Tampa Electric Company
Polk Power Station
Facility ID No. 1050233
Polk County

Title V Air Operation Permit Revision

Draft/Proposed Permit No. 1050233-028-AV
(Revision of Title V Air Operation Permit No. 1050233-026-AV)

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Subsection A. Facility Description.

The regulated emissions units (EU) at this state-of-the-art integrated gasification combined-cycle (IGCC) plant include a 260 megawatt (MW) combined cycle combustion turbine (Unit 1) which fires syngas or No. 2 fuel oil; an auxiliary boiler which fires No. 2 fuel oil; a sulfuric acid plant; a solid fuel handling system; a solid fuel gasification system; two nominal 165 MW simple cycle gas turbines (Unit Nos. 2 & 3) firing either natural gas or No. 2 fuel oil; and, two nominal 165 MW simple cycle gas turbines (Unit Nos. 4 & 5) firing only natural gas.

Subsection B. Summary of Emissions Units.

E.U. ID No.	Brief 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
009	Nominal 165 MW Simple Cycle Turbine No. 2
010	Nominal 165 MW Simple Cycle Turbine No. 3
011	Nominal 165 MW Simple Cycle Turbine No. 4
012	Nominal 165 MW Simple Cycle Turbine No. 5
007	Emergency Generators
008	Heating Units and General Purpose Internal Combustion Engines

Subsection C. Applicable Requirements.

A summary of important applicable requirements is shown in the following table.

Applicable Requirement	E.U. ID No(s).
Rule 62-296.470, F.A.C., Clean Air Interstate Rule	-001, 009, -010, -011 & -012
Acid Rain, Phase II SO_2	-001, 009, -010, -011 & -012
Rule 62-212.400, F.A.C., Prevention of Significant Deterioration	-001, -003, -005, -006, -009, -010, -011 & -012
40 CFR 60, Subpart A, New Stationary Source Performance Standards (NSPS) General Provisions	-001, -003 & -005, -009, -010, -011 & -012
NSPS - 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	-003
NSPS - 40 CFR 60, Subpart Y, Standards of Performance for Coal Preparation Plants	-005
NSPS - 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines	-001, -009, -010, -011 & -012
Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with less than 250 Million Btu per Hour Heat Input, New and Existing Emissions Units	-003
Rule 62-296.402(2), F.A.C., Sulfuric Acid Plants - New Plants	-004

SECTION II. FACILITY-WIDE CONDITIONS.

This permit revision did not involve any changes to these conditions.

Subsection A. Emissions Unit -001

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

E.U. ID No.	Brief Description
-001	260 MW Combined Cycle Gas Turbine No. 1

This permit revision did not involve any changes to specific conditions for this EU.

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

E.U. ID No.	Brief Description
-003	120 Million Btu per Hour Auxiliary Boiler

As shown below, this permitting action modifies the following specific conditions of the Title V air operations permit DEP File No. 1050233-026-AV. Additions are denoted with double-underline and deletions are denoted with ~~strikethrough~~.

Emission Limitations and Standards

~~**B.10.** SO_2 - Averaging Time. Compliance with the emission limits and the fuel oil sulfur limits are determined on a 30-day rolling average basis. [40 CFR 60.42b(c) and, PSD-FL-194.]~~ [Reserved]

Monitoring of Operations

B.19. Sulfur Content of Fuel. Compliance with the maximum sulfur content of the low sulfur fuel oil shall be demonstrated through vendor certification or measured in accordance with the requirements of 40 CFR Part 75, Appendix D, subsection 2.2.4.3 by testing the fuel oil by sampling from each fuel oil delivery (lot) to the storage tanks. Each oil sample will be analyzed in the laboratory for density, heat content, sulfur content and carbon content with the records of the results kept on site for five years and open to inspection by the Compliance Authority ~~by testing for sulfur content of the fuel oil in the storage tanks once per day when firing oil. Testing for fuel oil heating value shall also be conducted on the same schedule.~~ [Permit No. 1050233-029-AC/PSD-FL-194J/PSD-FL-263B]

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

E.U. ID No.	Brief Description
-004	Sulfuric Acid Plant

Additions are denoted with double-underline and deletions are denoted with ~~strikethrough~~.

Emission Limitations and Standards

Unless otherwise specified, the averaging time(s) for Specific Condition(s) **C.5. - C.7** are based on the specified averaging time of the applicable test method.

C.5. Visible Emissions (VE). VE shall not exceed 10% opacity. [Rule 62-296.402(2)(a), F.A.C.]

Monitoring of Operations

C.10. Monitoring - Visible Emission Observation. Upon issuance of this final Title V air operation permit, the permittee shall conduct a visible emissions observation in accordance with EPA Method 9 at least once each calendar quarter for a period of at least 12 minutes. If the test results of eight consecutive quarters show no visible emissions above 5% opacity based on a 6-minute average, the permittee may discontinue these quarterly observations. If there is a subsequent exceedance of the visible emissions standard, the permittee shall begin the quarterly observations until eight consecutive quarters show no visible emissions above 5% opacity based on a 6-minute average. ~~The owner or operator shall observe and record a quantified visible emission observation, six minutes in duration, for the sulfuric acid plant on a daily basis, for the purpose of periodic monitoring.~~ [Rule 62-213.440(1)(b)1.b. (Periodic Monitoring), F.A.C. {Resolution of objection from USEPA dated 01/22/1999 and revised (date).}] [Reserved]

Test Methods and Procedures

C.14. Annual Compliance Tests. Unless otherwise specified by this permit, during each federal fiscal year (October 1st to September 30th), this emissions unit shall be tested to demonstrate compliance with the emission limitations and standards for VE and SO_2. [Rule 62-297.310(7), F.A.C.; and, PSD-FL-194.]

Subsection D. Emissions Unit -005

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

E.U. ID No.	Brief Description
-005	Solid Fuel Handling System

This permit revision did not involve any changes to specific conditions for this EU.

Subsection E. Emissions Unit -006

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

E.U. ID No.	Brief Description
-006	Solid Fuel Gasification System

Additions are denoted with double-underline and deletions are denoted with ~~strikethrough~~.

Essential Potential to Emit (PTE) Parameters

E.2. Permitted Capacity. Solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petroleum coke blends containing a maximum of 85% petroleum coke by weight. The maximum input of solid fuels to the solid fuel gasification plant shall not exceed 2,325 tons per day, on a dry basis. ~~The maximum weight of the petroleum coke blended shall not exceed 1,976 tons per day, on a dry basis~~. [Rules 62-4.160(2) and 62-210.200 (Definitions - PTE), F.A.C.; and Permit No. 1050233-029-AC/PSD-FL-194J/PSD-FL-263B]

Recordkeeping and Reporting Requirements

See Appendix RR, Facility-wide Reporting Requirements, for additional reporting requirements.

E.14. Recordkeeping. Written or electronic records verifying that the coal/petroleum coke blends input to the solid fuel gasification system have not exceeded the 85% ~~(1,976 tons per day)~~ maximum petroleum coke by dry weight limit 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. [Permit No. 1050233-029-AC/PSD-FL-194J/PSD-FL-263B]

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

E.U. ID No.	Brief Description
-009	Nominal 165 MW Simple Cycle Turbine No. 2
-010	Nominal 165 MW Simple Cycle Turbine No. 3

Additions are denoted with double-underline and deletions are denoted with strikethrough.

Emission Limitations and Standards

F.6. Nitrogen Oxides (NO_X) - While firing Natural Gas. The emission rate of NOx in the exhaust gas shall not exceed 10.5 ppm @15% O_2 on a 24-hr block average as measured by the continuous emission monitoring system (CEMS). ~~In addition, NOx emissions calculated as NO_2 shall not exceed 59 pounds per hour (at ISO conditions) and 9 ppmvd @15% O_2 to be demonstrated by the initial "new and clean" GE performance stack test. Notwithstanding the applicable NOx limit during normal operation, reasonable measures shall be implemented to maintain the concentration of NOx in the exhaust gas at 9 ppmvd @15% O_2 or lower. Any tuning of the combustors for dry low NOx operation while firing gas shall result in subsequent NOx concentrations of 9 ppmvd @15% O_2 or lower.~~ [Permit No. 1050233-029-AC/PSD-FL-194J/PSD-FL-263B]

F.7. Nitrogen Oxides (NO_X) - While firing Fuel Oil. The concentration of NOx in the exhaust gas shall not exceed 42 ppmvd at 15% O_2 on the basis of a 3-hr average as measured by the continuous emission monitoring system (CEMS). In addition, NOx emissions calculated as NO_2 shall not exceed 319 lb/hr (at ISO conditions) and 42 ppmvd @15% O_2 to be demonstrated by stack test. The permittee shall be limited to 750 hours per year when firing on fuel oil. ~~develop a NOx reduction plan when the hours of oil firing reach the allowable limit of 750 hours per year. This plan shall include a testing protocol designed to establish the maximum water injection rate and the lowest NOx emissions possible without affecting the actual performance of the gas turbine. The testing protocol shall set a range of water injection rates and attempt to quantify the corresponding NOx emissions for each rate and noting any problems with performance. Based on the test results, the plan shall recommend a new NOx emissions limiting standard and shall be submitted to the Department's Bureau of Air Regulation and the Compliance Authority for review. If the Department determines that a lower NOx emissions standard is warranted for oil firing, the PSD permit shall be revised.~~ [Permit No. 1050233-029-AC/PSD-FL-194J/PSD-FL-263B]

Monitoring Requirements

F.21. Fuel Oil Monitoring Schedule. Compliance with the maximum sulfur content in the fuel oil shall be demonstrated by preparing a monthly composite sample from each fuel delivery. The monthly composite sample will be analyzed in the laboratory for density, heat content, sulfur content and carbon content. The use of the NO_X CEMS satisfies the requirement for nitrogen monitoring. ~~The following monitoring schedule for No. 2 or superior grade fuel oil shall be followed: For all bulk shipments of No. 2 fuel oil received at this facility an analysis which reports the sulfur content and nitrogen content of the fuel shall be provided by the fuel vendor. The analysis shall also specify the methods by which the analyses were conducted and shall comply with the requirements of 40 CFR 60.335. The use of the NOx CEMS satisfies the requirement for nitrogen monitoring.~~ [Permit No. 1050233-029-AC/PSD-FL-194J/PSD-FL-263B]

Subsection F. Emissions Units -009 & -010

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

E.U. ID No.	Brief Description
-011	Nominal 165 MW Simple Cycle Turbine No. 4
-012	Nominal 165 MW Simple Cycle Turbine No. 5

This permit revision did not involve any changes to specific conditions for these EU.