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PERMITTEE

INEOS New Planet BioEnergy
925 74th Avenue
Vero Beach, FL 32968-9702

Authorized Representative:
Mr. David King, President

Air Permit No. 0610096-003-AC
Permit Expires: September 30, 2014
Indian River County BioEnergy Facility
Minor Source Air Construction Permit
Biomass to Ethanol Production

PROJECT

This is the final air construction permit, which authorizes construction of a waste-to-ethanol production facility using biomass feedstock made up of vegetative yard waste and construction and demolition (C&D) debris. The new facility will be located at 925 74th Avenue in Vero Beach, Florida in Indian River County (IRC). The proposed facility is expected to produce up to 8 million gallons of ethanol per year, and although it will generate a small amount of electricity available for commercial use (about 6 megawatts gross, with 2 megawatts net exported), it will be categorized under Standard Industrial Classification Code No. 2869 - Industrial Organic Chemicals, Not Elsewhere Classified. The UTM coordinates are Zone 17, 550.7 kilometers (km) East and 3,051.3 km North.

This 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 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.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection (Department) in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida
Electronic Signature

Office of Permitting and Compliance
Division of Air Resource Management
Department of Environmental Protection
Tallahassee, Florida

Jeffery F. Koerner
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CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Permit (including the Final Determination, Final Permit, and 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.

Mr. David King, INEOS: david.king@ineos.com
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Ms. Joy Ezell: hopeforcleanwater@yahoo.com

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

Lynn Scearce
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PROPOSED PROJECT

The project is for the construction of a waste biomass-to-ethanol production facility. The primary feedstock will be biomass from Indian River County's (IRC) curbside collection program, delivered to the IRC collection centers, or delivered directly to the facility by the public. On an annual average, vegetative matter will make up approximately 90 percent of the feedstock. The remainder of the biomass feedstock will consist of clean woody construction and demolition (C&D) debris and municipal solid waste (MSW). In this permit, "MSW" refers to solid waste other than yard trash and clean debris, as those terms are defined at Rule 62-210.200, F.A.C. (see Appendix BMP).

The INEOS bio ethanol technology process will gasify the biomass feedstock. The organic material will not be directly combusted; instead, oxygen (O_2) will be supplied to the gasifier which converts the feed material into a synthetic gas (syngas) consisting of carbon monoxide (CO), carbon dioxide (CO_2), hydrogen (H_2) and other hydrocarbons.

This syngas will not be directly combusted either. It will be cleaned and cooled and then fed into a fermentation system where proprietary bacterial metabolic action converts the syngas into ethanol. The ethanol will then be distilled, dehydrated, stored and loaded into dedicated ethanol tanker trucks for shipment offsite. Off gases from the fermentation processes will be scrubbed and then routed to a vent gas boiler for combustion. Steam from the fermentation and distillation vent gas boiler—as well as steam from waste heat recovery at the gasifiers—will be routed to a steam turbine electrical generator (STEG) to generate electricity.

This project will consist of the following emissions units (EU). EU 005 and 009 were eliminated in the previous permit modification for this project (Permit No. 0610096-002-AC). EU 011 has been added as a result of this permit modification.

EU ID No.	Emission Unit Description
001	Materials Handling Area
002	Feedstock Dryers No. 1 and No. 2
003	Gasification, Fermentation and Distillation Systems
004	Distillation Unit Fugitive Emissions
006	Vent Gas Boiler
007	Tank Farm
008	Loadout Flare
010	Syngas Flare
011	Emergency Equipment

This permit (0610096-003-AC) supersedes and replaces the previous construction permit modification issued for this project (0610096-002-AC). Major changes from the construction permit modification consist of the following:

- An increase in the capacity of the burner in the vent gas boiler from 84.5 million British thermal units per hour (MMBtu/hr) to 97.2 MMBtu/hr. There will be no other physical changes to the boiler, stack or associated equipment.
- Replacement of the 1989 model year 500 Kilowatt (kW) Caterpillar Model No. 3412 emergency diesel-fired generator with a smaller 2009 model year 400 kW Kohler Model No. 400REZX emergency natural-gas-fired engine generator. As a result of permitting action, the emergency generator will be assigned an EU number (EU 011) and the fire pump engine currently at the facility will be included in this EU.

- Update Appendix BMP of the permit to reflect changes made in Permit No. 0610096-002-AC with regard to municipal solid waste usage and monitoring.
- Added language to the permit to provide flexibility during the startup, shakedown, of the facility with regard to the vent gas boiler and syngas flare;
- Refine the hydrogen sulfide (H_2S) concentration estimated in the syngas and fermenter off gas generated at the facility based on new data from a pilot facility that utilize the same waste feedstock as the INEOS facility. Previously, the estimated H_2S concentrations had been 700 parts per million (ppm) in the syngas and 1,000 ppm in the off gas. The new estimate is 500 ppm in both gas streams. Based on this new H_2S estimate, the mass of H_2S entering the vent gas boiler has been reduced resulting in the estimated mass emission rates (pounds per hour and tons per year) of all pollutants from the vent gas boiler being reduced;
- Increase the allowable operational hours of the syngas flare during the normal operation of the facility to provide additional flexibility during the start up of the gasification, fermentation and distillation systems and the vent gas boiler. The reduction in the H_2S concentration allows the operational hours of the flare to be increased from 300 hours to 640 hours without exceeding the 100 tons per year (TPY) PSD threshold for sulfur dioxide (SO_2) emissions; and,
- Incorporate a H_2S sampling protocol into the permit to provide reasonable assurance that the H_2S concentration in the syngas and off gas streams does not exceed the permitted 500 ppm level.

FACILITY REGULATORY CLASSIFICATION

- The facility is <u>not</u> a major source of hazardous air pollutants (HAP).
- The facility has no units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is not a major stationary source in accordance with Rule 62-212.400, F.A.C. (PSD).

SECTION 2. ADMINISTRATIVE REQUIREMENTS

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 (2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400). The Permitting Authority for permits to operate this facility is the Air Resource Section of the Department's Central District Office (3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767).

2. Compliance Authority: The Compliance Authority for this project is the Air Resource Section of the Department's Central District Office (3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767). All documents related to compliance activities such as reports, tests~~,~~ and notifications shall be submitted to the Compliance Authority.

3. Appendices: The following Appendices are attached as a part of this permit and must be complied with by the permittee:
   a. Appendix CF: Citation Formats, Acronyms and Glossary of Common Terms;
   b. Appendix GC: General Conditions;
   c. Appendix CC: Common Conditions;
   d. Appendix CTR: Common Testing Requirements;
   e. Appendix BMP: Best Management Practices;
   f. Appendix LDAR: Preliminary Leak Detection and Repair (LDAR) Program;
   g. Appendix GP: Identification of Applicable General Provisions from Title 40, Part 60 of the Code of Federal Regulation (C.F.R.);
   h. Appendix Kb: New Source Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels, 40 C.F.R. 60, subpart Kb;
   i. Appendix VVa: NSPS for Equipment Leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI), 40 C.F.R. 60, Subpart VVa;
   j. Appendix AAAA: NSPS for Small Municipal Waste Combustion Units, 40 C.F.R. 60, subpart AAAA;
   k. Appendix IIII: NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 C.F.R. 60, subpart IIII; and
   l. Appendix ZZZZ: National Emission Standards for HAP (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE), 40 C.F.R. 63, subpart ZZZZ.

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, Florida Statutes; 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.]

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

8. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions units. 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 and 62-4.220, F.A.C. and Chapter 62-213, F.A.C.]

9. Monthly Operations Summary: By the last calendar day of each month, the permittee shall record the following parameters in a written or electronic log for the previous month of operation. (For example, the monthly operations summary for June must be recorded by July 31.) The monthly operations summary shall be kept and made available to the Compliance Authority upon request.
   a. Gallons of ultra low sulfur diesel fuel used in the shredder and screen engines (see **Condition 3.A.11**);
   b. Total combined dry tons of biomass and MSW feedstock processed in both dryers (see **Condition 3.B.11**);
   c. Gallons of ethanol produced (see **Condition 3.C.** 20);
   d. Hours of operation and million British thermal units (MMBtu) of total heat input for the vent gas boiler (see **Condition 3.E.13**);
   e. Standard cubic feet of syngas, natural gas and landfill gas fired in the vent gas boiler (see **Condition 3.E.13**);
   f. Gallons of final (denatured) ethanol product loadout (see Condition **3.F.7**);
   g. Standard cubic feet of displaced vapors to the loadout flare and the duration of each flare event during the month (see **Condition 3.G.7**);
   h. Standard cubic feet of displaced vapors to the syngas flare, the duration of each flare event during the month and the reason for flaring (see **Condition 3.H.5**); and
   i. Updated 12-month rolling totals for each of these operating parameters.

   [Rule 62-4.070(3), F.A.C.]

10. Annual Operating Report: The Annual Operating Report for Air Pollutant Emitting Facility (DEP Form No. 62-210.900(5)) shall be completed each year and submitted to the Compliance Authority by April 1 of the following year. [Rule 62-210.370(3), F.A.C.]

11. Reasonable Precautions to Prevent Emissions of Unconfined Particulate Matter (PM): The facility shall take the following reasonable precautions to prevent emissions of unconfined PM:
   a. All normally traveled roads on the site shall be paved.
   b. Access paths used exclusively for maintenance purposes may be unpaved.
   c. Speed limit signs will be posted.

d. The unpaved areas of the facility shall be maintained and either sodded or landscaped as necessary.

e. The conveyor systems outside of the materials handling area shall be fully enclosed.

f. Hoods, fans, filters or similar equipment shall be used to contain, capture or vent particulate matter.

g. The ash shall be wetted before being stored in the ash handling roll-off bins.

[Rule 62-296(4)(c), F.A.C.]

12. Objectionable Odors Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. Prior to the MSW trial period outlined in **Condition 3.C.11** of this permit, the permittee shall submit an odor control plan to the Compliance Authority that addresses how the facility will control MSW odors, such as through implementing a "first in/first out" material handling practice; storing MSW in an enclosed area; limiting on-site storage of MSW to 48 hours or less; or other procedures. After the conclusion of the MSW trial period, the permittee shall revise and resubmit the odor control plan to the Compliance Authority along with the results of any repeat testing as per **Condition 3.C.11.c**.
[Rule 62-296.320(2), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]

13. Standard Conditions: As used in this permit, standard conditions refers to a temperature of 68 °F and a pressure of 14.7 pounds per square inch absolute (psia).
[Rule 62-210.200, F.A.C. Definition of "Standard Conditions"]

14. Dried Tons: As used in this permit, "dried tons" refers to solid material with 15 percent moisture content. [Rule 62-4.070, F.A.C. Reasonable Assurance]

A. Materials Handling Area (EU-001)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
001	Materials Handling Area: Trucks deliver vegetative waste and clean woody C&D debris to the tipping floor of the materials handling area. Vegetative waste is primarily yard waste or land clearing debris from the IRC curbside collection program, delivered to the IRC collection centers, or delivered directly to the facility by the public. The C&D debris is material diverted from a dedicated cell of the IRC landfill. The BioEnergy facility may accept vegetative waste, C&D and MSW from outside IRC. MSW will be stored in accordance with the submitted odor control plan. Vegetative waste and C&D debris will be stored outdoors on a hard-packed gravel area in windrows to provide for drying. Feedstock preparation machinery will include two slow speed shredders (or grinders, referred to as shredders throughout this permit and associated documents) and two trommel screens.

APPLICABLE STANDARDS AND REGULATIONS

1. NSPS for Stationary Compression Ignition Internal Combustion Engines (Appendix IIII): 40 CFR Part 60, Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines—applies to the diesel engines powering the shredders and screens. The permittee shall comply with the requirements of the NSPS, included as Appendix IIII.
   [Application No. 0610096-002-AC and Rule 62-296.100(3), F.A.C.]

2. NESHAP for Stationary RICE (Appendix ZZZZ): 40 CFR Part 63, Subpart ZZZZ—National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines—applies to the diesel engines powering the shredders and screens. The permittee shall comply with the requirements of the NESHAP, included as Appendix ZZZZ.
   [Rule 62-296.100(3), F.A.C.]

EQUIPMENT

3. Feedstock System: The permittee is authorized to install the following major pieces of equipment for feedstock delivery, handling and processing:
   a. Tipping floor;
   b. Front-end loaders;
   c. Hard-packed gravel storage area for biomass (authorized feedstock other than MSW, see Condition 3.A.4 of this permit);
   d. Paved storage area for MSW inside a building;
   e. Conveyer systems; and
   f. Relocateable shredding and screening equipment.

   [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

PERFORMANCE RESTRICTIONS

4. Authorized Feedstock: Vegetative matter, yard waste, land clearing debris, untreated wood and MSW is authorized to be stored in the materials handling area. For purposes of this permit, "biomass" refers to authorized feedstock other than MSW.
   [Application No. 0610096-001-AC; Rule 62-210.200, F.A.C. Definitions of "Yard Waste," "Land Clearing Debris," "Untreated Wood" and "Solid Waste"; and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

5. Hours of Operation: The hours of operation of this emissions unit are not limited (8,760 hours per year).
[Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

6. Restricted Fuel Use: The diesel engines powering the shredders and screens shall be fired only with ultra low sulfur diesel fuel (maximum 15 ppm sulfur by weight). Fuel use for the two shredder engines is limited to no more than a combined total of 82,368 gallons per year on a rolling 12-month basis. Fuel use for the two screen engines is limited to no more than a combined total of 16,848 gallons per year on a rolling 12-month basis.
[Application No. 0610096-002-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

WORK PRACTICE STANDARDS

7. Feedstock Storage:
   a. Biomass shall be delivered directly to the tipping floor unless the tipping floor cannot accommodate additional material. The tipping floor shall be designed to accommodate feedstock for up to two days (48-hour period) of operation.
   b. Additional biomass shall be delivered to the hard-packed gravel storage area.
   c. Storage of MSW shall be in accordance with the submitted odor control plan.

   [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

8. Roadways: The plant roadways shall be paved and during dry conditions wetted sufficiently to maintain surface moisture to minimize fugitive dust emissions. Roadways shall be swept as required with a vacuum sweeper in good working order to prevent the buildup of dirt and silt on the roadway surfaces. [Application No. 0610096-001-AC; Rule 62-296(4)(c), F.A.C. Unconfined Emissions of Particulate Matter; and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

9. Traffic Control: The feedstock delivery vehicles shall be accepted at the site on a 12 hour per day (7:00 AM to 7:00 PM), seven days per week basis. Speed limit signs shall be posted. The feedstock delivery vehicles shall be weighed on entry and exit from the site.
[Application No. 0610096-001-AC; Rule 62-296(4)(c), F.A.C. Unconfined Emissions of Particulate Matter; and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

10. Treated Wood Management Plan: To ensure that wood treated with chromated copper arsenate is not included with the C&D debris delivered to the facility for use as feedstock, the permittee shall only accept shredded or mulched C&D debris from a source complying with a treated wood management plan meeting the requirements of Rule 62-701.730(20), F.A.C. The permittee shall implement the treated wood management plan in Appendix BMP to screen any C&D debris that is to be shredded or mulched at the facility, unless the delivered C&D debris has been screened at its source as per a treated wood management plan meeting the requirements of Rule 62-701.730(20), F.A.C.
[Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

RECORDS AND REPORTS

11. Recordkeeping Requirements: The permittee shall maintain monthly records of ultra low sulfur diesel fuel use, and the permittee shall maintain fuel delivery receipts identifying the sulfur content of the delivered diesel fuel. These records shall be shall be kept and made available to the Compliance Authority upon request. [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

B. Feedstock Dryers No. 1 and No. 2 (EU-002)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
002	Feedstock Dryers No. 1 and No. 2: The two feedstock dryers (Carrier Model QAD-3660S-20'-6"-5 HP or equivalent) receive feedstock from the storage piles and use low-pressure steam, provided by the boiler and heat recovery systems, to reduce the feedstock moisture to around 15 percent. The dryers use 8,960 pounds per hour of the steam to heat the inlet to about 250 °F. Flue gas from the dryers is vented to the atmosphere through a dust control system. PM emissions from the dryer exhaust are controlled with a baghouse. The dried feedstock is then sent to the gasifiers by way of a covered conveyor system.

EQUIPMENT

1. Feedstock dryers: The permittee is authorized to install two vibrating fluidized bed dryers that use low-pressure steam to reduce the feedstock moisture to approximately 15 percent. [Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

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 each feedstock dryer.
   a. Baghouse: The permittee shall install a baghouse to remove PM emissions from the dryer exhaust. The baghouse shall be designed to achieve a PM emissions rate of 0.005 grains per dry standard cubic meter.
   b. VOC control: The permittee is authorized to vent the dryer exhaust to a VOC control device, if necessary, to meet the VOC emission limit in **Condition 3.B.7**. The choice and design of the control device, if needed, will be made after the initial compliance test data are available. The permittee shall submit the recommended design for a VOC control device to the Permitting Authority prior to installation.

   [Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

3. Enclosed Conveyor System: The permittee shall install an enclosed conveyor system to transport dried feedstock from the dryers to the gasification system. [Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: Feedstock drying for both dryers combined is limited to an annual average throughput of no more than 425 tons per day (27 percent moisture content) on a rolling 12-month basis. [Application No. 0610096-002-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

   {Permitting Note: 425 tons per day at 27 percent moisture is equivalent to 365 tons per day at 15 percent moisture.}

5. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year). [Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

EMISSIONS STANDARDS

6. Visible Emission Standard: Visible emissions from each feedstock dryer shall not exceed 5 percent opacity. [Application No. 0610096-001-AC and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

7. VOC Standard: VOC emissions from each feedstock dryer shall not exceed 3.8 pounds per hour (lbs/hr). [Application No. 0610096-001-AC and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

TESTING REQUIREMENTS

8. Initial Compliance Tests: Each feedstock dryer stack shall be tested to demonstrate initial compliance with the standards for visible emissions and VOC. 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), F.A.C. Reasonable Assurance and Rule 62-297.310(7)(a)1., F.A.C.]

9. Compliance Tests Prior to Permit Renewal: Prior to obtaining a renewed operation permit, each feedstock dryer stack shall be tested to demonstrate compliance with the visible emissions and VOC emission limits in **Conditions 3.B.6 and 3.B.7**.
[Rule 62-4.070(3), F.A.C. Reasonable Assurance and Rule 62-297.310(7)(a)3., F.A.C.]

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

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources.
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)

The above methods are described in Appendix A of 40 C.F.R. 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 C.F.R. 60]

RECORDS AND REPORTS

11. Recordkeeping Requirements: The permittee shall maintain records of the amount of total combined biomass and MSW feedstock processed in both dryers on a tons per day basis and an annual average tons per day, rolling 12-month basis (27 percent moisture content). These records shall be kept and made available to the Compliance Authority upon request.
[Rule 62-4.070(3), F.A.C. Reasonable Assurance]

C. Gasification, Fermentation and Distillation Systems (EU-003)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
003	Gasification, Fermentation and Distillation Systems: Two gasifiers heat feedstock through starved-air pyrolysis to produce syngas, a mixture of CO, CO_2, H_2 and other hydrocarbons. The syngas is cleaned and bubbled through the fermentation system. The distillation system extracts ethanol from the filtered fermentation broth. This emissions unit also includes equipment to accomplish waste heat recovery; dry gas cleaning; syngas quench and compression; and vent gas scrubbing.

APPLICABLE STANDARDS AND REGULATIONS

1. NSPS for Equipment Leaks of VOC (Appendix VVa): 40 CFR Part 60, Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the SOCMI for Which Construction, Reconstruction or Modification Commenced After November 7, 2006—applies to each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, flange or other connector that contains or contacts a process fluid that is at least 10 percent VOC by weight. It also applies to any devices or systems that it requires to be installed. The permittee shall comply with the requirements of the NSPS, included as Appendix VVa, for all subject equipment. [Application No. 0610096-001-AC and Rule 62-296.100(3), F.A.C.]

2. Closed Vent Systems and Control Devices: During normal operation, off-gas from the fermentation and distillation systems shall be collected and routed via closed vent systems to scrubbers (the process vent gas scrubber or distillation overhead scrubber, respectively) prior to being routed to a control device. The control device for these streams shall be the vent gas boiler (EU-006). [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

3. Preliminary LDAR Program: Because the final list of subject equipment will not be known until the facility's design is complete, the permittee shall implement the preliminary LDAR program contained in Appendix LDAR until a final LDAR program is submitted to the Compliance Authority. The permittee shall submit the final LDAR plan and otherwise demonstrate compliance with the NSPS, included as Appendix VVa, within 180 days of initial startup. [Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

EQUIPMENT

4. Gasifiers: The permittee is authorized to install two gasifiers, each consisting of a two-stage, upper and lower gasification zone with a dedicated ram feeder to feed the dried feedstock. The gasifiers shall be equipped with emergency vent valves that can route syngas to the syngas flare (EU-010) in the event of emergencies such as a failure of the electrical supply to the plant or high pressure in the system caused by the blockage of downstream equipment. The permittee is authorized to install ancillary equipment to cool the syngas and to recover waste heat through the boiler feed water preheater. [Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

5. Dry Gas Cleanup Packages: The permittee is authorized to install two dry gas cleanup packages, each of which consists of activated carbon and sodium bicarbonate injection followed immediately by a fabric filter. Exhaust from the fabric filter is not emitted to the atmosphere, but is routed to syngas quench and compression. [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

6. Syngas Quench and Compression: The permittee is authorized to install a quench tower to further cool the cleaned and filtered syngas, an electrical driven gas compression system and ancillary equipment including a cooled water heat exchanger and a knock-out drum.
[Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

7. Fermentation and Distillation System: The permittee is authorized to install a fermentation and distillation system consisting of fermentation vessels, distillation feed tank, distillation tower, reflux drum and dehydration system.
[Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

8. Vent Gas Scrubbing: The permittee is required to install a process vent gas scrubber for the fermentation off-gases. Emergency release from the process vent gas scrubber shall be routed to the syngas flare (EU-010). [Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

9. Distillation Overhead Scrubbing: The permittee is required to install a distillation overhead scrubber for the distillation and dehydration system off-gases. Emergency release from the process distillation area overhead scrubber shall be routed to the syngas flare (EU-010). Emergency release from the distillation system emergency relief valves may be vented to the atmosphere.
[Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

PERFORMANCE RESTRICTIONS

10. Primary Authorized Feedstock: Vegetative matter, yard waste, land clearing debris and untreated wood is authorized to be used as feedstock to the gasification system. Feedstock processing for both gasifiers combined is limited to an annual average throughput of no more than 365 dried tons per day on a rolling 12-month basis.
[Application No. 0610096-001-AC; Rule 62-210.200, F.A.C. Definitions of "Biomass," "Yard Waste," "Untreated Wood" and "Solid Waste"; and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

11. MSW Trial Period: During an MSW trial period not to exceed 120 continuous days, MSW is authorized to be used as a feedstock, alone or in combination with biomass, subject to the following requirements.
    a. Feedstock: The permittee may fire MSW alone or in combination with the biomass feedstock. MSW processing is limited to no more than 365 dry tons per day for both gasifiers combined. A maximum of 10,950 dry tons of MSW is authorized to be processed during the MSW trial period.
    b. Notification: The permittee shall notify the Compliance Authority at least 30 days prior to commencement of the MSW trial period.
    c. Testing: The permittee shall conduct stack tests at the vent gas boiler stack (EU-006), using the methods and procedures specified in Appendix AAAA, for the following pollutants: PM, lead, mercury, hydrogen chloride (HCl) and cadmium. The permittee may repeat this testing during or after the MSW trial period so as to demonstrate compliance at different MSW feed rates.
    d. Report: Prior to initiating routine processing of MSW in the gasifiers as authorized by Condition 3.C.12, the permittee shall submit a report to the Compliance Authority that uses available monitor and stack test data to evaluate the impact of processing MSW on emissions of the following pollutants: nitrogen oxides (NO_X), CO, sulfur dioxide (SO_2), PM, lead, mercury, HCl and cadmium.

    [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

12. MSW Feedstock: After submitting the report specified in **Condition 3.C.11.d**, MSW is authorized to be used as feedstock to the gasification system. MSW processing for both gasifiers combined is limited to a 12-month rolling annual average throughput of no more than 110 percent of the dried tons

per day achieved for both gasifiers combined during the most recent testing conducted pursuant to **Condition 3.C.11.c**. [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

13. Authorized Fuels: Natural gas and landfill gas are authorized to be fed to the gasifier bottom chamber start-up burners in order to bring the system up to temperature until the solid feed is started. During normal operation, butanol from the distillation system is authorized to be fed to the gasifier burners. [Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

14. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year). [Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

15. Ethanol Production Rate: Ethanol production is limited to 8.00 million gallons per year on a rolling 12-month basis. [Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

    {Permitting Note: The final product with the addition of a denaturant is limited to 8.42 million gallons per year.}

16. Ethanol Capture, Fermentation System: The process vent gas scrubber shall be designed to remove 95 percent of the residual ethanol from the fermentation system off-gases. [Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

17. Ethanol Capture, Distillation and Dehydration System: The distillation overhead scrubber shall be designed to remove 95 percent of the residual ethanol from the distillation and dehydration system off-gases. [Application No. 0610096-002-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

18. H_2S Concentration Limit: The concentration of H_2S in the fermenter off gas and syngas streams shall not exceed 500 part per million by volume (ppmv). [Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

MONITORING REQUIREMENTS

19. H_2S Concentration: The concentration of H_2S in the fermenter off gas (vent gas) shall be monitored in ppmv at least 4 times per hour with a continuous on-line gas chromatograph to show that it is 500 ppmv or less (1-hour average). The concentration in ppmv of H_2S in the syngas steam from the gasifiers shall be monitored monthly by collecting bag or canister samples from the inlet port to the fermenter and injecting the samples into a chromatograph for analysis. As an alternative the samples may be sent off-site to a certified laboratory for analysis. If the average H_2S concentration of the first 12 monthly samples of the syngas is 400 ppmv or less, with no sample exceeding 500 ppmv, sampling may hence forth be done on a quarterly basis. Any exceedance of the H_2S concentration limit of 500 ppmv shall be reported to the Compliance Authority within 48 hours. [Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

RECORDS AND REPORTS

20. Recordkeeping Requirements: The permittee shall maintain records of the amount of ethanol produced (gallons per year) on a rolling 12-month basis. The permittee shall maintain records of all H_2S concentration tests. These records shall be kept and made available to the Compliance Authority upon request. [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

21. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix CTR of this permit. In addition, the concentration of H_2S in

the fermenter off gas (vent gas) monitored with a continuous on-line gas chromatograph shall be reported.[Rule 62-297.310(8), F.A.C.]

D. Distillation Unit Fugitive Emissions (EU-004)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
004	Distillation Unit Fugitive Emissions: Process vents from the fermentation, distillation and dehydration system are collected, and emissions are routed through closed vent systems to a control device (the vent gas boiler, EU-006). There will be some fugitive VOC emissions from the distillation unit, however, that are not captured and routed to control.

EQUIPMENT

1. Fermentation and Distillation System: The permittee is authorized to install a fermentation and distillation system (EU-003) as specified in Section 3.C of this permit.
[Application No. 0610096-001-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

PERFORMANCE RESTRICTIONS

2. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year).
[Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

3. Ethanol Production Rate: Ethanol production is limited to 8.00 million gallons per year on a rolling 12-month basis.
[Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

{Permitting Note: The final product with the addition of a denaturant is limited to 8.42 million gallons per year. Controlled VOC emissions from distillation are assumed to be 0.1161 lb VOC per 1000 gallons of ethanol produced. At 95 percent control and 8 million gallons per year of ethanol, this equates to 0.46 tons of fugitive VOC—primarily ethanol and butanol.}

E. Vent Gas Boiler (EU-006)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
006	Vent Gas Boiler: *Fuels*: During startup, the vent gas boiler fires landfill gas supplemented with natural gas. During normal operation, the boiler fires the vent gases collected from fermentation, distillation and dehydration. Vent gases are scrubbed prior to combustion in the vent gas boiler. The vent gases may be supplemented with landfill gases during normal operation. *Control Devices*: The vent gas boiler is equipped with low-NO_X burners. Following combustion, sodium bicarbonate is injected into the flue gas immediately prior to a fabric filter. *Stack Parameters*: The vent gas boiler exhaust stack is 80 feet tall and 2.5 feet in diameter. Flow rate at the vent gas boiler stack exit is approximately 19,000 dry standard cubic feet per minute at 7 percent O_2. Exit velocity corresponding to this flow rate at the vent gas boiler stack is estimated to be 61 feet per second.

APPLICABLE STANDARDS AND REGULATIONS

1. NSPS for Small Municipal Waste Combustion Units (Appendix AAAA): Each equipment train (from gasifier to vent gas boiler) is a separate new municipal waste combustion unit for purposes of 40 C.F.R. part 60, subpart AAAA—Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 31, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001. The permittee shall comply with the requirements of the NSPS, included as Appendix AAAA. The following requirements and specifications are relevant to NSPS applicability.
   a. The word "combust" in reference to the NSPS refers to the pyrolysis reaction in the gasifiers.
   b. Each municipal waste combustion unit (gasifier-to-vent gas boiler equipment train) has a capacity of greater than 35 but less than 250 tons per day of MSW.
   c. The municipal waste combustion units are "Class I Units" because the aggregate plant combustion capacity is 365 tons per day of MSW, which is greater than 250 tons per day.
   d. The municipal waste combustion units use activated carbon (in the dry gas cleanup packages) to control emissions of dioxin/furan and mercury.
   e. The NSPS emissions limits will apply at the vent gas boiler exhaust stack.
   f. Continuous monitors required by the NSPS will be located at the vent gas boiler exhaust stack.
   g. The municipal waste combustion units generate steam.
   h. With respect to NSPS-required monitoring of flue gas temperature, the inlets to the dry gas cleaning fabric filters are deemed to be the inlets to the PM air pollution control device.
   i. The municipal waste combustion units are deemed to be modular starved-air and excess air units.

   [Application No. 0610096-001-AC; Rule 62-296.100(3), F.A.C.; and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

2. NSPS for Equipment Leaks of VOC (Appendix VVa): The vent gas boiler is an enclosed combustion device for purposes of 40 CFR Part 60, Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the SOCMI for Which Construction, Reconstruction or Modification Commenced After November 7, 2006. The permittee shall comply with the requirements of the NSPS, included as Appendix VVa. [Application No. 0610096-001-AC and Rule 62-296.100(3), F.A.C.]

E. **Vent Gas Boiler (EU-006)**

EQUIPMENT

3. Vent Gas Boiler: The permittee is authorized to construct a nominal 97.2 MMBtu per hour watertube boiler for steam generation. The boiler will include low NO_X burners as well as a feed water heat exchanger, steam drum, turbine, stack and other ancillary equipment. The vent gas boiler shall be designed and operated to one of the following specifications:
   a. Reduce VOC emissions vented to the boiler with an efficiency of 95 percent or greater. The uncontrolled inlets are specified to be upstream of the process vent gas scrubber for the fermentation off-gases and upstream of the distillation overhead scrubber for the distillation and dehydration system off-gases.
   b. Reduce VOC emissions vented to the boiler to an exit concentration of 20 parts per million by volume (ppmv) on a dry basis corrected to 3 percent O_2.
   c. Provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 °C.

   [Application No. 0610096-003-AC; Appendix VVa; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

4. Sorbent Injection and Fabric Filter: The permittee is required to install a system to inject sodium bicarbonate into the flue gas. The permittee is required to install a fabric filter to collect PM and spent bicarbonate.
   [Application No. 0610096-002-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

PERFORMANCE RESTRICTIONS

5. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year). [Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

6. Authorized Fuels: The vent gas boiler is authorized to fire the following fuels: syngas, natural gas and landfill. For purposes of this subsection of the permit, the term "syngas" includes the mixture of CO, CO_2, H_2 and other hydrocarbons resulting from the starved-air pyrolysis in the gasifiers as well as the off-gases from the fermentation and distillation systems.
   [Application No. 0610096-001-AC]

7. Circumvention of Air Pollution Control Equipment: The permittee shall not circumvent any air pollution control equipment or allow the emission of air pollutants without the applicable air pollution equipment operating properly. Syngas shall not be routed to the vent gas boiler for combustion except through the gasifier-to-vent gas boiler equipment train, including dry gas cleaning (sodium bicarbonate and activated carbon injection followed by fabric filtration) and vent gas scrubbing. If all or part of the gasifier-to-vent gas boiler equipment train is inoperative, then syngas shall be routed to the syngas flare (EU-010) instead of the vent gas boiler. [Rule 62-210.650, F.A.C.]

8. Operation and Maintenance: The permittee shall monitor the vent gas boiler to ensure that it is operated and maintained in conformance with its design. [Paragraph 60.482-10a(e), Appendix VVa]

EMISSIONS STANDARDS

9. Emissions Standards: The NSPS for small municipal waste combustion units (Appendix AAAA) specifies emissions standards for the following pollutants: dioxins/furans, cadmium, lead, mercury, PM, HCl, NO_X, SO_2 and CO. This NSPS also limits visible emissions. The permittee shall comply with the NSPS limits when the vent gas boiler is combusting any authorized fuel, including syngas generated from the gasification of C&D debris. As a result of this permit modification, NO_X emission from the vent gas boiler shall also be limited to 120 ppmdv, corrected to 7 percent O_2, based on a rolling 12-month average of 24-hour daily block averages.

[Application No. 0610096-002-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

10. Continuous Monitoring Requirements: The permittee shall install, calibrate, maintain and operate continuous emissions monitoring systems (CEMS), a continuous opacity monitoring system (COMS) and a diluent monitor (either O_2 or CO_2 monitor) to measure and record the emissions of SO_2, NO_X, CO and opacity from the vent gas boiler stack in the manner prescribed by the NSPS for small municipal waste combustion units (Appendix AAAA). Within one working day of discovering emissions in excess of a SO_2, NO_X or CO standard (and subject to the specified averaging period), the permittee shall notify the Compliance Authority. [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

TESTING REQUIREMENTS

11. Initial and Annual Stack Tests: The permittee shall conduct initial and annual stack testing as specified by the NSPS for small municipal waste combustion units (Appendix AAAA). As specified in §60.8, the permittee shall conduct required compliance tests within 60 days after vent gas boiler reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup. [NSPS Subpart AAAA and Rule 62-4.070(3), F.A.C.]

12. Initial and Annual VOC Performance Check: No later than 180 days after initial operation of the vent gas boiler and annually during each federal fiscal year (October 1 to September 30) thereafter, the permittee shall determine compliance with **Condition 3.E.3.a, 3.E.3.b or 3.E.3.c**. Any VOC stack testing performed pursuant to this condition shall be performed in accordance with the following reference test method.

Method	Description of Method and Comments
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)

The above method is described in Appendix A of 40 C.F.R. 60 and is 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 62-4.070(3), 62-204.800, 62-297.100 and 62-297.310(7)(a)3., F.A.C. and Appendix A of 40 C.F.R. 60]

RECORDS AND REPORTS

13. Recordkeeping Requirements: The permittee shall record the hours of operation and MMBtu of total heat input for the vent gas boiler. The permittee shall record the standard cubic feet of syngas, natural gas and landfill gas fired in the vent gas boiler. These records shall be kept and made available to the Compliance Authority upon request. [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

14. Stack Test Reports: In addition to the information required in Appendix CTR, each stack test report shall also include the following information: heat input rate (MMBtu/hour), calculated authorized fuels firing rate by fuel type (cubic feet per minute), emissions rate (in the units of the applicable standard) and approximate gasifier feed rates by feedstock type, in dry tons per hour. In addition, based on stack test results or CEMS data as appropriate, the TPY of NO_X, SO_2, CO, VOC, $PM_{10}/PM_{2.5}$ and HCl shall be included in the stack test report. When the TPY is based on CEMS data, the CEMS results from the previous 12 months prior to the stack test shall be used. When stack test results are used, the TPY calculation shall be based on back casting for the preceding 12 months the current stack test results. [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

F. Tank Farm (EU-007)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
007	Tank Farm: • Product Storage Tank: 94,755-gallon ethanol storage tank. The maximum true vapor pressure of ethanol at 32.4 °C (maximum monthly average temperature for Vero Beach) is 1.72 psia. • Denaturant Storage Tank: 19,800-gallon denaturant storage tank. The denaturant is gasoline with a nominal Reid vapor pressure of 9 psia.

APPLICABLE STANDARDS AND REGULATIONS

1. NSPS for Volatile Organic Liquid Storage Vessels (Appendix Kb): The product storage tank and the denaturant storage tank are subject to 40 C.F.R. part 60, subpart Kb—Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction or Modification Commenced After July 23, 1984. The permittee shall comply with the requirements of the NSPS, included as Appendix Kb.
[Application No. 0610096-001-AC and Rule 62-296.100(3), F.A.C.]

EQUIPMENT

2. Storage Tanks: The permittee is authorized to install a nominal 19,800-gallon denaturant storage tank and a nominal 94,755-gallon tank to store the final ethanol product. The final ethanol product shall be a mixture of ethanol and 2 to 5 percent denaturant. The denaturant shall be gasoline with a nominal Reid vapor pressure of 9 psia. [Application No. 0610096-002-AC]

3. Internal Floating Roofs: The storage tanks shall be equipped with fixed roofs in combination with internal floating roofs meeting the requirements of the NSPS, included as Appendix Kb.
[Application No. 0610096-001-AC]

PERFORMANCE RESTRICTIONS

4. Ethanol Throughput: Throughput of final ethanol product is limited to 8.42 million gallons per year on a rolling 12-month basis.
[Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

5. Denaturant Throughput: Throughput of denaturant is limited to 0.42 million gallons per year on a rolling 12-month basis.
[Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

6. Hours of Operation: The hours of operation of this emission unit are not limited (8,760 hours per year).
[Application No. 0610096-001-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

RECORDS AND REPORTS

7. Recordkeeping Requirements: The permittee shall maintain records of the amount of final (denatured) ethanol product throughput (gallons per year) on a rolling 12-month basis. These records shall be kept and made available to the Compliance Authority upon request.
[Rule 62-4.070(3), F.A.C. Reasonable Assurance]

G. Loadout Flare (EU-008)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
008	Loadout Flare: Up to 200 gallons of denatured ethanol per minute will be transferred to ethanol tanker trucks. Displaced vapor from the 8,000 gallon, dedicated ethanol tank trucks will be routed to the loadout flare.

EQUIPMENT

1. Loading Rack: The permittee is authorized to construct a product loading and metering system equipped with a loading rack designed to transfer a nominal 200 gallons per minute of denatured ethanol product to nominal 8,000 gallon, ethanol-dedicated tank trucks.
[Application No. 0610096-002-AC; Rule 62-4.070(3), F.A.C. Reasonable Assurance; and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

2. Loadout Flare: The permittee is required to construct an enclosed flare system with a continuous natural gas pilot flame. The loadout flare shall be used to capture and destroy vapors displaced during truck loadout. The loadout flare shall comply with the requirements of 40 C.F.R. 60.18, included in Appendix GP.
[Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

PERFORMANCE RESTRICTIONS

3. Hours of Operation: The hours of operation of the pilot flame for the flare system are not limited (8,760 hours per year). Air flow routed to the flare is limited to 1.123 million standard cubic feet per year on a rolling 12-month basis. The flare shall be operated at all times when truck loading operations are taking place.
[Application No. 0610096-002-AC and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

   {Permitting Note: 1.123 million standard cubic feet of displaced vapors per year result from the loading of 8.42 million gallons per year of ethanol product into the tank trucks. With the loadout flare design provided by the permittee, the flare will operate at maximum loading less than 700 hours per year at the maximum design flow rate. The truck loading and gas flow rates to the flare may vary.}

4. Approximate Capacities: The flare system shall be designed to combust vapors displaced from the trucks during the loading of the denatured ethanol product. The trucks are assumed to be in dedicated denatured ethanol product service (i.e., only denatured ethanol product vapors will be displaced). The product loadout flare shall have a nominal rated capacity of 3.4 MMBtu per hour. Natural gas will be used as the fuel for the pilot, which shall have a nominal rated capacity of 0.17 MMBtu per hour.
[Application No. 0610096-002-AC and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]

TESTING AND MONITORING REQUIREMENTS

5. Visible Emission Compliance Tests: The flare system exhaust shall be tested to demonstrate initial compliance with the visible emission standard specified in 40 C.F.R. 60.18 no later than 180 days after initial operation and during each federal fiscal year (October 1 to September 30) thereafter. Testing shall be conducted as specified in 40 C.F.R. 60.18(f). Testing shall be conducted while tank trucks are being loaded. [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

6. Operation and Maintenance: The permittee shall monitor the flare to ensure that it is operated and maintained in conformance with its design. The permittee shall monitor the flow rate of displaced vapors to the flare. [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

RECORDS AND REPORTS

7. Records: The permittee shall record in a written or electronic log the monthly flow rate of displaced vapors to the flare, the duration of each flare event and the reason for flaring. These records shall be kept and made available to the Compliance Authority upon request.
[Rule 62-4.070(3), F.A.C. Reasonable Assurance]

H. Syngas Flare (EU-010)

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
010	Syngas Flare: The syngas flare is used to control vent gas emissions during system malfunctions when the vent gas boiler is unavailable. It has a natural gas fueled pilot light that operates continuously. The syngas flare also accepts vent gases from the gasifiers, syngas compression, dry gas cleaning, waste heat recovery and vent gas scrubbing.

EQUIPMENT

1. Syngas Flare: The permittee is authorized to construct an enclosed ground flare system with a continuous natural gas pilot flame. The syngas flare shall comply with the requirements of 40 CFR 60.18, included in Appendix GP.
   [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

PERFORMANCE RESTRICTIONS

2. Hours of Operation: Air flow routed to the syngas flare shall not exceed 496.2 million standard cubic feet per year on a rolling 12-month basis. The flare will be used during facility shake-down, startup of the gasifier, when the syngas quality is not adequate for use in either the fermenter (EU 003) or vent gas boiler (EU 006) or until the fermenter pressure reaches the boiler head pressure or for emergencies.
   [Application No. 0610096-003-AC and Rule 62-210.200, F.A.C. Definition of "Potential to Emit"]
   {Permitting Note: 496.2.2 million standard cubic feet per year flow corresponds to approximately 640 hours per year of operation at the design maximum flow rate.}

TESTING AND MONITORING REQUIREMENTS

3. Visible Emission Compliance Tests: The flare system exhaust shall be tested to demonstrate initial compliance with the visible emission standard specified in 40 C.F.R. 60.18 no later than 180 days after initial operation, and once during each federal fiscal year (October 1 to September 30) thereafter. The flare shall be designed for and operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. Testing shall be conducted as specified in 40 C.F.R. 60.18(f). Testing shall be a visible emissions observation in accordance with EPA Method 22 conducted while venting syngas or vent gas to the flare. [Rule 62-4.070(3), F.A.C. Reasonable Assurance; NSPS Subpart A]
4. Operation and Maintenance: The permittee shall monitor the flare to ensure that it is operated and maintained in conformance with its design. The permittee shall monitor the flow rate of displaced vapors to the flare.
   [Application No. 0610096-002-AC and Rule 62-4.070(3), F.A.C. Reasonable Assurance]

RECORDS AND REPORTS

5. Records: The permittee shall record in a written or electronic log the monthly flow rate of displaced vapors to the flare, the duration of each flare event and the reason for flaring. These records shall be shall be kept and made available to the Compliance Authority upon request.
   [Rule 62-4.070(3), F.A.C. Reasonable Assurance]

I. Emergency Equipment (EU-011)

This section of the permit addresses the following EU.

ID No.	EU Description
005	Emergency Equipment: One emergency natural gas-fired generator with a maximum design rating of 400 kW and one emergency fire pump engine with a maximum design rating of 190 Hp.

EQUIPMENT

1. Emergency Generator: The permittee is authorized to install and maintain one natural gas fired emergency generator with a maximum design rating of 400 kW (536 Hp). [Application No. 0610096-003-AC and Rule 62-210.200 (PTE), F.A.C.]

2. Emergency Fire Pump Engine: The permittee is authorized to continue to operate and maintain one Cummins Model N-855-F diesel fired emergency fire pump engine with a maximum design rating of 190 Hp (142 kW). [Application No. 0610096-003-AC and Rule 62-210.200 (PTE), F.A.C.]

3. Fuel Storage Tank: The permittee is authorized to construct or use one 400 gallon tank to store fuel oil for use in emergency fire pump engine. . [Application No. 0610096-003-AC and Rule 62-210.200 (PTE), F.A.C.]

NSPS AND NESHAP APPLICABILITY

4. NSPS Subpart JJJJ Applicability: The natural gas fired emergency generator was manufactured in 2009. Consequently, it is a stationary spark ignition internal combustion engine subject to the provisions of 40 CFR 60, Subpart JJJJ, including emission testing or certification, applicable general provisions and performance tests. [40 CFR 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines]

5. NSPS Subpart IIIII Applicability: The emergency fire pump engine was manufactured in 1978. Consequently, due to its date of manufacture, the emergency fire pump engine is exempt from the emission testing and certification requirements of NSPS Subpart IIIII. [40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines]

6. NESHAP Subpart ZZZZ Applicability: The emergency generator is subject to the applicable provisions of 40 CFR 63, Subpart ZZZZ. The requirements of NESHAP ZZZZ are met by meeting the requirements of NSPS Subpart JJJJ. These include:

   Per § 63.6625(f), if you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake Hp located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed. This requirement also applies to the emergency fire pump engine.

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

PERFORMANCE RESTRICTIONS

7. Hours of Operation: The emergency generator and the emergency fire pump engine may each operate up to 100 hours per year for maintenance and testing purposes. Operation during emergency conditions is unlimited. [Application No. 0610096-003-AC and Rule 62-210.200 (PTE), F.A.C.]

8. Authorized Fuel: The emergency generator is authorized to fire pipeline quality natural gas only. The emergency fire pump engine is authorized to fire ultra low sulfur distillate fuel only. The natural

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gas shall have a vendor certification indicating its maximum sulfur content is 20 grains per standard cubic feet (gr/scf) or less. The ultra low sulfur distillate fuel oil fired shall have a vendor certification indicating its sulfur content is 0.0015% or less.
[Application No. 0610096-003-AC and Rule 62-210.200 (PTE), F.A.C.]

EMISSION LIMITS AND TESTING REQUIREMENTS

9. Emergency Generator Emission Limits:

Emergency Generator Hp ≥ 150 Hp	**CO (g/Hp-hr)[1]**	**VOC[2] (g/Hp-hr)**	**NO_X (g/Hp-hr)**	**Natural Gas[4]** gr/scf
	4.0	1.0	2.0	
	ppmvd @ 7% O_2[3]	**ppmvd @ 7% O_2**	**ppmvd @ 7% O_2**	
	540	160	86	

1. g/Hp-hr means grams per horsepower-hour.
2. When calculating emissions of VOC, emissions of formaldehyde should not be included.
3. Part per million volume dry at 7 percent oxygen.
4. The fuel used for certifying stationary spark ignition natural gas engines must meet the definition of pipeline-quality natural gas as described in §60.4248 with a sulfur content of no more than 20 gr/scf.

[Application No. 0610096-003-AC; NSPS Subpart JJJJ]

10. Emergency Generator Testing Requirements: The emergency generator shall be stack tested to demonstrate initial compliance with the emission standards for CO, VOC and NO_X. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup of this unit. As an alternative, an EPA certification of emissions characteristics of the purchased model that are at least as stringent as the NSPS Subpart IIII values and the use of ultralow sulfur distillate fuel oil or nonroad diesel fuel with a sulfur content of 15 ppm or less can be used to fulfill this requirement.
[Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.8; 40 CFR 60.4211]

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

Method	**Description of Method and Comments**
7E	Determination of Nitrogen Oxides Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources
18	Measurement of Gaseous Organic Compounds Emissions by Gas Chromatography
25A	Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer

NOTIFICATION, REPORTING AND RECORDS

12. Notifications: Initial notifications are required pursuant to 40 CFR 60.7, 40 CFR 63.9, and 40 CFR 63.6590(b)(i) for the emergency generator.

13. Reporting: The permittee shall maintain records of the amount of liquid fuel 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.]

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