TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

City of Gainesville, Gainesville Regional Utilities (GRU)

10001 NW 13th Street
Gainesville, Florida 32614-7117

Deerhaven Generating Station
Facility ID No. 0010006

PROJECT

Draft Permit No. 0010006-021-AC
Application for Minor Source Air Construction Permit
Revisions to Previously Issued AC Permits

COUNTY

Alachua County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

August 18, 2014

1. GENERAL PROJECT INFORMATION

1.1. 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: 62-4 (Permits); 62-204 (Air Pollution Control - General Provisions); 62-210 (Stationary Sources - General Requirements); 62-212 (Stationary Sources - Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources - Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

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 categories. 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. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

1.2. Facility Description and Location

This facility is an existing electrical generation plant categorized under Standard Industrial Classification No. 4911. This existing plant is located in Alachua County at 10001 NW 13th Street in Gainesville, Florida; UTM Coordinates are Zone 17, 365.70 East and 3,292.60 North. Latitude is: 29° 45′ 30" North; and, Longitude is: 82° 23′ 13" West. The location is shown in **Figure 1**. **Figure 2** is a picture of natural gas and oil-fueled Unit 1 in the background and coal-fueled Unit 2 shown in the foreground.

Figure 1. GRU DGS, Gainesville, FL

Figure 2. GRU Units 1 and 2 in Background, Foreground

This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

1.3. Facility Regulatory Categories

- Based on the Title V air operation permit renewal application received on May 20, 2014, this facility is a major source of hazardous air pollutants (HAP).
- This facility does operate units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

- The facility is a major stationary source in accordance with Rule 62-212.400 (PSD), F.A.C.

1.4. Project Description

The applicant applied on May 20, 2014, to the Department for a minor source air construction (AC) permit. The minor source AC permit is for revisions to the previously issued AC permits, Permit Nos. 0010006-005-AC & 0010006-009-AC (Project).

1.5. Application Processing Schedule

Minor Source Air Construction Permit Application received on May 20, 2014 (complete).

{This document is posted and available on the Department's World Wide Web site (Link to Air Projects - Division of Air Resource Management - FDEP).}

1.6. Relevant Documents

- Permit Nos. 0010006-005-AC & 0010006-009-AC.
- Permit No. 0010006-019-AV, Current Valid Title V Air Operation Permit (a revision).

2. PSD APPLICABILITY

2.1. General PSD Applicability

The Department regulates major stationary sources in accordance with Florida's PSD program pursuant to Rule 62-212.400, F.A.C. PSD preconstruction review is required in areas that are currently in attainment with the state and federal ambient air quality standards (AAQS) or areas designated as "unclassifiable" for these regulated pollutants. Commonly addressed PSD pollutants in the power industry include: carbon monoxide (CO), NO_X, particulate matter (PM), PM with a mean diameter of 10 microns or less (PM_{10}), PM with a mean diameter of 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOC), lead (Pb), fluorides (F), sulfuric acid mist (SAM), and mercury (Hg). According to state and federal rules, six greenhouse gases (GHG), are also subject to PSD review.

Additional PSD pollutants that are more common to certain other industries include: hydrogen sulfide (H_2S), TRS including H_2S, reduced sulfur compounds (RSC) including H_2S, municipal waste combustor (MWC) organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans (dioxin/furan), MWC metals measured as PM; MWC acid gases measured as SO_2 and HCl, and MSW landfill emissions as non-methane organic compounds (NMOC).

As defined in Rule 62-210.200(189)(a)1, F.A.C., a stationary source is a "major stationary source" (major PSD source) if it emits or has the potential to emit (PTE):

- 250 tons per year (TPY) or more of any PSD pollutant; <u>or</u>
- 100 TPY or more of any PSD pollutant <u>and</u> the facility belongs to one of the 28 listed PSD major facility categories.

The list given in the citation includes the category of "fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input". This category applies to the Deerhaven Plant before and after the proposed project. The Deerhaven Plant is a major stationary source based on actual emissions of and potential to emit 100 TPY or more of several individual PSD pollutants.

For major stationary sources such as the Deerhaven Plant, PSD applicability for modification projects is based on thresholds known as the significant emission rates (SER) as defined in Rule 62-210.200(274), F.A.C. Any "net emissions increase" as defined in Rule 62-210.200(204), F.A.C. of a PSD pollutant from the project that equals or exceeds the respective SER is considered "significant". SER also means any emissions rate or any net emissions increase of a PSD pollutant associated with a major stationary source or major modification which would construct within 10 km of a Class I area and have an impact on such area equal to or greater than 1 gram per cubic meter, 24-hour average.

Although a facility may be "major" (i.e. emits or has the potential to emit 100 or 250 TPY as applicable) for only one PSD pollutant, a project must include BACT controls for any PSD pollutant that exceeds the corresponding SER

given in **Table 1**.

TABLE 1 – LIST OF SER BY PSD-POLLUTANT. [1]

Pollutant	SER (TPY)	Pollutant	SER (TPY)
CO	100	NO_X	40
$PM/PM_{10}/PM_{2.5}$	25/15/10	Ozone (VOC) [2]	40
$PM_{2.5}$ (NO_X)	40	$PM_{2.5}$ (SO_2)	40
Ozone (NO_X) [2]	40	SAM	7
SO_2	40	Pb	0.6
Hg	0.1	GHGs	0 [3]

1. Excluding fluoride and pollutants specific to the Pulp and Paper industry, MWCs, MSW landfills.
2. Ozone (O_3) is regulated by its precursors (VOC and NO_X). PSD for $PM_{2.5}$ can be triggered by its precursors (NO_X and SO_2).
3. Pursuant to 40 CFR 52.21(b)(23)(ii), pollutants with no SER listed at 40 CFR 52.21(b)(23)(i) have a SER of zero tons/year.

2.2. PSD Applicability for Project

The project will revise miscellaneous underlying AC permit specific conditions. No physical construction is required or authorized. The project will not cause or authorize any increases in emissions nor change the allowable capacity of the units. Therefore, this project is not subject to PSD preconstruction review.

3. DEPARTMENT REVIEW

On May 20, 2014, in the Requested Changes document prepared by Environmental Consulting & Technology (ECT), Inc., ECT No. 140124-0100 dated May 2014 (see specifically Attachment I - Requested Changes to Title V Permit) the applicant requested the following revisions to the underlying air construction (AC) permit conditions:

1. Removal of the requirement to monitor, test and report sulfuric acid mist (SAM) emissions from Boiler No. 2; and,
2. Refer to the Coal Handling and Storage Activities as transfer points instead of emissions points.

A basis (brief description) for each of the requested changes was included in the Report. The applicant's basis for each of the requested changes is reproduced here for convenience:

1. Removal of the requirement to monitor, test and report sulfuric acid mist (SAM) emissions from Boiler No. 2.

   <u>Applicant's Basis for Request</u>:

   {From Attachment I - Requested Changes to Title V Permit - Request # 18.}

   "Construction Permit Nos. 0010006-005-AC and 0010006-009-AC have testing and reporting requirements to ensure FDEP that the increase in SAM emissions from the projects would not exceed the PSD significance level of 7 tpy. The baseline actual emissions for the project are 49 tpy. GRU has performed testing for SAM emissions and determined that the emissions are well below the baseline actual emissions and, therefore, result in no increase in PSD significance level. The highest emissions tested prior to the scrubber (turbosorp reactor) total 3.37 tpy. Due to the fact that emissions following the SCR are substantially lower than the baseline actual emissions of 49 tpy, FDEP has the reasonable assurance needed to determine projects 0010006-005-AC and 0010006 -009-AC did trigger PSD for SAM emissions. GRU is requesting for all references to SAM emissions, testing, and reporting be deleted from the permits.

   Lakeland Electric's C.D. McIntosh, Jr. Power Plant recently requested to FDEP and FDEP approved to remove SAM emissions testing and reporting requirements on the same basis GRU is requesting. GRU does not see the need to continue testing and monitoring SAM emissions. The tests are costly, and the customers should not have to pay for unnecessary testing requirements.

2. Refer to the Coal Handling and Storage Activities as transfer points instead of emissions points.

   Applicant's Basis for Request:

   {From Attachment I - Requested Changes to Title V Permit - Request # 14.}

   "This unit does not have any stacks or vents and is an emissions unit for fugitive emissions. The transfer points are enclosed, therefore not emitting pollutants."

The Department's review for each of the requested changes is provided here:

1. Removal of the requirement to monitor, test and report sulfuric acid mist (SAM) emissions from Boiler No. 2.

   Department's Review of Request:

   Background

   Air pollutant emissions from Boiler No. 2 are controlled by a low-NOx burner (LNB) system and modified over-fire air (OFA) system, an electrostatic precipitator, selective catalytic reduction (SCR) system, a circulating dry scrubber (CDS) and baghouse (fabric filter) systems.

   See **Figure 3** for the current equipment configuration (process/operations flow) for boiler 2.

Figure 3. Equipment Configuration.

The permittee was required to monitor, test and report sulfuric acid mist (SAM) emissions from Boiler No. 2 under Permit Nos. 0010006-005-AC and 0010006-009-AC. Project Nos. 0010006-005-AC and 0010006-009-AC where for the installation of a selective catalytic reduction (SCR) system, a circulating dry scrubber (CDS) and baghouse systems. The work done for this Project was completed June 2013. Stack tests conducted after this date would be considered representative of the current configuration with respect to SAM emissions. Subsequent to the June 2013 project completion date, two years of stack testing {stack emissions}

has been performed - 09/18/2013 and 05/22/2014. The Department has reviewed these two years of SAM stack test data.

Stack test results are reported based on an average of 3-test runs. Selecting the highest run to evaluate emissions is a conservative estimate of worst-case emissions.

The highest stack test data results in pounds per hour (lb/hr) are given in **Table 1**.

TABLE 2. SAM STACK TEST RESULTS (lb/hr).

Test Date	Result of highest run
09/18/2013	0.69 lb/hour
05/22/2014	0.35 lb/hour

The highest stack test data results extrapolated to tons per year (TPY) are given **Table 3**.

TABLE 3. SAM STACK TEST RESULTS (TPY).

Test Date	Result of highest run
09/18/2013	3.02 tons/year (TPY)
05/22/2014	1.53 TPY

Based on these two years of stack test data, worst-case SAM emissions from the Project were less than ½ of the PSD SER for SAM emissions of 7 TPY. The PSD avoidance Rule 62-212.300(1)1., F.A.C. requires the Department to identify pollutants which could increase under a project and require monitoring for those pollutants. SAM had been identified as a pollutant which could increase under the Project. Based on these two years of stack test results the Department no longer expects actual SAM emissions to exceed the PSD SER for SAM. It is important to note that the new federal MATS regulation, NESHAP 40 CFR 63, Subpart UUUUU, contains requirements for acid gases {note, SAM is an acid gas}. The current equipment configuration along with the MATS regulation will continue to control SAM emissions from Boiler No. 2.

Therefore, the requirement to monitor, test and report SAM emissions from Boiler No. 2 is deemed to be no longer necessary. The requirements are removed from Permit Nos. 0010006-005-AC and 0010006-009-AC.

2. Refer to the Coal Handling and Storage Activities as transfer points instead of emissions points.

<u>Department's Review of Request</u>:

The current Title V air operation permit, Permit No. 0010006-019-AV, includes a tabular description for the coal handling and storage activities as follows:

E.U. ID No.	Brief Description
007	Coal Handling and Storage Activities

This emissions unit includes the following emissions points:

Source Description	Emission Pt. ID	Emission Type
Coal Handling - Railcar Unloading; Bottom Discharge	CH-001	Fugitive (F)
Coal Handling - Belt Conveyor 2 to Belt Conveyor 3A	CH-002	F
Coal Handling - Belt Conveyor 2 to Belt Conveyor 3B	CH-003	F
Coal Handling - Belt Conveyor 3A to Storage Pile	CH-004	F
Coal Handling - Belt Conveyor 3B to Storage Pile	CH-005	F
Coal Storage - Ready Storage Pile	CH-006	F
Coal Storage - Episodic Storage Pile	CH-007	F
Coal Storage - Main Storage Pile	CH-008	F
Coal Handling - Dozer Operations on Storage Pile	CH-009	F

Coal Handling - Crusher Building	CH-010	F
Coal Handling - Coal Bunker Building	CH-011	F
Coal Handling - Belt Conveyor 4A to Surge Bin		
Coal Handling - Crusher Building: Crusher Feeder to Crusher		
Coal Handling - Crusher Building: Crusher to Belt Conveyor		
Coal Handling - Belt Conveyor 5A to Belt Conveyor 6A		
Coal Handling - Coal Bunker Building: Belt Conveyor 6A to Bunkers		

According to the applicant "this unit does not have any stacks or vents and is an emissions unit for fugitive emissions." The applicant also indicates that "the transfer points are enclosed, therefore not emitting pollutants."

The current equipment configuration (process/operations flow) is shown in **Figure 4**.

Figure 4. Coal Handling System Configuration.

This process/operations flow diagram confirms what the applicant asserts.

The requirement for these "Transfer Pt. IDs" (transfer points) to be fully enclosed as the applicant indicated is established in the AC permit.

4. 4PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state rules and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions.

Mr. Scott M. Sheplak, P.E. is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting him by telephone at 850/717-9074 or by e-mail at scott.sheplak@dep.state.fl.us in the Department's Office of Permitting and Compliance at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.