Seminole Electric Cooperative, Inc.
Midulla Generating Station
Title V Air Operation Permit Renewal
Permit No. 0490340-016-AV

APPLICANT

The applicant for this project is Seminole Electric Cooperative, Inc. The applicant's responsible official and mailing address are: Mr. William M. Roddy, Sr. Vice President of Strategic Services, Seminole Electric Cooperative, Inc., Midulla Generating Station, P.O. Box 272000, Tampa, Florida 33618-1427.

PROJECT DESCRIPTION

The purpose of this permitting action is to renew Title V permit No. 0490340-006-AV for this facility.

FACILITY DESCRIPTION

The applicant operates the existing Midulla Generating Station, which is located in Hardee County at 6697 N. County Road 663, Bowling Green, Florida.

The facility is an existing power plant consisting of two combined cycle combustion turbines, ten simple cycle combustion turbines and miscellaneous unregulated and insignificant activities. The facility is classified as a Title V major source, a Title IV acid rain source, a major stationary source subject to the Prevention of Significant Deterioration (PSD) of Air Quality, and a minor source of hazardous air pollutants.

Figure 1. Seminole Midulla Generating Station

Combined Cycle Units (Emissions Units 001 and 002).

Description. The combined cycle system consists of two combustion turbines, two heat recovery steam generators (HRSG), two exhaust stacks and common steam turbine-electrical generator. Without a bypass stack, each combustion turbine operates in combined cycle mode to generate 157.5 megawatts (MW) of direct power. Each HRSG recovers energy from the combustion turbine exhaust to provide steam to the shared steam turbine-

electrical generator and produce an additional 173 MW of steam-generated power. The combined cycle combustion turbines are base loaded units. Each unit fires natural gas as the primary fuel and may fire low sulfur distillate oil as a backup fuel.

Controls and Monitoring. To control carbon monoxide (CO) and volatile organic compound (VOC) emissions, each unit is equipped with a catalytic oxidation system. To control nitrogen oxides (NO_X) emissions, each unit is equipped with dry low-NO_X combustion technology and selective catalytic reduction (SCR) for firing natural gas, and wet injection for firing distillate oil. The water-to-fuel ratio is continuously monitored and recorded for each unit. Pursuant to the federal Acid Rain program, each unit monitors NO_X emissions with a continuous emissions monitoring system (CEMS). A Compliance Assurance Monitoring (CAM) plan is not required for the SCR and water injection systems because compliance is determined by NO_X CEMS. A CAM plan is required for the catalytic oxidation systems, which control CO and VOC emissions.

Simple Cycle Units (Emissions Units 005 through 009).

Description. Each simple cycle system is known as a Twin Pac and consists of two combustion turbines, two exhaust stacks and a common electrical generator. Each of the five Twin Pac systems is rated at 60 MW of direct power. The simple cycle units are used during periods of peak electrical demand. All units fire natural gas as the primary fuel and may fire low sulfur distillate oil as a backup fuel.

Controls and Monitoring. To control CO and VOC emissions, all combustion turbines are equipped with catalytic oxidation systems. To control NO_X emissions for both natural gas and distillate oil firing, all units are equipped with water injection. The water-to-fuel ratio is continuously monitored and recorded for each unit. NO_X CEMS are installed on all of the ten combustion turbines and are used to demonstrate continuous compliance. During periods of NO_X CEMS downtime, the water-to-fuel ratio shall serve as a surrogate for assuring compliance with the NO_X limits. After certification and operation of the NO_X CEMS, the 40 CFR 75 Appendix E procedures will no longer be required for the water-to-fuel monitors. Quality-assurance of the water-to-fuel monitoring data will be provided based on a correlation of the water-to-fuel ratio to Appendix E stack testing in 2007, 2008 and 2009, and annual RATA and NO_X CEMS data. A CAM plan is not required for the water injection systems because compliance is determined continuously by NO_X CEMS. A CAM plan is not required for the catalytic oxidation systems because CO and VOC emissions are less than 100 tons/year/unit.

Compression Ignition Internal Combustion Emergency Engines (Emissions Units 003 and 004).

Description. One 265 HP emergency compression ignition internal combustion engine a John Deere Company engine model No. JDFP-06WA and one 1528 HP non-emergency compressor ignition internal combustion engine a Mitsubishi Heavy Industries engine model No. S12H-Y1PTA-3; both serving the wastewater treatment plant. These engines are regulated under 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE).

Controls: Air pollutant emissions from these emergency engines are uncontrolled.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V air operation permit revision received May 18, 2012.
Request for Additional information dated June 19, 2012.
Responses to Requests for Additional Information dated July 6, 2012.
Draft/proposed Title V air operation permit revision issued September 24, 2012.
Public Notice published and proposed permit review commenced XX, 2012.

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is identified as a synthetic minor source of hazardous air pollutants (HAP).

Title IV: The facility operates units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility operates units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

CAIR: The facility is subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

Siting: Units 1 and 2 were originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) plan is not required for the combined cycle unit's SCR and water injection systems because their compliance is determined by NO_X CEMS. A CAM plan is required for the combined cycle unit's catalytic oxidation systems. A CAM plan is not required for the simple cycle unit's catalytic oxidation systems because CO and VOC emissions are less than 100 tons/year/unit.

GHG: The facility is identified as a major source of green house gas (GHG) pollutants.

PROJECT REVIEW

The purpose of this project is to renew the Title V air operation permit for the Seminole Midulla Generating Station. Changes that were made as part of this renewal include: reformatting the permit to match the current permitting style; replacement of Appendix TV-6 with the following new Appendices: Appendix TV, Title V General Conditions, Appendix TR, Facility-wide Testing Requirements and Appendix RR, Facility-wide Reporting Requirements; elimination of the common conditions section; and, streamlining of the emissions unit sub-sections by moving common conditions to the new appendices. In addition, references to the option of increasing the operational hours for the five Twin Pac simple cycle combustion turbine sets by adding selective catalytic reduction before December 31, 2010, have been removed due their obsolete nature. Similarly, the ammonia slip limit and testing requirements have also been removed. Pursuant to permit No. PSD-FL-344 (0490340-003-AC), if an increase from the 2,000 hours on natural gas and 500 hours on distillate fuel oil is ever desired in the future, the permittee shall submit a full PSD permit application complete with a new proposal of the best available control technology as if the unit had never been built.

CONCLUSION

This Title V air operation permit renewal is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210, 62-213 and 62-214, F.A.C. In accordance with the terms and conditions of this permit, the above named permittee is hereby authorized to operate the facility as shown on the application and approved drawings, plans, and other documents, on file with the permitting authority.