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Authorized Representative:
Karen Sheffield, Director Polk Power Station

Air Permit No. 1050233-032-AC
PSD-FL-263B & PSD-FL-363C
Permit Expires: December 31, 2013
Polk Power Station
Changes to Conditions for Simple Cycle Combustion Turbines (Units 2 to 5)

PROJECT

This project revises the nitrogen oxides (NOx) emissions reporting requirements in Units 2 and 3 and the tuning requirements for Units 4 and 5 at 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). 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 is a minor modification of the original air construction permits that were subject 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, TECO: 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 is an existing electric power plant, consisting of the following.

- Unit 1 (EU 001), a 260 megawatt (MW) integrated gasification combined-cycle (IGCC) unit with a combustion turbine firing synthesis gas (syngas) produced from gasification of solid fuels including coal and petroleum coke (petcoke) or No. 2 fuel oil;
- An auxiliary boiler (EU 003) that fires No. 2 fuel oil;
- A sulfuric acid plant (EU 004);
- A solid fuel handling system (EU 005);
- A solid fuel gasification system (EU 006);
- Units 2 and 3 (EU 009 and 010) are two nominal 165 MW simple cycle combustion turbines that fire either natural gas or No. 2 fuel oil; and
- Units 4 and 5 (EU 013 and 014) are two nominal 165 MW simple cycle CTG that are permitted to fire only natural gas.

PROPOSED PROJECT

This project revises the NOx reporting requirements when firing oil and natural gas in Units 2 and 3 and the DLN tuning requirements for Units 4 and 5. This requires updating several specific conditions in previously issued PSD permits for the Polk Power Station (PSD-FL-263 and PSD-FL-363). These changes are being processed concurrently with Title V permit revision No. 1050233-028-AV. These changes and other minor changes are described in the Technical Evaluation and Preliminary Determination (TEPD) included in the permit package.

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 in Part 60, Title 40 of the Code of Federal Regulations (CFR).

PREVIOUS APPLICABLE REQUIREMENTS

The conditions of this permit supplement all previously issued air construction and operation permits for these emissions units. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions and regulations. [Rule 62-4.070, F.A.C.]

Changes are highlighted in yellow with additions denoted with double-underline and deletions denoted with ~~strikethrough~~.

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Permit Modified: PSD-FL-263

Subsection III. Units 2 and 3, Two 160 MW Combustion Turbines (EU 009 and 010)

19. Nitrogen Oxides (NO_X) Emissions:

- While firing Natural Gas: The emission rate of NO_X 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, NO_X, emissions calculated as NO_2, shall not exceed 59 pounds per hour (at ISO conditions) and 9 ppmvd @15% O2, to be demonstrated by the initial "new and clean" GE performance stack test.~~ [Rule 62-212.400. F.A.C.]

  ~~Notwithstanding the applicable NO_X limit during normal operation, reasonable measures shall be implemented to maintain the concentration of NO_X in the exhaust gas at 9 ppmvd at 15% O_2 or lower. Any tuning of the combustors for Dry Low NO_X operation while firing gas shall result in initial subsequent NO_X concentrations of 9 ppmvd @15% O_2 or lower. [Rules 62-212.400 and 62-4.070, F.A.C.]~~

- While firing Fuel oil: The concentration of NO_X 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. NO_X 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. [Rule 62-212.400. F.A.C.]

  ~~The permittee shall develop a NO_X 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 NO_X 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 NO_X emissions for each rate and noting any problems with performance. Based on the test results, the plan shall recommend a new NO_X emissions limiting standard and shall be submitted to the Department's Bureau of Air Regulation and Compliance Authority for review. If the Department determines that a lower NO_X emissions standard is warranted for oil firing, this permit shall be revised. (BACT Determination).~~

44. Fuel Oil Monitoring Schedule: Compliance with the maximum sulfur content of the low sulfur fuel oil shall be demonstrated through vendor certification or measured with a composite sampling procedure approved by the Administrator pursuant to 40 CFR 75.66. The fuel contract and bills of lading shall be used to demonstrate compliance for the vendor certification. If used, 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 (on-site or off-site) for density, heat content and sulfur content. ~~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(d).

Permit Modified: PSD-FL-363 (No. 1050233-018-AC)

Subsection III.A Simple Cycle Gas-Fired Turbine Units 4 and 5 (EU-~~011~~013 and ~~012~~014)

21. Allowable NO_X Data Exclusions: Provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions are minimized, NO_X continuous monitoring data collected during periods of startup, shutdown, and malfunction may be excluded from the 24-hr block compliance demonstrations only in accordance with the following requirements. All periods of data excluded shall be consecutive for each such episode and only data obtained during the described episodes (startup, shutdown, malfunction, and ~~DLN~~ tuning) may be excluded. As provided by the authority in Rule 62-210.700(5), F.A.C., the following conditions replace the provisions in Rule 62-210.700(1), F.A.C.

    a. *Startup*: In accordance with the procedures described in the CEMS Data Requirements of this section, no more than the first 30 minutes of CEMS data shall be excluded for each gas turbine startup. For startups of less than 30 minutes in duration, only those minutes attributable to startup shall be excluded.

    b. *Shutdown*: In accordance with the procedures described in the CEMS Data Requirements of this section, no more than the first 20 minutes of CEMS data shall be excluded for each gas turbine shutdown. For shutdowns less than 20 minutes in duration, only those minutes attributable to shutdown shall be excluded.

    c. *Malfunction*: In accordance with the procedures described in the CEMS Data Requirements of this section, no more than 120 minutes of CEMS data shall be excluded in a 24-hour period for each gas turbine due to malfunctions. Within one (1) working day of occurrence, the owner or operator shall notify the Compliance Authority of any malfunction resulting in the exclusion of CEMS data.

    d. ~~*DLN*~~ *Tuning*: CEMS data collected during initial or other ~~DLN~~ tuning sessions shall be excluded from the compliance demonstrations provided the tuning session is performed in accordance with the manufacturer's specifications. The permittee shall report any excess emissions in the quarterly NO_X report. ~~Prior to performing any tuning session, the permittee shall provide the Compliance Authority with an advance notice of at least one (1) day that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail~~. [Design; Rule 62-4.070(3), F.A.C.]

    The permittee shall notify the Compliance Authority within one working day of discovering any emissions in excess of a CEMS standard subject to the specified averaging period. All such reasonably preventable emissions shall be included in any CEMS compliance determinations. All valid emissions data (including data collected during startup, shutdown, malfunction, and ~~DLN~~ tuning) shall be used to report annual emissions for the Annual Operating Report and demonstration of compliance with the CO emissions cap. [Rules 62-4.070(3), 62-210.200, 62-212.400(BACT) and 62-210.700, F.A.C.]

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