



RECEIVED

103-87668

August 1, 2011

Mr. David Read, Air Permitting Engineer
Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

AUG 02 2011
DIVISION OF AIR
RESOURCE MANAGEMENT

**RE: HIGHLANDS ENVIROFUELS, LLC
DEP FILE NO. 0550063-001-AC
ADVANCED BIOREFINERY PERMIT APPLICATION
ADDITIONAL INFORMATION**

Dear Mr. Read:

In follow-up to our conference call on July 29, 2011, regarding the Highlands EnviroFuels, LLC (HEF) ethanol advanced biorefinery and cogeneration power plant, we are providing additional information to the Florida Department of Environmental Protection (FDEP). The additional information addresses HEF's request to increase the hours of operation for the Ethanol Production Process.

As discussed on our call, HEF is requesting that the hours of operation presented in the PSD application for the ethanol production process be increased from 7,296 to 8,040 hours per year. This change will affect the emissions of volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and greenhouse gases (GHGs) from the ethanol process. Other emissions units or emission rates associated with the proposed facility will not be affected by this proposed change.

The attached Tables 2-10 and 2-11 show the updated VOC and HAP emissions for the ethanol production process. In addition, Tables 2-27, 2-28, 2-29, and 3-3 have been updated and show the changes to the GHG emissions and the total facility emissions for all pollutants. As shown, VOC emissions will increase by 8.1 TPY, HAP emissions will increase by 0.4 TPY, and non-biogenic GHG emissions will not change.

The appropriate application pages of the application form related to the Ethanol Production Process have been updated and are also attached.

Thank you for the opportunity to present this additional information. If you have any questions, please do not hesitate to call me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff
David A. Buff, P.E., Q.E.P.
Principal Engineer

Priscilla Tooley
Priscilla Tooley, E.I.
Staff Engineer

Enclosures

cc: Brad Krohn, HEF
Dan Garrett, Fagen & Assoc.

DB/nav

y:\projects\2010\103-87668 highlands\psd rai-2\080111_668.docx

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com



Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation

RECEIVED

AUG 02 2011

APPLICATION INFORMATION

Professional Engineer Certification

BOARD OF AIR REGULATION

1. Professional Engineer Name: **David A. Buff**
 Registration Number: **19011**

2. Professional Engineer Mailing Address...
 Organization/Firm: **Golder Associates Inc.****
 Street Address: **6026 NW 1st Place**
 City: **Gainesville** State: **FL** Zip Code: **32607**

3. Professional Engineer Telephone Numbers...
 Telephone: **(352) 336-5600** ext. Fax: **(352) 336-6603**

4. Professional Engineer E-mail Address: **dbuff@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.*

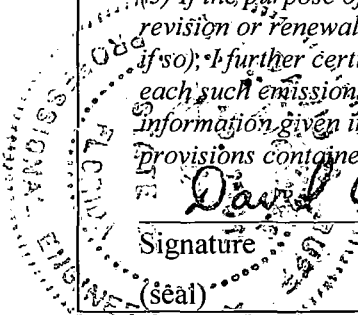
(3) *If the purpose of this application is to obtain a Title V air operation permit (check here , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application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

David A. Buff
 Signature _____ Date 8/1/11

(seal)



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

EMISSIONS UNIT INFORMATION

Section [2]

Ethanol Production Process

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:	120,000 gal/day ethanol	
3. Maximum Heat Input Rate:	million Btu/hr	
4. Maximum Incineration Rate:	pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	24 hours/day 48 weeks/year	7 days/week 8,040 hours/year
6. Operating Capacity/Schedule Comment:	Maximum daily ethanol production rate is 120,000 gal/day. Maximum annual ethanol production rate is 36,000,000 gal/yr. See PSD Tables 2-10 and 2-11.	

EMISSIONS UNIT INFORMATION

Section [2]
Ethanol Production Process

POLLUTANT DETAIL INFORMATION

Page [1] of [2]
Volatile Organic Compounds - VOCs

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: VOCs		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 21.8 lb/hour 87.6 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code: 3	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Refer to PSD Tables 2-10 and 2-11 for the calculation of emissions. Fermentation scrubber: 19.01 lb/hr; 76.41 TPY Distillation scrubber: 2.78 lb/hr; 11.19 TPY			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

Section [2]
Ethanol Production Process

POLLUTANT DETAIL INFORMATION

Page [2] of [2]
Hazardous Air Pollutants - HAPs

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS
(Optional for unregulated emissions units.)**

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: HAPs		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 1.05 lb/hour 4.24 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code: 3	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Refer to PSD Tables 2-10 and 2-11 for the calculation of emissions. Fermentation scrubber: 0.79 lb/hr; 3.18 TPY Distillation scrubber: 0.26 lb/hr; 1.06 TPY			
11. Potential, Fugitive, and Actual Emissions Comment:			

Table 2-10: Physical, Performance, and Emissions Data for the Fermentation CO₂ Scrubber (Revised 8-01-11)

Parameter	Value ^a	Basis				
<u>Performance Data</u>						
Ethanol Production (gal/yr)	36,000,000	Highlands Envirofuels				
Ethanol Production (gal/day)	120,000	Estimated				
Scrubbing Column Control Efficiency (%)	98.0	Design Value				
Hours of Operation	8,040	Maximum				
<u>Emission Factors ^a</u>						
Uncontrolled Ethanol (lb/hr)	770.4	Design Value				
Controlled Ethanol (lb/hr)	15.41	Calculated				
Uncontrolled Other VOCs - Total (lb/hr)	180.0	Calculated				
Controlled Other VOCs - Total (lb/hr)	3.60	Design Value				
<u>Emission Calculation - Speciated ^{a,b}</u>						
Pollutant	Factor (%)	Description	Maximum Uncontrolled Emissions		Maximum Controlled Emissions	
			(lb/hr)	(TPY)	(lb/hr)	(TPY)
Ethanol	100.0	of ethanol	770.4	3,097.0	15.41	61.94
Ethyl Acetate	78.0	of other VOCs	140.4	564.4	2.81	11.29
Acetaldehyde ^c	19.8	of other VOCs	35.6	143.3	0.71	2.87
Methanol ^c	2.2	of other VOCs	4.0	15.9	0.079	0.32
		Total VOC	950.4	3,820.6	19.01	76.41
		Total HAP	39.6	159.2	0.79	3.18

^a Based on data from Highlands EnviroFuels, 2011.

^b Example Calculation - Ethyl Acetate:

Hourly Average: 3.6 lb/hr Total Controlled Other VOCs x (78 % Maximum of VOC / 100) = 2.81 lb/hr Ethyl Acetate

Annual Average: 2.81 lb/hr Ethyl Acetate x 8,040 hr/yr / 2,000 lb/hr = 11.29 TPY Ethyl Acetate

^c Hazardous Air Pollutants (HAPs).

Table 2-11: Physical, Performance, and Emissions Data for the Distillation Vent Scrubber (Revised 8-01-11)

Parameter	Value ^a	Basis				
<u>Performance Data</u>						
Ethanol Production (gal/yr)	36,000,000	Highlands Envirofuels				
Ethanol Production (gal/day)	120,000	Estimated				
Scrubbing Column Control Efficiency (%)	98	Design Value				
Hours of Operation	8,040	Maximum				
<u>Emission Factors^a</u>						
Uncontrolled Ethanol (lb/hr)	79.20	Design Value				
Controlled Ethanol (lb/hr)	1.58	Calculated				
Uncontrolled Other VOCs - Total (lb/hr)	1.20	Design Value				
Controlled Other VOCs - Total (lb/hr)	1.20	Design Value				
<u>Emission Calculation - Speciated ^{a,b}</u>						
Pollutant	Factor (%)	Description	Maximum Uncontrolled Emissions		Maximum Controlled Emissions	
			(lb/hr)	(TPY)	(lb/hr)	(TPY)
Ethanol	100.0	of ethanol	79.20	318.38	1.58	6.37
Ethyl Acetate	78.0	of other VOCs	0.94	3.76	0.94	3.76
Acetaldehyde ^c	19.8	of other VOCs	0.24	0.96	0.24	0.96
Methanol ^c	2.2	of other VOCs	0.026	0.106	0.026	0.106
		Total VOC	80.4	323.2	2.78	11.19
		Total HAP	0.26	1.06	0.26	1.06

^a Based on data from Highlands EnviroFuels, 2011.

^b Example Calculation - Ethyl Acetate:

Hourly Average: 1.2 lb/hr Total Controlled Other VOCs x (78 % Maximum of VOC / 100) = 0.94 lb/hr Ethyl Acetate.

Annual Average: 0.94 lb/hr Ethyl Acetate x 8,040 hr/yr / 2,000 lb/hr = 3.76 TPY Ethyl Acetate.

^c Hazardous Air Pollutants (HAPs).



Table 2-27: Emission Summary, Highlands EnviroFuels (Revised 8-01-11)

Source Description	Pollutant Emission Rate (TPY)												
	SO ₂	NO _x	CO	PM	PM ₁₀	PM _{2.5}	VOC	TRS	SAM	Mercury	Lead	Fluoride	Non-Biogenic CO ₂ e ^b
Future Potential Emissions From Affected Sources ^a													
Biomass Boiler	200.4	184.3	552.9	27.6	27.6	18.0	31.3	--	9.8	0.025	0.18	1.1	66,086
Boiler Materials Handling, Storage, and Truck Traffic	--	--	--	7.9	1.8	0.3	--	--	--	--	--	--	--
Ethanol Process	--	--	--	--	--	--	87.6	--	--	--	--	--	--
Cooling Tower	--	--	--	0.37	0.19	0.19	--	--	--	--	--	--	--
Truck Load Out Flare	0.0090	1.04	5.64	0.052	0.052	0.052	6.98	--	--	--	--	--	2,398
Facility Tanks	--	--	--	--	--	--	3.9	--	--	--	--	--	--
Facility Fugitive Equipment Leaks	--	--	--	--	--	--	6.5	--	--	--	--	--	--
Emergency Generator	0.0057	7.95	0.43	0.038	0.038	0.038	0.16	--	--	--	--	--	--
Emergency Fire Pump Engine	0.00063	0.89	0.86	0.049	0.049	0.049	0.10	--	--	--	--	--	--
Ash and Lime/Limestone Silos	--	--	--	0.85	0.85	0.85	--	--	--	--	--	--	--
TOTAL PROPOSED PROJECT EMISSIONS	200.4	194.2	559.8	36.9	30.6	19.5	136.6	--	9.8	0.025	0.18	1.1	68,484.0

^a Refer to Tables 2-4 through 2-29, Appendix C, and Appendix D for emission calculations.

^b Greenhouse gases expressed as non-biogenic CO₂ equivalents, see Table 2-29.

Table 2-28: Total Facility Potential HAPs Emissions (Revised 8-01-11)

Source Description	HAP Emission Rate ^a	
	(lb/hr)	(TPY)
Biomass Boiler	55.3	18.3
Ethanol Process	1.05	4.24
Truck Load Out Flare	0.34	0.22
Facility Tanks	0.024	0.094
Facility Fugitive Equipment Leaks	0.074	0.33
Emergency Generator	0.083	0.021
Emergency Fire Pump Engine	0.027	0.0068
TOTAL	56.9	23.2

^a Refer to Tables 2-4 through 2-29, Appendix C, and Appendix D for emission calculations.

Table 3-3: PSD Applicability Analysis (Revised 8-01-11)

Source Description	Pollutant Emission Rate (TPY)												
	SO ₂	NO _x	CO	PM	PM ₁₀	PM _{2.5}	VOC	TRS	SAM	Mercury	Lead	Fluoride	Non-Biogenic CO ₂ e ^b
Future Potential Emissions From Affected Sources ^a													
Biomass Boiler	200.4	184.3	552.9	27.6	27.6	18.0	31.3	--	9.8	0.025	0.18	1.1	66,086
Boiler Materials Handling, Storage, and Truck Traffic	--	--	--	7.9	1.8	0.3	--	--	--	--	--	--	--
Ethanol Process	--	--	--	--	--	--	87.6	--	--	--	--	--	--
Cooling Tower	--	--	--	0.37	0.19	0.19	--	--	--	--	--	--	--
Truck Load Out Flare	0.0090	1.04	5.64	0.052	0.052	0.052	6.98	--	--	--	--	--	2,398
Facility Tanks	--	--	--	--	--	--	3.9	--	--	--	--	--	--
Facility Fugitive Equipment Leaks	--	--	--	--	--	--	6.5	--	--	--	--	--	--
Emergency Generator	0.0057	7.95	0.43	0.038	0.038	0.038	0.16	--	--	--	--	--	--
Emergency Fire Pump Engine	0.00063	0.89	0.86	0.049	0.049	0.049	0.10	--	--	--	--	--	--
Ash and Lime/Limestone Silos	--	--	--	0.85	0.85	0.85	--	--	--	--	--	--	--
Total Potential Emission Rates													
TOTAL CHANGE DUE TO PROPOSED PROJECT	200.4	194.2	559.8	36.9	30.6	19.5	136.6	0.0	9.8	0.025	0.2	1.1	68,484
PSD SIGNIFICANT EMISSION RATE	40	40	100	25	15	10	40	10	7	0.10	0.6	3	75,000
PSD REVIEW TRIGGERED?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No

^a Refer to Table 2-27.

^b Greenhouse gases expressed as non-biogenic CO₂ equivalents, see Table 2-29.