FINAL DETERMINATION

Air Construction Permit
Highlands EnviroFuels, LLC
Sugarcane/Sweet Sorghum-to-Ethanol Advanced Biorefinery and Cogeneration Plant
DEP File No. 0550063-001-AC (PSD-FL-416)

PERMITTEE

Highlands EnviroFuels (HEF), LLC
10027 Water Works Lane
Riverview, Florida 33578

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. 0550063-001-AC (PSD-FL-416)
Sugarcane/Sweet Sorghum-to-Ethanol Advanced Biorefinery
and Cogeneration Plant
Highlands County

The HEF facility will be located approximately 0.5 miles south-southwest of the intersection of U.S. Highway 27 and State Road 70, south of Lake Placid, in Highlands County, Florida.

The project involves construction of a 36 million gallon per year (MGPY) ethanol production facility using sugarcane and sweet sorghum as the feedstock and a cogeneration power plant that will generate up to 30 megawatts (MW, gross) of electricity utilizing the leftover sugarcane and sweet sorghum stalk fiber (bagasse) from the ethanol production process as its primary fuel source for a biomass boiler. The new HEF facility will use natural fermentation processes to produce ethanol from sugar cane and sweet sorghum. Natural gas will be used for boiler startup, flame stabilization and shutdown and also in the event of a disruption in the biomass fuel supply. The applicant also plans to use sweet sorghum syrup/molasses and/or sugarcane molasses in the ethanol process as a feedstock when sugarcane and sweet sorghum feedstocks are in low supply or not available.

The project required a review under the state's rules for the Prevention of Significant Deterioration (PSD) of Air Quality and determinations of Best Available Control Technology (BACT) for particulate matter (PM, PM_{10}), nitrogen oxides (NO_X), carbon monoxide (CO), volatile organic compounds (VOC) and sulfur dioxide (SO_2).

NOTICES AND PUBLICATION

HEF submitted an air construction permit application on June 2, 2011. On August 11, 2011, 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 August 17, 2011 in Highlands Today.

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_envirofuels_llc.htm

COMMENTS ON THE DRAFT PERMIT

No comments were received from the public or the EPA on the draft permit during the 30 day comment period that ended on September 15, 2011. On September 14, 2011, HEF provided comments by electronic mail. The HEF comments are available at the link given above under the heading of "Comments." The HEF comments are listed below by draft permit page number or appendix and then permit condition. The Department's response follows each comment.

1. HEF Comment on Page 13 of 39: **Emission Unit Description** – Under Capacity, please change the 4-hour steam production from 275,800 lb/hr to 275,000 lb/hr.

   Department response: The Department agrees with HEF. This was an error and the description will be changed accordingly.

2. HEF Comment on Page 14 of 39: **Condition 1** – Construction of Biomass-Fueled Boiler, please change the 4-hour steam production rate from 270,000 lb/hr to 275,000 lb/hr.

   Department response: As per Comment 1 above, this was an error and the condition will be changed accordingly.

3. HEF Comments on Page 17 of 39: **Condition 13** – Emission Limits,

   - Regarding SO_2 limits, HEF would like to respectfully document its concern over the lower limit of 0.06 lb/mmBtu, 30-day rolling average, equivalent to 110.58 TPY. HEF had requested higher limits equivalent to 200.4 TPY (0.14 lb/mmBtu for sorghum bagasse; 0.078 lb/mmBtu for sugarcane bagasse and wood). Even with the DSIS, HEF is concerned that the lower limit will not be able to be met at all times, particularly when burning sorghum bagasse. HEF had requested the higher SO_2 limits due to the potentially higher sulfur content of sweet sorghum bagasse. HEF recognizes and understands the Department's belief that the 0.06 lb/mmBtu SO_2 limit will be achievable at all times, and is not formally requesting revision of the permit draft. However, if the 0.06 lb/mmBtu limit cannot be complied with through good faith efforts using the DSIS, we respectfully request that the Department be willing to increase the emission limit appropriately without enforcement action.

     Department response: The Department takes note of HEF concern with regard to the biomass boiler SO_2 emission limit. No changes will be made to the SO_2 emission limit in the final permit.

   - Footnote "m" of table: 24-hour average heat input rate should be 458.5 mmBtu/hr instead of 488 mmBtu/hr.

     Department response: The 488 mmBtu/hr heat input is an error. Department will make the requested change.

4. HEF Comments on Page 18 of 39:

   - **Conditions 14.a and 14.b** – SO_2 and NO_X CEMS, should these conditions refer to 40 CFR 60, Appendix B and F, consistent with Appendix CEMS?

     Department response: The Department agrees with HEF. Appendix B and F of 40 CFR 60 should be referenced in the conditions, not Subparts B and F. The permit condition will be changed to reflect this.

   - **Condition 14.d** – HCl CEMS, this condition states that the method used to perform the RATA tests is EPA Method 320. This should be changed to Method 26, to be consistent with Appendix CEMS.

     Department response: The Department agrees with HEF. EPA Method 26 should be referenced instead of EPA Method 320 to provide consistency. The permit condition will be changed.

5. HEF Comments on Page 20 of 39:

   - **Condition 22.b** – Organic HAP, please remove the sentence "Tests shall be conducted between 90% and 100% of the maximum heat input rate when firing sugarcane or sweet sorghum bagasse as the primary fuel and biomass (energy crops, wood chips and vegetative debris) as a supplemental fuel." The next sentence is correct.

     Department response: The Department agrees with HEF. The sentence will be removed from the final permit per a previously agreed upon change.

   - **Condition 22.c** – Other Pollutants and Metal HAP, remove the sentence "RATA test for CEMS can constitute initial stack tests for these pollutants." There are no CEMS required for these pollutants.

     Department response: The Department agrees with HEF. The sentence will be removed from the final permit.

6. HEF Comment on Page 21 of 39: **Condition 23** – Test Methods, change Method 10B to Method 10, consistent with Condition 14.c. Also, should Method OTM-22 also be listed?

   Department response: EPA Method 10B will be retained but EPA Method 10 will be added to the table to be consistent with Condition 14.c. Method OTM-22 will also be added to the table.

7. HEF Comment on Page 27 of 39: **Conditions 11-14** – It is suggested that these conditions be revised to read as below, to provide clarification and additional flexibility in the testing requirements.

   *11. Initial Compliance Tests: The fermentation liquid scrubber stack and the distillation/dehydration liquid scrubber vent shall be tested to demonstrate initial compliance with the emissions standards for VOC and HAP given in **Specific Conditions 9 and 10**, of this subsection respectively. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the unit. During scrubber VOC and organic HAP testing, the water temperatures of each scrubber shall be measured and recorded*

   a. VOC Testing: VOC testing shall be done using of EPA Methods 25 or 25A to shown compliance with the VOC emissions limit. [Rules 62-212.400 (BACT); 62-4.070, Reasonable Assurance; 62-210.200(PTE); and 62-297.310(7)(a)1, F.A.C.]

   b. Organic HAP Testing: Initial organic HAP testing shall be done using Method 320 to shown compliance with the organic HAP emissions limit and to identify the key organic HAP emitted by the ethanol process scrubbers. [Rules 62-212.400 (BACT); 62-4.070, Reasonable Assurance; 62-210.200(PTE); and 62-297.310(7)(a)1, F.A.C.]

   *12. Annual and Quarterly Compliance Tests: During the first 24 months of the HEF facility operation, VOC and organic HAP testing shall be conducted annually during each federal fiscal year (October 1st to September 30th) to demonstrate compliance with the emissions standard for VOC and organic HAP given in **Specific Conditions 9 and 10**, of this subsection respectively. During scrubber VOC and organic HAP testing, the water temperatures of each scrubber shall be measured and recorded.*

   a. VOC Testing: If after 24 months, the Ox-cat system is removed due to catalyst poisoning, quarterly VOC testing shall be required during each subsequent federal fiscal year to demonstrate compliance with the emissions standard for VOC using EPA Methods 25 or 25A. If the Ox-cat system is not removed, VOC testing shall continue on an annual basis during each federal fiscal year. [Rules 62-212.400 (BACT); 62-4.070, Reasonable Assurance; 62-210.200(PTE); and 62-297.310(7)(a)4, F.A.C.]

   b. Organic HAP Testing: Annual organic HAP testing shall be done using EPA Method 320. In lieu of Method 320, Method 18 may be used once the key organic HAP emitted by the ethanol process scrubbers are identified during initial compliance testing. If after 24 months, the Ox-cat system is removed due to catalyst poisoning, quarterly organic HAP testing shall be required

during each subsequent federal fiscal year to demonstrate compliance with the emissions standard for organic HAP. The applicant may propose alternative methods to fulfill the annual and quarterly organic HAP testing requirements. The alternative method could utilize EPA Methods TO-14A or TO-15 where the scrubber flue gas is collected in specially prepared canisters with subsequent analysis by gas chromatography mass spectrometry (GC/MS). The permittee shall submit to the office of Permitting and Compliance an organic HAP testing protocol for approval prior to the initiation of annual and quarterly (if required) testing activities. The annual organic HAP testing shall follow the approved testing protocol. The quarterly organic HAP testing (if required) shall follow the approved testing. If the Ox-cat system is not removed, organic HAP testing shall continue on an annual basis during each federal fiscal year. [Rules 62-212.400 (BACT); 62-4.070, Reasonable Assurance; 62-210.200(PTE); and 62-297.310(7)(a)4, F.A.C.]

13. *Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Tests shall be conducted in accordance with the applicable requirements specified in Appendix CTR (Common Testing Requirements) of this permit. [Rule 62-297.310(7)(a)9, F.A.C.]*

14. *Test Methods: Required tests shall be performed in accordance with the following reference methods.*

Method	***Description of Method and Comments***
CTM-027 320	*Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy*
1-4	*Traverse Points, Velocity and Flow Rate, Gas Analysis and Moisture Content*
18	*Measurement of Gaseous Organic Compound Emissions by Gas Chromatography*
25	*Determination of Total Gaseous Nonmethane organic Emissions as Carbon*
25A	*Method for Determining Gaseous Organic Concentrations (Flame Ionization)*
TO-14A	*Determination Of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography*
TO-15	*Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography Mass Spectrometry (GC/MS)*

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; and Appendix A of 40 CFR 60]

Department response: The Department will make this language change to the Final Permit to provide the clarification and additional flexibility requested by HEF with regard to ethanol process VOC and HAP scrubber stack testing while also helping to minimize the cost of testing.

8. HEF Comment on Page 38 of 39: Please rename this section "Facility-Wide Fugitive VOC Equipment Leaks".

Department response: The Department agrees with HEF. Under the heading **Proposed Project** on page 3 of 39 of the draft permit, this emission unit is described as "Facility-Wide Fugitive VOC Equipment Leaks." To be consistent, the section heading will be changed in the final permit.

9. HEF Comment on Appendix CEMS:

- **Condition 8.c** – HCl CEMS, to be consistent with Conditions B.14.a and b. of the draft permit, add "EPA Method OTM-22 or equivalent or alternative specifications approved by the Department." in addition to Performance Specification 15.

  Department response: The Department agrees with HEF. To be consistent Conditions B.14.a and b. of the draft permit, the Condition 8.c. in Appendix CEMS will be changed.

- **Condition 19** – Data Exclusion Procedures for SIP Compliance, the language should refer to "Condition 18 and 19 of Subsection 3B." Also delete Condition 19.a, Opacity since it is not necessary in this appendix.

  Department response: The Department agrees with HEF. Condition 19 of Subsection 3B of the permit should be referred to in Condition 19 of Appendix CEMS. The condition will be changed accordingly. Excess emissions with regard to opacity limits are already stated in Condition 19 of Subsection 3B of the draft permit. Their inclusion in Appendix CEMS is redundant and will be removed.

FINALIZATION OF THE BACT DETERMINATIONS

The Department hereby finalizes the BACT determinations as drafted in the TEPD for PM, PM_{10}, NO_X, CO, VOC and SO_2. Refer to Section 4, BACT Review, Pages 17 through 43 of the TEPD at the link given below:

www.dep.state.fl.us/air/emission/bioenergy/highlands_envirofuels_llc/HighlandsEF_TECH.pdf

The BACT emission limits, practices and technologies for each emission unit are incorporated within the conditions of the Final Permit.

CONCLUSION

The final action of the Department is to issue the final permit with the corrections described above.