Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

February 14, 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Gene L. Ussery, Jr., V.P. of Power Generation
Gulf Power Company
One Energy Place
Pensacola, FL 32520-0328

Re: Draft Air Permit No. 0330045-005-AC
Gulf Power Company, Crist Electrical Generating Plant
Unit 7 ESP/SCR Pollution Control Project

Dear Mr. Ussery:

Enclosed is one copy of the draft permit to replace the existing electrostatic precipitator and install a new selective catalytic reduction system for Unit 7. The new equipment will be installed at the existing Crist Electrical Generating Plant, which is located on Governors Bayou off of 10 Mile Road in Pensacola, Escambia County, Florida. The Department's "Technical Evaluation and Preliminary Determination", "Intent to Issue Permit", and the "Public Notice of Intent to Issue Permit" are also included.

The "Public Notice of Intent to Issue Permit" must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit. The Department will accept comments on the draft permit for a period of 14 days as described in the attached notice.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, Administrator of the New Source Review Section, at the above letterhead address. If you have any other questions, please contact Jeff Koerner at 850/921-9536.

Sincerely,

for Trina Vielhauer, Chief
Bureau of Air Regulation

Enclosures

U.S. Postal Service

CERTIFIED MAIL RECEIPT

(Domestic Mail Only; No Insurance Coverage Provided)

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Sent To: Gene L. Ussery, Jr.

Street, Apt. No.; or PO Box No. One Energy Place

City, State, ZIP+4 Pensacola, FL 32520-0328

PS Form 3800, January 2001 — See Reverse for Instructions

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

In the Matter of an
Application for Air Permit by:

Gulf Power Company
One Energy Place
Pensacola, FL 32520-0328

Authorized Representative:
Gene L. Ussery, Jr., V.P. of Power Generation

Draft Permit No. 0330045-005-AC
Gulf Power Company
Crist Electric Generating Plant
Unit 7 ESP/SCR Project
Escambia County, Florida

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (copy of Draft Permit attached) for the proposed project as detailed in the application and the enclosed Technical Evaluation and Preliminary Determination, for the reasons stated below. Gulf Power Company applied on December 26, 2002 to the Department for a permit to replace the existing electrostatic precipitator and install a new selective catalytic reduction system for Unit 7. The new equipment will be installed at the existing Crist Electrical Generating Plant, which is located on Governors Bayou off of 10 Mile Road in Pensacola, Escambia County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, F.S., and Chapters 62-4, 62-210, and 62-212, F.A.C. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to perform proposed work. The Department intends to issue this air construction permit based on the belief that the applicant has provided reasonable assurances to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in Section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) and (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of Public Notice of Intent to Issue Air Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S. before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), F.S. however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of

receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Mediation is not available in this proceeding. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2), F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

for Trina Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit package (including the Public Notice of Intent to Issue Air Construction Permit, Technical Evaluation and Preliminary Determination, and the Draft Permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 2/14/03 to the persons listed:

Mr. Gene L. Ussery, Gulf Power Co.*
Mr. G. Dwain Waters, Gulf Power Co.
Mr. Gregory N. Terry, Gulf Power Co.
Ms. Sandra Veazey, NWD
Mr. Gregg Worley, EPA Region 4
Mr. John Bunyak, NPS

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Victoria Gibson / February 14, 2003
(Clerk) (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Draft Air Permit No. 0330045-005-AC

Gulf Power Company
Crist Electrical Generating Plant
Unit 7 ESP/SCR Pollution Control Project

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Gulf Power Company to replace the existing electrostatic precipitator (ESP) and install a new selective catalytic reduction (SCR) system for Unit 7. The new equipment will be installed at the existing Crist Electrical Generating Plant, which is located on Governors Bayou off 10 Mile Road in Pensacola, Escambia County, Florida. The applicant's authorized representative is Gene L. Ussery, Jr., V.P. of Power Generation. The applicant's mailing address is Gulf Power Company, One Energy Place, Pensacola, FL 32520-0328.

In August of 2002, Gulf Power Company and the Florida Department of Environmental Protection entered into an agreement titled, "Agreement for the Purpose of Ensuring Compliance with the Ozone Ambient Air Quality Standards". The application under review is based on the pollution control projects for Unit 7 discussed in this agreement. Gulf Power Company proposes to install a new selective catalytic reduction (SCR) to remove emissions of nitrogen oxides (NOx) from Unit 7 at the existing Crist Electrical Generating Plant. Designed for 85% NOx removal efficiency, the SCR system is expected to reduce actual emissions of nitrogen oxides by approximately 5000 tons per year. To control particulate matter emissions, Gulf Power Company proposes to replace the existing electrostatic precipitator (ESP) with a new ESP. The new ESP is needed to structurally accommodate the proposed SCR system. Emissions of other pollutants are not expected to change. As a pollution control project defined by the regulations, .the project is exempt from the PSD preconstruction review requirements of Rule 62-212.400, F.A.C. In accordance with the specific conditions, the draft permit authorizes the construction of this pollution control equipment.

The Department will issue the Final Permit with the attached conditions unless a response received in accordance with the following procedure results in a different decision or significant change of terms or conditions. The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone

number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
(111 S. Magnolia Drive, Suite 4)
2600 Blair Stone Road, MS #5505
Tallahassee, Florida, 32399-2400
Telephone: 850/488-0114

Department of Environmental Protection
Northwest District Office
Air Resources Section
160 Governmental Center
Pensacola, FL 32501-5794
Telephone: 850/595-8300

The complete project file includes the application, Technical Evaluation and Preliminary Determination, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Department's reviewing engineer for this project for additional information at the address and phone numbers listed above.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

PROJECT

Draft Air Construction Permit No. 0330045-005-AC
Crist Unit 7 ESP/SCR Project

COUNTY

Escambia County

APPLICANT

Gulf Power Company
Crist Electric Generating Plant
ARMS Facility ID No. 0330045

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation
New Source Review Section

February 13, 2003

(Filename: Crist 7 ESP-SCR TEPD.doc)

1. GENERAL PROJECT INFORMATION

Applicant Name and Address

Gulf Power Company – Crist Electric Generating Plant
One Energy Place
Pensacola, FL 32520-0328

Authorized Representative:
Gene L. Ussery, Jr., V.P. of Power Generation

Processing Schedule

12/26/02 Received the application for a pollution control project;

01/22/03 Department requested additional information;

02/06/03 Department received additional information; and

02/10/03 Department received certification of authorized representative and professional engineer; complete.

{Note: The applicant submitted some initial information related to the ESP and SCR systems identified as "Attachment 2" and requested that it be handled as confidential information pursuant to Section 403.111(1), F.S. The Department returned this information to the applicant without making any decisions based on it. Instead, the Department asked specific questions about the control equipment and received a detailed response from Gulf Power Company, which made the application complete. The Department currently holds no "confidential information" for this project and did not rely on such information to make its determination.}

Facility Description and Location

Gulf Power Company operates the existing Crist Power Plant, which is located on Governors Bayou off 10 Mile Road in Pensacola, Escambia County, Florida. This site is in an area that is currently in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS).

Standard Industrial Classification Code (SIC)

SIC No. 4911 – Electrical Services

Regulatory Categories

Title III: The existing facility is identified as a major source of hazardous air pollutants (HAP).

Title IV: The existing facility operates units subject to the acid rain provisions of the Clean Air Act.

Title V: The existing facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

PSD: The existing facility is a PSD-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

Project Description

On August 28, 2002, Gulf Power Company and the Florida Department of Environmental Protection entered into an agreement titled, "Agreement for the Purpose of Ensuring Compliance with the Ozone Ambient Air Quality Standards" (Agreement). The purpose of the agreement is to support continuing efforts to maintain compliance with the ambient air quality standard for ozone in the Escambia County area. In brief, Gulf Power Company agrees to:

- Construct and operate a new electrostatic precipitator (ESP) for Crist Unit 7;
- Construct and operate a new selective catalytic reduction (SCR) system for Crist Unit 7;
- Ultimately retire Crist coal-fired Units 1, 2, and 3; and
- Employ additional NOx reduction techniques for one or more of the remaining coal-fired Units 4, 5, and 6.

The agreement is contingent on approval from the Public Service Commission to recover costs from the ratepayers related to the pollution control projects, which became final November 18, 2002. Based on the agreement, Gulf Power Company submitted an application for an air permit to install the new ESP and SCR for Crist Unit 7. The project will be constructed in the following general phases over the next several years:

- Phase 1 consists of the planning and construction of infrastructure support facilities such as: the addition of new parking lots, the demolition and relocation of the maintenance shop, the creation of construction lay-down areas, and crane erection for the project. This phase also includes beginning the process of obtaining the necessary local, state, and federal permits and licenses.
- Phase 2 consists of the installation of pilings and foundations for the ESP and SCR, which includes excavations into the existing coal storage pile located east of the plant. Foundation testing began on February 3, 2003.
- Phase 3 is the erection of the ESP and the ductwork support steel, which is scheduled for April of 2003. Startup of the ESP is planned for May of 2004.
- Phase 4 is the construction of the SCR system and the ductwork support steel, which is scheduled for September of 2003. Startup of the SCR system is planned for May of 2005.

2. APPLICABLE REGULATIONS

State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). In general, this project is subject to the applicable rules and regulations defined in the following Chapters of the F.A.C.

Chapter	Description
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements and Federal Regulations Adopted by Reference
62-210	Required Permits, Public Notice, Reports, Circumvention, Excess Emissions, and Forms
62-212	Preconstruction Review
62-213	Operation Permits for Major Sources of Air Pollution
62-296	Emission Limiting Standards
62-297	Testing, Continuous Monitoring, and Alternate Sampling Procedures

{Note: The project is not subject to Florida's Power Plant Siting Act because there will be no change in steam-generated electrical capacity.}

General PSD Applicability

The Department regulates major air pollution sources in accordance with the Prevention of Significant Deterioration (PSD) program, as delegated by the EPA for electric utilities. A PSD review is required only in areas currently in attainment with the National Ambient Air Quality Standard (AAQS) or areas designated as "unclassifiable" for a given pollutant. A new facility is considered "major" with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant, or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories (Table 62-212.400-1, F.A.C.), or
- 5 tons per year of lead.

For new projects at PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the Significant Emission Rates listed in Table 62-212.400-2, F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant". The applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility may be "major" with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

The Department's Rule 62-212.400(2)(a)2, F.A.C. exempts certain pollution control projects from the requirements of PSD review. Subparagraph "a" of this rule states that, "A pollution control project that is being added, replaced, or used at an existing electric utility steam generating unit and that meets the requirements of 40 CFR 52.21(b)(2)(iii)(h), adopted and incorporated by reference at Rule 62-204.800, F.A.C., shall not be subject to the preconstruction review requirements of this rule." This federal rule defines a "major modification" as any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act. However, it also specifically states that a physical change or change in the method of operation shall not include the addition, replacement or use of a pollution control project at an existing electric utility steam generating unit, unless it is determined that such addition, replacement, or use renders the unit less environmentally beneficial, or except:

1. There is reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of Title I, if any, and
2. It is determined that the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment, or visibility limitation.

The replacement of the ESP and the addition of the SCR system are not expected to result in any increased emissions. The purpose of the project is to reduce nitrogen oxide emissions. The following table summarizes past actual emissions and the project impacts.

Table 2A. Estimated Emissions

Pollutant	Emissions, Ton Per Year [a]				
	2000	2001	2-Year Avg.	Post-Project	Difference
CO	309	236	273	No Change [b]	0
NOx	6915	4971	5943	891 [c]	- 5052
Pb	0.22	0.17	0.20	No Change [d]	0
PM	307	246	277	No Change [d]	0
PM10	192	154	173	No Change [d]	0
SO2	24,470	17,462	20,966	No Change [b]	0
VOC	37	28	33	No Change [b]	0

Notes

a. Annual emissions are based on data compiled from the applicant's Annual Operating Reports as recorded in the Department's ARMS database.

b. The ESP and SCR projects are not expected to affect emissions of carbon monoxide, sulfur dioxide, or volatile organic compounds.

c. Based on the Agreement, the SCR project is designed for a NOx reduction from Unit 7 of 85%.

d. The new ESP is expected to be more efficient than the previous ESP, which would result in a reduction of particulate matter emissions.

The replacement of the ESP and the addition of the SCR system are considered a pollution control project. During the period of 1997 to 2001, Unit 7 averaged about 6900 hours per year. The annual capacity factor for Unit 7 during this period approached 50% based on the actual annual heat input versus the maximum potential annual heat input rate. [1] Therefore, the addition of the pollution control equipment is not expected to result in an increase in the capacity utilization of Unit 7 and uncontrolled representative actual emissions are not expected to be any different than past actual emissions. At a control efficiency of 85% for the proposed SCR system, actual representative controlled NOx emissions are expected to decrease by approximately 5000 tons per year. The Department believes that the proposed pollution control project will be environmentally beneficial and will not result in a significant net increase in representative actual annual emissions of any criteria pollutant. As such, this project is exempt from the requirements of PSD preconstruction review. Nevertheless, an air construction permit is required to conduct the proposed work.

3. APPLICATION REVIEW

Crist Unit 7 (ARMS Emissions Unit 007) is a 578 MW Foster Wheeler balanced draft, front and rear wall-fired, dry bottom boiler. The maximum heat input rate is 6406 MMBtu per hour while combusting the primary fuels of pulverized bituminous coal and/or natural gas. Distillate oil and on-specification used oil fuel are also combusted as a secondary fuels. Emissions of particulate matter are currently reduced by a Buell cold side electrostatic precipitator. Nitrogen oxides are controlled with low NOx burners. Unit 7 has continuous monitors for opacity, stack gas flow, carbon dioxide, nitrogen oxides, and sulfur dioxide. Units 6 and 7 share a common stack that is 23.2 feet in diameter and 450 feet high. Based on the current Title V air operation permit, Unit 7 is subject to Rule 62-296.405, F.A.C. (Fossil Fuel Fired Steam Generators > 250 MMBtu/Hour Heat Input), predates the requirements of Rule 62-212.400, F.A.C. (PSD Preconstruction Review), and is regulated under Phase I of the federal Acid Rain Program. The applicant proposes to perform the following work.

Boiler Parameters

As a direct result of the pollution control project, the following boiler components will be modified: the economizer control damper, the economizer hopper, the air preheater and the air preheater inlet. The modifications are necessary to accommodate the new pollution control equipment and duct work. The proposed changes will not increase emissions nor add to the capacity of Unit 7. The materials of construction should be carefully selected to inhibit corrosion.

Electrostatic Precipitator (ESP)

Proposal

Particulate matter emissions in the exhaust flue gas of Unit 7 are currently controlled with a Buell cold-side ESP, which generally functions as follows. Particles in the flue gas are electrically charged by discharge electrodes. The negatively charged particles migrate to a grounded collection electrode. Periodically, the collecting plates are mechanically rapped to free captured particles, which fall in large sheets to collection hoppers below for removal. An automated control system adjusts electrical field strength and rapping frequency to provide optimum removal efficiency and prevent opacity spikes that can occur when collected particles are re-entrained into the exhaust flue gas. Cold-side ESPs have been used for over 70 years to remove particulate matter from boiler exhaust streams.

Gulf Power Company proposes to replace the existing ESP with a cold-side ESP manufactured by Alstom Power Inc. A cold-side ESP is installed after the air preheater and typically operates at flue gas temperatures of less than 400° F. The low temperature results in reduced flow rates, which means a smaller overall ESP and reduced costs. Cold-side ESPs can experience fly ash collection problems when firing low sulfur coals, which is not the case for the existing boiler. Gulf Power Company expects to tie into existing Unit 7 during a scheduled outage in the spring of 2004. The majority of construction will be completed prior to this outage.

Based on the preliminary design, the new ESP will consist of two casings or gas tight chambers. Each casing will have three cells with five fields per cell. The precipitator will have 30 total fields (electrical bus sections) with each field having approximate overall dimensions of 29 feet wide by 12 feet deep with a height of about 49 feet. The collecting plates will be 16-gage steel with a spacing of 15.75 inches. The discharge electrodes will be rigid. Each of the 30 electrical bus sections will be controlled by a microprocessor-based controller with field energizing optimization and high-speed field bus communication. The ESP will also be equipped with a data management system for remote control and communications with the high voltage power supplies and rapper control systems.

Design Specifications

The following specifications summarize the preliminary design of the proposed new ESP.

- *Collection Efficiency*: The proposed ESP is designed for a collection efficiency of 99.64%, a maximum controlled particulate emission rate of 0.05 lb/MMBtu, and a maximum stack opacity of 10%.

- *Specific Collection Area (SCA)*: The specific collection area is the ratio of the total collection surface area to the flue gas exhaust rate and is a rough indicator of the overall efficiency. The preliminary design has a total collection plate area of 767,326 ft^2 based on a volumetric flow rate of about 2,167,106 ft^3/minute. For the proposed project, the SCA is estimated as follows:

  SCA = (767,326 ft^2) / (2,167,106 ft^3/minute) = 0.354 min/ft, or 354 ft^2 per 1000 ft^3/minute

  This falls within the optimum SCA range for fly ash precipitators (200 to 400 ft^2 per 1000 ft^3/minute). [5]

- *Aspect Ratio (L/H)*: The aspect ratio is ratio of the effective length of the ESP over the effective height of the ESP. If the aspect ration is small (< 1.0), then there is a greater chance that particulate matter will be re-entrained during periods of rapping and carried out of the ESP before reaching the hoppers. For the proposed ESP design, a rough estimate of the aspect ratio is:

  Aspect Ration (L/H) = (5 fields) (12 ft length/field) / (49 ft high) = 1.22

  This falls with the expected range of aspect ratios (1.0 to 1.5) for an ESP with a high collection efficiency for (> 99%). [5]

- *Particle Migration Velocity (w)*: Particle migration velocity represents the *collectability* of a particle based on the design of a specific ESP. The critical design parameter for an ESP is the collection efficiency, which is a function of the plate collection area, the volumetric flow rate, and the particle migration velocity. The following simplified equation shows the general relationship of these parameters. [5]

  $Ac = - Q / w [\ln (1 - n)]$, where:

  Ac is the plate collection area, ft^2
  Q is the volumetric flow rate, ft^3/min
  w is the particle migration velocity, ft/sec
  n is the collection efficiency, (decimal form)

  In addition to a particle collection efficiency of 99.64%, the preliminary design has a total collection plate area of 767,326 ft^2 based on a volumetric flow rate of about 2,167,106 ft^3/minute. Based on the above equation and the preliminary design, a rough estimate of the particle migration velocity is:

  $w = - (2{,}167{,}106 \text{ ft}^3/\text{min}) / (767{,}326 \text{ ft}^2) [\ln (1 - 0.9964)] (\text{min}/60 \text{ sec}) = 0.26 \text{ ft/sec}$

  This falls within the expected range of particle migration velocities (0.1 – 0.5 ft/sec) for fly ash precipitators.[2, 5]

- *Plate Area / Electrical Transformer-Rectifier (T-R) Set*: In most cases, a larger number of electrical bus sections (T-R sets) means a higher probability of continually achieving the designed collection efficiency. A general rule-of-thumb is to have one T-R set for every 10,000 to 30,000 ft^2 of collection plate area. Given

that the preliminary design has a total collection plate area of 767,326 ft^2 and 30 T-R sets, this ratio would be:

ft^2 / T-R set = (767,326 ft^2) / (30 T-R sets) = 25,600 ft^2 / T-R set

This value falls within the optimum range for fly ash precipitators.[2, 5]

Flue Gas Conditioning

Currently, sulfur is burned to condition the boiler exhaust flue gas. The added sulfur compounds lower the fly ash resistivity and improve the removal performance of the existing ESP. The new ESP will not require any flue gas conditioning and the existing sulfur burner will be removed.

Fly Ash Handling

A tumbling hammer rapping system will be used to remove captured fly ash from collecting plates. The maximum rapping density will be about 1163 square feet of collecting electrode per rapper. The preliminary design uses the existing control system to adjust the cleaning cycle and frequency that will minimize opacity spikes due to re-entrainment. Sixty hoppers (two per field) will hold the collected ash. The new ash collection hoppers will be tied in to the existing dry fly ash removal system. Since ash collection will be similar to the existing ESP, no significant changes in capacity are expected. As necessary, modifications will be made to extend the transport piping and increase the transport performance. New ductwork will be added to some of the air preheater outlet hoppers. New ash collection hoppers will be added at the bottom of the SCR inlet when it is installed. On-going engineering evaluations will determine whether additional minor changes will be needed for removal of the ash from these new hoppers that may change or add to the ash collection system.

Soot Blowing

The project is not expected to result in any changes to current boiler or air preheater soot blowing methods, frequency, or duration or add to the ash collection system.

Conclusion

The new ESP is being designed for a wide range of coals with varying ash contents. The design company, Alstom Power Inc., is a well-known engineering design and equipment manufacturer specializing in the power generation industry. They offer services ranging from design, consultation, fabrication, installation, and project management to complete turnkey projects. Design services include fabric filters (FF), flue gas desulfurization (FGD), electrostatic precipitator (ESP), post-combustion DeNOx (SCR), and ammonia-free DeNOx for gas turbines (SCONOx™). With over 70 years of experience in environmental control, Alstom Power Inc. has become a leading supplier of ESPs during the last 20 years. The preliminary design specifications for this project appear to fall within the typical design values of fly ash precipitators.

Particulate matter emissions continue to be regulated by Rules 62-296.405(1)(b) and 62-210.700(3), F.A.C. in accordance with current Title V Permit Nos. C.7 and C.8. To reflect a minimum level of control for the new ESP, the Department will include the following permit condition:

Stack Opacity: The flue gas opacity from Unit 7 shall not exceed 20% based on a 6-minute block average, except for one 6-minute block per hour that shall not exceed 27%.

This standard will apply for routine operation of Boiler No. 7 with a properly functioning ESP.

Selective Catalytic Reduction (SCR)

Unit 7 currently uses low NOx burners to inhibit the formation of NOx. Gulf Power Company proposes to add a new SCR system manufactured by Southern Company Services, Inc. SCR is an add-on control technology in which ammonia is injected into the exhaust gas stream before a section of catalyst. The ammonia combines with NOx in the presence of the catalyst in a reduction reaction to form nitrogen and water. For conventional catalysts such as vanadium pentoxide, the exhaust gas temperature must be maintained between 450° F and 850° F for the reaction to proceed satisfactorily. Ammonia that escapes past the catalyst without reacting with NOx is

called "ammonia slip". If a fuel contains significant amounts of sulfur, high levels of ammonia slip can lead to the formation of bisulfates and other particulate matter, which can foul the catalyst and reduce heat transfer rates. To avoid these problems, SCR systems can be designed with very low levels of ammonia slip (< 5 ppmv) while still achieving control efficiencies greater than 90%. SCR is a commercially available, demonstrated control technology currently employed on numerous utility boilers and combined cycle gas turbine projects worldwide.

Design Specifications

The following specifications summarize the preliminary design of the proposed new SCR system.

- *Basic Design Specifications*: The SCR system is designed for a NOx conversion efficiency of 90% based on an inlet NOx emissions rate of 0.70 lb/MMBtu.
- *Catalyst Design Specifications:* The catalyst will consist of titanium dioxide and molybdenum oxide with vanadium pentoxide as the active component. The catalyst is fabricated by applying ceramic catalyst material to a perforated stainless steel mesh grid plate. The catalyst will be arranged in a plate-type structure with 5.7 mm pitch arranged in four layers. The operational temperature range is approximately 600° to 800° F. The initial configuration is for a catalyst volume of approximately 26,000 cubic feet in 2½ layers. With all four potential layers in place, the catalyst volume will be approximately 41,600 cubic feet.
- *Ammonia Storage and Mixing*: Anhydrous ammonia will be delivered by truck (or possibly rail) and stored on site in two 20,500 gallons tanks. Ammonia is diluted with air (< 10% by volume) and injected into the SCR inlet duct through the ammonia injection grid (AIG), which is divided into about two dozen zones. Each zone is equipped with a flow indicator and manual control valve for tuning the AIG to match the inlet NOx profile. Effective ammonia distribution and NOx conversion are dependent on the velocity profile entering the AIG. A static mixer installed upstream of the AIG creates flow resistance, flattens the velocity profile, and provides uniform gas flow. Downstream of the AIG, a second static mixer is positioned at the AIG injection points to impart a swirl to the diluted ammonia and promote good mixing with the flue gas. For 90% NOx conversion, the design molar ratio of ammonia-to-NOx is 0.95 at SCR inlet.
- *Ammonia Slip*: The design target ammonia slip level is less than 5 ppmv measured at the stack. There are no provisions for continuously monitoring ammonia concentration in the flue gas. When ammonia measurements in the flue gas are required, a wet chemical method will be utilized. These measurements are taken periodically over the operating life of the SCR catalyst. More frequent tracking of ammonia slip will be monitored by measuring the amount of residual ammonia adsorbed by the fly ash. Fly ash samples will be measured periodically using an ion-specific electrode. Ammonia slip may also be estimated from the ammonia injection monitoring system based on the NOx rate at the SCR inlet/outlet and the ammonia injection rate.
- *Gas Sampling Grid (GSG)*: During commissioning and periodically over the life of the system, it will be necessary to tune the AIG to optimize the distribution of ammonia in the SCR inlet duct relative to the NOx distribution to provide optimum NOx conversion with minimum ammonia slip. To facilitate tuning, a manual gas sampling grid (GSG) is installed downstream of the last catalyst layer. The GSG allows a high-resolution traverse of the flue gas stream for composition across the outlet of the SCR, which can be used to precisely adjust the AIG. The GSG is comprised of individual small-bore (~½") heavy-wall pipes extending from outside the SCR to distributed sampling locations below the last catalyst layer. Portable equipment is used to sample and measure gas concentrations using the GSG.

Attachment A to this report shows the process flow diagram for the proposed system and provides parametric data for normal load operation.

Ammonia Control System

An ammonia flow control valve adjusts the flow of undiluted anhydrous ammonia vapor from the operating vaporizer into the diluted ammonia stream via a mixing chamber. The flow control valve set point for the SCR

reactor is established by an algorithm using an ammonia flow control loop with a cascaded, feed-forward control scheme. The lower controller in this scheme is a simple ammonia flow controller. The upper controller and its feed-forward signal develop the ammonia flow set point, which is compared to the measured ammonia flow compensated for temperature and pressure. The ammonia flow control valve is then adjusted accordingly when in automatic mode. The feed-forward signal is generated from the measured SCR inlet NOx, the outlet NOx set point, and the heat input to the boiler, which is estimated from the measured megawatt output of the steam turbine. The multiplication of the two signals, and the scaling factor, is used to determine the flow of ammonia (lbs/hr) required for the current uncontrolled NOx emission rate into the SCR.

The upper controller of the cascaded control loop compares the SCR outlet NOx rate to the preset NOx set point. It then trims the feed-forward signal to adjust for any inaccuracies in the other measurements and for any ammonia slip that actually occurred. The stack NOx signal is also monitored since it is the measurement used to determine compliance with the air permit limits. The scaling factor for the ammonia flow feed-forward signal (0.39) is based upon the differences in molecular weight between one molecule of NOx and one molecule of ammonia. This calculation assumes that 95% of the NOx will be NO and 5% of it will be NO_2. It also assumes that all of the ammonia molecules find NOx to react with and that there is no ammonia slip.

The following table summarizes the expected ammonia injection rates at various loads:

Load %	Ammonia Injection Rate lb/hour
Peak	1319
75%	1000
50%*	695

* It is expected that the SCR will limit low load operation to a minimum load of about 275MW because the economizer outlet temperature may not meet the minimum 600°F required for ammonia injection. At 275 MW, the ammonia injection rate is expected to be about 785 lb/hour.

SCR Startup Procedure

The SCR dampers will initially be in the "bypass" position. The boiler should reach a minimum load of approximately 220 MW with stable firing on coal. The unit may be at any other load up to maximum, but load should be steady while the SCR is valved into the flue gas path.

The SCR outlet dampers are stroked in tandem to the full open position and pinned in place. The continuous cleaning sequence of the sonic horns is activated. Dilution airflow to the AIG is initiated to preclude flue gas or fly ash accumulation in the AIG. The SCR bypass damper is then slowly opened to SCR in-service position over a period of hours to heat the SCR reactor in a controlled manner while avoiding any upset to the furnace draft controls. The limiting constraint on thermal ramp rate is differential temperature, which must be no greater than 150° F (preliminary) between the internal structural members and stiffeners on the external skin of the reactor. The reactor is heated as quickly as possible within this constraint to minimize the transition time through the moisture and sulfuric acid dew points. It takes from 12 to 14 hours to open the dampers the first time the SCR is put in service, in part because moisture is driven off the insulation in the process. Thereafter, the heat-up procedure may take 8 to 12 hours.

The boiler load may be dispatched as required when the damper is fully opened and all of gas flow is through the SCR reactor. An FGAS sample fan is started and the SCR inlet and outlet NOx concentration monitors are verified to agree with the stack CEMS. The bypass damper seal air pressure and flow are verified to assure 0% bypass. Ammonia injection may begin when the SCR catalyst reaches the minimum operating temperature of 600°F. If the boiler is at full load and the gas flow is at 100% of the design rate, the catalyst performance is still temperature limited. Ammonia should be limited to 80% of the flow rate at design conditions because the

catalyst activity is only sufficient to provide about 75% NOx conversion at 600°F. When the catalyst reaches the design temperature of 680° F, ammonia flow can be increased to achieve the full 90% NOx conversion.

Alternately the SCR may be in the flue gas path in while the unit undergoes a hot or cold start. The same reactor differential temperature constraints and minimum ammonia injection temperature applies. The catalyst is exposed to soot because the burners are not optimized for No. 2 fuel oil, which is used as a startup fuel. The unburned hydrocarbons from the fuel oil may block the catalyst pores and reduce the catalyst life. However, most deposits are expected to occur on the thin layer of fly ash on the catalyst surfaces. At this time, it is unknown whether the boiler or the catalyst will be the limiting constraint on startup time. The following conditions must be met before ammonia may be injected to the SCR:

- No unit Master Fuel Trip;
- SCR inlet and outlet dampers are fully opened;
- Catalyst at or above minimum operating temperature (~ 600° F);
- Ammonia / dilution air ratio is not high (> 10% by volume);
- Dilution air flow is not low; and
- Gaseous ammonia is above the minimum vaporizer outlet temperature.

SCR Shutdown Procedure

The ammonia injection is stopped and a delay time (< 1 hour) is allowed for the outlet NOx concentration to rise to equal the inlet concentration. This period of gas flow without ammonia injection assures that all residual ammonia is consumed and provides the NFPA 8502 purge requirement. For a short outage, the SCR inlet bypass damper is stroked to the full bypass position in a controlled manner to avoid any furnace draft upset. The SCR outlet damper is then closed and seal airflow is established at both dampers. Operation of the sonic horns, FGAS sample fan, and dilution airflow may then be halted. The SCR catalyst is thus "bottled up" hot and will remain above the acid dew point for a considerable length of time because the reactor is well insulated. This procedure allows the boiler to be cooled more quickly because it is not also necessary to gradually cool the SCR reactor. It also allows the SCR system to be put back in service more quickly because gradual warm up of the catalyst is avoided.

For a long outage, if access to the inside of the reactor is required, the SCR dampers are kept open as the boiler is brought off line in the normal fashion. After discontinuing fuel flow, the ID and FD fans are left running to cool the boiler and SCR. The cooling time will be extended by up to 12 hours due to the thermal capacity of the SCR. The reactor should be isolated during any maintenance procedure that could subject the catalyst to excessive moisture, such as air preheater washing or economizer maintenance.

Techniques to Prevent Catalyst Fouling and Masking

Large "popcorn" ash particles have the potential to plug the protective screens on catalyst modules and may even plug the catalyst elements themselves. Such plugging leads to poor gas distribution within the SCR, higher draft loss across the SCR and reduced catalyst life. Large (> 4mm diameter) particles must be collected before they reach the catalyst. Fly ash particles must be kept moving through the catalyst and not allowed to accumulate.

Flow model studies of the SCR system are being conducted using both numerical and experimental methods. The numerical method uses computational fluid dynamics to predict flow patterns and particle behavior throughout the system. The experimental method includes a 1/12th scale model of the SCR system. Fans force air to flow through the model at velocities selected for similitude across the operating range of the full-scale reactor. Gas flow patterns in the model are observed using smoke, tracer gas and tufts of yarn. Areas of ash deposition are observed using cork dust to simulate fly ash. Gas flow distribution devices and popcorn ash collection devices are developed and tested.

The SCR inlet duct is designed to facilitate collection and removal of large ash particles. The 90-degree bend upward from the economizer outlet duct provides the change of flow direction necessary for momentum-based devices such as deflector plates. The large cross-sectional area is sized for low velocity (~ 35 feet/second) with upward vertical flow. This allows particle screens to be used with minimal abrasion and draft loss. Devices of these types will be tested and proven as part of the flow model study.

Acoustic cleaning devices (sonic horns) are provided for on line cleaning of fly ash from the catalyst and reactor surfaces. The SCR reactors are equipped with eight sonic horns per catalyst elevation to prevent ash accumulation. These horns operate in the audible sound range and prevent ash deposits by continually vibrating or fluidizing ash particles. The fluidized particles pass through the SCR under the force of flue gas flow and gravity. The compressed air system that supplies the sonic horns will be sized to allow for additional horns which may be added in the SCR inlet area to prevent ash deposits on turning vanes, beams, collection devices, etc.

Catalyst Maintenance Procedures and Schedule

The catalyst has been selected for a 16,000-hour life at design conditions. The initial catalyst load consists of two and a half layers. At the end of the first 16,000 hours, a full fourth layer is added. After the next interval (40,000 total hours), the half-layer is replaced with a full layer. Full layers are replaced in succession thereafter. Catalyst deactivation can be observed in a variety of ways such as ammonia slip tests, increased ammonia usage, and estimated ammonia slip determined by the ammonia injection control system.

SCR Bypass Duct

The SCR bypass duct is configured to allow boiler exhaust gas to bypass the SCR catalyst under specific circumstances. Initial design locates it so the bypass inlet is at the top of the SCR reactor and the outlet is at the bottom of the SCR reactor. Two large bypass dampers redirect the gas flow through this duct. The SCR reaction takes high temperatures for the chemical reaction to occur. These temperatures (> 600° F) do not exist until the unit is loaded to approximately 275 MW. In addition, a cold SCR must be gradually warmed to control thermal expansion.

Three conditions are anticipated that require bypass duct operation.

1. *Boiler Problems*: Problems may occur that require personnel entry into the boiler for maintenance: By closing the bypass dampers in this situation, the SCR remains thermally isolated and warm while the boiler is cooled for entry. By keeping the SCR warm, the SCR can be returned to operation much faster. It is estimated that boiler problems may occur approximately 10 to 12 times per year for a bypass time of approximately 60 hours. Note the unit is off line approximately 36 of these hours.
2. *Boiler Startup*: The SCR typically would require a longer startup time without bypassing. With the bypass, the dampers can be gradually opened to control SCR warming, which allows the system to reach the minimum SCR reactor temperature quicker than by adjusting boiler operation alone. It is estimated that such startups could occur about 10 times per year for a bypass time of approximately 48 hours.
3. *SCR Catalyst Problems*: Problems with the catalyst (such as plugging) would require maintenance and inspections on the SCR itself. The bypass would be used to allow entry and work on the SCR reactor without taking the boiler off line. These events on other units range from 4 days to 2 weeks in duration and would be expected to occur about 3-4 times per year on a unit operated with SCR year-round.

Gulf Power believes operations during periods of startup, shutdown and malfunction do not constitute representative conditions and are exempt as excess emissions. Thus, the SCR bypass should be authorized for unit startup and shutdown including boiler and SCR maintenance as "periods of malfunction". Gulf Power requests that bypass operation for boiler and SCR maintenance be permitted for 15 days during 2005 and up to 15 days per calendar year thereafter. During bypass operations the NOx emissions limit should be a 24-hour average at 0.35 lb/MMBtu from Crist Unit 7. These periods should *not* be included in the 30-day emission average for NOx on a daily average basis during those days.

Conclusion

In the mid-1990's, Southern Company Services participated in a joint SCR demonstration project with the U.S. Department of Energy. The purpose of the project was to evaluate SCR retrofit technology for reducing NOx emissions from utility boilers burning U.S. coals with a high sulfur content (~ 2.5% sulfur by weight). The demonstration project was conducted on Unit 5 at the Crist Electrical Generating Plant. Unit 5 is a tangentially fired, dry bottom boiler rated at 75 MW, which was built in 1961. Particulate matter emissions are controlled by both hot-side and cold-side ESPs. A slipstream of exhaust gas was used to test nine different SCR catalyst configurations. The SCR demonstration project showed the following:

- Each tested SCR catalyst provided at least 80% NOx reduction with an ammonia slip of less than 5 ppm.
- There was no unusual catalyst deactivation attributed to the use of high-sulfur U.S. coals containing typical amounts of metals such as arsenic.
- Both plate and honeycomb catalysts performed satisfactorily.
- The project concluded that the SCR process can achieve up to 90% NOx reductions with relatively low ammonia slip levels over an extended period of operation (at least two years).

In addition to this early experience, Southern Company Services recently designed and installed 12 SCR systems for five power plants in the Atlanta and Birmingham metropolitan areas. Based on Southern Company's designs, SCR systems began operation at Georgia Power's Bowen Plant in 2001 and Alabama Power's Plant Gorgas in 2002.

The design specifications appear to fall within the typical ranges for similar SCR projects and the conclusions of the earlier SCR demonstration project conducted at the Crist plant. Based on the application, the preliminary design will achieve a minimum NOx conversion efficiency of 85% as required by the Agreement. Although the Department does not oppose the SCR bypass as a design element, it does not believe it is appropriate exclude periods of uncontrolled NOx emissions during the ozone season from the plant-wide NOx standard specified in the Agreement. To reflect a minimum level of control for the SCR system and to address the bypass issue, the Department intends to include the following permit conditions:

- SCR Design: The permittee shall construct, tune, operate, and maintain a new SCR system for Unit 7 to reduce emissions of nitrogen oxides (NOx) as described in the application, approved drawings, plans, and other documents on file with the Department. The SCR system shall be designed to achieve no less than an 85% reduction in NOx emissions as measured across the SCR unit inlet and outlet. The designed target ammonia slip level is 5 ppmv based on a 24-hour average. The storage of ammonia shall comply with all applicable requirements of the Chemical Accident Prevention Provisions in 40 CFR 68. [Design; Paragraph 1 of the Agreement; Rule 62-204.800, F.A.C.; 40 CFR 68]
- Unit 7 NOx Standard (Interim): Prior to implementing the required NOx control strategy for Units 4, 5, and 6, the NOx emissions from Unit 7 shall not exceed 0.15 lb/MMBtu of heat input based on a 30-day rolling average when the SCR system is operational with a catalyst temperature of at least 600° F. The permittee shall demonstrate compliance with data collected from the certified CEMS. This standard is effective on the date the CEMS is re-certified in accordance with the acid rain provisions of 40 CFR 75. After the required NOx control strategy is implemented for Units 4, 5, and 6, the plant-wide NOx standard shall supersede this interim standard. *{Note: This covers the period after the Unit 7 SCR is placed in operation, but before implementation of the additional NOx control strategy required for Units 4, 5, 6 and 6.}* [Design; Rules 62-4.070(3), F.A.C.]
- SCR Bypass, Startup/Shutdown: During Unit 7 startup and shutdown, the SCR system may be bypassed in accordance with manufacturer's recommended procedures to allow for controlled catalyst heating and cooling. During startup, the SCR system shall be on line and functioning when the minimum operating temperature of the catalyst is achieved (≥ 600° F). During shutdown, the SCR system may be removed from

service when the catalyst temperature drops below 600° F. [Design; Rule 62-210.700, F.A.C.] *{This is a critical design specification for the catalyst. Below this temperature, the efficiency of NOx reduction reaction across the catalyst begins to drop rapidly. In addition, Unit 7 will be at low loads (< 275 MW) below a catalyst temperature of 600° F.}*

- SCR Bypass, Catalyst Maintenance and Repair: The permittee may bypass the SCR system to perform catalyst maintenance and repair for up to 15 days per year during the non-ozone season. During such allowable bypass periods, the uncontrolled NOx emissions from Unit 7 shall not exceed 0.35 lb/MMBtu based on a 24-hour average. The daily NOx emission rates for these periods may be excluded from the plant-wide 30-day NOx standard. The permittee shall notify the Compliance Authority in advance of the purpose of the SCR bypass, the expected dates of SCR bypass, and the expected duration of SCR bypass. [Rules 62-210.700 and 62-4.070(3), F.A.C.] *{Note: The ozone season is defined as May 1st through September 15th. For this 4 1/2 months period, the Department believes that prudent planning will allow the permittee to schedule and perform catalyst maintenance and repair during the non-ozone season.}*
- Plant-wide NOx Standard: Emissions of nitrogen oxides (NOx) from the combined operation of Units 4, 5, 6, and 7 shall not exceed 0.2 lb/MMBtu heat input based on a 30-day rolling average except for periods when Unit 7 is shutdown. *{Note: The draft permit details the determination of compliance with this standard. It allow for the exclusion of CEMS data when the catalyst temperature is below 600° F during a startup/shutdown or when the SCR is bypassed as authorized during the non-ozone season.}*

The draft permit requires continuous monitoring to demonstrate compliance with the standards for opacity and NOx emissions. Performance testing is required for particulate matter, NOx reduction efficiency, and ammonia slip. Quarterly reports are required to summarize compliance with the NOx and opacity standards.

Continuous Monitoring

The existing NOx CEMS will be replaced with a dual-range model. The low range will be used to monitor emissions with the SCR in operation and the high range when the SCR is out of service. There will be no change in the monitor location. The stack probe and duct locations will remain as currently noted in the facility's CEMS monitoring plan. Other related miscellaneous equipment changes to the monitor and data acquisition system will be made to support the dual range analyzer. A chemical ammonia scrubber will be added to the sampling line to remove any ammonia in the sample to avoid interference with determining the NOx emission rate. According to EPA guidance, an ammonia scrubber is an appropriate response to this potential problem.[6] Due to the numerous changes, it will be necessary to recertify the NOx CEMS for purposes of the Acid Rain program, 40 CFR 75.

Gulf Power also proposes to modify the current CEMS to compensate measurements for changes in temperature, pressure, and molecular weight based on the EPRI dilution probe correction algorithm. This will require changes to the existing dilution probe, addition of pressure and temperature sensors, and the data acquisition system. The purpose is to provide a more accurate determination of the heat input rate, which is used to demonstrate compliance with permits standards (lb/MMBtu). New SCR inlet/outlet NOx monitors will be installed to provide the inputs necessary to adjust the ammonia injection rate.

5. PRELIMINARY DETERMINATION

The pollution control project is based on the design and operation of conventional air pollution control equipment: an electrostatic precipitator and a selective catalytic reduction system. These air pollution control devices are operating successfully on numerous coal-fired utility boilers throughout the world. However, the Department acknowledges that the designs presented in the application are preliminary and based on the information that was available at the time of application. The draft permit requires Gulf Power to update the Department with final design specifications and any major changes made to the final design specifications during the actual construction phase.

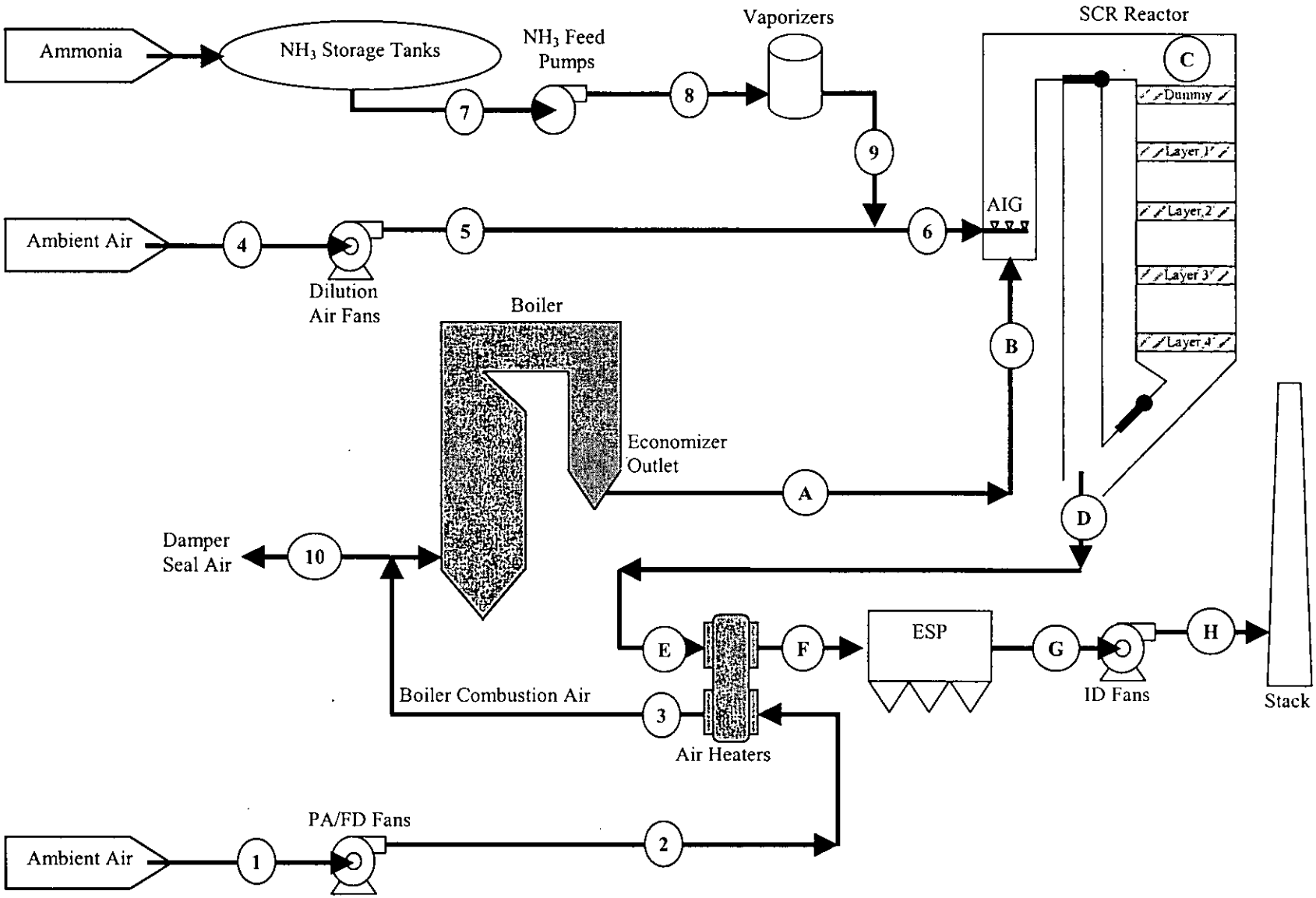
The Department makes a preliminary determination that the proposed project will comply with the terms of the

Agreement and all existing applicable air pollution regulations. This determination is based on a technical review of the application, the preliminary design, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Jeff Koerner is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

REFERENCES

1. Attachment A – Data Compiled from the Department's ARMS Database
2. EPA's Handbook titled, "Control Technologies for Hazardous Air Pollutants"; Document No. EPA/625/6-91-014; June 1991; Section 4.10, Electrostatic Precipitators
3. "Air Pollution Control Technology Handbook"; Karl B. Schnelle, Jr. and Charles A. Brown; 2002 by CRC Press LLC; ISBN 0-8493-9588-7; Chapter 24, Electrostatic Precipitators
4. "Control of Nitrogen Oxide Emissions: Selective Catalytic Reduction (SCR)"; July 1997 Issue of *Clean Coal Technology*, Topical Report No. 9; U.S. Department of Energy and Southern Company Services, Inc.
5. EPA's Guidebook for Course #SI:412B titled, "Electrostatic Precipitator Plan Review"; Document No. EPA 450/2-82-019; July 1983; Section 3 (ESP Design Parameters and Their Effects on Collection Efficiency) and Section 4 (ESP Design Review)
6. EPA's "Emissions Measurement Center" web site at : www.epa.gov/ttn/emc/faq.htm; See "CEMS/NOx"

PROCESS FLOW DIAGRAM FOR CRIST UNIT 7 ESP/SCR PROJECT



NORMAL MAX LOAD MASS AND ENERGY BALANCES

SOUTHERN COMPANY
Energy to Serve Your World

Gulf Power Company
Plant Crist Unit 7

PROCESS STREAM DETAILS

Date: 1/17/2003
Revision: A
Case: Normal Max.
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STREAM	A Economizer Outlet	B AIG Inlet	C SCR Inlet	D SCR Outlet	E APH Gas Inlet	F APH Gas Outlet	G ID Fan Inlet	H ID Fan Outlet		
Temperature, F	725	724	720	719	719	240	230	234		
Pressure, in. w.g.	-10.0	-10.6	-12.2	-14.3	-14.5	-23.1	-24.8	0.0		
Pressure, in.w.a.	394.2	393.6	392.0	389.9	389.7	381.1	379.4	404.2		
Gas Flow, acfm	2,408,482	2,440,264	2,464,625	2,475,671	2,480,568	1,754,182	1,823,540	1,722,044		
Gas Flow, scfm	1,039,916	1,052,971	1,062,577	1,062,577	1,064,225	1,239,433	1,301,405	1,301,405		
Gas Flow, lb/hr	4,762,428	4,768,532	4,812,037	4,812,037	4,819,498	5,612,957	5,893,605	5,893,605		
NOx, lb/hr (as NO2)	3,414	3,414	3,414	341	341	341	341	341		
Particulate, lb/hr	23,835	23,835	23,835	23,835	23,835	23,835	119	119		

STREAM	1 FD Fan Inlet	2 FD Fan Outlet	3 APH Air Outlet	4 Dilution Air Fan Inlet	5 Dilution Air Fan Outlet	6 AIG Feed	7 Ammonia Feed Pump Suction	8 Ammonia Feed Pump Discharge	9 Regulated Ammonia Flow	10 Damper Seal Air from Secondary
Temperature, F	75	76	460	75	77	77	75	75	40	460
Pressure, in. w.g.	-0.4	13.0	7.0	-1.0	40.0	30.0	-	-	25.0	2.0
Pressure, in.w.a.	403.8	417.2	411.2	403.2	444.2	434.2	-	-	429.2	406.2
Gas Flow, acfm	1,208,946	1,171,654	1,735,295	9,684	8,824	9,283	-	-	406	5,300
Gas Flow, scfm	1,184,339	1,184,339	1,006,688	9,472	9,472	9,740	-	-	452	3,046
Gas Flow, lb/hr	5,289,729	5,289,729	4,496,270	42,307	42,307	43,504	1,197	1,197	1,197	13,566
										-
Pressure, psig	-	-	-	-	-	-	125	125	-	-

NOTES:
1. All flows are total for one boiler unit.
2. Standard conditions are based on 68 deg. F and 29.921 in.Hg.
3. Air to sonic horns and bypass due to FGAS sampling is neglected.
4. Flows streams exclude equipment sizing margins.

DRAFT PERMIT

PERMITTEE

Gulf Power Company
One Energy Place
Pensacola, FL 32520-0328

Authorized Representative:
Gene L. Ussery, Jr., V.P. of Power Generation

Crist Electric Generating Plant
Unit 7 ESP/SCR Project
Facility ID No. 0330045
SIC No. 4911

Air Permit No. 0330045-005-AC
Permit Expires: December 1, 2005

PROJECT AND LOCATION

This permit authorizes the construction of a new electrostatic precipitator and the installation of a new selective catalytic reduction system for Unit 7 at the existing Crist Electric Generating Station, which is located on Governors Bayou off 10 Mile Road in Pensacola, Escambia County, Florida. The map coordinates are: Zone 16; 478.50 km East; and 3381.30 km North.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403, F.S., and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department. This air construction permit supplements all other valid air construction and operation permits.

CONTENTS

(DRAFT)

Howard L. Rhodes, Director
Division of Air Resources Management

(Date)

FACILITY AND PROJECT DESCRIPTION

The existing plant consists of seven fossil fuel fired steam generators and two fly ash silos. Natural gas is the primary fuel for Units 1, 2 and 3. Pulverized coal is the primary fuel for Units 4, 5, 6 and 7. Fuel oil is used as supplemental fuel in all seven of the units. The following units are affected by this air construction permit.

ID	Emission Unit Description
001	Boiler No. 1 (Phase II Acid Rain Unit)
002	Boiler No. 2 (Phase II Acid Rain Unit)
003	Boiler No. 3 (Phase II Acid Rain Unit)
004	Boiler No. 4 (Phase I and II Acid Rain Unit)
005	Boiler No. 5 (Phase I and II Acid Rain Unit)
006	Boiler No. 6 (Phase I Acid Rain Unit)
007	Boiler No. 7 (Phase I Acid Rain Unit)

REGULATORY CLASSIFICATION

Title III: The existing facility is identified as a major source of hazardous air pollutants (HAP).

Title IV: The existing facility operates units subject to the acid rain provisions of the Clean Air Act.

Title V: The existing facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

PSD: The existing facility is a PSD-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

RELEVANT DOCUMENTS

The permit application and additional information received to make it complete are not a part of this permit; however, the information is specifically related to this permitting action and is on file with the Department.

1. Permitting Authority: All documents related to applications for permits to construct, modify, or operate emissions units at this facility shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. Copies of all permit applications shall also be sent to the Compliance Authority.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Department's Northwest District Office at 160 Governmental Center, Pensacola, Florida 32501-5794.

3. Appendices: The following Appendices are attached as part of this permit: Appendix CF (Citation Format); Appendix GC (General Conditions); and Appendix SC (Standard Conditions).

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-4, 62-204.800, 62-210.300 and 62-210.900, F.A.C.]

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Construction Approval: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Rule 62-210.200(76), F.A.C. defines *construction* as, "The act of performing on-site fabrication, erection, installation or modification of an emissions unit or facility of a permanent nature, including installation of foundations or building supports; laying of underground pipe work or electrical conduit; and fabrication or installation of permanent storage structures, component parts of an emissions unit or facility, associated support equipment, or utility connections. Land clearing and other site preparation activities are not a part of the construction activities." Such permits shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions units. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

A. EU 007 – Boiler No. 7

This section of the permit addresses the following existing emissions unit.

Emissions Unit No. 007
Description: Unit 7 is a Foster Wheeler front and rear wall fired, dry bottom boiler that began commercial operation on August 1, 1973.
Fuels: coal, natural gas, new No. 2 fuel oil and/or on-specification used oil
Capacity: 6406 MMBtu/hour when firing pulverized coal and/or natural gas
PM Controls: Cold side electrostatic precipitator
NOx Controls: Low NOx burners and selective catalytic reduction
Continuous Monitors: CO_2, NOx, SO_2, opacity, stack gas flow, and ammonia injection rate
Stack Parameters: Units 6 and 7 share a common stack that is 450 feet tall with a diameter of 23.2 feet. The volumetric flow rate of Unit 7 at permitted at capacity is approximately 2,463,000 acfm.
{Permitting Notes: Based on the current Title V air operation permit, Unit 7: is regulated under Rule 62-296.405, F.A.C. (Fossil Fuel Fired Steam Generators > 250 MMBtu/Hour Heat Input); predates the requirements of Rule 62-212.400, F.A.C. (PSD Preconstruction Review); and is regulated under Phase I of the federal Acid Rain Program (40 CFR 75).}

{Permitting Note: On August 28, 2002, Gulf Power Company and the Florida Department of Environmental Protection entered into an agreement titled, "Agreement for the Purpose of Ensuring Compliance with the Ozone Ambient Air Quality Standards" (Agreement). The "Agreement" is the basis for many of the following permit conditions.}

PREVIOUS APPLICABLE REQUIREMENTS

1. Other Permits: The conditions of this permit supplement all previously issued air construction and operation permits for this emissions unit. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions and regulations. [Rule 62-4.070, F.A.C.]

EQUIPMENT AND CONSTRUCTION

2. Electrostatic Precipitator (ESP): To control emissions of particulate matter, the permittee shall construct, tune, operate, and maintain a new cold-side ESP for Unit 7 to replace the existing equipment as described in the application, approved drawings, plans, and other documents on file with the Department.

   {Permitting Note: Alstom Power Inc. designed the new cold-side ESP, which will generally consist of two gas tight chambers. Each chamber will have three cells with five electrical fields per cell. There will be at least 30 total electrical fields (transformer-rectifier sets) with each field having approximate overall dimensions of 29 feet wide by 12 feet deep with a height of about 49 feet. The collecting plates will consist of 16-gage steel and have a spacing of approximately 15.75 inches. The discharge electrodes will be rigid. Each of the 30 transformer-rectifier sets will be controlled by a microprocessor-based controller with field energizing optimization and high-speed field bus communication. The preliminary design control efficiency is 99.64%.

   A tumbling hammer rapping system will be used to remove captured fly ash from collecting plates. The maximum rapping density will be about 1163 square feet of collecting electrode per rapper. The preliminary design uses the existing control system to adjust the cleaning cycle and frequency to minimize opacity spikes due to re-entrainment. Approximately sixty hoppers (two per field) will hold the collected ash. The new ash collection hoppers will be tied in to the existing dry fly ash removal system. The ESP will also be equipped with a data management system for remote control and communications with the high

voltage power supplies and rapper control systems.

This information is based on the preliminary design and is subject to change. The permittee shall update this information as necessary during the process of final design and installation.} [Design; Paragraph 1 of the Agreement]

3. Selective Catalytic Reduction (SCR) System: The permittee shall construct, tune, operate, and maintain a new SCR system for Unit 7 to reduce emissions of nitrogen oxides (NOx) as described in the application, approved drawings, plans, and other documents on file with the Department. The SCR system shall be designed to achieve no less than an 85% reduction in NOx emissions as measured across the SCR unit inlet and outlet. The designed target ammonia slip level is 5 ppmv based on a 24-hour average. The storage of ammonia shall comply with all applicable requirements of the Chemical Accident Prevention Provisions in 40 CFR 68.

{Permitting Note: Southern Company Services Inc. designed the new SCR system, which will generally consist of the following:

- ***Catalyst Structure**: Arranged in four layers, the catalyst is a plate-type structure fabricated by applying ceramic catalyst material to a perforated stainless steel mesh grid plate. The active catalyst component is vanadium pentoxide. The system has an operational temperature range between 600° to 800° F (optimum temperature > 680° F). The initial configuration will have a catalyst volume of approximately 26,000 cubic feet in 2½ layers. As the catalyst gradually deactivates through use, the remaining layers will be filled and old layers replaced. With all four potential layers in place, the catalyst volume is approximately 41,600 cubic feet.*

- ***Ammonia Injection System**: Anhydrous ammonia will be delivered by truck or rail and stored on site in two 20,500 gallons tanks. Ammonia is distributed into the SCR inlet duct through the ammonia injection grid (AIG), which is divided into about two dozen zones. Each zone is equipped with a flow indicator and manual control valve for tuning the AIG to match the inlet NOx profile. A static mixer installed upstream of the AIG creates flow resistance, flattens this profile, and makes gas flow uniform. A second static mixer is installed downstream of the AIG. The elements of this mixer are precisely oriented with the AIG injection points to impart a swirl to the diluted ammonia and promote good mixing with the flue gas. A manual gas sampling grid (GSG) is installed downstream of the last catalyst layer, which allows a high-resolution traverse of the flue gas stream. Gas composition data collected from the GSG is used to precisely adjust and tune the AIG. The preliminary design is based on a 0.95 molar ratio of ammonia-to-NOx.*

- ***Ammonia Control System**: The ammonia control system consists of a control loop with a cascaded, feed-forward control scheme. Process monitors will provide NOx emission rate data collected at the inlet to and the outlet from the SCR system. The ammonia injection rate is set based on a variety of input data including the measured NOx rates at the SCR inlet/outlet, the outlet NOx set point, the heat input to the boiler, the actual NOx rate measured by the stack monitor, and a scaling factor based on the molecular weights of ammonia and NOx. The system is capable of continually adjusting flow control valves to fine-tune the ammonia injection rate based on changing gas stream conditions.*

- ***SCR Bypass**: The SCR design incorporates dampers and ductwork to provide the capability of bypassing the SCR system. The bypass is most commonly used to gradually heat or cool the catalyst structure to minimize thermal fatigue during startup and shutdown. During catalyst maintenance and repair, it would also allow access to the SCR reactor without requiring complete shutdown of the Unit 7 boiler.*

This information is based on the preliminary design and is subject to change. The permittee shall update this information as necessary during the process of final design and installation.} [Design; Paragraph 1 of

the Agreement; Rule 62-204.800, F.A.C.; 40 CFR 68]

4. Updated Designs: The permittee shall update the Department with final design specifications and any substantial changes made to the final design specifications during the actual construction phase. [Rule 62-4.070(3), F.A.C.]

5. Project Completion: The permittee shall complete construction and commence operation of the new ESP before placing the SCR system in service. By May 1, 2005, the permittee shall complete construction, begin operating, and continue operating the SCR system whenever Unit 7 is online unless otherwise authorized by this permit. [Applicant Request; Design; Paragraph 1 of the Agreement]

PERFORMANCE REQUIREMENTS

{Permitting Note: This permit does not alter any specifications or limitations included in previous permits that define permitted capacities such as heat input rates, fuel consumption, or hours of operation. It does not authorize any additional fuels or such other methods of operation.}

EMISSIONS STANDARDS

{Permitting Note: Particulate matter emissions continue to be regulated by Rules 62-296.405(1)(b) and 62-210.700(3), F.A.C. in accordance with current Title V Permit Nos. C.7 and C.8.}

6. Stack Opacity: The flue gas opacity from Unit 7 shall not exceed 20% based on a 6-minute block average, except for one 6-minute block per hour that shall not exceed 27%. Compliance shall be determined by data collected from the certified continuous opacity monitor or EPA Method 9, which is incorporated by reference in Chapter 62-297, F.A.C. This standard is effective on the date of the initial compliance test for particulate matter and thereafter. *{Permitting Note: Stack opacity during soot blowing and load change continues to be regulated by Rule 62-210.700(3), F.A.C. in accordance with current Title V Permit Condition C.6. Excess emissions due to startup, shutdown, and malfunction continue to be regulated by Rule 62-210.700(1), (2), and (4), F.A.C. in accordance with current Title V permit Condition Nos. C.12, C.13, and C.14.}* [Design; Rule 62-4.070(3), F.A.C.]

7. Nitrogen Oxides (Interim): Prior to implementing the required NOx control strategy for Units 4, 5, and 6, the NOx emissions from Unit 7 shall not exceed 0.15 lb/MMBtu of heat input based on a 30-day rolling average when the SCR system is operational with a catalyst temperature of at least 600° F. The permittee shall demonstrate compliance with data collected from the certified CEMS. This standard is effective on the date the CEMS is re-certified in accordance with the acid rain provisions of 40 CFR 75. After the required NOx control strategy is implemented for Units 4, 5, and 6, the plant-wide NOx standard specified in Subsection 3B shall supersede this interim standard. [Design; Rules 62-4.070(3), F.A.C.]

SCR BYPASS OPERATION

8. SCR Bypass, Startup/Shutdown: During Unit 7 startup and shutdown, the SCR system may be bypassed in accordance with manufacturer's recommended procedures to allow for controlled catalyst heating and cooling. During startup, the SCR system shall be on line and functioning when the minimum operating temperature of the catalyst is achieved (≥ 600° F). During shutdown, the SCR system may be removed from service when the catalyst temperature drops below 600° F. [Design; Rule 62-210.700, F.A.C.]

9. SCR Bypass, Catalyst Maintenance and Repair: The permittee may bypass the SCR system to perform catalyst maintenance and repair for up to 15 days per year during the non-ozone season. During such allowable bypass periods, the uncontrolled NOx emissions from Unit 7 shall not exceed 0.35 lb/MMBtu based on a 24-hour average. The daily NOx emission rates for these periods may be excluded from the plant-wide 30-day NOx standard specified in Subsection 3B. The permittee shall notify the Compliance Authority in advance of the purpose of the SCR bypass, the expected dates of SCR bypass, and the

expected duration of SCR bypass. *{Permitting Note: The ozone season is defined as May 1st through September 15th.}* [Rules 62-210.700 and 62-4.070(3), F.A.C.]

EMISSIONS PERFORMANCE TESTING

10. Test Notification: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. The notification shall include: the scheduled date, approximate start time, test team, contact name and phone number, description of unit to be tested, and the tests to be performed. [Rule 62-297.310(7)(a)9, F.A.C.]

11. Particulate Matter, Compliance Tests: Within 60 days after completing construction of the ESP and bringing Unit 7 on line, the permittee shall conduct tests to demonstrate compliance with the emissions standards for particulate matter and opacity. Tests for particulate matter shall be conducted in accordance with the methods and procedures currently specified in the Title V air operation permit. Subsequent tests shall be conducted during each federal fiscal year (October 1st to September 30th). The permittee shall demonstrate initial compliance with the opacity standard by submitting the data collected from the certified continuous opacity monitor for each particulate matter test run. [Rule 62-297.310(7), F.A.C.]

12. Nitrogen Oxides, Compliance Tests: Within 60 days after completing construction of the SCR system and bringing Unit 7 on line, the permittee shall conduct tests to demonstrate compliance with the design specification to achieve no less than an 85% reduction in the nitrogen oxide emission rate. The permittee shall concurrently test the SCR inlet and SCR outlet in accordance with EPA Method 7E as adopted by reference in Rule 62-204.800, F.A.C. Data collected during the annual NOx RATA testing may be used to represent NOx emissions at the SCR outlet. Alternatively, the permittee may submit data collected from the NOx rate process monitors at the SCR inlet and SCR outlet, which are part of the ammonia injection system. The data shall be collected for at least three consecutive hours. Subsequent tests shall be conducted during each federal fiscal year (October 1st to September 30th). [Rules 62-4.070(3) and 62-297.310(7), F.A.C.]

13. Ammonia Slip, Performance Tests: Within 60 days after completing construction of the SCR system and bringing Unit 7 on line, the permittee shall conduct tests to determine the ammonia slip rate in accordance with EPA Method CTM-027 or other methods approved by EPA. Subsequent tests shall be conducted during each federal fiscal year. If tests show ammonia slip emissions are greater than the design target level specified in Condition No. 3 of this subsection, the permittee shall take corrective actions such as repair, addition of catalyst, replacement of catalyst, etc. [Rules 62-4.070(3) and 62-297.310(7), F.A.C.]

{Permitting Note: EPA Methods 1 (Traverse Points), 2 (Velocity and Flow Rate), 3 (Gas Analysis), 4 (Moisture Content), and 19 (Calculating Emission Rates, Use of F-Factors) may also be used to supplement the required test methods.}

CONTINUOUS MONITORING REQUIREMENTS

{Permitting Note: In accordance with the federal Acid Rain requirements, the following continuous monitors are installed on these units: SO_2, NOx, CO_2 and stack gas flow.}

14. COMS: The permittee shall install, calibrate, operate and maintain a continuous opacity monitoring system (COMS) to demonstrate compliance with the stack opacity standard. The COMS shall monitor and record data during all periods of Unit 7 operation including startup, shutdown, malfunction or emergency conditions, but not including continuous monitoring system breakdowns, repairs, or calibration checks. *{Permitting Note: The existing COMS required by the Acid Rain program satisfies this requirement.}* [Rule 62-4.070(3), F.A.C.]

15. NOx CEMS: To demonstrate compliance with the emissions standards, the permittee shall install,

calibrate, operate and maintain a continuous emissions monitoring system (CEMS) to continuously monitor and record the emissions of nitrogen oxides and an appropriate diluent gas (carbon dioxide or oxygen). The CEMS shall monitor and record data during all periods of Unit 7 operation including startup, shutdown, malfunction or emergency conditions, but not including continuous monitoring system breakdowns, repairs, calibration checks, or zero and span adjustments. For each calendar quarter, monitor availability shall be 95% or greater. If unable to achieve this level, the permittee shall submit a report identifying the problems in achieving 95% monitor availability and a plan of corrective actions. The permittee shall implement the reported corrective actions within the next calendar quarter. *{Permitting Note: The existing NOx CEMS required by the Acid Rain program satisfies this requirement. Due to the substantial changes being made to the existing monitor as a result of this project, it will be necessary to re-certify the existing CEMS in accordance with the provisions of 40 CFR 75.}* [Rule 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

16. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the provisions of Rule 62-297.310(8), F.A.C. For each required test run, the report shall indicate the actual heat input rate (MMBtu/hour), the NOx emission rate (lb/MMBtu) as recorded by the CEMS, and the ammonia injection rate (lb/hour). The report shall also include copies of the continuous monitoring records for opacity and NOx emissions. [Rule 62-297.310(8), F.A.C.]

17. Quarterly Report

    a. *NOx Summary*: For each calendar day during the reporting quarter, the permittee shall report the following information related to the NOx CEMS for Unit 7:

    - Hours of operation for Unit 7;
    - Daily average NOx emission rate, lb/MMBtu;
    - 30-day average NOx emission rate, lb/MMBtu; and
    - Whether or not the day included a startup, shutdown, malfunction or bypass of the SCR.

    Identify the "F" factor used for any calculations, the method of determination, and type of fuel combusted. For each day that CEMS data was not obtained for at least 18 hours of Unit 7 operation, provide a justification for not obtaining sufficient data and describe the corrective actions taken to prevent this in the future. Identify any emissions data excluded from the calculation of emission rates due to startup, shutdown, or malfunction.

    b. *Opacity Summary*: For each calendar day during the reporting quarter, the permittee shall report each 6-minute period in excess of the opacity standard.

    c. *Gas Sampling Grid (GSG)*: The permittee shall summarize any tests using the GSG that were conducted during the calendar quarter.

    Each quarterly report is due within 30 days of the calendar quarter being reported.

    [Rule 62-4.070(3), F.A.C.]

B. EUs 001 to 007 – Combined Conditions

This section of the permit addresses the following emissions units.

EU No.	Title V Emissions Unit Description
001	Boiler No. 1 (Phase II Acid Rain Unit)
002	Boiler No. 2 (Phase II Acid Rain Unit)
003	Boiler No. 3 (Phase II Acid Rain Unit)
004	Boiler No. 4 (Phase I and II Acid Rain Unit)
005	Boiler No. 5 (Phase I and II Acid Rain Unit)
006	Boiler No. 6 (Phase I Acid Rain Unit)
007	Boiler No. 7 (Phase I Acid Rain Unit)

{Permitting Note: August 28, 2002, Gulf Power Company and the Florida Department of Environmental Protection entered into an agreement titles, "Agreement for the Purpose of Ensuring Compliance with the Ozone Ambient Air Quality Standards". This agreement is the basis for the following permit conditions.}

REQUIREMENTS OF THE AGREEMENT

1. Supplemental Conditions: The conditions of this section supplement all other valid air construction and operation permits for these units. These conditions are in addition to all other applicable permit conditions and regulations. [Rule 62-4.070(3), F.A.C.]

2. Plant-Wide NOx Limit: Emissions of nitrogen oxides (NOx) from the combined operation of Units 4, 5, 6, and 7 shall not exceed 0.2 lb/MMBtu heat input based on a 30-day rolling average except for periods when Unit 7 is shutdown. The plant-wide daily NOx emission rate shall be determined by the following equation:

$$\text{Plant-Wide Daily MMBtu-Weighted NOx Emission Rate} = \frac{\sum_{\text{Units 4, 5, 6, 7}} [(\text{Unit \# daily MMBtu}) \times (\text{Unit \# daily NOx CEMS Rate})]}{\sum_{\text{Units 4, 5, 6, 7}} (\text{Unit \# daily MMBtu})}$$

The "Unit # daily MMBtu" shall be determined by the daily as-burned fuel analysis and the fuel fired for each unit. The "Unit # daily NOx CEMS Rate" shall be determined by the daily average of NOx CEMS data for each unit and reported in terms of "lb/MMBtu heat input". The plant-wide daily NOx emissions rate shall be determined each day regardless of the operating status for Unit 7. The plant-wide 30-day rolling NOx average shall be determined for each 30 sequential Unit 7 operating days, which need not be consecutive. A Unit 7 operating day means any calendar day that Unit 7 operates a minimum of 18 hours. The Unit 7 daily NOx CEMS rate may consist of less than 18 hours of data if this is due to CEMS malfunction or invalid CEMS data. When the catalyst temperature is below 600° F during a startup or shutdown, NOx emissions data collected during such periods may be excluded from the daily NOx average. In accordance with Condition No. 9 of Subsection 3A, NOx emissions data collected during SCR bypass during the non-ozone season may be excluded from the daily NOx average. The plant-wide NOx emission standard shall be achieved by utilizing the SCR system for Unit 7 and implementing the selected NOx control strategy for Units 4, 5, and 6. The effective date for the plant-wide NOx emission standard is:

   a. The startup date of the selected additional NOx reduction project, (excluding an SCR project for Unit 6), but no later than May 1, 2006; or

   b. The startup date of the SCR project for Unit 6, but no later than December 31, 2007.

For purposes of this condition, "startup date" shall mean the date that the permittee demonstrates initial compliance with the terms of the required air construction permit (or other Department approval) that authorized implementation of the additional NOx reduction project. [Paragraphs 2, 3 and Exhibit B of the Agreement]

3. NOx CEMS: To demonstrate compliance with the plant-wide NOx emissions standard, the permittee shall install, calibrate, operate and maintain continuous emissions monitoring systems (CEMS) to continuously monitor and record the emissions of nitrogen oxides and an appropriate diluent gas (carbon dioxide or oxygen) from Units 4, 5, 6, and 7. *{Permitting Note: The existing NOx CEMS required by the Acid Rain program satisfy this requirement.}* [Exhibit B of the Agreement]

4. Quarterly Report: For each calendar day during the reporting quarter, the permittee shall report the following information related to the NOx CEMS for Unit 7:

   - Daily NOx emission rate for each boiler, lb/MMBtu;
   - Daily heat input rate for each boiler, MMBtu/day;
   - 30-day plant-wide NOx emissions rate, lb/MMBtu;
   - Identify whether Unit 7 operated less than 18 hours;
   - Identify the occurrence of a Unit 7 startup or shutdown; and
   - Identify operation of Unit 7 with SCR bypass for catalyst maintenance or repair and the duration of bypass (hours).

   Identify the "F" factor used for any calculations, the method of determination, and type of fuel combusted. For each day that CEMS data was not obtained for at least 18 hours of Unit 7 operation, provide a justification for not obtaining sufficient data and describe the corrective actions taken to prevent this in the future. Identify any emissions data excluded from the calculation of emission rates due to startup, shutdown, or malfunction.

{Permitting Notes: To achieve the plant-wide NOx standard for the Crist Plant, Gulf Power Company will take the following additional actions.

Unit Retirements: The Agreement requires the retirement of Unit 1 within 120 days of receiving a final order from the Public Service Commission that authorizes the recovery of costs associated with the pollution control equipment incurred pursuant to the Agreement though the Environmental Cost Recovery Clause. A final order is one that is no longer subject to review or appeal by a court of competent jurisdiction. The Agreement also requires the retirement of Units 2 and 3 on or before May 1, 2006. [Paragraph 4 of the Agreement]

Additional NOx Reduction Projects: The Agreement requires Gulf Power Company to conduct a variety of engineering studies to determine the feasibility of NOx reduction technologies for one or more of the three remaining coal-fired units (Units 4, 5, and 6). The studies and related unit-specific demonstration projects may include (but are not limited to) SCR, selective non-catalytic reduction (SNCR) technology, over-fired air (OFA) technology, natural gas re-burn technology, selective use of biomass fuel, etc. The studies must be complete by May 1, 2005. Before implementing any NOx reduction technology or combination of technologies, Gulf Power Company must obtain written concurrence from the Department that the use thereof is reasonable and necessary to achieve the overall plant-wide NOx emission standard. If a NOx reduction technology or a combination of technologies other than an SCR project for Unit 6 is identified as appropriate, Gulf Power Company will implement the technology or combination of technologies on one or more of the three remaining coal-fired units by May 1, 2006. If an SCR project for Unit 6 is identified as the appropriate NOx reduction technology, Gulf Power Company will implement, begin and continue operating the SCR system by December 31, 2007. [Paragraph 2 of the Agreement]}

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SECTION 4. APPENDIX CF
CITATION FORMATS

The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.

Old Permit Numbers

Example: Permit No. AC50-123456 or Air Permit No. AO50-123456

Where: "AC" identifies the permit as an Air Construction Permit
"AO" identifies the permit as an Air Operation Permit
"123456" identifies the specific permit project number

New Permit Numbers

Example: Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

Where: "099" represents the specific county ID number in which the project is located
"2222" represents the specific facility ID number
"001"identifies the specific permit project
"AC" identifies the permit as an air construction permit
"AF" identifies the permit as a minor federally enforceable state operation permit
"AO" identifies the permit as a minor source air operation permit
"AV" identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

Example: Permit No. PSD-FL-317

Where: "PSD" means issued pursuant to the Prevention of Significant Deterioration of Air Quality
"FL" means that the permit was issued by the State of Florida
"317" identifies the specific permit project

Florida Administrative Code (F.A.C.)

Example: [Rule 62-213.205, F.A.C.]

Means: Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

Example: [40 CRF 60.7]

Means: Title 40, Part 60, Section 7

Agreement

On August 28, 2002, Gulf Power Company and the Florida Department of Environmental Protection entered into an agreement titled, "Agreement for the Purpose of Ensuring Compliance with the Ozone Ambient Air Quality Standards". Throughout the permit, this is cited as the "Agreement".

GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

   a. Have access to and copy and records that must be kept under the conditions of the permit;
   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

   a. A description of and cause of non-compliance; and

   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

   The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology (not applicable to project);
    b. Determination of Prevention of Significant Deterioration (not applicable to project); and
    c. Compliance with New Source Performance Standards (not applicable to project).

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:

        1) The date, exact place, and time of sampling or measurements;
        2) The person responsible for performing the sampling or measurements;
        3) The dates analyses were performed;
        4) The person responsible for performing the analyses;
        5) The analytical techniques or methods used; and
        6) The results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SECTION 4. APPENDIX SC
STANDARD CONDITIONS

{Permitting Note: Unless otherwise specified by permit or rule, the following conditions apply to all emissions units and activities at this facility.}

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]

2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

3. Excess Emissions Allowed: Unless otherwise specified in the permit, excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

4. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

5. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permitee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]

6. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(203), F.A.C.]

7. General Visible Emissions: Unless otherwise specified in the permit, no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]

8. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

TESTING REQUIREMENTS

9. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

10. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted

capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]

11. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

12. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.

    a. *Required Sampling Time.* Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

    b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

    c. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

    [Rule 62-297.310(4), F.A.C.]

13. Determination of Process Variables

    a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

    b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

    [Rule 62-297.310(5), F.A.C.]

14. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.

15. Test Notification: The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]

16. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

17. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

RECORDS AND REPORTS

18. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]

19. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

P.E. CERTIFICATION STATEMENT

PERMITTEE

Gulf Power Company
One Energy Place
Pensacola, FL 32520-0328

Draft Air Permit No. 0330045-005-AC
Crist Electrical Generating Plant
Unit 7 ESP/SCR Pollution Control Project

PROJECT DESCRIPTION

On August 28, 2002, Gulf Power Company and the Florida Department of Environmental Protection entered into an agreement titled, "Agreement for the Purpose of Ensuring Compliance with the Ozone Ambient Air Quality Standards" (Ozone Agreement). The application under review is based on the pollution control projects for Unit 7 as discussed in the agreement. Gulf Power Company proposes to install a new selective catalytic reduction (SCR) system on Unit 7 at the existing Crist Electrical Generating Plant. At 85% NOx conversion efficiency, the SCR system is expected to reduce actual emissions of nitrogen oxides by as much as 5000 tons per year. Gulf Power Company also proposes to replace the existing electrostatic precipitator (ESP) with a new ESP designed for 99.64% removal efficiency, which is needed to structurally accommodate the new SCR system. In accordance with Rule 62-212.400(2)(a)2, F.A.C. and EPA's definition of "modification" in 40 CFR 52.21(b)(2)(iii)(h), the pollution control project is exempt from PSD preconstruction review.

The electrostatic precipitator (ESP) is being designed by Alstom Power Inc., a company with over 70 years of experience in environmental control and a leading supplier of ESPs. Southern Company Services, Inc. will design and install the SCR system. With a 1990s demonstration project at the Crist Plant, Southern Company Services developed early data for retrofitting SCR on boilers firing high-sulfur U.S. coal. In addition, Southern Company Services recently completed the design and installation of twelve SCR systems for five power plants in the Atlanta and Birmingham metropolitan areas. Based on the preliminary design specifications for the ESP and SCR, Gulf Power Company provided reasonable assurance that the pollution control project is capable of complying with the requirements and intent of the Ozone Agreement and applicable air pollution control regulations.

I HEREBY CERTIFY *that the air pollution control engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including, but not limited to, the electrical, mechanical, structural, hydrological, geological, and meteorological features).*

Jeffery F. Koerner, P.E.
Registration Number: 49441

02/13/03
(Date)

Florida Department of Environmental Protection

Memorandum

TO: Trina Vielhauer, Chief
Bureau of Air Regulation

THROUGH: Al Linero, Manager
New Source Review Section

FROM: Jeff Koerner, New Source Review Section

DATE: February 13, 2003

SUBJECT: Draft Air Construction Permit No. 0330045-005-AC
Gulf Power Company, Crist Electrical Generating Plant
Unit 7 ESP/SCR Pollution Control Project

Attached for your review are the following items:

- Intent to Issue Permit and Public Notice Package;
- Technical Evaluation and Preliminary Determination;
- Draft Permit; and
- P.E. Certification

The draft permit authorizes the replacement of the existing electrostatic precipitator and installation of a new selective catalytic reduction system for Unit 7 at the existing Crist Electric Generating Plant in Pensacola, Florida. The pollution control equipment was contemplated in an August 2002 agreement with the Department titled, "Agreement for the Purpose of Ensuring Compliance with the Ozone Ambient Air Quality Standards". In accordance with Rule 62-212.400(2)(a)2, F.A.C. and EPA's definition of "modification" in 40 CFR 52.21(b)(2)(iii)(h), the pollution control project is exempt from PSD preconstruction review.

The Technical Evaluation and Preliminary Determination provides a detailed description of the project, rule applicability, and emissions standards. The P.E. certification briefly summarizes the proposed project. Day #74 is April 24, 2003. I recommend your approval of the attached Draft Permit for this project.

Attachments