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PERMITTEE

Progress Energy Florida, Inc.
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Authorized Representative:
Mr. Robby Odom, Plant Manager

Air Permit No. PSD-FL-383D
Project No. 0170004-026-AC
Facility ID No. 0170004
Crystal River Power Plant, Units 4 and 5
Alternative Sorbent Demonstration Project
Permit Expires: March 1, 2013

PROJECT

This is the final air construction permit revision, which modifies original Permit No. PSD-FL-383 that authorized new air pollution controls on Units 4 and 5. The proposed work is being conducted at the existing Crystal River Power Plant, which is a power plant categorized under Standard Industrial Classification No. 4911. The existing plant is located north of Crystal River and west of U.S. Highway 19 in Citrus County, Florida. The UTM coordinates are Zone17, 334.3 kilometers East and 3204.5 kilometers North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit. 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.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and 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.

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

_____ _____

Michael P. Halpin, P.E., Director (Date)
Division of Air Resource Management

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 with Appendices) 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 _____ to the persons listed below.

Mr. Robby Odom, Progress Energy Florida (robby.odom@pgnmail.com)
Mr. John Hunter, Progress Energy Florida (john.hunter@pgnmail.com)
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Clerk Stamp

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

_____ _____
(Clerk) (Date)

FACILITY AND PROJECT DESCRIPTION

The existing Crystal River Power Plant consists of the following: four coal-fired fossil fuel steam generating units with electrostatic precipitators; two natural draft cooling towers; two sets of mechanical draft cooling towers (one set of "helper" cooling towers and a second set of "modular" cooling towers); coal and ash material handling facilities; and relocatable diesel fired generators. The Crystal River Energy Complex includes the nuclear unit and associated facilities permitted under the same Title V air operation permit.

Due to the Environmental Protection Agency's revised 8-hour ozone standard, the permittee shall install and continuously operate new low-NO_X burners, new selective catalytic reduction systems, new flue gas desulfurization systems, and new stack configurations for existing Units 4 and 5 as authorized by this permit. The installation and use of these control devices require a demonstration of continuous compliance with new standards for nitrogen oxides (NO_X) and sulfur dioxide (SO_2).

In conjunction with the new control equipment, the permit also authorizes the following: a new carbon burn-out (CBO^{TM}) system to reburn fly ash, a new blend of bituminous/sub-bituminous coal, a trial burn to evaluate coals blends with up to 30% petroleum coke, and a trial burn to evaluate a new fuel additive intended to reduce slagging and improve emissions performance. This permit also establishes the maximum heat input rates for Units 4 and 5. The combination of new fuel blends and control equipment will result in PSD-significant emissions increases of carbon monoxide (CO), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and volatile organic compounds (VOC). Therefore, the permittee is also required to perform the following work and install the following additional equipment as the Best Available Control Technologies (BACT) for these pollutants: the new low-NOx burners (CO, PM/PM_{10} and VOC); modifications to the existing electrostatic precipitators (PM/PM_{10} and SAM); and new acid mist mitigation (AMM) systems (SAM).

This permit affects the following emissions units:

EU No.	New/Existing	Emission Unit Description
003	Existing	Unit 5 Fossil Fuel Steam Generator
004	Existing	Unit 4 Fossil Fuel Steam Generator
016	Existing	Coal and Ash Material Handling Activities for Coal-Fired Steam Generators
023	New	Limestone and Gypsum Material Handling Activities
024	New	CBO Fluidized Bed Combustor
025	New	CBO Feed Fly Ash Silo
026	New	CBO Product Fly Ash Storage Dome and Truck Loadout Silo
032	New	Temporary Material Storage System and Dust Collector

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.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The existing facility is subject to Power Plant Site Certification No. PA 77-09.

PROJECT HISTORY

Permit No. 0170004-013-AC authorized the installation of new selective catalytic reduction (SCR) systems on Units 4 and 5 to reduce NO_X. The purpose of the project was to implement the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR). It did not trigger PSD preconstruction review.

Permit No. PSD-FL-383 (Project No. 0170004-016-AC) superseded Permit No. 0170004-013-AC and authorized the following new equipment in addition to SCR systems: new low-NO_X burners (LNB) for Units 4 and 5; new wet flue gas desulfurization (FGD) systems for Units 4 and 5 to reduce SO_2 and other acid gas emissions; a new acid mist mitigation (AMM) system for Units 4 and 5 to reduce SAM emissions; upgraded electrostatic precipitators (ESP) for Units 4 and 5 to reduce particulate matter emissions; new stack configurations for Units 4 and 5; and a new carbon burn out unit. The purpose of the project was to implement the CAIR and CAMR and it was subject to PSD preconstruction review.

Permit No. PSD-FL-383A (Project No. 0170004-019-AC) revised the original permit to require operation of the wet FGD and SCR systems in response to the Environmental Protection Agency's revised 8-hour ozone standard.

Permit No. PSD-FL-383B (Project No. 0170004-022-AC) revised the original permit to: include a temporary alternate compliance demonstration for carbon monoxide emissions for Unit 5 until the continuous emissions monitoring system is installed during the outage to tie in the new wet FGD system and stack; correct as-built equipment descriptions for the gypsum storage and handling systems; acknowledge that the limestone crushing operations will be subject to the federal provisions in NSPS Subpart OOO of 40 CFR 60; and clarify the timeframes for compliance monitoring following completion of construction, startup and shakedown of the air pollution control systems.

Permit No. PSD-FL-383C (Project No. 0170004-023-AC), revised the original permit to: authorize limited periods of shutdown of the AMM system for maintenance and repair; and clarify that the deadline for submitting an application to revise the Title V air operation permit is after completing the work for both units.

This project, Permit No. PSD-FL-383D (Project No. 0170004-026-AC), revises the original permit to authorize the following:

- The temporary installation and operation of a demonstration injection system at Units 4 and 5 using alternative sorbents to evaluate additional methods for reducing SAM emissions;
- Establish a temporary opacity limit effective during the alternative sorbent trials;
- Temporary trials of several fuel additives to evaluate each for anti-slagging properties, which may enhance boiler operation as well as reduce the initial conversion of fuel sulfur to SAM; and
- Revise the current 3.13% maximum coal sulfur specification to an equivalent of 5.5 lb SO_2/million British thermal units (MMBtu).

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SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to PSD applications for permits to construct or modify emissions units shall be submitted to the Department's Bureau of Air Regulation in the Division of Air Resource Management at 2600 Blair Stone Road, MS #5505, Tallahassee, Florida, 32399-2400. Copies of all such applications shall also be submitted to each Compliance Authority.

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

3. 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 the applicable requirements of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, 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 appropriate forms provided in Rule 62-210.900, F.A.C. and follow the applicable permitting procedures as specified in the above regulations. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

4. Source Obligation:

   (a) 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.

   (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 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.

   (c) 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.]

5. 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. [Rule 62-4.030 and Chapters 62-210 and 62-212, F.A.C.]

6. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the work on both units and 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. [Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213.420, F.A.C.]

A. Unit 4, Unit 5 and CBO Unit – Pollution Control Projects

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
003	Unit 5 is a fossil fuel-fired electric utility steam generator consisting of a pulverized coal, dry bottom, wall-fired boiler rated at 760 MW, which began commercial operation in 1984. Air pollution control equipment will include: low-NOx burners, selective catalytic reduction (SCR) systems, flue gas desulfurization (FGD) systems, acid mist mitigation systems and an electrostatic precipitator (ESP). The flue gas exhausts at 130° F with a volumetric flow rate of 2,205,195 acfm through a stack that is 30.5 feet in diameter and 550 feet tall. Units 4 and 5 share a common chimney with separate internal stack liners.
004	Unit 4 is a fossil fuel-fired, electric utility steam generator consisting of a pulverized coal, dry bottom, wall-fired boiler rated at 760 MW, which began commercial operation in 1982. Air pollution control equipment will include: low-NOx burners, selective catalytic reduction (SCR) systems, flue gas desulfurization (FGD) systems, acid mist mitigation systems, and an electrostatic precipitator (ESP). The flue gas exhausts at 130° F with a volumetric flow rate of 2,205,195 acfm through a stack that is 30.5 feet in diameter and 550 feet tall. Units 4 and 5 share a common chimney with separate internal stack liners.
016	Material handling activities consist of the existing handling and storage of coal and ash for coal-fired electric utility steam generators.
024	The carbon burn-out (CBO) unit is a fluidized bed combustor that will reburn fly ash generated from Units 4 and 5 to produce low-carbon, low-ammonia fly ash material suitable for commercial use. The CBO unit is included in this subsection because the flue gas exhaust is directed back into the ductwork of Units 4 and 5 prior to the control equipment.

*{Permitting Note: Existing units EU-003, EU-004, and EU-016 are currently subject to the following applicable requirements: Power Plant Site Certification No. PA 77-09; 40 CFR 60, NSPS Subpart D (*fossil fuel-fired steam generators)*; NSPS Subpart Y (coal preparation plants); and Chapter 62-214, F.A.C. (Acid Rain Program). This permit does not affect these previous requirements. In accordance with Rule 62-212.400 (PSD), F.A.C., this project subjects these units to BACT determinations for the following pollutants: CO, PM/PM_{10}, SAM, and VOC. Final BACT determinations are presented in Appendix E of this permit. Emissions standards specified in this permit allow these units to avoid PSD preconstruction review for NO_X and SO_2.*

AUTHORIZED CONSTRUCTION

1. Previous Permits:

   a. *Units 4 and 5*: Except for Permit No. 0170004-013-AC, the conditions of this permit supplement all previously issued air construction and operation permits for Units 4 and 5. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions and regulations including: Power Plant Site Certification No. PA 77-09; 40 CFR 60, NSPS Subpart D (fossil fuel-fired steam generators); and Chapter 62-214, F.A.C. (Phase I and II of the Acid Rain Program). However, this permit supersedes Permit No. 0170004-013-AC for the construction of the selective catalytic reduction systems, which is now on the same construction schedule as the flue gas desulfurization systems.

   b. *Material Handling Activities (EU-016)*: The material handling activities for the existing coal-fired electric utility steam generators remain subject to the applicable permit conditions and regulations as specified by Permit No. 0170004-014-AC issued on December 15, 2006. That permit authorized modifications to the existing material handling activities and included the following primary regulations: Power Plant Site Certification No. PA 77-09; Permit No. PSD-FL-139; and 40 CFR 60, NSPS Subpart Y (coal preparation plants). This permit does not add any new requirements.

   [Permit Nos. 0170004-013-AC and 017004-014-AC; Application No. 0170004-016-AC; Rule 62-4.070(3), F.A.C.]

2. Emissions Reduction Projects: For Units 4 and 5, the permittee is required to make the following modifications to assure compliance with the new emissions limits listed below.

   a. *Low-NO_X Burners*: The permittee is required to install new low-NOx burners manufactured by Babcock & Wilcox (Model No. DRB-42) or equivalent. The preliminary design is for 54 burners per unit. The existing burner inlet system will be modified to allow even airflow distribution to the new burners.

   b. *SCR Systems*: The permittee is required to install new SCR systems to reduce NOx emissions. Each system will consist of the following basic components: an ammonia injection grid, a mixing grid, SCR reactor with catalyst modules, a urea-to-ammonia processing system, associated bulk storage systems, an automated control system, piping, electrical, and other ancillary equipment. As needed, urea will be converted into ammonia, which will be mixed to the proper concentration. Ammonia will be injected ahead of the SCR reactor, which will be installed upstream of the air heater for each unit. The ammonia will combine with NO_X in the presence of the catalyst in a reduction reaction to form nitrogen and water. The preliminary design is for 90% reduction in NO_X emissions with a maximum ammonia slip of 2 to 5 ppmv. The design also incorporates dampers and ductwork to provide the capability of bypassing the SCR system. The bypass is most commonly used to gradually heat or cool the catalyst structure to minimize thermal fatigue during startup and shutdown.

   c. *FGD Systems*: The permittee is required to install new wet flue gas desulfurization (FGD) systems after the existing ESPs and induced draft fans to reduce SO_2 and other acid gas emissions. A limestone slurry will be injected into the FGD absorbers at design feed rate of approximately 352 gpm. The slurry will consist of approximately 25 to 30% solids and a specific gravity of 1.22. The preliminary design is for a 97% reduction in SO_2 emissions. In addition to the FGD absorbers, the systems will consist of limestone storage and handling, limestone preparation, limestone slurry injection, FGD blowdown, and gypsum dewatering, transfer and storage.

   d. *Stacks*: In conjunction with the emissions reduction projects, the permittee is authorized to construct a single new 550 feet tall chimney with separate internal stack liners for Units 4 and 5, one per unit. Each stack liner will have an internal diameter of 30.5 feet. The existing stacks will no longer be used. The required continuous emissions monitoring systems (CEMS) will be installed on each new stack liner.

   The above information is based on the preliminary design. As necessary, the permittee shall provide the Permitting and Compliance Authorities with updated information should the final design significantly change. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-4.080 and 62-212.300, F.A.C.]

3. BACT Controls: For Units 4 and 5, the permittee is required to perform the following work as the basis for the BACT determinations.

   a. *Acid Mist Mitigation (AMM) Systems*: The permittee is required to install new AMM systems to reduce SAM emissions. The preliminary design for the AMM systems is to use ammonia generated from the urea-to-ammonia processing system, which is part of the new SCR system. Ammonia will be injected into the flue gas through a uniform injection grid located after the boiler air heaters and proposed SCR reactor and before the existing ESP. The additional ammonia reacts with sulfur trioxide (SO_3) to form salts (e.g., bisulfates), which will be removed by the ESP. The preliminary design is for an 85% reduction.

   b. *ESP*: The permittee is authorized to modify the existing ESPs to achieve the new PM/PM_{10} emissions standards. Some of this work may include the following: removing and replacing the precipitator roof; replacing the precipitator internals; replacing and upgrading the discharge electrodes to improve collection efficiency; as necessary, modifying the gas flow path deflectors at the inlet of the precipitator to improve the flow distribution; replacing the rapping system with top-mounted rappers to improve

performance; adjusting the plate spacing for improved collection efficiency; and reinforcing the precipitator box to account for increased transient pressures from the new induced draft fans. *{Permitting Note: The modifications are intended to improve the estimated collection efficiency to more than 99.5%.}*

[Application No. 0170004-016-AC; Rules 62-4.070(3), 62-212.300 and 62-212.400(PSD), F.A.C.]

4. CBO Unit: The permittee is authorized to install a new CBO fluidized bed combustor (Model No. 1500 or equivalent) with a nominal bed area of 1500 ft^2 that will reburn fly ash generated from Units 4 and 5 to produce low-carbon, low-ammonia fly ash material suitable for commercial use as an additive in Portland cement. The CBO unit also includes the following process equipment: hot cyclones to recycle fly ash back to the fluidized bed combustor; a heat recovery heat exchanger; cold cyclones to recover product fly ash; and a fabric filter to recover product fly ash. The flue gas exhaust shall be directed back into the ductwork of Units 4 and 5 prior to the air pollution control equipment such that emissions will be controlled when either unit or both units are in operation. The hot cyclones, cold cyclones and baghouse are considered process equipment and not air pollution control equipment because the equipment is used to separate the ash from the flue gas exhaust. The recovered ash is sold as a byproduct and the flue gas exhaust is directed back into the boiler ductwork for control. Details of the CBO process are provided in Subsection B, which regulates the material handling activities. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-212.300 and 62-212.400(PSD), F.A.C.]

PERFORMANCE REQUIREMENTS

5. Permitted Capacities:

   a. *Units 4 and 5*: The maximum heat input rates to Units 4 and 5 are 7200 MMBtu per hour per unit based on a 24-hour block average (midnight to midnight) and 6800 MMBtu per hour per unit based on a 30-day rolling average. Compliance shall be demonstrated by collecting the fuel feed rate and fuel heating values as monitored by the existing operating data monitoring system.

   b. *CBO Unit*: The maximum heat input rate to the CBO fluidized bed combustor is 95.6 MMBtu per hour based on a 24-hour block average.

   [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-212.300, F.A.C.]

6. Authorized Fuels:

   a. In addition to the currently authorized fuels, this air construction permit authorizes Units 4 and 5 to fire a blend of bituminous coal and sub-bituminous coal of up to 20% sub-bituminous coal upon issuance of this permit. Coal fuel blends shall not exceed a maximum specification of 5.5 lb SO_2/MMBtu.

   b. For startup, the CBO fluidized bed combustor will fire distillate oil with a maximum sulfur content of 0.5% by weight. Once the target operating temperature is achieved, fly ash from the boilers will be combusted.

   {Permitting Note: The current Title V air operation permit authorizes Units 4 and 5 to fire bituminous coal, a bituminous coal and bituminous coal briquette mixture, used oil, No. 2 fuel oil as a startup fuel, and natural gas as a startup and low-load flame stabilization fuel. Recently, the plant successfully tested a blend of approximately 80% bituminous coal with 20% Powder River Basin coal (sub-bituminous coal).}

   [Application No. 0170004-016-AC; Rule 62-4.070(3), F.A.C.]

7. Capacities and Restrictions: None of the emissions units in this subsection are restricted by hours of operation (8760 hours/year). [Application No. 0170004-016-AC; Rule 62-210.200(PTE), F.A.C.]

EMISSIONS LIMITATIONS AND PERFORMANCE STANDARDS

8. Standards Based on Stack Tests: Including the emissions from the CBO unit, emissions from each Unit 4 or Unit 5 shall not exceed the following standards based on stack tests.

   a. *Ammonia Slip*: As determined by EPA Method CTM-027 (or equivalent), the ammonia slip shall not exceed 5 ppmv based on a 3-run test average conducted at permitted capacity.

   b. *PM/PM_{10} Emissions*: As determined by EPA Method 5 or 5b, PM emissions shall not exceed 0.030 lb/MMBtu and 216.0 lb/hour based on a 3-run test average conducted at permitted capacity.

   c. *SAM emissions*: As determined by EPA Method 8 or 8A, SAM emissions shall not exceed 0.009 lb/MMBtu and 64.8 lb/hour based on a 3-run test average conducted at permitted capacity. This standard applies at all times except during periods of maintenance and repair as authorized by this permit.

   d. *VOC Emissions*: As determined by EPA Method 25A, VOC emissions shall not exceed 0.004 lb/MMBtu and 28.8 lb/hour based on a 3-run test average conducted at permitted capacity. Optionally, EPA Method 18 may be conducted concurrently in order to deduct non-regulated VOC emissions such as methane and ethane.

   e. *Opacity*: As determined by EPA Method 9, the stack opacity shall not exceed 10% based on a 6-minute block average, except for one 6-minute period per hour of not more than 20%.

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

9. Standards Based on CEMS: Including the emissions from the CBO unit, emissions from Units 4 and 5 each shall not exceed the following standards based on data collected by the CEMS.

   a. *NO_X Emissions*: As determined by CEMS data, NO_X emissions shall not exceed 2,085 tons per year per unit based on a 12-month rolling total for all periods of operation including startup, shutdown and malfunction. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-4.080 and 62-212.400(12), F.A.C.]

   b. *SO_2 Emissions*: As determined by CEMS data, SO_2 emissions shall not exceed 0.27 lb/MMBtu of heat input based on a 30-day rolling average for all periods of operation including startup, shutdown and malfunction. As determined by CEMS data, SO_2 emissions shall not exceed 1944.0 lb/hour per unit based on a 24-hour block average excluding startup, shutdown and malfunction of the FGD system. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-4.080 and 62-212.400(12), F.A.C.]

   c. *CO Emissions (Interim)*: As determined by CEMS data, CO emissions shall not exceed 0.17 lb/MMBtu of heat input based on a 30-day rolling average excluding periods of startup, shutdown and malfunction. As determined by CEMS data, CO emissions shall not exceed 1156.0 lb/hour based on a 30-day rolling average for all periods of operation including startup, shutdown and malfunction. [Rule 62-212.400 (BACT), F.A.C.]

   d. *CO Emissions (Final)*: Within 24 months of commencing commercial operation of each unit with the new low-NO_X burners, the permittee shall submit an application proposing a revised (lower) final BACT standard. The final standard shall be based on actual CO emissions data collected for initial operation after completing installation of the new low-NO_X burners. There may be separate standards proposed for different fuels. [Rule 62-212.400(BACT), F.A.C.]

10. 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. The SCR and FGD systems shall operate as necessary to comply with the emissions standards of this permit. The AMM systems and ESP shall operate in accordance with the automated controls system as determined by subsequent performance and compliance testing and in accordance with the conditions of this permit.

[Rules 62-210.650 and 62-212.400(BACT), F.A.C.]

11. 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.]

12. Excess Emissions - Allowed: In accordance with Rule 62-210.700(6), F.A.C., excess emissions due to startup, shutdown or malfunction have been considered in establishing the sets of CEMS-based emissions standards of this permit. With regard to SAM emissions, the AMM systems are currently shared by Units 4 and 5 and the system must be shutdown to conduct some maintenance and repairs. The following additional conditions apply to the shared AMM systems:

    a. *Additional SAM Testing*: Within 18 months of issuance of this permit revision, the permittee shall conduct additional SAM emissions tests (at least three, 1-hour test runs) on at least one unit without the AMM systems in operation while firing lower sulfur "substitute coal". The SAM emissions standard shall not apply during these information-gathering tests. The purpose of the tests are to determine the SAM emissions rate (lb/MMBtu) while firing "substitute coal" with the AMM systems offline. The permittee shall submit a test report in accordance with the requirements of this permit and specifically identify whether the units are capable of complying with the SAM emissions limit while firing the tested "substitute coal". Each test report shall also include the results from all previous tests conducted for such purposes. If the sulfur content of the "substitute coal" increases, subsequent SAM tests may be conducted as necessary in accordance with this condition. *{Permitting Note: Currently, "substitute coal" is available at the plant and used for Units 1 and 2. Although the permitted maximum sulfur content of this coal is approximately 1.3% by weight (2.1 lb SO_2/MMBtu), the actual sulfur content is less than 1% by weight. When firing "substitute coal", reductions in SAM emissions by the wet FGD system may be sufficient to demonstrate compliance with the SAM emissions standard.}*

    b. *Preventive Maintenance*: To minimize malfunctions of the AMM systems and resulting excess SAM emissions, the permittee shall conduct annual preventive maintenance.

        (1) The preventive maintenance shall be scheduled for a period when at least one unit (Unit 4 or Unit 5) is down for a scheduled outage, which occurs approximately every 18 months per unit. Whenever possible, the scheduled outages shall be staggered such that only one unit will be in an outage each year to accommodate the required annual preventive maintenance.

        (2) When conducting the required preventative maintenance of the AMM systems, the permittee may operate no more than one unit while firing "substitute coal" without the AMM systems in operation for no more than 240 hours per calendar year. If stack testing demonstrates compliance with the SAM emissions standard while firing "substitute coal" for given sulfur content without the AMM systems in operation, the hours of operation while firing that coal shall not count towards this operational restriction.

    c. *Repair*: The following conditions apply to malfunctions of the AMM systems. A 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."

        (1) The permittee shall maintain a list and inventory of spare parts associated with the shared AMM system equipment to facilitate quick repairs.

        (2) When a malfunction occurs, the permittee shall immediately investigate to determine the corrective action required. For malfunctions that will require an extended period of time to repair, the permittee shall begin preparations to fire "substitute coal". When initially evaluating a given malfunction and

performing the repair, Units 4 and/or 5 may be operated without the AMM systems for no more than 72 hours; thereafter, Units 4 and/or 5 shall begin firing "substitute coal" to continue operating while the plant makes the repair.

(3) The AMM systems shall not be offline (including the malfunctions) for more than a total of 480 hours per calendar year to evaluate malfunctions and conduct repairs. This operational restriction shall include: authorized hours of firing normal coal for initial evaluation and repair (up to 72 hours per event); and authorized hours of operation firing "substitute coal" that has not yet demonstrated compliance with the SAM emissions standard. If stack testing demonstrates compliance with the SAM emissions standard while firing "substitute coal" for a given sulfur content without the AMM systems in operation, the hours of operation while firing that coal shall not count towards this operational restriction.

d. *Purpose*: The purpose of this condition is to provide operational flexibility to conduct timely maintenance and repair on the AMM systems shared by Units 4 and 5 while minimizing excess SAM emissions. Once compliance is demonstrated for firing "substitute coal" with a given sulfur content, periodic testing is not required except as allowed by Rule 62-297.310(7)(b), F.A.C. (Special Compliance Tests). In addition, the compliant sulfur content for "substitute coal" shall be established based on the following equation:

$\% S_{Comp.} = (\%S_{Tested})\ (SAM_{Limit}) / (SAM_{Tested})$

Where:

$\%S_{Comp.}$ = Maximum percent sulfur content by weight that would demonstrate compliance

$\%S_{Tested}$ = Actual percent sulfur content by weight fired during stack test

SAM_{Limit} = Permitted SAM emissions limit, 0.009 lb/MMBtu

SAM_{Tested} = Actual SAM emissions rate in lb/MMBtu based on stack test

Example: Stack testing shows an actual SAM emissions rate of 0.0085 lb/MMBtu when firing substitute coal with a sulfur content of 0.98% by weight and the AMM systems offline. Therefore, the maximum sulfur content of "substitute coal" considered demonstrated would be:

$\% S_{Comp.}$ (SC) = (0.98% S) (0.009 lb/MMBtu) / (0.0085 lb/MMBtu) = 1.04% sulfur by weight

Therefore, if "substitute coal" is fired with an actual sulfur content equal to or less than the maximum sulfur content as calculated above ($\%S_{Comp.}$), then the hours while firing that coal do not count towards the operational restrictions specified for maintenance and repair. If "substitute coal" is fired with an actual sulfur content higher than the calculated value ($\%S_{Comp.}$), then the hours while firing that coal do count towards the operational restrictions specified for maintenance and repair.

[Rule 62-210.700(6), F.A.C.]

CONTINUOUS EMISSIONS MONITORING REQUIREMENTS

13. Existing CEMS/COMS: For Units 4 and 5, the permittee shall continue to calibrate, operate, and maintain continuous monitoring equipment to measure and record opacity, NO_X and SO_2 in terms of the applicable standards. The permittee shall either relocate the existing CEMS to the new stack configurations or replace the monitoring systems. Due to the wet stack, the existing COMS shall be relocated or new COMS installed in the ductwork after the ESP and prior to the wet FGD system. Each COMS and CEMS shall be installed such that representative measurements of emissions or process parameters from the facility are obtained. The monitors shall be installed, operated and maintained in accordance with the existing requirements of 40 CFR

60.45, as well as the provisions of the federal acid rain program. [Rule 62-4.070(3), F.A.C.]

14. CO CEMS Installation: For Units 4 and 5, the permittee shall properly install, calibrate, operate and maintain CEMS to measure and record CO emissions in the terms of the applicable standard. Each CEMS shall be installed such that representative measurements of emissions or process parameters from the facility are obtained. The permittee shall locate the CEMS by following the procedures contained in the applicable performance specification of 40 CFR Part 60, Appendix B. The permittee shall install each CEMS required by this permit and conduct the appropriate performance specification for each CEMS within 60 calendar days of completing installation of the low-NOx burners and achieving permitted capacity as defined in Rule 62-297.310(2), F.A.C., but no later than 180 calendar days after initial startup. As an option for Unit 5 because of construction delays, the permittee may postpone installation of the CO CEMS until the Unit 5 exhaust is tied into the new FGD system and stack. If this option is selected, the permittee shall conduct an initial CO stack test in accordance with EPA Method 10 within 60 days of completing installation of the low-NOx burners. The tests shall demonstrate compliance with the numerical portion of the CO emissions standard based on the 3-run test average. In addition, CEMS data collected from similar Unit 4 shall be used as a surrogate to show compliance until the Unit 5 CEMS is installed. Based on the Unit 4 CEMS data, the Compliance Authority may require special compliance tests in accordance with Rule 62-297.310(7)(b), F.A.C. This period of alternate compliance shall not exceed 180 days from completing installation of the low-NOx burners. The permittee shall install and certify the CO CEMS within 60 days following the tie-in of the new FGD system and permanent stack. [Rules 62-4.070(3), 62-297.310(7)(b) and 62-212.400(BACT), F.A.C.]

15. Compliance by CEMS: Compliance with the standards for opacity and emissions of CO, NO_X, and SO_2 shall be demonstrated with data collected from the required continuous monitoring systems. Within 60 days of completing construction on the related air pollution control device for each unit, the permittee shall certify proper operation of each required monitor. The permittee shall comply with the conditions of Appendix F (Standard Continuous Monitoring Requirements) of this permit as the compliance method for the corresponding emissions standards. The permittee shall begin demonstrating compliance with the CO CEMS emissions standards once a monitor is certified. The permittee shall begin demonstrating compliance with the opacity, NO_X and SO_2 COMS/CEMS emissions standards after completing the initial shakedown of the associated air pollution control device, but no later than 180 days after certifying the corresponding COMS/CEMS. During the period between certification of the SO_2 CEMS and completing initial shakedown of the FGD system, the units shall comply with the SO_2 emissions standards in the current Title V permit based on compliance by CEMS (Condition B.5a), but may fire a coal fuel blend in compliance with the maximum fuel sulfur level specified in this air construction permit (Condition 6, Subsection 3A). Within 10 days of completing initial shakedown for an air pollution control device, the permittee shall notify the compliance authority of the following: the air pollution control device; the date that shakedown was completed; the monitoring data being collected to demonstrate continuous compliance; and the status of the other air pollution control devices. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

SAM PERFORMANCE TESTING REQUIREMENTS

16. Preliminary SAM Performance Tests: Within 60 days after completing construction on the pollution control systems, the permittee shall conduct a series of preliminary performance tests on either unit to determine the SAM emissions rate under a variety of operating scenarios. The purpose of the tests is to document the impact of the AMM systems on reducing SAM emissions and results in the development of correlation/curves between injection rates, operating conditions and emissions. When collecting data during the SAM performance tests, the permittee is exempt from the SAM emissions standards of this permit.

    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 test runs shall be conducted to evaluate the effect of SAM emissions on parameters such as: the SO_2 emissions rate prior to the SCR catalyst, the unit load, the flue gas flow rate, the ammonia injection rate, the current catalyst oxidation rate, and the operating level of the FGD system.

b. Tests shall be conducted with the fuel blends and load rates that are representative of the actual operating ranges intended for Units 4 and 5. Sufficient tests shall be conducted to establish the SAM emissions rates under varying operating conditions and levels of ammonia injection (e.g., bypass of the SCR reactor, SCR reactor in service without ammonia injection, SCR reactor in service, etc.).

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 performance test report and no later than 90 days following the last test run conducted, the permittee shall submit an operating protocol 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 a description of 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 ammonia injection and operating conditions. The performance tests shall be used to set the AMM control systems and estimate SAM emissions.

f. The permittee shall operate the AMM systems in accordance with the operating protocol determined by the performance tests.

Using these procedures, the permittee may later conduct additional SAM performance tests to establish a new operating protocol for the AMM system due to changes with the fuel blends, control equipment, operating methods or other circumstances.

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

TESTING REQUIREMENTS

17. Common Testing Requirements: All required emissions tests shall be conducted in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rules 62-204.800 and 62-297.100, F.A.C.; and 40 CFR 60, Appendix A]

18. Test Methods: Any required stack tests shall be performed in accordance with the following methods.

EPA Method	Description of Method and Comments
1 - 4	Methods for Determining Traverse Points, Velocity, Flow Rate, Gas Analysis, and Moisture Content These methods shall be performed as necessary to support other methods.
5 or 5b	Method for Determining Particulate Matter Emissions
6C	Method for Determining SO_2 Emissions (Instrumental)
7E	Method for Determining NOx Emissions (Instrumental)
8 or 8A	Method for Determining Sulfuric Acid Mist (SAM) Emissions

EPA Method	Description of Method and Comments
9	Method for Determining Opacity Observations
10	Method for Determining Carbon Monoxide Emissions (Instrumental) The method shall be based on a continuous sampling train.
18	Method for Determining Gaseous Organic Compound Emissions (Gas Chromatography) Concurrently with EPA Method 25A, EPA Method 18 may be used as an optional method to deduct emissions of methane and ethane from the THC emissions measured by Method 25A.
19	Methods for Determining NO_X, PM, and SO_2 Mass Emission Rates
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source This is an EPA conditional test method with a minimum detection limit of 1 ppm. Other equivalent methods may be used.

The above methods are specified in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-4.070(3), 62-204.800(8) and 62-212.400(BACT), F.A.C.; 40 CFR 60, Appendix A]

19. Compliance Tests: In accordance with the following requirements, the permittee shall have stack tests conducted to demonstrate compliance with the emissions standards specified in this permit for ammonia slip, PM, SAM and VOC.

    a. *Initial Tests*: Within 60 days after completing construction on the pollution control systems, initial compliance tests shall be conducted to determine emissions of ammonia slip, opacity, PM and VOC. Within 120 days after completing construction on the pollution control systems and after completing the preliminary SAM performance tests, initial compliance tests shall be conducted to determine SAM emissions. At least one boiler shall be tested with the CBO unit also in operation. If the CBO unit is not yet in service at the time of the initial tests, separate compliance tests to determine PM and SAM emissions shall be conducted on at least one boiler with the CBO unit in operation. All initial tests shall be conducted with the emissions units operating at permitted capacity (within at least 90% of 7200 MMBtu/hour); otherwise, this permit shall be modified to reflect the true maximum capacity of each unit as constructed should the permitted capacity be unattainable. If initial equipment problems prevent operation at permitted capacity, the initial tests may be repeated to demonstrate compliance at permitted capacity. [Rules 62-212.400(BACT) and 62-297.310(7), F.A.C.; 40 CFR 60.8]

    b. *Subsequent Tests*: During each federal fiscal year (October 1st to September 30th), Units 4 and 5 shall be tested to determine emissions of ammonia slip, opacity, PM, and SAM. During the 12 months prior to renewal of the operation permit, Units 4 and 5 shall be tested to demonstrate compliance with the VOC emission standards. For each pollutant, at least one boiler shall be tested with the CBO unit also in operation. The Department may require the permittee to repeat some or all of the initial stack tests after substantial replacement or repair of any air pollution control or process equipment.

    c. *Test Fuel*: Initial compliance tests shall be conducted with the highest sulfur content representative of the actual coal blends being fired. Within 60 days of determining that the fuel sulfur content of the actual coal blends fired have increased by 0.5% by weight or more from the highest tested sulfur content that demonstrated compliance, the permittee shall conduct new tests to determine emissions of opacity, PM and SAM. For purposes of this condition, the fuel sulfur content shall be based on an average of the as-fired fuel samples for 30 successive operating days. Once initial compliance has been demonstrated at the higher fuel sulfur levels (2.63% or more), subsequent tests shall be conducted using a fuel with a

sulfur content that is representative of the actual coal blends being fired. [Rules 62-4.070(3), 62-212.400(BACT) and 62-297.310, F.A.C.]

d. *Test Capacity*: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Except for the initial tests, if it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit (7200 MMBtu/hour based on a 24-hour average). [Rules 62-212.400(BACT) and 62-297.310, F.A.C.]

20. Operational Data for Tests: For each test run, the permittee shall monitor and record the following information: fuel feed rate; heat input rate; sulfur content of fuel; the ammonia injection rate of the SCR control system; the limestone slurry injection rate of the FGD control system; ammonia injection rate of the AMM systems; flue gas oxygen content (%); CO, NO_X, and SO_2 CEMS emissions data; and opacity data. [Rules 62-297.310 and 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

21. Stack Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Compliance Authority on the results of each such test. The required test report shall be filed with the Compliance Authority as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Compliance Authority to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the specified in Rule 62-297.310(8), F.A.C. The stack test report shall also indicate all required operational data collected during each test run. [Rule 62-297.310(8), F.A.C.]

22. Malfunction Notifications: If temporarily unable to comply with any condition of the permit due to breakdown of equipment (malfunction) or destruction by hazard of fire, wind or by other cause, the permittee shall immediately (within one working day) notify the Compliance Authority. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with Department rules. If requested by the Compliance Authority, the owner or operator shall submit a quarterly written report describing the malfunction. [Rules 62-210.700(6) and 62-4.130, F.A.C.]

23. Fuel Monitoring – Units 4 and 5: Using the existing operating data system, the permittee shall continuously monitor each fuel to determine the heat input rates to Units 4 and 5. The heat input rates shall be calculated from the amounts of fuel fired and the higher heating value (HHV) of each fuel as determined by vendor certifications or the regular sampling and analysis required by the current Title V permit. Data shall be reduced to 1-hour blocks, 24-hour blocks (midnight-to-midnight), and 30-day rolling averages (average of all the 1-hour blocks for 30 operating days). [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

24. Fuel Monitoring – CBO Unit: During any compliance test and when requested by the Compliance Authority, the permittee shall monitor and record the heat input rate to the CBO Unit from the amount of ash burned and the heating value of the ash. [Rule 62-212.400(BACT), F.A.C.]

25. Control Device – Parametric Monitoring:

    a. *SCR System*: The permittee shall continuously monitor and record the ammonia injection rate of the SCR control system. Data shall be reduced to 1-hour block averages. [Rule 62-4.070(3), F.A.C.]

b. *FGD System*: The permittee shall continuously monitor and record the limestone slurry injection rate of the FGD control system. Data shall be reduced to 1-hour block averages. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

c. *AMM System*: The permittee shall continuously monitor and record the ammonia injection rate of the AMM systems. Data shall be reduced to 1-hour block averages. Operation of the AMM systems shall be determined by the automated control system, which shall be set in accordance with the preliminary performance and compliance tests for SAM emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

d. *ESP*: The permittee shall continuously monitor and record the opacity in the ductwork just after the ESP for use as part of the Compliance Assurance Monitoring Plan under Title V. Operation of the ESP shall be based upon COMS data collected during satisfactory PM emissions compliance tests. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

B. Material Handling Activities for Limestone and Gypsum

This section of the permit addresses the following emissions unit.

EU No.	Emission Unit Description
023	Limestone and Gypsum Material Handling Activities

Process Description

The FGD systems will include limestone storage and handling, limestone preparation, limestone slurry injection, and gypsum dewatering, transfer and storage. The limestone handling system will receive, store, size and transfer limestone to the FGD system's limestone preparation equipment. It will receive limestone delivered to the plant by rear dump trucks unloading into aboveground truck unloading feeders with integral hoppers. The system will consist of: a conveyor to transfer limestone received from truck unloading feeders; unloading and the stacking belt conveyor~~s~~ to transfer limestone to a covered storage pile; a portal scraper reclaimer and an emergency reclaim feeder; a reclaim conveyor to transfer limestone from the storage pile to a crusher feed belt conveyor, which transfers limestone to a crusher building for limestone sizing; a plant feed belt conveyor~~s~~ and silo feed belt conveyors to transfer limestone to the day silos.

The plant feed conveyor will be equipped with a diverter gate and will supply limestone to the first limestone day silo (Silo B) directly via a chute and to the other limestone day silos (Silos A & C) using a reversible conveyor. Limestone silos will be equipped with a pulse-jet fabric filter dust collection system. Dust collectors will be provided at each of the truck unloading feeders. A dust collection system will be provided for the crusher building. A water-fog dust suppression system will be provided at the discharge point of the reclaim conveyor and at the tail end of the crusher feed conveyor to suppress the limestone dust formation.

The limestone preparation system includes wet ball mill grinding systems to produce limestone slurry. Filtrate-recycle water from the FGD system will be used to prepare the limestone slurry to conserve make-up water. Fugitive dust emissions are minimized, by enclosures and the addition of water for the slurry.

The gypsum slurry from the FGD system will be delivered by bleed pumps to the dewatering system, which will consist of a filter feed tank, hydro-cyclones, vacuum belt filters, vacuum pumps, filtrate tanks, filtrate pumps, lined piping, and associated valves. The incoming gypsum slurry will contain approximately 18 to 22% suspended solids. Using a series of hydro-cyclones and three horizontal vacuum belt filters, the dewatering system will remove water until the slurry contains approximately 90% solids. Filtrate removed from the slurry will be stored and pumped back to the limestone preparation system or the absorber module. The de-watering system will be located inside a building. Fugitive dust emissions are negligible because the system is enclosed and wet.

A collecting belt conveyor collects dewatered gypsum from the vacuum belt filters in the dewatering system. Under normal operating conditions, this conveyor will feed gypsum onto a system of conveyors, which transfers the gypsum onto a gypsum handling pad or to the future wallboard plant. The gypsum handling pad will be located northeast of the dewatering facility and will be used primarily (until the future adjacent wallboard facility is built) to store the gypsum until it can be transferred offsite for beneficial use or disposal. In addition, the gypsum handling pad may be used to store “off-specification” gypsum if needed. Fugitive dust emissions will be minimal because the dewatered gypsum still contains approximately 10% water.

AUTHORIZED CONSTRUCTION

1. Equipment: The permittee is authorized to construct the following processes to support the FGD system: limestone storage and handling, limestone preparation, limestone slurry injection, and gypsum dewatering, transfer and storage. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-212.300 and 62-212.400(PSD), F.A.C.]

2. Air Pollution Control Equipment and Techniques: To comply with the standards of this permit, the permittee

shall design, install, operate and maintain the following air pollution control equipment.

Process Activity	Emissions Point No.	Control Device	Outlet Dust Loading Specification
Dry Limestone Handling System			
Limestone conveyors (general)	---	covered	---
Limestone reclaim conveyor (discharge)	---	dust suppressant	---
Dump trucks	---	covered	---
Two truck unloading feeders w/integral hoppers	EP-1A EP-1B	one dust collector per hopper	0.010 grains/dscf
Limestone storage	---	covered pile	---
Limestone crushing and sizing	EP-2	enclosed building w/baghouse	0.010 grains/dscf
Limestone silo feed conveyors and 3 Limestone day silos	EP-3	one dust collector	0.010 grains/dscf
Gypsum Dewatering System			
Gypsum dewatering system	---	enclosure/wet	---
Gypsum Handling System			
Gypsum handling system	---	enclosure/wet	---
Gypsum Handling Pad	---	water spray	---

Initial and replacement bags shall be selected based on the above design outlet dust loading specification. As part of the application to revise the Title V air operation permit to incorporate this air construction permit, the permittee shall submit the final design flow rates for each dust collector and baghouse. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-212.300 and 62-212.400(BACT), F.A.C.]

3. Fugitive Dust Emissions: The dry limestone handling and storage operations shall be enclosed to the extent practicable and confined to prevent fugitive dust emissions. During the construction period, fugitive dust emissions shall be minimized by techniques such as covering, confining and/or the application of water or dust suppressants to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

EMISSIONS LIMITATIONS AND PERFORMANCE STANDARDS

4. Capacities: None of the emissions units in this subsection are restricted by hours of operation (8760 hours/year). *{Permitting Note: For informational purposes, maximum limestone processing rate is estimated at 100 tons per day.}* [Application No. 0170004-016-AC; Rule 62-210.200(PTE), F.A.C.]

5. Opacity Standard: As determined by EPA Method 9, visible emissions from each baghouse and dust collector exhaust point shall not exceed 5% opacity based on a 6-minute average. [Application No. 0170004-016-AC; Rule 62-212.400(BACT), F.A.C.]

6. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

7. NSPS Subpart OOO Provisions: The limestone crushing activities are subject to the applicable requirements in NSPS Subpart OOO of 40 CFR 60. See Appendix G of this permit.

COMPLIANCE TESTING REQUIREMENTS

8. Initial Compliance Tests: Each baghouse exhaust shall be tested to demonstrate initial compliance with the

specified opacity standard. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the unit. [Rule 62-297.310(7)(a)1, F.A.C.]

9. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), each baghouse exhaust point shall be tested to demonstrate compliance with the specified opacity standard. [Rule 62-297.310(7)(a)4, F.A.C.]

10. Test Notification: At least 15 days prior to the date on which each formal compliance test is to begin, the permittee shall notify the Compliance Authority of: the date, time, and place of the test; and the contact person who will be responsible for coordinating and having the test conducted. [Rule 62-297.310(7)(a)9, F.A.C.]

11. Test Method: Opacity tests shall be conducted in accordance with EPA Method 9, which is described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Tests shall also comply with the applicable requirements of Rule 62-297.310, F.A.C. summarized in Appendix D (Common Testing Requirements) of this permit. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

12. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C. The minimum observation period for a visible emissions compliance test shall be 30 minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur. The permittee shall record the actual processing rate for the emissions unit being tested. [Rules 62-297.310(4) and (5), F.A.C.]

13. Common Testing Requirements: All required emissions tests shall be conducted in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. The minimum observation period for a visible emissions compliance test shall be 30 minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur. The permittee shall record the actual processing rate for the emissions unit being tested. [Rule 62-297.310, F.A.C.]

RECORDS AND REPORTS

14. Final Design Notification: Within 90 days of completing the FGD system design, provide the final details for the limestone and gypsum material handling activities including a process flow diagram and all control equipment specifications. It may be necessary to modify this air construction permit. [Application No. 0170004-016-AC; Rule 62-4.070(3), F.A.C.]

15. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Compliance Authority on the results of each such test. The required test report shall be filed with the Compliance Authority as soon as practical, but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Compliance Authority to determine if the test was properly conducted and the test results properly computed. [Rule 62-297.310(8), F.A.C.]

16. Operational Records: The owner or operator shall maintain the following records on site to demonstrate compliance with the specifications and limitations of this subsection.

    a. Records of the design outlet dust loading specifications for new and replacement fabric filter bags; and

    b. For each month, record the total limestone processed for the month and the previous 12 months.

    All records shall be made available to the Department and Compliance Authority upon request. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

C. Material Handling Activities for CBO System

This section of the permit addresses the following emissions unit.

ID	Emission Unit Description
025	**CBO Feed Fly Ash Silo**
026	**CBO Product Fly Ash Storage Dome and Truck Loadout Silo**

Process Description

Fly ash from Units 4 and 5 will be conveyed pneumatically to the CBO feed fly ash silo (EU-025). The silo will vent through a baghouse prior to discharge to the atmosphere. Fly ash will then be fed from the silo to the fluidized bed combustor (EU-024) for processing. Fly ash from the fluidized bed combustor will be separated from the exhaust gases by hot cyclones and directed to a heat exchanger to cool the product and recover heat. Thermal energy recovered from the CBO process will be used to heat condensate from the Unit 4 and 5 low-pressure feed water systems. The cooled exhaust gas will be routed through a cold cyclone and fabric filter to remove residual product fly ash before being returned to the inlet ductwork of Units 4 and 5 pollution control equipment (SCR, FGD, ESP and AMM systems).

Product fly ash separated by the cold cyclone and fabric filter will be sent to a surge bin with a portion of the product fly ash being returned to the fluidized bed combustor for temperature control. The remaining product ash is pneumatically conveyed to the product fly ash storage dome (EU-026) or directly to a truck load-out silo (also EU-026). The product fly ash storage dome will vent through a baghouse prior to discharging to the atmosphere. Particulate emissions captured during the truck load-out process will be routed to the truck load-out silo which will vent through a baghouse. Trucks will travel on paved roads within the plant and exit the plant for delivery offsite. Fugitive particulate matter emissions associated with product fly ash truck traffic will be controlled by maintaining the roads and periodic watering as needed.

AUTHORIZED CONSTRUCTION

1. CBO System: The permittee is authorized to construct a carbon burnout system consisting of the following major components: a fluidized bed combustor (EU-024) with hot cyclones to recycle ash back to the fluidized bed combustor, a heat recovery heat exchanger, cold cyclones to recover product ash and a fabric filter to recover product ash; a feed fly ash silo (EU-025, CBO-001); a product fly ash storage dome and a product fly ash truck loadout silo (EU-026). The system is designed for a maximum ash process rate of 75 tons per hour. For the fluidized bed combustor, the hot cyclones, cold cyclones and baghouse are considered process equipment and not air pollution control devices because the equipment is used to separate ash from the flue gas exhaust, which is then directed back into the boiler ductwork for emissions control. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-212.300 and 62-212.400(PSD), F.A.C.]

2. Air Pollution Control Equipment: To comply with the standards of this permit, the permittee shall design, install, operate, and maintain the following air pollution control equipment.

EU No.	Emissions Unit	Emissions Point No.	Control Device	Flow Rate	Outlet Dust Loading Specification
025	CBO Feed Fly Ash Silo	CBO-001	Baghouse	3040 acfm	0.010 grains/dscf
026	CBO Product Storage Dome	CBO-002	Baghouse	7600 acfm	0.010 grains/dscf
026	CBO Product Truck Loadout	CBO-003	Baghouse	7600 acfm	0.010 grains/dscf

Initial and replacement bags shall be selected based on the above design outlet dust loading specification. [Application No. 0170004-016-AC; Rules 62-4.070(3), 62-212.300 and 62-212.400(BACT), F.A.C.]

3. Fugitive Dust Emissions: The CBO system shall be enclosed to the extent practicable and confined to prevent fugitive dust emissions. During the construction period, fugitive dust emissions shall be minimized by techniques such as covering, confining and/or the application of water or dust suppressants to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

EMISSIONS LIMITATIONS AND PERFORMANCE STANDARDS

4. Capacities and Restrictions: None of the emissions units in this subsection are restricted by hours of operation (8760 hours/year). The maximum ash processing rate for the CBO system shall not exceed 320,000 tons of product ash during any consecutive 12 months. [Application No. 0170004-016-AC; Rule 62-210.200(PTE), F.A.C.]

5. Opacity Standard: As determined by EPA Method 9, visible emissions from each baghouse exhaust point shall not exceed 5% opacity based on a 6-minute average. [Application No. 0170004-016-AC; Rule 62-212.400(BACT), F.A.C.]

6. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

COMPLIANCE TESTING REQUIREMENTS

7. Initial Compliance Tests: Each baghouse exhaust shall be tested to demonstrate initial compliance with the specified opacity standard. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the unit. [Rule 62-297.310(7)(a)1, F.A.C.]

8. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), each baghouse exhaust point shall be tested to demonstrate compliance with the specified opacity standard. [Rule 62-297.310(7)(a)4, F.A.C.]

9. Test Notification: At least 15 days prior to the date on which each formal compliance test is to begin, the permittee shall notify the Compliance Authority of: the date, time, and place of the test; and the contact person who will be responsible for coordinating and having the test conducted. [Rule 62-297.310(7)(a)9, F.A.C.]

10. Test Method: Opacity tests shall be conducted in accordance with EPA Method 9, which is described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Tests shall also comply with the applicable requirements of Rule 62-297.310, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

11. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur. The permittee shall record the actual ash processing rate for the emissions unit being tested. [Rules 62-297.310(4) and (5), F.A.C.]

RECORDS AND REPORTS

12. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Compliance Authority on the results of each such test. The required test report shall be filed with the Compliance Authority as soon as practical, but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Compliance Authority to determine if the test was properly conducted and the test results properly computed. [Rule 62-297.310(8), F.A.C.]

C. Material Handling Activities for CBO System

13. Operational Records: The owner or operator shall maintain the following records on site to demonstrate compliance with the specifications and limitations of this subsection.

    a. Records of the design outlet dust loading specifications for new and replacement fabric filter bags; and

    b. For each month, record the total product ash processed for the month and the previous 12 months.

    All records shall be made available to the Department and Compliance Authority upon request. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

D. Units 4 and 5 – Temporary Trial Period with up to 50% Sub-bituminous Coal

This section of the permit addresses a temporary trial period for the following emissions units.

EU No.	Emission Unit Description
004	Unit 4 is a fossil fuel-fired, electric utility steam generator
003	Unit 5 is a fossil fuel-fired, electric utility steam generator

TEMPORARY AUTHORIZATION AND RESTRICTIONS

1. Trial Coal Blend: For Units 4 and 5, the permittee is temporarily authorized to fire trial coal blends with greater than 20% sub-bituminous coal by weight (including Powder River Basin coal), but not more than 50% sub-bituminous coal by weight. Coal fuel blends shall not exceed a maximum specification of 5.5 lb SO_2/MMBtu. The preliminary schedule is to conduct the trial before installation of the additional control systems. The purpose is to gather operational and emissions data to evaluate overall impacts in support of a future permanent request to fire bituminous/sub-bituminous coal blends. [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

2. Trial Test Burn Duration: The trial coal blends shall only be fired in existing Units 4 and 5 and shall be fired in a similar manner to the bituminous coal currently in use at the plant. The permittee shall provide at least a one-day advance notice (by phone, fax, or email) to the Compliance Authority prior to the initial firing of any trial coal blend. Once any trial coal blend is fired, the permittee shall complete the trial burn within 90 calendar days. No more than 150,000 tons of the trial coal blends shall be burned during the trial burn period. In addition, all trial burns shall be completed prior to the expiration date of this permit. Within five calendar days of completing the trial burn, the permittee shall notify the Compliance Authority (by phone, fax, or email) that the trial burn has been completed. [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS LIMITING AND PERFORMANCE STANDARDS

3. Performance Requirements: The permittee shall provide the Compliance Authority with a preliminary schedule for conducting the trial burn and performance tests and shall update this schedule as necessary. During the trial burn, the permittee shall comply with all terms and conditions in the current Title V air operation permit. If the trial burn results in operation that is not in accordance with the conditions of the Title V permit or the test protocol, the performance testing will cease as soon as possible. The permittee shall immediately notify the Compliance Authority (by phone, fax, or email) of any non-compliance issue. The trial burn shall not resume until appropriate actions have been taken to correct the problem. [Application No. 0170004-016-AC; Rule 62-4.070(3), F.A.C.]

4. Fugitive Dust: The permittee shall take reasonable precautions to prevent fugitive dust emissions from the unloading, storage, and handling of trial coal blends. These shall be the same reasonable precautions specified in the most recent Title V air operation permit to prevent fugitive dust emissions from the unloading, storage, and handling of the coal blends currently in use at the plant. [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

MONITORING AND TESTING

5. Baseline Emissions: Baseline emissions shall be determined by the continuous monitoring systems for opacity, NO_X, and SO_2 emissions when firing bituminous coal at permitted capacity. For each boiler that will fire the trial coal blend, the permittee shall conduct tests at permitted capacity for emissions of CO and PM. Permitted capacity is defined as 90 to 100 percent of the maximum heat input rate allowed by the permit (7200 MMBtu/hour based on a 24-hour average). Test results shall be reported in units of lb/MMBtu and lb/hour. If tests are conducted after installation of the new CO CEMS, baseline CO emissions shall be

determined by data collected by the CEMS. If available, existing data may be used for baseline data. [Rule 62-4.070(3), F.A.C.]

6. Trial Coal Blend Emissions: Emissions from firing the trial coal blend at permitted capacity shall be determined by the continuous monitoring systems for opacity, NO_X, and SO_2 coal blends. For each boiler that will fire the trial coal blends, the permittee shall conduct tests at permitted capacity for emissions of CO and PM. Permitted capacity is defined as 90 to 100 percent of the maximum heat input rate allowed by the permit (7200 MMBtu/hour based on a 24-hour average). If only one boiler fires the trial coal blend during the trial burn period, that unit shall conduct two series of tests to determine emission levels of PM, SAM, and VOC for the trial coal blend. Test results shall be reported in units of lb/MMBtu and lb/hour. If tests are conducted after installation of the new CO CEMS, baseline CO emissions shall be determined by data collected by the CEMS. The permittee shall obtain a sample of each trial coal blend fired. A proximate and ultimate analysis shall be provided for each sample taken. [Rule 62-4.070(3), F.A.C.]

7. Monitoring: The permittee shall conduct the following monitoring when firing the trial coal blend.

   a. The permittee shall record the amount and blend ratio of each trial coal blend delivered to the plant. A "certificate of analysis" (including the proximate and ultimate analysis) shall be retained for each delivery of trial coal blend.

   b. On at least three separate days, the permittee shall take samples of the trial coal blend being fired. A proximate and ultimate analysis shall be provided for each sample taken. Samples taken on different emissions testing days may satisfy this requirement.

   c. The permittee shall maintain daily records of the boiler operations including: the blend ratio as fired; the fuel mass firing rate; the heat input rate; steam production, temperature and pressure; and the MW generated.

   d. The permittee shall monitor and record the ESP secondary voltage and secondary current and calculate and record the total ESP secondary power input.

   e. The permittee shall continuously monitor and record opacity, NO_X, and SO_2 with the existing CEMS. If the trial burn is conducted after installation of the CO CEMS, CO emissions shall also be continuously monitored.

   [Rule 62-4.070(3), F.A.C.]

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

Method	Description of Method and Comments
1 - 4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5 or 5b	Determination of Particulate Matter (PM) Emissions
8 or 8A	Method for Determining Sulfuric Acid Mist (SAM) Emissions
9	Method for Determining Opacity Observations
10	Method for Determining Carbon Monoxide Emissions (Instrumental) The method shall be based on a continuous sampling train.
18	Method for Determining Gaseous Organic Compound Emissions (Gas Chromatography) Concurrently with EPA Method 25A, EPA Method 18 may be used as an optional method to deduct emissions of methane and ethane from the THC emissions measured by Method 25A.
19	Methods for Determining NO_X, PM, and SO_2 Mass Emission Rates
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)

Tests shall also be conducted in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

9. Notifications: The permittee shall provide the Compliance Authority with a written preliminary schedule for conducting any emissions tests (by letter, fax, or email). The preliminary schedule shall be updated as necessary. The permittee shall provide the Compliance Authority with at least 5 days advance notice (by phone, fax, or email) prior to conducting any emissions tests. [Rule 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

10. Trial Burn Report: Within 60 days of completing the trial burn period, the permittee shall submit a final report summarizing the trial burn to the Bureau of Air Regulation and the Compliance Authority. The trial burn report shall include, but not be limited to, the following information: actual schedule and overall description of the trial burn; summary of trial coal blends evaluated (amounts delivered; blend ratio; and proximate/ultimate analyses); discussion of operational issues with the trial coal blends (coal unloading, coal handling, coal storage, coal firing, fugitive dust, soot blowing, ESP performance and adjustments, ash handling, and ash storage); comparison of baseline operations versus operation with the trial coal blends; evaluation of current equipment compatibility with the trial coal blends; summary of boiler operating data and continuous emissions monitoring data; comparison of baseline emissions with emissions from firing trial coal blends (short-term and long-term); and a discussion of emissions changes as described in Appendix C of 40 CFR 60. [Rules 62-4.070(3), 62-210.200(PTE) and 62-212.400, F.A.C.]

E. Units 1, 2, 4 and 5 – Temporary Trial Period with Fuel Additive

This section of the permit addresses a temporary trial period for the following emissions units.

EU No.	Emission Unit Description
001	Unit 1 is a fossil fuel-fired, electric utility steam generator
002	Unit 2 is a fossil fuel-fired, electric utility steam generator
003	Unit 5 is a fossil fuel-fired, electric utility steam generator
004	Unit 4 is a fossil fuel-fired, electric utility steam generator

TEMPORARY AUTHORIZATION AND RESTRICTIONS

1. Fuel Additive: For Units 1, 2, 4 and 5, the permittee is temporarily authorized to apply a fuel additive (Environmental Energy Services, Inc.) based on calcium nitrate to currently authorized coal blends (bituminous coal, bituminous coal with coal briquettes, bituminous coal with sub-bituminous coal). The preliminary schedule is to conduct the trial before installation of the additional control systems. The purpose of the trial period is to evaluate the impact of the fuel additive on unit performance, slagging, emissions levels, and loss on ignition (LOI). The preliminary design is to spray the fuel additive on the coal prior to combustion. Preliminary estimates are for a rate of 3 to 30 gph (total to all feeders) of 500 to 1000 ppm of active concentrate onto the coal. Various applications rates will be tested. The purpose is to gather operational and emissions data to evaluate overall impacts in support of a future permanent request to use this fuel additive. *{Permitting Note: The vendor expects a 30% reduction in CO emissions, a 30% reduction in PM emissions, a 20% reduction in NOx emissions, and a 10% reduction in opacity.}* [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

2. Trial Test Burn Duration: The fuel additive shall only be applied to coal fired in the existing units. The permittee shall provide at least a one-day advance notice (by phone, fax, or email) to the Compliance Authority prior to the initial application of the fuel additive. Once the fuel additive is initially applied, the permittee shall complete all trial burns within 90 calendar days. Within five calendar days of completing the trial burn period, the permittee shall notify the Compliance Authority (by phone, fax, or email) that the trial burn period has been completed. [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS LIMITING AND PERFORMANCE STANDARDS

3. Performance Requirements: The permittee shall provide the Compliance Authority with a preliminary schedule for conducting trial burns and performance tests and shall update this schedule as necessary. During each trial burn, the permittee shall comply with all terms and conditions in the current Title V air operation permit. If a trial burn results in operation that is not in accordance with the conditions of the Title V permit or the test protocol, the trial burn shall cease as soon as possible. The permittee shall immediately notify the Compliance Authority (by phone, fax, or email) of any non-compliance issue. The trial burn shall not resume until appropriate actions have been taken to correct the problem. [Application No. 0170004-016-AC; Rule 62-4.070(3), F.A.C.]

MONITORING AND TESTING

4. Emissions - Baseline: Baseline emissions shall be determined by the continuous monitoring systems for opacity and NO_X, and SO_2 emissions when firing representative coal fuel blends at permitted capacity. For each boiler that will fire coal with the fuel additive, the permittee shall conduct impaction plate tests at permitted capacity for baseline PM emissions and use a portable analyzer to document baseline CO emissions. Permitted capacity is defined as 90 to 100 percent of the maximum heat input rate allowed by the

permit (7200 MMBtu/hour based on a 24-hour average). Test results shall be reported in units of lb/MMBtu and lb/hour. [Rule 62-4.070(3), F.A.C.]

5. Emissions with Fuel Additive: Emissions shall be determined by the continuous monitoring systems for opacity, NO_X, and SO_2 emissions when firing coal blends with fuel additive at permitted capacity. For each boiler that will fire coal with the fuel additive, the permittee shall conduct impaction plate tests at permitted capacity for baseline emissions of particulate matter (PM) and use a portable analyzer to document baseline CO emissions. Permitted capacity is defined as 90 to 100 percent of the maximum heat input rate allowed by the permit. Test results shall be reported in units of lb/MMBtu and lb/hour. [Rule 62-4.070(3), F.A.C.]

6. Monitoring of Operations: For each trial, the permittee shall conduct the following monitoring: the type, amount, and heat input of fuel fired; the boiler feedwater flow rates, boiler feedwater temperatures to the economizer, flue gas oxygen levels, and electrical outputs; the fuel additive injection rates and fuel additive concentrations; LOI, ash porosity, iron content, and slag viscosity; and continuously monitor and record opacity, NOx and SO_2 with the existing COMS and CEMS. For comparison purposes, the permittee shall identify the current corresponding baseline monitoring values for bituminous coal firing or collect baseline data during the trial burn period. [Rule 62-4.070(3), F.A.C.]

7. Notifications: The permittee shall provide the Compliance Authority with a written preliminary schedule for conducting any emissions tests (by letter, fax, or email). The preliminary schedule shall be updated as necessary. The permittee shall provide the Compliance Authority with at least 5 days advance notice (by phone, fax, or email) prior to conducting any emissions tests. [Rule 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

8. Trial Burn Report: Within 60 days of completing the trial burn, the permittee shall submit a final report summarizing the trial burn to the Bureau of Air Regulation and the Compliance Authority. The final report shall provide the following: the actual schedule and overall description of the trial burn; any operational issues related to the fuel additive; a comparison of baseline operation versus operation with the fuel additive; an evaluation of equipment compatibility with fuel additive; a summary and comparison of continuous emissions and opacity monitoring data; a summary and comparison of all operational parameters; a summary and comparison of emissions test results; a comparison of continuously monitored emissions; a discussion of the impacts on LOI, ash porosity, iron content, and slag viscosity; and a discussion of emissions changes as described in Appendix C of 40 CFR 60.

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

F. Units 4 and 5 – Temporary Trial Period with up to 30% Petroleum Coke

This section of the permit addresses a temporary trial period for the following emissions units.

EU No.	Emission Unit Description
003	Unit 5 is a fossil fuel-fired, electric utility steam generator
004	Unit 4 is a fossil fuel-fired, electric utility steam generator

TEMPORARY AUTHORIZATION AND RESTRICTIONS

1. Trial Coal Blend: Upon commercial operation of all air pollution control equipment (low-NO_X burners, SCR systems, FGD systems, AMM systems, and ESP improvements) and satisfactorily demonstrating compliance with the required initial tests, this air construction permit authorizes Units 4 and 5 to fire a trial coal blend of bituminous coal with up to 30% petroleum coke by weight. Coal fuel blends shall not exceed a maximum specification of 5.5 lb SO_2/MMBtu. This permit authorizes a trial period to fire such blends and does not authorize the permanent firing of petroleum coke. The purpose is to gather operational and emissions data to evaluate overall impacts in support of a future permanent request to fire coal blends with petroleum coke. [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

2. Trial Test Burn Duration: Trial coal blends shall only be fired in existing Units 4 and 5 and shall be fired in a manner similar to bituminous coal. The permittee shall provide at least a one-day advance notice (by phone, fax, or email) to the Compliance Authority prior to the initial firing of the first trial coal blend. Once the first trial coal blend is fired, the permittee shall complete all trial burns within 90 calendar days. No more than a total of 150,000 tons of trial petroleum coke/coal blends shall be fired during the trial burn period. In addition, all trial burns shall be completed prior to the expiration date of this permit. Within five calendar days of completing the trial burn period, the permittee shall notify the Compliance Authority (by phone, fax, or email) that the trial burn period has been completed. [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS LIMITING AND PERFORMANCE STANDARDS

3. Performance Requirements: The permittee shall provide the Compliance Authority with a preliminary schedule for conducting trial burns and performance tests and shall update this schedule as necessary. During each trial burn, the permittee shall comply with all terms and conditions in the current Title V air operation permit. If a trial burn results in operation that is not in accordance with the conditions of the Title V permit or the test protocol, the trial burn shall cease as soon as possible. The permittee shall immediately notify the Compliance Authority (by phone, fax, or email) of any non-compliance issue. The trial burn shall not resume until appropriate actions have been taken to correct the problem. [Application No. 0170004-016-AC; Rule 62-4.070(3), F.A.C.]

4. Fugitive Dust: The permittee shall take reasonable precautions to prevent fugitive dust emissions from the unloading, storage, and handling of the trial coal blends. These shall be the same reasonable precautions specified in the current Title V air operation permit to prevent fugitive dust emissions from the unloading, storage, and handling of bituminous coal currently in use at the plant. [Application No. 0170004-016-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

MONITORING AND TESTING

5. Baseline Emissions: Baseline emissions shall be determined by the continuous monitoring systems for opacity and CO, NO_X, and SO_2 emissions when firing bituminous coal at permitted capacity. For each boiler that will fire a petroleum coke/coal blend, the permittee shall conduct tests at permitted capacity for PM, SAM and VOC emissions. Permitted capacity is defined as 90 to 100 percent of the maximum heat input rate allowed by the permit (7200 MMBtu/hour based on a 24-hour average). Test results shall be reported in

units of lb/MMBtu and lb/hour. Compliance tests conducted after completing the construction authorized by this permit may be used for the baseline emissions data. [Rule 62-4.070(3), F.A.C.]

6. Trial Coal Blend Emissions: Emissions shall be determined by the continuous monitoring systems for opacity and CO, NO_X, and SO_2 emissions when petroleum coke/coal blends at permitted capacity. For each boiler that fires a petroleum coke/coal blend, the permittee shall conduct tests at permitted capacity for PM, SAM and VOC emissions. Permitted capacity is defined as 90 to 100 percent of the maximum heat input rate allowed by the permit (7200 MMBtu/hour based on a 24-hour average). Test results shall be reported in units of lb/MMBtu and lb/hour. During each required emission test, the permittee shall obtain a sample of the petroleum coke/coal blend as fired. A proximate and ultimate analysis shall be provided for each sample taken. If only one boiler fires the trial coal blend during the trial burn period, that unit shall conduct two series of tests to determine emission levels of PM, SAM, and VOC for the trial coal blend. [Rule 62-4.070(3), F.A.C.]

7. Monitoring: When firing trial coal bends, the permittee shall conduct the following monitoring.

   a. The permittee shall record the amount and blend ratio of each petroleum coke/coal blend delivered to the plant. A "certificate of analysis" (including the proximate and ultimate analysis) shall be retained for each delivery of petroleum coke/coal blend.

   b. For each petroleum coke/coal blend, the permittee shall take a sample of the blend as fired. A proximate and ultimate analysis shall be provided for each sample taken. Samples taken on different emissions testing days may satisfy this requirement.

   c. The permittee shall maintain daily records of the boiler operations including: the petroleum coke/blend ratio fired; the fuel mass firing rate; the heat input rate; steam production, temperature and pressure; and the MW generated.

   d. The permittee shall monitor and record the ESP secondary voltage and secondary current and calculate and record the total ESP secondary power input.

   e. The permittee shall continuously monitor and record opacity, CO, NO_X, and SO_2 with existing monitoring systems.

   [Rule 62-4.070(3), F.A.C.]

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

Method	Description of Method and Comments
1 - 4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5 or 5b	Determination of Particulate Matter (PM) Emissions
8 or 8A	Method for Determining Sulfuric Acid Mist (SAM) Emissions
9	Method for Determining Opacity Observations
10	Method for Determining Carbon Monoxide Emissions (Instrumental) The method shall be based on a continuous sampling train.
18	Method for Determining Gaseous Organic Compound Emissions (Gas Chromatography) Concurrently with EPA Method 25A, EPA Method 18 may be used as an optional method to deduct emissions of methane and ethane from the THC emissions measured by Method 25A.
19	Methods for Determining NO_X, PM, and SO_2 Mass Emission Rates
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)

Tests shall also be conducted in accordance with the requirements specified in Appendix D (Common

Testing Requirements) of this permit. The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

9. Notifications: The permittee shall provide the Compliance Authority with a written preliminary schedule for conducting any emissions tests (by letter, fax, or email). The preliminary schedule shall be updated as necessary. The permittee shall provide the Compliance Authority with at least 5 days advance notice (by phone, fax, or email) prior to conducting any emissions tests. [Rule 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

10. Emissions Tests Reports: The permittee shall prepare and submit reports for all emissions tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. For each test run, the report shall also indicate the following: the petroleum coke/blend ratio, the fuel firing rate, the heat input rate, the average ESP secondary power input, the opacity, the CO emission rate, the NOx emission rate, and the SO_2 emission rate. [Rule 62-297.310(8), F.A.C.]

11. Trial Burn Report: Within 60 days of completing the trial burn, the permittee shall submit a final report summarizing the trial burn to the Bureau of Air Regulation and the Compliance Authority. The trial burn report shall include, but not be limited to, the following information: actual schedule and overall description of the trial burn period; summary of petroleum coke/coal blends evaluated (amounts delivered, blend ratio, and proximate/ultimate analyses); discussion of operational issues of petroleum coke/coal (coal unloading, coal handling, coal storage, coal firing, fugitive dust, soot blowing, ESP performance and adjustments, ash handling, and ash storage); comparison of baseline operations versus operation with petroleum coke/coal blend; evaluation of current equipment compatibility with petroleum coke/coal blend; summary of continuous emissions monitoring data; summary of boiler operating data; summary of emissions test results, actual test schedule, and procedures used; comparison of baseline emissions with emissions from firing petroleum coke/coal blend (short-term and long-term); and a discussion of emissions changes as described in Appendix C of 40 CFR 60. [Rules 62-4.070(3), 62-210.200(PTE) and 62-212.400, F.A.C.]

G. Units 4 and 5 – Temporary Demonstration Project

This section of the permit addresses a temporary trial period for the following emissions units.

EU No.	Emission Unit Description
003	Unit 5 is a fossil fuel-fired, electric utility steam generator
004	Unit 4 is a fossil fuel-fired, electric utility steam generator
032	Temporary Material Storage and Transfer System

AUTHORIZED CONSTRUCTION

1. Temporary Alternative Sorbent Injection Equipment: The permittee is authorized to temporarily install and operate miscellaneous ancillary equipment to support the alternative dry sorbent demonstrations. The material storage system for each unit will consist of the following primary components: a dry sorbent storage container, a day bin (which are both controlled by a dust collector on the day bin), rotary valves and blowers for pneumatic delivery of the sorbent and sorbent injection lances. A delivery truck will pneumatically fill the storage container with sorbent for approximately two hours twice a day (four hours total). The sorbent will be pneumatically transferred from the storage container to the day bin for approximately one hour twice a day (two hours total). Each day bin has dedicated rotary valves and blowers for pneumatic delivery of the sorbent (approximately 500 standard cubic feet per minute (scfm)) to sets of injection lances mounted in flue gas ducts at various locations along the flue gas path. The pneumatic conveyor is also controlled by the dust collectors on the day bins. [Application No. 0170004-026-AC; Rules 62-4.070(3), and 62-212.300 F.A.C.]

2. Dust Collectors: A dust collector shall be installed on each day bin to control emissions from the loading of the dry sorbent storage container, loading of the day bin and unloading and transfer from the day bin to the injection lances. The day bin dust collector will have a flow rate of approximately 2,000 scfm during the loading operation. Each dust collector shall be designed for a dust outlet specification of 0.015 grains/dscf. [Application No. 0170004-026-AC and Rule 62-4.070(3), F.A.C.]

3. Anti-Fouling Probes: The permittee shall install, operate and maintain anti-fouling probes (e.g., Breen probes or equivalent) on at least one unit designed to measure conduction across the probe surface resulting from condensed hydrated bisulfate (ammonia bisulfate and sulfuric acid). In accordance with the manufacturer's recommendations, the probes shall be calibrated to provide measurements of ammonia bisulfate and sulfuric acid fouling, which can be used to detect the formation of ammonia slip as well as provide an indication of SO_3 levels. [Application No. 0170004-026-AC and Rule 62-4.070(3), F.A.C.]

TEMPORARY AUTHORIZATION AND RESTRICTIONS

4. Alternative Sorbent Injection System Trials: For Units 4 and 5, the permittee is temporarily authorized to operate an alternative sorbent injection system to evaluate the potential for SAM reduction for currently authorized coal fuel blends. The following alternative sorbents (or similar materials) may be evaluated: sodium bicarbonate, calcium hydroxide (hydrated lime), Trona, dry magnesium oxide, sodium bisulfate (SBS), calcium carbonate, micronized limestone and ammonia. The alternative dry sorbents will be injected into the flue gas through a combination of locations after the boiler (e.g., after the air heaters, before/after the SCR reactor, before/after the existing ESP, etc.). To the extent practicable, the data collected from the anti-fouling probes shall be used to estimate changes in SAM emissions due to the use of a given alternative sorbent. Operational and emissions data will be collected to evaluate overall impacts in support of a future permanent request to use an alternative sorbent. The temporary trials of alternative sorbent injection are expected to last 8 months: 6 months for testing and two months for mobilization and demobilization of the system. [Application No. 0170004-026-AC and Rule 62-4.070(3), F.A.C.]

5. Fuel Additives: For Units 4 and/or 5, the permittee is temporarily authorized to apply fuel additives to the coal fuel blend to evaluate the impact of the fuel additive on slagging, SAM emissions and unit performance. The following fuel additives (or similar additives) may be evaluated: magnesium oxide, magnesium hydroxide and two products from Environmental Energy Services, Inc. (Coaltreat 500 and Coaltreat 700). Various application rates will be used based on the chemical composition of the coal. To the extent practicable, the data collected from the anti-fouling probes shall be used to estimate changes in SAM emissions due to the use of a given fuel additive. Operational and emissions data will be collected to evaluate overall impacts in support of a future permanent request to use a fuel additive. *{Permitting Note: Boiler slag can catalyze fuel sulfur into SO_3. The successful reduction of boiler slag is expected to directly reduce SO_3 that is potentially emitted as SAM, which constitutes condensable particulate matter.}* [Application No. 0170004-026-AC]

EMISSIONS LIMITING AND PERFORMANCE STANDARDS

6. Performance Requirements – Alternative Sorbent Injection System Trials: During each temporary alternative sorbent trial, the permittee shall comply with all terms and conditions in the current Title V air operation permit, with the following exceptions: short-term SAM excursions that may occur while evaluating given sorbent injection modes (e.g., sorbent type, rate, injection location, etc.) during the demonstration period; the established operating protocol (ammonia injection rate); and the opacity limit (a temporary opacity limit will apply during the trials). In between trials of alternative sorbents, the permittee shall resume operation of the existing AMM system in accordance with the established operating protocol that demonstrates compliance with the BACT limit for SAM emissions. If a demonstration results in operation that is not in accordance with the conditions of the Title V permit or this air construction permit, the permittee shall cease the demonstration as soon as possible and immediately notify the Compliance Authority (by phone, fax, or email). The demonstration shall not resume until appropriate actions have been taken to correct the problem. [Application No. 0170004-026-AC; Rule 62-4.070(3), F.A.C.]

7. Performance Requirements – Fuel Additive Trials: During each temporary fuel additive trial, the permittee shall comply with all terms and conditions in the current Title V air operation permit. If the trial of a fuel additive results in operation that is not in accordance with the conditions of the Title V permit or this air construction permit, the permittee shall cease the trial as soon as possible and immediately notify the Compliance Authority (by phone, fax, or email). The demonstration shall not resume until appropriate actions have been taken to correct the problem. [Application No. 0170004-026-AC and Rule 62-4.130, F.A.C.]

8. Temporary Opacity Standard – Units 4 and 5: As determined by EPA Method 9 during the trial period, the stack exhaust of Units 4 and 5 may exceed 10% opacity provided the following additional conditions are met:

   a. As determined by the in-duct COMS for the given unit, the in-duct opacity after the ESP and before the wet FGD system does not exceed 10%, based on a 6-minute average.

   b. As determined by EPA Method 9 observations, the stack exhaust shall not exceed 15% opacity based on a 6-minute block average, except for one 6-minute period per hour of not more than 20% opacity.

   The temporary opacity standard shall become effective beginning with the first trial of an alternative sorbent and shall end upon issuance of the Department's written approval or disapproval to continue operation of the temporary sorbent injection system. *{Permitting Note: The purpose of the temporary project is to evaluate alternative sorbents that will mitigate potential visible plume formation. This alternate standard will provide the flexibility necessary to conduct successful trials while ensuring proper operation of the ESP to control particulate matter.}* [Rule 62-4.070(3), F.A.C.]

9. Opacity Work Practice Standard – Temporary Dust Collectors: As determined by EPA Method 9, visible

emissions from each temporary dust collector exhaust shall not exceed 5% opacity based on a 6-minute average. This visible emissions limit is a work practice standard to prevent circumvention of the control device and ensure proper operation. If visible emissions in excess of this standard occur, the permittee shall investigate the cause and take corrective action to regain operation below the standard (e.g., cause: bag failure / corrective action: replaced bags). For this temporary equipment, visible emissions in excess of the opacity standard are not necessarily a violation of this permit; however, failure to investigate excess emissions and take corrective action to minimize emissions may be considered circumvention of a control device. [Application No. 0170004-026-AC and Rule 62-4.070(3), F.A.C.]

10. Fugitive Dust Control: To the extent practicable, the sorbent handling and storage operations shall be enclosed and confined to prevent fugitive dust emissions. The permittee shall take reasonable precautions (as specified in the current Title V air operation permit) to prevent fugitive dust emissions from the unloading, storage and handling of alternative sorbents. [Application No. 0170004-026-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

MONITORING

11. Anti-Fouling Probes: To the extent practicable, data collected from the anti-fouling probes shall be used to monitor changes in SAM emissions resulting from the use of a fuel additive, an alternative sorbent or a combination of the two. The permittee may elect to conduct preliminary engineering stack tests to correlate SAM emissions with data collected from the anti-fouling probes. [Application No. 0170004-026-AC and Rule 62-4.070(3), F.A.C.]

12. Monitoring of Operations – Alternative Sorbent Injection System Trials: For each alternative sorbent trial, the permittee shall conduct the following monitoring: the type, amount and heat input rate of fuel fired; electrical generating outputs; flue gas oxygen levels; ammonia injection rates; the alternative sorbent injection rates; fuel additive injection rates and concentrations (if applicable); data from the existing CEMS (CO, NOx and SO_2) and COMS (opacity); and SAM emissions based on data collected from the anti-fouling probes or other available data. The permittee may also elect to conduct preliminary engineering stack tests to establish SAM emissions for a given alternative sorbent or correlate SAM emissions with data collected from the anti-fouling probes. For comparison purposes, the permittee shall identify the corresponding baseline monitoring values. [Rule 62-4.070(3), F.A.C.]

13. Monitoring of Operations – Fuel Additive Trials: For each fuel additive trial, the permittee shall conduct the following monitoring: the type, amount and heat input of fuel fired; electrical generating outputs; flue gas oxygen levels; the fuel additive injection rates and concentrations; data from the existing CEMS (CO, NOx and SO_2) and COMS (opacity); fly ash analysis and impact on slag formation; and SAM emissions based on data collected from the anti-fouling probes or other available data. The permittee may also elect to conduct preliminary engineering stack tests to establish SAM emissions for a given fuel additive or correlate SAM emissions with data collected from the anti-fouling probes. For comparison purposes, the permittee shall identify the corresponding baseline monitoring values. [Rule 62-4.070(3), F.A.C.]

14. Opacity Observations – Temporary Dust Collectors: Within 30 days of first loading the sorbent storage container, the permittee shall conduct an EPA Method 9 visible emissions observation on each dust collector exhaust. The test shall be conducted under at least one of the following conditions: loading the storage container, loading the day bin and/or pneumatically injecting sorbents. The required observation period is 30 minutes or the duration of the loading cycle (if less than 30 minutes). [Rules 62-4.070(3) and 62-297.310(7), F.A.C.]

CONTINUED TEMPORARY OPERATION

15. SAM Emissions Performance Tests – Operating Protocol: For each alternative sorbent that the permittee

intends to request continued temporary authorization, the permittee shall conduct SAM emissions performance tests to develop the required operating protocol for the alternative sorbent. The SAM performance tests shall be conducted in accordance with Conditions 16 and 18 of Section 3A of this permit. As necessary, the operating protocol shall address the injection of ammonia, the injection of the alternative sorbent, the injection of a combination of ammonia and of the alternative sorbent, and any fuel additives in use during the SAM performance tests. The permittee shall operate the AMM systems in accordance with the operating protocol to ensure compliance with the BACT standard for SAM emissions. *{Permitting Note: A simple example of an operating protocol would be to express the alternative sorbent injection rate versus the unit heat input rate for a given coal sulfur content. In other words, as the coal firing rate and associated SAM emissions increase, the alternative sorbent injection rate would increase.}* [Rule 62-4.070(3), F.A.C.]

16. Alternative Sorbent Injection – Continued Temporary Operation: The permittee may request written authorization from the Bureau of Air Regulation to continue operation of the temporary sorbent injection system for both units beyond the demonstration period in accordance with an operating protocol that demonstrates compliance with the BACT standard for SAM emissions. The request shall include the supporting data and the performance curves, which shall be based on SAM emissions performance test data conducted for a given alternative sorbent and set of operating conditions for Units 4 and/or 5. For permanent authorization of an alternative sorbent, the permittee shall submit an application for an air construction permit that also identifies the design features, additional permanent equipment and new construction activities. [Rule 62-4.070(3), F.A.C.]

17. Fuel Additives: The permittee may request written authorization from Bureau of Air Regulation to continue the application of a given fuel additive that shows improved boiler performance with no change or decreased emissions impacts. The request shall include operational and emissions data that support continued use of the fuel additive. [Rules 62-4.070(3), F.A.C.]

RECORDS, NOTIFICATIONS AND REPORTS

18. Notifications: Within 60 days of issuance of this permit, the permittee shall provide the Compliance Authority and the Bureau of Air Regulation with a written preliminary schedule for: installing the temporary injection equipment, conducting the fuel additive trials, conducting the alternative sorbent trials and conducting any emissions performance tests. As necessary, the permittee shall update changes to this schedule by letter, fax or email (e.g., completing construction of the temporary equipment, starting a new trial of an alternative sorbent, completing the trial of an alternative sorbent, starting a new fuel additive trial, completing a fuel additive trial, scheduled stack tests, etc.). The permittee shall provide the Compliance Authority with at least 5 days advance notice (by phone, fax or email) prior to conducting any SAM stack tests. Based on extenuating circumstances, the Compliance Authority may waive this advance notice period. [Rule 62-4.070(3), F.A.C.]

19. Test Reports: The permittee shall submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(8), F.A.C.]

20. Demonstration Report: Within 60 days of completing all demonstrations, the permittee shall submit a final report summarizing the results of the demonstration projects to the Bureau of Air Regulation and the Compliance Authority. At a minimum, the final report shall provide the following: the actual schedule and overall description of the demonstration projects (fuel additives and alternative sorbents); any operational issues with the demonstration projects; a comparison of baseline operation versus operation with each demonstration project; a summary and comparison of continuous emissions and opacity monitoring data; a summary and comparison of the specified operational parameters; a summary and comparison of emissions performance test results; recommended fuel additive rates and concentrations; and (if possible) a preliminary operating protocol for each alternative sorbent demonstrating compliance with the BACT standard for SAM

emissions. [Rule 62-4.070(3) and 62-210.400, F.A.C.]