TECHNICAL EVALUATION

APPLICANT

Gainesville Regional Utilities
P.O. Box 147117 (A136)
Gainesville, Florida 32614

ARMS Facility ID No. 0010129

PROJECT

Project No. 0010129-005-AF
GRU South Energy Center

COUNTY

Alachua, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Northeast District Office
Permitting Program
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

COMPLIANCE AUTHORITY

Florida Department of Environmental Protection
Northeast District Office
Compliance Assurance
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

January 22, 2015

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters:

Table 1 - Applicable Rules from the F.A.C.

Chapter	Description
62-4	Permits
62-204	Air Pollution Control – General Provisions
62-210	Stationary Sources of Air Pollution – General Requirements
62-212	Stationary Sources – Preconstruction Review
62-296	Stationary Sources – Emission Standards
62-297	Stationary Sources – Emissions Monitoring

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial activities. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories.

Federal regulations adopted by reference are given in Rule 62-204.800, F.A.C. State regulations approved by EPA are given in 40 CFR 52, Subpart K – Florida, also known as the State Implementation Plan (SIP) for Florida.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Process Description

The facility consists of a combustion turbine generator (CTG) and a fired heat recovery steam generator (HRSG), one auxiliary steam boiler, and two emergency diesel-engine driven generators. The facility will provide steam and power to the Shands Hospital complex, as well as power to the electrical transmission grid.

<u>Combustion Turbine Generator (CTG) & Heat Recovery Steam Generator (HRSG)</u>.

The combustion turbine generator will be fired exclusively with natural gas. In simple cycle mode, the CTG (manufacturer: Solar, Model: Mercury 50-6000R) exhaust will discharge directly to the atmosphere. In combined cycle mode, the hot exhaust gases from the CTG will be routed to a Heat Recovery Steam Generator (Manufacturer: ERI, Model: S3-3216-HRSG) to generate steam. The HRSG will include natural gas fired duct burners (low NOx burners) for supplemental steam generation by the HRSG. Following the recovery of waste heat by the HRSG, the CTG exhaust gases will be discharged to the atmosphere.

The combustion turbine generator has a nominal heat input of approximately 53 MMBtu/hour at 3200 °F and a power generation capacity of approximately 4,600 kilowatts. The heat recovery steam generator can produce up to 45,000 pounds per hour of steam and will include a natural gas fired duct burner with a nominal heat input of 36 MMBtu/hour.

The combustion turbine generator (CTG) & heat recovery steam generator (HRSG) is subject to 40 CFR 60, NSPS, Subpart KKKK - Standards of Performance for Stationary Combustion Turbines.

Auxiliary Steam Boiler

The dual fuel (natural gas and low sulfur distillate fuel oil) fired auxiliary boiler (manufacturer: Cleaver Brooks, Model: CBL-LN (4-pass, 5 ft^2/HP)) has a heat input rate of approximately 41 MMBtu/hour.

The boiler is subject to 40 CFR 60, NSPS, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The boiler is also subject to Rule 62-296.406, F.A.C., for Fossil Fuel Steam Generators with Less Than 250 Million Btu Per Hour Heat Input, New and Existing Emissions Units.

Emergency Diesel Engine Generators

The emergency diesel generator No.1 (manufacturer: Caterpillar, model: 3516 B TA (2.25MW)) has a rated capacity of 2,250 kW, and the emergency diesel generator No.3 (manufacturer:

Caterpillar, model: C15 ATAAC (0.5 MW)) has a rated capacity of 500 kW. The emergency generators provide power in the event of outages.

The diesel engines are subject to 40 CFR 60, NSPS, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

The diesel engines meet the applicability of 40 CFR 63, NESHAP, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. However, pursuant to 40 CFR 63.6590(c), the engines must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII. No further requirements of Subpart ZZZZ apply for such engines.

Facility Regulatory Categories

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act.
- The facility is not a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is not a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- This facility has one or more emissions units subject to NSPS (40 CFR 60).
- This facility has one or more emissions units subject to NESHAP (40 CFR 61 or Part 63)

Processing Schedule

12/29/14 Department received the Application for Air Permit – Long Form

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of the draft permit distributed with this evaluation.

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, Portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

Project Description

This Federally Enforceable State Operation Permit (FESOP) authorizes the renewal of FESOP No. 0010129-003-AF. The facility is not requesting any changes to the permit, nor have there been any rule changes affecting this permit. Construction permit no. 0010129-004-AC is not being incorporated into this operating permit, as the facility has not yet decided whether to go through with the permitted construction project.

PSD Applicability for Project

This facility is not within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. As such, the facility is subject to the 250 ton per year of any PSD pollutant applicability threshold.

Because the GRU South Energy Center is an existing PSD minor source and no changes are being made to the permit conditions, the project is not subject to PSD preconstruction review.

3. FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) REVIEW

Rule Applicability

Title V Applicability Review

Based on the information submitted, potential emissions from the GRU South Energy Center are less than 100 tons per year, and 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants; therefore, the facility is not classified as a Title V Source.

This facility has taken on a facility-wide cap on NOx emissions of 90 tons per any 12 consecutive month period.

NSPS Applicability

EU 001 - Combustion Turbine Generator (CTG) & Heat Recovery Steam Generator (HRSG) unit No.1. – is subject to 40 CFR 60, NSPS, Subpart KKKK - Standards of Performance for Stationary Combustion Turbines,

EU 003 – Auxiliary Steam Boiler – is subject to 40 CFR 60, NSPS, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

EUs 004 and 006 - Emergency Generators No. 1 and No. 3, respectively – are subject to 40 CFR 60, NSPS, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

NESHAP Applicability

EUs 004 and 006 - Emergency Generators No. 1 and No. 3, respectively – are subject to 40 CFR 63, NESHAP, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. However, pursuant to 40 CFR 63.6590(c), the engines must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII. No further requirements of Subpart ZZZZ apply for such engines.

EU 003 is **exempt** from 40 CFR 63, Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, as 40 CFR 63.11195(b) exempts "any boiler specifically listed as an affected source in another standard(s) established under section 129 of the Clean Air Act." As noted above, this unit is subject to 40 CFR 60, Subpart Dc.

Specific State Requirements

EUs 001 and 003 are subject to Rule 62-296.406, F.A.C. – Fossil Fuel Steam Generators with Less Than 250 MMBtu/hour of Heat Input

General State Requirements

This project is subject to the applicable rules and regulations defined in the following Chapters of the Florida Administrative Code.

Chapter	Description
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference
62-210	Required Permits, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms
62-212	Preconstruction Review, PSD Requirements, and BACT Determinations
62-296	Emission Limiting Standards
62-297	Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures