Florida Department of Environmental Protection

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PERMITTEE

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Authorized Representative:
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Air Permit No. 1050233-029-AC (PSD-FL-194J)
Permit Expires: December 31, 2013
Polk Power Station
Re-Permitting of Unit 1

PROJECT

This project updates the original air construction permit for integrated gasification combine-cycle Unit 1 at the Polk Power Station by incorporating the original PSD construction permit (PSD-FL-194) and all subsequent construction permit modifications into a "clean" new construction permit (PSD-FL-194J). Redundant and obsolete permit conditions were removed. The permit includes revisions related to: the heat input rate to the combined cycle combustion turbine (CCCT); fuel sulfur and sulfur dioxide monitoring requirements for the auxiliary boiler, the coal and petcoke monitoring requirements for the solid fuel gasification system, and replacing fuels with natural gas for several units. This permit effects the existing Polk Power Station, which is an electrical generating plant categorized under Standard Industrial Classification No. 4911. The existing facility is located in Polk County at 9995 State Route 37 South in Mulberry, Florida. The UTM coordinates are Zone 17, 402.45 kilometers (km) East, and 3067.35 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices).

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 is a revision of the original air construction permit issued pursuant to Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality. A copy of this permit modification shall be filed with the referenced permit and shall become part of the permit.

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

Executed in Tallahassee, Florida
(Electronic Signature)

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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 the date indicated below to the following persons.

Ms. Karen Sheffield, TEC: kasheffield@tecoenergy.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.
(Electronic Signature)

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FACILITY DESCRIPTION

The Polk Power Station (PPS) now consists of five power generation units; however, this permit only addresses Unit 1, the integrated gasification combined-cycle (IGCC) plant. Unit 1 is comprised of a 260 megawatt (MW – net, electrical) combined cycle CCCT designated Emission Unit No. 1 (EU 001). This CCCT fires synthetic gas (syngas) produced from the gasification of solid fuels including coal and petroleum coke (petcoke) and No. 2 fuel oil as a backup and startup fuel. In addition, Unit 1 consists of: a heat recovery steam generator (HRSG); a nominal 123 MW (gross) steam turbine-electrical generator (STEG); an oxygen plant; a synthetic gas (syngas) cleanup and sulfur recovery system; an auxiliary boiler (EU 003), which fires No. 2 fuel oil; a sulfuric acid plant (EU 004); a solid fuel handling system (EU 005); and a solid fuel gasification system (EU 006).

PROPOSED PROJECT

This permitting action is to re-permit Unit 1 at the Polk Power Station by incorporating the original PSD construction permit (PSD-FL-194) and all subsequent construction permit modifications (PSD-FL-194A through 194I) into a "clean" new construction permit. Redundant and obsolete permit conditions and emission limits will be removed. In addition, changes dealing with the heat input rate to the CCCT, the fuel sulfur monitoring requirement and sulfur dioxide emissions limit for the auxiliary boiler, the visible emissions monitoring of the sulfuric acid plant, the petcoke monitoring requirements for the solid fuel gasification system and changes to the startup and backup fuels for Unit 1 were incorporated into the new permit.

Unit 1 at the PPS consists of the following emission units.

EU No.	Description
001	260 MW Combined Cycle Gas Turbine No. 1
003	120 Million Btu per Hour Auxiliary Boiler
004	Sulfuric Acid Plant
005	Solid Fuel Handling System
006	Solid Fuel Gasification System

FACILITY REGULATORY CLASSIFICATION

- The facility is not 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 PSD of Air Quality.
- The facility operates units subject to the New Source Performance Standards (NSPS) in Part 60, Title 40 of the Code of Federal Regulations (CFR).

PREVIOUS APPLICABLE REQUIREMENTS

The conditions of this permit supersede all previously issued air construction permits and applicable conditions for the emissions units comprising Unit 1. Previous permits for all other emission units at the Polk Power Station are still applicable and enforce. [Rule 62-4.070, F.A.C.]

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SECTION 2. ADMINISTRATIVE REQUIRMENTS (DRAFT)

1. Permitting Authority: The permitting authority for this project is the Office of Permitting and Compliance in the Division of Air Resource Management of the Department of Environmental Protection (Department). The Office of Permitting and Compliance mailing address is 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for permits to operate an emissions unit shall be submitted to the Air Resource Section of the Department's Southwest District Office at: 13051 North Telecom Parkway, Temple Terrace, Florida 33637. The telephone number is 813/632-7600 and the fax number is 813/632-7665. Copies shall be sent to each agency identified under 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 North Telecom Parkway, Temple Terrace, Florida 33637. The telephone number is 813/632-7600 and the fax number is 813/632-7665.

3. Appendices: The following Appendices are included in Section 4 of this permit:
   a. Appendix CC. Common Conditions;
   b. Appendix CF. Citation Formats and Glossary of Common Terms;
   c. Appendix CTR. Common Testing Requirements;
   d. Appendix Db. NSPS for Industrial-Commercial-Institutional Steam Generating Units;
   e. Appendix GC. General Conditions;
   f. Appendix GG. NSPS for Stationary Gas Turbines;
   g. Appendix GP. NSPS General Provisions; and
   h. Appendix Y. NSPS Subpart Y - for Coal Preparation and Processing Plants.

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: The permittee shall notify the Compliance Authority upon commencement of construction. No new emissions unit shall be constructed and no existing emissions unit shall be modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Source Obligation:
   (a) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   (b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

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

8. Objectionable Odors Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]

   {Note: An objectionable odor is defined in Rule 62-210.200(Definitions), F.A.C., as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance.}

9. Unconfined Emissions of Particulate Matter: No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions. Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter. General reasonable precautions include the following, as applicable:

   (a) Paving and maintenance of roads, parking areas and yards;

   (b) Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing;

   (c) Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities;

   (d) Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulate from becoming airborne;

   (e) Landscaping or planting of vegetation;

   (f) Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter;

   (g) Confining abrasive blasting where possible; and

   (h) Enclosure or covering of conveyor systems. In determining what constitutes reasonable precautions for a particular facility, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

   Additional reasonable precautions, as needed, applicable to this facility are:

   (a) All materials, except tires, coal and petroleum coke, at the plant shall be stored under roof on compacted clay or concrete, or in enclosed vessels.

   (b) Water supply lines, hoses and sprinklers shall be located near all materials, coal and petroleum coke stockpiles.

   (c) All plant operators shall be trained in basic environmental compliance and shall perform visual inspections of materials, coal and petroleum coke regularly and before handling. If the visual inspections indicate a lack of surface moisture, the materials, coal and petroleum coke shall be wetted with sprinklers. Such wetting shall continue until the potential for unconfined particulate matter emissions are minimized.

   (d) Water spray shall be used to wet the materials and fuel if inherent moisture and moisture from wetting the storage piles are not sufficient to prevent unconfined particulate matter emissions.

   (e) The manufacturing area and the access roadways for the facility shall be paved with asphalt or concrete.

   (f) Vacuum Sweeper shall be used on paved roads.

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(g) In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

[Rule 62-296.320(4)(c), F.A.C.]

10. Previous Permits: This permit supersedes and replaces all previous air construction permits and applicable conditions related to Unit 1 at the Polk Power Station.
[Rules 62-4.070(3); 62-210.200(PTE); and 62-212.400 (PSD) F.A.C.]

11. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority.

{Permitting Note: A Title V revision was issued concurrently with this permit.}

[Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213, F.A.C.]

12. General Visible Emissions Standard: Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than 20 percent opacity. The test method for visible emissions shall be EPA Method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C. Test procedures shall meet all applicable requirements of Chapter 62-297, F.A.C. [Rule 62-296.320(4)(b)1, F.A.C.]

13. Excess Emissions: The following excess emissions provisions cannot be used to vary any NSPS or NESHAP requirements from any subpart of 40 CFR 60 or 40 CFR 63. Unless otherwise specified in this permit, the following conditions apply.

    a. *Excess Emissions Allowed - Startup, Shutdown or Malfunction*. Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited.

    b. *Best Operational Practices to Minimize Excess Emissions*. The permittee shall follow the best operational practices to minimize excess emissions during startup and shutdown.

    c. *Excess Emissions Prohibited*. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited.

    [Rule 62-210.700 and 62-213.440(1), Operational Requirements that Assure Compliance, F.A.C. and Applicant's Request]

14. Annual Operating Report for Air Pollutant Emitting Facility: The Annual Operating Report for Air Pollutant Emitting Facility shall be completed each year and shall be submitted to the Compliance Authority by April 1st of the following year. [Rule 62-210.370(3), F.A.C.]

15. Conversion to Natural Gas: The permittee shall notify the Compliance Authority with 30 days of converting any EU of Unit 1 to natural gas. [Rules 62-4.070(3); 62-210.200(PTE); and 62-212.400 (PSD) F.A.C.]

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A. 260 MW Combined Cycle Gas Turbine No. 1 (EU 001)

The specific conditions in this section apply to the following emissions unit:

EU ID No.	Brief Description
001	260 MW Combined Cycle Gas Turbine No. 1: This IGCC CCCT is a General Electric Model Number 7F unit capable of firing syngas and currently No. 2 fuel oil as a backup and startup fuel. As a result of this permitting action, natural gas will eventually replace the No. 2 fuel oil and also act as an augmentation fuel. The combustion turbine uses nitrogen diluent injection and syngas moisture saturation when firing syngas and water injection when firing No. 2 fuel oil to control nitrogen oxide (NO_X) emissions. The nitrogen diluent injection system and syngas moisture saturation controls NO_X emissions by reducing the flame temperature in the combustion turbine. The stack parameters for the CCCT are: height, 150 feet; diameter, 19 feet; exit temperature, 340 degrees F; and the actual stack gas flow rate is approximately 1,290,000 acfm. Design Heat Input: Based on a compressor inlet temperature of 59 ºF, fuel temperature of 619 ºF, diluent temperature of 616 ºF, no air extraction, and based and the lower heating value (LHV) of each fuel, the permitted heat input rate to the CCCT is 1,642 MMBtu/hr when firing syngas, syngas augmented by natural gas, natural gas alone, or No. 2 fuel oil alone. Heat input rates may vary depending on site-specific ambient conditions and CCCT characteristics. Manufacturer's curves approved by the Department shall be used to correct the heat input rate to other temperatures/conditions when necessary.

POLLUTION CONTROL TECHNOLOGIES

1. Nitrogen Diluent Injection: The CCCT is equipped with a nitrogen diluent injection system and syngas moisture saturation to control nitrogen oxide (NO_X) emissions when firing syngas. The nitrogen diluent injection system and syngas moisture saturation control NO_X emissions by reducing the flame temperature in the combustion turbine. It also serves a secondary purpose of increasing the fuel mass flow of the relatively low heat content syngas in order to increase the power output of the CCCT.
[Rules 62-4.070(3) and 62-212.400, F.A.C., and BACT]

2. Water Injection System: The CCCT is also equipped with a water injection system to control NO_X emissions when firing No. 2 fuel oil. This system also controls NO_X emissions by reducing the flame temperature in the combustion turbine. **{This condition becomes obsolete upon conversion of the CCCT from fuel oil to natural gas.}** [Rules 62-4.070(3) and 62-212.400, F.A.C., and BACT]

3. Steam Injection: Once the CCCT is converted to use natural gas as the startup, backup and augmentation fuel to replace No. 2 fuel oil, the owner or operator shall control emissions of NO_X by the installation of a steam injection system. [Rules 62-4.070(3) and 62-212.400, F.A.C., and BACT]

NSPS APPLICABILITY

4. NSPS Subpart GG: IGCC CCCT is an affected unit subject to the provisions of 40 CFR 60, NSPS Subpart GG for Stationary Combustion Turbines. The owner or operator of the affected unit must comply with all the applicable requirements of this subpart. [Rule 62-204.800, F.A.C.; and 40 CFR 60, Subpart GG]

5. NSPS Subpart A: This emissions unit is subject to the applicable General Provisions of NSPS Subpart A. [Rule 62-204.800, F.A.C.; and 40 CFR 60, Subpart A]

PERFORMANCE AND OPERATIONAL RESTRICTIONS

6. Hours of Operation: This emission unit may operate continuously, i.e., 8,760 hours per year. [Rule 62-210.200, F.A.C., Definitions - potential to emit (PTE)]

7. Allowable Fuels: The CCCT shall utilize the following fuels::

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a. *Syngas*: The CCCT fires syngas as the primary fuel

b. *Fuel Oil*. The CCCT can fire No. 2 fuel oil or pipeline quality natural gas as a startup and backup fuel. The firing of No. 2 fuel oil or pipeline quality natural gas is limited to a 10 percent (%) annual capacity factor to be determined as follows:

_____

Once the unit is converted from No. 2 fuel oil to natural gas the compliance authoring shall be notified within 30 days. After conversion to natural gas, the CCCT is prohibited from firing fuel oil

c. *Natural Gas*. The CCCT has the option to fire syngas augmented with natural gas as needed.

[Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

8. Fuel Oil Sulfur Content: The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05%, by weight. Compliance with this limit is shown by meeting the SO_2 emission limit given in **Specific Condition 10** of this subsection with compliance shown by a continuous emission monitoring system (CEMS). **{This condition becomes obsolete upon conversion of the CCCT from fuel oil to natural gas.}** [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C; and Federal Acid Rain Program]

9. Natural Gas Sulfur Content: The CCCT shall fire pipeline quality natural gas which shall contain no more than 2.0 grains of sulfur per 100 standard cubic feet (gr/100 SCF). Compliance with this limit is shown by meeting the SO_2 emission limit given in **Specific Condition 10** of this subsection with compliance shown by a continuous emission monitoring system (CEMS). [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C; and Federal Acid Rain Program]

EMISSIONS STANDARDS

10. Emission Standards: The compliance authority shall be notified within 30 days after the CCCT is converted from No. 2 fuel oil to natural gas. **After conversion to natural gas, the CCCT is prohibited from firing fuel oil and fuel oil based emission limits shall no longer apply**. The maximum allowable emissions from the CCCT shall not exceed the following:

Pollutant [1]	Fuel	Basis [2]	lb/hr [3]	TPY [4]	Comp. [5]
NO_X	Oil	42 ppmvd	311	N/A/	CEMS
	Natural Gas Only	25 ppmvd	185		
	Syngas or syngas with natural gas augmentation	15 ppmvd	132	657/601	
VOC [6]	Natural Gas Syngas with natural gas augmentation	0.0017 lb/MMBtu	3	N/A	IST
CO	Oil	40 ppmvd	99	N/A	ST
	Syngas, natural gas or syngas with natural gas augmentation	25 ppmvd	98	430.1	ST
PM/PM_{10} [7]	Oil	0.009 lb/MMBtu	17	N/A	ST
	Syngas, natural gas or syngas with natural gas augmentation	0.013 lb/MMBtu	17	74.5	ST
SO_2	Oil	0.048 lb/MMBtu	92.2	N/A	CEMS
	Syngas, natural gas or syngas with natural gas augmentation	0.17 lb/MMBtu	357	1,563.7	

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A. 260 MW Combined Cycle Gas Turbine No. 1 (EU 001)

Pollutant [1]	Fuel	Basis [2]	lb/hr [3]	TPY [4]	Comp. [5]
SAM [8]	Syngas, natural gas or syngas with natural gas augmentation	N/A	55	241	ST
VE	Oil	20 percent opacity			ST [9]
	Syngas, natural gas or syngas with natural gas augmentation	10 percent opacity			ST

1. Pollutant: PM = particulate matter; PM_{10} = PM with a mean diameter of 10 microns or less; SO_2 = sulfur dioxide; NO_X = nitrogen oxide; CO = carbon monoxide; VOC = volatile organic compounds; SAM = sulfuric acid mist; and VE = visible emissions. PSD-FL-194J replaces all previous PSD permits and represents latest BACT and NSPS emission limits and compliance methods.
2. Syngas emission limits in pounds per million British thermal units (lb/MMBtu) are based on higher heating value (HHV) to the solid fuel gasifier and include emissions from the sulfuric acid plant. Pollutant concentrations in parts per million volume dry (ppmvd) are corrected to 15% oxygen (O_2). *{Permitting Note: For reference purposes only, based on a compressor inlet temperature of 59 ºF based and the higher heating value (HHV) of each fuel, the permitted heat input rates to the CCCT are: 1,755 MMBtu/hr when firing syngas and syngas augmented by natural gas; and 1,765 MMBtu/hr when firing either natural gas or No. 2 fuel oil alone.}*
3. Emission limitations in lbs/hr are 30-day rolling averages, except for NO_X while firing syngas, which is limited in ppmvd at 15% O_2 and complied with on a 30-day rolling average via CEMS.
4. Annual emission limits in tons per year (TPY) are based on syngas firing with a 10 percent annual capacity factor firing fuel oil. The NO_X limits are for fuel oil/natural gas firing
5. Method of compliance: CEMS = continuous emission monitor system; ST = annual stack test; and IST = initial stack test.
6. Initial stack test firing syngas was conducted. No additional testing with syngas required. Stack tests on natural gas are not required.
7. Excluding SAM. Stack tests required when firing syngas.
8. Annual stack tests conducted while firing syngas only.
9. Annual emissions compliance testing is not required for the CCCT while burning only No. 2 fuel oil or natural gas for less than 400 hours per year.

CONTINOUS MONITORING REQUIREMENTS

11. <u>NO_X and SO_2 CEMS</u>: CEMS are installed on the CCCT stack to measure and record the emissions of NO_X and SO_2. The CEMS shall be calibrate, maintain, and operate in a manner sufficient to demonstrate compliance with the emission limits given in **Specific Condition 10** of this subsection. Emission limitations in lbs/hr are 30-day rolling averages, except for NO_X while firing syngas, which is also limited in ppmvd at 15% O_2 and complied with on a 30-day rolling average via CEMS. The NO_X and SO_2 CEMS shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Record keeping and reporting shall be conducted pursuant to Subparts F and G in 40 CFR 75.
[Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C; and Federal Acid Rain Program]

{Permitting Note: In addition to the NO_X and SO CEMS, CEMS for carbon dioxide (CO_2) and stack gas flow are installed on the CCCT stack for purposes of the Acid Rain program.

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TESTING AND MONITORING REQUIREMENTS

12. Test Methods: Required tests shall be performed in accordance with the following reference method.

Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content *{Notes: Methods shall be performed as necessary to support other methods.}*
EPA Methods 5, 5B or 17	Methods for Determining PM Emissions
EPA Methods 6, 6A, 6B or 6C	Methods for Determining SO_2 Emissions
EPA Method 7, 7A, 7C, 7D or 7E	Determination of NO_X Emissions
EPA Method 8, 8A, 8B or 320	Determination of SAM Emissions
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Carbon Monoxide (NDIR) or CO for Certifying CEMS
EPA Method 18	Measurement of Gaseous Organic Compound Emissions (VOC)

The above methods are described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and 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. [Chapter 62-297, F.A.C.]

13. Initial Compliance Test. Within 90 days of conversion of the CCCT to natural gas, stack tests shall be conducted to show that the CCCT is in compliance with the CO and VE emissions limits specified in **Specific Condition 11** of this subsection. Test shall be conducted with the CCCT firing natural gas only and with the CCCT firing syngas augmented with natural gas with the CCCT at its nominal heat input or up to 10% greater. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C; and Federal Acid Rain Program]

14. Annual Compliance Test. During each federal fiscal year (October 1st to September 30th), this emission unit shall be stack tested to demonstrate compliance with the emission limitations and standards for CO, VE and PM/PM_{10}. Test shall be conducted with the CCCT at its nominal heat input or up to 10% greater. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C; and Federal Acid Rain Program]

15. Testing Frequency - SAM. The permittee shall conduct stack tests semi-annually to demonstrate continued compliance with the permitted emissions limits for SAM. The tests shall be conducted with the CCCT firing syngas only with the CCCT at its nominal heat input or up to 10% greater. The semi-annual testing shall be performed for a period of five years following the increase in the petcoke blend ratio and shall consist of at least six test runs. **{Since the petcoke blend ratio was increased to 85% in the Fall of 2008, the five-year period is effective calendar years 2009 through 2013.}** Thereafter SAM stack testing shall be conducted during each federal fiscal year. [Rules 62-4.070(3) and 62-297.310(7), F.A.C]

16. Testing Requirements. Emissions testing shall be conducted while gasifying and firing a blend of coal/petroleum coke within 10% of 4.7% sulfur by weight and within fuel consumption constraints specified in this permit. Initial and annual tests shall be conducted at 90% or greater of the permitted heat input rate provided in emissions unit description and corrected as described therein. If it is impracticable to test within the described range, the unit may be tested at less than the described range; in this case, subsequent emissions

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unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.
[Rule 62-4.070(3) and 62-297.310, F.A.C.; and 40 CFR 60.8]

NOTIFICATIONS, RECORDS AND REPORTS

17. Records of Fuels and Heat Input: The owner or operator shall make and maintain records of heat input to the CCCT on a block-hour basis, starting at the beginning of each hour, by multiplying the hourly average fuel firing rate by the heating value representative of that fuel (syngas, fuel oil and natural gas).
[Rule 62-4.070(3), F.A.C.]

18. Records of Startup, Shutdown and Malfunction: The owner or operator shall make and maintain records of periods of startup, shutdown and malfunction. These records shall show the dates, times and duration of these episodes and shall document suspected cause of each episode, corrective actions taken by the owner or operator and actions taken to reduce excess emissions. [Rule 62-4.070(3), F.A.C.]

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

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B. 120 Million Btu per Hour Auxiliary Boiler (EU 003)

The specific conditions in this section apply to the following emissions unit:

EU ID No.	Brief Description
003	120 Million Btu per Hour (MMBtu/hr) Auxiliary Boiler: The auxiliary boiler only operates during startup and shutdown of the Unit 1, or when steam from the HRSG is unavailable. The auxiliary boiler produces steam for in-plant use and has a maximum heat input of 120 MMBtu/hr. The boiler is currently fired with very low sulfur No. 2 fuel oil and has a capacity factor of less than or equal to 35%. As a result of this permitting action, natural gas will eventually replace the No. 2 fuel oil as the boiler's only allowable fuel. The boiler can be continuously fired in a standby mode with full operation limited to a maximum of 3,000 hours per year. The stack parameters are: height, 75 feet; diameter, 3.7 feet; exit temperature, 375 degrees F; and, stack gas flow rate, 32,240 acfm.

POLLUTION CONTROL TECHNOLOGIES

1. Exhaust Gas Recirculation (EGR): The auxiliary boiler is equipped with an exhaust gas recirculation (EGR) system to control NO_X emissions. The EGR system controls NO_X emissions by reducing the flame temperature and excess air (O_2) in the boiler box thereby reducing the formation of thermal NO_X. This system shall be operated as necessary to meet the NO_X emission limit specified in **Specific Condition 9** of this subsection. [Rules 62-4.070(3) and 62-212.400, F.A.C., and BACT]

NSPS APPLICABILITY

2. NSPS Subpart Db: The auxiliary boiler is an affected unit subject to the provisions of 40 CFR 60, Subpart Db - NSPS for Industrial-Commercial-Institutional Steam Generating Units. The owner or operator of the affected unit must comply with all the applicable requirements of this subpart. [Rule 62-204.800, F.A.C.; and 40 CFR 60, Subpart Db]

3. NSPS Subpart A: This emissions unit is subject to the General Provisions of NSPS Subpart A. [Rule 62-204.800, F.A.C.; and 40 CFR 60, Subpart A]

PERFORMANCE AND OPERATIONAL RESTRICTIONS

4. Hours of Operation:
   a. *Standby Mode*. This emissions unit may operate in a standby mode continuously, i.e., 8,760 hours/year.
   b. *Non-Standby Modes*. The hours of operation for this emissions unit shall not exceed 3,000 hours/year.

   [Rules 62-4.160(2), 62-210.200 (Definitions - PTE)

5. Permitted Capacity. The maximum heat input based on the higher heat value (HHV) of the fuel to the auxiliary boiler is 120 MMBtu/hr. [Rules 62-4.160(2), 62-210.200 (Definitions - Potential to Emit (PTE)); and, 62-296.406, F.A.C.]

6. Allowable Fuels: The auxiliary boiler shall fire:
   a. *Fuel Oil*. The auxiliary boiler currently shall only fire No. 2 fuel oil **{This condition becomes obsolete upon conversion of the auxiliary boiler from fuel oil to natural gas.}**:
   b. *Natural Gas*. Upon conversion of the boiler to natural gas, the boiler shall only fire pipeline quality natural gas. The compliance authority shall be notified within 30 days after the boiler is converted from No. 2 fuel oil to natural gas. After conversion to natural gas, the boiler is prohibited from firing fuel oil.

   [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

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7. Fuel Oil Sulfur Content: The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05%, by weight. **{This condition becomes obsolete upon conversion of the auxiliary boiler from fuel oil to natural gas.}** [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

8. Natural Gas Sulfur Content: The auxiliary boiler shall fire pipeline quality natural gas which shall contain no more than 2.0 grains of sulfur per 100 standard cubic feet (gr/100 SCF). [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

EMISSIONS STANDARDS

9. Emission Standards: The compliance authority shall be notified within 30 days after the auxiliary boiler is converted from No. 2 fuel oil to natural gas. **After conversion to natural gas, the auxiliary boiler is prohibited from firing fuel oil and fuel oil based emission limits shall no longer apply**. The maximum allowable emissions from the boiler shall not exceed the following:

Pollutant [1]	Fuel	Limit [2]	Basis [3]	Comp. [4]
NO_X [5]	oil	0.10 lb/MMBtu	BACT	CEMS
	natural gas			
PM	oil	0.10 lb/MMBtu	BACT/NSPS	ST
	natural gas	---	NSPS	FM [6]
SO_2	oil	0.50 lb/MMBtu	NSPS	FM [6]
	natural gas	---	NSPS	
VE	oil	20 percent opacity	BACT/NSPS	ST [7]
	natural gas	---		

1. Pollutant: PM = particulate matter; SO_2 = sulfur dioxide; NO_X = nitrogen oxide; and VE = visible emissions. PSD-FL-194J replaces all previous PSD permits and represents latest BACT and NSPS emission limits and compliance methods.
2. Syngas emission limits in pounds per million British thermal units (lb/MMBtu) are based on higher heating value (HHV) of fuel.
3. Basis: BACT = Best Available Control Technology Determination; and NSPS = Subpart Db limit.
4. Method of compliance: CEMS = continuous emission monitor system; ST = annual stack test; and FM = fuel monitoring.
5. NO_X emission limitations in lbs/hr are 30-day rolling averages via CEMS.
6. Compliance can be demonstrated using fuel records as described in §60.49b(r) or measured with a composite sampling procedure approved by the Administrator pursuant to 40CFR 75.66 (see **Specific Condition 10** of this subsection).
7. Annual emissions compliance while burning only liquid fuel for less than 400 hours per year.

[Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

10. Fuel Sulfur Monitoring:

a. *No. 2 Fuel Oil*. The fuel oil sulfur limit imposed on the auxiliary boiler meets the definition of very low sulfur fuel oil per §40 CFR 60.41b. Per §40 CFR 60.41b, very low sulfur fuel oil shall have no more than 0.5 weight percent sulfur or that, when combusted without SO_2 emission control, will have a SO_2 emission rate equal to or less than 215 nanograms per joule (ng/J) or 0.5 lb/MMBtu of heat input. The fuel oil used by the auxiliary boiler meets both of these requirements and is exempt from the NSPS Subpart Db requirements of a SO_2 limit and monitoring on a 30 day rolling average basis. Consequently, compliance can be demonstrated using fuel records as described in §60.49b(r). The fuel record requirement shall be met through vendor certification or measured with a composite sampling procedure approved by the Administrator pursuant to 40CFR 75.66. The fuel contract and bills of lading shall be used to demonstrate compliance for the vendor certification. The monthly composite sample shall be prepared from each fuel oil delivery (lot) to the storage tanks. The sample will be analyzed in the laboratory for density, heat content

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and sulfur content using method ASTM D 2880-71. **{This condition becomes obsolete upon conversion of the auxiliary boiler from fuel oil to natural gas.}**

b. *Natural Gas*. Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D4468-85, D5504-01, D6228-98 and D6667-01, D3246-81 or more recent versions or other methods approved by the Department.

[NSPS, Subpart Db]

11. Excess Emissions:

a. *PM and VE*. The PM and opacity standards apply at all times, except during periods of startup, shutdown or malfunction. **{This condition becomes obsolete upon conversion of the auxiliary boiler from fuel oil to natural gas.}** [40 CFR 60.43b(g)

b. *NO_X*. The NO_X standards apply at all times, including periods of startup, shutdown, or malfunction. [40 CFR 60.44b(4)

TESTING AND MONITORING REQUIREMENTS

12. Test Methods: Required tests shall be performed in accordance with the following reference method.

Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content *{Notes: Methods shall be performed as necessary to support other methods.}*
EPA Methods 5, 5B or 17	Methods for Determining PM Emissions
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and 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. [Chapter 62-297, F.A.C.]

13. Annual Compliance Tests: Unless otherwise specified by this permit, during each federal fiscal year (October 1st to September 30th), the auxiliary boiler shall be tested to demonstrate compliance with the emission limitations and standards for PM and VE. **{This condition becomes obsolete upon conversion of the auxiliary boiler from fuel oil to natural gas.}**

NOTIFICATIONS, RECORDS AND REPORTS

14. Records of Fuels and Heat Input: The owner or operator shall make and maintain records of heat input to the auxiliary boiler on a block-hour basis, starting at the beginning of each hour, by multiplying the hourly average fuel firing rate by the heating value representative of that fuel (fuel oil or natural gas). [Rule 62-4.070(3), F.A.C.]

15. Records of Startup, Shutdown and Malfunction: The owner or operator shall make and maintain records of periods of startup, shutdown and malfunction. These records shall show the dates, times and duration of these episodes and shall document suspected cause of each episode, corrective actions taken by the owner or operator and actions taken to reduce excess emissions. [Rule 62-4.070(3), F.A.C.]

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

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C. Sulfuric Acid Plant (EU 004)

The specific conditions in this section apply to the following emissions unit(s):

EU ID No.	Brief Description
004	Sulfuric Acid Plant: The sulfuric acid plant (SAP) removes sulfur from the syngas stream before it is combusted in the CCCT. The SAP takes a sulfur gas stream from the solid fuel gasification plant's hot gas cleanup or cold gas cleanup systems and converts it to sulfuric acid using the double contact process. The SAP currently has a 15 MMBtu/hr, propane fired, hydrogen sulfide (H_2S) to SO_2 conversion furnace which vents to the atmosphere only during warm-up; and a 9.0 MMBtu/hr, propane fired, non-contact SO_2 to sulfur trioxide (SO_3) converter preheater which is vented to the atmosphere. As a result of this permitting action, natural gas will eventually replace the propane as the fuel used in the burners. This SAP is a double contact absorption plant with a maximum production rate of 299 tons per day (TPD) and 109,135 TPY of 100% H_2SO_4 (sulfuric acid). The stack parameters are: height, 199 feet; diameter, 2.5 feet; exit temperature, 180 degrees ºF; and the stack gas flow rate is approximately 17,660 acfm.

{Permitting note(s): This emissions unit is regulated under Rule 62-296.402(2), F.A.C., Sulfuric Acid Plants - New Plants.}

POLLUTION CONTROL TECHNOLOGIES

1. Mist Eliminators: The SAP uses mist eliminators for the control of sulfuric acid mist emissions. [Rules 62-4.070(3) and 62-212.400, F.A.C., and BACT]

PERFORMANCE AND OPERATIONAL RESTRICTIONS

2. Hours of Operation: This emissions unit may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C.]

3. Permitted Capacity. The SAP production shall not exceed 299 TPD of 100% sulfuric acid. [Rules 62-4.160(2), 62-210.200 (Definitions - PTE) and 62-296.402(2), F.A.C]

   {Permitting note: The corresponding equivalent production rates are 12.46 tons per hour and 109,135 TPY of 100% H_2SO_4.}

4. Allowable Fuels: The conversion furnace and converter preheater shall fire only propane or natural gas. [Rules 62-4.160(2) and 62-213.410, F.A.C.]

5. Natural Gas Sulfur Content: The SAP burners shall fire pipeline quality natural gas which shall contain no more than 2.0 grains of sulfur per 100 standard cubic feet (gr/100 SCF). [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

EMISSIONS STANDARDS

6. Emission Standards: The maximum allowable emissions from the SAP shall not exceed the following:

Pollutant [1]	Fuel	Limit [2]	Basis [3]	Comp. [4]
SO_2	propane or natural gas	4 lb/ton of 100% H_2SO_4 produced	BACT	CEMS
SAM [5]	propane or natural gas	0.15 lb/ton of 100% H_2SO_4 produced	BACT	ST
VE	propane or natural gas	10 percent opacity	BACT	ST

1. Pollutant: SO_2 = sulfur dioxide; SAM = sulfuric acid mist; and VE = visible emissions. PSD-FL-194J replaces all previous PSD permits and represents latest BACT and NSPS emission limits and compliance methods.
2. Emission limits: pounds of pollutant per ton of 100 percent sulfuric acid (H_2SO_4) produced.

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3. Basis: BACT = Best Available Control Technology Determination.
4. Method of compliance: CEMS = continuous emission monitor system; ST = annual stack test; and FM = fuel monitoring.
5. Prior to permit renewal of Title V Air Operation permit, the SAP shall be tested to demonstrate compliance with the emission limitations and standards for SAM.

[Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

MOMITORING OPERERATIONS

7. Monitoring - Production. Compliance with the TPD production limit given in **Specific Condition 3** of this subsection shall be demonstrated through the use of a continuous flow and composition (purity) monitor located between the sulfuric acid plant and the sulfuric acid storage tank.
[Rule 62-213.440(1)(b)1.b. (Periodic Monitoring), F.A.C.]

8. Monitoring - Daily Production. The permittee shall record in tons the daily production of 100% H_2SO_4.
[Rule 62-213.440(1)(b)1.b. (Periodic Monitoring), F.A.C.]

9. Special VE Monitoring. VE testing of the SAP exhaust shall be conducted quarterly for a period of 8 consecutive quarters, utilizing EPA Method 9 to demonstrate compliance with the emission standard for VE given in **Specific Condition 6** of this subsection. If the VE test results for the eight consecutive quarters show no VE above 10% opacity, the permittee may discontinue these quarterly tests with only annual VE testing subsequently required during each federal fiscal year (October 1st to September 30th). [Rule 62-213.440(1)(b)1.b. (Periodic Monitoring), F.A.C.]

TESTING AND MONITORING REQUIREMENTS

10. Test Methods: Required tests shall be performed in accordance with the following reference method.

Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content *{Notes: Methods shall be performed as necessary to support other methods.}*
EPA Method 6C	Methods for Determining SO_2 Emissions
EPA Method 8, 8A, 8B or 320	Determination of SAM and SO_2 Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and 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. [Chapter 62-297, F.A.C.]

11. Annual Compliance Tests: Unless otherwise specified by this permit, during each federal fiscal year (October 1st to September 30th), the SAP shall be tested to demonstrate compliance with the emission limitations and standards for SO_2 and VE (see **Specific Condition 9** of this subsection).

12. Feedstock During Testing. Emissions testing shall be conducted while gasifying and firing a coal/petroleum coke blend containing within 10% of the representative blended fuel sulfur content of 4.7% by weight and the permitted fuel consumption restraints. [Rules 62-4.070(3) and 62-297.310(7), F.A.C]

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NOTIFICATIONS, RECORDS AND REPORTS

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

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D. Solid Fuel Handling System (EU 005)

The specific conditions in this section apply to the following emissions unit:

EU ID No.	Brief Description
005	Solid Fuel Handling System: The solid fuel handling system consists of a bottom unloading station. Solid fuel is received by truck and is unloaded to the fuel unloading bin. Fuel is conveyed via an enclosed or covered conveyor from the unloading bin to the fuel storage silos. The transfer points from the bin to the belts are rubber skirted. Fuel is then reclaimed from the silos via enclosed or covered conveyors to the surge bin inside the slurry preparation building. Fuel and water are then mixed in the rod mill crushers to produce coal slurry.

POLLUTION CONTROL TECHNOLOGIES

1. Dust Suppression Systems. PM emissions from the two fuel silos (Silo Nos. 1 and 2), the silo feed to belt conveyor and the fuel surge bin are controlled by dust suppression systems. [Rules 62-4.070(3); and 62-4.160(2); 62-210.200(PTE), F.A.C]

2. Best Management Practices: PM emissions from the handling of solid fuels shall be controlled by enclosing or covering all solid fuel storage, conveyors and conveyor transfer points. Water sprays or chemical wetting agents and stabilizers shall be applied to uncovered storage piles, roads, handling equipment, etc. during dry periods, as necessary, to all facilities to maintain the opacity standard..
[Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

NSPS APPLICABILITY

3. NSPS Subpart Y: The solid fuel handling system is an affected unit subject to the provisions of 40 CFR 60, NSPS Subpart Y for Coal Preparation Plants. The owner or operator of the affected unit must comply with all the applicable requirements of this subpart. [Rule 62-204.800, F.A.C.; and 40 CFR 60, Subpart Y]

4. NSPS Subpart A: This emissions unit is subject to the applicable General Provisions of NSPS Subpart A. [Rule 62-204.800, F.A.C.; and 40 CFR 60, Subpart A]

PERFORMANCE AND OPERATIONAL RESTRICTIONS

5. Hours of Operation: This emissions unit may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C.]

EMISSIONS STANDARDS

6. Visible Emissions (VE). Visible emissions shall be less than or equal to 5% opacity. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

TESTING AND MONITORING REQUIREMENTS

7. Test Methods: Visible emissions tests shall be performed in accordance EPA Method 9. This method is described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and 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. [Chapter 62-297, F.A.C.]

8. Annual Compliance Tests: Unless otherwise specified by this permit, during each federal fiscal year (October 1st to September 30th), the dust suppression systems exhausts shall be tested to demonstrate compliance with the emission limitations and standards for VE.

NOTIFICATIONS, RECORDS AND REPORTS

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

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E. Solid Fuel Handling Gasification System (EU 006)

The specific conditions in this section apply to the following emissions unit:

EU ID No.	Brief Description
006	Solid Fuel Gasification System: The solid fuel gasification system converts solid fuel (coal or blends of up to 85% pet coke and 15% bituminous coal) into syngas for combustion in the CCCT for the purpose of electric generation. Startup burners for the system fire propane. As a result of this permitting action, natural gas will eventually replace the propane as the fuel used in the burners. As an emergency safety device, a flare is used to combust syngas from the gasification system during startup, shutdown and emergencies. The flare's stack height is 150 feet and the exit temperature of the exhaust gas is 1,830 degrees ^{o}F.

POLLUTION CONTROL TECHNOLOGIES

1. Emergency Flare. A flare is used to combust syngas during the startup and shut down of the solid fuel gasification system. In addition the flare is used to combust syngas during emergencies such as the malfunction of the CCCT. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

PERFORMANCE AND OPERATIONAL RESTRICTIONS

2. Hours of Operation. This emissions unit may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C.]

3. Permitted Composition. Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/pet coke blends containing a maximum of 85% pet coke. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

   {Permitting Note: The design feed rate of solid fuel to the gasification system is 2,325 TPD on a dry weight basis.}

4. Allowable Fuels: The startup burners shall fire only propane or natural gas. [Rules 62-4.160(2) and 62-213.410, F.A.C.]

5. Natural Gas Sulfur Content: The solid fuel gasification system shall fire pipeline quality natural gas which shall contain no more than 2.0 grains of sulfur per 100 standard cubic feet (gr/100 SCF). [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

6. Flare Operation. The flare shall only be operated during startup, shutdown or emergencies. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

EMISSIONS STANDARDS

7. Visible Emissions (VE). Visible emissions from the flare shall not be equal to or greater than 20% opacity. [Rule 62-296.320(4)(b)1., F.A.C.]

8. Blended Fuel Sulfur Content. The maximum sulfur content of the blended fuel shall not exceed 4.7% by weight. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

   {Permitting Note: The sulfur content limitation in effect limits SO_2 emissions from the CCCT.}

MOMITORING OPERERATIONS

9. Fuel Composition. The composition of coal, pet coke, and blended fuels gasified (including sulfur contents) shall be determined by proximate and ultimate analyses sampling of each unique fuel blend prior to gasification by either the owner/operator or the vendor. [Rules 62-4.070(3), 62-204.800 and 62-297.100, F.A.C.; and 40 CFR 60, Appendix A]

10. Monitoring - Solid Fuel Sulfur Content. Compliance with the solid fuel sulfur content standard of 4.7%, by weight, will be determined by sampling each unique fuel blend prior to gasification by the owner/operator or

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the vendor as follows: using appropriate ASTM methods such as, ASTM D2013-72, ASTM D3177-75, and ASTM D4239-85, or latest ASTM edition methods. [40 CFR 60.335(d)]

11. Monitoring - Solid Fuel Input. The permittee shall record daily the actual solid fuel input to this emissions unit, in tons per day. [Rule 62-213.440(1)(b), F.A.C.]

TESTING AND MONITORING REQUIREMENTS

10. Test Methods: Visible emissions tests shall be performed in accordance EPA Method 9. This method is described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and 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. [Chapter 62-297, F.A.C.]

11. Annual Compliance Tests: Unless otherwise specified by this permit, during each federal fiscal year (October 1st to September 30th), the flare shall be tested to demonstrate compliance with the emission limitations and standards for VE. Compliance testing for VE is not required for the flare while operating for less than 400 hours per year. [Rules 62-296.320(4)(b)1; and 62-297.310(7)(a)4., F.A.C.]

NOTIFICATIONS, RECORDS AND REPORTS

12. Recordkeeping. Written or electronic records of the actual total solid fuel input to this emissions unit, in tons per day and the blended fuel sulfur content of 4.7% by weight limit, shall be maintained and submitted to the compliance authority with each annual report. These records shall be generated each time a new shipment of coal/petroleum coke fuel is received or solid fuel is gasified. [Rules 62-4.070(3); 62-4.160(2); 62-210.200(PTE); and 62-212.400 (BACT), F.A.C]

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

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