Florida Power and Light Company
Martin Power Plant

Title V Air Operation Permit Renewal
Permit No. 0850001-033-AV

APPLICANT

The applicant for this project is Florida Power and Light Company (FPL). The applicant's responsible official and mailing address are: Mr. David Williams, Plant General Manager, 700 Universe Boulevard, Juno Beach, Florida 33408.

FACILITY DESCRIPTION

The applicant operates the existing Martin Power Plant, which is located in Martin County at 21900 Southwest Warfield Boulevard, Indiantown, Florida.

The existing facility consists of the following emissions units:

Emissions Units 001 and 002: Two oil and natural gas fired conventional fossil fuel steam electric generating stations (Units 1 and 2); the maximum capacity of each steam turbine driven electrical generator is 863.3 megawatts (MW).

Emissions Units 003 - 006: Two oil and natural gas fired combined cycle combustion turbine systems (two "2-on-1" sets) (Units 3 and 4), each gas turbine is nominally rated at 170 MW, with a matched unfired heat recovery steam generator (HRSG). Each pair of the gas turbines (3A/3B and 4A/4B) shares a common steam turbine driven electrical generator rated at 160 MW each. The total generating capacity of each 2-on-1 turbine system is approximately 500 MW.

Emissions Units 011, 012, 017 and 018: Collectively regulated as Unit 8, this unit is a "4-on-1" combined cycle system which consists of four oil and natural gas fired combustion turbine/HRSG systems with a single steam turbine electrical generator. Each of the four gas combustion turbines (8A, 8B, 8C and 8D) is nominally rated at 170 MW, with a matched 495 million British thermal units per hour (MMBtu/hr) gas-fired HRSG, and a single 470 MW steam turbine driven electrical generator that serves all four CT/HRSG systems, and associated support equipment. Nitrogen oxides (NO_X) emissions are controlled by using Dry Low NO_X (DLN) combustors for natural gas and steam injection for fuel oil firing. A selective catalytic reduction (SCR) system, in combination with the other NO_X controls, further reduces NO_X emissions during combined cycle operation. The total generating capacity of this combined cycle combustion turbine system is approximately 1,150 MW. There is also a solar thermal facility on-site that produces steam, which is used to augment the steam produced by the Unit 8 HRSGs, thus reducing fossil fuel use in the duct burners when adequate sunlight is available.

This facility also includes one auxiliary boiler, emergency generators, four hurricane emergency shelter stationary spark ignition engine driven generators, two storage oil tanks, a mechanical cooling tower, and four electrical fuel line heaters (to heat up the natural gas fuel prior to introduction into the CT, when needed). Also included in this permit are additional unregulated emissions units identified as facility-wide particulate matter (PM) and volatile organic compounds (VOC) emissions.

PROJECT DESCRIPTION

The purpose of this permitting project is to renew the existing Title V air operation permit No. 0850001-018-AV for the above referenced facility, and to incorporate the terms and conditions of air construction permit No. 0850001-032-AC (PSD-FL-146H / PSD-FL-327F), issued concurrently with the Notice of Intent for this project..

PROCESSING SCHEDULE AND RELATED DOCUMENTS

05/14/2013 Received the application for an air construction permit revision to be processed concurrently with Title V permit renewal.

08/09/2013 The Department issued a draft concurrent permit package.

08/23/2013 The Department received comments from the applicant on the draft permit package.

PRIMARY REGULATORY REQUIREMENTS

Standard Industrial Classification (SIC) Code: 4911 - Electrical Generation.

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.

CAM: Emissions units at this facility are not subject to Compliance Assurance Monitoring (CAM) for one or more of the following reasons: They do not trigger the potential pre-air pollution control device major source emission thresholds; they demonstrate continuous compliance with a continuous emission monitoring system (CEMS); they are not equipped with air pollution control device(s); they are equipped with device(s) which are considered to be inherent to the process/operation.

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

PROJECT REVIEW

The following changes/revisions were made as part of this renewal, the key differences compared with the previous Title V air operation permit are:

1. Incorporation of updated requirements established in concurrently processed air construction permit No. 0850001-032-AC (PSD-FL-146H / PSD-FL-327F), for emissions Units 003-006 and emissions Units 011, 012, 017 and 018, related to excess emissions provisions for the gas CT's during periods of startup and shut down, while conducting Dry Low NO_X (DLN) tuning, as well as Full Speed No Load (FSNL) trip test, which is recommended by the equipment manufacturer following a major overhaul and/or maintenance outage.
2. Incorporation of updated requirements established in concurrently processed air construction permit No. 0850001-032-AC (PSD-FL-146H / PSD-FL-327F) related to Volatile Organic Compounds (VOC) testing schedule for the gas CT's and to the removal of fuel oil as an authorized fuel for the Auxiliary Boiler (EU 007).
3. Incorporation of changes authorized by air construction permit 0850001-026-AC/PSD-FL-327E into this renewal permit. The air construction permit authorized an increase to the permitted natural gas-firing capacity from 1,600 to 1,660 million British Thermal units per hour per unit (MMBtu/hour/unit) and from 1,811 to 1,885 MMBtu/hour/unit when firing distillate oil for combined-cycle CT's emissions Unit 8 (EU Nos. 011, 012, 017 and 018).
4. Incorporation of applicable requirements from Major Source Boiler M.A.C.T., 40 CFR 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, or Institutional Boiler or Process Heater, final rule was published in the Federal Register on January 31, 2013, for the existing Auxiliary Boiler EU 007.
5. Creation of three new updated Subsections in Section III - Emissions Units and Specific Conditions, Subsections (G, H and I), to accommodate the applicable requirements for:

a. The existing 216 HP Detroit Emergency Diesel Engine-driven Emergency Fire Pump, regulated pursuant to 40 CFR 63, Subpart ZZZZ applicable requirements (Subsection G - Creation of new Emissions Unit No. 022).
b. Four new hurricane shelter, stationary spark ignition (SI) reciprocating internal combustion engines (RICE) that fire propane, regulated pursuant to 40 CFR 63, Subpart ZZZZ applicable requirements (Subsection H - Creation of new Emissions Unit No. 023).
c. The new 48 HP Emergency stationary SI RICE-driven Emergency Generator that fires natural gas, regulated pursuant to 40 CFR 60, Subpart JJJJ applicable requirements. (Subsection I - Creation of new Emissions Unit No. 024)

6. FPL elected to use 40 CFR Part 75 Appendix D, fuel flow monitoring for continuous sulfur dioxide (SO_2) emission monitoring in lieu of requiring a SO_2 CEMS for EU 001 and EU 002. The permittee may use the EPA Methods 6, 6A, 6B, or 6C test methods, incorporated by reference in Chapter 62-297, F.A.C., to demonstrate compliance; however, the permittee elected to demonstrate compliance using fuel sampling and analysis. This protocol is allowed because these emissions units do not have an operating flue gas desulfurization device. Pursuant to 40 CFR 60.45(b)(2), for a fossil-fuel-fired steam generator that does not use a flue gas desulfurization device, a CEMS for measuring SO_2 emissions is not required if the owner or operator monitors SO_2 emission by fuel sampling and analysis.

7. Revised the requirements for Performance Evaluations and Calibration Checks for Units 1 and 2 (EU's 001 and 002) to allow the protocols from 40 CFR75 as acceptable alternatives to the protocols specified in 40 CFR 60.

8. Revised the testing requirements for Units 1 and 2 to recognize the use CEMS or continuous fuel monitoring in lieu of stack testing requirements.

9. For Unit 8 (EU's 011, 012, 017 and 018), as established in air construction permit No. 0850001-032-AC (PSD-FL-146H / PSD-FL-327F), recognize that the certification of CO monitors protocol be allowed to use quality assurance procedures that conform to the requirements of 40 CFR 60 Part 75.

10. Replacement of Appendix TV, Title V General Conditions, Appendix TR, Facility-wide Testing Requirements and Appendix RR, Facility-wide Reporting Requirements with the newest versions.

11. Consolidation of Tables 1 and 2 into the Appendix section.

12. Incorporation of Table H, Permit History into the Appendix section.

13. Updated Appendix I - List of Insignificant Emissions Units and/or Activities.

14. Updated Appendix U - List of Unregulated Emissions Units and/or Activities. Inclusion of three emissions Units as an Unregulated emissions units:
    a. EU 009 (One 783 HP Diesel Engine-driven Emergency Generator for Emissions Units 003 to 006),
    b. EU 015 (One 1,200 HP Detroit Diesel Emergency Generators), and
    c. EU 025 (Two 3,210 HP Caterpillar Diesel Emergency Generators).
    These Emissions Units have been exempted from additional requirements of 40 CFR 63, Subpart ZZZZ as existing engines greater than 500 HP located at a major source of HAP. These units were subject to Subpart ZZZZ, Initial Notification requirements only.

15. Updated Title V air operation permit to include the newest Acid Rain and Clean Air Interstate Rule Part (CAIR) Forms.

16. Inserted Appendix NESHAP UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units to provide applicable requirements for emissions units 1 and 2.

See draft air construction permit No. 0850001-032-AC (PSD-FL-146H / PSD-FL-327F) for details of the changes that are being made to the Title V permit. The Technical Evaluation and Preliminary Determination for that project summarize the requested changes made to the underlying air construction permit conditions. These changes, which are summarized above, have been reflected in the renewal draft Title V air operation permit.

These documents along with all other associated documents in the issued draft permit package can be accessed by entering file number in the permit number field at the web link given below:
http://www.dep.state.fl.us/air/emission/apds/default.asp

CONCLUSION

This project renews Title V air operation permit No. 0850001-018-AV, which was effective on January 1, 2009. 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 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.