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Air Permit No. 0310045-037-AC/PSD-FL-265F
Permit Expires: November 30, 2013
Minor Air Construction Permit

Northside Generating Station & St. Johns River Power Park
Miscellaneous Revisions

PROJECT

This is the final air construction permit, which revises Permit No. 0310045-022-AC (PSD-FL-265E) to remove the conditions regarding the mercury Continuous Emission Monitoring System requirements and allows the firing of up to 240 tons per day of biomass for each of the Northside Generating Station Boiler Nos. 1 and 2; and, revises the description of St. Johns River Power Park Units 1 and 2 in Permit 0310045-030-AV to allow the operation of one scrubber tower during low load operations. Northside Generating Station & St. Johns River Power Park is an electric power plant categorized under Standard Industrial Classification No. 4911. The existing facility is located in Duval County at 4377 Heckscher Drive in Jacksonville, Florida. The UTM coordinates are Zone 17, 446.90 km East and 3359.15 km North.

This final permit is organized into the following sections: Section 1 (General Information) and Section 2 (Permit Revisions). As noted in the Final Determination provided with this final permit, only minor changes and clarifications were made to the draft permit.

STATEMENT OF BASIS

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.). This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality. A copy of this permit modification shall be filed with the referenced permit and shall become part of the permit.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes 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 must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.
(Electronic Signature)

for Jeffery F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

JFK/sa/ejs

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit Revision) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Mr. Michael J. Brost, JEA (brosmj@jea.com)
Mr. Jay A. Worley, JEA (worlja@jea.com)
Mr. Kennard Kosky P.E., Golder Associates Inc. (ken_kosky@golder.com)
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Ms. Lynn Scearce, DEP OPC: (lynn.scearce@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.
(Electronic Signature)

FACILITY DESCRIPTION

The existing facility is a electric power plant, which consists of the following emissions units and activities: The Northside Generating Station (NGS) and St. Johns River Power Park (SJRPP) facilities and the Separations Technology, LLC (ST) facility are considered to be a single air emission "facility" for air permitting purposes.

NGS and SJRPP:

These operations consist of 5 boilers, NGS existing Boiler No. 3, which is a pre-NSPS boiler with a nominal rating of 564 MW and fired by natural gas, landfill gas, No. 6 residual fuel oil, and used oil; Boilers Nos. 1 and 2 and Auxiliary Boiler No. 1 have been permanently shutdown; NGS CFB Boilers Nos. 1 and 2, which are two coal, coal coated with latex, petroleum coke, and landfill gas fired circulating fluidized bed (CFB) boilers; SJRPP Boilers Nos. 1 and 2, which are two fossil fuel-fired steam generators (boilers) fired with pulverized coal, a blend of petroleum coke and coal, natural gas, new No. 2 distillate fuel oil (startup and low-load operation), and "on-specification" used oil; and, four pre-NSPS distillate fuel oil fired combustion turbines with a nominal rating of 52.5 MWs each, NGS Nos. 3, 4, 5 and 6. Emissions from the NGS Boiler No. 3 are uncontrolled. Emissions from the NGS CTs Nos. 3, 4, 5 and 6, are controlled by firing low sulfur fuel oil. Each NGS CFB boiler is equipped with a selective non-catalytic reduction (SNCR) system to reduce nitrogen oxides (NOx) emissions, limestone injection to reduce sulfur dioxide (SO_2) emissions, fabric filter to reduce particulate matter (PM and PM_{10}) emissions, while maximizing combustion efficiency and minimizing NOx formation to limit carbon monoxide (CO) and volatile organic compound (VOC) emissions. Emissions from the SJRPP Boilers Nos. 1 and 2 are controlled with an electrostatic precipitator, a limestone scrubber, and low-NOx burners. Permit No. 0310045-017-AC authorized the installation of selective catalytic reduction (SCR) systems and ammonia injection systems on the existing SJRPP Boiler Nos. 1 and 2; the Department did not require the installation of this equipment nor does the Department require its operation. The SJRPP and NGS facilities also include coal, petroleum coke, limestone and fly ash handling activities, of which various control devices, control strategies, and control techniques are required.

The material handling and storage operations will process ash, limestone, coal, coal coated with latex, and petroleum coke to support the operation of CFB Boilers Nos. 1 and 2. Each materials handling and storage operation will employ one or more control strategies to limit emissions of particulate matter to meet specific emission limitations and/or visible emissions limits. The control strategies include the use of best operating/design practices, total or partial enclosures, conditioned materials, wet suppression, water sprays, and dust collection systems.

ST:

ST has constructed, owns and operates a fly ash processing system on a portion of leased property at the JEA SJRPP facility in Duval County, Florida. The purpose of the equipment is to remove the residual carbon and ammonia from the JEA SJRPP fly ash leaving a saleable product. As a result, environmental benefits will include a 255,000 ton reduction in the fly ash currently sent to landfill by the JEA SJRPP each year and an overall reduction in the ammonia releases with the recovery and subsequent recycle of ammonia removed from the fly ash.

The fly ash processing system includes two fly ash receiving bins, a carbon separation unit, a clean-up vacuum, a fly ash surge bin, a mineral additive storage bin, and a gas-fired dryer. The particulate emissions generated from handling of the fly ash are collected from each source using pulse jet fabric filters. ST's triboelectric carbon separation technology partitions fly ash into mineral-rich and carbon-rich fractions. The mineral-rich fly ash can then be sold as a usable product. The carbon-rich fly ash is returned to the JEA SJRPP fly ash storage silos for eventual disposal at the onsite landfill.

The two-step beneficiation process consists of (1) removal of the residual carbon from the fly ash using ST's patented electrostatic separation technology, and (2) removal of residual ammonia from the fly ash using ST's ammonia removal technology (patent pending). In addition to residual carbon, the fly ash at the JEA SJRPP also contains trace amounts of ammonia that makes it unsuitable as a cement replacement. To solve this problem, ST

installed an ammonia removal process. The recovered ammonia is subsequently returned to the JEA SJRPP for recycle.

Also, included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

FACILITY REGULATORY CLASSIFICATION

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.

PROPOSED PROJECT

As part of the project for the Title V air operation permit revision (Project No. 0310045-038-AV), the applicant requested a concurrent air construction permit revision to change several underlying construction permit conditions found in a PSD permit.

The following permit conditions are revised as indicated. ~~Strikethrough~~ is used to denote the deletion of text. Double-underlines are used to denote the addition of text. All changes are emphasized with yellow highlight.

Permit Being Modified: Permit No. 0310045-022-AC (PSD-FL-265E)

Affected Emissions Units: EU-026 and EU-027

Section III, Specific Condition 4: This condition is revised as follows.

Fuels: Only coal, coal coated with latex, petroleum coke, No. 2 fuel oil (maximum sulfur content of 0.05 percent by weight), up to 240 tons per day of biomass in each unit, and natural gas, shall be fired in Units 1 and 2. Only No. 2 fuel oil (maximum sulfur content of 0.05 percent by weight) and natural gas shall be fired in the three limestone dryers. [**Rule 62-210.200(228), F.A.C.**]

Affected Emissions Units: EU-026 and EU-027

Section III, new Specific Condition 52: This condition is added as follows.

5-Year Emissions Monitoring - PSD Avoidance Requirements:

a. Monitoring. The permittee shall monitor the emissions of any PSD pollutant that the Department identifies could increase as a result of the construction or modification and that is emitted by any emissions unit that could be affected; and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change. The change (proposed project) shall not increase the design capacity of any emissions unit or its potential to emit that PSD pollutant. Emissions shall be computed in accordance with Rule 62-210.370, F.A.C.

- The Department identified the following PSD pollutants that could increase from this project: **NOx, PM** and **VOC.**
- The permittee shall use the same calculation methodology for emissions before and after the completed project under Permit No. 0310045-037-AC.

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

b. Reporting. The permittee shall report to the Department by March 1st based on the records required to be generated under subparagraph 62-212.300(1)(e)1., F.A.C., setting out the unit's annual emissions 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 specific dates for commencement of the project and completion of the project;

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

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

(5) Any other information that the owner or operator wishes to include in the report;

(6) The baseline actual emissions to which the annual emissions were compared to; and,

(7) For the Department identified PSD pollutants: a statement indicating whether or not the applicable PSD significant emission rates (SERs) defined in Rule 62-210.200, F.A.C., were exceeded, specifically, 40 TPY for NOx, 25 TPY for PM, and 40 TPY for VOC. If and when a PSD SER is exceeded, the permittee shall submit a PSD permit application with a BACT analysis or if the permittee determines that a PSD permit application with a BACT analysis is not required, the permittee shall provide specific citations as to why the project is exempt from a PSD permit application with a BACT analysis.

[Rule 62-212.300(1)(e)2., F.A.C.; and, Rule 62-4.070(1)&(3), *Reasonable Assurance*, F.A.C.; Rule 62-4.030, *General Prohibition*, F.A.C.; and, Rule 62-4.210, *Construction Permits*, F.A.C.]

c. Recordkeeping. The information required to be documented and maintained pursuant to subparagraphs 62-212.300(1)(e)1. and 2., F.A.C., shall be submitted to the Department, which shall make it available for review to the general public.

[Rule 62-212.300(1)(e)3., F.A.C.]

d. 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 exceeding 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 had not yet commenced on the source or modification.

[Rule 62-212.400(12)(c), F.A.C.]

Affected Emissions Units: EU-026 and EU-027

Section III, Specific Condition 50.(a): This condition is revised as follows.

Continuous Emissions Monitoring Systems Requirement: The permittee shall install, calibrate, operate, and maintain Continuous Emission Monitoring Systems (CEMS) in the stack to measure and record the sulfur dioxide, oxides of nitrogen, carbon monoxide~~, mercury (Hg)~~ and visible emissions from Units 1 and 2. An emission level above a BACT limit, considering the 6-minute, 24-hour and 30-day rolling average periods, as applicable, shall be reported to EQD pursuant to Rule 62-4.160(8), F.A.C. The continuous emission monitoring systems shall comply with the certification, performance specifications, and quality assurance, and other applicable requirements of 40 CFR Part 75 and 40 CFR Part 60 (Appendix B), as indicated above. Periods of startup, shutdown, and malfunction shall be monitored, recorded, and reported as excess emissions when emission levels exceed the limits in Table 1 following the format of 40 CFR 60.7 (As revised, 64 Fed Reg. 7458 (Feb. 12, 1999)).

Affected Emissions Units: EU-026 and EU-027

Section III, Specific Condition 50.(b): This condition is revised as follows.

~~Hg Continuous Emissions Monitoring Systems Operation: The permittee has voluntarily agreed to install and operate a Hg CEMS on Units 1 and 2. The Hg CEMS shall be installed and operational no later than March 31, 2009, and shall be operated in accordance with the quality assurance/quality control (QA/QC) plan submitted by JEA and approved by the Department. The approved QA/QC plan will become part of the permit and any future revisions to the QA/QC plan that are approved by the Department will also be part of the permit. This requirement will stay in effect until such time that the state or EPA passes a regulatory requirement for mercury detailing the Hg CEMS operational protocol, at which time that rule will become the preferred protocol. The annual relative accuracy test required by the QA/QC plan can be performed by the permittee under the normal mode of operation. For JEA, the normal mode of operation is firing a fuel blend which is typically 15% coal and 85% petroleum coke. Every reasonable effort should be made by the permittee for the Hg CEMS to be operating during the time periods when the SDA is off-line. If the Hg CEMS is not operating during a time period when the SDA is taken off-line, the best estimate of Hg emissions shall be provided to the Department and EQD based on the requirements of Rule 62-210.370, F.A.C. **[Rules 62-4.070(3) and 62-210.370, F.A.C.; and 0310045-022-AC/PSD-FL-265E]**~~

Affected Emissions Units: EU-026 and EU-027

Section III, Specific Condition 50.(c): This condition is revised as follows.

~~Continuous Emissions Monitoring Systems Reporting: JEA shall submit to the Department and EQD the Hg CEMS emissions data for both Units 1 and 2. It shall be submitted in a graphical representation of Hg emissions against time. The graph shall also indicate the periods when the SDA was taken off-line. The four quarterly Hg CEMS data shall be submitted starting on June 30, 2009 and ending on June 30, 2010 and~~

~~thereafter Hg CEMS data shall be submitted semi-annually until June 2012. The submittal of Hg CEMS data after June 2012 will be only upon request from the Department or EQD.~~ ~~**[Rule 62-4.070(3), F.A.C.; and 0310045-022-AC/PSD-FL-265E]**~~

Permit Being Modified: Permit No. 0310045-030-AV

Affected Emissions Units: EU-016 and EU-017

Section III, Subsection C, Emissions Unit Description: This is revised as follows.

SJRPP Boilers Nos. 1 and 2 are fossil fuel-fired steam generators, each having a nominal nameplate rating of 679.6 megawatts (electric). These emissions units are allowed to fire pulverized coal, a blend of petroleum coke and coal, natural gas, new No. 2 distillate fuel oil (startup and low-load operation), and "on-specification" used oil. The maximum heat input to each emissions unit is 6,144 million Btu per hour. SJRPP Boilers Nos. 1 and 2 are dry bottom wall-fired boilers and use an electrostatic precipitator (ESP) to control particulate matter, a wet limestone flue gas desulfurization (FGD) unit to control sulfur dioxide, low NO_X burners and over-fire air to control nitrogen oxides, and good combustion to control carbon monoxide. Each FGD consists of three scrubber towers. During low load operation, one scrubber tower may be utilized to meet sulfur dioxide limits.