

**PERMITTEE:**

Seminole Electric Cooperative, Inc.  
16313 North Dale Mabry Highway  
Tampa, Florida 33618

*Authorized Representative:*

James R. Frauen, Project Director SGS Unit 3

Seminole Generating Station SGS Unit 3 Permit No. PSD-FL-375 Project No. 1070025-005-AC Siting No. PA 78-10A2 Expires: December 31, 2012
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**PROJECT AND LOCATION**

This permit authorizes the construction of a nominal 750 MW pulverized coal-fired supercritical steam generating unit at the existing Seminole Generating Station. The facility is located east of U.S. Highway 17, approximately seven miles north of Palatka, Putnam County.

**STATEMENT OF BASIS**

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The project was processed in accordance with the requirements of Rule 62-212.400, F.A.C., the preconstruction review program for the Prevention of Significant Deterioration (PSD) of Air Quality. Pursuant to Chapter 62-17, F.A.C. and Chapter 403 Part II, F.S., the project is also subject to Electrical Power Plant Siting. 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 of Environmental Protection (Department).

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

Date: \_\_\_\_\_

## SECTION I - GENERAL INFORMATION

### FACILITY DESCRIPTION

The existing Seminole Generating Station (SGS) consists of: two 714.6 megawatt, electric, coal fired steam electric generators (SGS Units 1 and 2); a coal handling and storage system; a limestone unloading, handling and storage system; and a flue gas desulfurization (FGD) sludge stabilization system. The existing units are currently undergoing pollution control upgrades, including burner replacements, the addition of SCRs, an alkali injection system, a carbon burnout (CBO) unit, as well as improvements to the existing FGD system and steam turbines.

### PROJECT DESCRIPTION

Seminole proposes to integrate SGS Unit 3 into the existing, certified SGS Site located north of Palatka in Putnam County. SGS Unit 3 will be a nominal 750 MW (net) pulverized coal-fired supercritical steam generating unit located adjacent to the existing SGS Units 1 and 2. Seminole anticipates beginning commercial operation of Unit 3 in 2012. The addition of SGS Unit 3 will increase the total output capability of the SGS by almost 60 percent. The design of SGS Unit 3 will maximize the co-use of existing site facilities to the greatest extent possible, including fuel handling facilities (SGS Unit 3 proposes the same fuel slate as SGS Units 1 and 2). The project also includes a new Zero Liquid Discharge (ZLD) Spray Dryer System, a new emergency generator, and a new 26-cell mechanical draft cooling tower.

SGS Unit 3 will feature supercritical pulverized coal technology with modern emission controls. The Unit 3 air pollution control equipment will include wet Flue Gas Desulfurization (FGD) for SO<sub>2</sub> removal, selective catalytic reduction (SCR) for control of nitrogen oxides (NO<sub>x</sub>), electrostatic precipitator (ESP) for collection and removal of fine particles, a Wet ESP (WESP) for control of sulfuric acid mist (SAM), with fluoride (HF) and mercury (Hg) removal to be accomplished through co-benefits of the above technologies. Fuel (coal and petroleum coke) for SGS Unit 3 will be delivered by an existing rail system. No. 2 diesel fuel will be used for startup, shutdown and for firing the Zero Liquid Discharge (ZLD) Spray Dryers as well as an Emergency Generator (unregulated emissions unit).

### EMISSIONS UNITS

This permit authorizes construction and installation of the following new emissions units:

EU ID NO.	EMISSION UNIT DESCRIPTION
014	SGS Unit 3, 750 MW Supercritical Pulverized Coal
015	Mechanical Draft Cooling Tower, 26-cell
016	Diesel-Fired Zero Liquid Discharge (ZLD) Spray Dryers (bank of 3)

### REGULATORY CLASSIFICATION

*Title III:* The facility is a “Major Source” of hazardous air pollutants (HAPs).

*Title IV:* The facility operates units subject to the Acid Rain provisions of the Clean Air Act.

*Title V:* The facility is a Title V or “Major Source” of air pollution in accordance with Chapter 62-213, F.A.C. because the potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), sulfuric acid mist (SAM), and volatile organic compounds (VOC).

*PSD:* The facility is located in an area that is designated as “attainment”, “maintenance”, or “unclassifiable” for, each pollutant subject to a National Ambient Air Quality Standard. It is classified as a “fossil fuel-fired steam electric plant of more than 250 million BTU per hour of heat input”, which is one of the facility

## **SECTION I - GENERAL INFORMATION**

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categories listed at 62-210.200(Definitions, Major Stationary Source) with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year, therefore the facility is classified as a “Major Stationary Source” with respect to Rule 62-212.400 F.A.C., Prevention of Significant Deterioration (PSD).

*NSPS:* The following New Source Performance Standards of 40 CFR 60 are applicable to the SGS Unit 3 as described in Section III, Subsection A, Federal Requirements of this permit.

- Subpart Da (Standards of Performance for Electric Utility Steam Generating Units For Which Construction is Commenced After September 18, 1978).

*NESHAP:* The facility is a “Major Source” of HAPs. The Emergency Generator is subject to the notification requirements of 40 CFR 63, Subpart ZZZZ; there are no applicable NESHAP requirements for the steam generating unit.

*CAIR:* As an electric generating unit, SGS Unit 3 may be subject to the Clean Air Interstate Rule pending the finalization of DEP rules.

*CAMR:* SGS Unit 3 is a new coal-fired power plant and will be subject to the Clean Air Mercury Rule pending finalization of DEP rules.

*Siting:* The facility is a steam electrical generating plant and is subject to the power plant siting provisions of Chapter 62-17, F.A.C.

### **PERMITTING AUTHORITY**

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

### **COMPLIANCE AUTHORITY**

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Department’s Northeast District Office at 7825 Baymeadows Way, Suite B200, Jacksonville, Florida 32256-7577.

### **APPENDICES**

The following Appendices are attached as part of this permit.

Appendix TEBD            Final BACT Determinations and Emissions Standards

Appendix GC             General Conditions

### **RELEVANT DOCUMENTS:**

The documents listed below are not a part of this permit, however they are specifically related to this permitting action and are on file with the Department.

- March 9, 2006: Received Site Certification Application (SCA) including PSD application.
- May 15, 2006: SCA determined to be insufficient by SCO.
- July 3, 2006: Received all responses from applicant.
- August 21, 2006: Intent to Issue PSD Permit distributed.
- December XX, 2006: Final Certification by the Power Plant Siting Board

## SECTION II. ADMINISTRATIVE REQUIREMENTS

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1. General Conditions: The permittee shall operate under the attached General Conditions listed in Appendix GC of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
2. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 51, 52, 60, 63, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
3. Construction and Expiration: Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. In conjunction with an extension of the 18-month period to commence or continue construction (or to construct the project in phases), the Department may require the permittee to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for emissions units regulated by the project. For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. [Rules 62-4.070(4), 62-4.080, 62-210.300(1), and 62-212.400(12)(a), 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. Source Obligation.
  - a. 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 virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, 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.
  - b. 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), F.A.C.]

## SECTION II. ADMINISTRATIVE REQUIREMENTS

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6. Modifications: 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. [Chapters 62-210 and 62-212, F.A.C.]
7. Application for Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Department's Bureau of Air Regulation in Tallahassee and a copy to the Region 4 Office of the U.S. Environmental Protection Agency in Atlanta, Georgia. [40 CFR 72]
8. Title V Permit: This permit authorizes construction of the permitted emissions unit and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emission units. The permittee shall apply for and obtain a Title V operation permit in accordance with Rule 62-213.420, F.A.C. 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 Department's Bureau of Air Regulation and a copy to the Compliance Authority.  
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]
9. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating hours and emissions from this facility in accordance with 62-210.370. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year.  
[Rule 62-210.370(2), F.A.C.]

### SECTION III - EMISSIONS UNITS SPECIFIC CONDITIONS

#### A. SGS Unit 3 - Pulverized Coal-Fired Supercritical Steam Generating Unit (EU 014)

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

E.U. ID	Emission Unit Description
014	SGS Unit 3 – Nominal 750 MW (net) Supercritical Pulverized Coal Fired Boiler

#### APPLICABLE STANDARDS AND REGULATIONS

1. **BACT Determinations:** A determination of the Best Available Control Technology (BACT) was made for carbon monoxide (CO), particulate matter (PM/PM<sub>10</sub>), fluorides (HF) and volatile organic compounds (VOCs). [Rule 62-210.200 (BACT), F.A.C.]
2. **PSD Netting:** Emissions caps were accepted on Units 1 and 2, in part for the purpose of ensuring that this project “nets out” with respect to SO<sub>2</sub>, SAM, Mercury and NO<sub>x</sub> emissions, thus avoiding BACT determinations for those pollutants. The facility-wide annual emission limits are:

Pollutant	Annual Emission Limit <sup>a</sup> (TPY)
SO <sub>2</sub>	29,074
SAM	2,129
Hg	0.059
NO <sub>x</sub>	23,289

Note <sup>a</sup>: The facility-wide limit includes SGS Units 1, 2, 3, Cooling Towers and the ZLD Spray Dryers.

3. **NSPS Requirements:** This unit is subject to 40 CFR 60 NSPS Subpart Da, which is applicable to new affected facilities that commence construction after February 28, 2005. The NSPS provisions establish emission limits for PM, SO<sub>2</sub> and NO<sub>x</sub>. The PM emission limit is 0.015 lb/MMBtu or 0.03 lb/MMBtu and 99.9 percent reduction. The SO<sub>2</sub> and NO<sub>x</sub> emission limits are production-based and are 1.4 and 1.0 pounds per megawatt hour (lb/MW-hr) gross energy output, respectively. In addition, the SO<sub>2</sub> standard allows for either meeting the above production-based limit or a 95 percent reduction. Visible emissions are limited to 20 percent opacity (6-minute average) except up to 27 percent opacity is allowed for one 6-minute period per hour. The NSPS mercury (Hg) emission limit for new sources (40 CFR 60.45a; 71 FR 33388; June 6, 2006) is  $20 \times 10^{-6}$  lb/MW-hr for bituminous coal. [40 CFR 60, Subpart A and Da]

#### EQUIPMENT DESCRIPTION

4. **Steam Generator:** The permittee is authorized to construct and operate a pulverized coal, balanced draft type unit employing supercritical steam and equipped with low NO<sub>x</sub> burners. The boiler will be fired by either coal or a blend of coal and petroleum coke (up to 30% by weight), with No. 1 or 2 diesel oil for auxiliary purposes. The steam generator shall be designed for a maximum heat input of 7,500 MMBtu per hour of coal. [Application; Design]
5. **Electrical Generating Capacity:** SGS Unit 3 will have a nominal electrical generating capacity of 750 MW net and 820 MW gross. [Application; Design]

#### CONTROL TECHNOLOGY

6. **Post-Combustion:** The emission unit flue shall be equipped with a wet FGD System, a Selective Catalytic Reduction System, an Electrostatic Precipitator and a Wet Electrostatic Precipitator.
  - a. **Electrostatic Precipitators (ESP):** The permittee shall install, operate, and maintain an Electrostatic Precipitator and a Wet Electrostatic Precipitator (WESP) to reduce PM/PM<sub>10</sub> emissions from SGS Unit 3.

### SECTION III - EMISSIONS UNITS SPECIFIC CONDITIONS

#### A. SGS Unit 3 - Pulverized Coal-Fired Supercritical Steam Generating Unit (EU 014)

- b. *Selective Catalytic Reduction (SCR) System:* The permittee shall install, tune, operate, and maintain an SCR system to control NO<sub>x</sub> emissions. The SCR system consists of an ammonia (NH<sub>3</sub>) injection grid, catalyst, a urea unloading system, a urea storage area, facilities to convert the urea to ammonia, a monitoring and control system, electrical, piping and other ancillary equipment. The SCR system shall be designed, constructed and operated to meet the permitted levels of NO<sub>x</sub> emissions on a continuous basis.
- c. *Flue Gas Desulfurization (FGD) System:* The permittee shall install, operate, and maintain a flue gas desulfurization system for the reduction of SO<sub>2</sub> and SAM emissions from SGS Unit 3. The FGD System shall be designed to meet the permitted emission levels of SO<sub>2</sub> on a continuous basis.

Prior to the initial emissions performance tests, the emissions control systems shall be tuned to achieve permitted emissions levels. Thereafter, the systems shall be maintained and tuned in accordance with the manufacturer's recommendations so as to ensure the permitted levels are consistently achieved.

- d. The emissions from the CBO<sup>TM</sup> Process Fluidized Bed Combustor (EU-013) may be routed back to SGS Unit 3 flue gas ductwork, upstream of the ESP, SCR and FGD System, so as to ensure that emissions are minimized. However, the combined emissions from SGS Unit 3 with the CBO<sup>TM</sup> Unit (when operating) shall comply with the permit standards for SGS Unit 3 as well as the applicable standards in NSPS Subpart Db.

[Design; Rules 62-210.200(PTE and BACT), 62-210.650, 62-212.400(PSD), F.A.C.]

7. Technology Co-benefits: The following technologies shall be installed and operated as described herein.

- a. *Mercury Removal System:* Mercury removal is enhanced when PM controls are used with NO<sub>x</sub> and SO<sub>2</sub> controls (ESP, WESP, SCR and FGD). Accordingly, these control technologies shall be designed and tuned to achieve the permitted levels of mercury emissions from SGS Unit 3.
- b. *Fluoride Removal System:* Fluoride removal has recognized co-benefits from an ESP, Wet FGD and WESP. Accordingly, these technologies shall be designed, operated and tuned to achieve the permitted level of fluorides from SGS Unit 3.
- c. *SAM Removal System:* SAM removal shall be accomplished by the use of the FGD system and the Wet ESP. The permittee shall design, install, operate, and maintain these systems in order to achieve the permitted emission level of SAM.

[Design; Rule 62-212.400(PSD), F.A.C.]

#### PERFORMANCE REQUIREMENTS

8. Hours of Operation: The coal-fired boiler may operate throughout the year (8,760 hours per year). Restrictions on individual methods of operation are specified in separate conditions.  
[Rules 62-210.200(PTE, and BACT) and 62-212.400 (PSD), F.A.C.]

9. Authorized Fuels:

- a. *Coal* – SGS Unit 3 may combust bituminous coal up to 318.3 tons per hour based upon 11,300 BTU/lb HHV.
- b. *Coal/Pet-coke blend* –SGS Unit 3 may combust coal and pet-coke blend. The pet-coke shall not exceed 30% of the hourly heat input, or 95.5 tons per hour based upon a 12,900 BTU/lb HHV.
- c. *No. 1 or 2 Diesel Oil* – SGS Unit 3 may combust up to 3,320 gallons per hour of 0.05% No. 2 diesel fuel based upon 136 MMBtu/1000 gallons heat value. The combustion of this fuel shall be for the purposes of startups, flame stabilization, limited supplemental load and emergency reserve during statewide capacity shortages.

**SECTION III - EMISSIONS UNITS SPECIFIC CONDITIONS**

**A. SGS Unit 3 - Pulverized Coal-Fired Supercritical Steam Generating Unit (EU 014)**

[Rules 62-210.200(PTE, and BACT) and 62-212.400 (PSD), F.A.C.]

**EMISSIONS STANDARDS**

10. Emission Standards: Emissions from the pulverized-coal fired boiler shall not exceed the following standards.

<b>Best Available Control Technology (BACT) – Rule 62-210.400, F.A.C.</b>		
<b>Pollutant</b>	<b>BACT Emission Limits</b>	<b>Compliance Method</b>
PM/PM <sub>10</sub>	0.013 lb/MMBtu filterable PM; 98 lb/hr equivalent	Annual Stack Test
Opacity	20% with up to 27% for 6-minutes per hour	COMS
CO	0.13 lb/MMBtu (coal only); 975 lb/hr equivalent 0.15 lb/MMBtu 30-day rolling average (all fuels); 1,125 lb/hr equivalent	Initial Stack Test (100% coal) CEMS (all fuels)
VOC	0.0034 lb/MMBtu; 16.7 lb/hr equivalent	Initial Test
HF	0.00023 lb/MMBtu; 1.72 lb/hr equivalent	Initial & T-5 Renewal Test
<b>Pollutant</b>	<b>Non-BACT Established Emission Limits</b>	<b>Compliance Method</b>
SO <sub>2</sub>	0.165 lb/MMBtu 24-hour rolling; 1,238 lb/hr equivalent	CEMS
SAM	0.005 lb/MMBtu; 37.5 lb/hr equivalent	Annual Test
NO <sub>x</sub>	0.07 lb/MMBtu; 525 lb/hr equivalent	CEMS
Hg	7.05 E-6 lb/MWh; 0.005 lb/hr equivalent	CEMS or sorbent traps
NH <sub>3</sub>	5 ppmvd corrected to 6% O <sub>2</sub>	Annual Stack Test

[Rules 62-4.070(3), 62-210.200 (BACT), and 62-212.400(PSD), F.A.C]

11. Carbon Monoxide (CO): Emissions of CO from SGS Unit 3 shall not exceed the following BACT limits:
- Stack test: CO emissions shall not exceed 0.13 lb/MMBtu while firing 100% coal as determined by an initial stack test (average of 3 test runs) in accordance with EPA Method 25, 25A or 25B.
  - CEMS: CO emissions shall not exceed 0.15 lb/MMBtu as determined by CEMS on a 30-day rolling average, regardless of fuel type. Testing shall be according to EPA Method 10.

[Rules 62-4.070(3), 62-210.200 (BACT), and 62-212.400(PSD), F.A.C]

12. Volatile Organic Compounds (VOCs): Emissions of VOC from SGS Unit 3 shall not exceed 0.0034 lb/MMBtu as determined by an initial stack test in accordance with EPA Method 25A and (optionally) EPA Method 18 (to deduct non-VOC methane emissions). Thereafter, compliance with the CO limits herein shall serve as a surrogate for the emissions of VOCs. [Rules 62-4.070(3), 62-210.200 (BACT), and 62-212.400(PSD), F.A.C]

13. Sulfur Dioxide (SO<sub>2</sub>): Emissions of SO<sub>2</sub> from SGS Unit 3 shall not exceed 1.4 pounds per megawatt hour (lb/MW-hr) gross energy output nor 0.165 lb/MMBtu, based upon a 24-hour rolling average as determined by CEMS. In addition, SO<sub>2</sub> emissions shall not exceed 29074 tons per 12-month rolling period (facility-wide), based upon CEMS. [62-210.200 (Net Emissions Increase), and 62-212.400(12) (Source Obligation), F.A.C.]

14. Sulfuric Acid Mist (SAM): Emissions of Sulfuric Acid Mist from SGS Unit 3 shall not exceed 0.005 lb/MMBtu as determined by EPA Method 8A. In addition, SAM emissions shall not exceed 2129 tons per 12-month rolling period (facility-wide), based upon tack testing. The combined total shall be computed by measuring the lb/MMBtu emission rate on each unit, multiplying each unit's emission rate by its annual heat input (MMBtu) and adding the total lbs emitted, divided by 2000. [62-210.200 (Net Emissions Increase), and 62-212.400(12) (Source Obligation), F.A.C.]



### SECTION III - EMISSIONS UNITS SPECIFIC CONDITIONS

#### A. SGS Unit 3 - Pulverized Coal-Fired Supercritical Steam Generating Unit (EU 014)

15. Particulate Matter (PM/PM<sub>10</sub>): Emissions of filterable Particulate Matter (PM and PM<sub>10</sub>) from SGS Unit 3 shall not exceed 0.013 lb/MMBtu while firing 100% coal as determined by EPA Method 5. Condensables shall be captured (from the impingers) and reported (only) in accordance with EPA Method 202. Additionally, opacity shall be limited to 20% except that one 6-minute period per hour may be up to 27%. For opacity, the method of compliance shall be COMS or EPA Method 9 when the COMS data is unavailable. [Rules 62-4.070(3), 62-210.200 (BACT), and 62-212.400(PSD)]
16. Ammonia: Ammonia slip shall not exceed 5 ppmvd @ 6% O<sub>2</sub> as determined by EPA Conditional Test Method CTM-027.
17. Mercury (Hg): Emissions of mercury from SGS unit 3 shall not exceed 7.05 x 10<sup>-6</sup> lb/MWh based on a 12-month rolling average as determined by the methods and requirements specified in the NSPS Subpart Da provisions of 40 CFR 60.45(b) and 60.50(g). In addition, mercury emissions shall not exceed 0.059 tons per 12-month rolling period (combined for SGS Units 1, 2 and Unit 3), based upon a CEMS or sorbent trap monitoring system (when operational and certified). Testing of mercury emissions shall be required if installation/certification of the CEMS or sorbent trap monitoring system is delayed. [Rules 62-4.070(3), and 62-212.400(12)(PSD Avoidance), F.A.C, and 40 CFR 60.45Da (b) and 60.50Da(g)]
18. Nitrogen Oxides (NO<sub>x</sub>): Emissions of NO<sub>x</sub> from SGS Unit 3 shall not exceed 1.0 pounds per megawatt hour (lb/MW-hr) gross energy output nor 0.07 lb/MMBtu, based upon a 30-day rolling average as determined by CEMS. In addition, NO<sub>x</sub> emissions shall not exceed 23,289 tons per 12-month rolling period (facility- wide), based upon CEMS. [Rules 62-4.070(3), and 62-212.400(12)(PSD Avoidance), F.A.C, Applicant Request]
- {Permitting Note: This project did not trigger PSD for SO<sub>2</sub>, SAM, Hg and NO<sub>x</sub> due to emissions caps taken on existing coal fired boiler steam electric generating Units 1 and Unit 2. The conditions herein establish the requirements for meeting the specified emission limitations for purposes of avoiding PSD preconstruction review. These requirements in no way supersede any federal requirement of applicable NSPS provisions.}*
19. Fluorides (HF): Emissions of fluorides from SGS Unit 3 shall not exceed 0.00023 lb/MMBtu as determined by an initial (and Title V renewal) stack test and in accordance with EPA Method 13A or 13B. [Rules 62-4.070(3), 62-210.200 (BACT), and 62-212.400(PSD), F.A.C]
20. Unconfined Particulate Emissions: The following requirements shall be met to minimize fugitive dust emissions from the storage and handling facilities, including haul roads:
- All conveyors and conveyor transfer points will be enclosed to the extent practical, so as to preclude PM emissions.
  - Water sprays or chemical wetting agents and stabilizers will be applied to storage piles, handling equipment, roadways, etc. as necessary to minimize opacity.
- [Rule 62-296.320(4)(c), F.A.C.]
21. Testing Requirements: Initial tests shall be conducted between 90% and 100% of permitted capacity; otherwise, this permit shall be modified to reflect the true maximum capacity as constructed. Subsequent annual tests shall be conducted between 90% and 100% of permitted capacity in accordance with the requirements of Rule 62-297.310(2), F.A.C. For each run during tests for visible emissions and ammonia slip, emissions of CO and NO<sub>x</sub> recorded by the CEMS shall also be reported. [Rule 62-297.310(7)(a), F.A.C.; 40 CFR 60.8]
22. Initial Compliance Demonstration: Initial tests when firing 100% coal shall be conducted to demonstrate compliance with the emissions standards for CO, PM, opacity, VOC, HF, SAM, Hg, and ammonia slip. Initial compliance stack tests shall be conducted within 60 days after achieving the maximum production

### SECTION III - EMISSIONS UNITS SPECIFIC CONDITIONS

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#### A. SGS Unit 3 - Pulverized Coal-Fired Supercritical Steam Generating Unit (EU 014)

rate at which SGS Unit 3 will be operated, but not later than 180 days after the initial startup. The initial CO emissions test when firing 100% coal is a one-time validation test. The permittee shall provide the Compliance Authority with any other emissions performance tests conducted to satisfy vendor guarantees. [Rules 62-4.070, 62-297.310(7)(a), F.A.C. and 40 CFR 60.8]

23. Subsequent Compliance Testing: During each federal fiscal year (October 1<sup>st</sup>, to September 30<sup>th</sup>), annual tests shall be conducted to demonstrate compliance with the emissions standards for PM, opacity, VOC, SAM, Hg, and ammonia slip. During the year prior to renewal of the Title V Air operation permit, tests shall be conducted to demonstrate compliance with the HF emissions standard. The Department may require additional testing for ammonia slip following catalyst replacement. [Rules 62-4.070, 62-210.200(BACT), and 62-297.310(7)(a)4, F.A.C., and 40 CFR 60.50]
24. Continuous Compliance: Continuous compliance with the permit standards for emissions of CO, Hg, NO<sub>x</sub>, and SO<sub>2</sub> shall be demonstrated with data collected from the required continuous monitoring systems. [Rules 62-4.070, and 62-210.200(BACT), F.A.C., 40 CFR 60.50Da]
25. 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.]

#### EXCESS EMISSIONS

26. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on “good operating practices” to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and ensure maintenance of the SGS unit 3 pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods for minimizing excess emissions. [Rules 62-4.070(3) and 62-210.200(BACT), F.A.C.]
27. Definitions:
  - a. *Startup* is defined as the commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.
  - b. *Shutdown* is the cessation of the operation of an emissions unit for any purpose.
  - c. *Malfunction* is defined as any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.[Rule 62-210.200(164, 241, and 257), F.A.C.]
28. 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. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C.]
29. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown and malfunction of SGS Unit 3 shall be permitted providing:
  - a. Best operational practices to minimize emissions are adhered to, and

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- b. The duration of excess emissions from startup, shutdown and malfunction of SGA Unit 3 shall be minimized, but in no case exceed 60 hours during any calendar month.

{Permitting Note: Due to of the large size of this boiler and steam turbine, and the design necessity to minimize thermal stresses, unit start-ups are expected to be long in duration. As a result, this condition provides authorization of 2 hours per 24 hour period of excess emissions related to startup, shutdown, and malfunction to be averaged over a calendar month rather than fixed on a daily basis.} [Rule 62-210.700(5), F.A.C.]

30. Data Exclusion Procedures: Limited amounts of CEMS emissions data collected during startup, shutdown, and malfunction may be excluded from compliance demonstrations (not including annual emissions caps) as approved by the Compliance Authority, provided that best operational practices to minimize emissions are adhered to, they are authorized by this permit and the duration of data excluded is minimized. The startup and shutdown of Unit 3 will follow an established startup and shutdown procedure, which shall be submitted prior to the initial unit start-up, for the Department's review and acceptance. [Design; Rules 62-210.200(BACT), 62-212.400(PSD), and 62-210.700, F.A.C.]
31. Ammonia Injection: Ammonia injection shall begin as soon as the SCR achieves the operating parameters specified by the manufacturer. Such information shall be provided within the startup and shutdown protocol identified above. [Design; Rules 62-210.200(BACT), 62-212.400(PSD), and 62-210.700, F.A.C.]
32. Notification Requirements: The owner or operator shall notify the Compliance Authority within one working day of discovering any emissions that demonstrate non-compliance for a given averaging period. Within one working day of occurrence, the owner or operator shall notify the Compliance Authority of any malfunction resulting in the exclusion of CEMS data. [Rule 62-4.070, F.A.C.]

#### CONTINUOUS MONITORING REQUIREMENTS

33. CEM Systems: The permittee shall install, calibrate, operate, and maintain continuous emission monitoring systems (CEMS) to measure and record the emissions of CO, NO<sub>x</sub>, SO<sub>2</sub>, and Hg. Each monitoring system shall be installed, and functioning within the required performance specifications by the time of the initial compliance demonstration.
- a. *CO Monitor*: The CO monitor shall be installed pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.
- b. *NO<sub>x</sub> Monitor*: A NO<sub>x</sub> monitor installed to meet the requirements of 40 CFR 75, and that is continuing to meet the ongoing requirements of Part 75, may be used to meet the requirements of this permit and 40 CFR 60.49(c), Subpart Da, except that the owner or operator shall also meet the requirements of 40 CFR 60.51 and the specific conditions of this permit. Data reported to meet the requirements of 40 CFR 60.51 and the limits of this permit shall not include data substituted using the missing data procedures in Subpart D of Part 75, nor shall the data have been bias adjusted according to Part 75. The RATA tests required for the NO<sub>x</sub> monitor shall be performed using EPA Method 7 or 7E in Appendix A of 40 CFR 60 or as allowed by Part 75.
- c. *SO<sub>2</sub> Monitor*: The SO<sub>2</sub> monitor shall be installed pursuant to 40 CFR 60, Appendix B, Performance Specification 2. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F. The RATA tests required for the SO<sub>2</sub> monitor shall be performed using EPA Method 6 or 6C in Appendix A of 40 CFR 60. The SO<sub>2</sub> monitor span value shall be set according to 40 CFR 60.49(i).

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- d. *Mercury Monitor:* Either a mercury CEMS shall be installed to measure mercury emissions pursuant to 40 CFR 60, Performance Specification 12A and to meet the requirements of 40 CFR 60.49(p); or a sorbent trap monitoring system shall be installed pursuant to 40 CFR Part 75, Appendix K.
- e. *Diluent Monitor:* The oxygen (O<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>) content of the flue gas shall be continuously monitored at the location where CO, NO<sub>x</sub>, and SO<sub>2</sub> are monitored. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

[Rules 62-4.070(3), 62-210.200(BACT), F.A.C., and 40 CFR 60.49 and Part 75]

- 34. Continuous Flow Monitor: A continuous flow monitor shall be installed to determine stack exhaust flow rate to be used in determining mass emission rates. The flow monitor shall be certified and operated according to the requirements of 40 CFR 75. As an alternative to the stack flow monitor, a fuel flow monitoring system certified and operated according to the requirements of Appendix D of 40 CFR Part 75 may be installed. [Rules 62-4.070(3), 62-210.200(BACT), F.A.C., and 40 CFR 60.49 and Part 75]
- 35. Wattmeter: A wattmeter (or meters) to continuously measure the gross electrical output of the unit in megawatt-hours must be installed, calibrated, maintained, and operated in accordance with the manufacturer's specifications. [40 CFR 60.49]
- 36. Moisture Correction: If necessary, the owner or operator shall install a system to determine the moisture content of the exhaust gas and develop an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). [Rules 62-4.070(3), 62-210.200(BACT), F.A.C.]
- 37. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain an ammonia flow meter to measure and record the ammonia injection rate to the SCR system prior to the initial compliance tests. The permittee shall document and periodically update the general range of ammonia flow rates required to meet permitted emissions levels over the range of load conditions allowed by this permit by comparing NO<sub>x</sub> emissions recorded by the CEM system with ammonia flow rates recorded using the ammonia flow meter. During NO<sub>x</sub> monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the load condition. [Rules 62-4.070(3) and 62-210.200(BACT), F.A.C.]
- 38. CEMS Data Requirements:
  - a. *Data Collection:* Except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions shall be monitored and recorded during all operation including startup, shutdown, and malfunction.
  - b. *Operating Hours and Operating Days:* An hour is the 60-minute period beginning at the top of each hour. Any hour during which an emissions unit is in operation for more than 15 minutes is an operating hour for that emission unit. A day is the 24-hour period from midnight to midnight. Any day with at least one operating hour for an emissions unit is an operating day for that emission unit.
  - c. *Valid Hour:* Each CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over the hour at a minimum of one measurement per minute. All valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour.
    - 1) Hours that are not operating hours are not valid hours.
    - 2) For each operating hour, the 1-hor block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, there is insufficient data and the 1-hour block average is not valid.
  - d. *Rolling 24-Hour Average:* Compliance shall be determined after each valid hourly average is obtained by calculating the arithmetic average of that valid hourly average and the previous 23 valid hourly

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averages.

- e. *Rolling 30-day Average:* Compliance shall be determined after each operating day by calculating the arithmetic average of all the valid hourly averages from that operating day and the prior 29 operating days.
- f. *Rolling 12-month Period:* Compliance shall be determined after each calendar month by calculating the total emissions from that calendar month and the last 11 calendar months.
- g. *Missing Data/Bias Adjustments:* If the owner or operator has installed a CEMS to meet the requirements of Part 75, data reported to show compliance with any SIP-based limit shall not include data substituted using the missing data procedures in Subpart D of Part 75, nor shall the data have been bias adjusted according to the procedures of Part 75.
- h. *Data Exclusion:* Each CEMS shall monitor and record emissions during all operations including episodes of startup, shutdown and malfunction. Limited amounts of CEMS emissions data recorded during these events may be excluded from the corresponding compliance demonstration subject to the provisions of Condition 29 in this section. When authorized, excess emissions data shall be excluded as a continuous block attributable to the startup, shutdown and malfunction event. Valid data shall not be excluded from any annual emissions caps or other annual averages (i.e., mercury).
- i. *Availability:* Monitor availability for the Hg CEMS shall be 75% or greater, and for all other CEMS shall be 95% or greater in any calendar quarter. The quarterly excess emissions report shall be used to demonstrate monitor availability. In the event the applicable availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving the required availability and a plan of corrective actions that will be taken to achieve 95% or 75% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit, except as otherwise authorized by the Department's Compliance Authority.

[Rules 62-4.070(3) and 62-210.200(BACT), F.A.C.]

#### REPORTING AND RECORD KEEPING REQUIREMENTS

- 39. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the following for each fuel in a written or electronic log for the previous month of operation: fuel consumption (tons or gallons as applicable), heat content of each fuel, hours of operation, and the updated 12-month rolling totals for each. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. The fuel consumption shall be monitored in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-210.200(BACT), F.A.C.]
- 40. Emissions Performance Test Reports: A report indicating the results of any required emissions performance test shall be submitted to the Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.]
- 41. CEMS Data Assessment Report: The Data Assessment Report required by 40 CFR 60, Appendix F shall be submitted to the Compliance Authority on a quarterly basis for each CEMS required. Separate reporting may be required for CEMS installed for purposes of compliance with an NSPS limit, or Acid Rain.

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42. Excess Emissions Reporting:

- a. *Malfunction Notification:* If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, the permittee shall notify the Compliance Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident.
- b. *Quarterly Report:* Within 30 days following the end of each calendar-quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of any emissions in excess of the permit standards following the NSPS format in 40 CFR 60.7(c), Subpart A. The report shall include a summary of emissions data excluded from compliance calculations due to startup, shutdown, and malfunctions as well as the duration of each event. In addition, the report shall summarize the CO, NO<sub>x</sub>, SO<sub>2</sub>, and Hg CEMS systems monitor availability for the previous quarter.

[Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C., and 40 CFR 60.7, 60.51, and 60.4375]

43. CBO Configuration: Daily records shall be daily kept of the CBO operation and configuration, such that the permittee can demonstrate compliance with the emission limitations of the affected emissions units.

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#### B. ZLD Spray Dryers (EU 016)

ID	Emission Unit Description
016	Diesel-Fired Zero Liquid Discharge (ZLD) Spray Dryers (bank of 3)

#### APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: The emission unit addressed in this section is subject to a Best Available Control Technology (BACT) determination for carbon monoxide (CO), volatile organic compounds (VOC) and particulate matter (PM/PM<sub>10</sub>). [Rule 62-210.200 (BACT), F.A.C.]

#### EQUIPMENT SPECIFICATIONS

2. Equipment: The permittee is authorized to install, operate, and maintain one liquid spray dryer system consisting of a bank of three, diesel-fired liquid spray dryers. This system will be designed to remove the moisture from the wastewater treatment effluent, via a process which involves the atomization of concentrated wastewater into a spray of droplets and contacting the droplets with hot air in a drying chamber. The dryers will be fired by diesel fuel oil. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

#### PERFORMANCE REQUIREMENTS

3. Hours of Operation: The hours of operation are not restricted (8760 hours per year). [Applicant Request; Rule 62-210.200(PTE), F.A.C.]
4. Authorized Fuels: Only No.1 or No. 2 diesel fuel containing no more than 0.05% sulfur by weight shall be fired in the spray dryers. The maximum design heat input for the bank of spray dryers shall be limited to 50 MMBtu per hour. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]
5. Control Equipment: A baghouse will be used to limit PM/PM<sub>10</sub> emissions, having an efficiency of greater than 99.5 percent. The baghouse must be designed, operated, and maintained to achieve 0.3 lb/hr/dryer. As a work practice standard, an opacity limit of 5% is established. [Application; Rules 62-210.200 (PTE, and BACT) and 62-212.400 (PSD), F.A.C]
6. Work Practice: Good combustion practices will be utilized at all times to ensure that CO (and VOC) emissions from the dryer system are minimized. The Best Available Control Technology (BACT) determinations established by this permit rely on “good operating practices” to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and ensure maintenance of the ZLD Spray Dryers in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating practices as well as methods for minimizing excess emissions. [Rules 62-4.070(3) and 62-210.200(BACT), F.A.C.]

#### NOTIFICATION, REPORTING, AND RECORDS

7. Control Device Records: The permittee shall keep readily accessible records which demonstrate that the ZLD Spray Dyer baghouse is operating properly. Such records shall include documentation of daily observations by operators as well as maintenance records on the baghouse and bag replacements. [Rule 62-4.030, F.A.C.]
8. Fuel Records: The permittee shall keep records sufficient to determine the daily throughput of diesel fuel oil for use in ensuring compliance with the heat input limitation. [Rule 62-204.800(7)(b)16, F.A.C]

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**C. SGS Unit 3 Cooling Tower (EU 015)**

This section of the permit addresses the following emissions unit.

<b>ID</b>	<b>Emission Unit Description</b>
015	SGS Unit 3 Mechanical Draft Cooling Tower – twenty six cells with a 200 HP cooling fan

**APPLICABLE STANDARDS AND REGULATIONS**

1. BACT Determinations: The emission unit addressed in this section is subject to a Best Available Control Technology (BACT) determination for particulate matter (PM/PM<sub>10</sub>). [Rule 62-210.200 (BACT), F.A.C.]

**EQUIPMENT**

2. Cooling Tower: The permittee is authorized to install one induced draft, counter-flow, rectangular in-line design mechanical draft cooling tower with the following nominal design characteristics: a circulating water flow rate of 360,352 gpm; a design air flow rate of 1,259,541 acfm per cell; drift eliminators; and a drift rate of no more than 0.0005 percent of the circulating water flow. [Application; Design]

**EMISSIONS AND PERFORMANCE REQUIREMENTS**

3. Drift Rate: Within 60 days of commencing commercial operation, the permittee shall certify that the cooling tower was constructed to achieve the specified drift rate of no more than 0.0005 percent of the circulating water flow rate. [Rule 62-210.200(BACT), F.A.C.]

*{Permitting Note: This work practice standard is established as BACT for PM/PM<sub>10</sub> emissions from the cooling tower. Based on these design criteria, potential emissions are estimated to be less than 10 tons of PM per year and less than 6 tons of PM<sub>10</sub> per year. Actual emissions are expected to be lower than these rates.}*