-01	12/01/06		80% IPA → SO_3 catch
	Run 1	6120-02	12/01/06		3% H_2O_2 → SO_2 catch
	Run 2	6120-03	12/01/06		80% IPA → SO_3 catch
	Run 2	6120-04	12/01/06		3% H_2O_2 → SO_2 catch
	Run 3	6120-05	12/01/06		80% IPA → SO_3 catch
	Run 3	6120-06	12/01/06		3% H_2O_2 → SO_2 catch
Reagent Blank		6120-07	12/01/06		80% IPA blank
Reagent Blank		6120-08	12/01/06		3% H_2O_2 blank

Relinquished By:	Date/Time	Received By:	Date/Time
_____	12/01/06 / 1425	_____	12-01-06 / 14:25
Relinquished By:	Date/Time	Received By:	Date/Time
_____	___/___	_____	___/___

Received for Laboratory By:	Date/Time	Analyze for the Following Compounds:
_____	___/___	_____
_____	___/___	_____

TECO
TAMPA ELECTRIC

ANALYSIS REQUEST & CHAIN OF CUSTODY

ENVIRONMENTAL SERVICES

5012 CAUSEWAY BLVD., TAMPA, FL, 33619 PHONE (813)228-4111

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)	REQUIRED ANALYSIS	DUE DATE
Polk Acid SAP		Polk	RM 8	
SAMPLER'S PRINTED NAME	SAMPLER'S SIGNATURE		H_2SO_4	☐ EMAIL RESULTS
Scott Given	Scott Given			☐ FAX RESULTS
P.O. NUMBER	CONTRACT NO	SITE		☐ MAIL RESULTS
CLIENT NAME	CLIENT PHONE	CLIENT FAX		
CLIENT EMAIL	CLIENT ADDRESS		PRESERVATIVE	NUMBER OF COOLERS SUBMITTED PER SHIPMENT

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLING DATE	SAMPLING TIME	* MATRIX	NUMBER OF CONTAINERS SUBMITTED	REMARKS
Run I	SAP Acid Mist	12/1/06	10:40		1	
Run II	" " "	12/1/06	12:30		1	
Run III	" " "	12/1/06	1:30		1	
80% Blank	80% IPA				1	

* GW - GROUND WATER SW - SURFACE WATER DW - DRINKING WATER WW - WASTE WATER C - COAL O - OIL SO - SOLID/SOIL SL - SLUDGE W - WASTE SAMPLE A - AIR

CONTAINERS/SEALS INTACT ☐ Yes ☐ No

ON ICE/ 4°C ☐ Yes ☐ No

SAMPLE TRANSFERS

RELINQUISHED BY:	RECEIVED BY:	DATE	TIME
PERSON'S NAME: Scott Given / Scott Given	PERSON'S NAME: Sam Scott	12-1-06	1610
FACILITY NAME:	FACILITY NAME: CSWY/LAB		
PERSON'S NAME:	PERSON'S NAME:		
FACILITY NAME:	FACILITY NAME:		
PERSON'S NAME	PERSON'S NAME		
FACILITY NAME:	FACILITY NAME:		
PERSON'S NAME	PERSON'S NAME		
FACILITY NAME:	FACILITY NAME:		

APPENDIX J

PROJECT PARTICIPANTS

TEST PARTICIPANTS

ENVIRONMENTAL SERVICES, AIR SERVICES GROUP

Test Team

Charles Dufeny	Environmental Technician, Test Team Lead
Scott Given	Associate Technician
Gary Barber	Associate Technician
Raymond A. McDarby	Senior Environmental Technician
David A. Smith	Coordinator, Air Services Group

TRIGON ENGINEERING CONSULTANTS, INC

Test Team

Quentin Best	Team Lead
Jamie Bell	Technician
Larry Reynolds	Technician
Ian DeVivi	Technician

Process Data

Raymond A. McDarby	Senior Environmental Technician

Fuel Analysis

Raymond A. McDarby	Senior Environmental Technician
Bret Nicholas	Senior Environmental Technician

Report Preparation

Raymond A. McDarby	Senior Environmental Technician

Quality Assurance/Quality Control Review

Raymond A. McDarby	Senior Environmental Technician

Test Coordination

David A. Smith	Coordinator, Air Services Group
Michael Perkins	Environmental Coordinator – PPS
Paul Jenkins	Program Manager – Trigon Engineering Consultants, Inc.