FINAL DETERMINATION

Air Construction Permit
Highlands Ethanol, LLC
BP Biofuels – Highlands Ethanol Facility
Cellulosic Ethanol Production
DEP File No. 0550061-004-AC (PSD-FL-406B)

PERMITTEE

Highlands Ethanol, LLC
2202 North West Shore Boulevard
Tampa, Florida 33607

PERMITTING AUTHORITY

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

PROJECT

DEP File No. 0550061-004-AC (PSD-FL-406B)
Cellulosic Ethanol Production – Modification of Original
Air Construction Permit No. 0550061-001-AC, PSD-FL-406
Hillsborough County

BP Biofuels – Highlands (BPH) will be a cellulosic ethanol production facility. The nominal design ethanol production capacity of the BPH is approximately 36 million gallons per year and is based on a facility operating schedule of 8,000 hours per year. However, the project is permitted for an operating capacity of 39.42 million gallons per year to allow for a facility operating schedule of 8,760 hours per year. The ethanol is denatured with gasoline, with a denaturant content ranging from 2 to 5 percent by volume. For air permitting purposes, maximum potential emissions occur when the denaturant content is 5 percent. The capacity of the facility to produce this ethanol-gasoline blend, referred to as E95, is 41.49 million gallons per year when accounting for the denaturant.

BPH will generate its own fuel consisting of biomass (stillage cake) from the fermentation and distillation steps and biogas from the on-site anaerobic digestion of process wastewaters for a 270 million British thermal units per hour (MMBtu/hr) bubbling fluidized bed (BFB) boiler. The BFB boiler will generate steam for the ethanol production process and will produce approximately 7 megawatts of electrical power for on-site use. No power will be sold to the electrical grid. Natural gas will also be used for BFB boiler startups and as a supplemental fuel for the boiler and as the sole fuel for a 95 MMBtu/hr peaking boiler. The peaking boiler will provide steam during high production process conditions and when the BFB boiler is unavailable.

This permitting action involves the modification of the original air construction permit (Air Permit No. 0550061-001-AC, PSD-FL-406) that was issued to BPH on March 22, 2010 by the Department, pursuant to the rules for the PSD at Section 62-212.400, Florida Administrative Code (F.A.C.). A subsequent extension of this permit was granted by the Department on August 25, 2011 (Air Permit No. 0550061-002-AC, PSD-FL-406A). This modification reflects process and equipment changes that have arisen as more detailed engineering for the project has taken place. The modified project will result in net emission decreases of all regulated PSD pollutants. However, PSD is still triggered thus requiring a Best Available Control Technology (BACT) Determination for: nitrogen oxide (NO_X); sulfur dioxide (SO_2); carbon monoxide (CO); volatile organic compounds (VOC); particulate matter with a mean diameter of 10 micrometer (µm) or less (PM_{10}); and PM with a mean diameter of 2.5 µm or less ($PM_{2.5}$). The applicant took a natural gas usage limit thereby allowing classification as a synthetic minor source of greenhouse gases (GHG) emissions.

NOTICES AND PUBLICATION

BPH submitted an air construction permit application on September 11, 2012. On November 28, 2012, the Permitting Authority gave notice of its intent to issue an air permit to the applicant for the described project. The applicant published the Public Notice of Intent to Issue Air Permit for this project on November 29, 2012 in The Highlands Today and Tampa Tribune.

The complete project file including the Application, Draft Permit, Technical Evaluation and Preliminary Determination (TEPD, including draft BACT determinations), key correspondence and comments regarding the draft permit are available at the following web link:

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

COMMENTS ON THE DRAFT PERMIT

No comments were received from the public or EPA. Comments were received from the applicant by email on December 21, 2012. Many of the applicant's comments were related to typos and minor inconsistencies in the permit package. These minor typos and inconsistencies were corrected in the final permit. Several significant comments were made by the applicant and these are address below with the applicant comment given first followed by the department's response.

1. **Emission Unit 001 (Feedstock Handling), Specific Conditions 2, 8, 9, 10, 11 and16, pages 9 to 11**

   a. Applicant Comment: Conditions 2, 8, 9, 10, 11, 16 reference dust collectors (if required). The feedstock delivered to the facility from the adjacent farm will be freshly harvested material with a high moisture content, with negligible fugitive particulate emissions. The original design and permit included covered conveyors and dust collectors at drop and transfer points for handling supplemental biomass. The revised design will no longer use supplemental biomass. Therefore, BPH requests that all references to covered conveyors (Condition 2) and dust collectors (Conditions 2, 8, 10, 11, and 16) be deleted from the permit. Please renumber the remaining conditions accordingly. These issues are addressed in the Best Management Practice (BMP) document (Appendix BMP).

   b. Department's Response: After discussions with the applicant, the Department agreed to put the following permitting note before the referenced permits conditions:

      *{Permitting Note: The dust collectors referenced in **Specific Conditions 2, 8, 9, 10, 11 and 16** of this subsection are only required if a biomass not currently authorized in Appendix BMP of this permit is used as a supplemental boiler fuel and if the supplemental biomass has a natural moisture content that in of itself will not suppress fugitive dust emissions from the biomass. The permittee shall obtain prior approval of any supplemental biomass to be used as boiler fuel from the Compliance Authority.}*

      This permitting note clarifies under what conditions dust collectors would be required and provides the applicant with additional flexibility if a supplemental biomass boiler fuel is required at a future date.

2. **Emission Unit 003 (Stillage Separation, Dewatering and Loadout), Specific Condition 4, page 16**

   a. Applicant Comment: Condition 4 states: "*To minimize VOC emissions the stillage cake shall be maintained at as close to the ambient temperature as possible*". Because the stillage cake enters the dewatering centrifuges at an elevated temperature, BPH has proposed BMPs to minimize VOC emissions. BPH requests this language to be revised to the following: "*The short transit time and BMPs will minimize VOC emissions*".

   b. Department's Response: After discussions with the applicant, the Department agrees that the ethanol production process will not allow the stillage cake to be maintained at close to ambient temperature.

The language of the condition will be changed to read, "*To minimize VOC emissions the stillage cake shall be maintained at as low a temperature as possible within the constraints of the ethanol production process.*"

3. **Emission Unit 006 (BFB Boiler), Specific Condition 9, page 24**

   a. Applicant Comment: Condition 9 does not specify PM testing frequency. PM testing frequency in the summary table should be identified as initial (I) and triennial (T) to reflect the requirements under 40 CFR 63 Subpart JJJJJJ. In addition, footnote "d" to the table should add the following language: "*Per Subpart JJJJJJ, additional tests for PM shall be conducted every 3 years*".

   b. Department's Response: It is unclear from the emission summary table provided in Specific Condition 9 that PM testing shall be conducted annually. However, the PM limit of 0.030 pounds per million Btu is a requirement of NSPS 40 CFR 60, Subpart Db – Industrial-Commercial-Institutional Steam Generating Units and NESHAP 40 CFR 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. NSPS Subpart Db requires an initial PM test with the frequency of subsequent tests left to the discretion of the Department. NESHAP Subpart JJJJJJ requires triennial PM tests, i.e., every three years. The Department will change the emission summary table to indicate an initial PM test followed by subsequent PM tests at 3 year intervals. The permit will be changed elsewhere as required to reflect this.

4. **Emission Unit 007 (Peaking Boiler), Specific Condition 10, page 31**

   a. Applicant Comment: Condition 10 requires a boiler performance test to determine the boiler thermal efficiency. This condition is relevant to the biomass boiler, but not to the peaking boiler. The peaking boiler is a standard natural gas-fired boiler. The thermal efficiency while firing natural gas will have already been evaluated by the boiler vendor. Please delete this condition and renumber subsequent conditions for this EU.

   b. Department's Response: The Department agrees with the applicant's comment and Specific Condition 10 will be deleted from the permit.

5. **Emission Unit 013 (Facility Fugitive VOC Emission Leaks), Specific Condition 6, page 43**

   a. Applicant Comment: Condition 6 lists emission units subject to NSPS Subpart VVa. One of the listed sources is the cooling tower (EU-008), which is not subject to Subpart VVa. Please remove this source from Condition 6.

   b. Department's Response: The cooling towers' VOC emissions are controlled by a cooling water monitoring plan which is a test plan detailing how the cooling tower water shall be monitored for VOC contamination from leaking heat exchangers. Consequently, the Department agrees with the applicant's comment and the cooling tower will be deleted from the emission units subject to NSPS Subpart VVa – VOC Equipment Leaks in the Synthetic Chemical Manufacturing Industry (SOCMI).

6. **Appendix BMP**

   a. Applicant Comment: This appendix has not been updated to reflect the revised design, including the removal of supplemental biomass. Please revise this appendix according to our earlier submittal (attached).

   b. Department's Response: An older, incorrect version of Appendix BMP was issued with the draft permit package. The correct version of Appendix BMP will be issued with the final permit.

CONCLUSION

The final action of the Department is to issue the final modified permit as drafted and with the changes listed above along with the correction of the typos and inconsistencies commented upon by the applicant.