

APPENDIX A2

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL AIR CONSTRUCTION PERMIT MODIFICATION

In the Matter of an
Application for Permit Modification

Mr. Michael J. Brost
JEA – St. Johns River Power Park
21 West Church Street
Jacksonville, Florida 32202

Permit: 0310045-017-AC

Enclosed is the FINAL Air Construction Permit Modification which authorizes the installation of Selective Catalytic Reduction systems and ammonia injection systems on existing Boilers 1 and 2 at St. Johns River Power Park in Jacksonville, Duval County. This permit is issued pursuant to Chapter 403, Florida Statutes (F.S.) and Chapters 62-4 through 297 Florida Administrative Code (F.A.C) and Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; 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 30 (thirty) days from the date this order is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.



Trina L. Vielhauer, Chief
Bureau of Air Regulation

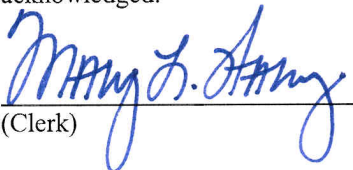
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL AIR CONSTRUCTION PERMIT MODIFICATION (including the FINAL permit) and all copies were sent electronically (with Received Receipt) before the close of business on 3/1/07 to the person(s) listed:

Michael J. Brost, JEA (brosmj@jea.com)
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Ken Kosky, Golder Associates, Inc. (kkosky@golder.com)

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) 3/1/07
(Date)



Florida Department of Environmental Protection

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

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

PERMITTEE

JEA - St. Johns River Power Park
21 West Church Street
Jacksonville, Florida 32202

Authorized Representative:
Mr. Michael J. Brost, Vice President
Electric System

Permit No.:	0310045-017-AC
Facility ID No.:	0310045
Project:	Installation of Selective Catalytic Reduction
Expires:	June 30, 2009

PROJECT AND LOCATION

This permit authorizes the installation of Selective Catalytic Reduction (SCR) systems and ammonia injection systems on existing Boilers 1 and 2 at the St. Johns River Power Park. The St. Johns River Power Park is an existing electrical generating plant (SIC No. 4911) located at 11201 New Berlin Road in Jacksonville, Duval County, Florida. The UTM coordinates are: Zone 17; 446.9 km E; 3359.15 km N.

STATEMENT OF BASIS

Installation of the ammonia injection system 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 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 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 above named permittee is authorized to modify the facility 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.

APPENDICES

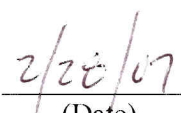
The following appendices are attached as a part of this permit.

Appendix GC. Construction Permit General Conditions

Executed in Tallahassee, Florida



Joseph Kahn, Director
Division of Air Resource Management



(Date)

PERMITTEE

JEA - St. Johns River Power Park
21 West Church Street
Jacksonville, Florida 32202

Authorized Representative:
Mr. Michael J. Brost, Vice President
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APPENDICES

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Appendix GC. Construction Permit General Conditions

Executed in Tallahassee, Florida

Joseph Kahn, Director
Division of Air Resource Management

(Date)

SECTION 1. GENERAL INFORMATION

FACILITY DESCRIPTION

The Jacksonville Electric Authority operates an existing electrical generating plant at the St. Johns River Power Park (SJRPP). This plant includes Boilers 1 and 2 (Emissions Units 016 and 017), which are fossil fuel-fired steam generators fired with pulverized coal and a blend of petroleum coke and coal. Each boiler has a nominal nameplate rating of 679.6 megawatts (electric). Emissions from each boiler are currently controlled with an electrostatic precipitator (ESP), a limestone scrubber and low-NO_x burners.

PROJECT DESCRIPTION

This permit authorizes the installation of Selective Catalytic Reduction (SCR) systems on Boilers 1 and 2. The permittee elects to install these controls as part of its plan to comply with the Clean Air Interstate Rule (Rule 62-296.470(CAIR), F.A.C.) and the Clean Air Mercury Rule (Rule 62-296.480(CAMR), F.A.C.). When operating, the SCR systems will decrease nitrogen oxides (NO_x) emissions from Boilers 1 and 2, which will allow the plant to meet the annual and ozone season NO_x CAIR allocations.

Installation of the SCR systems will result in collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM/PM₁₀). The potential increase of SAM emissions is a result of the oxidation of sulfur dioxide (SO₂) to sulfur trioxide (SO₃) that is emitted as SAM after the flue gas desulfurization (FGD) system. The permit requires the installation of additional ammonia injection systems on Boilers 1 and 2 to reduce SAM emissions. Ammonia will be injected downstream of the SCR reactor and upstream of the existing electrostatic precipitator (ESP). The ammonia reacts with SO₃ to form salts (e.g., ammonium sulfate), which will be collected in the ESP. With the additional ammonia injection systems, there will be no PSD-significant emissions increases due to the installation of SCR systems on Boilers 1 and 2. There are no other planned changes in Boilers 1 and 2.

The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for NO_x 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.

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 source of air pollution 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 permit request and additional information received to make it complete are not a part of this permit; however, the information is listed in the technical evaluation which is issued concurrently with this permit.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits regarding construction and operation shall be submitted to the Department's Bureau of Air Regulation at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. Copies of all such documents shall also be sent to the Department's Northeast District Office and the Environmental Resource Management Department, Environmental Quality Division, Air Quality Branch (ERMD/EQD/AQB) of Duval County.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to Environmental Resource Management Department, Environmental Quality Division, 117 West Duval Street, Suite 225, Jacksonville, FL 32202.
3. 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 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.]
4. 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.]
5. 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.]
6. Title V Permit: This permit authorizes modification 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 Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]
7. Source Obligation: At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by increasing its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction has not yet commenced on the source or modification. [Rule 62-212.400(12)(c), F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

The specific conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
016	SJRPP Boiler No. 1
017	SJRPP Boiler No. 2

SJRPP Boilers 1 and 2 are fossil fuel-fired steam generators, each with a nominal nameplate rating of 679.6 MW. Authorized fuels include pulverized coal, petroleum coke/coal blends, new 2 distillate oil (startup and low-load operation) and “on-specification” used oil. The maximum heat input to each unit is 6144 MMBtu/hour. Each unit is a dry bottom, wall-fired boiler with the following controls: an electrostatic precipitator (ESP) to control PM/PM₁₀, a wet limestone FGD unit to control SO₂, low-NO_x burners and low excess-air firing to control NO_x, and good combustion to control carbon monoxide (CO). Each boiler exhausts through a separate stack that is 640 feet above grade. SJRPP Boiler 1 began commercial operation in December of 1986. SJRPP Boiler 2 began commercial operation in March of 1988.

PREVIOUS APPLICABLE REQUIREMENTS

1. Permit Determination: This permit authorizes the installation of SCR and ammonia injection systems for Boilers 1 and 2. Unless otherwise specified, these conditions are in addition to all existing applicable permit conditions and regulatory requirements. The permittee shall continue to comply with the conditions of the original permit PSD-FL-010 (as modified), which includes restrictions and standards regarding capacities, production, operation, fuels, emissions, monitoring, record keeping, reporting, etc. for these units. The facility remains subject to all of the requirements specified in the current Title V Permit No. 0310045-016-AV. [Rule 62-4.070(3), F.A.C.]

AUTHORIZED WORK

2. SCR Systems: The permittee is authorized to construct, tune, operate and maintain new SCR systems for SJRPP Boilers 1 and 2 to reduce emissions of NO_x as described in the application. In general, the SCR systems will include the following equipment: ammonia storage; ammonia flow control unit (AFCU); ammonia injection grid (AIG); vanadium pentoxide catalyst; an SCR reactor chamber; an SCR bypass system; and other ancillary equipment. [Application; Rules 62-296.470(CAIR) and 62-210.200(PTE), F.A.C.]
3. Ammonia Injection Systems: The permittee shall construct, tune, operate and maintain new ammonia injection systems on SJRPP Boilers 1 and 2 to mitigate the formation of SAM due to the increased oxidation of SO₂ to SO₃ across the new SCR reactors. Ammonia will be injected downstream of the SCR reactor and upstream of the existing ESP. The control system regulating the amount of ammonia injected to control SAM will be integrated into the plant digital control system. The ammonia will react with SO₃ to form salts (e.g., ammonium sulfate), which will be collected in the ESP. With the additional ammonia injection systems, there will be no PSD-significant emissions increases due to the installation of SCR systems on Boilers 1 and 2. The proposed equipment includes storage tanks, piping, injectors, a control system and other ancillary equipment. The ammonia injection systems shall be operable when the SCR system is initially available for service. [Application; and Rule 62-212.400(12), 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 ammonia injection system for SAM emissions control to ensure the project does not result in a PSD-significant emissions increase (7 tons/year) of sulfuric acid mist emissions above baseline actual emissions (1317 tons/year). [Rules 62-210.650 and 62-212.400(12), F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

PERFORMANCE REQUIREMENTS

5. Annual PM/PM₁₀ and SAM Emissions Projections: For this project, the permittee projected that actual annual emissions due to the project would not exceed the PM/PM₁₀ annual emissions ($322 + 14 = 336$ tons/year); and would not exceed the SAM annual emissions ($1317 + 6 = 1323$ tons/year). The permittee shall demonstrate this by compiling and submitting the reports required by this permit. For the purposes of this reporting, all PM emissions are considered to be PM₁₀ emissions. [Application; and Rules 62-212.300 and 62-210.370, F.A.C.]
6. Ammonia Injection for SAM Emissions Control: On an annual basis, the permittee must demonstrate that SAM emissions as a result of this project do not exceed 1323 tons per year. The permittee shall install and operate the ammonia injection system at a frequency and injection rate for SAM control to satisfy this requirement. An automated control system will be used to adjust the ammonia flow rate for the given set of operating conditions based on the most recent performance test results. [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]
7. Ammonia Slip: Ammonia slip measured at the stack downstream of all emission control systems shall not exceed 5 parts per million by volume (ppmv). Annual testing of ammonia shall be conducted and corrective measures taken if measured values exceed 2 ppmv. [Design; and Rule 62-4.070(3), F.A.C.]

EMISSIONS PERFORMANCE TESTING

8. Initial Performance Tests – Ammonia Injection for SAM Emissions Control: Within 90 days of completing construction of both Boilers 1 and 2 SCR systems, the permittee shall conduct a series of initial performance tests on either Boiler 1 or 2 to determine the SAM emissions rate under a variety of operating scenarios that documents the impact of ammonia injection on reducing SAM emissions and results in the development of correlation/curves between injection rates, operating conditions and emissions.
 - a. For each set of operating conditions being evaluated, the permittee shall conduct at least a 1-hour test run to determine SAM emissions. At least nine such test runs shall be conducted to evaluate the effect of SAM emissions on such parameters as the SO₂ emission rate prior to the SCR catalyst (and FGD system), the unit load, the flue gas flow rate, the ammonia injection rate and the current catalyst oxidation rate.
 - b. Tests shall be conducted under a variety of fuel blends and load rates that are representative of the actual operating conditions intended for Boilers 1 and 2. Sufficient tests shall be conducted to establish the SAM emissions rates for the following scenarios: bypass of the SCR reactor, SCR reactor in service without ammonia injection, and SCR reactor in service under varying operating conditions and levels of ammonia injection.
 - c. At least 15 days prior to initiating the performance tests, the permittee shall submit a test notification, preliminary test schedule and test protocol to the Bureau of Air Regulation and the Compliance Authority.
 - d. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests and results. All SAM emissions test data shall be provided with this report.
 - e. Within 45 days following the submittal of the emissions test report and no later than 90 days following the last test run conducted, the permittee shall submit a project report summarizing the following: identify each set of operating conditions evaluated, identify each operating parameter evaluated, identify the relative influence of each operating parameter, describe how the automated control system will adjust the ammonia injection rate based on the selected parameters, identify the frequency with which operational parameters will be reevaluated and adjusted within the automated control system, provide the algorithm used for the automated control system or a series of related performance curves, and provide details for calculating and estimating the SAM emissions rate based on the level of

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

ammonia injection and operating conditions. The test results shall be used to adjust the ammonia injection control system and estimate SAM emissions.

[Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]

9. **Annual Tests – Ammonia Injection for SAM Emissions Control:** During each federal fiscal year, the permittee shall conduct performance tests to determine the SAM emission rates and adjust the ammonia injection rates as necessary. At least six representative 1-hour test runs shall be conducted on either Boiler 1 or 2. Annual performance tests shall be alternated between the boilers such that testing is conducted on a boiler at least twice during each 5-year period. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests conducted, the results of the tests, the catalyst oxidation rate, how the automated control system was adjusted, and the updated algorithm used for the automated control system or the updated series of related performance curves. [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]
10. **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.]
11. **Test Methods:** Required tests shall be performed in accordance with the following reference methods:

EPA Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5B	Determination of PM/PM ₁₀ 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.)

Compliance with the ammonia slip limit shall be determined using EPA conditional test method (CTM-027), EPA method 320, or other methods approved by the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

NOTIFICATIONS, RECORDS AND REPORTS

12. **Test Reports:** The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Rule 62-297.310, F.A.C. For each sulfuric acid mist test run, the report shall also indicate the ammonia injection rate for SAM emissions control, unit load, unit heat input rate, and total secondary power input to the electrostatic precipitator. [Rule 62-297.310(8), F.A.C.]
13. **Operational Data:** For each unit, the permittee shall continuously monitor and record the ammonia injection rate for SAM emissions control and the hours of SCR bypass. [Rule 62-4.070(3), F.A.C.]
14. **Annual PM/PM₁₀ and 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 PM/PM₁₀ and 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 5 years after completing construction on each unit's 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 for the preceding calendar year. The report shall contain the following:
 - a. Name, address and telephone number of the owner or operator of the major stationary source;

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

- b. Annual emissions as calculated pursuant to subparagraph 62-212.300(1)(e)1., F.A.C.;
 - c. If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and
 - d. 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.]

15. PM/PM₁₀ and SAM Emissions Computation and Reporting: The permittee shall compute PM/PM₁₀ and 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 determined during the required annual emissions test. The owner or operator shall not compute emissions by converting an emission factor to pounds per hour and then multiplying by hours of operation, unless the owner or operator demonstrates that such computation is the most accurate method available.
- 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 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 ammonia 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.]