Florida Department of Environmental Protection

Memorandum

TO: Joseph Kahn, DARM
TO: Trina Vielhauer, BAR
FROM: Jeff Koerner, Permitting North
DATE: February 26, 2007
SUBJECT: Permit No. 0170004-013-AC
Progress Energy Florida, Inc.
Crystal River Power Plant
SCR Project for Units 4 and 5

Permit Signing 3/2/07

This permit authorizes the construction of selective catalytic reduction (SCR) systems and alkali injection systems for existing Units 4 and 5 at the Crystal River Power Plant, which is an existing electrical generating station (SIC No. 4911) located north of Crystal River and west of U.S. 19 in Citrus County, Florida. The Department distributed an "Intent to Issue Permit" package on October 9, 2006. The applicant filed for, and received, an extension of time in which to file a petition for an administrative hearing. The extension expired on January 31, 2007. The applicant published the "Public Notice of Intent to Issue" in the Citrus County Chronicle on February 2, 2007. The Department received the proof of publication on February 16, 2007. No subsequent petitions for administrative hearings or extensions of time to petition for an administrative hearing were filed.

I recommend your approval of the attached Final Permit for this project.

Attachments

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit by:

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

Enclosed is Final Air Permit No. 0170004-013-AC, which authorizes the construction of selective catalytic reduction (SCR) systems and alkali injection systems for existing Units 4 and 5 at the Crystal River Power Plant, which is an existing electrical generating station (SIC No. 4911) located north of Crystal River and west of U.S. 19 in Citrus County, Florida. As noted in the attached Final Determination, only minor changes and clarifications were made. This permit is issued pursuant to Chapter 403, Florida Statutes (F.S.).

Any party to this order has the right to seek judicial review of it under Section 120.68, F.S. by filing a Notice of Appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within thirty (30) days after this order is filed with the clerk of the Department.

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 Notice of Final Permit (including the Final Permit) was sent by electronic mail (return receipt requested) 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. Cindy Zhang-Torres, SWD Office (CINDY.ZHANG-TORRES@DEP.STATE.FL.US)
Mr. Gregg Worley, EPA Region 4 (WORLEY.GREGG@EPA.GOV)
Mr. Mike Halpin, Siting Office (HALPIN_M@DEP.STATE.FL.US)

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.

(Clerk) 3/2/07 (Date)

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

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 of Environmental Protection (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 (CFR). 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.

CONTENTS

Joseph Kahn, Director
Division of Air Resource Management

3/2/07
(Date)

FINAL DETERMINATION

PERMITTEE

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

PROJECT

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

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

NOTICE AND PUBLICATION

The Department distributed an "Intent to Issue Permit" package on October 9, 2006. The applicant filed for, and received, an extension of time in which to file a petition for an administrative hearing. The extension expired on January 31, 2007. The applicant published the "Public Notice of Intent to Issue" in the Citrus County Chronicle on February 2, 2007. The Department received the proof of publication on February 16, 2007. No subsequent petitions for administrative hearings or extensions of time to petition for an administrative hearing were filed.

COMMENTS

No comments on the Draft Permit were received from the public, the Department's Southwest District Office or EPA Region 4. On February 15, 2007, the applicant submitted comments, which are summarized below with the Department's corresponding response.

Comment: The applicant believes that Specific Conditions 5 and 13 are overly prescriptive and burdensome. These conditions specify testing, calculation and reporting requirements for sulfuric acid mist (SAM) emissions. The applicant believes that the conditions should simply require an annual test in accordance EPA Methods 8 or 8A. The applicant acknowledges that a final decision remains on the alkali control system type and design. In addition, the design schedule now indicates that the flue gas desulfurization (FGD) systems will commence operation at the same time as the selective catalytic reduction (SCR) systems. The FGD project is subject to PSD preconstruction review for SAM emissions, so the SAM-related conditions specified in the SCR project will likely be superseded by the conditions representing the Best Available Control Technology (BACT) for this pollutant. Therefore, the applicant recommends including the following text in the final permit.

> "On an annual basis, the permittee must demonstrate that SAM emissions as a result of this project do not exceed the baseline annual emissions (135.4 tons/year) by the PSD significant emissions rate (7 tons/year). The permittee shall install and operate the ammonia injection system at a frequency and injection rate for SAM emissions to satisfy this requirement. Once a final control system selection has been made, a monitoring plan will be submitted to the Department for approval. This plan will allow the calculation of a representative annual emission estimate that reflects all anticipated modes of operation. [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]"

Response: Specific Condition 5 requires initial tests to determine the uncontrolled and controlled SAM emissions rates to determine a minimum ammonia injection rate reflecting the control of SAM emissions. The tests are to be conducted at permitted capacity while firing the highest sulfur content coal planned for operation. Specific Condition 6 requires these tests to be conducted annually. Specific Condition 13 specifies the methods used to calculate and report SAM emissions to demonstrate that the installation of SCR systems did not result in a PSD significant emissions increase. The overall intent of these conditions is to ensure that the alkali injection system is operated at a level sufficient to verify that a PSD significant emissions increase did not occur.

The Department does not believe that the permit conditions are overly prescriptive and burdensome. In fact, as the applicant mentioned, annual tests could be conducted to satisfy the permit conditions. However, more frequent testing could be conducted to establish effective ammonia injection rates for specific sets of operating conditions. This project is unlike many of the past projects that require only an annual test to demonstrate compliance because alkali must be injected at a sufficient rate to achieve the necessary reductions; it is not a passive control system.

Nevertheless, the Department is currently processing the application for the FGD project, which will specify a BACT emissions limit and appropriate testing, monitoring and reporting requirements for SAM emissions. Based on the applicant's comments, the Department revised and clarified the permit conditions as follows:

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. On an annual basis, the permittee must demonstrate that SAM emissions as a result of this project do not exceed the baseline annual emissions (135.4 tons/year) by the PSD significant emissions rate (7 tons/year). The permittee shall operate the ammonia injection system at a frequency and injection rate for SAM emissions to satisfy this requirement. Once a final control system selection has been made, a monitoring plan will be submitted to the Department for approval. This plan will allow the calculation of a representative annual emission estimate that reflects all anticipated modes of operation. Sufficient performance tests shall be conducted to determine the effects of alkali injection for a given set of operating conditions.

5b. 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 the actual control efficiency of the installed alkali injection systems. Tests shall consist of at least three, 1-hour test runs and be conducted while firing ~~the~~ a fuel blend with ~~the highest~~ a representative 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~~ an effective alkali injection rate, which will be used to calculate the actual annual emissions.

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~~ Subsequent tests may be used to reestablish ~~the minimum~~ an effective alkali injection rate for a given set of operating conditions, which will be used to calculate the actual annual emissions.

13c. 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 shall correlate to ~~if~~ the ~~minimum~~ alkali injection rate for the given set of conditions ~~established for the latest test is not met~~.

CONCLUSION

Only the minor revisions described above were made to the final permit. The final action of the Department is to issue the permit with the changes described above.

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 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 NOx under 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 preconstruction review for the Prevention of Significant Deterioration (PSD) of Air Quality.

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 (HAPs).

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: Units 4 and 5 are subject to the New Source Performance Standards of Subpart D in 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.

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, F.S.; Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C.; and Title 40, Part 60 of the 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.]

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 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 (SAM) 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. On an annual basis, the permittee must demonstrate that SAM emissions as a result of this project do not exceed the baseline annual emissions (135.4 tons/year) by the PSD significant emissions rate (7 tons/year). The permittee shall operate the ammonia injection system at a frequency and injection rate for SAM emissions to satisfy this requirement. Once a final control system selection has been made, a monitoring plan will be submitted to the Department for approval. This plan will allow the calculation of a representative annual emission estimate that reflects all

anticipated modes of operation. Sufficient performance tests shall be conducted to determine the effects of alkali injection for a given set of operating conditions.

{Permitting Note: When in service, SCR catalyst will oxidize more sulfur dioxide (SO_2) to sulfur trioxide (SO_3) and increase SAM 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 SAM 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 Continuous Emissions Monitoring Systems (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 the actual control efficiency of the installed alkali injection systems. Tests shall consist of at least three, 1-hour test runs and be conducted while firing a fuel blend with a representative 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 an effective 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. Subsequent tests may be used to reestablish an effective alkali injection rate for a given set of operating conditions, 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 Department's 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 Department's 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 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 emissions factor used shall correlate to the alkali injection rate for the given set of conditions.

    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 Compliance Authority for any regulatory purpose.

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

Filename: 0170004-013-AC - Final Permit

CONTENTS

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

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, F.S. 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), F.S., 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 non-compliance, 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, F.S. 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 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);
    b. Determination of Prevention of Significant Deterioration (Not Applicable); and
    c. Compliance with New Source Performance Standards (Not Applicable).

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.

{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 Notifications: 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 (VOC) or organic solvents (OS) 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) and62-210.200, 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.]

Filename: 0170004-013-AC - Appendix

Harvey, Mary

From: Koerner, Jeff
Sent: Friday, March 02, 2007 3:35 PM
To: Harvey, Mary
Subject: Air Permit No. 0170004-013-AC, Progress Energy Crystal River Power Plant, SCR Project for Units 4 and 5

Attachments: Final Determination - 0170004-013-AC.doc; Final Notice - 0170004-013-AC (2).doc; 0170004-013-AC - Final Permit.doc; 0170004-013-AC - Appendix.doc

Mary,

Joe signed the final permit this afternoon. Attached are the electronic files for posting.

Remember, Progress Energy is one of the companies that can't receive "zipped" files through their firewall. So, we need to send them the individual "PDF" files.

Thanks!

Jeff


Final Determination - 0170004-...


Final Notice - 0170004-013-AC ...


0170004-013-AC - Final Permit....


0170004-013-AC - Appendix.doc ...