Department of Environmental Protection

Jeb Bush
Governor

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

Colleen M. Castille
Secretary

October 9, 2006

{Sent by Electronic Mail – Electronic Receipt Requested}

Mr. Bernie Cumbie, Plant Manager
Progress Energy Florida, Inc.
100 Central Ave. CN77
St. Petersburg, Florida 33701

Re: Air Construction Permit No. 0170004-013-AC
Progress Energy Florida, Inc. – Crystal River Power Plant
SCR Project for Units 4 and 5

Dear Mr. Cumbie:

On April 25, 2006, you submitted an application for the construction of selective catalytic reduction (SCR) systems and alkali injection systems on existing Units 4 and 5 at the Crystal River Power Plant, which is located north of Crystal River and west of U.S. 19 in Citrus County, Florida. Enclosed are the following documents: "Technical Evaluation and Preliminary Determination", "Draft Permit", "Written Notice of Intent to Issue Air Permit", and "Public Notice of Intent to Issue Air Permit".

The "Technical Evaluation and Preliminary Determination" summarizes the Department's technical review of the application and provides the rationale for making the preliminary determination to issue a Draft Permit. The proposed "Draft Permit" includes the specific conditions that regulate the emissions units covered by the proposed project. The "Written Notice of Intent to Issue Air Permit" provides important information regarding: the Department's intent to issue an air permit for the proposed project; the requirements for publishing a Public Notice of the Department's intent to issue an air permit; the procedures for submitting comments on the Draft Permit; the process for filing a petition for an administrative hearing; and the availability of mediation. The "Public Notice of Intent to Issue Air Permit" is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project.

If you have any questions, please contact the Project Engineer, Jeff Koerner, at 850/921-9536.

Sincerely,

Trina L Vielhauer

Trina Vielhauer, Chief
Bureau of Air Regulation

Enclosures

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Mr. Bernie Cumbie, Plant Manager
Progress Energy Florida
Crystal River Units 1&2
100 Central Avenue CN77
St. Petersburg, Florida 33701

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☑ Agent ☐ Addressee

B. Received by (Printed Name) M. T. Mohamed C. Date of Delivery 10/12/06

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

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

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7000 1670 0013 3110 0833

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

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

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Postage	$
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Mr. Bernie Cumbie, Plant Manager
Progress Energy Florida
Crystal River Units 1&2
100 Central Avenue CN77
St. Petersburg, Florida 33701

PS Form 3800, May 2000 See Reverse for Instructions

Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of the Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000 (Telephone: 850/245-2241; Fax: 850/245-2303). Petitions filed by the applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this Written Notice of Intent to Issue Air Permit. 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 attached Public Notice or within fourteen (14) days of receipt of this Written Notice of Intent to Issue Air Permit, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority 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 Permitting Authority'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 each 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 state; (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 the 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 Permitting Authority'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 Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.

Trina L Vielhauer

Trina Vielhauer, Chief
Bureau of Air Regulation

WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

In the Matter of an
Application for Air Permit by:

Progress Energy Florida, Inc.
100 Central Ave. CN77
St. Petersburg, Florida 33701

Authorized Representative:
Bernie Cumbie, Plant Manager

Draft Permit No. 0170004-013-AC
Crystal River Power Plant
SCR Project for Units 4 and 5
Citrus County, Florida

Facility Location: Progress Energy Florida, Inc. operates the Crystal River Power Plant, which is located north of Crystal River and west of U.S. 19 in Citrus County, Florida.

Project: The plant proposes to install selective catalytic reduction (SCR) systems and alkali injection systems on existing Units 4 and 5 at the Crystal River Power Plant. Installation of the alkali injection systems is required to ensure that the SCR project will not result in an increase of sulfuric acid mist emissions above the PSD-significant emission rate of 7 tons per year. The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides (NOx) under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation. Additional details can be provided by the Permitting Authority at the address listed below. Details of the project are provided in the application and the enclosed "Technical Evaluation and Preliminary Determination".

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Suite #4, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at the address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address or phone number listed above.

Notice of Intent to Issue Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

Public Notice: Pursuant to Sections 403.087 and 403.815, F.S. and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Permit" (Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet 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 Permitting Authority at above address or phone number. Pursuant to Rule 62-110.106(5), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within seven (7) days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this "Notice of Intent to Issue Air Permit" package (including the Written Notice of Intent to Issue Air Permit, the Public Notice of Intent to Issue Air Permit, the Technical Evaluation and Preliminary Determination, and the Draft Permit) was sent by electronic mail before the close of business on 10/9/06 to the persons listed below.

Mr. Bernie Cumbie, Progress Energy Florida, Inc. (BERNIE.CUMBIE@PGNMAIL.COM)
Mr. Dave Meyer, Progress Energy Florida, Inc. (DAVE.MEYER@PGNMAIL.COM)
Mr. Scott Osbourn, Golder Associates Inc. (SOSBOURN@GOLDER.COM)
Ms. Mara Nasca, SWD Office (MARA.NASCA@DEP.STATE.FL.US)
Mr. Gregg Worley, EPA Region 4 (WORLEY.GREGG@EPAMAIL.EPA.GOV)
Mr. Hamilton Oven, Siting Office (HAMILTON.OVEN@DEP.STATE.FL.US)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

(Clerk) 10/9/06 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection
Draft Air Permit No. 0170004-013-AC
Progress Energy Florida, Inc. – Crystal River Power Plant
Citrus County, Florida

Applicant: The applicant for this project is Progress Energy Florida, Inc. The applicant's authorized representative is Bernie Cumbie, the Plant Manager, and the mailing address is 100 Central Ave., CN77, St. Petersburg, FL, 33701.

Facility Location: Progress Energy Florida, Inc. operates the Crystal River Power Plant, which is located north of Crystal River and west of U.S. 19 in Citrus County, Florida.

Project: The plant proposes to install selective catalytic reduction (SCR) systems and alkali injection systems on existing Units 4 and 5 at the Crystal River Power Plant. Installation of the alkali injection systems is required to ensure that the SCR project will not result in an increase of sulfuric acid mist emissions above the PSD-significant emission rate of 7 tons per year. The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides (NOx) under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation. Additional details can be provided by the Permitting Authority at the address listed below.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

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Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of this Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

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(Public Notice to be Published in the Newspaper)

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 Permitting Authority'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 rights will be affected by the agency determination; (c) A statement of how and when the 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 state; (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 the 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 Permitting Authority'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.

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Mediation: Mediation is not available for this proceeding.

TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

PROJECT

Project No. 0170004-013-AC
Crystal River Power Plant
Units 4 and 5 SCR Project

Citrus County, Florida

APPLICANT

Progress Energy Florida, Inc.
100 Central Avenue, CN77
St. Petersburg, Florida 33701

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
Air Permitting North Program
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

October 9, 2006

{Filename: 0170004-013-AC - TEPD}

1. GENERAL PROJECT INFORMATION

Facility Description and Location

Progress Energy Florida, Inc. operates the Crystal River Power Plant, which is an existing electrical generating plant (SIC No. 4911). The facility consists of the following equipment: four coal-fired steam generating units with electrostatic precipitators; two natural draft cooling towers for Units 4 and 5; helper mechanical cooling towers for Units 1, 2 and Nuclear Unit 3; coal, fly ash, and bottom ash handling facilities; and relocatable diesel fired generators. The nuclear unit (Unit 3) is permitted under a separate Title V permit and is not considered part of the Title V permit for the Crystal River Power plant. Also included in this facility are miscellaneous unregulated and/or insignificant emissions units and activities. The existing plant is located north of Crystal River and west of U.S. 19 in Citrus County, Florida. The UTM coordinates are Zone 17, 334.3 km East, and 3204.5 km North. This site is in an area that is in attainment with (or designated as unclassifiable for) all air pollutants subject to a National Ambient Air Quality Standard (NAAQS).

Regulatory Categories

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

Title IV: The existing facility has 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 facility in accordance with Rule 62-212.400, F.A.C.

NSPS: The existing facility operates units subject to the New Source Performance Standards of 40 CFR 60.

Project Description

Progress Energy Florida, Inc. submitted an application for the construction of selective catalytic reduction (SCR) systems and alkali injection systems on existing Units 4 and 5 at the Crystal River Power Plant. Installation of the alkali injection systems is required to ensure that the SCR project will not result in an increase of sulfuric acid mist emissions above the PSD-significant emission rate of 7 tons per year. The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides (NOx) under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation.

Processing Schedule

4/25/06 Received the application for a minor source air pollution construction permit.

5/19/06 Department requested additional information.

7/26/06 Department received additional information; application complete.

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.). This project is subject to the applicable rules and regulations defined in the following Chapters of the Florida Administrative Code. 62-4 (Permitting Requirements); 62-204 (Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference); 62-210 (Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms); 62-212 (Preconstruction Review, PSD Review and BACT, and Non-attainment Area Review and LAER); 62-213 (Title V Air Operation Permits for Major Sources of Air Pollution); 62-296 (Emission Limiting Standards); and 62-297 (Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures).

General PSD Applicability

The Department regulates major air pollution sources in accordance with Florida's Prevention of Significant Deterioration (PSD) program in accordance with Rule 62-212.400, F.A.C. A PSD review is required in areas currently in attainment with the state and federal Ambient Air Quality Standards (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 defined in Rule 62-210.200, F.A.C.; or 5 tons per year of lead.

For new projects at existing PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the "Significant Emission Rates" defined in Rule 62-210.200, F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant" and applicants 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 existing Crystal River Power Plant is an existing PSD-major facility located in Citrus County, which is an area that is currently in attainment with, or designated as unclassifiable for, each pollutant with a state or federal Ambient Air Quality Standard (AAQS). Therefore, new projects must be reviewed for PSD applicability. The applicant elects to install SCR systems on Units 4 and 5 to afford it full flexibility in implementing CAIR. Installation of the SCR systems should be complete by November of 2008 (Unit 4) and April of 2009 (Unit 5). With the possible exception of sulfuric acid mist emissions, the project to install additional air pollution control equipment is not expected to result in PSD-significant emissions increases.

For the SCR project, sulfuric acid mist emissions will increase when SO_2 in the flue gas is oxidized to SO_3 across the SCR catalyst, which then forms sulfuric acid mist in the presence of water vapor. On June 20, 2006, emissions tests were conducted in accordance with EPA Method 8 to determine baseline sulfuric acid mist emissions. The test results indicate an average emission rate of 18.7 lb/hour (0.0027 lb/MMBtu), which results in baseline annual emissions of 159 tons per year. In the July 24th response to the Department, the applicant proposes to install an alkali injection system for each unit with a minimum control efficiency of 85% to reduce sulfuric acid mist emissions. The control systems will be operated to provide reasonable assurance that the SCR project will not result in a PSD-significant emission increase over the baseline sulfuric acid mist emissions of 159 tons per year. Therefore, the SCR project under review is not subject to PSD preconstruction review for any pollutant.

As a side note, the applicant also submitted a separate PSD permit application on September 5, 2006 to install new wet flue gas desulfurization (FGD) systems for Units 4 and 5. Installation of the FGD systems should be complete by November of 2009 (Unit 4) and April of 2009 (Unit 5). The application also includes alternative fuel blends with higher sulfur contents, which will result in the formation of additional sulfur dioxide and sulfur sulfuric acid mist emissions. As a result, a PSD-significant emissions increase in sulfuric acid mist emissions is predicted for the FGD project. As part of the FGD project, the applicant proposes the alkali injection systems as the Best Available Control Technology (BACT) to mitigate projected increases in sulfuric acid mist emissions from the proposed alternative fuel blends. As a result, the Department will make a BACT determination for sulfuric acid mist as part of Project No. 0170004-016-AC for the installation of FGD system.

3. PROJECT REVIEW

Selective Catalytic Reduction (SCR) System - Description

The applicant proposes to install new SCR systems on existing coal-fired Units 4 and 5. Equipment typically includes an ammonia injection grid, a mixing grid, catalyst modules, a urea-to-ammonia processing system, associated bulk storage systems, an automated control system, piping, electrical, and other ancillary equipment. Selective catalytic reduction 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 the heat transfer rates of the unit. To avoid these problems, SCR systems can be designed with very low levels of ammonia slip (< 5 ppmv) while still achieving NOx reduction efficiencies of 90% or more. SCR is a commercially available, demonstrated control technology currently employed on numerous utility boilers and combined cycle gas turbine projects worldwide.

The proposed SCR systems will be installed at the flue gas exhausts from Units 4 and 5 and upstream of the air heater for each unit. The preliminary designs of the SCR systems is for 90% reduction in NOx emissions with a designed maximum ammonia slip level of 2 to 5 ppmv. The control efficiency is based on a design inlet NOx rate of 0.35 lb/MMBtu, which is the expected NOx emission level after installation of low-NOx burners (part of the proposed FGD project). Each proposed SCR system will consist of the following equipment.

Urea-to-Ammonia Processing Unit: The project includes a system to convert urea to ammonia.

Ammonia Flow Control Unit (AFCU): The ACFU modulates the amount of ammonia gas that is mixed with heated air to achieve a 3% to 4% ammonia concentration. This is the mixture that is delivered to the ammonia injection grid. As NOx emissions vary, the AFCU adjusts the ammonia gas to the proper level for the desired NOx control. Monitored NOx emissions provide feedback for adjustment of the ammonia injection rate.

Ammonia Injection Grid (AIG): Effective ammonia distribution and NOx conversion are dependent on the velocity profile entering the AIG, which divides the flue gas into numerous zones. Each zone is equipped with a flow indicator and control valve for tuning the AIG to match the inlet NOx profile. Typically, a static mixer is installed upstream of the AIG to create flow resistance, flatten the velocity profile, and provide uniform gas flow. A second static mixer may be positioned at the injection points to impart a swirl to the diluted ammonia and promote good mixing with the flue gas. The preliminary design is for a molar ratio of ammonia-to-NOx of approximately 0.91. The mass rate of ammonia injected will vary with operating conditions such as load. However, at full load and full control, the maximum ammonia injection rate is estimated to be 880 lb/hour.

SCR Reactor: The SCR reactor will be placed just upstream of the air heater for each unit. Within the SCR reactor, the catalyst will be arranged in three layers with an internal honeycomb structure. The system has an operational temperature range between 568° F to 715° F with an optimum temperature just above 680° F. Initially, catalyst will be placed in only two of the three layers. The SCR reactor is expected to create a pressure loss of approximately 2 to 5 inches of water column.

Catalyst: The general catalyst composition will be $TiO_2 - WO_3 - V_2O_5$ with the active catalyst component being vanadium pentoxide (V_2O_5). The catalyst volume will be approximately 21,000 to 25,000 cubic feet. As the catalyst gradually deactivates through use, the remaining layer will be filled and eventually older layers replaced. This will be determined by periodic analysis of catalyst coupons for reactivity. The expected catalyst life is 24,000 hours. The applicant plans to prevent particulate matter from fouling and masking catalyst beds by the following methods: installing an SCR bypass duct, installing a screen to remove large particles prior to the SCR reactor, installing sonic horns above the catalyst layer to minimize ash accumulation, and minimizing oil firing when the SCR reactor is in service.

NOx CEMS: The existing NOx CEMS will be modified to accurately measure the lower NOx emission levels when the SCR system is in service.

SCR Bypass: The SCR design incorporates dampers and ductwork to provide the capability of bypassing the SCR system. Bypass generally occurs under the following circumstances.

- *Boiler Startup*: The SCR reactor must be heated to the minimum operating temperature before ammonia can be injected. During a boiler startup, the boiler exhaust is bypassed until a minimum load and steady state operation is achieved. The bypass dampers are gradually opened to control SCR warming and allow the system to reach the minimum SCR reactor temperature.
- *Boiler Shutdown/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.
- *SCR Catalyst Problems*: Problems with the catalyst (such as plugging or fouling) would require inspections and maintenance on the SCR itself. The bypass would be used to allow entry and work on the SCR reactor without taking the boiler off line.
- *Operation w/o NOx Control*: The plant could operate without ammonia injection for NOx control and elect to bypass the SCR reactor.

Alkali Injection System – Description

An alkali injection system will be installed for each unit concurrent with each SCR system to mitigate sulfuric acid mist emissions. From experience with previous SCR installations at other facilities, an SCR catalyst can double the conversion of SO_2 to SO_3, similarly increase the sulfuric acid mist emissions, and cause opacity problems.[1] To reduce impacts, the control systems will inject an alkali sorbent based on ammonia or sodium (i.e., Trona or sodium bisulfite). The alkali is

[1] Gary M. Blythe , "Furnace Injection of Alkaline Sorbents for Sulfuric Acid Control", Semi-Annual Technical Progress Report, October 2003, prepared for National Energy Technology Laboratory, U.S. Department of Energy.

injected prior to the electrostatic precipitator, either before or after the air pre-heater. The alkali reacts with SO_2 to form salts, which are removed by the ESP. The minimum design removal efficiency will be 85%. The applicant will install and operate the alkali injection systems such that the increase in sulfuric acid mist emissions will be less than the PSD-significant emission rate of 7 tons/year.

The applicant estimated baseline emissions as follows:

SAM (Unit 4) = (18.7 lb/hour) (8470 hour/year) (ton/2000 lb) = 79.2 tons/year

SAM (Unit 5) = (18.7 lb/hour) (8537 hour/year) (ton/2000 lb) = 79.8 tons/year

So, total sulfuric acid mist (SAM) emissions from Units 4 and 5 would be 159 tons/year. However, this estimate is based on test data (18.7 lb SAM/hour) collected at 103% of the maximum heat input rate. At lower operational loads, less fuel is fired and less SO_2 and SAM is generated. A more accurate method is to estimate the baseline emissions based on the test data and the actual heat input for the units. In fact, Rule 62-210.370(2)(d), F.A.C. states, "... If stack test data are used, the emission factor shall be based on the average emissions per unit of input, output, or gas volume ... The owner or operator shall compute emissions by multiplying the appropriate emission factor by the appropriate input, output or gas volume value for the period over which the emissions are computed ..." Therefore, the baseline emissions are determined to be:

SAM (Units 4 and 5) = (18.7 lb/hour) (hour/6845 MMBtu) (99,142,209 MMBtu/year) (ton/2000 lb) = 135.4 tons/year

In the above calculation, the actual heat input rate of 99,142,209 MMBtu per year for both units combined is based on the highest 2-year average heat input rate as identified by the applicant in Table A-12 of the FGD project (Project No. 0170004-016-AC). Therefore, the permit will identify the baseline actual emissions as 135.4 tons/year.

Draft Permit Requirements

The draft permit requires installation of the alkali injection system because of potential collateral sulfuric acid mist emissions increases that could result whenever the SCR reactor is in service. Although the draft permit authorizes construction of the SCR systems, it does not require installation or operation of this equipment. The applicant elects to install SCR systems on Units 4 and 5 to afford it full flexibility in implementing CAIR. Alternatively, the applicant may elect to take the SCR systems out of service and purchase allowances to meet the CAIR NOx allocations. Project No. 0170004-016-AC to add FGD systems to Units 4 and 5 may result in additional NOx emissions standards.

Although the applicant requested reporting of annual emission for a 5-year period after installation of the SCR system, Rule 62-212.300(1)(e)1, F.A.C. requires reporting of annual emission for a 10-year period, "... if the change increases the design capacity of that emissions unit or its potential to emit that PSD pollutant." Since the project increases potential emissions of sulfuric acid mist, the applicant will be required to calculate and report annual emissions for a period of 10 years after completing construction of each SCR system. In addition, the draft permit includes the following specific requirements.

- Tests shall be conducted to demonstrate the effectiveness of the controls systems as installed.
- Annual tests shall be conducted to determine uncontrolled and controlled sulfuric acid mist emissions rates.
- Records shall be maintained identifying operation of the new control systems and the alkali injection rate.
- In accordance with Rule 62-210.300(1)(e), F.A.C., annual sulfuric acid mist emissions shall be reported for 10 years to demonstrate that the SCR project did not trigger PSD preconstruction review for this pollutant.
- For purposes of reporting the annual sulfuric acid mist emission, the uncontrolled emissions factor shall be used if the minimum alkali injection rate established for the latest test is not met.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, 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.

DRAFT PERMIT

PERMITTEE:

Progress Energy Florida, Inc.
100 Central Avenue, CN77
St. Petersburg, Florida 33701

Authorized Representative:
Bernie Cumbie, Plant Manager

Air Permit No. 0170004-013-AC
Crystal River Power Plant
Facility ID No. 0170004
SCR Project for Units 4 and 5
Permit Expires: December 1, 2010

PROJECT AND LOCATION

This permit authorizes the construction of selective catalytic reduction (SCR) systems and alkali injection systems on existing Units 4 and 5 at the Crystal River Power Plant. The Crystal River Power Plant is an existing electrical generating station (SIC No. 4911), which is located north of Crystal River and west of U.S. 19 in Citrus County, Florida.

STATEMENT OF BASIS

Installation of the alkali injection systems is required to ensure that the SCR project will not result in an increase of sulfuric acid mist emissions above the PSD-significant emission rate of 7 tons per year. The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides (NOx) under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation. This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 60 of the Code of Federal Regulations. 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.

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(DRAFT)

Joseph Kahn, P.E., Director
Division of Air Resource Management

(Date)

FACILITY AND PROJECT DESCRIPTION

The Crystal River Power Plant is an existing electrical generating plant consisting of the following equipment: four coal-fired steam generating units with electrostatic precipitators; helper mechanical cooling towers for Units 1, 2 and Nuclear Unit 3; two natural draft cooling towers for Units 4 and 5; coal, fly ash, and bottom ash handling facilities; and, relocatable diesel-fired generators. The project includes construction of selective catalytic reduction (SCR) systems and alkali injection systems on existing Units 4 and 5. Installation of the alkali injection systems is required to ensure that the SCR project will not result in an increase of sulfuric acid mist emissions above the PSD-significant emission rate of 7 tons per year. The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides (NOx) under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation. The project is not subject to PSD preconstruction review.

ID	Emission Unit Description
003	Unit 5 - Fossil Fuel Steam Generator
004	Unit 4 - Fossil Fuel Steam Generator

REGULATORY CLASSIFICATION

Title III: The existing facility is 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 facility in accordance with Rule 62-212.400, F.A.C.

NSPS: The existing facility operates units subject to the New Source Performance Standards of 40 CFR 60.

RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action: the permit application and additional information received to make it complete; the draft permit package including the Department's Technical Evaluation and Preliminary Determination; publication and comments; and the Department's Final Determination.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to operate, construct, or modify emissions units regulated by this permit 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.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Resource Section of the Department's Southwest District Office at 13051 N. Telecom Parkway, Temple Terrace, FL 33637-0926.

3. Appendices: The following Appendices are attached as part of this permit: Appendix A (Citation Format), Appendix B (General Conditions), and Appendix C (Common Conditions).

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and Title 40, Part 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]

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. Modifications: The permittee shall notify the Compliance Authority upon commencement of construction. No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(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 unit. 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. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authorities. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

A. Unit 4 and 5

This section of the permit addresses the following emissions unit.

ID No.	Emissions Unit Description
003	Unit 5 - Fossil Fuel Steam Generator: This is a pulverized coal, dry bottom, wall-fired unit that is rated at 760 MW with a maximum heat input rate of 6665 MMBtu per hour. Allowable fuels include bituminous coal, a bituminous coal and bituminous coal briquette mixture, and used oil fuel. In addition, No. 2 distillate oil is fired as a startup fuel and natural gas is fired as both a startup fuel and low-load flame stabilization fuel. Particulate matter emissions are controlled with a high efficiency electrostatic precipitator (ESP). Emissions exhaust through a 600 feet tall stack.
004	Unit 4 - Fossil Fuel Steam Generator: This is a pulverized coal, dry bottom, wall-fired unit that is rated at 760 MW with a maximum heat input rate of 6665 MMBtu per hour. Allowable fuels include bituminous coal, a bituminous coal and bituminous coal briquette mixture, and used oil fuel. In addition, No. 2 distillate oil is fired as a startup fuel and natural gas is fired as both a startup fuel and low-load flame stabilization fuel. Particulate matter emissions are controlled with a high efficiency electrostatic precipitator (ESP). Emissions exhaust through a 600 feet tall stack.

EQUIPMENT

1. SCR System: For Units 4 and 5, the permittee is authorized to install Selective Catalytic Reduction (SCR) systems. In general, the SCR systems will include the following equipment. Urea-to-ammonia conversion system; ammonia flow control unit (AFCU); ammonia injection grid (AIG); TiO_2-WO_3-V_2O_5 catalyst; SCR reactor; an SCR bypass system; and other ancillary equipment.

   {Permitting Note: The following description summarizes the preliminary design of SCR systems: The SCR systems will be designed for a control efficiency of 90% reduction in NOx emissions based on a design inlet NOx rate of 0.35 lb/MMBtu with a maximum ammonia slip level of 2 to 5 ppmv. The molar ratio of ammonia-to-NOx is estimated to be approximately 0.91, which is a maximum ammonia injection rate of approximately 880 lb/hour at full load and full control. The catalyst volume will be approximately 21,000 to 25,000 cubic feet. The expected catalyst life is 24,000 hours. The SCR reactor will be placed just upstream of each unit's air heater. Within the SCR reactor, the catalyst will be arranged in three layers with an internal honeycomb structure. The system has an operational temperature range between 568° F to 715° F. Initially, catalyst will be placed in only two of the three layers. As the catalyst gradually deactivates through use, the remaining layer will be filled and eventually older layers replaced. This will be determined by periodic analysis of catalyst coupons for reactivity. The SCR system is expected to create a pressure loss of approximately 2 to 5 inches of water column. The applicant plans to prevent particulate matter from fouling and masking catalyst beds by the following methods: installing an SCR bypass duct, installing a screen to remove large particles prior to the SCR reactor, installing sonic horns above the catalyst layer to minimize ash accumulation, and minimizing oil firing whenever the SCR is in service.} [Applicant Request; Design]

2. Alkali Injection System: The permittee shall install an alkali injection system with a control efficiency of at least 85% to control sulfuric acid mist emissions. The equipment will include tanks, piping, injectors, a control system and other ancillary equipment. The alkali injection systems shall be operable when the SCR system is initially available for service.

   {Permitting Note: When in service, SCR catalyst will oxidize more SO_2 to SO_3 and increase sulfuric acid mist emissions. The preliminary design indicates that the alkali control systems will inject an alkali sorbent based on ammonia or sodium (i.e., Trona or sodium bisulfite). The alkali sorbent will be injected prior to the electrostatic precipitator, either before or after the air pre-heater. The alkali reacts with SO_2 to form salts, which are then removed by the ESP. The purpose of the alkali injection system is to ensure that any increase in sulfuric acid mist emissions related to the SCR project will be less than the PSD-significant emission rate of 7 tons/year.} [Applicant Request; Design]

3. NOx CEMS: As necessary, the permittee is authorized to modify, calibrate, re-certify, and operate the existing NOx CEMS to accurately measure the lower NOx emission levels realized if the SCR system is in service. [Applicant Request; Design; Rule 62-4.070(3), F.A.C.]

4. Circumvention: No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. Operation of the SCR is not required by this permit. As necessary, the permittee shall operate the alkali injection system to ensure the project does not result in an increase of more than the PSD-significant emissions (7 tons/year) of sulfuric acid mist emissions above baseline actual emissions (135.4 tons/year). [Rules 62-210.650 and 62-212.400(12), F.A.C.]

EMISSIONS PERFORMANCE TESTING

5. Performance Tests: Within 60 days of commencing operation of each SCR/alkali injection system, the permittee shall have the following tests conducted for each unit.

   a. At permitted capacity, the permittee shall conduct tests to determine the uncontrolled NOx emissions rate, the controlled NOx emission rate, and the actual control efficiency of the installed SCR system. Tests shall consist of three, 1-hour test runs. Alternatively, the permittee may provide representative CEMS data for this demonstration. During each test run, the permittee shall continuously monitor and record the ammonia injection rate.

   b. At permitted capacity and with no SCR bypass, the permittee shall conduct stack tests to determine the uncontrolled sulfuric acid mist emission rate, the controlled sulfuric acid mist emission rate, and actual control efficiency of the installed alkali injection systems. Tests shall consist of three, 1-hour test runs and be conducted while firing the fuel blend with the highest sulfur content. During each test run, the permittee shall continuously monitor and record the alkali injection rate and total secondary-power input to the electrostatic precipitator. The purpose of these tests is to determine actual control efficiency of the installed systems and to establish a minimum alkali injection rate, which will be used to calculate the actual annual emissions.

   [Rule 62-297.310(7)(a)1, F.A.C.]

6. Annual Tests: During each year the reporting for sulfuric acid mist emissions is required, the permittee shall repeat the tests specified in Condition 5. The tests may be used to reestablish the minimum alkali injection rate, which will be used to calculate the actual annual emissions. [Rule 62-4.070(3), F.A.C.]

7. Test Notification: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. [Rule 62-297.310(7)(a)9, F.A.C.]

8. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7E	Determination of Nitrogen Oxide Emissions
8	Determination of Sulfuric Acid Mist Emissions
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)

Tests shall also be conducted in accordance with the common condition specified in Section 4, Appendix C of this permit. The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

NOTIFICATIONS, RECORDS AND REPORTS

9. Design Notifications: Prior to initial operation of the alkali injection system, the permittee shall notify the Bureau of Air Regulation and the Compliance Authority of the final design specifications including: alkali sorbent, storage and delivery of alkali sorbent, number of injectors, and the maximum injection rate at full load. In addition, the permittee shall notify the Bureau of Air Regulation and the Compliance Authority of substantial changes to the design of the SCR or alkali injection systems. [Rule 62-4.070(3), F.A.C.]

10. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements

specified in Section 4, Appendix C of this permit. For each sulfuric acid mist test run, the report shall also indicate the alkali injection rate, unit load, unit heat input rate, and total secondary power input to the electrostatic precipitator. For each NOx emissions test run, the report shall also indicate the ammonia injection rate, unit load, and unit heat input rate. [Rule 62-297.310(8), F.A.C.]

11. Operational Data: The permittee shall continuously monitor and record the alkali injection rate and the hours of SCR bypass operation. [Rule 62-4.070(3), F.A.C.]

12. Annual SAM Emissions Reports: In accordance with Rule 62-212.300(1)(e), F.A.C., the permittee shall comply with the following monitoring, reporting and recordkeeping provisions:

    a. The permittee shall monitor the sulfuric acid mist (SAM) emissions using the most reliable information available. On a calendar year basis, the permittee shall calculate and maintain a record of the annual emissions (tons per year) for a period of 10 years after completing construction on each new control system. Emissions shall be computed in accordance with Rule 62-210.370, F.A.C.

    b. Within 60 days after each calendar year following completion of construction on each new control system, the permittee shall report to the Compliance Authority the annual emissions for each unit during the calendar year that preceded submission of the report. The report shall contain the following:

        1) The name, address and telephone number of the owner or operator of the major stationary source;

        2) The annual emissions as calculated pursuant to subparagraph 62-212.300(1)(e)1., F.A.C.;

        3) If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and

        4) Any other information that the owner or operator wishes to include in the report.

    c. The information required to be documented and maintained shall be submitted to the Compliance Authority, where it will be available for review to the general public.

    [Rule 62-212.300(1)(e), F.A.C.]

13. SAM Emissions Computation and Reporting: The permittee shall compute sulfuric acid mist (SAM) emissions in accordance with the following requirements.

    a. For each year of reporting required, emissions shall be computed based on the controlled and uncontrolled emissions factors (lb/MMBtu) determined during the required annual emissions test.

    b. With appropriate supporting test data, multiple emission factors may be used as necessary to account for variations in emission rate associated with variations in the emissions unit's operating rate or operating conditions during the period over which emissions are computed.

    c. The permittee shall compute emissions by multiplying the appropriate controlled or uncontrolled emission factor (lb/MMBtu) by the annual heat input rate for the period over which the emissions are computed. The uncontrolled emissions factor shall be used if the minimum alkali injection rate established for the latest test is not met.

    d. The permittee shall retain a copy of all records used to compute emissions pursuant to this rule for a period of five years from the date on which such emissions information is submitted to the Department or Compliance Authority for any regulatory purpose.

    [Rule 62-210.370, F.A.C.]

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SECTION 4. APPENDIX A
CITATION FORMATS

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

REFERENCES TO PREVIOUS PERMITTING ACTIONS

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

RULE CITATION FORMATS

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

{Permitting Note: Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at the 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. Excess Emissions Allowed: 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.]
3. 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.]
4. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permittee 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.]
5. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), 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: 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. This regulation does not impose a specific testing requirement. [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.]

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