Title V Air Operation Permit Renewal
Permit No. 0010131-004-AV

APPLICANT

The applicant for this project is Gainesville Renewable Energy Center, LLC. The applicant's responsible official and mailing address are: Mr. James S. Gordon, Chief Executive Officer, Gainesville Renewable Energy Center, LLC, 20 Park Plaza, Suite 320, Boston, Massachusetts 02116.

FACILITY DESCRIPTION

The applicant operates the recently constructed Gainesville Renewable Energy Center (GREC), which is located in Alachua County within the city of Gainesville and approximately 7 miles southeast of the city of Alachua in Florida. Specifically, the plant is located on 131 acres within the boundary of the Gainesville Regional Utilities Deerhaven Generating Station in Alachua County, Florida.

GREC is a woody biomass-fueled electric power plant. GREC combusts woody biomass in a bubbling fluidized bed (BFB) boiler and associated steam turbine-electrical generator (STEG) to generate approximately 100 nominal net megawatts of electrical power. The GREC power plant is comprised of six major process areas. These process areas are: biomass fuel delivery, unloading and processing; biomass fuel handling and storage; power island (steam generating unit), including a BFB boiler, STEG and cooling tower; ash (bottom and fly) handling, storage and shipment; emergency support equipment; and alkaline sorbent storage.

The GREC facility consists of the following regulated emission units (EU).

EU ID No.	Emission Unit Description
001	Biomass fuel delivery, preparation, storage and handling
002	Woody biomass-fueled BFB boiler with a maximum heat input capacity of 1,358 million British thermal units per hour (MMBtu/hr)
003	Ash handling, storage and shipment
005	1,220-horsepower (hp) emergency generator engine
006	315-hp emergency fire pump engine
007	Alkaline sorbent storage silo

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

PROJECT DESCRIPTION

The purpose of this permitting project is to issue the initial Title V permit for the above referenced facility along with a concurrent air construction permit modification. Details about the concurrent air construction permit modification can be found in the project's Technical Evaluation and Preliminary Determination document. The proposed initial Title V air operation permit includes the specific permit conditions that regulate the emissions units at the GREC facility. All permit documents for this permitting action can be found at the link below:

http://www.dep.state.fl.us/Air/emission/bioenergy/gainesville.htm

PRIMARY REGULATORY REQUIREMENTS

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

North American Industry Classification System (NAICS): 221119 - Other Electric Power Generation.

HAP: 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 (CAA). The following emission unit is subject to the acid rain program.

Regulation	EU No(s).
40 CFR 75 Acid Rain Monitoring Provisions	002

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. The following emission units are subject to NSPS requirements.

Regulation	EU No(s).
40 CFR 60, New Source Performance Standards (NSPS) Subpart A, General Provisions	002, 005, 006
40 CFR 60, Subpart Da, Standards of Performance for Electric Utility Steam Generating Units	002
40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	005, 006

NESHAP: The facility operates units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63. The following emission units are subject to NESHAP requirements.

Regulation	EU No(s).
40 CFR 63, National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart A, General Provisions	002, 005, 006
40 CFR 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters	002
40 CFR 63, Subpart ZZZZ, National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	005, 006

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

Regulation	EU No(s).
40 CFR 96 Clean Air Interstate Rule	002

Siting: The GREC facility was certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) applies to emissions unit 002 (BFB boiler) for the controlled emissions of hydrogen chlorides (HCl) and hydrogen fluorides (HF). Emission of these pollutants are controlled by an in-duct sorbent injection system using lime or an equivalent.

GHG: The facility is 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 GREC.

A comment provided on the proposed permit by the EPA asked that the Department include an explanation in the SOB regarding the rationale for and data used to support the inclusion of a CAM plan for hydrogen chloride (HCl) and hydrogen fluoride (HF) emissions in the Title V permit. HCL and HF are HAPs. The CAM plan is included in the appendices of the Title V permit package. This explanation is given below.

The reason that a CAM plan was required is that the applicant requested HCl and HF emission limits in the Title V permit of 2.22 pounds per hour (lb/hr) for each HAP. These limits are not subject to 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. Subpart DDDDD only covers the HCl emissions limit of 0.022 pounds per million British thermal units (lb/MMBtu) that is in the Title V permit. There was is no post 1990 CAA NESHAP stipulated monitoring requirements to show compliance with the applicant requested HCl and HF emission limits from the BFB boiler. Consequently, these emissions limits are not exempt from a CAM plan

The alkaline sorbent injection rate was chosen for the CAM plan because injection of sorbent into the flue gas stream is the mechanism along with a baghouse that controls acid gas emissions such as HCl and HF. The baghouse is primarily used to control particulate matter emissions, including the injected sorbent. The baghouse also helps to control acid gases because the fly ash from the combustion of biomass in the BFB boiler is alkaline in nature and thus the fly ash cake that forms on the bags in the baghouse helps to control acid gases. The baghouse was not included in the CAM plan because it is already subject to monitoring requirements (bag leak detection and/or measurement of pressure drop across the baghouse) from NSPS 40 CFR 60, Subpart Da – Standards of Performance for Electric Utility Steam Generating Units and NESHAP Subpart DDDDD.

The injection rate intervals in the CAM plan were set in consultation with the applicant based on results of the initial compliance stack testing conducted on the BFB boiler at GREC and HCl and HF continuous emissions monitoring systems (CEMS) data. It should be noted, that as a results of construction permit (No. 0010131-003-AC, PSD-FL411B) that applied the requirements of NESHAP Subpart DDDDD to the BFB boiler at GREC, the HCl and HF CEMS required by Permit No. 0010131-001-AC (PSD-FL-411) may be removed by the permittee. This is another reason that a CAM plan was required for these HAP acid gas pollutants.

CONCLUSION

This project is the initial Title V air operation permit No. 0010131-004-AV, which will 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, 62-213 and 62-214, F.A.C.