Golder Associates

January 12, 2010

093-89603

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BUREAU OF AIR REGULATION

Mr. Al Linero, P.E.
Program Administrator, Special Projects Section
Florida Department of Environmental Protection
2600 Blairstone Rd.
Tallahassee, FL 32399-2400

RE: REQUEST FOR ADDITIONAL INFORMATION
DEP FILE NUMBER: 0810226-001-AC
60 MEGAWATT (MW) BIOMASS-BASED ELECTRICAL GENERATING POWER PLANT

Dear Mr. Linero:

On December 18, 2009, FBenergy received the Department's request for additional information (RAI) regarding the application to construct a 60 MW (net) biomass-fueled power plant at Port Manatee in Manatee County, Florida. This new RAI was issued as a result of FBenergy's responses to the Department's first RAI, dated November 24, 2009.

Pursuant to Rule 62-4.055(1), Florida Administrative Code (F.A.C.), the Department reviewed the response to the first RAI and requests submittal of the following additional information, primarily with respect to the requested 10 percent (%) heat input increase to 833 million Btu per hour (mmBtu/hr):

Comment 1. Update Application Pages: Please submit updated application pages affected by the heat input increase.

Response: As was stated in FBenergy's initial RAI response, dated November 24, 2009, this request is only for an increase in the heat input rate, not in any of the previously requested allowable emission levels. Therefore, attached is a revised page 17 of the application forms (Emission Unit Capacity Information).

Comment 2. Hydrogen Chloride (HCl): Advise the methods by which HCl emissions will be maintained at less than 10 tons per year (TPY). We understand that HCl emissions will actually be measured continuously, but request reasonable assurance through a description of the methods by which HCl emissions shall be controlled to less than 10 tons per year (TPY) and 25 TPY for all hazardous air pollutant emissions (HAP) combined.

Response: A dry in-duct sorbent injection system, which may utilize sodium bicarbonate (NaHCO3) or trona as the injection sorbent material will be installed at the facility to control emissions of sulfur dioxide (SO_2) and hydrochloric acid (HCl). The sorbent will be withdrawn from the bin and pneumatically conveyed to the flue duct upstream of the ESP. The flue gas temperature at this point will be approximately 600°F. The sorbent will mix with the flue gas and absorb SO_2 and HCl. A fuel analysis of several wood fuel sources, which may be utilized for the project, was previously provided in Appendix A of the air application. An injection rate of approximately 233 lb/hr of $NaHCO_3$ is estimated to reduce the uncontrolled SO_2 emission rate to achieve controlled emission rates of 12.1 lb/hr (0.016 lb/MMBtu or 53.1 TPY). This level of sorbent injection is also estimated to reduce HCl by 88 percent. Based on AP-42, Table 1.6-3, uncontrolled

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HCl emissions are estimated based on fuel analysis data equal to 0.026 lb/MMBtu, resulting in an uncontrolled HCl rate equal to 19.7 lb/hr. Therefore the controlled HCl emission rate is equal to 2.36 lb/hr and 9.83 TPY based on 100 percent capacity factor. The injection rate will be controlled to maintain the HCl emissions below 10 TPY. FBenergy anticipates these estimates to be conservative, as the actual capacity factor will be less than 100 percent and the anticipated HCl control efficiency will be greater than 88 percent. HCl CEMS will be employed to continuously monitor emissions for compliance with the proposed HCl standard. The facility will have the operational flexibility to increase the sorbent injection rate and attain a higher control efficiency (at greater cost) if necessary.

Comment 3. Other Emission Limits: Examine whether small increases in other (non-HAP) pollutant estimates (due to the higher heat input) trigger additional rules or permitting requirements. It appears that even at less than 100 TPY of a regulated pollutant, the facility is already a major (Title V) source because it will include a Title IV Acid Rain unit. Therefore an increase to and beyond 100 TPY will not trigger Title V (because it is already triggered). Please confirm and also advise of any requirements that would actually be triggered by the small emission increases.

Response: FBenergy requests that the heat input limit be increased by 10 percent, to 833 mmBtu/hr, but is not requesting any associated increase in the allowable emission limits that have previously been requested. Therefore, no additional applicable air quality requirements will be triggered other than those that have currently been identified. As an example, the NOx control system will be designed to maintain currently proposed allowable emission rates, even if the requested increase in the allowable heat input rate were to potentially increase the uncontrolled NOx emissions. It's important to note that the proposed emissions of all criteria pollutants are significantly below the PSD applicability threshold of 250 TPY (i.e., the applicability threshold is not 100 TPY) and that the emission limits will be based on a 30-day rolling average for emission concentration (ppm) and a 12-month rolling average for mass emissions (lb/hr).

Golder has experience with numerous projects where, upon startup, compliance was demonstrated with all emission limits, however, it was discovered that the unit was capable of firing at a higher heat input than was anticipated. Therefore, in order to avoid a derating of the unit in these cases, an after-the-fact permit revision would be requested to increase the heat input limit while still meeting the existing permit emission limits. The other reason that Golder does not anticipate any issues with emissions compliance, given an increase in the heat input limit, is the fact that the emission limits will have a longer averaging period (i.e., 12 month rolling) versus the heat input averaging period (4-hour average). This will assist in smoothing out any short-term fluctuations in emission levels.

Specifically, the request for an increase in heat input is due to: 1) the need for operational flexibility due to the probable variation in biomass moisture content, which from time to time could be higher than initially assumed, and 2) the potential slight variations between the test method used to determine heat input versus the basis for the vendor heat input estimate. Finally, based on a review of the ADAGE air permit, FBenergy understands that the method to be used for the calculation of heat input is Section 5 of Appendix F, 40 CFR 75, using F-Factors. This method of heat input calculation is acceptable to FBenergy at the higher proposed heat input rate and utilizing a 4-hour average.

It is our understanding that the Department will resume processing of our application after receipt of the requested information. Rule 62-4.050(3), F.A.C., requires that all applications for a construction permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Therefore, attached is a professional engineer certification, as well as a new certification statement by the authorized representative. Also attached are appropriate revised pages of the application form.

If you have any questions, please contact either Rick Jensen at (404)-229-8845 or me at (813) 287-1717.

Sincerely,

GOLDER ASSOCIATES INC.

Scott Osbourn, P.E.
Associate & Project Manager

cc: Rick Jensen, FBenergy
Andrew Grant, FBenergy

Attachments

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
   Rick Jensen, President

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **FBenergy, LLC**
   Street Address: **9040 Town Center Parkway**
   City: **Bradenton** State: **FL** Zip Code: **34202**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(941) 567 - 1631** ext. Fax: ( ) -

4. Owner/Authorized Representative E-mail Address:

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.

Richard T. Jensen — Signature

1/7/10 — Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Scott H. Osbourn**
   Registration Number: **57557**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc. ****
   Street Address: **5100 West Lemon Street, Suite 114**
   City: **Tampa** State: **FL** Zip Code: **33609**
3. Professional Engineer Telephone Numbers...
   Telephone: **(813) 287-1717** ext.**53304** Fax: **(813) 287-1716**
4. Professional Engineer E-mail Address: **sosbourn@golder.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

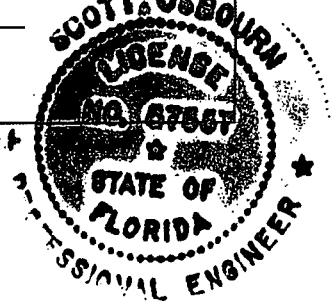
(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here , if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature Date 1/8/10

(seal)



* Attach any exception to certification statement.
**** Board of Professional Engineers Certificate of Authorization #00001670**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **833** million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24** hours/day **52** weeks/year	**7** days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment:	