Title V Air Operation Permit Revision
Permit No. 1050234-020-AV

APPLICANT

The applicant for this project is Florida Power Corporation D/B/A Progress Energy Florida, Inc. (PEF). The applicant's responsible official and mailing address are: Martin J. Drango, Plant Manager, Hines Energy Complex, 7700 County Road 555, Bartow, Florida 33830.

FACILITY DESCRIPTION

The applicant operates the existing Hines Energy Complex, which is located in Polk County at 7700 County Road 555, Bartow, Florida.

This facility has a total generating capacity of approximately 2,090 megawatts (MW) and is a major source of hazardous air pollutants (HAP). This facility consists of: four blocks (1, 2, 3 and 4), each with two combined cycle combustion turbines (CT) with unfired heat recovery steam generators (HRSG); a 99 million British thermal unit per hour (MMBtu/hr) auxiliary boiler; two fuel oil storage tanks; and, a diesel-fired emergency fire pump. Emissions from each CT and HRSG combination are vented through a single stack. The combustion turbines may fire fuel oil or natural gas. Emissions are monitored by continuous emissions monitors (CEMS) for each power block.

This facility also includes miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to incorporate the revised conditions of Air Construction permit No. 1050234-018-AC/PSD-FL-195E, PSD-FL-296D, PSD-FL-330C, PSD-FL-342A into the current Title V Operating permit.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for Title V Air Operation Permit Revision received: February 27, 2012.
Addendum to Title V Air Operation Permit received: March 8, 2012.
Draft/proposed permit issued: April 5, 2012.

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 6.

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

Siting: This plant is subject to certain requirements of Chapter 403, Part II, Florida Statutes, Electric Power Plant and Transmission Line Siting, including a modification of the Site Certification conditions, No. PA 92-33.

PROJECT REVIEW

The object of this permit revision is to incorporate conditions as established in air construction permit No. 1050234-018-AC/ PSD-FL-195E, PSD-FL-296D, PSD-FL-330C, PSD-FL-342A into the Title V air operating permit. These conditions affect Power Blocks 1, 2, 3 and 4, as requested by the applicant. Additions to the permit are indicated by a double underline. Deletions from the permit are indicated by a ~~strike through~~. In addition, all changes are highlighted in yellow throughout the permit for ease of location.

1. **Power Block 1: Emission Unit Nos. 001 and 002, Conditions A.14. and 16.b.** As established by permit No. 1050234-018-AC/ PSD-FL-195E, Condition A.14. CEMS Data Exclusion – DLN Tuning is added to this permit and Condition A.16.b., custom fuel monitoring schedule, is replaced by the fuel sulfur record.

Condition A.14. CEMS Data Exclusion – DLN Tuning. CEMS data collected during major DLN tuning sessions shall be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" would occur after completion of a combustor change-out, a major repair or maintenance to a combustor, or circumstances as identified or requested by the equipment vendor. Prior to performing any major tuning session, the permittee shall provide the Department's Southwest District Compliance Authority with an advance notice that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. Permit No. [1050234-018-AC/PSD-FL-195E]

Conditions A.14. – **A.31.** are renumbered to **A.15.** – **A.32.**

Condition A.17.b. (previously **A.16.b.**) *Natural Gas*: Pursuant to 40 CFR 60, Subpart GG, fuel sulfur records for the ~~a custom fuel monitoring schedule for the determination of these values shall be followed for the~~ natural gas fired at this facility ~~and~~ shall be maintained as follows (See Appendix GG, NSPS Subpart GG Requirements for Gas Turbines):

~~Custom Fuel Monitoring Schedule for Natural Gas (NG)~~

~~(1) Monitoring of fuel nitrogen content shall not be required if NG is the only fuel being fired in the gas turbines.~~

~~(2) Sulfur Monitoring:~~

~~(a) Analysis for fuel sulfur content of the natural gas shall be conducted using one of the approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternative method. These methods are referenced in 40 CFR 60, Subpart GG. The permittee can use these methods or their latest editions.~~

~~(b) This custom fuel monitoring schedule shall become effective on May 3, 2001, the date the Initial Title V Permit was issued. Effective the date of this custom schedule, sulfur monitoring shall be conducted twice monthly for six months. If this monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR 60.333 and the conditions of this permit, then sulfur monitoring shall be conducted once per quarter for six quarters. If monitoring data is provided by the applicant which demonstrates consistent compliance with the requirements herein the applicant may begin monitoring as per the requirements of 2(c).~~

~~(c) If after the monitoring required in item 2(b) above, or herein, the sulfur content of the fuel shows little variability and, calculated as sulfur dioxide, represents consistent compliance with the sulfur dioxide emission limits specified under 40 CFR 60.333 and the conditions of this permit, sample analysis shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.~~

~~(d) Should any sulfur analysis as required in items 2(b) or 2(c) above indicate noncompliance with 40 CFR 60.333 and the conditions of this permit, the owner or operator shall notify the Department of such excess emissions and the custom schedule shall be reexamined. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.~~

~~(3) If there is a change in fuel supply, the owner or operator must notify the Department of such change for re-examination of this custom schedule. A substantial change in natural gas quality (i.e., sulfur~~

~~content varying by more than 1 grain/100 standard cubic feet of gas) shall be considered as a change in fuel supply. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.~~

~~(4) Records of sample analysis and fuel supply pertinent to this custom schedule shall be retained for a period of five years, and be available for inspection by personnel of federal, state, and local air pollution control agencies.~~

~~[40 CFR 60.334 & 40 CFR 60.335; Custom Fuel Monitoring Schedule Approved on June 1, 2000; and, Permit No. 1050234-003-AC/PSD-FL-195B, Specific Condition E.2.h.]~~

Fuel Sulfur Records

The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.

a. Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be in accordance with 40 CFR 60, Subpart GG. (See Appendix NSPS, Subpart GG - Standards of Performance for Stationary Gas Turbines.)

b. Sampling and analysis for the fuel oil sulfur content shall be conducted in accordance with the methods in 40 CFR 60, Subpart GG. For each subsequent fuel delivery, the permittee shall either (1) maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor, or (2) take and analyze a sample according to the above procedures and maintain a permanent file of the results of the analysis. At the request of a Compliance Authority, the permittee shall perform additional sampling and analysis for the fuel sulfur content. (See Appendix NSPS, Subpart GG - Standards of Performance for Stationary Gas Turbines.)

c. The above methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 75, Appendix D.

[Rule 62-4.160(15), F.A.C.; 40 CFR 75, Appendix D; and, Permit No. 1050234-018-AC/PSD-FL-195E]

2. **Power Block 2: Emissions Unit Nos. 014 and 015, Conditions D.16. and 23.a.** As established by Permit No. 1050234-018-AC/PSD-FL-296D, CEMS Data Exclusion – DLN Tuning and *Visible Emissions* annual test requirement shall be changed as follow:

Condition D.16. CEMS Data Exclusion – DLN Tuning. CEMS data collected during major DLN tuning sessions shall be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" would occur after completion of a combustor change-out, a major repair or maintenance to a combustor, or ~~other similar~~ circumstances as identified or requested by equipment vendor. Prior to performing any major tuning session, the permittee shall provide the Department's Southwest District Compliance Authority with an advance notice that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. [Permit No. 1050234-007-AC/PSD-FL-296A, Specific Condition III.14. and Permit No. 1050234-018-AC/PSD-FL-296D]

Condition D.23.a. *Visible Emissions*. Each unit shall be tested for visible emissions when firing natural gas and when firing distillate fuel oil. Annual emissions testing while firing fuel oil is not required during any federal fiscal year in which less than 400 hours ~~5,473,000 gallons~~ of distillate fuel oil is fired in both emission units combined. CO emissions recorded by the CEMS shall be reported for the visible emissions observation period. ~~*{Permitting Note: The fuel limitation for waiving testing while firing distillate fuel oil corresponds to the equivalent of approximately 200 hours of operation per year per turbine.}*~~

3. **Power Block 3: Emissions Unit Nos. 016 and 017, Conditions E.16. and 23.a.** As established by Permit No. 1050234-018-AC/ PSD-FL-330C, CEMS Data Exclusion – DLN Tuning and *Visible Emissions* annual test requirement shall be changed as follow:

Condition E.16. CEMS Data Exclusion – DLN Tuning. CEMS data collected during major DLN tuning sessions shall be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" would occur after completion of a combustor change-out, a major repair or maintenance to a combustor, or ~~other similar~~ circumstances as identified or requested by the equipment vendor. Prior to performing any major tuning session, the permittee shall provide the Department's Southwest District Compliance Authority with an advance notice that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. [Permit No. 1050234-006-AC/PSD-FL-330, Specific Condition III.14. and Permit No. 1050234-018-AC/PSD-FL-330C]

Condition E.23.a. *Visible Emissions*. Each unit shall be tested for visible emissions when firing natural gas and when firing distillate fuel oil. Annual emissions testing while firing fuel oil is not required during any federal fiscal year in which less than 400 hours~~5,473,000 gallons~~ of distillate fuel oil is fired in both emission units combined. CO emissions recorded by the CEMS shall be reported for the visible emissions observation period. ~~*{Permitting note: The fuel limitation for waiving testing while firing distillate fuel oil corresponds to the equivalent of approximately 200 hours of operation per year per turbine.}*~~

4. Power Block 4: Emissions Unit Nos. 018 and 019, Conditions F.15., 17., and 23.a. As established by Permit No. 1050234-018-AC/ PSD-FL-342A, Alternative CO and NO_X Emissions Standard, CEMS Data Exclusion – DLN Tuning and *Visible Emissions* annual test requirement shall be changed as follow:

Condition F.15. Alternate CO and NO_X Emissions Standard. During any 24-hour block period (midnight-to-midnight), in which at least one hour of startup or shutdown operation has occurred, the following alternative emission limits shall apply:

a. An alternative NO_X limit of 3,000 lb shall apply if natural gas is the exclusively fired fuel;
b. An alternative NO_X limit of 8,880 lb shall apply if any fuel oil is fired; and
c. An alternative CO limit of 4,200 lb shall apply when firing either natural gas or fuel oil.

[Permit No. 1050234-010-AC/PAD-FL-342, Specific Condition III.14. and Permit No. 1050234-018-AC/PSD-FL-342A]

Condition F.17. CEMS Data Exclusion – DLN Tuning. CEMS data collected during major DLN tuning sessions shall be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" would occur after completion of a combustor change-out, a major repair or maintenance to a combustor, or ~~other similar~~ circumstances as identified or requested by the equipment vendor. Prior to performing any major tuning session, the permittee shall provide the Department's Southwest District Compliance Authority with an advance notice that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. [Permit No. 1050234-010-AC/PSD-FL-342, Specific Condition III.17. and Permit No. 1050234-018-AC/PSD-FL-342A]

Condition F.23.a. *Visible Emissions*. Each unit shall be tested for visible emissions when firing natural gas and when firing distillate fuel oil. Annual emissions testing while firing fuel oil is not required during any federal fiscal year in which less than 400 hours~~6,140,000 gallons~~ of distillate fuel oil is fired in both emission units combined. CO emissions recorded by the CEMS shall be reported for the visible emissions observation period. ~~*{Permitting note: The fuel limitation for waiving testing while firing distillate fuel oil corresponds to the equivalent of approximately 200 hours of operation per year per turbine.}*~~

5. Appendices. To reflect the inclusion of the full version of 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines as an applicable requirement for all 4 power blocks in permit No. 1050234-018-AC/ PSD-FL-195E, PSD-FL-296D, PSD-FL-330C, PSD-FL-342A, the Appendix Section of the Title V air operation permit is updated accordingly. The existing Appendix NSPS, Subpart GG is clarified to show that the shortened version is applicable specifically to Power Block 4. In addition, Condition TV36. of

Appendix TV, Title V General Conditions is deleted to reflect the February 16, 2012 repeal of the Anti-Idling Rule

CONCLUSION

This project revises Title V air operation permit No. 1050234-019-AV, which was effective on January 1, 2012. 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.