Z 031 391 996

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Robert Moore	
Street & Number Gulf Power Co	
Post Office, State, & ZIP Code Pensacola Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 11-3-99 PSD-Fl-269 pa 99-40	

PS Form **3800**, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Robert G. Moore, VP
Gulf Power Co
One Energy Place
Pensacola, Fl
32520-0100

4a. Article Number
Z 031 391 996

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*
RICHARD E ANDREWS

6. Signature: *(Addressee or Agent)*
X Richard E Andrews

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811**, December 1994 102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

Z 031 391 997

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Doug Neeley	
Street & Number EPA Region 4	
Post Office, State, & ZIP Code Atlanta GA	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Gulf Power PSD-FL-269	11-3-99

PS Form **3800**, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Doug Neeley, Section Chief
Air, Radiation Technology Branch
Preconstruction/HAP Section
U.S. EPA - Region IV
61 Forsyth Street
Atlanta, GA 30303

4a. Article Number
Z031 391 997

4b. Service Type
☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*
JOYCE EVANS

6. Signature: *(Addressee or Agent)*
X ... 1999

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811**, December 1994 102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7099 3400 0000 1453 3174

Article Sent To:

Mr. Robert G. Moore

Postage	$	
Certified Fee		Postmark Here
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	$	

Name (Please Print Clearly) (to be completed by mailer) Robert G. Moore Gulf Power Co.
Street, Apt. No.; or PO Box No. One Energy Place
City, State, ZIP+4 Pensacola, FL 32520-0100

PS Form 3800, July 1999 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Robert G. Moore
Gulf Power Company
One Energy Place
Pensacola, FL 32520-0100

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* W. Hawkins B. Date of Delivery

C. Signature
X W Hawkins ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7099 3400 0000 1453 3174

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-99-M-1789

One Energy Place
Pensacola, Florida 32520

850.444.5111

RECEIVED

SEP 26 2000

BUREAU OF AIR REGULATION

GULF POWER
A SOUTHERN COMPANY

Certified Mail

September 15, 2000

Mr. Michael P. Halpin, P.E.
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Halpin:

RE: PLANT LANSING SMITH UNIT 4 & 5
DEP File No. PA 99-40, PSD-FL-269
SPECIFIC CONDITION 20 BURNER EVALUATION REPORT

Enclosed is the Plant Smith Unit 1 P2-Low NOx Burner Tip Evaluation Report as required under Specific Condition 20 of the PSD permit for Smith Unit 4 & 5 Combined Cycle issued on July 31, 2000.

The purpose of this report is to evaluate whether the P2-Low NOx Burner Tip installed on Smith Unit 1 has the ability to reduce emissions pursuant to an emissions offset outlined in the Smith PSD application and subsequent permit. Please note that some materials contained in the report are to be considered of a _confidential and proprietary nature_.

If you have any questions or need further information regarding this information, please call me at (850) 444-6527.

Sincerely,

G. Dwain Waters Q.E.P.

G. Dwain Waters, Q. E. P.
Air Quality Programs Coordinator

cc: Robert G. Moore., Gulf Power Company
James O. Vick, Gulf Power Company
Thomas G. Turk, Gulf Power Company
Angela Morrison, Hopping Green Sams and Smith

For File –
Gulf Smith
PA 99-40
PSD-FL-269

PLANT SMITH UNIT 1 P2-LOW NOx BURNER TIP NITROGEN OXIDE OFFSET EVALUATION REPORT

09/15/2000

Background:

Gulf Power evaluated several options in developing the final design for the new Plant Smith combined cycle combustion turbine unit planned for construction in 2002. Among these options is a scenario to offset nitrogen oxide emissions from one of the existing units at Plant Smith in order to exempt the new project from BACT (Best Available Control Technology) review for nitrogen oxides. BACT is part of the air permitting evaluation called Prevention of Significant Deterioration (PSD). "Attachment 1" is the ABB proposal to Gulf Power for a LNCFS™ P2-Low NOx Burner System and Tilt Upgrade. Please consider this attachment as "Confidential Information". The offset option reduced capital and operational cost of the new combined cycle unit while having the potential to reduce overall nitrogen oxide emissions at the facility. Nitrogen Oxide is considered a major air pollutant and is one of the major contributors to acid deposition and ozone formation, thus any overall reduction of the pollutant from Plant Smith is considered beneficial to the environment. Therefore, the offset option is considered a "Win-Win" scenario for the environment and for unit operations. The following report reviews baseline nitrogen oxide emission calculations for the new Smith combined cycle units (Unit 4&5) and projects offset emissions from the installation of low NOx burner tip technology on Smith Unit 1.

Timeline:

The following are key project timeline dates:

- Pre-P2 Burner Tip Installation Annual Baseline Emissions Rate: 1995-1996 Average
- Pre-P2 Burner Tip Installation RATA Baseline Test: 04/29/1997
- Smith 1 P2 NOx Burner Tip Installation Date: 02/03/1999 – 04/12/1999
- Smith 1 Post P2 Burner Tip Installation RATA Test: 06/23/99
- Smith Unit 4 & 5 Combined Cycle Construction Start Date: 07/28/2000
- Projected Commercial date for Smith Combined Cycle Units 4 & 5: 06/31/2002

Calculations:

"Attachment 2" is a summary of all assumptions and calculations to determine the baseline emissions for Smith Unit 1, Unit 2 and the projected maximum potential emissions for the new Smith Combined Cycle Units 4 and 5. The existing Smith CT was not included in these estimates because emissions from the unit are considered negligible (i.e. < 20 tons/yr). The analysis indicates that the baseline emission for nitrogen oxide at Plant Smith is 6666 tons. The projected reduction from the installation of low NOx burner tip technology on Smith Unit 1 is approximately 967 tons per year. The maximum potential emissions for the new combined cycle units (Unit 4 & 5) are 756.5 tons per year. Thus, total nitrogen oxide emissions at Plant Smith should actually be reduced by 210.6 tons per year and all emissions from the new proposed combined cycle units are totally offset. These projections are greater than originally proposed and are due to Unit 2 being added in the facility-wide cap during final negotiations with FDEP.

Pre/Post P2 Low NOx Burner Tip Installation Performance:

The emissions rate outlined in the baseline calculation in "Attachment 2" was determined to be representative of pre P2 Low NOx Burner Tip performance for Smith Unit 1. The rate is 0.625 lbs/mbtu and was used to establish the facility-wide NOx cap of 6666 tons in the Smith 4 & 5 PSD permit. The 1997 NOx Relative Accuracy Test Audit (RATA) at 0.658 lbs/mbtu confirmed this data as a reasonable baseline rate (See Attachment 3). The Smith Unit 1 P2 Low NOx Burner Tips were installed during the Spring (April) 1999 outage. The post P2 Tip performance recorded during the following Relative Accuracy Test Audit (RATA) in June, 1999 was 0.437 lbs/mbtu NOx (See Attachment 3). This confirmed the reduction capability of the P2 tips as outlined in Equation C1 of "Attachment 2" i.e., (0.625 lb/mbtu * 0.75 (25% reduction) = 0.469 lb/mbtu). The annual 1999 NOx performance for Smith Unit 1 was 0.515 lbs/mbtu. This rate is slightly higher than the anticipated post P2 tip target value (0.469 lbs/mbtu), but is within reason when considering the annual rate includes an average of pre and post P2 tip performance during 1999. Additionally, Plant Smith implemented a fuel change in the latter months of 1999 to reduce SO2 for Title IV and V purposes that resulted in a slight increase in the potential NOx emissions (from the June RATA baseline) because of the higher nitrogen content of the new coal supply. It should be noted that performances of low NOx burner technologies are directly linked to the amount of nitrogen content of the fuel. At optimum performance, low NOx burner technology can achieve approximately a 50% reduction of the total NOx present in the flue gas. Likewise, the 20-25% potential reduction expected from P2 Low NOx Burner Tips on Smith 1 is also dependent on the quality of fuel (coal). Nevertheless, nitrogen oxide reduction potentials can be calculated and projected. On a short term basis, Smith Unit 1 post P2 tip performance has continued to improve during year 2000. This is attributed to an additional beneficial fuel switch (lowering fuel based Nitrogen) and due to increased burner tip optimization by the plant operators. Attached as "Attachment 4"is a short term example of NOx performance for Smith Unit 1 for the week August 14, 2000 and an example of quarterly performance report as monitored by the Environmental Affairs Department. This data documents Smith Unit 1 emissions at 0.437 lbs/mbtu and 0.455 lbs/mbtu for the 3rd. Quarter year (QTD), 2000 . This performance demonstrates the projected target rate of 0.469 (see Equation C1 of Attachment 2) for post P2 tip installation for Smith Unit 1.

Conclusion:

Gulf Power installed P2 Low NOx Burner Tips on Smith Unit 1 in 1999 to reduce emissions of nitrogen oxides for the purposes of offsetting future potential emissions from a new 574 MW combined cycle unit under construction at Plant Smith. Demonstration of this technology is evident through the overall reduction of NOx in the Smith Unit 1 annual Relative Accuracy Test Audits and through quarterly/weekly data submitted with this report. These data confirm projected reductions summarized in "Attachment 2" for future year emission estimates for Plant Smith. These projections outline a Plant Smith net NOx reduction from the 1995-96 baseline of 210.6 tons a year. Thus, Gulf Power through the installation of P2 Low NOx Tips has successfully demonstrated the potential to meet the facility wide NOx emissions cap outlined in the Smith PSD permit.

G.Dwain Waters, Q.E.P.
09/15/00

A Proposal To:

GULF POWER COMPANY

Lansing Smith, Unit 1

For:

P2-Low NOx Burner System and Tilt Upgrade

June 3, 1998

Proposal Number 43030048

CONFIDENTIAL

PROPRIETARY

ABB C-E Services, Inc.

TABLE OF CONTENTS

1 - INTRODUCTION

1.1 INTENT

ABB C-E Services, Inc. (the Company) proposes to furnish Gulf Power Company (the Purchaser) the material and services outlined in this Proposal to provide a tilt upgrade.

The materials are intended for use on the RRP type steam generator located at the Purchaser's Lansing Smith facility.

The unit is further identified as the Purchaser's Unit Number 1.

2 - MATERIAL & SERVICES LISTING

2.1 TILT UPGRADE, COAL PIPE MODIFICATIONS AND P2- LOW NOX BURNER SYSTEM

The following is a listing of the major equipment included within the scope of the Tilt Upgrade, Coal Pipe Modifications and P2-Low NOx Burner System for the subject unit. Quantities shown are for one (1) unit.

Tilt Upgrade - Base Offering

Item	Quantity	Description
1	Eight (8)	Tilt modules, each consisting of the following: a) One (1) Direct drive. b) Three (3) In-direct drives. c) One (1) Vertical link.
2	Four (4)	Vertical tilt connecting link, external.
3	Thirty-six (36)	Horizontal nozzle adjusting links.

Coal Pipe Modifications - Option 1

Item	Quantity	Description
1	Thirty-six (36)	Gasket - F.I.E./Gates.
2	Twelve (12)	Rockwell couplings including 12' diameter x 36" long spool piece.
3	Forty (40)	12" Victaulic couplings and gaskets. *Note, if existing couplings are Eastern, replace entire coupling.*
4	Eight hundred (800) lbs	Hanger supports, pipe supports, and miscellaneous steel.

P2-Low NOx Burner System - Option 2

1	Sixteen (16)	P2 single piece coal nozzle tip and seal plate fabricated from 309 stainless steel.
2	Twenty-four (4)	Fixed CFS single piece nozzle tip fabricated from 309 stainless steel.
3	Eight (8)	Bottom end air single piece air nozzle tip fabricated from 309 stainless steel.
4	Four (4)	VCCOFA, includes fixed vanes, tilting vane, frame, and frame pins fabricated from 309 stainless steel.
5	Sixteen (16)	Nozzle tip connecting bars (auxiliary air compartments).
6	One hundred four (104)	Nozzle tip pivot pin assemblies.
7	Thirty-two (32)	Coal nozzle tip pins.
8	Four (4)	Bushing alignment fixtures.
9	Twelve (12)	Oil single piece nozzle tip fabricated from 309 stainless steel.

Necessary drawings and/or drawing revisions as required to incorporate the above material and modifications are included in this offering.

Please see Section 3.1 of this Proposal for a technical discussion of the above items.

3 - TECHNICAL DISCUSSION

3.1 TILT UPGRADE, COAL PIPE MODIFICATIONS AND P2- LOW NOX BURNER SYSTEM

3.1.1 Tangential Windbox Tilt Upgrade - Base Offering

Existing Tilt System

The following are common problems that are encountered with existing tilt systems. It should be noted that these problems cannot be solved by only upgrading the tilt system. A thorough inspection of the windboxes should be made to determine if any of these problems exist and that the tilt upgrade addresses the actual problem. As an example, structural damage such as distorted windbox partition plates or sagging in the windboxes may create tilt binding problems that would not be corrected with an upgraded system. These types of problems should be corrected when installing the upgrade to assure long term reliability. The tilt upgrade assumes that the windbox is structurally sound and dimensionally true.

Tilt Binding Due to Excessive Coal Pipe Loading on the Coal Nozzle Assemblies

Excessive coal pipe loading on the coal nozzle assemblies can cause the nozzle tips to move and bind against partition plates when tilting. This problem has been more pronounced on units where the coal piping is supported off the bottom of the windbox with cantilever beam type supports. The differential expansion between "cool" coal piping and the "hot" windbox generate loads into the windbox from the coal piping. A second load imparted on the windbox comes from the weight of the coal piping itself. These loads will increase the likelihood of problems due to tips binding against partition plates and distortion of the windbox.

Tilt Binding Due to Faulty Fabrication or Improper Field Adjustment of Windbox Internals

During installation and adjustment of the nozzle tilt system, clearances and tolerances must be maintained in order to prevent tilt binding due to interference. There are several common points of interference due to faulty field adjustment or repair of the windbox that create binding problems. As an example, nozzle tip lever-to-reach rod clearance and nozzle tip connecting bar to clearance slot in the windbox partition plates are typical locations for problems. The potential interference points can be identified during an inspection of the tilt system or installation of the tilt upgrade. Most of these can be corrected during installation.

Tilt Binding Due to Distortion of Windbox Components

As a result of overheating, nozzle tips, seal plates, and partition plates can distort. If the amplitude of the distortion is great enough, binding of the nozzle tips, hence the windbox tilts can occur. Additionally, the windbox itself can twist or distort creating nozzle tip and tilt system binding. Repair of the windbox and nozzle tips will be essential to prevent binding from distortion. In some cases the nozzle tips must be replaced.

Modularized Indirect and Direct Tilt Drive Assemblies

This is a shop assembled module consisting of an external nozzle adjusting mechanism (direct drive), an internal vertical connecting bar, and several internal nozzle adjusting mechanisms with pivot pins (indirect drives). These components are shop assembled on a support bar which is then welded to the windbox in the field. This assures proper component alignment, which is critical for successful operation of the tilts. Design features of the modules include: stiffener bars to prevent bending, stainless steel and/or graphite bushings for reduced friction, stainless steel pivot pins, and external shear pins on the direct drive mechanisms to prevent damage to internal components if there is a tilt binding problem.

The pre-assembled module simplifies installation by eliminating drive alignment in the field.

Horizontal Nozzle Adjusting Links

New tubular links are offered to replace the older style rectangular links. The round cross section of the new links provides improved compressive strength. After assembly, a tubing is positioned over the threaded section and welded to the link for additional strength. All required attachment hardware is included.

Vertical Nozzle Tip Connecting Links

New CORTEN vertical connecting links designed for higher compressive strength are provided to accommodate the nozzle tip configuration (either existing or new). All required attachment hardware is included.

External Connecting Rods

External connecting rods are supplied with a "turnbuckle" device to allow for proper adjustment between external nozzle adjusting mechanisms after field assembly.

3.1.2 Coal Piping Modifications - Option 1

Background

In conjunction with windbox modifications (existing nozzle elevations are to remain), the tilt system will be upgraded. This action has raised concerns as to the impact of the coal piping loads into the nozzle/tilts. The Company proposes to revisit the support system and upgrade accordingly. Included are Rockwell couplings (on the top three (3) elevations), to be provided as completed spool assemblies.

Piping

The Company proposes to provide, top three (3) elevations, new 12" victaulic couplings with new respective gaskets and lubricant. If Eastern coupling affected by the coal pipe modifications, it should be replaced with victaulic couplings.

The Rockwell couplings will be installed as follows:

- Elevation 68'-2" - remove slide gates and F.I. Elbow 36 (and save), pipe 35 (and discard). Install new pipe spool 35M (with built-in Rockwell). Re-install piping using new flat and victaulic gaskets and lubricant.
- Elevation 60'-10" - remove slide gates and F.I. Elbow 80 and Elbow 45 (and save). Cut back approximately 24" of pipe 44 (and discard). Install new pipe spool 44M (with built-in Rockwell). Re-install piping using new gaskets and lubricant.
- Elevation 56'-6" - remove slide gates and F.I. Elbow 36 (and save), pipe 52 (and discard). Install new pipe spool 52M (with built-in Rockwell). Re-install piping using new flat and victaulic gaskets and lubricant.

Piping Support

All Corners

Rip out PC. MK. 62, 63 and 64. Install new SPRT from pipe 3 to 4, along with a new SPRT. from the windbox to this support. Add new gussets to PC MKS 57 and 58, as necessary, existing slip connections are ok.

Rip-out PC. MK 60. Install new SPRT. (similar to, but slightly lower in Elevation to "step" under Rockwell, top coal only).

Additional Features

Addition of Rockwell couplings in the coal piping near the windbox. The Rockwell couplings create a "toggle" system near the windbox to account for the pipe to elbow misalignment. In addition to the angular movement, the Rockwell provides for greater coal pipe to windbox thermal expansion as compared with Victaulic couplings.

For units with contract numbers 13858 through 171, coal pipe couplings should be inspected to insure that the coupling-to-pipe flange overlap is complete around the full circumference of the flange. When a continuos overlap does not exist, the pipe may slip out of the coupling if an unusual load is applied. If the overlap does not exist, then the coupling should be replaced with new Victaulic couplings.

3.1.3 P2-Low NOx Concentric Firing System (LNCFS)™ - Option 2

The P2-LNCFS™ recently developed by the Company represents a significant advancement in coal combustion technology for tangential fired units. This system was developed to offer the advantages of significant NOx emissions reduction through simple nozzle tip replacement.

There are three (3) components to the P2-LNCFS™. These include the P2™ coal nozzle tip, vaned close-coupled overfire air (VCCOFA) and concentric firing system (CFS) nozzle tips. A description of each of these components follows.

The advanced design of the P2-LNCFS™ Low NOx Burner System is a result of comprehensive full scale combustion testing at the Company's Power Plant Laboratories (PPL). A full scale utility demonstration has been successfully completed on a 65 MWe boiler. The testing included extensive pre- and post-retrofit boiler tests that demonstrated up to fifty percent (50%) reductions in NOx. See Figure 1.

P2™ Coal Nozzle Tip

The P2™ coal nozzle tip incorporates rounded corners on the inner and outer fuel air shrouds to decrease air turbulence in the corners. The Company has found that air turbulence in the corners can promote recirculation and deposition of coal and coke products in the fuel air section of the coal nozzle tip

LNCFS LEVEL P2

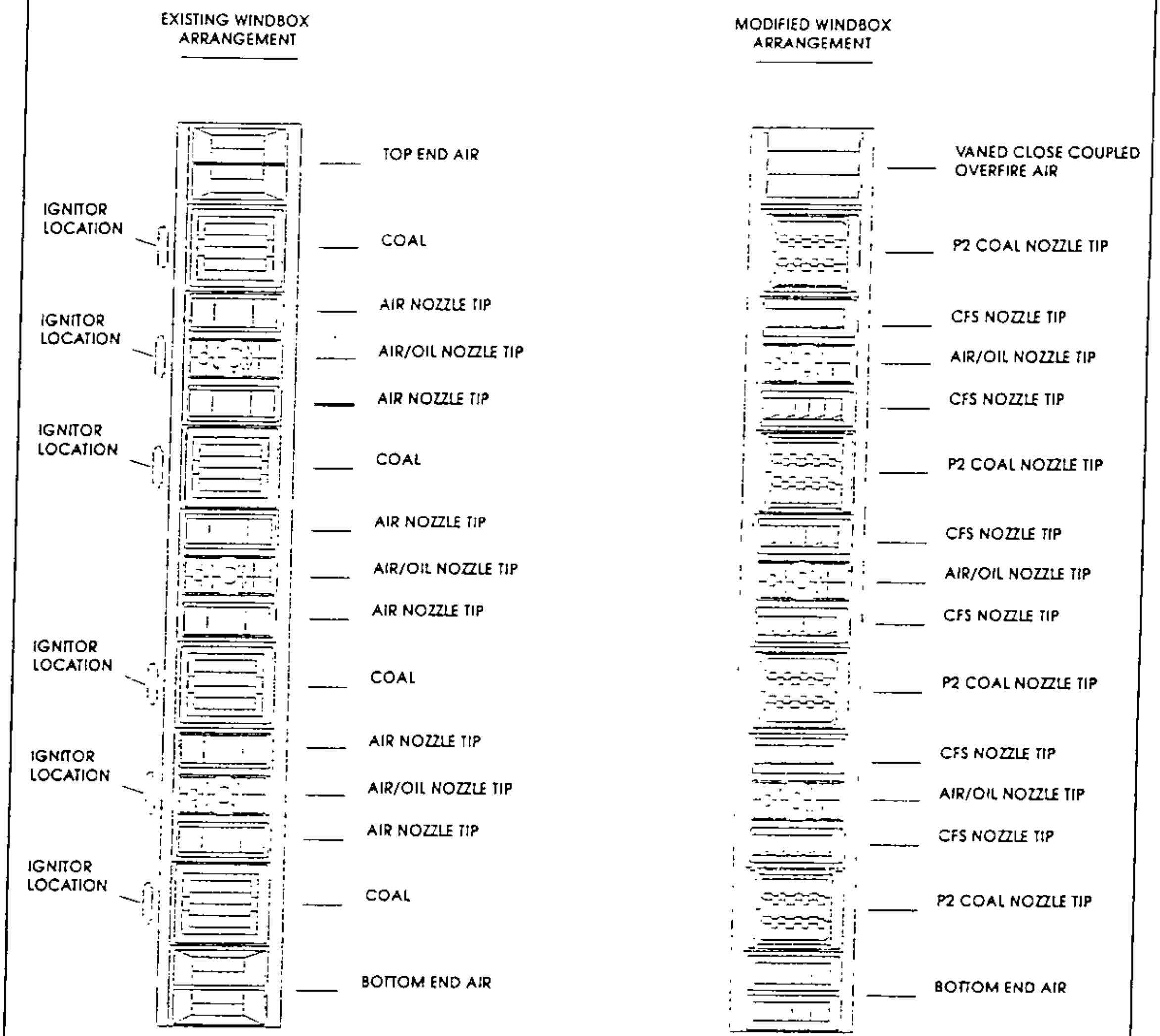


Figure 1

resulting in tip material distortion. The rounded corners also reduce the high temperature hoop stresses that can occur in square corners, thereby improving the distortion control of the tip. The trailing edges of the inner fuel shroud and the nozzle tip body are chamfered to reduce the flat radiant heating surface. Reducing the heating surface decreases the bonding strength of any small deposits that might develop. Sufficient spacing between the fuel shroud and nozzle tip body are incorporated to prevent bridging of any small deposits. The fuel shroud of the tip is recessed into the coal nozzle tip to minimize radiant heating. To provide additional protection from radiant heating, the coal splitter plates are further recessed from the fuel shroud.

The P2™ coal nozzle tip is designed to increase coal dispersion while simultaneously decreasing the penetration of the mixed coal and primary air jet. This takes advantage of near-field-burner-zone stoichiometry control that results in reduced NOx emissions. These dispersion characteristics are obtained from alternating wedge shaped bluff bodies with trailing edges. For each application, the location, geometry, and number of wedges are optimized to achieve the desired coal dispersion. To reduce erosion, weld overlay is applied to the leading edges of the nozzle tip and the bluff body wedge trailing edges.

The P2™ nozzle tip body incorporates design features to minimize uncontrolled air when tilting. Traditional coal nozzle tips allow a significant portion of fuel air to bypass the tip when in full up or down tilt positions. In some cases, this can result in tip damage due to the reduced airflow through the tip. The P2™ design includes a flared back, bulbous shape, and seal plates to maintain similar air gaps over the entire tilt range. Controlling the air gaps forces fuel air into the coal tip as it tilts. Figure 2 illustrates the P2™ coal nozzle tip.

P2™ COAL NOZZLE TIP

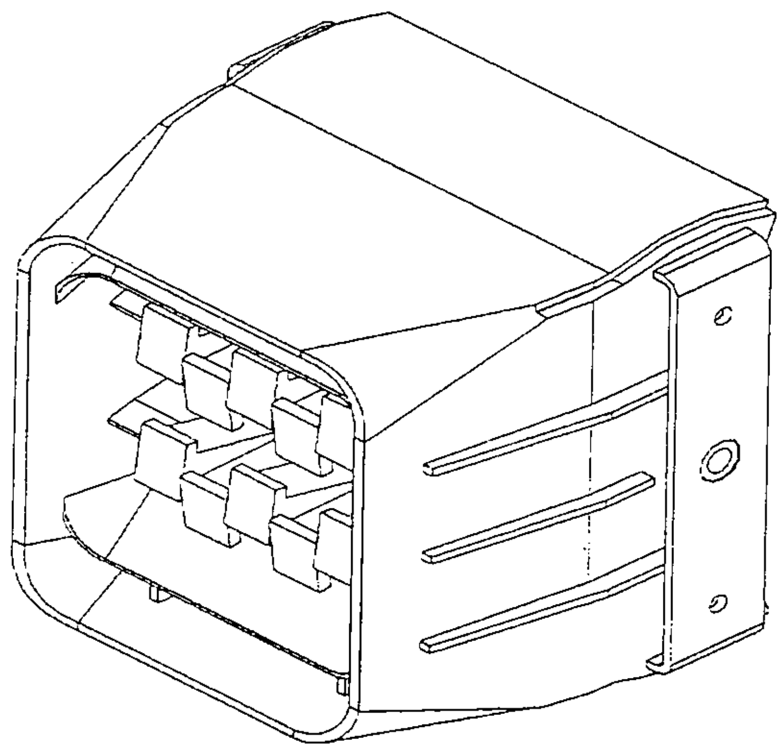


Figure 2

The P2™ coal nozzle tips will be supplied with new seal plates and pivot pins. The existing coal nozzles can be reused. Additional coal compartment modifications include welding one of the fuel air dampers closed. Improving air flow control in the coal compartments maximizes the NOx reduction potential while providing adequate cooling air to the nozzle tips.

Vaned Close-Coupled Overfire Air (VCCOFA) Compartment

The second important feature of the P2-LNCFS™ is the Vaned Close-Coupled Overfire Air System (VCCOFA). The VCCOFA assembly replaces the existing nozzle tips in the top air compartment of the main windbox (top-end-air compartment). This assembly consists of fixed vanes mounted in a frame, which is pinned to the windbox channel during installation. The vane injection angles and exit area are optimized to maximize NOx reduction capability of the VCCOFA. Figure 3 illustrates the VCCOFA.

VANED CLOSE-COUPLED OVERFIRE AIR (VCCOFA)

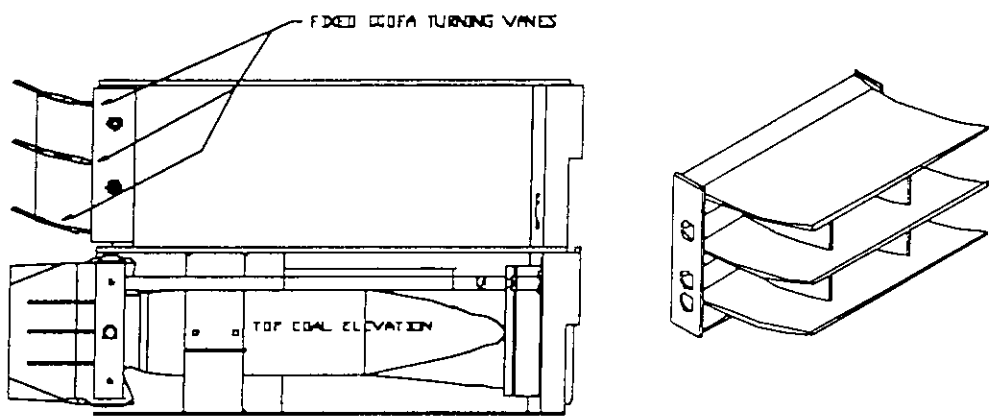


Figure 3

Concentric Firing System (CFS)™

The Company proposes to equip the auxiliary air compartments with resized air nozzle tips mounted on the existing pivot pin locations. Auxiliary air tips with fuel (gas and oil) will utilize traditional straight air nozzle tips. Auxiliary air tips without fuel will utilize the Company's Concentric Firing System (CFS)™ offset air tip. This nozzle tip is illustrated in Figure 3. Under low NOx firing conditions with staged air, a reducing atmosphere can exist near the furnace walls. An increase in furnace slagging can be the result of this reducing atmosphere. CFS™ aids in the control of slagging by promoting an oxidizing atmosphere in these areas. The CFS™ offset air tip directs a portion of the secondary air closer to the furnace walls relative to the firing angle of the fuel nozzles. This philosophy is illustrated in Figure 4. The CFS™ angle is determined for each boiler based on fuels fired and furnace geometry.

CONCENTRIC FIRING SYSTEM (CFS)™ AND CFS™ OFFSET AIR NOZZLE TIP

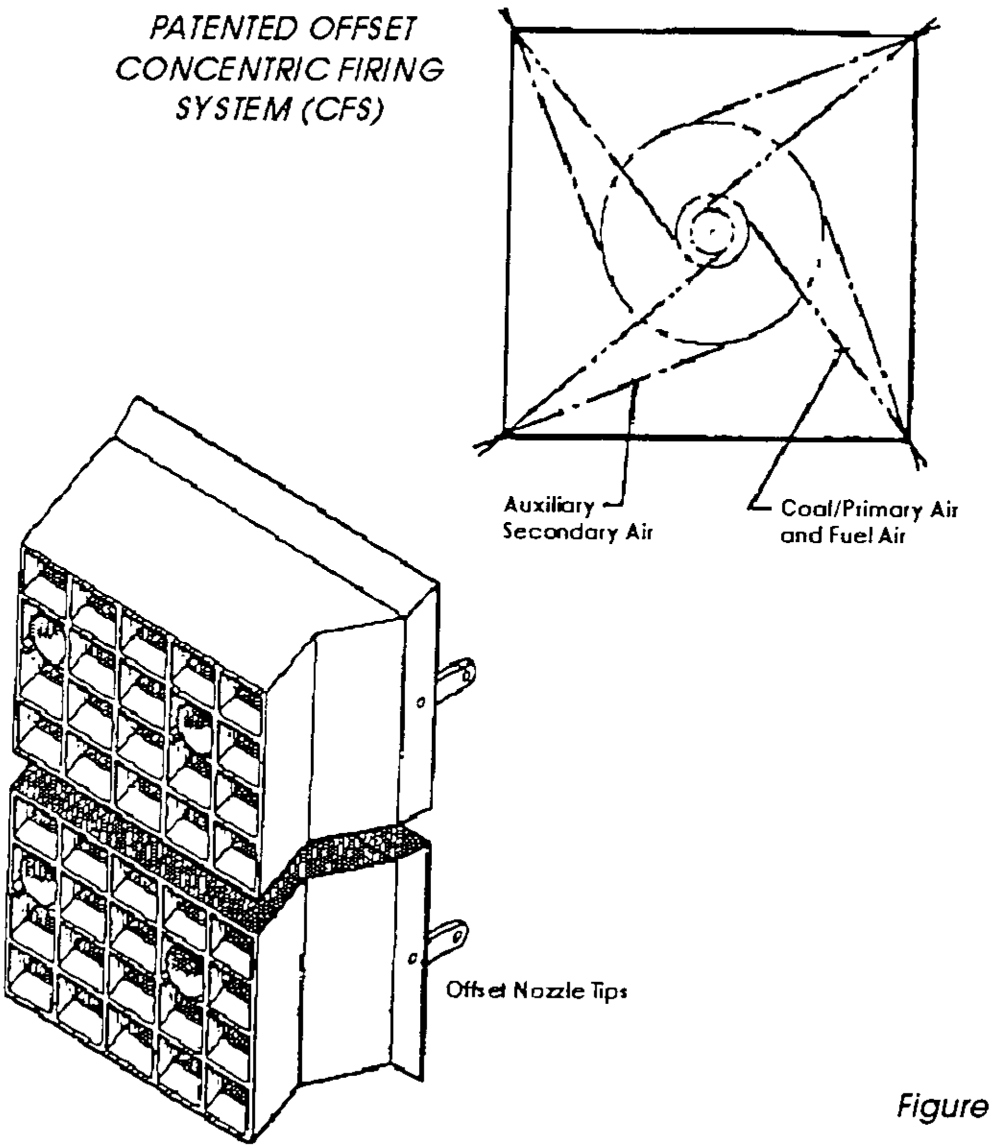


Figure 4

An additional benefit of reducing NOx may be realized with CFS™ air. The auxiliary air that is directed away from the fuel stream prevents the fuel jet from entraining this air, thereby reducing the combustion stoichiometry during volatilization and the initial stages of char combustion. This results is a very fuel rich primary flame, while maintaining oxidizing conditions along the furnace walls and enhancing overall mixing in the fireball.

Bottom End Air Compartment

The bottom end air tip size will be optimized to balance between the increase in overfire air and the need for burner zone underfire air.

NOx Predictions

Predictions are based on steady state conditions for the test period. The current baseline MCR Nox is listed as .5 lbs/MBtu. The Purchaser has optimized O_2 (2.5%) and WB/F Dp (6"wc.).

The estimated reduction is <.40 lbs/MBtu if baseline NOx is .5 lbs/MBtu and <.49 lbs/MBtu if baseline NOx is .60 lbs/MBtu.

THIS IS A PREDICTED NUMBER AND IS NOT INTENDED TO BE A PERFORMANCE GUARANTEE.

3.2 TERMINATION POINTS

The termination points for the proposed Offerings are as follows:

- Connecting points of the windbox and coal pipe components supplied as required.

- Material to replace the above listed tilting nozzle tips, pivot pins and bearings are included. Any additional material required to return the existing windbox shell or internal structural components to a structurally sound and dimensionally true condition is outside the scope of this offering.

Control System

- No equipment has been supplied for the control system changes. It will be necessary to remove the VCCOFA compartment damper control from the windbox to furnace DP control. This compartment will operate from a load based function curve determined during the tuning phase following installation of the equipment.

3.3 PURCHASER REQUIREMENTS

The equipment in this Proposal has been selected based on the Purchaser supplying the following:

- Windboxes with original design tolerances.

3.4 WORK NOT INCLUDED

The following items are not included in the scope of this Proposal:

- Performance testing.
- Technical Services.
- Installation.
- Repair of structural damage such as distorted windbox partition plates or sagging in the windboxes.

3.5 FIELD SERVICE SUPPORT

It is recommended that the above modifications be supervised by a Company representative to ensure a successful and trouble-free conversion.

The Company has included seven (7) service days in its Base Offering for this project.

The Company can provide a Service Engineer (SE) to offer field technical support to the Purchaser as requested during the project. The SE can perform an array of activities prior to, during and following the outage.

The following is a breakdown of field support which can be provided on a per diem basis as requested by the Purchaser.

Pre-Outage Work Activities

An SE can perform activities to help prepare for a smooth outage. Typical activities are as follows:

- Attend jobsite meetings to become familiar with schedules, work plans and vendor interfaces (as applicable), and to answer questions which may arise relating to the project.
- Inventory "as received" equipment to verify shipment of proper quantities of the correct material and to check for damaged items.
- Perform inspections with the Purchaser to identify potential interferences or oversights relating to the scope of work to be performed during the outage.

Outage Work Activities

Below is an overview of activities that can be performed by the SE during the outage:

- Observe demolition of the existing equipment and inspect the unit for potential interferences during construction.
- Verify that installation of the new equipment is in accordance with the applicable drawings and instructions.
- Address any questions which the Purchaser may have relating to the installation of the new equipment.

- Upon completion of installation, the SE will work with the Purchaser to check out all equipment to make sure it is mechanically operational and ready for powered operation.

Note: The SE is not authorized to oversee construction crews, but is an advisor to the Purchaser.

Post-Outage Work Activities

The post-outage activities are those activities associated with checkout, startup and tuning of the equipment. The following is an overview of post-outage activities expected to be performed by the SE:

- Verify that all new equipment is fully operational.
- Assist the Purchaser during unit startup to observe and identify any abnormal operating occurrences.
- Provide tuning activities relating to the installed equipment to prepare for demonstration of performance guarantees. The Company assumes that there is adequate instrumentation at the jobsite to observe trends which pertain to the applicable guarantee points. The Company also assumes that such instrumentation is properly calibrated to show true relative readings.
- Witness performance testing.
- Address performance questions during initial operation and interface with the Company's various engineering groups as necessary.
- Prepare a final punchlist of outstanding activities to be completed by the Purchaser or the Company at a later date.
- Prepare a project close-out report which describes salient technical support activities and results performed during the project.
- Participate in a final project close-out meeting as requested.

The per diem rate for service days are based on an eight (8) hour workday, Monday through Friday, excluding holidays. An additional flat rate per day will be charged to cover all local living expenses, local travel and weekend expenses. Initial and final travel mileage using a personal or Company car will be billed at a standard rate per mile. If airfare and rental car are required, they will be billed at cost. Any standby time due to activities by the Purchaser will be at the expense of the Purchaser.

Any service performed in excess of the hours described above will be considered overtime and will be billed at a rate of one-and-one-half (1 1/2) times the effective per diem rate. Any service performed on New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day or Christmas Day will also be considered overtime, and will be billed at two (2) times the effective per diem rate.

The Company assumes that temporary office space with telephone and electricity will be available at the jobsite for use by the SE.

3.6 QUALITY ASSURANCE

The Company was ISO 9000 certified by the American Society of Mechanical Engineers (ASME) in November, 1994 and was recertified by Hartford Steam Boiler in November of 1997. An ISO 9001 Quality System is documented in the Company's Quality Systems Manual which is supported by common quality procedures and individual work instructions.

It is the Company's policy to have and maintain manuals of procedures and operations which will be followed to assure that a product within the Company's scope of supply will be engineered, designed and fabricated to meet or exceed the applicable Codes, Purchaser specifications and relevant Company standards. The following is a synopsis of the overall quality program.

- The Company's Quality Assurance Department reviews the Proposal and Contract requirements upon request and advises the appropriate department of any special requirements. Concerned departments will initiate the appropriate steps to assure the capacity and capability of the Company to comply with all contractual obligations. This review will determine the nature and extent of the involvement of the Company's Quality Assurance Department.

- It is the responsibility of the Company's Quality Assurance Department to audit the Product Design and Design Graphics Departments to assure that the unit design is completed in accordance with established procedures, using current, applicable standards and Codes.

- All items are ordered from qualified suppliers. Suppliers are approved by the Company's Quality Assurance and Supply Management Department. This qualifying procedure is delineated in a Company procedure.

- The Company's procurement order system is the official medium for authorizing material to be purchased and work to be performed in its shops and its suppliers' shops. Appropriate tests, checks and inspections are specified to assure the quality of purchased and manufactured items.

- When deemed appropriate, manufacturing processes employed by the Company's and suppliers' shops follow travelers or similar shop documents which accompany the work and indicate applicable specifications, procedures and techniques. This traveler is also the established document to be signed off on by the operator, foreman, inspector and Non-Destructive Examination (NDE) personnel when appropriate. All work is performed by welders, NDE personnel and inspectors qualified in accordance with applicable Codes and procedures.

- Fabrication of all items is accomplished to provide equipment conforming to the engineering drawings and specifications, and to present a quality workmanship appearance. All NDE required by the applicable ASME Code is performed, and the results are made available to the Authorized Inspector. Additional NDE for Company or supplier quality control purposes is performed on some product forms and on specific weldments, in accordance with Company standards or by contractual agreement.

- Inspection of the manufacturing operations is the responsibility of the individual plant Quality Assurance Department. Surveillance over the suppliers' work is the responsibility of the Company's Quality Assurance Department.

- The details of the quality program utilized (including references to test procedures, techniques and associated Company standards) are contained in the Company's Quality Assurance Manual, the Fossil Engineering Quality Assurance Manual and the Quality Assurance Manuals of the Company's manufacturing facilities and suppliers' facilities. The test procedures, instructions and associated Company standards are considered proprietary, and are available for the Purchaser's review at the Company's and its suppliers' facilities.

4 - TERMS & CONDITIONS

4.1 PRICING

Pricing for the Company's offering as described in this Proposal shall be in accordance with the accompanying transmittal letter.

4.2 TAXES

The Company will pay all sales, use, value added, excise and other taxes which may be levied or assessed in connection with the transfer of the material or equipment furnished by the Company (including such taxes which are levied or assessed in connection with such material or equipment which the Company obtains for use in performing the services), or in connection with the performance of the services, or in connection with this Proposal or any resultant Contract or the Company's performance under this Proposal or any resultant Contract.

4.3 TERMS OF PAYMENT

Terms of payment for the Company's proposed offering will be in accordance with the following invoice schedule, Net 30 days:

Event	Percent of Contract Price
Issue Purchase Order	Twenty Percent (20%)
Material Shipment	Eighty Percent (80%)

4.4 SCHEDULE

Based upon current engineering and production schedules, the Company anticipates that it could ship the material and/or equipment described in this Proposal approximately sixteen (16) weeks after receipt of a Purchase order.

The lead time does not include actual shipping time from the manufacturing point to the plant site, not additional time which may be required for approval of drawings, plans and specifications by the Purchaser.

4.5 CONDITIONS OF SALE

The terms and conditions shall be per Gulf Power Contract C-96-41091 (The Construction, Maintenance and Operations Agreement, dated February 20, 1997).

PLANT SMITH NOx EMISSION ESTIMATES FOR FUTURE YEAR PSD OPERATIONS

A) Baseline Emissions Offset Calculation (Item 20 page 8 of PSD-FL-269)

Unit	Year	MBTU/yr	NOx Rate	NOx Tons	
Smith 1	1995	12579028	0.635	3994	
Smith 1	1996	12273402	0.614	3768	
Sm 1 Avg	1995-96	12426215	0.625	3881	**(Equation A1)**
Smith 2	1995	13454385	0.423	2886	
Smith 2	1996	13646781	0.399	2684	
Sm 2 Avg	1995-96	13550583	0.411	2785	**(Equation A2)**

Total Emissions Average for offset (3881+2785) = 6666 tons **(Equation A3)**

B) Projected Maximum Emissions for Smith Unit 4 & 5 (Combined Cycle Unit)
Maximum NOx Emissions Smith 4 & 5 CCCT = PA Mode + Normal DB Mode

PA Mode Emissions
1000 hrs @ Power Augumentation Mode operating at 113.2 lbs NOx/hour (Item 19 Page 8 PSD-FL-269)
1000 hrs/yr x 113.2 lb/hr x (2 units)/2000 lb/ton = 113.2 tons/yr
Normal DB Mode Emissions
7760 hrs @ Duct Burner Mode operating at 82.9 lbs NOx/hour (Item 19 Page 8 PSD-FL-269)
7760 hrs/yr x 82.9 lb/hr x (2 units)/2000 lb/ton = 643.3 tons/yr

Total Smith 4 & 5 = PA Mode + Normal DB Mode = (113.2) + (643.3) = 756.5 tons/yr **(Equation B1)**

C) Smith 1 Offset Estimates from P2 Low NOx Burner Tip Installation

Baseline Smith 1 Emissions = 3881 tons @ 0.625 NOx lb/mbtu rate (See Equation A1)
Estimated Reduction for P2 Low NOx Burner Tips = 25%
Thus: 0.625 lb/mbtu rate x .75 (i.e.25% reduction) = 0.469 lb/mbtu NOx rate **(Equation C1)**

Thus: Sm 1 Baseline Heat Input x Reduced NOx rate = Projected SM 1Annual Emisssions
(12426215 MBTU/yr) x (0.469 lb/mbtu)/2000 lb/ton = 2913.9 tons **(Equation C2)**

D) Projected Smith Facility Emissions Offset (Smith 1 + Smith 2 + Smith 3 + Smith 4 & 5 CCCT)

SmEM = Baseline Emissions - (Projected Sm 1 Emissions + Projected Sm 2 Emissions + Projected Sm 4&5)

Thus: SmEM = Equation (A3) - (Equation (C2) + Equation (A2) + Equation (B)) = Projected Sm 4&5
Thus: SmEM = 6666 tons - (2913.9 + 2785 + 756.5) = 210.6 tons **(Equation D1)**

Note : Smith 3 CT NOx emissions are considered negligible (< 20 ton/yr) and thus not included in the estimate.
Note : Under these assumptions Plant Smith will have an excess reduction of 210.6 tons of NOx from the Baseline.

ATTACHMENT 3

1997 CEMS RATA REPORT
Plant Smith Unit 1
04/29/1997

CONTINUOUS EMISSION MONITORING SYSTEM

RELATIVE ACCURACY TEST AUDIT REPORT

GULF POWER COMPANY
PLANT SMITH
UNIT 1

1997

Gulf Power Company
Plant Smith
Unit 1
Stack ID: 1

I. Introduction

Gulf Power Company performed all necessary reference method tests required for annual testing of a continuous emission monitoring system. The tests were performed on the continuous emissions monitoring system that measures emissions from the stack for Plant Smith Unit 1. The sulfur dioxide monitor, the volumetric flow monitor, and the nitrogen oxides monitoring system were tested in accordance with the regulations set forth in the Code of Federal Regulations, Title 40, Part 75. The tests were performed by appropriately trained personnel.

CEMS

The continuous emission monitoring system used at Plant Smith Unit 1 is a Model 300 Dilution Monitoring System. This CEM system is manufactured and installed by Spectrum Systems, Inc., located in Pensacola, Florida. The Model 300 includes sample acquisition, sample analysis, control and support components to provide continuous monitoring of SO_2, NOx, and CO_2. The CEM system utilizes an ultrasonic Ultra Flow 100 flow monitor to measure the volumetric flow in standard cubic feet per minute. The SO_2 is measured with a pulsed fluorescence Thermo Electron Model 43H Analyzer, the NOx is detected with a chemiluminescence Thermo Electron Model 42D Analyzer, and CO_2 is measured with a non-dispersive infrared radiation (NDIR) Siemens Ultramat 5E.

The data is collected and processed by the vendor's Model 20/20 software. All reports are generated from the main office. CEM system data used for the RATA testing was obtained from a one minute interval data file collected on site.

Source Description

Plant Smith Unit 1 is a coal fired boiler that produces steam which in turn generates electricity. Bituminous coal is the primary fuel for the boiler.

The exhaust gas from the boiler passes through a superheater and economizer section, an air preheater, and through an electrostatic precipitator which removes the particulates. The gas stream then enters a duct and is transported to a stack that delivers the gas to the atmosphere. The CEM system gas probe and flow transducers are located on the duct section just prior to the entry to the stack. The probe locations meet all of the siting criteria specified in 40 CFR Part 75, Appendix A. The CEM system monitors, controllers, and data acquisition system is located in an environmentally controlled shelter located near the base of the stack.

Reference Method Equipment

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

The CO_2 is measured using a Siemens Ultramat 5E Analyzer. This monitor is a selective nondispersive infrared radiation (NDIR) gas analyzer that operates on the infrared double-beam, alternating light principle. The full range for the instrument is 20%. The serial number for the CO_2 analyzer is C9-273.

A Thermo Electron Model 42D Nitrogen Oxides Gas Analyzer determines the NOx levels in the gas stream. The monitor operates on the principle of chemiluminescence. This monitor has a converter that converts NO_2 to NO to enable it to accurately measure the NOx in the sample stream. The full range for the instrument is 1000 ppm. The serial number for the NOx monitor is 42D-41985-266.

The SO_2 is determined by a Thermo Electron Model 43H Analyzer. This monitor works on the principle of pulsed fluorescence. The full range for this analyzer is 3000 ppm. The serial number for the SO2 monitor is 43H-43600-269.

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

The in-stack dilution probe is an EPM Environmental Model 797, and is constructed of Inconel, with a 316L stainless steel extension. The probe length is 10 feet. The probe extracts and dilutes the sample from the duct by creating an internal vacuum with respect to the flue gas. The sample is drawn through a glass critical orifice and mixed with clean dilution air provided by the trailer. This mixture is in turn delivered to the trailer to be analyzed by each instrument. The dilution ratio for this system is 250:1.

The probe sample depth is regulated by the tester. The probe was moved manually every seven minutes once a gas run started. The depths used at this site were 0.4, 1.2, and 2.0 meters from the stack wall, per 40 CFR 60, Appendix B, Performance Specification 2.

The sample system is controlled by an operator interface Lucas Deeco touch screen controller (OIT). This interface enables the tester to manually initiate calibration gases to the probe, blowback of the system, and start all data collection.

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

The flow and moisture data is provided by an independent contractor. The various tests are performed according to the applicable established reference method.

Test Procedures

All tests used in the certification process are performed in accordance with EPA Methods 1, 2, 3A, 4, 6C, and 7E. The Methods are found in 40 CFR Part 60.

The volumetric flow is determined using EPA Methods 1, 2, and 4. The diluent concentrations are determined by Method 3. These methods determine the location of the sample ports and the sample traverse depths, volumetric flow rates, and the fractional moisture content of the stack gas.

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

The following is a brief outline of the procedures followed during the gas testing. Initially, the measurement system was calibrated. Next, a zero, mid, and high level gas was introduced to determine the system calibration error. After allowing twice the system response time, twenty one (21) minutes of stack gas data was collected. At the conclusion of the run data collection, a zero and upscale calibration gas for each analyzer was introduced. The upscale gas that most closely approximated the stack gas was used to perform the system bias checks and system drifts. As long as no significant drifts occurred, the calibration checks between runs served as both the post check for the previous run and the pre check for the next run. A summary of the drifts and biases are included in the appendices. The gas averages for each run were adjusted to correct for any drift that occurred. The data comparison to determine the relative accuracy and bias for each pollutant monitor or monitoring system was performed according to 40 CFR 75, Appendix A, paragraphs 3.4, 6.5, and 6.6. This data is summarized in the appendices. The system response time was performed during the setup. The system response time was three minutes.

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

All data used to compile this report is supplied in the applicable appendix. Each appendix should be self explanatory as far as the raw data and the computed results are concerned. Any questions should be forwarded to Gulf Power Environmental Affairs Department.

The units for data collection are as follows: the SO2 and NOx are parts per million (ppm) and the CO2 is in percent (%). The flow rate is captured in thousand standard cubic feet per minute (KCFM) and converted to standard cubic feet per hour (SCFH). The times presented in the appendices should be interpreted as hour, minute, second format. The format is varied from appendix to appendix due to some times being collected either by the reference method data collection system or manually recorded by the testing personnel. The relative accuracy determination for the NOx emissions are in pounds per million Btu (lbs/mmBtu) or (#/mmBtu). The times for both the CEM system and the reference method tests are in Central Standard Time.

II. Statement of Authenticity

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

Date: 7/15/97

Signature: [signature]
John McPherson
Environmental Affairs Specialist
Gulf Power Company

III. Mathematical Formulas

The data reduction for the reference method testing is performed per the instructions contained in 40 CFR 75. The following is a list of formulas that are used to reduce the data found in this report.

The NOx pounds per million Btu (#/MMBtu) for both the reference method and CEM is as follows:

NOx (#/MMBtu) = NOx (ppm) x FF x K x (100/ % CO_2)

where,

FF = Carbon based fuel factor = 1800 for Bituminous coal

K = conversion constant = 1.194E-7

The arithmetic mean is the sum of the individual runs divided by the number of runs.

$$d = \frac{1}{n} \sum_{i=1}^{n} di$$

where,

n = Number of data points

d = Arithmetic Mean

di = All specific data points individually taken

The standard deviation of the population is as follows:

$$Sd = \sqrt{\frac{\sum di^2 - \left(\frac{\left(\sum di\right)^2}{n}\right)}{n-1}}$$

where,

n = number of data points

d = arithmetic mean

di = all specific data points individually taken.

The confidence coefficient is:

$$CC = t_{0.025} \frac{Sd}{\sqrt{n}}$$

where,

t = 2.306 for nine runs
n = number of runs

The relative accuracy is:

$$RA = \frac{d+CC}{RM} * 100$$

where,

d = the absolute value of the mean differences
cc = the absolute value of the confidence coefficient
RM = the average reference method value or applicable standard

The bias adjustment factor is calculated by:

$$BAF = 1 + d / CEM$$

where,

d = the absolute value of the difference between the reference data and the CEM data
CEM = the average value from the data acquisition system

IV. SUMMARY OF RESULTS

Results of the certification testing performed on Gulf Power Plant Smith Unit 1 are presented in the following table. These results are based on test data obtained from the facility during normal operation of the boiler. These test results show the Continuous Emission Monitoring Systems installed on Plant Smith Unit 1 are in conformance with requirements of 40CFR75.

IV. SUMMARY OF THE RELATIVE ACCURACY TEST AUDIT RESULTS

PLANT SMITH
UNIT 1

MONITOR	RELATIVE ACCURACY	BAF
SO2	3.15%	1.000
CO2	2.92%	1.000
NOx	4.77%	1.000
LOW LOAD	%	1.000
MID LOAD	%	1.000
HIGH LOAD	%	1.000

Appendix A

Relative Accuracy Test Audit for Exhaust Gas Monitors

Relative Accuracy Results

Bias Test Results

RELATIVE ACCURACY TESTS

Relative accuracy tests were conducted in accordance with 40CFR75, Appendix A, paragraph 6.5 for the SO2, NOx, CO2, and Volumetric flow monitors.

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

Sulfur Dioxide	RM 6C
Nitrogen Oxides	RM 7E
Carbon Dioxides	RM 3A and RM 3
Volumetric Flow	RM 1 and RM 2
Moisture	RM 4
Oxygen	RM 3

The relative accuracy is calculated as follows:

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

where,

A = The absolute value of the mean difference between the Reference Method values and the CEMS values

B = The absolute value of the confidence coefficient

C = The arithmetic mean of the Reference Method values

40CFR75 limits the relative accuracy of the SO2 pollutant monitor and NOx CEMS to ten percent, while the flow monitor relative accuracy is limited to fifteen percent at each of the three operating loads.

The SO2, NOx, and CO2 relative accuracy tests were conducted contemporaneously with the Volumetric flow Relative Accuracy test at maximum load of the boiler. The CO2 analyzer is being certified as part of the NOx CEMS as a diluent analyzer and is therefore deemed certified as a pollutant analyzer in accordance with 40CFR75.20(c)(4).

The relative accuracy of the flow monitor was conducted at three separate operating loads as prescribed in 40CFR75, Appendix A, paragraph 6.5.2. Appendix D contains data pertinent to the gas monitors while Appendix E contains the Flow Monitor data. The CEMS data acquisition information is contained in Appendix F.

BIAS TEST

The bias test was applied to all sets of relative accuracy data in accordance with 40CFR75, appendix A, paragraph 3.4. The bias was calculated using the criteria of 40CFR75, appendix A, paragraph 6.6. It states that if the mean difference of the reference method and monitor or system is greater than the confidence coefficient, then the monitor system has failed the bias test. The bias test is only applied to the flow monitor at normal load; however, if the monitor fails the bias test at normal load, then the correction factor from the largest bias will be applied to correct the data.

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

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

where,

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

CEM adjusted = CEM measured * BAF

where,

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

The bias adjustment factors are found on the same page as the relative accuracy. Appendix D contains the gas monitor bias data and the flow monitor bias data is located in Appendix E.

RELATIVE ACCURACY RESULTS

PLANT: SMITH DATE: 970429 UNIT: 1

RUN #	START TIME	END TIME	CEM NOx #	RM NOx #	DIFF
1	748	809	0.609	0.633	0.024
3	1216	1237	0.642	0.678	0.036
4	1353	1414	0.658	0.671	0.013
5	1539	1600	0.655	0.686	0.031
6	1738	1759	0.658	0.673	0.015
7	742	803	0.630	0.618	-0.012
8	925	946	0.646	0.692	0.046
9	1125	1146	0.643	0.629	-0.014
10	1221	1242	0.648	0.645	-0.003
		AVG	0.643	0.658	0.015

AVERAGE REFERENCE METHOD VALUE
0.658

AVERAGE DIFFERENCE BETWEEN THE CEM AND RM
0.015

STANDARD DEVIATION OF THE SAMPLE
0.021

CONFIDENCE COEFFICIENT
0.016

RELATIVE ACCURACY
4.77 %

DID THE BIAS TEST PASS? PASSED

THE NEW BIAS ADJUSTMENT FACTOR IS 1.00

THE EQUATIONS USED FOR THE STATISTICAL EVALUATION OF THE REFERENCE METHOD AND THE CEM ARE FOUND IN 40 CFR, Pt. 60, App. B, Spec. 2, Section 8.

T-FACTOR: 2.306

RELATIVE ACCURACY RESULTS

PLANT: SMITH DATE: 970429 UNIT: 1

RUN #	START TIME	END TIME	CEM SO2 (PPM)	RM SO2 (PPM)	DIFF
1	748	809	1283.00	1267.68	-15.319
3	1216	1237	1486.80	1437.60	-49.203
4	1353	1414	1492.50	1475.61	-16.894
5	1539	1600	1451.30	1471.40	20.101
6	1738	1759	1479.70	1463.01	-16.691
7	742	803	1434.90	1380.98	-53.924
8	925	946	1399.80	1364.20	-35.604
9	1125	1146	1415.00	1383.43	-31.572
10	1221	1242	1395.30	1354.21	-41.091
		AVG	1426.478	1399.789	-26.689

AVERAGE REFERENCE METHOD VALUE
1399.789

AVERAGE DIFFERENCE BETWEEN THE CEM AND RM
-26.689

STANDARD DEVIATION OF THE SAMPLE
22.566

CONFIDENCE COEFFICIENT
17.346

RELATIVE ACCURACY
3.15 %

DID THE BIAS TEST PASS? PASSED

THE NEW BIAS ADJUSTMENT FACTOR IS 1.00

THE EQUATIONS USED FOR THE STATISTICAL EVALUATION OF THE REFERENCE METHOD AND THE CEM ARE FOUND IN 40 CFR, Pt. 60, App. B, Spec. 2, Section 8.

T-FACTOR: 2.306

RELATIVE ACCURACY RESULTS

PLANT: SMITH DATE: 970429 UNIT: 1

RUN #	START TIME	END TIME	CEM CO2 (%)	RM CO2 (%)	DIFF
1	748	809	10.89	10.55	-0.338
2	959	1020	10.72	10.40	-0.320
3	1216	1237	10.82	10.55	-0.270
4	1353	1414	10.82	10.50	-0.320
5	1539	1600	10.60	10.55	-0.052
6	1738	1759	10.78	10.60	-0.185
7	742	803	10.68	10.45	-0.233
8	925	946	10.75	10.60	-0.155
9	1125	1146	10.74	10.49	-0.251
		AVG	10.756	10.520	-0.236

AVERAGE REFERENCE METHOD VALUE
10.520

AVERAGE DIFFERENCE BETWEEN THE CEM AND RM
-0.236

STANDARD DEVIATION OF THE SAMPLE
0.093

CONFIDENCE COEFFICIENT
0.071

RELATIVE ACCURACY
2.92 %

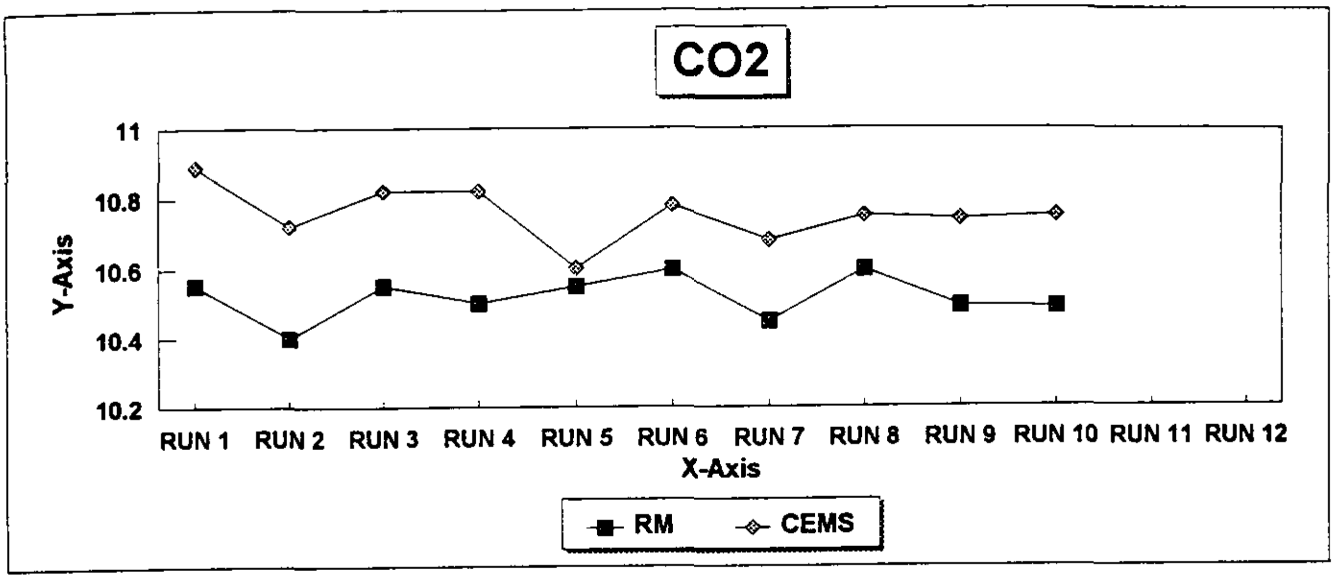
DID THE BIAS TEST PASS? PASSED

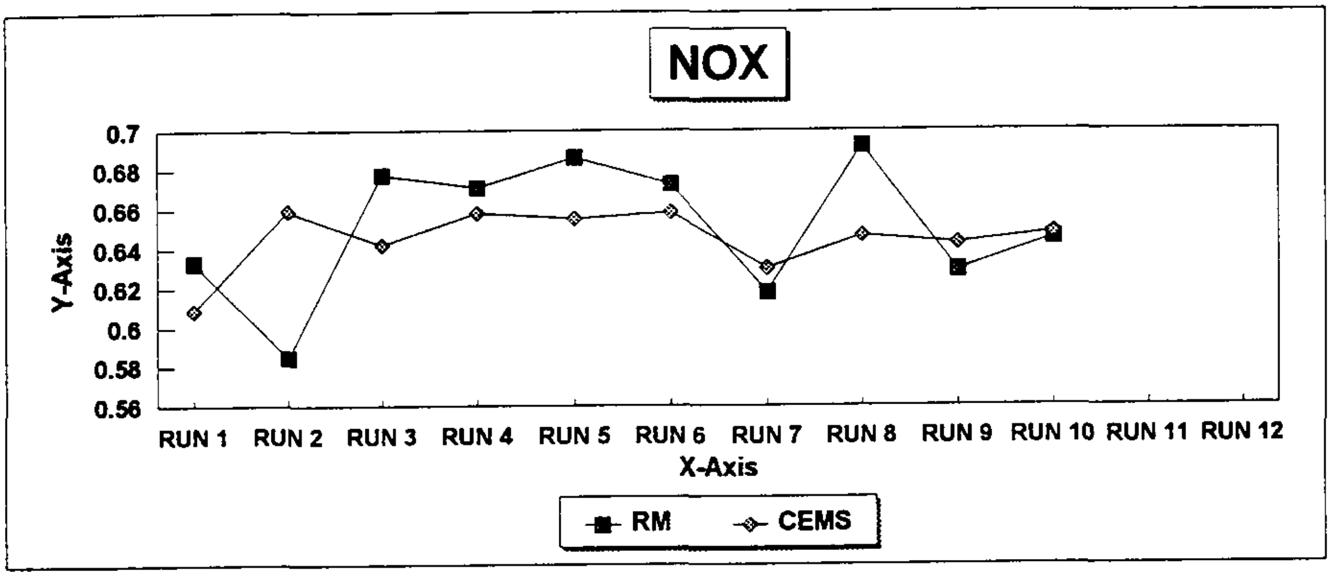
THE NEW BIAS ADJUSTMENT FACTOR IS 1.00

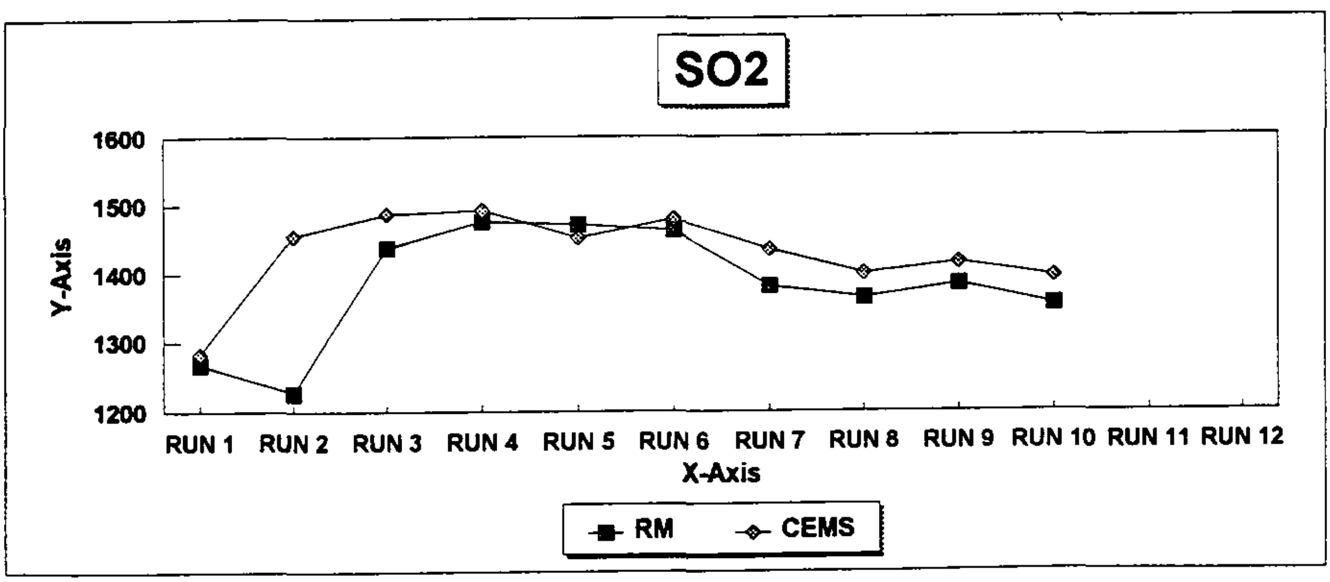
THE EQUATIONS USED FOR THE STATISTICAL EVALUATION OF THE REFERENCE METHOD AND THE CEM ARE FOUND IN 40 CFR, Pt. 60, App. B, Spec. 2, Section 8.

T-FACTOR: 2.306

PLANT SMITH UNIT 1 1997







1999 CEMS RATA REPORT
Plant Smith Unit 1
06/22/1999

Relative Accuracy Test Audit Report

June 22, 1999

Gulf Power Company
Plant Smith
Unit 1
Stack ID: 1

Report by:

GULF POWER
A SOUTHERN COMPANY

Gulf Power Company
Plant Smith
Unit 1
Stack ID: 1

I. Introduction

Gulf Power Company performed all necessary reference method tests required for annual testing of a continuous emission monitoring system. The tests were performed on the continuous emission monitoring system that measures emissions from the stack for Plant Smith Unit 1. The sulfur dioxide monitor, the volumetric flow monitor, and the nitrogen oxides monitoring system were tested in accordance with the regulations set forth in the Code of Federal Regulations, Title 40, Part 75. Appropriately trained personnel located in the Southern Company performed the tests. Mr. John McPherson with Gulf Power performed the reference method testing for the gas monitors, and Sanders Engineering Inc. was contracted to perform the flow analysis.

CEMS

The continuous emission monitoring system used at Plant Smith Unit 1 is a Model 300 Dilution Monitoring System. This system is a duct time sharing system, i.e.,, there is one set of gas analyzers and two flow monitors for the two exit ducts. The CEM system is manufactured and installed by Spectrum Systems, Inc., located in Pensacola, Florida. The Model 300 includes sample acquisition, sample analysis, control and support components to provide continuous monitoring of SO2, NOx, and CO2. The CEM system utilizes ultrasonic Ultra Flow 100 flow monitors to measure the volumetric flow in standard cubic feet per minute. The SO2 is measured with a pulsed fluorescence Thermo Electron Model 43H Analyzer, the NOx is detected with a chemiluminescence Thermo Electron Model 42D Analyzer, and CO2 is measured with a non-dispersive infrared radiation (NDIR) Siemens Ultramat 5E.

The data is collected and processed using Spectraview software. This software is provided by the vendor and collects and processes all the CEMS data.

The CEMS data used for calculating the relative accuracy is collected by taking the last good minute before the duct change. This results in two readings being used to summarize the CEMS data during the reference method runs. This is the same process used by the CEMS software to calculate the unit output of emissions. A data file including all data gathered during the RATA is included in the report, and a summary file of the CEMS data is also included.

Source Description

Plant Smith Unit 1 is a coal fired boiler that produces steam used to generate electricity. Bituminous coal is the primary fuel for the boiler.

The exhaust gas passes through a superheater and economizer section and exits the boiler in separate ducts. The gases then pass through an air preheater, and through an electrostatic precipitator which removes the particulates. The gas streams then enter a common stack that delivers the gas to the atmosphere. The CEM system gas probes and flow transducers are located on the duct sections between the precipitators and the stack. The probe locations meet all of the siting criteria specified in 40 CFR Part 75, Appendix A. The CEM system monitors, controllers, and data acquisition system is located in an environmentally controlled shelter located near the base of the stack.

Reference Method Equipment

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

The CO_2 is measured using a Siemens Ultramat 5E Analyzer. This monitor is a selective nondispersive infrared radiation (NDIR) gas analyzer that operates on the infrared double-beam, alternating light principle. The full range for the instrument is 15%. The serial number for the CO_2 analyzer is C9-268.

A Thermo Electron Model 42D Nitrogen Oxides Gas Analyzer determines the NO_x levels in the gas stream. The monitor operates on the principle of chemiluminescence. This monitor has a converter that converts NO_2 to NO to enable it to accurately measure the NO_x in the sample stream. The full range for the instrument is 800 ppm. The serial number for the NO_x monitor is 42D-42655-267.

The SO2 is determined by a Thermo Electron Model 43H Analyzer. This monitor works on the principle of pulsed fluorescence. The full range for this analyzer is 2500 ppm. The serial number for the SO2 monitor is 43H-42920-268.

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

The in-stack dilution probe is an EPM Environmental Model 797, and is constructed of Inconel, with a 316L stainless steel extension. The probe length is 10 feet. The probe extracts and dilutes the sample from the duct by creating an internal vacuum with respect to the flue gas. The sample is drawn through a glass critical orifice and mixed with clean dilution air that is provided by the trailer. This mixture is then delivered to the trailer to be analyzed by each instrument. The dilution ratio for this system is 250:1.

The sample depth of the probe is regulated by the tester. The probe was moved manually every seven minutes once a gas run started. The depths used at this site were 0.4, 1.2, and 2.0 meters from the stack wall, per 40 CFR 60, Appendix B, Performance Specification 2.

The sample system is controlled via personal computer through a Dutec Ioplexer Interface. This interface enables the tester to manually initiate calibration gases to the probe, blowback of the system, and start all data collection.

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

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

Test Procedures

All tests used in the certification process are performed in accordance with EPA Methods 1, 2, 3A, 4, 6C, and 7E. The Methods are found in 40 CFR Part 60.

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

The SO2, CO2, and NOx pollutant concentrations were determined by EPA Methods 3A, 6C, and 7E. These methods require that the tester: 1) select appropriate apparatus meeting the applicable equipment specifications of the methods; 2) conduct an interference response test prior to the testing program; and 3) conduct various measurements during the testing program to demonstrate conformance with the measurement system performance specifications. One variance from the standard Method 6C steps occurs when using a dilution extractive reference method testing system. There is no direct analyzer calibration step available when using this system because the calibration gases must be diluted before being introduced to the ambient level analyzers. Therefore, the system bias check doubles as the system calibration. This procedure has been approved by the EPA and a copy of the approval letter is included in the appendices. The system calibration error is limited to +/- 2%.

The following is a brief outline of the procedures followed during the gas testing. Initially, the measurement system was calibrated. Next, a zero, mid, and high level gas was introduced to determine the system calibration error. After allowing twice the system response time, twenty-one (21) minutes of stack gas data was collected. At the conclusion of the run data collection, a zero and upscale calibration gas for each analyzer was introduced. The upscale gas that most closely approximated the stack gas was used to perform the system bias checks and system drifts. As long as no significant drifts occurred, the calibration checks between runs served as both the post check for the previous run and the pre check for the next run. A summary of the drifts and biases are included in the appendices. The gas averages for each run were adjusted to correct for any drift that occurred. The data comparison to determine the relative accuracy and bias for each pollutant monitor or monitoring system was performed according to 40 CFR 75, Appendix A, paragraphs 3.4, 6.5, and 7.6. This data is summarized in the appendices. The system response time was performed during the setup. The system response time was three minutes.

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

All data used to compile this report is supplied in the applicable appendix. Each appendix should be self-explanatory as far as the raw data and the computed results are concerned. Any questions should be forwarded to Gulf Power Environmental affairs Department.

The units for data collection are as follows: the SO2 and NOx are in parts per million (ppm) and the CO2 is in percent (%). The flow rate is captured in thousand standard cubic feet per minute (KCFM) and converted to standard cubic feet per hour (SCFH). The times presented in the appendices should be interpreted as hour, minute, second format. The format is varied from appendix to appendix due to some times being collected either by the reference method data collection system or manually recorded by the testing personnel. The relative accuracy determination for the NOx emissions are in pounds per million Btu (lbs/mmBtu) or (#/mmBtu). The times for both the CEM system and the reference method tests are in Central Standard Time.

No unusual deviations occurred during the reference method sampling. All field testing was routine in nature.

II. *Statement of Authenticity*

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

Date: 9/01/99 Signature: [signature]
John McPherson,
Environmental Specialist

Date: 9/01/99 Signature: [signature]
G. Dwain Waters, QEP
Air Quality Programs Coordinator

III. Mathematical Formulas

The data reduction for the reference method testing is performed per the instructions contained in 40 CFR 75. The following is a list of formulas that are used to reduce the data found in this report.

The NO_x pounds per million Btu (#MMBtu) for both the reference method and CEM is as follows:

$$NO_x\ (\#MMBtu) = NO_x\ (ppm) \times F_C \times K \times (100/\%CO2)$$

where,

F_C = Carbon based fuel factor = 1040 for Natural Gas or 1800 for Bituminous Coal

K = conversion constant = 1.194E-7

The arithmetic mean is the sum of the individual runs divided by the number of runs.

$$d = \frac{1}{n}\sum_{i=1}^{n} di$$

Where,

n = Number of data points

d = Arithmetic Mean

di = all specific data points individually taken

The standard deviation of the population is as follows:

$$Sd = \sqrt{\frac{\sum di^2 - \left(\frac{\left(\sum di\right)^2}{n}\right)}{n-1}}$$

Where,

n = number of data points

d = arithmetic mean

di = all specific data points individually taken

The confidence coefficient is:

$$CC = t_{0.025}\frac{Sd}{\sqrt{n}}$$

Where,

t = 2.306 for nine runs
n = number of runs

The relative accuracy is:

$$RA = \frac{d + CC}{RM} * 100$$

Where,
d = the absolute value of the mean differences
cc = the absolute value of the confidence coefficient
RM = the average reference method value or applicable standard

The bias adjustment factor is calculated by:

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

Where,
d = the absolute value of the difference between the reference data and the CEM data
CEM = the average value from the data acquisition system

IV. SUMMARY OF RESULTS

Results of the certification testing performed on Gulf Power Plant Smith Unit 1 are presented in the following table. These results are based on test data obtained from the facility during normal operation of the boiler. These test results show the Continuous Emission Monitoring Systems installed on Plant Smith Unit 1 are in conformance with requirements of 40CFR60 and 75.

PLANT SMITH
UNIT 1

MONITOR	RELATIVE ACCURACY	BIAS ADJUSTMENT From:	To:	Date/Time:
SO_2	2.70	1.000	No Change	-
CO_2	2.29	N/A	N/A	-
NO_X	4.75	1.037	1.0323	06/22:04
LOW LOAD	2.61	1.000	1.000	06/22:04
MID LOAD	5.81	1.000	1.000	-
HIGH LOAD	5.26	1.000	1.000	-

Appendix A

Relative Accuracy Test Audit for Exhaust Gas Monitors

RELATIVE ACCURACY TESTS

Relative accuracy tests were conducted in accordance with 40CFR75, Appendix A, paragraph 6.5 for the SO2, NOx, CO2, and volumetric flow monitors

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

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

The relative accuracy is calculated as follows:

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

where,

A = The absolute value of the mean difference between the Reference Method values and the CEM values

B = The absolute value of the confidence coefficient

C = The arithmetic mean of the Reference Method values

40CFR Part 75 limits the relative accuracy of the SO2 pollutant monitor and NOx CEMS to ten percent, while the flow monitor relative accuracy is limited to fifteen percent at each of the three operating loads.

The SO2, NOx, and CO2 relative accuracy tests were conducted contemporaneously with the volumetric flow relative accuracy test at maximum load of the boiler. The CO2 analyzer is being certified as part of the NOx CEMS as a diluent analyzer and is therefore, deemed certified as a pollutant analyzer in accordance with 40CFR75.20(c)(4).

The relative accuracy of the flow monitor was conducted at three separate operating loads as prescribed in 40CFR75, Appendix A, paragraph 6.5.2

BIAS TEST

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

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

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

where,

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

CEM adjusted = CEM measured * BAF

where,

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

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

Relative Accuracy and Bias Test Results

Relative Accuracy and Bias Determination

Performed by:
Gulf Power Company
Pensacola, Florida

Performed for:
Gulf Power Company
Plant Smith

Unit 1
CO2 Monitor

Run Number	Date of Run	Start Time	Stop Time	Unit Load	RM-3A CO2 in percent	CEM CO2 in percent	Difference CO2 in percent	1 = good run 0 = Bad Run	Error By Run
1	22-Jun	21:47	22:08	176	11.725	11.58	0.145	1	1.24
2	22-Jun	22:25	22:45	176	11.481	11.70	-0.219	1	-1.90
3	22-Jun	23:13	23:34	176	11.291	11.71	-0.419	1	-3.71
4	22-Jun	23:52	0:13	176	11.458	11.65	-0.192	1	-1.67
5	23-Jun	0:31	9:52	176	11.528	11.67	-0.142	1	-1.23
6	23-Jun	1:13	1:34	176	11.518	11.70	-0.182	1	-1.58
7	23-Jun	1:52	2:13	176	11.499	11.64	-0.141	1	-1.23
8	23-Jun	2:41	3:02	167	11.515	11.60	-0.085	1	-0.74
9	23-Jun	3:28	3:49	177	11.544	11.67	-0.126	1	-1.09
10	23-Jun	0:00	0:00				#VALUE!		
11	23-Jun	0:00	0:00				#VALUE!		
12	23-Jun	0:00	0:00				#VALUE!		
Average:				175	11.506	11.658	-0.151		
Standard Deviation							0.147		
Confidence Coefficient:							0.113		
Relative Accuracy:							2.29		

T-Factor: 2.306
EndDate: 990623
EndTime: 0349

Relative Accuracy and Bias Determination

Performed by:
Gulf Power Company
Pensacola, Florida

Performed for:
Gulf Power Company
Plant Smith

Unit 1
NOx CEMS

Run Number	Date of Run	Start Time	Stop Time	Unit Load	RM-7E NOx in #/MMBtu	CEM NOx in #/MMBtu	Difference NOx in #/MMBtu	1=good run 0=Bad Run	Error By Run
1	22-Jun	21:47	22:08	176	0.446	0.4440	0.002	1	0.45
2	22-Jun	22:25	22:45	176	0.444	0.4340	0.010	1	2.25
3	22-Jun	23:13	23:34	176	0.448	0.4320	0.016	1	3.57
4	22-Jun	23:52	0:13	176	0.456	0.4270	0.029	1	6.36
5	23-Jun	0:31	9:52	176	0.433	0.4230	0.010	1	2.31
6	23-Jun	1:13	1:34	176	0.432	0.4180	0.014	1	3.24
7	23-Jun	1:52	2:13	176	0.424	0.4200	0.004	1	0.94
8	23-Jun	2:41	3:02	167	0.414	0.4030	0.011	1	2.66
9	23-Jun	3:28	3:49	177	0.436	0.4090	0.027	1	6.19
10	23-Jun	0:00	0:00				#VALUE!		
11	23-Jun	0:00	0:00				#VALUE!		
12	23-Jun	0:00	0:00				#VALUE!		
Average:				175	0.437	0.423	0.014		
Standard Deviation							0.009		
Confidence Coefficient:							0.007		
Relative Accuracy:							4.75		

T-Factor: 2.306
EndDate: 990623
EndTime: 0349
Bias Test (pass/fail): Failed
Bias Adjustment Factor: 1.0323

Relative Accuracy and Bias Determination

Performed by:
Gulf Power Company
Pensacola, Florida

Performed for:
Gulf Power Company
Plant Smith

Unit 1
SO2 Monitor

Run Number	Date of Run	Start Time	Stop Time	Unit Load	RM-6C SO2 IN ppm	CEM SO2 IN ppm	Difference SO2 IN ppm	1=good run 0=Bad Run	Error By Run
1	22-Jun	21:47	22:08	176	1722.594	1754.53	-31.936	1	-1.85
2	22-Jun	22:25	22:45	176	1725.859	1768.02	-42.161	1	-2.44
3	22-Jun	23:13	23:34	176	1740.294	1770.64	-30.346	1	-1.74
4	22-Jun	23:52	0:13	176	1727.553	1776.16	-48.607	1	-2.81
5	23-Jun	0:31	9:52	176	1748.132	1779.96	-31.828	1	-1.82
6	23-Jun	1:13	1:34	176	1729.642	1779.90	-50.258	1	-2.91
7	23-Jun	1:52	2:13	176	1720.112	1764.52	-44.408	1	-2.58
8	23-Jun	2:41	3:02	167	1729.913	1764.78	-34.867	1	-2.02
9	23-Jun	3:28	3:49	177	1719.012	1767.76	-48.748	1	-2.84
10	23-Jun	0:00	0:00				#VALUE!		
11	23-Jun	0:00	0:00				#VALUE!		
12	23-Jun	0:00	0:00				#VALUE!		
Average:				175	1729.235	1769.586	-40.351		
Standard Deviation							8.141		
Confidence Coefficient:							6.257		
Relative Accuracy:							2.70		

T-Factor: 2.306
EndDate: 990623
EndTime: 0349
Bias Test (pass/fail): Passed
Bias Adjustment Factor: 1.000

ATTACHMENT 4

Weekly Monitoring Report
Plant Smith Unit 1
08/21/2000

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Gulf Power Company
Smith Unit 1
Panama City, Florida

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Today's Date: 08/21/2000
Time: 07:33:31
LOAD / RATE REPORT From : 08/14/2000 To : 08/20/2000

Load Bin (0-25%)

Date	Time	Load	BART_SO2	BART_NOX

AVERAGES

Load Bin (25-50%)

Date	Time	Load	BART_SO2	BART_NOX
08/14/2000	0	76.4	1.39	0.523
08/14/2000	1	73.1	1.41	0.435
08/14/2000	2	72.9	1.42	0.425
08/14/2000	3	74.1	1.43	0.423
08/14/2000	4	82.5	1.43	0.416
08/15/2000	0	91.6	0.84	0.313
08/15/2000	1	76.3	0.83	0.379
08/15/2000	2	73.6	0.82	0.370
08/15/2000	3	74.7	0.82	0.400
08/16/2000	2	85.7	0.80	0.490
08/20/2000	0	83.1	0.76	0.610
AVERAGES		78.5	1.08	0.435

Load Bin (50-75%)

Date	Time	Load	BART_SO2	BART_NOX
08/14/2000	5	113.1	1.41	0.449
08/14/2000	6	130.0	1.44	0.534

08/14/2000	21	139.2	0.85	0.522
08/14/2000	22	136.5	0.84	0.541
08/14/2000	23	114.0	0.84	0.550
08/15/2000	4	104.1	0.83	0.400
08/15/2000	5	142.1	0.87	0.365
08/15/2000	23	139.0	0.82	0.466
08/16/2000	0	116.3	0.81	0.516
08/16/2000	1	103.5	0.80	0.540
08/16/2000	3	97.0	0.78	0.459
08/16/2000	4	136.1	0.79	0.457
08/17/2000	2	116.9	0.90	0.589
08/17/2000	3	121.3	0.90	0.570
08/19/2000	5	141.5	0.79	0.479
08/19/2000	6	122.6	0.83	0.430
08/19/2000	23	109.8	0.76	0.596
08/20/2000	1	97.7	0.76	0.432
08/20/2000	2	129.7	0.78	0.405
08/20/2000	3	119.7	0.77	0.458
08/20/2000	4	114.0	0.77	0.479
08/20/2000	5	104.9	0.76	0.459
08/20/2000	6	133.6	0.79	0.404
08/20/2000	21	135.0	0.74	0.462
08/20/2000	22	121.0	0.75	0.506
08/20/2000	23	99.8	0.74	0.557
		-----	--------	--------
AVERAGES		120.7	0.85	0.486

Load Bin (75-100%)

Date	Time	Load	BART_SO2	BART_NOX
----	----	----	--------	--------
08/14/2000	7	165.7	1.43	0.447
08/14/2000	8	177.3	1.22	0.393
08/14/2000	9	175.8	1.11	0.401
08/14/2000	10	176.4	1.03	0.392
08/14/2000	11	174.3	0.95	0.422
08/14/2000	12	176.3	0.95	0.418
08/14/2000	13	174.1	0.93	0.412
08/14/2000	14	176.1	0.91	0.422
08/14/2000	15	174.8	0.89	0.436
08/14/2000	16	174.9	0.90	0.436
08/14/2000	17	175.3	0.89	0.435
08/14/2000	18	176.0	0.87	0.435
08/14/2000	19	174.9	0.86	0.431
08/14/2000	20	170.8	0.86	0.430
08/15/2000	6	147.7	0.91	0.365
08/15/2000	7	171.6	0.90	0.362
08/15/2000	8	177.3	0.87	0.409
08/15/2000	9	176.4	0.88	0.445

08/15/2000	11	175.7	0.90	0.431
08/15/2000	12	175.5	0.85	0.419
08/15/2000	13	175.5	0.89	0.413
08/15/2000	14	175.1	0.85	0.423
08/15/2000	15	175.2	0.86	0.418
08/15/2000	16	176.9	0.86	0.435
08/15/2000	17	172.2	0.83	0.423
08/15/2000	18	174.3	0.84	0.425
08/15/2000	19	175.3	0.84	0.434
08/15/2000	20	169.3	0.84	0.444
08/15/2000	21	162.9	0.84	0.433
08/15/2000	22	174.0	0.85	0.392
08/16/2000	5	163.7	0.80	0.486
08/16/2000	6	165.2	0.86	0.504
08/16/2000	7	176.6	0.95	0.475
08/16/2000	8	174.0	1.01	0.458
08/16/2000	9	173.8	1.05	0.471
08/16/2000	10	175.8	1.01	0.381
08/16/2000	11	176.1	0.93	0.380
08/16/2000	12	176.1	0.91	0.427
08/16/2000	13	176.0	0.87	0.424
08/16/2000	14	175.8	0.89	0.465
08/16/2000	15	175.5	0.91	0.438
08/16/2000	16	175.0	0.91	0.434
08/16/2000	17	175.0	0.92	0.433
08/16/2000	18	173.0	0.93	0.425
08/16/2000	19	174.7	0.93	0.402
08/16/2000	20	171.5	0.94	0.409
08/16/2000	21	176.3	0.94	0.408
08/16/2000	22	176.1	0.92	0.423
08/16/2000	23	172.5	0.92	0.431
08/17/2000	0	165.1	0.92	0.444
08/17/2000	1	146.0	0.91	0.495
08/17/2000	4	162.8	0.91	0.544
08/17/2000	5	173.3	0.92	0.474
08/17/2000	6	175.7	0.94	0.466
08/17/2000	7	174.6	0.82	0.449
08/17/2000	8	176.0	0.77	0.424
08/17/2000	9	175.5	0.77	0.420
08/17/2000	10	177.6	0.77	0.412
08/17/2000	11	178.2	0.89	0.441
08/17/2000	12	178.0	0.98	0.462
08/18/2000	8	176.9	0.83	0.436
08/18/2000	9	176.3	0.82	0.413
08/18/2000	10	177.1	0.77	0.413
08/18/2000	11	176.7	0.76	0.418
08/18/2000	12	175.9	0.77	0.404
08/18/2000	13	175.1	0.78	0.410
08/18/2000	14	174.9	0.78	0.388
08/18/2000	15	174.7	0.77	0.386
08/18/2000	16	174.1	0.77	0.415

08/18/2000	17	175.2	0.77	0.425
08/18/2000	18	176.0	0.78	0.420
08/18/2000	19	175.6	0.77	0.416
08/18/2000	20	173.9	0.78	0.422
08/18/2000	21	172.1	0.78	0.433
08/18/2000	22	166.3	0.77	0.421
08/18/2000	23	170.1	0.77	0.404
08/19/2000	0	168.6	0.77	0.421
08/19/2000	1	170.3	0.77	0.413
08/19/2000	2	174.8	0.78	0.411
08/19/2000	3	175.4	0.77	0.410
08/19/2000	4	176.0	0.78	0.418
08/19/2000	7	171.6	0.86	0.384
08/19/2000	8	176.8	0.78	0.403
08/19/2000	9	173.5	0.74	0.411
08/19/2000	10	174.7	0.75	0.406
08/19/2000	11	176.5	0.75	0.404
08/19/2000	12	176.2	0.76	0.410
08/19/2000	13	176.3	0.80	0.406
08/19/2000	14	176.4	0.78	0.411
08/19/2000	15	176.1	0.76	0.417
08/19/2000	16	173.3	0.76	0.441
08/19/2000	17	174.7	0.78	0.423
08/19/2000	18	176.9	0.78	0.415
08/19/2000	19	176.0	0.78	0.414
08/19/2000	20	175.2	0.78	0.419
08/19/2000	21	176.1	0.78	0.415
08/19/2000	22	168.7	0.77	0.443
08/20/2000	7	173.6	0.78	0.385
08/20/2000	8	174.6	0.77	0.443
08/20/2000	9	174.8	0.76	0.453
08/20/2000	10	176.0	0.75	0.480
08/20/2000	11	173.6	0.75	0.493
08/20/2000	12	174.2	0.76	0.494
08/20/2000	13	173.8	0.77	0.483
08/20/2000	14	175.0	0.76	0.414
08/20/2000	15	175.9	0.73	0.399
08/20/2000	16	174.2	0.72	0.393
08/20/2000	17	171.6	0.72	0.402
08/20/2000	18	175.0	0.73	0.387
08/20/2000	19	174.7	0.73	0.391
08/20/2000	20	155.0	0.74	0.437
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AVERAGES		173.5	0.84	0.426

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AVERAGES OF ALL 4 LOAD BINS			0.86	0.437

SM 1 4

301 Record Summary
Third Quarter 2000
August QTD/YTD

	QTD SO2 (tons)	QTD SO2 (lb/mmBtu)	QTD NOx (lb/mmBtu)	QTD CO2 (tons)	QTD Heat Input (mmBtu)
Crist 4	738.7	1.669	0.384	90842.1	885379
Crist 5	847.3	1.656	0.401	104970.2	1023117
Crist 6	2699.3	1.683	0.463	329061.2	3207234
Crist 7	5993.4	1.703	0.405	722010.7	7037151
Scholz 1	382.7	1.409	0.576	55735.2	543231
Scholz 2	385.2	1.371	0.614	57655.9	561953
Smith 1	1398.3	1.208	0.455	237530.4	2315121
Smith 2	1808.6	1.191	0.335	311612.8	3037178