Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

PERMITTEE

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

Authorized Representative:
Mr. Dan Warden

Air Permit No. 0550061-004-AC
Expires: December 31, 2015
PSD-FL-406B
BP Biofuels – Highlands Ethanol Facility
Facility ID No. 0550061
Cellulosic Ethanol Production

PROJECT

This is the final air construction permit, which authorizes modification of the original air construction permit (Air Permit No. 0550061-001-AC, PSD-FL-406) that was issued to the BP Biofuels - Highlands (BPH) Ethanol Facility 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.). The BPH is a cellulosic ethanol production facility that will utilize feedstocks such as energy cane and other grasses and which is currently under construction in Highlands County, Florida. The BPH is an organic chemicals plant categorized under Standard Industrial Classification No. 2869. The BPH is located in Highlands County north of State Road (SR) 70, approximately 1.7 miles east, northeast of Brighton, Florida. The UTM coordinates are Zone 17; 493.2 kilometers (km) East and 3,013.2 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and, Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix CF of Section 4 of this permit.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Executed in Tallahassee, Florida
(Electronic Signature)
(DRAFT)

DRAFT

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this final air permit package (including the Final Determination and Final Permit with Appendices) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Dan Warden, BP Biofuels: dan.warden@bp.com
Bradley S. Uhlmann, P.E., AMEC: brad.uhlmann@amec.com
Ajaya Satyal, DEP South District Office: ajaya.satyal@dep.state.fl.us
Kathleen Forney, EPA Region 4: forney.kathleen@epamail.epa.gov
Heather Ceron, US EPA Region 4: ceron.heather@epa.gov
Chair, Highlands County Board of County Commissioners: jrichie@hcbcc.org
James E. Billie, Chairman, Tribal Council, Seminole Tribe of Florid: jamesbillie@semtribe.com
Tony Sanchez, Jr., President, Seminole Tribe of Florida: tonysanchez@semtribe.com
Jim Shore, General Counsel, Seminole Tribe of Florida: c/o amotlow@semtribe.com
Craig Tepper, Director, ERMD, Seminole Tribe of Florida: ctepper@semtribe.com
Lynn Scearce, DEP OPC Reading File: lynn.scearce@dep.state.fl.us

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.
(Electronic Signature)
(DRAFT)

DRAFT

PROPOSED PROJECT

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 Best Available Control Technology (BACT) Determinations for: nitrogen oxides (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).

The nominal design ethanol production capacity of the BPH is approximately 36 million gallons per year and is based on an 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 an 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 (MW) 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 BFB boiler and 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 modified project will consist of the following emissions units (EU). Obsolete emission units from the previous project are highlighted in yellow

Facility ID No. 0550061	
New EU ID No.	**Emission Unit Description**
001	Feedstock handling and Roadways
Old 002---	Hydrolysis, liquid/solids separation, neutralization – Obsolete EU, emissions now vented to regenerative thermal oxidizer (RTO)
002	RTO (includes hydrolysis, fermentation, distillation and bacteria/enzyme propagation, liquid/solid separation, product loadout (**flare is an option for product loadout portion of this EU, see EU 002A**)
002A	Product loadout and flare
003	Stillage separation, dewatering and loadout
004	Denaturant and product storage
Old 006	Product loadout and flare – Obsolete EU, emissions are either vented to RTO (EU 002) or to a flare (EU002A)
005	Anaerobic digestion, biogas conditioning and biogas backup flare
006	Biomass and Natural Gas Fired BFB Boiler
Old 009	BFB combustion biomass-fueled boiler – Obsolete EU
007	Natural gas fired Peaking boiler
008	Cooling tower

DRAFT

009	Miscellaneous storage silos
010	Miscellaneous storage tanks
011	Emergency generators
012	Emergency fire pump engine
013	Facility-wide VOC fugitive equipment leaks

FACILITY REGULATORY CLASSIFICATION

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400 (PSD), F.A.C.
- The project includes units subject to applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations.
- The project includes units subject to applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations.

DRAFT

SECTION 2. ADMINISTRATIVE REQUIREMENTS (DRAFT PERMIT)

1. Permitting Authority: The Permitting Authority for this project is the Office of Permitting and Compliance in the Division of Air Resource Management of the Department. The mailing address for the Office of Permitting and Compliance is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. All documents related to applications for permits to operate an emissions unit shall be submitted to the Air Resource Section of the Department's South District Office at: 2295 Victoria Avenue, Suite 364, Fort Myers, Florida 33901-3881.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Resource Section of the Department's South District Office at: 2295 Victoria Avenue, Suite 364, Fort Myers, Florida 33901-3881.

3. Appendices: The following Appendices are attached as a part of this permit and must be complied with by the permittee:
   a. Appendix ASME: American Society of Mechanical Engineers (ASME) Form for Abbreviated Efficiency Test;
   b. Appendix BMP: Best Management Practices;
   c. Appendix CC: Common Conditions;
   d. Appendix CEMS: Continuous Emissions Monitoring System (CEMS) Requirements;
   e. Appendix CF: Citation Formats and Glossary of Common Terms;
   f. Appendix CTR: Common Testing Requirements;
   g. Appendix Db: NSPS, Subpart Db – Standards of Performance Industrial-Commercial-Institutional Steam Generating Units;
   h. Appendix Dc: NSPS, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units;
   i. Appendix GC: General Conditions;
   j. Appendix GP: Identification of General Provisions, Subpart A from NSPS 40 CFR 60 and Subpart A from NESHAP 40 CFR 63;
   k. Appendix IIII: NSPS, Subpart IIII - Stationary Compression Ignition Internal Combustion Engines;
   l. Appendix JJJJJJ: NESHAP, Subpart JJJJJJ - Industrial, Commercial, and Institutional Boilers Area Sources;
   m. Appendix Kb: NSPS, Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels;
   n. Appendix LDAR: Preliminary Leak Detection and Repair (LDAR) Program;
   o. Appendix VVa: NSPS, Subpart VVa – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Industry (SOCMI) and;
   p. Appendix ZZZZ: NESHAP, Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines (RICE).

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

DRAFT

6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Source Obligation:

   (a) Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit.

   (b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   (c) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   [Rule 62-212.400(12), F.A.C.]

8. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

9. Unconfined Emissions of Particulate Matter: No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions. Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter. Reasonable precautions include the following: a) Paving and maintenance of roads, parking areas and yards; b) Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing; c) Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities; d) Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulate from becoming airborne; e) Landscaping or planting of vegetation; f) Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter; g) Confining abrasive blasting where possible; and, h) Enclosure or covering of conveyor systems. In determining what constitutes reasonable precautions for a particular facility, the Department shall consider the cost of the control technique or work practice, the environmental

DRAFT

impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice. [Rule 62-296.320(4)(c), F.A.C.]

10. Excess Emissions: Except as required by specific conditions of this permit dealing with excess emissions with regard to individual emission units, the following conditions apply to excess emissions at the BPH.
    a. Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.
    b. Malfunction: Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited.
    c. Department Discretion: Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest.
    d. Department Notification: In case of excess emissions resulting from malfunctions, each owner or operator shall notify the Department in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department.

    [Rule 62-210.700, F.A.C.]

11. NSPS, Subpart VVa: Emission units associated with the BPH project that can leak volatile organic compounds (VOC) are subject to NSPS Subpart VVa – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry. A requirement of Subpart VVa is the development of a leak detection and repair (LDAR) program. A preliminary LDAR program plan is included as Appendix LDAR in Section IV of this permit. The permittee is required to submit a final LDAR program plan to the Compliance Authority for approval no later than 90 days prior to commencing operation. As per NSPS Subpart VVa, BPH shall demonstrate compliance with the requirements of §§60.482–1a through 60.482–10a or §60.480a(e) for all equipment within 180 days of initial startup [NSPS, Subpart VVa and Rule 62-4.070, F.A.C. Reasonable Assurance]

12. Equipment Subject to NSPS, Subpart VVa: Equipment such as pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves, line valves and flanges or other connectors in VOC service and any devices or systems subject to NSPS, Subpart VVa and the associated emissions unit must be identified with a list submitted to the Compliance Authority no later than 90 days prior to commencing operation. [Rule 62-4.070, F.A.C. Reasonable Assurance]

13. Objectionable Odors Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. The permittee shall submit an odor control plan (OCP) to the Compliance Authority 90 days prior to commencing operation that addresses the procedures and practices that will be used to control facility wide fugitive odors at BPH including stillage cake storage and disposal (if necessary). In addition, the OCP shall also include provisions for storing, disposing of or recycling off-specification enzymes and bacteria that could otherwise contribute to objectionable odors.
    [Rule 62-296.320(2), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

    {Permitting Note: An objectionable odor is defined in Rule 62-210.200 (Definitions), F.A.C., as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance.}

14. Open Burning Prohibited: No person shall ignite, cause to be ignited, or permit to be ignited, any material which will result in any prohibited open burning as regulated by chapter 62-256, F.A.C.; nor shall any person suffer, allow, conduct or maintain any prohibited open burning.
    [Rule 62-256.300, F.A.C.]

DRAFT

15. General Visible Emissions Standard:

    a. No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity).

    b. Notwithstanding subparagraph 62-296.320(4)(b)1., F.A.C., above, the owner or operator of an emissions unit subject to the general visible emission standard may request the Department to establish a higher visible emissions standard for that emissions unit. The owner or operator may request that a visible emissions standard be established at that level at which the emissions unit will be able, as indicated by compliance tests, to meet the opacity standard at all times during which the emissions unit is meeting the applicable particulate matter standard. The Department shall establish such a standard, through the permitting process, if it finds that:

        (i) The emissions unit was in compliance with the applicable particulate emission standard while a compliance test was being conducted but failed to comply with the general visible emissions standard during the test;

        (ii) The emissions unit and associated air pollution control equipment were operated and maintained in a manner to minimize the opacity emissions during the compliance test;

        (iii) The emissions unit and associated air pollution control equipment were incapable of being adjusted or operated in such a manner as to meet the opacity standard; and

        (iv) If the presence of uncombined water is the only reason for failure to meet visible emission standards given in this rule, such failure shall not be a violation of this rule.

    [Rule 62-296.320(4)(b) F.A.C, General Visible Emissions Standard]

DRAFT

A. Feedstock Handling and Roadways (EU-001)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
001	Feedstock Handling: Freshly harvested energy cane and other grasses are delivered by trucks equipped with a tipper for unloading material. The feedstock is offloaded to a live bottom bin. The feedstocks will be freshly harvested material with high moisture content. The facility will be designed to receive approximately 4,000 green tons per day of feedstock. Upon receipt, the feedstock will be offloaded to one of three locations: (a) directly to the plant's feedstock hopper; (b) a conveyor feed system; or (c) onto a feedstock day storage pad that is designed to hold 24 hours of feedstock. The feedstock will be moved via a conveyor system from the day pad to the feedstock hopper at the plant. The day pad and much of the conveyor will be located on the farmland adjacent to the project site. The day pad will be roughly 1.7 acres in size. BPH will also include a separate, and larger, medium-term storage pad adjacent to the day pad. The medium-term pad will accommodate 4 days of fresh feedstock material as well as excess bagasse from the feedstock handling and processing step. Both fresh feedstock and bagasse will be delivered to the medium-term storage pad by truck. The medium-term storage pad will be roughly four acres in size. Feedstock from the medium-term storage pad will be used to maintain production during times of inclement weather, when harvesting and transportation of feedstock from the farm may be disrupted. Feedstock will be loaded from the conveyor directly into the plant feedstock hopper and subsequently conveyed through a washing process. The feedstock will then be shredded, passed through a series of roller mills and delivered to a bagasse storage silo for conveying to the hydrolysis step. Juice recovered from the roller mill operations will be pasteurized and used in the liquid-solid separation area for dilution of hydrolyzed bagasse. Otherwise, the process from the feedstock hopper through to the bagasse silo is analogous to those steps in a sugar mill and fugitive dust emissions are expected to be minimal due to the moisture inherent in the feedstock. The feedstock handling area is considered to be an insignificant source of air emissions.

EQUIPMENT

1. Biomass Feedstock: If necessary, the permittee is authorized to install the following major pieces of equipment for the delivery, handling and processing of the of the energy cane, other grasses and other similar crops used in the ethanol production process:
   - Trailer tipper;
   - Receiving table;
   - Transfer conveyors;
   - Shredder;
   - Roller mills;
   - Bagasse silo; and
   - Hydrolyser feed sandwich conveyor.

   [Application No. 0550061-004-AC and Rule 62-4.070, F.A.C. Reasonable Assurance]

2. Air Pollution Control Equipment: To minimize fugitive particulate matter ($PM/PM_{10}/PM_{2.5}$) henceforth called PM, biomass conveyors shall be enclosed, except for one small section near the biomass receiving point to provide for visible inspection. If required to meet the visible emission standard given in **Specific Condition 8** of this subsection, dust collectors shall be installed on the conveyor transfer and drop points. If dust collectors are necessary they shall be designed to obtain an outlet PM loading of 0.005 grains per dry standard cubic foot (gr/dscf). [Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

DRAFT

A. Feedstock Handling and Roadways (EU-001)

{Permitting Note: Enclosed conveyors means that the conveyance belt for the biomass is totally enclosed from above thus preventing wind from causing fugitive dust emissions. However, the bottom of the conveyance belt shall be accessible for maintenance and repairs.}

PERFORMANCE RESTRICTIONS

3. Roadways: Within the industrial facility, the feedstock delivery roadways and primary plant roadways shall be paved. To further minimize fugitive dust emissions from the paved roadways, the roadways will be swept on an as needed basis with a vacuum sweeper or similar equipment in good working order to prevent the buildup of dirt and silt on the roadway surfaces in accordance with the "Best Management Practices" outlined in Appendix BMP. A record of the sweeping shall be kept and made available to the Compliance Authority upon request. [Application No. 0550061-004-AC; Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

4. Gravel Areas: Biomass storage areas and other areas of the BPH will have gravel surfaces. During dry conditions the gravel areas shall be wetted, as necessary, to maintain surface moisture to minimize fugitive dust emissions. [Application No. 0550061-004-AC; Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

5. Biomass Storage: Except during time of inclement weather when harvesting of biomass is disrupted, to control odors, biomass shall be delivered to the facility on a just in time basis. Consequently, on-site biomass storage piles shall be minimized. On-site storage of biomass for a period of up to 4 days shall be allowed, so long as such storage is consistent with **Specific Condition 13** of **Section 2** of this permit dealing with objectionable odors. Trucks shall typically deliver biomass to BPH between 6:00 am to 6:00 pm, but are allowed 24 hours per day, 7 days per week.
[Application No. 0550061-004-AC; Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

6. Authorized Biomass: Biomass authorized to be used at BPH consists of energy cane, other grasses, and similar feedstock crops. Supplemental biomass used solely as fuel for the biomass boiler is prohibited. Appendix BMP defines the types of biomass that shall be used at BPH as well as quality assurance (Q&A) procedures to ensure the biomass used meets the requirements specified in this permit. [Application No. 0550061-004-AC and Rule 62-4.070, F.A.C. Reasonable Assurance]

7. Restricted Operation: The hours of operation of this emission unit are not limited (8,760 hours per year). [Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

8. Visible Emission (VE) Standard: As determined by EPA Method 9, there shall be no VE greater than 5 percent opacity at drop points, transfer points and dust collector (if required) outlets. [Rule 62-212.400(5)(c), F.A.C.].

9. Best Management Practices (BMP): A control plan to control PM emissions from biomass delivery, handling and preparation is given in Appendix BMP and shall be followed at all times by the permittee. This plan also addresses quality assurance measures for biomass delivered from vendors to the BPH. An example of the procedures to control fugitive PM emission is the wetting of roads and gravel areas during dry periods. As the engineering details of the Biomass Delivery, Handling and Preparation emissions unit becomes finalized, the permittee shall submit an updated BMP plan to the compliance authority 90 days prior to commencing operation.
[Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

{Permitting Note: PM emissions from the roadways and grounds during operation of the BPH are estimated to be 2.3 tons in any consecutive twelve month period. According to the permittee, no PM emissions will result from biomass delivery, handling and preparation due to the high moisture content of the biomass.} [Application No. 0550061-004-AC]

DRAFT

TESTING AND MONITORING REQUIREMENTS

10. Initial Compliance Tests: The drop and transfer points and dust collector (if required) outlets of the emissions unit shall be tested to demonstrate initial compliance with the emissions standards for opacity given in **Specific Condition 8** of this subsection. 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. [Rules 62-4.070(3) and 62-297.310(7)(a)1, F.A.C.]

11. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the drop and transfer points and dust collector (if required) outlets of the emissions unit shall be tested to demonstrate compliance with the emissions standards for opacity given in **Specific Condition 8 of this subsection**. [Rule 62-297.310(7)(a)4, F.A.C.]

12. 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.]

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

EPA Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources. The duration of each test shall be 60 minutes.
22	Visual Determination of Fugitive Emissions from Material Sources. The duration of each test shall be 6 minutes.

The above method is described in Appendix A of 40 CFR 60 included as Appendix A of this permit 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]

RECORDS AND REPORTS

14. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix CTR (Common Testing Requirements) of this permit. For each test run, the report shall also indicate the operating rate of the equipment. [Rule 62-297.310(8), F.A.C.]

15. Notification, Recordkeeping and Reporting Requirements: The permittee shall maintain records of the amount of biomass feedstock (primary and bagasse) delivered, handled and processed on a daily, monthly and 12 month rolling average basis. These records shall be submitted to the Compliance Authority on an annual basis or upon request. [Rule 62-4.070(3), F.A.C.]

16. Dust Collector Design Specifications: If dust collectors are necessary to meet the opacity requirement stipulated in this subsection, the permittee shall maintain records of the dust collector design specification, maintenance action and malfunctions. These records shall be readily available for inspection by the Compliance Authority. [Rule 62-4.070(3), F.A.C.]

DRAFT

B. Regenerative Thermal Oxidizer (EU-002)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
002	Regenerative Thermal Oxidizer (RTO): A RTO will be used to control emissions, principally VOC, from the following processes at BPH: • *Hydrolysis of Cellulose*: Feedstock bagasse is subjected to increasing temperature and pressure and mixed with dilute sulfuric acid during these steps in preparation for introduction to a digester for acid hydrolysis. The resulting slurry will consist of cellulose/lignin solids mixed with a liquid fraction containing a variety of pentoses and hexoses. • *Liquid/Solid Separation and Neutralization*: The slurry is separated into liquid and solid fractions using three or more screw presses arranged in a parallel configuration. The resulting cellulose/lignin solids stream will be diluted with fermentation beer. The resulting liquid filtrate stream contains most of the hemicellulosic sugars. • *Fermentation*: A set of six (6) hemicellulosic fermentation vessels will be used to ferment the hemicellulosic sugars. The sugars will be fermented with a proprietary microorganism to produce a dilute ethanol beer. The fermentations will occur in batches, and the fermented beer will be split between beer surge tanks for use in the cellulose cake mixer and the beerwell to feed the distillation column. A set of six (6) cellulosic fermentation vessels will be used to simultaneously saccharify and ferment the cellulose from the cake mixer. The cellulose will be saccharified by a proprietary enzyme, producing glucose sugars. These sugars will in turn be fermented with a proprietary microorganism to produce a dilute ethanol beer. The fermentations will occur in batches, and the fermented mash will be passed to a beerwell upon completion of each fermentation batch. • *Distillation*: The beer will then be transferred to a beer stripper that initiates the distillation process. The heads (vapors) from the beer stripper will be passed to a stripper/rectifier for further distillation and then a molecular sieve system to remove remaining water (dehydration) from the product. The purified ethanol will then be denatured with gasoline, resulting in a product that contains approximately 95 to 98 percent ethanol by volume and 2 to 5 percent gasoline by volume. • *Product Loadout*: E95-E98 product will be loaded onto tank trucks at a rate of 600 gallons per minute (GPM). Vapors displaced from the trucks during product loading will be exhausted directly to the RTO or, optionally, to a flare. The trucks are assumed not to be in dedicated E95-E98 service (i.e., some trucks will have returned from delivering gasoline and gasoline vapors will be displaced) which maximizes potential VOC emissions.

EQUIPMENT

1. Hydrolyzer System: The permittee is authorized to construct a hydrolyzer system that will utilize steam and an acid solution to hydrolyze the hemicellulose fraction of the biomass feedstock to generate a slurry that will be separated into liquid and solid streams.

2. Liquid/Solid Separation System: The permittee is authorized to construct an acid hydrolyzed biomass liquid/solid separation system that will include three or more screw presses arranged in parallel, one or more screw press feed tanks and one or more filtrate tanks.

3. Fermentation and Propagation System: The permittee is authorized to construct the following major components of a fermentation and propagation system:
   a. Six (6) hemicellulosic fermentation tanks;
   b. Six (6) cellulosic fermentation tanks;
   c. Two (2) hemicellulosic seed propagators;
   d. Four (4) cellulosic enzyme propagators; and,

DRAFT

e. Two (2) hemicellulosic beer surge tanks.

4. Distillation System: The permittee is authorized to construct the following major components of a distillation system:
   a. Two beer strippers;
   b. One stripper/rectifier; and,
   c. One molecular sieve dehydration system.

5. Loading Rack: The permittee is authorized to construct a loading rack that is designed to transfer 600 GPM of denatured ethanol product to tanker trucks. The loading rack will also be used for the unloading of gasoline trucks into a storage tank. The gasoline will be used as the ethanol denaturant.

6. Air Pollution Control Equipment:
   a. RTO: The permittee shall install a RTO to control VOC emissions from the hydrolysis, fermentation, distillation and bacteria/enzyme propagation, liquid/solid separation and product loadout processes. The RTO shall have a design control efficiency of 99 percent.
   b. Flare System (Optional): As an option, the permittee may construct one flare system with a continuous pilot and combustion chambers to destroy displaced vapors during ethanol truck loadout. The flare shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. For VOC emissions, the flare shall have a design control efficiency of 98 percent.

[Application No. 0550061-004-AC; Rules 62-212.400 (BACT); 62-210.200(PTE) and 62-4.070, F.A.C. Reasonable Assurance, F.A.C.]

PERFORMANCE RESTRICTIONS

7. Permitted Capacity: The maximum ethanol production rate is 14.8 TPH and in any consecutive twelve month period 129,298 tons which is the equivalent to an ethanol production rate of 39.4 million gallons per year (MGPY) which when blended with gasoline will equal up to 41.5 MGPY of denatured ethanol product (E95). [Application No. 0550061-004-AC; Rules 62-212.400 (BACT); 62-210.200(PTE) and 62-4.070, F.A.C. Reasonable Assurance, F.A.C.

8. Flare Capacity (if needed): If a flare system is used, it shall be designed to combust vapors displaced from the trucks during the loading of the denatured ethanol product. The trucks are assumed to not be in dedicated denatured ethanol product service (i.e., some trucks will have returned from delivering gasoline and gasoline vapors will be displaced). The product loadout flare will have a rated capacity of 9.42 MMBtu/hr. Natural gas will be used as the fuel for the pilot which has a rated capacity of 0.18 MMBtu/hr. [Application No. 0550061-004-AC; Rules 62-212.400 (BACT); 62-210.200(PTE) and 62-4.070, F.A.C. Reasonable Assurance, F.A.C.]

9. Flare Operation (if needed): If a flare system is used, the flare shall be operated at all times when truck loading operations are taking place. Only E95 to E98 shall be loaded into the trucks. [Application No. 0550061-004-AC; Rules 62-212.400 (BACT); 62-210.200(PTE) and 62-4.070, F.A.C. Reasonable Assurance, F.A.C.]

10. RTO Operation: The RTO shall be operated at all times when ethanol production is taking place and during all truck loading operations, if a flare is not used for control of product loadout. Only E95 to E98 shall be loaded into the trucks. [Application No. 0550061-004-AC; Rules 62-212.400 (BACT); 62-210.200(PTE) and 62-4.070, F.A.C. Reasonable Assurance, F.A.C.]

11. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year). [Rules 62-4.070(3) and 62-210.200 (PTE), F.A.C.]

DRAFT

B. Regenerative Thermal Oxidizer (EU-002)

EMISSIONS STANDARDS

12. VOC Standard: If a flare is not used to control VOC emissions from product loadout, VOC emissions from the RTO stack shall not exceed of 7.48 pounds per hour (lbs/hr). If a flare is used to control VOC emissions from product loadout, VOC emissions from the RTO stack shall not exceed 2.84 lbs/hr and VOC emissions from the product loadout flare shall not exceed 9.28 lbs/hr. [Application No. 0550061-004-AC; Rules 62-212.400 (BACT); 62-210.200(PTE) and 62-4.070, F.A.C. Reasonable Assurance, F.A.C.]

13. Acetaldehyde HAP Emission Standard: Emissions of acetaldehyde from the RTO shall not exceed 1.6 lb acetaldehyde/hr (7.0 TPY). [Application No. 0550061-004-AC; Rules 62-4.070, Reasonable Assurance and 62-210.200 (PTE), F.A.C.]

14. Flare VE Standard (if needed): If a flare system is used, the flare shall be designed for and operated with no visible emissions (VE) except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [Rules 62-4.070(3), F.A.C.]

TESTING REQUIREMENTS

15. Initial Compliance Tests: The emissions units' RTO stack shall be tested to demonstrate initial compliance with the emissions standards for VOC and acetaldehyde given in **Specific Conditions 12** and **13** of this subsection. 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. [Rules 62-4.070(3) and 62-297.310(7)(a)1, F.A.C.]

16. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the emissions units' RTO stack shall be tested to demonstrate compliance with the emissions standards for VOC and acetaldehyde given in **Specific Conditions 12** and **13** of this subsection. [Rule 62-297.310(7)(a)4, F.A.C.]

17. Flare VE Compliance Tests (if needed): If a flare system is used, it shall be tested to demonstrate initial compliance with the VE standard given in Specific **Condition 14** of this subsection no later than 180 days after initial operation and during each federal fiscal year (October 1st to September 30th) thereafter. EPA Method 22 VE compliance test(s) shall be used to determine the compliance of the flare with the visible emission requirements. The observation period is 2 hours and shall be used according to Method 22. The flare performance test shall be performed when ethanol is being loaded into trucks that previously held gasoline. [Rule 62-4.070(3), F.A.C.]

18. 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.]

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

EPA Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
22	Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares 2 Hour Duration
18	Measurement of Gaseous Organic Compound Emissions (Gas Chromatography) *{Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the total hydrocarbons (THC) emissions measured by Method 25A.}*
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)

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 method 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]

DRAFT

B. Regenerative Thermal Oxidizer (EU-002)

MONITORING REQUIREMENTS

20. Work Practice: Good combustion practices will be utilized at all times to ensure emissions from the flare system are minimized. Therefore, all operators and supervisors shall be properly trained to operate and ensure maintenance of this system in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating practices as well as methods for minimizing excess emissions. The flare pilot shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. [Rules 62-4.070(3) F.A.C.]

RECORDS AND REPORTS

21. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix CTR (Common Testing Requirements) of this permit. [Rule 62-297.310(8), F.A.C.]

22. Notification, Recordkeeping and Reporting Requirements: The permittee shall maintain records of the amount of biomass feedstock and acid solution used in the hydrolyzer system, and the amount of hydrolyzed biomass fed to the liquid/solid separation systems. The permittee shall maintain records of the feed rate into the fermentation, distillation and propagation systems on a daily, monthly, and 12 month rolling total basis. The permittee shall maintain records of the amount of ethanol produced on a daily, monthly and a 12 month rolling total basis. These records shall be submitted to the Compliance Authority on an annual basis or upon request. [Rule 62-4.070(3), F.A.C.]

23. Flare Records (if needed): If a flare system is used, the permittee shall record in a written log the duration of each flare event and the reason for flaring. If requested by the Compliance Authority, the permittee shall provide a copy of these records or a summary of these records. [Rule 62-4.070(3), F.A.C.]

DRAFT

C. Solids (Stillage and Gypsum) Separation, Dewatering and Loadout (EU 003)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
003	Stillage Separation, Dewatering and Loadout: Solids consisting of stillage cake, gypsum, biosolids, and water will be sent to dewatering to remove some of the water fraction, and conveyed to the biomass boiler for use as fuel. The solids will not otherwise be dried. Solids will be generated at an approximate rate of 32 wet tons per hour and will consist primarily of lignin fibers and secondarily of unhydrolyzed cellulose fibers with moisture content in the range of 50 to 65 percent. Handling will be performed entirely within a closed system except for the conveyor. The centrifuges, stillage cake holding tank, and centrate tanks will be vented. Based on the consistency and moisture content of the material, PM emissions are expected to be negligible. The short transit time and BMPs proposed by the applicant will minimize the potential for fugitive VOC emissions from this process. The solids consist of: • Stillage Cake: The lignin-rich biomass residue removed from the bottom of the beer stripper, dewatered, and conveyed to the biomass boiler. • Gypsum: Gypsum residue is removed from the bottom of the hemicellulosic beer stripper, dewatered, and conveyed to the biomass boiler. • Stillage Centrate: The water fraction from the stillage cake and gypsum separation step is sent to the thin stillage tank. • Biosolids Centrate: The water fraction from the biosolids separation step is sent to the biosolids centrate tank which is then sent to the effluent tank. • Biosolids: Solids generated by the anaerobic digester system.

EQUIPMENT

1. Solids Loadout System: The permittee is authorized to construct a solids loadout system, including a conveyor system to take the solids to the biomass boiler. Handling of the solids will be entirely within a closed system except for the conveyor. Centrifuges, stillage cake holding tank, and centrate tanks may be vented. [Application No. 0550061-004-AC]

PERFORMANCE RESTRICTIONS

2. Restricted Operation: The hours of operation of the solids loadout systems are not limited (8,760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

3. Temporary Stillage Storage If the solids cannot be immediately combusted in the BFB biomass boiler, they can be temporarily stored in situ for no more than 3 days (72 hours) before they must be either transferred to a closed container or removed from the site and either land applied at agronomic rates or disposed of at a permitted municipal landfill. As part of the OCP, solids storage and disposal procedures must be submitted to the Compliance Authority no later than 90 days prior to commencing operation. These procedures must address, at a minimum, the design of the solids storage area and how leaching into the ground will be prevented, the procedures that will be used to prevent objectionable odors from the solids storage area, and plans to prevent fugitive PM and VOC emissions and the method(s) of solids disposal that will be used including off-site transport. [Rule 62-4.070, F.A.C., Reasonable Assurance and Rule 62-296.320(2), F.A.C., Objectionable Odors]

EMISSIONS STANDARDS

4. VOC Emissions: Emissions from the solids loadout system will consist of fugitive VOC. These emissions are not controlled. To minimize VOC emissions the stillage cake shall be maintained at as close to the ambient temperature as possible. According to the permittee, due to the high moisture content of the solids (50 to 65 percent) fugitive PM emissions should be minimal. [Application No. 0550061-004-AC and Rule 62-4.070, F.A.C. Reasonable Assurance]

DRAFT

{Permitting Note: The permittee estimates that VOC emissions from the stillage loadout system will be 1.9 lbs/hr and 8.4 TPY.}

RECORDS AND REPORTS

5. Notification, Recordkeeping and Reporting Requirements: The permittee shall maintain records of the amount of solids (tons) produced and fed to the biomass boiler on a daily, monthly and 12 month rolling total basis. If the boiler is not available for receiving the solids, the permittee shall maintain records of the disposal method used. These records shall be submitted to the Compliance Authority on an annual basis or upon request. [Rule 62-4.070(3), F.A.C.]

DRAFT

D. Denaturant and Product Storage (EU-004)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
004	Denaturant and Product Storage: This emission unit includes one storage tank for denatured ethanol product and one gasoline (denaturant) storage tank. Each of these tanks will be designed with an internal floating roof. The facility will also include three ethanol product shift tanks. The shift tanks will be of fixed roof design and will be vented to the ethanol recovery absorber which in turn is vented to the RTO (EU 002). This emissions unit consists of ethanol and gasoline blending that results in the denatured ethanol final product. The resulting denatured product is stored in a single storage tank. The denatured product contains approximately 95 to 98 percent ethanol and 5 to 2 percent gasoline by volume with the resulting blended product commonly called E95 to E98.

EQUIPMENT

1. The permittee is authorized to construct the following tanks for product storage.
   a. Product Storage Tank: The permittee is authorized to construct one nominal 472,000 gallon ethanol product storage tank with a fixed roof and an internal floating roof to minimize VOC emissions as per 40 CFR 60.110b(a)(2).
   b. Product Shift Tanks: The permittee is authorized to construct three nominal 38,500 gallon product shift tanks which will be vented to an ethanol recovery absorber and then to the RTO.
   c. Gasoline (Denaturant) Storage Tank: The permittee is authorized to construct one nominal 13,500 gallon gasoline (denaturant) storage tank with a fixed roof and an internal floating roof to minimize VOC emissions as per 40 CFR 60.110b(a)(2).

   [Application No. 0550061-004-AC]

PERFORMANCE RESTRICTIONS

2. Permitted Capacity: The maximum throughput (process) rate of the product storage emissions unit is 39.42 million gallons of ethanol in any consecutive twelve month period. The throughput of gasoline shall be no more than 2,074,737 gallons with a final product production rate of no more than 41,494,737 gallons of E95 in any consecutive twelve month period. [Application No. 0550061-004-AC and Rule 62-4.070, F.A.C. Reasonable Assurance]

3. Hours of Operation: The hours of operation of this emissions unit are not restricted (8,760 hours per year). [Application No. 0550061-004-AC and Rule 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

4. VOC Standard:
   a. *Product and Gasoline Storage Tanks*: Emissions of VOC from the product and gasoline storage tanks will be controlled by the proper construction of the tanks per 40 CFR 60.110b(a)(2).
   [Application No. 0550061-004-AC; Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]
   b. *Product Shift Tanks*: Emissions of VOC from the product shift tanks will be controlled by venting to an ethanol recovery absorber and then to the RTO.
   [Application No. 0550061-004-AC; Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

   {Permitting Note: The permittee estimated emissions from this emission unit to be and 1.37 TPY of VOC and less than 0.1 TPY of HAP.}

DRAFT

NSPS SUBPART KB APPLICABILITY

5. Volatile Organic Liquids (VOL) Storage Tanks: Four of the tanks in the product storage emissions unit at the BPH are subject to NSPS Subpart Kb which applies to any storage tank with a capacity greater than or equal to 19,813 gallons that is used to store VOL for which construction, reconstruction, or modification is commenced after July 23, 1984. Subpart Kb applies to the three product shift tanks because they are larger than 19,813 gallons but less than 39,890 gallons and store a liquid with maximum true vapor pressure greater 15 kilopascals (kPa) [2.18 pounds per square inch absolute or psia]. Subpart Kb also applies to the ethanol product storage tank because its capacity is greater than 39,890 gallons and it stores a liquid with maximum true vapor pressure greater 3.5 kilopascals (kPa) [0.51 psia]. Consequently, these four tanks are subject to the General Provisions (40 CFR 60, Subpart A) and the provisions of NSPS 40 CFR 60, Subpart Kb. The 13,000 gallon gasoline (denaturant) storage tank is not subject to Subpart Kb because the tank volume is less than 19,813 gallons per §60.110b(b). However, it will be equipped with a floating roof to meet BACT requirements to control VOC emissions.

RECORDS AND REPORTS

6. Storage Tank Records: The permittee shall keep readily accessible records showing the dimension of the storage tanks and an analysis showing the capacity of the storage tanks. Records shall be retained for the life of the facility. The permittee shall also keep records sufficient to determine the annual throughput of the various liquids for the storage tanks for use in the Annual Operating Report. [Rule 62-4.070(3) F.A.C]

7. NSPS Subpart Kb Reporting and Recordkeeping: The owner or operator of each storage vessel as specified in §60.112b(a) shall keep records and furnish reports as required by paragraphs (a), (b), or (c) of §60.115b Reporting and Recordkeeping Requirements. The owner or operator shall keep copies of all reports and records required by§60.115b, except for the record required by (c)(1), for at least 2 years. The record required by (c)(1) will be kept for the life of the control equipment. [40 CFR 60, Subpart Kb]

DRAFT

E. Anaerobic Digestion, Biogas Conditioning and Biogas Backup Flare (EU-005)

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
005	Anaerobic Digestion, Biogas Conditioning and Biogas Backup Flare: The BPH will include an anaerobic digestion system to treat process wastewaters and recover energy from the thin stillage by generating a biogas. The biogas produced by the anaerobic reactors will be burned in the biomass boiler (EU 006). The anaerobic digestion system emission unit will include a backup flare in the event that biogas cannot be combusted in the biomass boiler. The biomass boiler and flare will each be designed with a maximum biogas heat input capacity of up to 100 MMBtu/hr. To reduce SO_2 emissions, the anaerobic digestion system will be equipped with a hydrogen sulfide (H_2S) removal system for the biogas combusted in the flare; the biomass boiler is equipped with SO_2 pollution control devices so that H2S removal is not required.

EQUIPMENT

1. Anaerobic Digestion System: If necessary, the permittee is authorized to construct a anaerobic digestion system that may consist of the following major pieces of equipment:
   - Anaerobic Reactor;
   - Anaerobic Settling Tank; and
   - Aerated Effluent Tank

   [Application No. 0550061-004-AC]

2. Biogas Flare System: The permittee is required to construct one flare system with a continuous pilot and combustion chambers to combust biogas when the biomass boiler is not available or does not have sufficient available capacity. The flare shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. [Application No. 0550061-004-AC and 62-210.200(PTE), F.A.C.]

3. Biogas Conditioning System: The permittee shall install a biogas conditioning system to remove H_2S from the biogas prior to combustion in the flare. The conditioning system shall have a H_2S removal efficiency of 98 percent which equates to an SO_2 emission rate from the flare when burning biogas of 10 lb SO_2/hr. [Application No. 0550061-004-AC and 62-210.200(PTE), F.A.C.]

PERFORMANCE RESTRICTIONS

3. Biogas Flare Capacity: The flare system is designed to combust biogas when the biomass boiler is not available or does not have sufficient available capacity. The biogas flare will have a rated capacity of 100 MMBtu/hr. Natural gas will be used as fuel for the pilot which has a rated capacity of 0.18 MMBtu/hr. [Application No. 0550061-004-AC and Rule 62-210.200(PTE), F.A.C.]

4. Required Operation: The flare shall be operated at all times when all the biogas generated by the anaerobic digestion system cannot be combusted in the biomass boiler.
   [Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

5. Hours of Operation: The hours of operation of the biogas flare system is not limited (8,760 hours per year). [Application No. 0550061-004-AC and Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

6. VE Standard: The biogas flare shall be designed for and operated with no visible emissions (VE) except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [Rules 62-4.070(3), F.A.C.]

DRAFT

TESTING AND MONITORING REQUIREMENTS

7. VE Compliance Tests: The biogas flare exhaust shall be tested to demonstrate initial compliance with the VE standard given in **Specific Condition 7** of this subsection no later than 180 days after initial operation of the unit and during each federal fiscal year (October 1st to September 30th) thereafter. EPA Method 22 VE compliance test(s) shall be used to determine the compliance of the flare with the visible emission requirements. The observation period is 2 hours and shall be used according to Method 22. The flare performance test shall be performed when ethanol is being loaded into trucks that previously held gasoline. [Rule 62-4.070(3), F.A.C.]

8. 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.]

9. Test Methods: Any required stack tests shall be performed in accordance with the following methods:

EPA Method	Description of Method and Comments
22	Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares 2 Hour Duration

10. Work Practice: Good combustion practices will be utilized at all times to ensure emissions from the flare system are minimized. Therefore, all operators and supervisors shall be properly trained to operate and ensure maintenance of this system in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating practices as well as methods for minimizing excess emissions. The flare pilot shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. [Rules 62-4.070(3) F.A.C.]

RECORDS AND REPORTS

11. Records: The permittee shall record in a written log the duration of each flare event and the reason for flaring. If requested by the Compliance Authority, the permittee shall provide a copy of these records or a summary of these records. [Rule 62-4.070(3), F.A.C.]

12. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix CTR (Common Testing Requirements) of this permit. [Rule 62-297.310(8), F.A.C.]

DRAFT

F. Biomass and Natural Gas Fired BFB Boiler (EU-006)

This section of the permit addresses the following emissions units.

EU ID 006	Emission Unit Description
	Biomass and Natural Gas Fired BFB Boiler (EU-006) *Description*: The boiler will be a biomass-fueled bubbling fluidized bed (BFB) boiler wherein biomass (solid and gaseous) is combusted either above or within a bed of hot sand. The boiler will also have the capability to burn natural gas as a supplemental and backup fuel. The heat from the exhaust will be recovered to generate superheated steam to be used in the ethanol production process. In addition, the steam will be used in a steam turbine generator to produce as much 7.6 megawatts (MW) of power for the project site. The electricity will not be sold to the grid and is solely intended for plant purposes. *Fuels*: The solids described for EU 003 and the biogas produced in the anaerobic reactors of emission unit 005 will be used as the principal fuel in the BFB boiler. In addition, the boiler will be capable of combusting natural gas as a supplemental and backup fuel. *Capacity*: The maximum heat input capacity to the BFB boiler is 270 MMBtu per hour (4-hour average). The breakdown of heat input rates is: 170 MMBtu/hr from stillage cake and other biosolids; 100 MMBtu/hr from biogas; or 250 MMBtu/hr from natural gas. The steam production capability will be between approximately 124,000 and 165,000 lb steam/hr. *Controls*: Efficient combustion of biomass and biogas in the BFB boiler to minimize the formation of $PM/PM_{10}/PM_{2.5}$, NO_X, CO and VOC; use of biomass, biogas and clean natural gas to minimize HAP formation; use of inherently clean natural gas as a supplemental and backup fuel; Selective Non-Catalytic Reduction (SNCR) with aqueous ammonia or urea injection to destroy NO_X; limestone injection into the BFB boiler and dry sorbent injection to control SO_2 and hydrogen chloride (HCl); and a fabric filter baghouse to further control $PM/PM_{10}/PM_{2.}5$ and VE, i.e., opacity. *Stack Parameters*: Flue gas from the BFB boiler will discharge to the atmosphere via a stack with a design height of at least 130 feet and diameter of 7 feet. The flue gas exit temperature will be approximately 180°F with a design volumetric flow rate of 116,244 actual cubic feet per minute (ACFM). *Continuous emissions and opacity monitoring systems (CEMS, COMS)*: Emissions of CO, NO_X and SO_2 will be monitored and recorded by CEMS. VE (opacity) will be monitored and recorded by COMS. *Applicability of 40 CFR Subpart Db (NSPS Subpart Db)*: The BFB boiler is subject to NSPS Subpart Db - Industrial-Commercial-Institutional Steam Generating Units because each has a maximum heat input capacity greater than 100 MMBtu/hr from combusted fuels and is not subject to NSPS Subpart Da because it will not generate 25 or more MW of electricity. [Application No. 0550061-004-AC]

{Permitting Note: In accordance with Rule 62-212.400, F.A.C., the Department established permit standards for the biomass-fueled boilers that represent the Best Available Control Technology (BACT) for emissions of NO_X, $PM_{10}/PM_{2.5}$, VOC, SO_2, and CO. The biomass-fueled boiler is subject to the federal New Source Performance Standards (NSPS) in Subpart Db (industrial boilers) of 40 CFR 60, which is adopted by reference in Rule 62-204.800, F.A.C. NSPS Subpart Db for Industrial Boilers is provided in Appendix Db of this permit.}

EQUIPMENT

1. Construction of BFB Boiler: The permittee is authorized to construct one BFB boiler with a maximum heat input rate of 270 MMBtu/hr on a 4-hour average for steam generation at the BPH. The BFB boiler will include a fluidizing air supply, fossil fuel startup and supplemental fuel burners, overfire air ports, steam drum, superheater, economizer, air heater, ash hoppers, ducts, fuel feeding equipment, air pollution control equipment and other associated equipment. [Application No. 0550061-004-AC]

2. Air Pollution Control Equipment: To comply with the emission standards of this permit, the permittee shall install the following air pollution control equipment on the BFB boiler.

DRAFT

a. Baghouse: The permittee shall design, install, operate and maintain a baghouse to achieve the $PM_{10}/PM_{2.5}$ standards specified in this subsection. The baghouse shall have a design control efficiency greater than 99 percent. The baghouse shall be on line and functioning properly in accordance with manufacturer guidelines whenever the boiler is in operation.

b. SNCR System: The permittee shall design, install, operate, and maintain a SNCR system to achieve the NO_X emissions standards specified in this subsection. The SNCR shall be on line and functioning properly in accordance with manufacturer guidelines whenever the boiler is in operation. . Either aqueous ammonia (19% solution or less) or urea may be used with the system.

c. Limestone Injection System: The permittee shall design, install, operate, and maintain a limestone injection system for the BFB boiler to achieve the SO_2 and HCl emissions standards specified in this subsection. The limestone injection system shall be on line and functioning properly in accordance with manufacturer guidelines whenever the boiler is in operation.

d. Dry Sorbent Injection (Scrubber): The permittee shall design, install, operate, and maintain a lime based dry sorbent injection system (scrubber) to achieve the SO_2 and HCl emissions standards specified in this subsection. The scrubber shall be on line and functioning properly in accordance with manufacturer guidelines whenever the boiler is in operation.

e. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

{Permitting Note: Good combustion practices (GCP) will be used to control emissions of CO and VOC to the limits specified in this permit.}

[Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

PERFORMANCE REQUIREMENTS

3. Authorized Fuels: The BFB boiler is authorized to combust as its primary fuels: stillage cake and other biosolids as described in EU 003 and the biogas produced in the anaerobic reactors (EU 005). In addition, the boiler is authorized to combust natural gas as a supplemental and backup fuel.
[Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

4. Boiler Heat Input Rate: The maximum heat input rate from all fuel combinations to the BFB boiler is 270 MMBtu/hr (4 hour average). The natural gas burners must be physically constrained such that no more the 250 MMBtu/hr of input can be derived from natural gas. The maximum heat input from biogas is 100 MMBtu/hr while the maximum heat input from stillage cake and other biosolids is 170 MMBtu/hr.
[Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

5. Hours of Operation: The hours of operation of the BFB boiler are not restricted (8,760 hours/year).
[Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

6. Good Combustion Practices (GCP): The emission standards established by this permit rely on "good combustion practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the steam generating unit and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good combustion practices as well as methods of minimizing excess emissions.
[Rule 62-4.070(3), F.A.C. and 62-212.400(5), F.A.C.]

NSPS APPLICABILITY

7. Subpart Db: The BFB boiler must meet all applicable requirements of NSPS 40 CFR 60, Subpart Db – Industrial-Commercial-Institutional Steam Generating Units. Subpart Db is contained in Appendix Db of this permit. For the biomass boiler, NSPS Subpart Db contains limits for SO_2, NO_X, PM and opacity.
[Application No. 0550061-004-AC and 40 CFR 60, NSPS Subpart Db]

DRAFT

F. Biomass and Natural Gas Fired BFB Boiler (EU-006)

NESHAP APPLICABILITY

8. Subpart JJJJJJ: The BFB boiler is subject NESHAP 40 CFR 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. Subpart JJJJJJ is contained in Appendix JJJJJJ of this permit. Subpart JJJJJJ contains emission limits for filterable PM (0.03 lb/MMBtu for a fluidized bed boiler). Monitoring requirements include either a fabric filter leak detection system or compliance with an opacity limit of 10 percent or less (continuous opacity monitor system - COMS). [Application No. 0550061-004-AC and NESHAP Subpart JJJJJJ]

EMISSIONS STANDARDS

9. Emission Limits: Emissions from the BFB boiler at BPH shall not exceed the following standards. All emission standards except PM, HCl and ammonia (NH_3) are determinations of BACT.

Pollutant	Initial (I) or Annual (A) Test		CEMS/COMS Based Averages	
NO_X [a]	N/A	N/A	21.6 lb/hr 30 day rolling average	0.080 lb/MMBtu 30 day rolling average
SO_2 [b]	N/A	N/A	16.2 lb/hr, 30 day rolling average	0.060 lb/MMBtu 30 day rolling average
CO	N/A	N/A	27.0 lb/hr 30 day rolling average	0.10 lb/MMBtu 30 day rolling average
HCl [c]	2.15 lb/hr 9.42 TPY	(I,A)	N/A	N/A
PM [d, e]	0.03 lb/MMBtu (f)	(I,A)	10 percent (%) opacity (6-minute blocks) 20% opacity (one 6-minute block per hour)	
$PM_{10}/PM_{2.5}$ [f]	2.7 lb/hr (f) 13.5 lb/hr (f + c) 0.010 lb/MMBtu (f) 0.050 lb/MMBtu (f + c)			
VOC	1.35 lb/hr 0.005 lb/MMBtu	(I) [g]	Not applicable	
NH_3 Slip [h]	20 ppmvd @ 7% O_2 3.44 lb/hr	(I,A)	Not applicable	

a. CEMS based NO_X limit in pounds per million Btu heat input (lb/MMBtu) will ensure compliance with NSPS Subpart Db NO_X limit of 0.30 lb NO_X/MMBtu.
b. CEMS based SO_2 limit in lb/MMBtu will ensure compliance with NSPS Subpart Db SO_2 limit of 0.20 lb SO_2/MMBtu.
c. Mass HCl emission limit insures annual emissions will be less than 10 TPY. This limit will be validated by an initial stack test. So long as this HCl emission limit is met during the initial stack test, the HCl CEMS required in the previous permit for this project will no longer be required to provide reasonable assurance to the Department that the BPH is not a major source of HAP
d. f = filterable PM. Compliance with this PM mass emission limit insures compliance with the NSPS Subpart Db and NESHAP Subpart JJJJJJ limits of 0.030 lb PM/MMBtu (filterable PM).
e. Meeting these opacity limits ensures compliance with the opacity requirements NSPS Subpart Db. During startups, shutdowns and malfunction the following limits apply: 20% opacity (6-minute blocks) except for one 6-minute block per hour of 27%.
f. c = condensable PM. The $PM_{10}/PM_{2.5}$ (filterable + condensable) emission limit is an initial BACT limit. This limit may be either decreased or increased in the future based on stack test results. During the BPH first year of operation, biannually testing for f + c $PM_{10}/PM_{2.5}$ shall be conducted by the applicant using EPA Hybrid Method 201A/202. Based on results from these tests (total of three) and in consultation with the permittee, the f + c $PM_{10}/PM_{2.5}$ limit may be adjusted to reflect actual achievable emissions.
g. .Compliance shall be demonstrated by an initial stack test and subsequent stack tests to be performed prior to permit renewal cycles

DRAFT

h. NH_3 slip in parts per million by dry volume at 7% oxygen (ppmvd @ 7% O_2).

[Application No. 0550061-004-AC; Rule 62-212.400(10) (PSD), Control Technology Review; and 40 CFR 60, Subpart Db]

10. Continuous Monitoring Requirements: The permittee shall install, calibrate, maintain and operate CEMS, a COMS and a diluent monitor to measure and record the emissions of SO_2, NO_X and CO and opacity from the BFB biomass boiler stack in a manner sufficient to demonstrate continuous compliance with the CEMS-based and COMS-based emission standards in **Specific Condition 9** of this subsection. Each CEMS and COMS shall be installed, calibrated and properly functioning within 60 calendar days of achieving permitted capacity as defined in Rule 62-297.310(2), F.A.C., but no later than 180 calendar days after initial startup and prior to the initial performance tests. Within one working day of discovering emissions in excess of a SO_2, NO_X and CO standard (and subject to the specified averaging period), the permittee shall notify the Compliance Authority.

    a. SO_2 CEMS: The SO_2 CEMS shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Recordkeeping and reporting shall be conducted pursuant to Subparts F and G in 40 CFR 75.

    b. NO_X CEMS: The NO_X CEMS shall be certified, operated, and maintained in accordance with the requirements of 40 CFR Part 75. Recordkeeping and reporting shall be conducted pursuant to Subpart Db in 40 CFR 60 and Subparts F and G in 40 CFR 75.

    c. CO CEMS: The CO CEMS shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

    d. COMS: In accordance with 40 CFR 60.48b(a) the permittee shall install, calibrate, operate and maintain a continuous opacity monitor (COM) to continuously monitor and record opacity from the steam generating unit. The COMS shall be certified pursuant to 40 CFR 60 Appendix B, Performance Specification 1.

    e. Diluent Monitor: The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where CO and NO_X are monitored. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

    *{Permitting Note: Per **footnote c** of **Specific Condition 9** of this subsection, if the HCl emission rate exceeds 2.15 lb/hr (9.42 TPY) an HCl CEMS shall be installed: The HCl CEMS shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 15. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F.}*

    [Rule 62-212.400(10), F.A.C.; Rule 62-210.200(PTE), F.A.C.; Rule 62-4.070(3), F.A.C.; and 40 CFR 60, Subpart Db and Appendices]

STARTUP, SHUTDOWN, AND MALFUNCTION REQUIREMENTS

11. Malfunction Notifications: In case of excess emissions resulting from malfunctions, each owner or operator shall notify the Compliance Authority in accordance with the following. If the permittee is temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by hazard of fire, wind or by other cause, the permittee shall immediately (within one working day) notify the Compliance Authority. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee

DRAFT

from any liability for failure to comply with Department rules. If requested by the Compliance Authority, the owner or operator shall submit a quarterly written report describing the malfunction. [Rules 62-210.700(6) and 62-4.130, F.A.C.]

12. Emission Limit Compliance and Excess Emission: Because of the long-term nature of all of the NO_X, SO_2 and CO mass emission rate limits and as part of PSD and the associated BACT determination, all emissions data for these pollutants, including periods of startup, shutdown and malfunction, shall be included in any compliance determinations based on CEMS data.
[Rule 62-210.700(4), 62-210.200(PTE); Rule 62-212.400(10) (PSD), Control Technology Review; and Rule 62-4.070(3), F.A.C.]

13. Excess Emissions Allowed – Opacity Requirements: As provided by the authority in Rule 62-210.700(5), F.A.C., the following conditions supersede the provisions in Rule 62-210.700(1), F.A.C.
    a. Opacity: During startup, shutdown and malfunctions, the stack opacity shall not exceed 20 percent based on a 6-minute block average, except for one 6-minute block per hour that shall not exceed 27 percent opacity.
    [Rule 62-210.700(5), 62-210.200(PTE); Rule 62-212.400(10) (PSD), Control Technology Review; and Rule 62-4.070(3), F.A.C.]

TESTING REQUIREMENTS

14. Boiler Performance Test: Within 180 days of first fire on the primary fuels (stillage cake/biosolids, biogas and natural gas); the permittee shall conduct a test to determine the boiler thermal efficiency. The test shall be conducted in general abbreviated accord with ASME PTC 4, 1998 (See Appendix ASME of this permit). The abbreviated test procedure shall be agreed upon by all parties. The test shall be conducted when firing only the primary fuels with as close of fuel mix and heating values to the boiler design fuel mix and heating value as practical and shall be at least three hours long. The boiler steam conditions and production rate shall be monitored and recorded during the test. The primary fuels firing rates (tons per hour and cubic feet per minute as appropriate) shall be calculated and recorded based on the steam parameters. A sample of the as-fired stillage cake/biosolids shall be analyzed for the heating value (Btu/lb) and moisture content (percent). A sample of the as-fired biogas shall be analyzed for the heating value (Btu/ft^3). The actual heat input rate (MMBtu/hour) shall be determined using two methods: (a) steam parameters with enthalpies and the measured thermal efficiency, and (b) steam parameters with enthalpies and the design boiler thermal efficiency. Results of the test shall be submitted to the Compliance Authority within 45 days of completion. The boiler thermal efficiency test shall be repeated during the 12-month period prior to renewal of any operation permit. If the tested boiler thermal efficiency is less than 90 percent of the design boiler thermal efficiency, then the tested thermal efficiency shall be used in any future calculations of the heat input rate until a new test is conducted. [Applicant's Request and Rule 62-4.070(3), F.A.C.]

15. Initial and Annual Stack Tests: In accordance with test methods specified in this permit, the BFB boiler shall be tested to demonstrate initial compliance with the emission standards for ammonia slip, filterable $PM_{10}/PM_{2.5}$, filterable + condensable $PM_{10}/PM_{2.5}$, VOC, opacity and HCl. The tests shall be conducted within 60 days after achieving the maximum heat input rate to the BFB boiler, but not later than 180 days after the initial startup of the boiler. Subsequent compliance stack tests for ammonia slip, filterable $PM_{10}/PM_{2.5}$, VOC and HCl shall also be conducted during each federal fiscal year (October 1st to September 30th). Tests shall be conducted between 90 percent and 100 percent of the maximum heat input rate when firing only the primary fuels. CEMS data for CO, NO_X and SO_2 along with COMS data for opacity shall be reported for each run of the required stack tests for ammonia slip, filterable $PM_{10}/PM_{2.5}$, VOC and HCl. The Department may require the permittee to repeat some or all of these initial stack tests after major replacement or major repair of any air pollution control or process equipment.
[Rules 62-212.400(5)(c) and 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]

{Permitting Note: All initial tests must be conducted between 90 percent and 100 percent of permitted capacity; otherwise, this permit will be modified to reflect the true maximum capacity as constructed.}

DRAFT

16. Test Methods: Any required stack tests shall be performed in accordance with the following methods.

EPA Method	Description of Method and Comments
CTM-027 320	Measurement of Ammonia Slip *or* Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content *{Notes: Methods shall be performed as necessary to support other methods.}*
5	PM; also for determination of filterable fractions of PM_{10} and $PM_{2.5}$ as an alternative to Method 201A.
6C	Measurement of SO_2 Emissions (Instrumental)
7E	Measurement of NO_X Emissions (Instrumental)
9	Visual Determination of the Opacity
10B	Measurement of CO Emissions (Instrumental) *{Note: The method shall be based on a continuous sampling train.}*
18	Measurement of Gaseous Organic Compound Emissions (Gas Chromatography) *{Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the total hydrocarbons (THC) emissions measured by Method 25A.}*
19	Calculation Method for NO_X, PM, and SO_2 Emission Rates
25	Determination of Total Gaseous Nonmethane Organic Emissions as Carbon
25A	Measurement of Gaseous Organic Concentrations (Flame Ionization)
26	Determination of Hydrogen Chloride (HCl) Emissions from Stationary Sources
201A	Determination of PM_{10} and $PM_{2.5}$ Emission from Stationary Sources (constant sampling rate procedure)
202	Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources

Method CTM-027 is published on EPA's Technology Transfer Network Web Site at http://www.epa.gov/ttn/emc/ctm.html . The other methods are specified in Appendix A of 40 CFR 60, 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 Compliance Authority.
[Rules 62-204.800, F.A.C. and 40 CFR 60, Appendix A]

17. Filterable + Condensable $PM_{10}/PM_{2.5}$ Stack Testing: During the first year of operation, the BPH shall conduct filterable + condensable $PM_{10}/PM_{2.5}$ stack testing biannually (total of three tests). Based on these stack tests, the Department in consultation with the permittee shall determine if the current filterable + condensable $PM_{10}/PM_{2.5}$ BACT limit of 0.05 lb/MMBtu is reasonable or needs revision to a higher or lower limit. If a revision of the limit is deemed necessary, this permit will be modified accordingly.
[Rule 62-210.700(4), 62-210.200(PTE); Rule 62-212.400(10) (PSD), Control Technology Review; and Rule 62-4.070(3), F.A.C.]

OTHER MONITORING REQUIREMENTS

18. Steam Parameters: In accordance with the manufacturer's recommendations, the permittee shall install, calibrate, operate and maintain continuous monitoring and recording devices for the following parameters: steam temperature (°F), steam pressure (psig) and steam production rate (lb/hour). Records shall be maintained on site and made available upon request.
[Applicant's Request; Rules 62-4.070(3) and 62-212.400(5), F.A.C.]

19. Fuel Flow Meter: A fuel flow meter shall be installed on the BFB boiler to record the amount of natural gas used in the BFB boiler on an hourly, monthly and 12 month rolling total average basis.
[Rule 62-4.070(3), Reasonable Assurance]

DRAFT

20. Natural Gas Usage Limit: The combined natural gas usage in the BFB and peaking boiler at the BPH shall not exceed 1,085 MMscf/yr in any consecutive 12 month period. Each year, records of the monthly natural gas usage in the BFB and peaking boiler shall be recorded. The records shall be maintained on site for 5 years and made available upon request. Within 30 days of the end of each federal fiscal year, the records of natural gas used during that year shall be submitted to the Compliance Authority. [Rule 62-4.070(3), Reasonable Assurance]

21. Pressure Drop: The permittee shall maintain and calibrate a device which continuously measures and records the pressure drop across each baghouse compartment. Pressure drop records shall be maintained on site and made available upon request. [Rule 62-4.070(3), F.A.C. and 40 CFR 63.548(c)(1)]

22. Bag Leak Detection: The permittee shall maintain continuous operation of bag leak detection system on the BFB boiler baghouse. Baghouse leak detection records shall be kept on site and made available upon request. [Rule 62-4.070(3), F.A.C. and 40 CFR 63.548]

23. SNCR Reagent Injection: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain a flow meter to measure and record the reagent injection rate for the SNCR system for the BFB boiler. The permittee shall document the general range of reagent flow rates required to meet the NO_X standard over the range of load conditions by comparing NO_X emissions with reagent flow rates. During NO_X CEMS downtimes or malfunctions, the permittee shall operate at a reagent flow rate that is consistent with the documented flow rate for the given load condition. Reagent injection records shall be maintained on site and made available upon request. [Rules 62-4.070(3) and 62-212.400(5), F.A.C.]

RECORDS AND REPORTS

20. Stack Test Reports: In addition to the information required in Rule 62-297.310(8), F.A.C., each stack test report shall also include the following information: steam production rate (lb/hour), heat input rate (MMBtu/hour), calculated authorized fuels firing rate (tons/hour and cubic feet per minute as appropriate), and emission rates (lb/MMBtu, ppmvd @ 7% oxygen and lb/hr as appropriate). [Rule 62-4.070(3), F.A.C.]

21. Monthly Operations Summary: By the tenth calendar day of each month, the permittee shall record the following parameters for the BFB boiler in a written or electronic log for the previous month of operation: hours of operation, tons of stillage/biosolids and cubic feet of biogas, pounds of steam, total heat input rate and the updated 12-month rolling totals for each of these operating parameters. Million cubic feet of natural gas used shall be recorded in a written or electronic log for the previous month of operation along with the updated 12-month rolling totals. In addition, the hourly heat input rate to each biomass boiler shall be recorded and reported. The Monthly Operations Summary shall be maintained on site and made available for inspection when requested by the Department. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

22. Quarterly CO, NO_X, SO_2 and Opacity Emissions Report: Within 30 days following the end of each quarter, the permittee shall submit a report to the Compliance Authority summarizing CO, NO_X, SO_2 and opacity including periods of startups, shutdowns, malfunctions, and CEMS and COMS systems monitor availability for the previous quarter. If COMS data is excluded from a compliance determination during the quarter due to a startup, shutdown or malfunction, the permittee shall include a description of the malfunction, the actual emissions recorded, and the actions taken to correct the malfunction. If a COMS reading detects an opacity limit threshold breakthrough and the readings are believed to be suspect (e.g., high moisture on the COMS lens due to weather changes), then the permittee is allowed to use data from the broken bag detectors and/or Method 9 visible opacity measurements to substantiate errors, problems, or malfunctions with the COMS unit. See Appendix CTR of this permit for the reporting format. [Rules 62-4.070(3), 62-4.130 and 62-210.400(5)(c), F.A.C.]

DRAFT

G. Natural Gas-Fired Peaking Boiler (EU-007)

This section of the permit addresses the following emissions unit.

EU ID No. 007	Emission Unit Description
Natural Gas-Fired Peaking Boiler (EU-007) *Description*: The peaking boiler is to be used to produce steam during peak process demand conditions and auxiliary steam if the BFB boiler is not available. *Fuels*: The peaking boiler is fueled by natural gas. *Capacity*: The designed maximum heat input capacity to the peaking boiler is 95 MMBtu per hour (4-hour average). The steam production capability will be between approximately 50,000 to 60,000 pounds per hour (lb/hr). *Controls*: Efficient combustion of clean natural gas to minimize the emissions of PM, NO_X, CO, VOC and HAP. Efficient combustion and clean natural gas to minimize VE. Either Ultra-low NO_X burners, or a combination of Low-NO_X burners and flue gas recirculation (FGR) will be used to further minimize NO_X emissions. *Stack Parameters*: Flue gas from the peaking boiler will discharge to the atmosphere via a stack with a design height of at least 32.83 feet and a design diameter of 4 feet. The flue gas exit temperature will be approximately 350°F with a design volumetric flow rate of 29,590 ACFM. *CEMS/COMS*: No CEMS or COMS required. *Applicability of 40 CFR Subpart Dc (NSPS Subpart Dc)*: This unit is subject to NSPS Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units because it has a designed maximum heat input capacity not greater than 100 MMBtu/hr from the fuels combusted. [Application No. 0550061-004-AC]	

EQUIPMENT

1. Construction of Natural Gas Fueled Peaking Boiler: The permittee is authorized to construct one peaking boiler with a design heat input rate of 95 MMBtu/hr for steam generation at BPH. The peaking boiler will include an air supply, ultra-low NO_X burners (or alternatively, low-NO_X burners combined with FGR), overfire air ports, steam drum, economizer, air heater, ducts, fuel feeding equipment, air pollution control equipment and other associated equipment. [Application No. 0550063-001-AC]

2. Air Pollution Control Equipment: To comply with the emission standards of this permit, the permittee shall install the one of the following air pollution control equipment systems on the peaking boiler.

   a. Ultra-low NO_X Burners: The permittee shall design, install, operate and maintain ultra-low NO_X burners on the peaking boiler to control NO_X emissions in the flue gas exhaust and achieve the NO_X standards specified in this subsection.

   b. Low-NO_X Burners and FGR: The permittee shall design, install, operate and maintain low-NO_X burners and a FGR system on the peaking boiler to reduce NO_X emissions in the flue gas exhaust and achieve the NO_X standards specified in this subsection.

   {Permitting Note: to control emission of SO_2 to the limits specified in this subsection natural gas will be used in the peaking boiler. Natural gas, and GCP will be used to control emissions of $PM_{10}/PM_{2.5}$, NO_X, CO, VOC, HAP and VE to the limits specified in this subsection.} [Application No. 0550061-004-AC; Rule 62-212.400(10) (PSD), Control Technology Review; Rule 62-4.070(3), and Rule 62-210.200(PTE), F.A.C.]

DRAFT

G. Natural Gas-Fired Peaking Boiler (EU-007)

PERFORMANCE RESTRICTION

3. Authorized Fuels: The peaking boiler is authorized to combust natural gas as its primary fuel. The natural gas shall be limited to 2 grains of sulfur per 100 standard cubic feet (2 gr/scf). [Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

4. Boiler Heat Input Rate: The maximum heat input rate from for the peaking boiler is 95 MMBtu/hr (4 hour average). [Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

5. Operational Hours: The hours of operation of the peaking boiler are not restricted (8,760 hours/year) [Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

6. Peaking Boiler Operation: The peaking boiler shall be used to provide steam during peak process demand conditions and auxiliary steam if the BFB boiler is not available.
[Application No. 0550061-004-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

NSPS APPLICABILITY

7. Subpart Dc: The peaking boiler must meet all applicable requirements of NSPS 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Subpart Dc is contained in Appendix Dc of this permit. For the peaking boiler, NSPS Subpart Dc contains notification, recordkeeping and reporting requirements.
[Application No. 0550061-004-AC and 40 CFR 60, NSPS Subpart Dc]

NESHAP APPLICABILITY

8. Subpart JJJJJJ: The peaking boiler is **not** subject to NESHAP 40 CFR 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources because it is considered a gas-fired unit. However to avoid being subject to this NESHAP the peaking boiler can only fire liquids fossil fuels during periods of natural gas curtailment. Subpart JJJJJJ is contained in Appendix JJJJJJ of this permit. [Application No. 0550061-004-AC and NESHAP Subpart JJJJJJ]

EMISSIONS STANDARDS

9. Emission Limits: Emissions from the peaking boiler at BPH shall not exceed the standards given in the table below. All emission standards are determinations of BACT. Unless otherwise stated, averaging time is the time of the test method.

Pollutant	Initial (I) or Annual (A) Test		CEMS/COMS Based Averages
NO_X	3.3 lb/hr	(I) [a]	Not applicable
	0.035 lb/MMBtu		
SO_2	0.53 lb/hr	FM [b]	Not applicable
	0.0056 lb/MMBtu		
CO	3.52 lb/hr	(I) [a]	Not applicable
	0.037 lb/MMBtu		
$PM_{10}/PM_{2.5}$ [c] (f)	0.38 lb/hr	(I) FM	Not applicable
	0.004 lb/MMBtu		
VOC	0.13 lb/hr	(I) [a]	Not applicable
	0.0014 lb/MMBtu		
Opacity [d, e]	10% opacity (6-minute blocks), 20% opacity (one 6-minute block per hour)	(I) [a]	Not applicable

DRAFT

a. Compliance shall be demonstrated by initial stack testing and upon permit renewal.
b. FM = fuel monitoring to show sulfur content of the natural gas is 2 gr/scf or less. Vendor certification may be used in lieu of testing.
c. Filterable $PM_{10}/PM_{2.5}$ limits.
d. During startups, shutdowns and malfunction the following limits apply: 20% opacity (6-minute blocks) except for one 6-minute block per hour of 27%.
e. Opacity limits during normal operation of the backup boiler.

[Application No. 0550061-004-AC; Rule 62-212.400(10) (PSD), Control Technology Review]

TESTING REQUIREMENTS

10. Boiler Performance Test: Within 180 days of first fire on the natural gas, the permittee shall conduct a test to determine the peaking boiler thermal efficiency. The test shall be conducted in general abbreviated accord with ASME PTC 4, 1998 (See Appendix ASME of this permit). The abbreviated test procedure shall be agreed upon by all parties. The test shall be conducted when firing only natural gas and shall be at least three hours long. The boiler steam conditions and production rate shall be monitored and recorded during the test. The fuel firing rate in cubic feet per minute shall be calculated and recorded based on the steam parameters. The actual heat input rate (MMBtu/hour) shall be determined using two methods: (a) steam parameters with enthalpies and the measured thermal efficiency, and (b) steam parameters with enthalpies and the design boiler thermal efficiency. Results of the test shall be submitted to the Compliance Authority within 45 days of completion. The boiler thermal efficiency test shall be repeated during the 12-month period prior to renewal of any operation permit. If the tested boiler thermal efficiency is less than 90 percent of the design boiler thermal efficiency, then the tested thermal efficiency shall be used in any future calculations of the heat input rate until a new test is conducted. [Applicant's Request and Rule 62-4.070(3), F.A.C.]

11. Initial and Annual Stack Tests: In accordance with test methods specified in this permit, the peaking boiler shall be tested to demonstrate initial compliance with the emission standards for CO, NO_X, $PM_{10}/PM_{2.5}$, SO_2, VOC and opacity. The tests shall be conducted within 60 days after achieving the maximum heat input rate to the boiler, but not later than 180 days after the initial startup of the boiler. Subsequent compliance stack tests for NO_X, CO, PM, SO_2, VOC and opacity shall also be conducted during each federal fiscal year (October 1st to September 30th). Tests shall be conducted between 90 percent and 100 percent of the maximum heat input rate when firing only the primary fuels. The Department may require the permittee to repeat some or all of these initial stack tests after major replacement or major repair of any air pollution control or process equipment. [Rules 62-212.400(5)(c) and 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]

{Permitting Note: All initial tests must be conducted between 90 and 100 percent of permitted capacity; otherwise, this permit will be modified to reflect the true maximum capacity as constructed.}

12. Test Methods: Any required stack tests shall be performed in accordance with the following methods.

EPA Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content *{Notes: Methods shall be performed as necessary to support other methods.}*
5	PM
6C	Measurement of SO_2 Emissions (Instrumental)
7E	Measurement of NO_X Emissions (Instrumental)
9	Visual Determination of the Opacity
10B	Measurement of CO Emissions (Instrumental) *{Note: The method shall be based on a continuous sampling train.}*
18	Measurement of Gaseous Organic Compound Emissions (Gas Chromatography) *{Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the THC emissions measured by Method 25A.}*

DRAFT

19	Calculation Method for NO_X, PM, and SO_2 Emission Rates
25	Determination of Total Gaseous Nonmethane Organic Emissions as Carbon
25A	Measurement of Gaseous Organic Concentrations (Flame Ionization)

The test methods are specified in Appendix A of 40 CFR 60, 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 Compliance Authority. [Rules 62-204.800, F.A.C. and 40 CFR 60, Appendix A]

OTHER MONITORING REQUIREMENTS

13. Steam Parameters: In accordance with the manufacturer's recommendations, the permittee shall install, calibrate, operate and maintain continuous monitoring and recording devices for the following parameters: steam temperature (°F), steam pressure (psig) and steam production rate (lb/hour). Records shall be maintained on site and made available upon request.
[Applicant's Request; Rules 62-4.070(3) and 62-212.400(5), F.A.C.]

14. Fuel Flow Meter: A fuel flow meter shall be installed on the peaking boiler to record the amount of natural gas used in the peaking boiler on an hourly, monthly and 12 month rolling total average basis.
[Rule 62-4.070(3), Reasonable Assurance]

15. Natural Gas Usage Limit: The combined natural gas usage in the BFB and peaking boilers at the BPH shall not exceed 1,085 MMscf/yr in any consecutive 12 month period. Each year, records of the monthly natural gas usage in the BFB and peaking boilers shall be recorded. The records shall be maintained on site for 5 years and made available upon request. Within 30 days of the end of each federal fiscal year, the records of natural gas used during that year shall be submitted to the Compliance Authority.
[Rule 62-4.070(3), Reasonable Assurance]

RECORDS AND REPORTS

16. Stack Test Reports: In addition to the information required in Rule 62-297.310(8), F.A.C., each stack test report shall also include the following information: steam production rate (lb/hour), heat input rate (MMBtu/hour), calculated authorized fuels firing rate in cubic feet per minute and emission rates (lb/MMBtu and lb/hr). [Rule 62-4.070(3), F.A.C.]

17. Monthly Operations Summary: By the tenth calendar day of each month, the permittee shall record the following in a written or electronic log for the previous month of operation: hours of operation, cubic feet of natural gas, pounds of steam per month, total heat input rate and the updated 12-month rolling totals for each of these operating parameters. In addition, the hourly heat input rate to the peaking boiler shall be recorded and reported. The Monthly Operations Summary shall be maintained on site and made available for inspection when requested by the Department. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

DRAFT

H. Cooling Tower (EU-008)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
008	Four cell induced draft cooling tower: An induced draft evaporative cooling tower will provide cooling of process water for the project. The tower will be of rectangular mechanical-draft design with four cells. Each cell will be equipped with its own fan and a high efficiency drift eliminator to minimize water drift losses. The flow rate will be approximately 50,000 gallons per minute. Total dissolved solids in the cooling water are expected to be approximately 2,750 mg/l.

EQUIPMENT

1. Cooling Tower: The permittee is authorized to install one new 4-cell induced draft cooling tower with the following design characteristics: a circulating water flow rate of 50,000 GPM; design water temperature of 94 °F; a design air flow rate of 5,881,420 ACFM; design stack height of 54.10; design exit diameter of 32.8; and drift eliminators. [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.]

PERFORMANCE RESTRICTIONS

2. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

3. Drift Rate: Within 60 days of commencing operation, the permittee shall certify that the cooling tower was constructed to achieve the specified drift rate of no more than 0.0005 percent of the circulating water flow rate. [Rule 62-212.400(BACT), F.A.C.]

4. VOC Emissions: VOC emissions can occur from cooling towers used in chemical plants, where the circulating water is used to cool down hydrocarbon process streams. While the process heat exchangers will be designed to prevent contact of the cooling water with the process streams, leaks in the process heat exchangers can occur. The VOCs that would consequently enter the cooling water would ultimately be stripped out by the cooling tower's air flow. Therefore, the permittee shall control VOC emissions by promptly repairing any leaking components in accordance with the approved LDAR plan. The permittee shall collect a sample of cooling water on a weekly basis and analyze it for VOCs to enable the early detection of leaking heat exchangers and thereby minimizing VOC emissions from the cooling tower. [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

   {Permitting Note: These work practice standards are established as BACT for PM_{10}/$PM_{2.5}$ and VOC emissions from the cooling tower. Based on this design criteria, potential emissions are expected to be approximately 1.5 tons of PM_{10} and $PM_{2.5}$ per year and 9.2 tons of VOC per year. Actual emissions are expected be lower than these rates.}.

TESTING AND MONITORING REQUIREMENTS

5. VOC Cooling Water Monitoring Plan: A test plan detailing how the cooling tower water shall be monitored for VOC contamination from leaking heat exchangers shall be submitted to the compliance authority for approval no later than 90 days before the BPH becomes operational.
   [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

DRAFT

6. VOC Water Testing Frequency: Testing of the cooling water shall be conducted weekly unless VOC contamination is found during one of the weekly tests. Then daily testing will be required until the problem is corrected.
[Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

7. Notification: The permittee shall notify the Compliance Authority in writing within 24 hours when VOC contamination of the cooling tower water is discovered. Additionally, the permittee shall submit a plan to correct the problem within 7 days for the approval of the Compliance Authority.
[Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

RECORDS AND REPORTS

8. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix CTR (Common Testing Requirements) of this permit.
[Rule 62-297.310(8), F.A.C.]

DRAFT

I. Miscellaneous Storage Silos (EU-009)

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
0092	Miscellaneous storage silos: The facility will include equipment and silos for the handling and storage of dry materials. These materials include nutrients for the propagation of the proprietary enzyme and microorganism, and materials associated with the biomass boiler. These materials will be stored in silos, each of which will be equipped with fabric filters (bin vent filters) to control emissions during material handling. The materials stored in these silos will be as follows: powdered cellulose; wheat bran; urea, ammonium sulfate; and potassium phosphate; ash; sand; limestone; and hydrated lime. In addition to these silos, there will be two day bins, one each for wheat bran and urea. These day bins will also be equipped with bin vent filters. All silos will have stacks with design diameters of 1.0 feet with design flow rates of 2,500 ACFM.

CONSTRUCTION

1. Miscellaneous Storage Silos: The permittee is authorized to construct the miscellaneous storage silos and day bins described above utilizing a bin vent filter to control PM emissions.
   [Application No. 0550061-004-AC]

PERFORMANCE RESTRICTION

2. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year). [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance].

EMISSIONS STANDARDS

3. PM Standard: Each bin vent filter shall be designed to meet a dust loading emissions rate not to exceed 0.005 gr/dscf. [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

4. VE Standard: VE from each bin vent filter shall not exceed 5 percent opacity as demonstrated by initial and annual compliance tests. [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

TESTING AND MONITORING REQUIREMENTS

5. Initial Compliance Tests: Each silo shall be tested to demonstrate initial compliance with the VE emissions standard specified in **Specific Condition 4** of this subsection. The initial test shall be conducted within 180 days after initial operation. In lieu of the test methods prescribed in **Specific Condition 8** of this subsection, the permittee shall maintain continuous operation of a bag leak detection system on each bin vent filter to demonstrate compliance with the VE emissions standard. Leak detection records shall be kept on site and made available upon request. [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

6. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), each silo shall be tested to demonstrate compliance with the VE emissions standard specified in **Specific Condition 4** of this subsection. In lieu of the test methods prescribed in **Specific Condition 8** below, the permittee shall maintain continuous operation of a bag leak detection system on each bin vent filter to demonstrate compliance with the VE emissions standard. Leak detection records shall be kept on site and made available upon request. [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; Rule 62-212.400(BACT), F.A.C.; and Rule 62-4.070, F.A.C. Reasonable Assurance]

7. 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.]

DRAFT

8. Test Methods: Any required stack tests shall be performed in accordance with the following methods, except that the permittee shall alternatively maintain continuous operation of a bag leak detection system on each bin vent filter. Leak detection records shall be kept on site and made available upon request. No other methods may be used unless prior written approval is received from the Department..

EPA Method	Description of Method and Comments
9	Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources 60 Minute Test
22	Visual Determination of Fugitive Emissions from Material Sources, 6 Minute Test

The above methods are described in Appendix A of 40 CFR 60 included as Appendix A of this permit and are adopted by reference in Rule 62-204.800, F.A.C.

RECORDS AND REPORTS

9. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix CTR (Common Testing Requirements) of this permit. For each test run, the report shall also indicate the operating rate. [Rule 62-297.310(8), F.A.C.]

10. Bin Vent Filter Design Specification: To demonstrate compliance with the dust outlet loading specification, the permittee shall maintain records from the vendor. [Rule 62-4.070(3), F.A.C.]

DRAFT

J. Miscellaneous Storage Tanks (EU-010)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
010	Miscellaneous Storage Tanks: The facility will include several other chemical storage tanks; however, all of these tanks will be insignificant sources of air emissions. These storage tanks will store wet chemicals used in the process, including but not limited to the following: sulfuric acid (93 percent solution), magnesium hydroxide (61 percent solution), corn syrup, phosphoric acid (85 percent solution), aqueous ammonia (19 percent solution), and glycol. A flocculant solution will be used in the stillage loadout area to recover additional solids. Caustic soda (50 percent solution) will be diluted to 2-2.5% and used for a clean-in-place (CIP) system to help assure sanitary conditions for the enzymes and microorganism in the fermentation and propagation vessels. All of these tanks will be of a vertical fixed roof design. Several CIP kits consist of a number of holding tanks containing the dilute caustic or phosphoric cleaning solutions in addition to process water. There will be a number of 'intermediate' storage tanks; two for enyzmes and two for the fermentation organism.

CONSTRUCTION

1. Miscellaneous Storage Tanks: The permittee is authorized to construct the miscellaneous storage tanks described above utilizing a vertical fixed roof design.

   [Application No. 0550061-004-AC].

NSPS SUBPART Kb APPLICABILITY

2. Non Volatile Organic Liquids (VOL) Storage Tanks: The miscellaneous storage tanks at BPH do not store VOL. Accordingly, these tanks are unregulated emissions units and are not subject to NSPS 40 CFR 60, Subpart Kb. [40 CFR 60.110b(a) and (c); Rule 62-204.800(7)(b), F.A.C.]

EMISSIONS AND PERFORMANCE REQUIREMENTS

3. Hours of Operation: The hours of operation of this emissions unit are not restricted (8,760 hours per year). [Application No. 0550061-004-AC and Rule 62-210.200(PTE), F.A.C.]

NOTIFICATION, REPORTING AND RECORDS

4. Liquid Records: The permittee shall keep readily accessible records showing the maximum true vapor pressure of the liquid stored in a tank not subject to NSPS Subpart Kb. The maximum true vapor pressure shall be less than 3.5 kPa. Compliance with this condition may be demonstrated by using the information from the respective material Safety Data Sheet (MSDS) for the liquid stored in the tank.
   [Rule 62-4.070(3), F.A.C.; Avoidance of 40 CFR 60, Subpart Kb]

DRAFT

K. EMERGENCY GENERATORS (EU-011)

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
011	Emergency Generators: Three emergency compression ignition reciprocating internal combustion engines (CI-RICE) will be used to power three generators each rated at 1,500 kilowatt (kW) or 2,011 horsepower (HP). These generators will be installed to provide backup electrical power in the event of a power outage at the facility. The engines will fire ULSD fuel oil and each will be limited to no more than 100 hours per year for testing and maintenance purposes per 40 CFR 60, Subpart IIII. Hours of operation are unlimited during emergency conditions. Potential to emit (PTE) calculations are based on an assumed maximum operating time of 100 hr/yr. Each engine will be designed to meet USEPA's emission standards listed in 40 CFR Part 60 Subpart IIII for model year 2009 or later.

EQUIPMENT

1. Emergency Generators: The permittee is authorized to install, operate, and maintain three 1,500 kW emergency generators. [Application No. 0550061-004-AC and Rule 62-210.200 (PTE), F.A.C.]

PERFORMANCE RESTRICTIONS

2. Hours of Operation:
   a. *Emergency Situations*. There is no time limit on the use of generators in emergency situations.
   b. *Maintenance and Testing.* Each generator is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year.
   c. *Other Situations*. Each generator cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

   [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; 40 CFR 60.4211(e); and 40 CFR 60.4219]

3. Authorized Fuel: The emergency generators shall fire ULSD fuel oil that meets the following requirements for non-road diesel fuel:
   d. S*ulfur Content.* The sulfur content shall not exceed 15 ppm (0.0015 percent weight) for non-road fuel.
   e. *Cetane and Aromatic*. The fuel must have a minimum cetane index of 40 or must have a maximum aromatic content of 35 volume percent.

   [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; and 40 CFR 60.4207(b); and 40 CFR 60.80.510(b)]

NSPS APPLICABILITY

4. NSPS Subpart IIII Applicability: Each emergency generator is a Stationary Compression Ignition Internal Combustion Engine (Stationary ICE) and shall comply with applicable provisions of 40 CFR 60, Subpart IIII, including emission testing or certification. [40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines]

NESHAP APPLICABILITY

5. NESHAPS Subpart ZZZZ Applicability: Each emergency generator is a Liquid Fueled Reciprocating Internal Combustion Engines engine (RICE) and shall comply with applicable provisions of 40 CFR 63, Subpart ZZZZ. Pursuant to 40 CFR 63.6590(c) the generators must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII.

DRAFT

[40 CFR 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)]

EMISSION STANDARDS

6. Emissions Limits: Each emergency generator shall comply with the following emission limits and demonstrate compliance in accordance with the procedures given in 40 CFR 60, Subpart IIII the language of which is given in Appendix IIII.

Emergency Generator (> 560 kW and ≤ 2,237 kW)	**CO** (g/kWH)[a]	**VOC** (g/kWH)	**NO_X** (g/kWH)	**PM** (g/kWH)	**SO_2** (oil sulfur spec.)
Subpart IIII (2006 and later)	3.5	6.4 (NMHC[b] + NO_X)		0.20	15 ppm

a. g/kWH means grams per kilowatt-hour.
b. NMHC is the acronym for non-methane hydrocarbons. NMHC are approximately equal to VOC for these sources.

[Applicant Request; 40 CFR 60, Subpart IIII and Rule 62-4.070(3), F.A.C.]

7. Operation and Maintenance. The owner or operator must operate and maintain the stationary compression ignition RICE according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. The owner or operator must meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply. [40 CFR 60.4211(a)]

MONITORING OF OPERATIONS

8. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 60.4209(a)]

COMPLIANCE

9. Compliance Requirements. Manufacturer certification can be provided to the Department in lieu of actual stack testing in accordance with 40 CFR Part 89 or Part 94, as applicable, for the same model year and maximum engine power.

TESTING REQUIREMENTS

10. Performance Test. A performance test must be conducted according to the in-use testing procedures in 40 CFR Part 1039, Subpart F.

11. NTE Standards. Exhaust emissions from stationary compression ignition RICE that are complying with the emission standards specified in **Specific Condition 6** of this subsection must not exceed the not to exceed (NTE) numerical requirements, rounded to the same number of decimal places as the applicable standard, determined from the following equation: NTE = (1.25) x (Standard). [40 CFR 60.4212]

RECORDS AND REPORTS

12. Notification, Recordkeeping and Reporting Requirements: The permittee shall adhere to the compliance testing and certification requirements listed in 40 CFR 60.4211 and maintain records demonstrating fuel usage and quality. [Rule 62-212.400 (BACT), F.A.C. and 40 CFR 60.4211]

13. Required Records. Owner or operator must keep records of the operation of the engine in emergency and non-emergency conditions and for maintenance that are recorded through the non-resettable hour meter. The owner or operator must record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214]

14. Record Retention: The owner or operator must keep records in a suitable and readily available form for expeditious reviews. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record. [40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

DRAFT

L. EMERGENCY FIRE PUMP ENGINE (EU-012)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
012	Emergency Fire Pump Engine: A backup 850 hp diesel fire pump will also be installed to provide firewater during power outages. This unit will fire ULSD fuel oil and will be limited to 500 hours per year of operation. The fire pump engine will be limited to no more than 100 hours per year for testing and maintenance purposes per 40 CFR 60, Subpart IIII. Hours of operation are unlimited during emergency conditions. Potential to emit (PTE) calculations are based on an assumed maximum operating time of 100 hr/yr. The engine will be designed to meet USEPA's emission standards listed in 40 CFR Part 60 Subpart IIII for model year 2009 or later.

EQUIPMENT

1. Diesel Engine Driven Fire Pump: The permittee is authorized to install, operate, and maintain one diesel engine driven fire pump of approximately 850 hp.
   [Application No. 0550061-004-AC and Rule 62-210.200(PTE), F.A.C.]

PERFORMANCE RESTRICTIONS

2. Hours of Operation:
   a. *Emergency Situations*. There is no time limit on the use of the emergency fire pump engine in emergency situations.
   b. *Maintenance and Testing*. The emergency fire pump engine is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year.
   c. *Other Situations*. The emergency fire pump engine cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

   [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; 40 CFR 60.4211(e); and 40 CFR 60.4219]

3. Authorized Fuel: The emergency fire pump engine shall fire ULSD fuel oil that meets the following requirements for non-road diesel fuel:
   a. S*ulfur Content*. The sulfur content shall not exceed 15 ppm (0.0015 percent weight) for non-road fuel.
   b. *Cetane and Aromatic*. The fuel must have a minimum cetane index of 40 or must have a maximum aromatic content of 35 volume percent.

   [Application No. 0550061-004-AC; Rule 62-210.200 (PTE), F.A.C.; and 40 CFR 60.4207(b); and 40 CFR 60.80.510(b)]

NSPS APPLICABILITY

4. NSPS Subpart IIII Applicability: The emergency fire pump engine is a Stationary Compression Ignition Internal Combustion Engine (Stationary ICE) and shall comply with applicable provisions of 40 CFR 60, Subpart IIII, including emission testing or certification. [40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines]

NESHAP APPLICABILITY

5. NESHAPS Subpart ZZZZ Applicability: The emergency fire pump engine is a Liquid Fueled Reciprocating Internal Combustion Engine (RICE) and shall comply with applicable provisions of 40 CFR 63, Subpart ZZZZ. Pursuant to 40 CFR 63.6590(c) the emergency fire pump engine must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII.

DRAFT

[40 CFR 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)]

EMISSION STANDARDS

6. Emissions Limits: The emergency fire pump engine shall comply with the following emission limits and demonstrate compliance in accordance with the procedures given in 40 CFR 60, Subpart IIII. [40 CFR 60.4211 and Rule 62-4.070(3), F.A.C.]

Emergency Pumps (≥ 750 hp)	**VOC** (g/kWH)	**NO_X** (g/kWH)	**PM** (g/kWH)	**CO** (g/kWH)	**SO_2** (oil sulfur spec.)
Subpart IIII(2008 and later)	6.4 (NMHC+NO_X)		0.20	3.5	15 ppm

[Application No. 0550061-004-AC and 40 CFR 60, Subpart IIII and Rule 62-4.070(3), F.A.C.]

7. Operation and Maintenance. The owner or operator must operate and maintain the stationary compression ignition RICE according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. The owner or operator must meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply. [40 CFR 60.4211(a)]

MONITORING OF OPERATIONS

8. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 60.4209(a)]

COMPLIANCE

9. Compliance Requirements. Manufacturer certification can be provided to the Department in lieu of actual stack testing in accordance to 40 CFR Part 89 or Part 94, as applicable, for the same model year and maximum engine power.

TESTING REQUIREMENTS

10. Performance Test. A performance test must be conducted according to the in-use testing procedures in 40 CFR Part 1039, Subpart F.

11. NTE Standards. Exhaust emissions from stationary compression ignition RICE that are complying with the emission standards specified in **Specific Condition 6** of this subsection must not exceed the not to exceed (NTE) numerical requirements, rounded to the same number of decimal places as the applicable standard, determined from the following equation: NTE = (1.25) x (Standard). [40 CFR 60.4212]

RECORDS AND REPORTS

12. Notification, Recordkeeping and Reporting Requirements: The permittee shall adhere to the compliance testing and certification requirements listed in 40 CFR 60.4211 and maintain records demonstrating fuel usage and quality. [Rule 62-212.400 (BACT), F.A.C. and 40 CFR 60.4211]

13. Required Records. Owner or operator must keep records of the operation of the engine in emergency and non-emergency conditions and for maintenance that are recorded through the non-resettable hour meter. The owner or operator must record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214]

14. Record Retention: The owner or operator must keep records in a suitable and readily available form for expeditious reviews. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record. [40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

DRAFT

M. FACILITY WIDE VOC FUGITIVE EQUIPMENT LEAKS (EU 013)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
013	Facility Fugitive VOC Emission Leaks: Fugitive VOC emissions from equipment leaks involved in the ethanol production process. Total fugitive VOC emissions from equipment leaks were calculated to be 19.6 TPY. To minimize fugitive VOC emissions from the BPH, a monthly leak detection and repair (LDAR) program shall be implemented in accordance with New Source Performance Standard (NSPS) 40 CFR Part 60, Subpart VVa.

NSPS SUBPART VVa

1. Leak Detection and Repair (LDAR) Program: The most practical method of controlling fugitive VOC emissions from BPH is to promptly repair any leaking components that are subject to NSPS Subpart VVa. BPH is subject to NSPS 40 CFR 60, Subpart VVa - VOC Equipment Leaks in the Synthetic Chemical Manufacturing Industry (SOCMI), for projects that commence construction or modifications after November 7, 2006. NSPS Subpart VVa requires a LDAR program. BPH must come in to compliance with Subpart VVA, including the LDAR program, no later than 180 days after BPH becomes operational.
[40 CFR 60, Subpart VVa and Rule 62-4.070, F.A.C. Reasonable Assurance]

2. Equipment Subject to NSPS, Subpart VVa: As per **Specific Condition 12** of Section II of this permit, all equipment components located at BPH that are subject to NSPS Subpart VVa must be identified and the list submitted to the Compliance Authority no later than 90 days before BPH becomes operational.
[Rule 62-212.400 (BACT), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

TESTING AND MONITORING REQUIREMENTS

3. LDAR Program Plan Implementation: As per **Condition 11** of Section II of this permit, the permittee must submit for approval a LDAR program plan no later than 90 days prior to commencing operation. Once the program plan is approved by the Compliance Authority, the permittee shall implement the program within 180 days of initial startup of the BPH.
[40 CFR 60, Subpart VVa ; Application No. 0550061-004-AC; Rule 62-210.200(PTE), F.A.C. and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

4. Compliance with NSPS VVa: The permittee shall demonstrate compliance with the requirements of §§60.482–1a through 60.482–10a or §60.480a(e) for all equipment components subject to NSPS Subpart VVa within 180 days of initial startup of the BPH.
[Application No. 0550061-004-AC; Rule 62-210.200(PTE), F.A.C.; Rule 62-4.070(3), F.A.C. Reasonable Assurance and NSPS, Subpart VVa]

5. Test Methods and Procedures: The permittee shall show the BPH is in compliance with the requirements of NSPS Subpart VVa following the test methods and procedures specified in §60.485a.
[Application No. 0550061-004-AC; Rule 62-210.200(PTE), F.A.C.; Rule 62-4.070(3), F.A.C. Reasonable Assurance and NSPS, Subpart VVa]

SUBPART VVa APPLICABILITY

6. Emission Units Subject to Subpart VVa: All equipment components subject to NSPS Subpart VVa must be addressed in the LDAR program plan and are located in the following emission units:
[Application No. 0550061-004-AC; Rule 62-210.200(PTE), F.A.C.; Rule 62-4.070(3), F.A.C. Reasonable Assurance and NSPS, Subpart VVa]

DRAFT

Facility ID No. 0550061	
EU ID No.	**Emission Unit Description**
002	RTO and the process units that are controlled by its operation
003	Solids separation, dewatering and loadout
004	Denaturant and product storage
005	Anaerobic digestion, biogas conditioning and biogas flare
008	Cooling tower

RECORDS AND REPORTS

7. NSPS VVa Recordkeeping Requirements: The permittee shall follow the recordkeeping requirements specified in §§60.486a to show compliance with NSPS Subpart VVa and submit the records to the Compliance Authority 180 days after the initial startup of the BPH and annually thereafter. [Application No. 0550061-004-AC; Rule 62-210.200(PTE), F.A.C.; Rule 62-4.070(3), F.A.C. Reasonable Assurance and NSPS, Subpart VVa]

DRAFT