Title V Air Operation Permit Revision
Duke Energy Florida, Inc.
Crystal River Power Plant
BART Implementation
Permit No. 0170004-043-AV

APPLICANT

The applicant for this project is Duke Energy Florida, Inc. (DEF). The applicant's responsible official and mailing address are: Mr. Robby Odom, Station Manager - Crystal River Plant and Fuel Operations, Duke Energy Florida, Inc., 299 First Avenue, North, Mail Code CN77, St. Petersburg, Florida 33701.

FACILITY DESCRIPTION

The applicant operates the existing Crystal River Power Plant, which is located in Citrus County at 15760 West Power Line Street, Crystal River, Florida.

This facility consists of: four coal-fired fossil fuel steam generating (FFSG) units with electrostatic precipitators; two natural draft cooling towers for FFSG Units 4 and 5; helper mechanical cooling towers for FFSG Units 1, 2 and nuclear Unit 3; coal, fly ash, and bottom ash handling facilities; and, relocatable diesel fired generators. FFSG Units 4 and 5 are also equipped with low-NO_X burners and selective catalytic reduction systems for the control of nitrogen oxide emissions and with flue gas desulfurization systems for the control of sulfur dioxide emissions. Nuclear Unit 3, which is not a source of air pollution, is not considered part of this permit, although certain emissions units associated with Unit 3 are included in this permit.

This facility is subject to regulation under: Acid Rain, Phase II (40 CFR 75); Clean Air Interstate Rule (Rule 62-296.470, F.A.C.); and, 40 CFR 60 Subparts A, D, Y, IIII and JJJJ, General Provisions, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971, Standards of Performance for Coal Preparation Plants, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, and Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, respectively. The facility is also subject to the regulations of 40 CFR 63 Subparts A and ZZZZ, General Provisions and National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, respectively.

The facility operates two stationary reciprocating internal combustion engines associated with Unit 3 which are subject to regulation under 40 CFR 63, Subpart ZZZZ - National Emissions Standards For Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines.

The facility has three additional reciprocating internal combustion engines that are also subject to regulation under 40 CFR 63, Subpart ZZZZ and 40 CFR 60 Subpart IIII or 40 CFR 60 Subpart JJJJ. New regulated emission units (EU028, EU029 and EU030) were created for these units.

The facility operates flue gas desulfurization (FGD) systems, which include: limestone storage and handling; limestone preparation; limestone slurry injection; and, gypsum dewatering (collectively regulated as EU023, Limestone and Gypsum Material Handling Activities). The limestone preparation activities are subject to the applicable requirements in NSPS Subpart OOO of 40 CFR 60, Standards of Performance for Nonmetallic Mineral Processing Plants.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

Specifically, this application serves to incorporate the conditions of air construction permit Nos. 0170004-017-AC, 0170004-036-AC and 0170004-038-AC associated with the Best Available Retrofit Technology (BART) determinations for Crystal River Units 1 and 2 (Crystal River South or CRS) into a revised Title V air operation permit. In addition, this application required the development of a revised particulate matter (PM) compliance assurance monitoring (CAM) Plan for Units 1 and 2 that reflects the revised PM emission limits and associated upgrades to the electrostatic precipitators.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V air operation permit revision received December 31, 2013.

PRIMARY REGULATORY REQUIREMENTS

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

BART: The facility operates units subject to the Best Available Retrofit Technology requirements set forth in Rule 62-296.340, F.A.C.

SITING: Emissions units EU001, EU002, EU003 and EU004 were originally certified pursuant to the Power Plant Siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) applies to emissions units EU001, EU002, EU003 and EU004 at the facility. CAM applies because these units have control equipment used to meet federally enforceable limits or standards.

GHG: This facility is identified as a major source of green house gas pollutants.

PROJECT REVIEW

As mentioned in the project description above, the purpose of this revision is to incorporate the terms and conditions of permit Nos. 0170004-017-AC, 0170004-036-AC and 0170004-038-AC associated with the BART determinations for Crystal River Units 1 and 2 (Crystal River South or CRS) into a revised Title V air operation permit. The applicant clarified in the permit application for this project that, in accordance with a letter submitted to the Department dated April 30, 2013, DEF has selected the option contained within the above referenced air construction permits to discontinue the operation of Units 1 and 2 as coal-fired units by December 31, 2020, rather than adding new equipment designed to reduce emissions of NO_X and SO_2. Choosing this option effectively renders Scenario B of permit No. 0170004-036-AC and all of permit No. 0170004-038-AC obsolete. In addition, this application required the development of a revised Compliance Assurance Monitoring (CAM) Plan for particulate matter (PM) from Units 1 and 2 that reflects the revised PM emissions limit and associated upgrades to the electrostatic precipitators. Changes to the permit made as part of this revision are shown in ~~strike through~~ format for deletions and in double underline format for additions. For ease of identification, all changes have also been highlighted in yellow within the draft/proposed permit document. The affected specific conditions (i.e., new, revised and deleted) are noted below:

A.2. Cessation of Coal Combustion. Units 1 and 2 shall cease to be operated as coal-fired units by December 31, 2020. [Permit Nos. 0170004-036-AC, Specific Condition A.1. and 0170004-038-AC, Specific Condition A.2.]

~~**A.5.** Visible Emissions (VE).~~

~~a. *EU001*. The VE from FFSG Unit 1 shall not exceed 40 percent opacity, six minute average. [Rule 62-296.405(1)(a), F.A.C.; OGC Case No. 86-1576, Order dated December 11, 1986; Permit No. 0170004-003-AC]~~

~~b. *EU002*. The VE from FFSG Unit 2 shall not exceed 20 percent opacity, six minute average, except for one two-minute period per hour during which opacity shall not exceed 40 percent. [Rule 62-296.405(1)(a), F.A.C.; Permit No. 0170004-003-AC]~~

A.6. Opacity Standard – Steady-State Operations. As determined by data collected from the existing COMS or EPA Method 9, visible emissions during steady-state operations from: Unit 1 shall not exceed 30% opacity based on a 6-minute average except for one 6-minute average per hour not to exceed 35% opacity; Unit 2 shall not exceed 15% opacity based on a 6-minute average except for one 6-minute average per hour not to exceed 20% opacity. [Rule 62-296.340 (BART), F.A.C.; 0170004-017-AC, Specific Condition 5.]

~~**A.6.** VE – Soot Blowing and Load Change. Excess emissions resulting from boiler cleaning (soot blowing) and load change shall be permitted provided the duration of such excess emissions shall not exceed 3 hours in any 24 hour period and visible emissions shall not exceed Number 3 of the Ringelmann Chart (60 percent opacity), six minute average, and providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of the excess emissions shall be minimized.~~

~~a. *Load Change*. A load change occurs when the operational capacity of a unit is in the 10 percent to 100 percent capacity range, other than startup or shutdown, which exceeds 10 percent of the unit's rated capacity and which occurs at a rate of 0.5 percent per minute or more.~~

~~b. *VE > 60%*. VE above 60 percent opacity shall be allowed for not more than 4, six (6) minute periods, during the 3-hour period of excess emissions allowed by this condition, for boiler cleaning and load changes, at units which have installed and are operating continuous opacity monitors.~~

~~[Rule 62-210.700(3), F.A.C. and Permit No. 0170004-003-AC]~~

A.7. Opacity Standard – Soot-Blowing and Load Change Operations. As determined by data collected from the existing COMS or EPA Method 9, visible emissions resulting from soot-blowing and load change operations shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized. In no case shall the duration of such emissions exceed 3 hours in any 24-hour period and visible emissions from: Unit 1 shall not exceed 40% opacity based on a 6-minute average; Unit 2 shall not exceed 25% opacity based on a 6-minute average. A load change occurs when the operational capacity of a unit is in the 10 percent to 100 percent capacity range, other than startup or shutdown, which exceeds 10 percent of the unit's rated capacity and which occurs at a rate of 0.5 percent per minute or more. [Rule 62-296.340 (BART), F.A.C.; 0170004-017-AC, Specific Condition 6.]

~~**A.7.** Particulate Matter (PM) Emissions. PM emissions shall not exceed 0.1 pound per million Btu heat input. [Rule 62-296.405(1)(b), F.A.C.; Permit No. 0170004-003-AC]~~

A.8. Particulate Matter Emissions Standard – Steady State Operations. As determined by EPA Method 5 or 17, particulate matter emissions from Units 1 and 2 combined shall not exceed 0.04 lb/MMBtu, on a weighted average basis of the total heat input. Compliance shall be demonstrated based on the average of the 3 required 1-hour test runs. [Rule 62-296.340 (BART), F.A.C.; 0170004-017-AC, Specific Condition 3.]

~~**A.8.** PM – Soot Blowing and Load Change. PM emissions shall not exceed an average of 0.3 pounds per million Btu heat input during the 3-hours in any 24-hour period of excess emissions allowed for boiler cleaning (soot blowing) and load change. [Rule 62-210.700(3), F.A.C.; Permit No. 0170004-003-AC]~~

A.9. Particulate Matter Emissions Standard – Soot Blowing and Load Change Operations. As determined by EPA Method 5 or 17, particulate matter emissions from Units 1 and 2 combined shall not exceed 0.12 lb/MMBtu, on a weighted average basis of the total heat input, not to exceed 3 hours in any 24-hour period. Compliance shall be demonstrated based on the average of the 3 required 1-hour test runs. [Rule 62-296.340 (BART), F.A.C.; 0170004-017-AC, Specific Condition 4.]

Note: Where the new specific conditions shown above have been inserted, the specific conditions following have been appropriately renumbered throughout the remainder of the subsection.

In Appendix CAM, Compliance Assurance Monitoring Requirements, the monitoring approach table for emissions units 001 and 002 has been replaced by a new table that adds ESP power readings as monitored parameters for identifying potential excursions.

In addition, Appendix H, Permit History and Table 1 – Summary of Air Pollutant Standards and Terms have been revised to reflect the changes made to the permit through this permitting action.

CONCLUSION

This project revises for the third time Title V air operation permit No. 0170004-024-AV, which was effective on January 1, 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.