Florida Power & Light
Turkey Point Fossil Plant
Facility ID No. 0250003
Miami-Dade County

Title V Air Operation Permit Renewal
Permit No. 0250003-025-AV

APPLICANT

The applicant for this project is Florida Power and Light (FPL) Company, 700 Universe Boulevard, Juno Beach, Florida 33408. The applicant's responsible official is Mr. Rodolfo Sanchez, Plant General Manager.

FACILITY DESCRIPTION

The Turkey Point Title V Source is composed of two separate co-located power plants: the Fossil Plant and the Nuclear Plant. The two plants combined comprise the Turkey Point Title V facility, which is considered one facility for purposes of Prevention of Significant Deterioration (PSD) and Maximum Achievable Control Technology (MACT) applicability. However, due to the strict requirements of the Nuclear Regulatory Commission, FPL has chosen to operate these two plants under separate business entities, and has requested the issuance of two separate Title V permits for the Turkey Point facility. The co-located power plant referred to as the Turkey Point Nuclear Plant is addressed in a separate Title V permit (0250003-021-AV).

The Turkey Point Fossil Plant is located 9.5 miles east of Florida City on SW 344 Street, Homestead, Miami-Dade County.

The Turkey Point Fossil Plant consists of the following emissions units (E.U.):

EU No.	Brief Description
Regulated Emissions Units	
001	One 440 MW boiler (EPA ID # PTP2)
009	Unit 5A gas turbine (170 MW) with supplementary-fired heat recovery steam generator
010	Unit 5B gas turbine (170 MW) with supplementary-fired heat recovery steam generator
011	Unit 5C gas turbine (170 MW) with supplementary-fired heat recovery steam generator
012	Unit 5D gas turbine (170 MW) with supplementary-fired heat recovery steam generator
013	One 4.2 million gallon distillate fuel oil storage tank for Unit 5 gas turbines
014	One 22 cell mechanical draft cooling tower for Unit 5
025	One 275 HP (205 kW) emergency diesel fire pump
026	Two 33 HP (25 kW) emergency hurricane shelter engine generators
Unregulated Emissions Units and Activities	
004	Unregulated Emissions Units and Activities
015	Two 3,210 HP (2,250 kW) emergency diesel generators

Emission Unit 1 (E.U. 001) consists of a Foster-Wheeler 440 MW Class Steam Generating Unit that burn a variable combination of natural gas, used oil from FPL operations and No. 6 fuel oil. Stack height is 400 feet. The unit is equipped with low NO_X burners and UOP dust collectors, Air Correction Division multiple cyclones with reinjection. Visible emissions are monitored by a transmissometer in the stack. The unit is subject to NO_X RACT. To reduce pollution, the boiler incorporates "low-NO_X burners" and mechanical cyclone dust collectors. Sulfur dioxide, carbon dioxide, nitrogen oxides, visible emissions, and gas flow rate are all continuously monitored. Unit 1 began operation in April 1967.

FPL may inject additives such as magnesium oxide, magnesium hydroxide and related compounds into each boiler for the purposes of reducing build-up of particulate matter on the interior boiler surfaces, to facilitate proper heat transfer and other boiler operation, and to reduce the particulate matter required to be removed from boiler surfaces during soot blowing and other boiler cleaning operations. The rate of additive injection is not large, generally on the order of 1 gallon of additive per approximately 2,500 (± 500) gallons of fuel oil (this is approximately 0.04% by volume). The permit requires that emission tests be conducted while injecting additives consistent with normal operating practices.

Unit 1 is allowed to co-fire natural gas with fuel oil in any ratio that will cause emissions to not exceed the sulfur dioxide limitation of this permit. The permit specifies that compliance with the sulfur dioxide standard shall be based on the total heat input from all liquid and gaseous fuels burned. The permit also requires that the sulfur dioxide emission limitation shall apply at all times including startup, shutdown, and load change. However, excess emissions of sulfur dioxide are allowed during malfunctions in accordance with the excess emissions conditions of this permit, which are based on Rule 62-210.700, F.A.C. Malfunctions that could occur and affect sulfur dioxide emissions include unexpected loss of natural gas supply at the plant, failure of the fuel feed system or burner failure.

The heat input limitations have been placed in Unit 1 to identify the capacity of the unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability. A note below the permitted capacity condition clarifies this.

Emission Unit 5 (E.U. 009, 010, 011 and 012) consists of four General Electric Model PG7241FA gas turbine-electrical generator sets with a generating capacity of 170 MW for gas firing (180 MW oil firing) each. The total generating capacity of the combined cycle unit is approximately 1150 MW. Exhaust from each gas turbine passes through a separate supplementary gas-fired heat recovery steam generator (HRSG). Steam from each HRSG is delivered to a single 470 MW steam turbine-electrical generator. Each gas turbine fires natural gas as the primary fuel and distillate fuel oil as a restricted alternate fuel. Emissions of CO, particulate matter (PM/PM_{10}) sulfuric acid mist (SAM), sulfur dioxide (SO_2) and volatile organic compounds (VOC) are controlled by the efficient combustion of natural gas and restricted firing of ultra low sulfur distillate fuel oil. NO_X emissions are controlled by Dry Low-NO_X (DLN) combustion technology for gas firing and water injection for oil firing. A selective catalytic reduction (SCR) system further reduces NO_X emissions. Each gas turbine has a single stack that is equipped with continuous emissions monitoring systems (CEMS) to measure and record carbon monoxide (CO) and nitrogen oxides (NO_X) emissions as well as flue gas oxygen or carbon dioxide content.

Unit 5 also comprises an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air-cooling system and associated support equipment. Ancillary equipment consists of a 4.3 million gallon diesel fuel storage tank (E.U. 013); a 22-cell mechanical draft cooling tower (E.U. 014); two unregulated emergency diesel generators (E.U. 015) used to safely shutdown Unit 5 in the event of a blackout situation; and, other associated support equipment.

Also included in this permit are: a diesel (0.0015% sulfur content) engine-driven emergency fire pump (E.U. 025); two propane emergency hurricane shelter generators (E.U. 026); and, miscellaneous unregulated (E.U.004 and E.U.015) and insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to renew the existing Title V permit for the above referenced facility.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

<u>These documents and all related correspondence are on file with the permitting authority:</u>

Initial Title V Permit 0250003-001-AV (fossil fuel plant). Effective date January 1, 1999
Title V Permit Renewal 0250003-005-AV (fossil fuel plant). Effective date January 1, 2004
Title V Permit Renewal 0250003-011-AV (fossil fuel plant). Effective date January 1, 2009

Title V Permit Renewal 0250003-025-AV (fossil fuel plant). Effective date January 1, 2014

PRIMARY REGULATORY REQUIREMENTS

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

Title IV: The facility operates units (Units 1 and 5) 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 (Unit 5 turbines) subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility operates units (Unit 5 turbines) 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.

Siting: Units 1 and 5 are certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to any of the units at the facility. Unit 5 is equipped with Acid Rain continuous emissions monitoring systems (CEMS) that are also used to demonstrate compliance with the nitrogen oxides (NO_X) limits. The fossil fuel steam electrical generator Units 1, is an emissions unit inherently controlled by multiple cyclones.

PROJECT REVIEW

The following changes/revisions were made as part of this renewal:

1. Update of the language of the Annual Emissions Fee Forms and Fee Requirements, Condition FW7 and Prevention of Accidental Releases (Section 112(r) of CAA), Condition FW9.
2. Deletion in Section III - Subsection A of references to Emission Unit 002 (440 MW Boiler). FP&L stopped operating the Unit 2 boiler and steam turbine in late 2011 when the Unit was transitioned to a synchronous condenser to provide electrical support to the southern end of their system.
3. Inclusion of the BART applicable requirements of Permit 0250003-008-AC and the BART Emission Reduction Strategy requirements of Permit 0250003-018-AC in Section III, Subsection A for Unit 1. The obsolete conditions in Permit 0250003-008-AC were not transferred to this Title V renewal since the reports and requirements of these conditions have already been satisfied.
4. Deletion of Appendices ASP and MD since there are no longer applicable due to the implementation of the BART applicable requirements for Unit 1.
5. Deletion of Section III - Subsection B, Emission Unit 003 (five 2.75 MW generators). These units were removed from the site in November 2010.
6. Deletion of Section III - Subsection F, Emission Unit 015 (two 2.25 Mw generators). Reclassification of these two existing engines (manufactured in 2005) as unregulated emission units. These are engines greater than 500 HP and located at a major source of HAP; therefore, there are exempt from additional requirements of 40 CFR 63, Subpart ZZZZ. This emission unit is subject to Subpart ZZZZ, notification requirements only.
7. Inclusion of Emission Unit 015 in the Appendix U – List of Unregulated Emissions Units and/or Activities. This unit is used to safely shutdown Unit 5 in the event of a blackout situation.
8. Creation of two new Subsections in Section III (E and F), to accommodate the applicable requirements for new (hurricane shelter) and existing (fire pump) engines regulated pursuant to 40 CFR 60, Subpart JJJJ and

40 CFR 63, Subpart ZZZZ respectively. Creation of new emissions unit numbers 025 and 026 for these engines.

9. Updating, as stated before, of new Section III subsections as follows:
   - A. One 440 megawatts (MW) Boiler.
   - B. One 1,150 MW Combined Cycle Combustion Turbines with duct burners (Unit 5).
   - C. One 4.2 million Storage Tank.
   - D One 22 Cell Mechanical Cooling Tower.
   - E. One 275 HP (205 kW) Emergency Diesel Fire Pump.
   - F. Two 33 HP (25 kW) Emergency Hurricane Shelters.
10. Clarification that emergency engines are not subject to the VOC and NO_X RACT requirements contained in Rules 62-296.500 & 570, F.A.C.
11. Replacement of Appendix A, NSPS General Provisions, Appendix TV, Title V General Conditions, Appendix TR, Facility-wide Testing Requirements and Appendix RR, Facility-wide Reporting Requirements with the newest versions.
12. Consolidation of Tables 1 and 2 into the Appendix section. Creation of new Tables 1 & 2 for E.U. 026 engines.
13. Incorporation of updated permit conditions in Section III based on requirements established in construction permit No. 0250003-024-AC for Unit 5, to be issued concurrently with this Title V permit:
   - Permitted Capacity heat input revision, Condition No. B.4.
   - Excess Emissions language revision, Condition No. B.13.
   - DLN Tuning language revision, Condition B.14.
   - Addition of EPA Method 320 in the Test Methods table, Condition B.17.
   - Inclusion of CO Part 75 requirements, Condition No. B.18.
   - Inclusion of EPA method 320 for ammonia testing, Condition B.19.
   - Revision of permitting note regarding VOC annual/renewal testing, Condition B.20.
   - Addition of ammonia testing requirements, Condition B.20.
   - Inclusion of permits conditions recognizing the installation of the GE 7A.04 components, and the reporting requirements, Conditions B.29. and B.30.

CONCLUSION

This project renews Title V air operation permit No. 0250003-011-AV, which was issued on January 1, 2009 and includes subsequent revisions to this permit. 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.