Title V Air Operation Permit Renewal
Permit No. 0530380-002-AV

APPLICANT

The applicant for this project is Florida Power Development (FPD), LLC. The applicant's responsible official and mailing address are: Terry Woodard, Plant Manager, Florida Power Development, LLC, Brooksville Power Plant, 10311 Cement Plant Road, Brooksville, Florida, 34601.

FACILITY DESCRIPTION

FPD operates the existing Brooksville Power Plant, which is located in Hernando County at 10311 Cement Plant Road, Brooksville, Florida.

The existing facility is an 80 megawatt, gross (MWg) electric power plant that consists of a woody biomass grate suspension boiler; biomass handling and storage; in-duct sorbent injection system (IDSIS); bottom ash storage; and handling facilities; fuel oil storage tanks; and an emergency generator.

The grate-suspension boiler fires woody biomass as the primary and ultralow sulfur distillate (ULSD) fuel oil and natural gas is used for startup, shutdown and bed stabilization. Ammonia (NH_3) injection into a selective catalytic reduction (SCR) reactor is used to reduce emission of nitrogen oxide (NO_X) and help in the reduction of organic hazardous air pollutants (HAP) and dioxin/furan. An oxidation catalyst is used to reduce carbon monoxide (CO), volatile organic compounds and organic HAP. An IDSIS utilizing milled trona, lime or sodium bicarbonate to control sulfur dioxide (SO_2), hydrogen chloride, hydrogen fluoride and other acid gas HAP. An electrostatic precipitator (ESP) to reduce emissions of particulate matter (PM)/PM with a mean particle diameter of 10 microns or less (PM_{10})/$PM_{2.5}$, including metal HAP, and to remove injected sorbents. This boiler is equipped with a CO, SO_2 and NO_X continuous emission monitoring systems (CEMS) and a continuous opacity monitoring system (COMS) for opacity.

A list of the regulated emission units (EU) at the facility are given below.

EU No.	Brief Description
Regulated Emissions Units	
001	Biomass Handling, Storage and Processing
002	Woody Biomass-Fueled Grate Suspension Boiler
003	Ash Handling, Storage and Shipment
004	IDSIS Sorbent Handling and Storage

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

PROJECT DESCRIPTION

The Brooksville Power Plant (aka Central Power and Lime, CPL) is collocated with the Cemex Brooksville South Cement Plant (aka Florida Crushed Stone). The two plants operated under a single facility Title V air operation permit. FPD converted the existing coal-fueled unit to an 80 MWg woody biomass-fueled power plant to operate as a separate facility. The purpose of this permitting project is to issue the initial Title V air operation permit for the Brooksville Power Plant.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V Air Operation Permit Renewal received 3/31/2014.
Additional Information Request dated 4/9/2014
Additional Information Response Received 7/1/2014, application complete.

PRIMARY REGULATORY REQUIREMENTS

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

North American Industry Classification System (NAICS): 221117 – Biomass Electric Power Generation.

HAP: The facility is identified as a major source of HAP.

Title IV: The facility does not operate 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. A list of the emission units subject to NSPS requirements is given below.

Regulation	EU Nos.
40 CFR 60, Subpart A, NSPS General Provisions	002
40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	

NESHAP: The facility operates units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63. A list of the emission units subject to NESHAP requirements is given below.

Regulation	EU Nos.
40 CFR 63, Subpart A, NESHAP General Provisions	
40 CFR 63, Subpart DDDDD: Industrial, Commercial, and Institutional Boilers and Process Heaters	

The woody biomass grate suspension boiler (EU 002) must come into compliance with 40 CFR 63, Subpart DDDDD by January 31, 2016. The boiler must meet the following emission limits:

- As determined by CEMS, CO emissions shall not exceed 2,000 ppmvd at 3% O_2 (10-day rolling average) except during startup and shutdown;
- As determined by stack test, PM (filterable) emissions shall not exceed 0.051 lb/MMBtu of heat input; or, total selected metals (TSM) of 0.0065 lb/MMBtu of heat input except during startup and shutdown. Alternative out-put based limit of 0.052 lb/MMBtu of steam output or 0.71 lb/MWh; or, TSM of 0.0066 lb/MMBtu of steam output or 0.091 lb/MWh;
- As determined by Method 26 or 26A, HCl emissions shall not exceed 0.022 lb/MMBtu of heat input except during startup and shutdown. Alternative out-put based limit of 0.025 lb/MMBtu of steam output or 0.27 lb/MWh except during startup and shutdown; and
- As determined by EPA Method 29, Hg emissions shall not exceed 5.7E-06 lb/MMBtu of heat input except during startup and shutdown. Alternative out-put based limit of 6.4E-06 lb/MMBtu of steam output or 7.3E-05 lb/MWh.

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

Siting: Unit 002 was originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) applies to the woody biomass-fueled grate suspension boiler (EU 002) for the controlled emissions of $PM/PM_{10}/PM_{2.5}$. The biomass boiler is equipped with an ESP to control emissions of $PM/PM_{10}/PM_{2.5}$. A COMS to measure opacity is used as a surrogate for emissions of PM. In addition, the biomass boiler is equipped with the following control equipment: NH_3 injection into a SCR reactor is used to reduce emissions of NO_X; an oxidation catalyst is used to reduce emissions of CO; and an IDSIS utilizing milled trona, lime or sodium bicarbonate to control emissions of SO_2. However, compliance is continuously demonstrated by NO_X, CO and SO_2 CEMS.

GHG: The facility is not identified as a major source of greenhouse gas (GHG) pollutants.

PROJECT REVIEW

This project involves the initial issuance of the Title V air operation permit for the Brooksville Power Plant.

The initial Title V permit includes the following changes:

Section I. Facility Information

Subsection B. Summary of Emission Units

1. Based on clarification received from the applicant, the emergency diesel generator and the fire pump are not subject to NESHAP Subpart ZZZZ of Title 40, Part 63 of the code of federal regulations. The 250 kilowatt (kW) emergency ditch pump was removed from the site and the 500 kW emergency diesel engine was corrected to a 460 kW (610 brake-horse power (bhp)) emergency diesel engine. Based on the engines size and nature of its use, the emergency diesel fired engine is not subject to Subpart ZZZZ of 40 CFR 63. In addition, the emergency diesel engine fires less than 64,000 gallons of diesel fuel; therefore, is exempt from permitting pursuant to Rule 62-210.300(a) and is listed as an unregulated emission unit. Therefore, the Department issued an administrative correction removing the obsolete conditions in air construction Permit No. 0530380-001-AC.

Section III. Emission Units and Specific Conditions

Subsection B. Woody Biomass-Fueled Grate Suspension Boiler (EU 002)

2. Request to remove **Condition B.18** ammonia (NH_3) Slip limit of 10 parts per million by volume, dry (ppmvd) at 7% oxygen for the woody biomass-fueled grate suspension boiler (EU 002) since the initial testing of NH_3 slip from the unit indicated non-detect values well below the limit. Additionally, the ammonia slip is not a function of rule by, rather reasonable assurance, and the limit was more than met through initial testing. *Response:* The biomass boiler is equipped with a new SCR, which can achieve greater reductions of NO_X while maintaining within required ammonia slip levels. However, the catalyst will lose its activity as a result of deposition of impurities from the fuel onto the catalyst surface, which increases the risk of high ammonia slip. Basically, as the catalyst activity decreases, NO_X removal decreases and ammonia slip increases. When ammonia slip reaches the maximum design or permitted level this is an indicator that the catalyst is not operating properly and may need to be replaced. In addition, NH_3 is a precursor for an increase of $PM_{2.5}$ emissions. The Department requires reasonable assurance that the SCR is sufficiently operating and the ammonia slip is not increasing; therefore, the required testing for ammonia slip will not be removed at this time. After additional operation of the SCR system and when more ammonia slip test results become available, the Department will be open to revisiting this request.

3. Revise **Condition B.38** (Quarterly SO_2, CO, NO_X and Opacity Emissions Report) to correct reference to the quarterly emissions reporting requirements from Appendix CTR to Figure 1 in 40 CFR 60,7(d).

CONCLUSION

This project is the initial Title V Air Operation Permit No. 0530380-002-AV, which will be effective on upon issue of the final permit. This initial Title V air operation permit is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.