FINAL DETERMINATION

Air Construction Permit
Gainesville Renewable Energy Center, LLC
Woody Biomass Power Plant
DEP File No. 0010131-001-AC (PSD-FL-411)

PERMITTEE

Gainesville Renewable Energy Center (GREC), LLC
75 Arlington Street, 5th Floor
Boston, Massachusetts 02116

PERMITTING AUTHORITY

Florida Department of Environmental Protection (Department)
Division of Air Resource Management
Bureau of Air Regulation, Special Projects Section
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

PROJECT

DEP File No. 0010131-001-AC (PSD-FL-411)
Woody Biomass Power Plant
Alachua County

The GREC will be located on 131 leased acres within the site of the Gainesville Regional Utilities (GRU) Deerhaven Generating Station (DGS). The GRU DGS street address is 10001 Northwest 13th Street (U.S. Highway 441) in Gainesville, Florida.

The project is the construction of a 100 megawatt (MW, net) woody biomass fueled power plant. The project is subject to the preconstruction review requirements of Rule 62-212.400, Florida Administrative Code (F.A.C.), for the Prevention of Significant Deterioration (PSD) of Air Quality requiring a best available control technology (BACT) determination.

The project required a review under the rules for PSD of Air Quality and determinations of BACT for particulate matter (PM), particulate matter with a mean diameter of less than 10 microns (PM_{10}), carbon monoxide (CO), volatile organic compounds (VOC) and visible emissions (VE).

NOTICES AND PUBLICATION

GREC submitted an air construction permit application on November 30, 2009. On July 14, 2010, the Permitting Authority gave notice of its intent to issue an air permit to the applicant for the described project. The Public Notice of Intent to Issue Air Permit (Public Notice) was published in The Gainesville Sun on July 16, 2010.

ADMINISTRATIVE HEARING AND FINAL ORDER

On July 30, 2010, the Department received a petition for a formal administrative hearing from Thomas Bussing, Michael Canny, December McSherry and Karen Orr, henceforth called the Petitioners, pursuant to Sections 120.569 and 120.57, Florida Statutes (F.S.). The request was forwarded to the Division of Administrative Hearings. A Request for Assignment of Hearing Officer was filed by the Petitioners on August 9, 2010.

The administrative hearing was held in Gainesville, Florida from September 20th through 23rd, 2010. A Recommended Order (RO), was entered by the Administrative Law Judge (ALJ) on December 7, 2010. It is available at the following link:

www.dep.state.fl.us/Air/emission/bioenergy/gainesville/RO.pdf .

Exceptions to the RO were filed by the petitioners on December 22, 2010. The exceptions are available at the following link:

www.dep.state.fl.us/Air/emission/bioenergy/gainesville/petitioners_exc.pdf .

The Department's Final Order (FO) was issued on December 27, 2010. It is available at the following link:

www.dep.state.fl.us/Air/emission/bioenergy/gainesville/FO.pdf .

The FO addressed the exceptions and ORDERED that:

A. The RO is adopted in its entirety, except as modified by the rulings in this FO, and is incorporated by reference herein; and

B. GREC's PSD/Air Construction Permit Application in DEP File No. 0010131-001-AC (PSD-FL-411) is hereby GRANTED, subject to the four additional conditions identified in paragraph 211 of the RO.

Accordingly, DEP must add to the Air Construction Permit the following:

1) A prohibition against accepting biomass in the form of construction and demolition debris [Section 3, Specific Condition A.5 and Section IV, Appendix BMP, Clean Woody Biomass Fuel Definition and Limitations for the GREC, Condition 8.j];

2) A revised site plan incorporating the fire-safety changes to which GREC agreed with the Gainesville Fire Department, including lowering the height of the automatic stacker/reclaimer pile from 85 feet to 60 feet [Section 3.A, Emission Unit Description – Storage Pile No.1 and Appendix BMP, Fire Prevention and Spontaneous Combustion Minimization];

3) The identification of trona as the sorbent for dry sorbent injection (DSI) [Section 3, Specific Conditions B.2(c) and B.3]; and

4) The addition of EPA Method 202 to measure filterable and condensable PM emissions [Section 3, Specific Condition B.9, note (h) and Specific Condition B.20, EPA Method 202]

The Department modified the permit to reflect the changes indicated in the FO. The complete project file including the application, Draft Permit, Revised Draft Permit, the Technical Evaluation and Preliminary Determination, key correspondence and comments regarding this agency action are available at the following web link:

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

EPA COMMENTS ON THE DRAFT PERMIT

On August 16, 2010 the Department received comments by electronic mail from EPA Region 4 pursuant to the notice published by the applicant. The complete comments are available at:

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

Following is a (paraphrased) summary of the EPA comments and the Department's response.

1. EPA Comment 1: The Technical Evaluation and Preliminary Determination (TEPD) fails to provide clear information on the PSD applicability of $PM_{2.5}$. On May 16, 2008, EPA issued the Final Rule on the Implementation of the New Source Review (NSR) Provisions for Particulate Matter Less than 2.5 Microns ($PM_{2.5}$). The SER for direct $PM_{2.5}$ emissions was set at 10 tons per year (tpy). The permitting authority must determine a BACT requirement for $PM_{2.5}$ and include it in the permit.

   Table 2-11 of the application states the project's total amount of emissions of $PM_{2.5}$ is estimated to be 278.3 tpy. The estimated amount triggers PSD. The Department's TEPD mentions reductions in $PM_{2.5}$ precursors however, it is not clear that these measures are indeed the Best Available Control Technology (BACT) for $PM_{2.5}$ and there is no emission limit established for $PM_{2.5}$.

Department response: The Department discussed $PM_{2.5}$ on Page 26 of the TEPD document as follows:

"The Department has reviewed $PM_{2.5}$ and believes that measures have been incorporated into the overall BACT for the project that will adequately address this pollutant. These measures include:

- *BACT emission limits for PM/PM_{10}, CO and VOC;*
- *Low emission limits and add-on controls for SO_2 and NO_X that tend to form $PM_{2.5}$ in the environment;*
- *Enforceable reductions in $PM_{2.5}$ precursors from GRU DGS Unit 2;*
- *The VE limit that directly controls the fraction of $PM_{2.5}$ that interferes with light transmission; and*
- *Limits on NH_3 and also on HCl as discussed further below."*

As indicated in the above excerpt from the TEPD, in the case of $PM_{2.5}$, the Department relies on precursors and surrogates. The rationale is as follows:

On September 16, 1997, EPA revised the National Ambient Air Quality Standards (NAAQS) for particulate matter, which includes a new NAAQS for $PM_{2.5}$. Florida implemented an ambient monitoring program for $PM_{2.5}$. As EPA mentioned in its guidance dated October 23, 1997, there are significant technical difficulties with respect to $PM_{2.5}$ monitoring, emissions estimation and modeling.

The EPA guidance recommended the use of PM_{10} as a surrogate for $PM_{2.5}$ in meeting New Source Review (NSR) requirements under the Clean Air Act, including the permit programs for PSD. Meeting these measures in the interim will serve as a surrogate approach for reducing $PM_{2.5}$ emissions and protecting air quality.

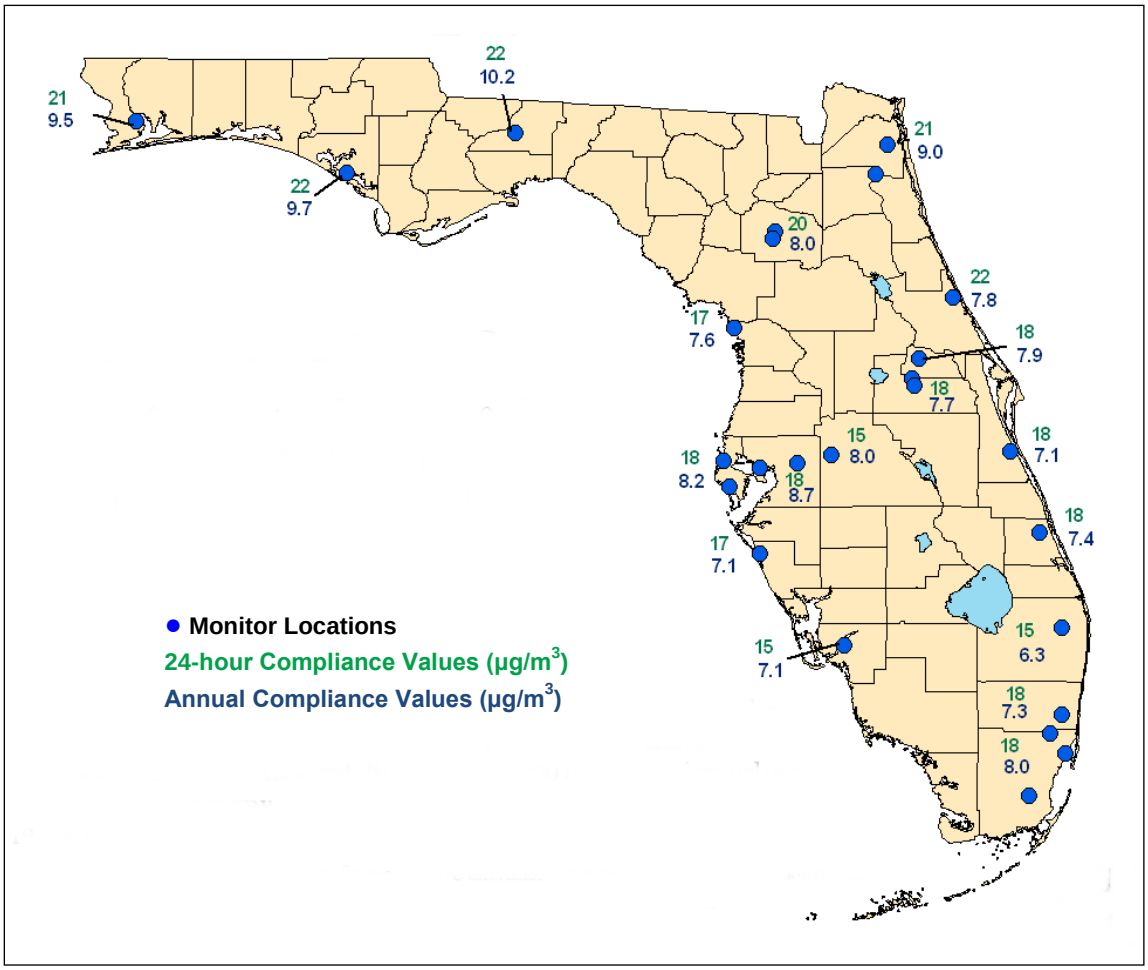
Florida is in the process of revising its State Implementation Plan to address the new $PM_{2.5}$, NAAQS, PSD significant emissions rates and ambient air quality impact thresholds for modeling analyses as required by EPA for approved states by 2011. Until state regulations support PSD preconstruction review for $PM_{2.5}$ emissions, the Department will generally rely on PM_{10} emission limits and $PM_{2.5}$ precursor limits (e.g., sulfuric acid mist (SAM), SO_2, VOC, NH_3, and NO_X). This approach is **more robust** than previous EPA guidance memoranda.

For the GREC project, BACT determinations were conducted for PM/PM_{10}, CO, VOC and VE. In addition BACT like emission limits were required for NO_X and SO_2 along with enforceable emission limits for NH_3 and HCl.

The Department has made a significant investment in $PM_{2.5}$ ambient monitoring and the network provides excellent coverage throughout the state. The figure on the following page above is a display of the 24-hour and annual compliance values for $PM_{2.5}$ throughout Florida for the period 2007-2009.

There are two $PM_{2.5}$ monitors, including one regulatory monitor, in Alachua County. The compliance values from the regulatory monitor are 20 and 8 $\mu g/m^3$ for the 24-hour and annual standards, respectively. The 24-hour $PM_{2.5}$ value of 20 $\mu g/m^3$ is 43 percent (%) below the NAAQS 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$. The annual $PM_{2.5}$ value of 8 $\mu g/m^3$ is 47 % below the NAAQS annual $PM_{2.5}$ standard of 15 $\mu g/m^3$. This indicates that Alachua County is well within attainment for $PM_{2.5}$ and the relatively small emissions from the GREC facility should not have a significant impact.

2. EPA Comment 2: The netting analysis calculations to determine the offsets for NO_X and SO_2 and enforceable emission caps are not currently part of the permit's public file. EPA request that this should be included as part of the file for this permit. The permitting authority should consider incorporating Table 1 *Summary of the Applicant's PSD Applicability Analysis* on Gainesville Regional Utilities (GRU) Deerhaven Generating Station (DHS) Unit 2's Technical Evaluation and Preliminary Determination for construction permit (0010006-012-AC) into GREC's preliminary determination. However, it must be clear to the public that the netting analysis were submitted in GRU DHS Unit 2 application.



Florida $PM_{2.5}$ Compliance Values

<u>Department response</u>: In the Public Notice for the GREC project (Permit No. 0010131-001-AC), the following is stated under the **Project** heading of the notice:

"Following the installation and startup of new control equipment at the adjacent DGS Unit 2, GRU accepted enforceable emissions caps (Permit No. 0010006-012-AC) for sulfur dioxide (SO_2) and nitrogen oxides (NO_X) which are less than baseline actual emissions for that unit. The emissions caps ensure that there will be no net increase in NO_X and SO_2 emissions from the GREC project when considering the decreases at the GRU DGS Unit 2."

In the Public Notice for the Emissions Caps on Existing Unit 2 for SO_2 and NO_X Project (Permit No. 0010006-012-AC), the following is stated under the **Project** heading of the notice:

"GRU recently submitted an application requesting emissions caps on existing Unit 2 for SO_2 and NO_X. The actual emissions of these pollutants are expected to be much lower than the requested emissions caps. However, the requested emissions caps ensure that there will be no net increase in NO_X and SO_2 emissions when also considering increases from the proposed collocated project for the Gainesville Renewable Energy Center. Compliance with the emissions caps will be demonstrated with data collected by the existing continuous emissions monitoring systems (CEMS) for all periods of operation including startup, shutdown and malfunction."

The Department believes that the public has been adequately informed about how the two projects, i.e. Emission Caps and GREC, are interrelated. The Department also believes that the public has been adequately informed where to find the applicable files for each project, including the TEPD for the Emissions Caps project where the netting analysis for NO_X and SO_2 is addressed. The Department does not consider additional action regarding public information on this matter to be warranted.

3. EPA Comment 3: EPA commented on the GREC's permit application. The following comment was not appropriately addressed neither in the Response to Additional Information Request No. 2 nor in the draft permit.

   BFB Boiler Operation – The air quality impact assessment was limited to BFB boiler operation between 70 and 100 percent load. This limited load range should be included as a permit condition.

   The permitting authority should address the comment since there is no specific condition for EU002 limiting its operation to 70-100%.

   Department response: The boiler at GREC is a base load unit that will have an operational availability goal of over 80 percent. Also, the biomass boiler load is not easily increased or reduced to meet fluctuations in demand. Consequently, under the vast majority of circumstances, the boiler will be operating well above the 70% load threshold. Even when operating at less than 70% load, the emission limits given in the permit still apply including ton per year (TPY) limits for NO_X, SO_2, HCL and HF which are all CEMS based limits. In addition, a pound per hour (lb/hr) limit is given for CO which is also a CEMS based limit. Since these and the other emission limits in the permit govern at all times, the air quality impact when the boiler is operating at less than 70% load have been sufficiently limited and should not be an issue. For these reasons, the Department does not believe that the permit needs to be modified to address emissions when the boiler is operating at less than 70% load.

4. EPA Comment 4: Some of the conditions in the draft permit do not have a citation included or the citation might be misleading. The permitting authority should revise the following conditions to reflect the appropriate citations. Section 3 *Emission Unit Specific Conditions:*

   a. Subsection A, Condition 1

   b. Subsection B, Conditions 2.a. and 2.b.

   c. Subsection C, Conditions 3-6 and 15

   Department response: Underlying rule citations will be added to the conditions indicated above.

5. EPA Comment 5: The information provided in the preliminary determination for allowable emissions on the BFB Boiler during startup of the unit is inconsistent with the application and draft PSD permit. According to the preliminary determination, a period of 12 hours during a 24-hour period is allowed for excess emissions within 24 hours. This discrepancy should be clarified and the appropriate documents revised.

   Department response: The TEPD was issued as a final document to accompany the Department initial decision and draft permit and it will not be revised. This Final Determination clarifies that the correct description of startup emissions is that given in the Draft Permit (now Final Permit).

CONCLUSION

The final action of the Department is to issue the permit with the changes required by the Final Order and to address EPA comments as described above.