Title V Air Operation Permit Revision
Permit No. 1070025-021-AV

APPLICANT

The applicant for this project is Seminole Electric Cooperative, Inc. (SECI). The applicant's responsible official and mailing address are: William M. Roddy, Director of Environmental Affairs, Seminole Electric Cooperative, Inc., Seminole Generating Station, P.O. Box 272000, Tampa, Florida 33688-2000.

FACILITY DESCRIPTION

The applicant operates the existing Seminole Generating Station, which is located in Putnam County, east of U.S. Highway 17 and approximately seven miles north of Palatka. The existing power plant consists of the following emissions units.

- Electric Utility Steam Generating Unit 1 (EU-001) and Unit 2 (EU-002) are coal-fired, dry-bottom wall-fired utility boilers. Each unit has a maximum heat input rate of 7172 million British thermal units (MMBtu) per hour and a nominal gross generator rating of 735.9 megawatts. Each unit is equipped with the following air pollution control equipment: an electrostatic precipitator (ESP) to control particulate matter (PM); an upgraded wet limestone flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2); low-NO_X burners, low excess air firing and a selective catalytic reduction (SCR) system to control nitrogen oxides (NO_X). Each unit is equipped with continuous emissions monitoring systems (CEMS) to measure and record NO_X and SO_2 emissions as well as a continuous opacity monitoring system (COMS) to measure and record the opacity of the exhaust gas.
- Other regulated activities include the coal storage yard (EU-004) and the handling and storage of limestone and wet scrubber sludge (EU-005).
- In addition to other miscellaneous unregulated/insignificant emissions units and/or activities, the facility also includes the following unregulated activities: one or more emergency generators (EU-006); one or more heating units and general purpose internal combustion engines (EU-007); and general plant fugitive emissions (EU-008) such as plant-wide sandblasting, painting, moveable abrasive blast material bin, soil borrow pit and vehicular travel of unpaved roads.

PROJECT DESCRIPTION

The purpose of this permitting project is to revise a condition of the existing Title V permit 1070025-015-AV related to the operation of the alkali injection system to control sulfuric acid mist (SAM) emissions for Units 1 and 2.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V air operation permit revision received November 7, 2012.
Draft/proposed permit revision issued December 18, 2012.
Public Notice published December 29, 2012.
Notification to U.S. EPA Region 4 of Publication of Public Notice on January 3, 2013.
Final Title V permit revision effective February 13, 2013.

PRIMARY REGULATORY REQUIREMENTS

Title I: The facility is identified as a major 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.

NESHAP: The facility operates units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

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

CAM: Compliance Assurance Monitoring (CAM) applies to Units 1 and 2 for the controlled emissions of particulate matter. CAM Plans are not required for NO_X and SO_2 emissions from Units 1 and 2 because continuous emissions monitoring systems (CEMS) ensure continuous compliance with the applicable emissions standards.

PROJECT REVIEW

According to SECI, the Units 1 and 2 alkali injection systems (used to abate potential sulfuric acid mist (SAM) caused by operation of the SCR NO_X control systems) are not needed to comply with any emission limits. SECI plans to discontinue use of these control systems and they will remain in place as a contingency and available for use if needed due to future regulatory requirements. The rationale provided by SECI is as follows:

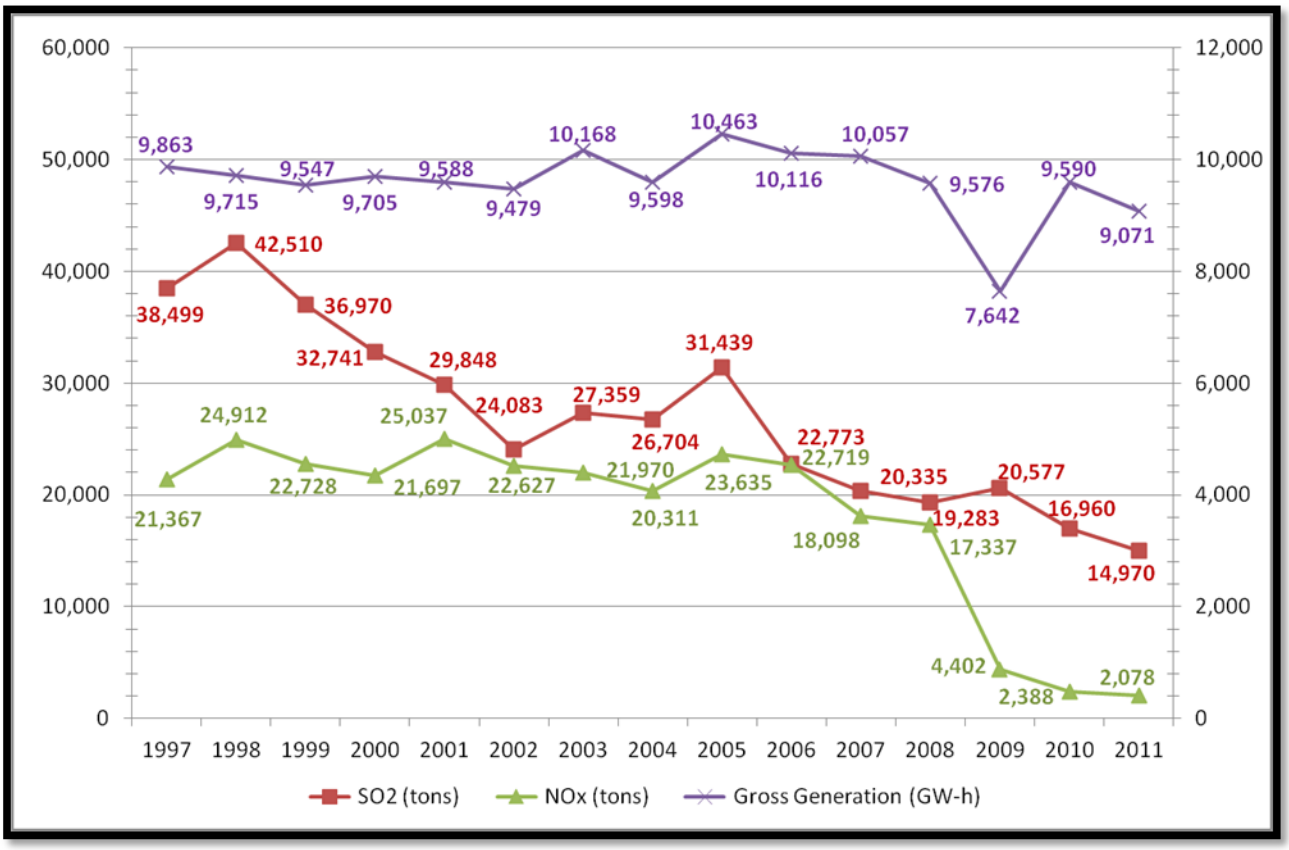
> *"The current SGS Title V permit makes reference to alkali injection systems installed on Units 1 and 2 to control emissions of sulfuric acid mist (SAM). The reason for the alkali injection systems was to insure that SAM emissions did not increase above the 7 tons per year (tpy) Prevention of Significant Deterioration (PSD) applicability threshold due to the installation of selective catalytic reduction (SCR) nitrogen oxides (NO_X) control technology on Units 1 and 2 and operation of a new proposed Unit 3 coal-fired unit.*
>
> *"The Unit 3 project was subsequently cancelled and further FDEP analysis of PSD applicability concluded that there was no potential for SAM emissions to exceed the 7 tpy PSD permitting threshold. In addition, stack testing demonstrated that the Units 1 and 2 SCR controls did not increase SAM emissions significantly without the alkali injection system in service. Accordingly, the Department subsequently issued Air Construction Permit No. 1070025-016-AC/PSD-FL-372B which removed SAM emission limits and testing requirements for Units 1 and 2 by deleting Condition No. 10 of Air Construction Permit No. 1070025-004. Title V was also administratively corrected by Title V Permit No. 1070025-017-AV to remove SAM compliance testing requirements."*

The Department reviewed this matter when it issued Title V permit 1070025-015-AV and Air Construction permit 1070025-016-AC. The technical evaluation is accessible at the following link:

Link to Previous Technical Review

The present request was already justified in the previous permitting actions. It was not clarified at the time that the applicant wishes to keep the equipment in place in case without requiring its use. The present permitting actions will remove the requirement to install and use the equipment (as previously justified), while recognizing its existence without requiring its use.

For reference the mentioned permit authorized a major air pollution control project that resulted in massive emission reductions (tens of thousands of tons/year) of SO_2 and NO_X as shown in the figure below. By comparison, the alkali injection system was intended to insure that SAM did not increase by a minimal amount (<7 tons/year) as a result of catalytic oxidation of some SO_2 to SO_3 and then converted to SAM. It appears that the scrubber upgrades that were authorized by Permit No. 1070025-004-AC are sufficient to abate the possible SAM increase without the need to operate the alkali injection system.



The Department revises the language in the Description of Units 1 and 2 given in Section I, Subsection A and in Section III, Subsection A as follows:

"……Each unit is equipped with the following air pollution control equipment: an electrostatic precipitator (ESP) to control PM; an upgraded wet limestone FGD system to control SO_2; low-NO_X burners, low excess air firing and a SCR system to control NO_X; and an inactive alkali injection system ~~to control sulfuric acid mist emissions~~. The alkali injection system is not required to meet current sulfuric acid mist (SAM) emission limits but it will be available for use if needed. Each unit is equipped with CEMS to measure and record NO_X and SO_2 emissions as well as a COMS to measure and record the opacity of the exhaust gas."

CONCLUSION

This project revises the Title V air operation permit No. 1070025-015-AV, which was effective on September 9, 2010. This Title V air operation permit revision 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.