

DRAFT PERMIT

PERMITTEE

Florida Biomass Energy (FBE), LLC
9040 Town Center Parkway
Bradenton, Florida 34202

Authorized Representative:
Mr. Rick Jensen, President

DEP File No. 0810226-001-AC
Expires: December 31, 2013
60.0 Megawatt (MW) Woody Biomass Power Plant
Facility ID No. 0810226
Manatee County

PROJECT

This is the final air construction permit, which authorizes construction of a net 60.0 megawatt (MW) power plant fueled by clean woody biomass. The facility is an electrical services plant categorized under Standard Industrial Classification (SIC) No. 4911. The proposed plant will be located in Manatee County at 11805 US Highway 41 North in Port Manatee, Palmetto, Manatee County, Florida. The plant will be located immediately west of U.S. Highway 41 and approximately 2 miles southwest of the Manatee County municipal airport. The UTM coordinates are Zone 16; 347.8 kilometers (km) East and 3056.2 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. As noted in the Final Determination provided with this final permit, only minor changes and clarifications were made to the draft 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.

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 F.S. 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

Joseph Kahn, Director
Division of Air Resource Management

(Date)

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 _____ to the persons listed below.

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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.

(Clerk)

(Date)

SECTION 1. GENERAL INFORMATION (DRAFT PERMIT)

PROPOSED PROJECT

The project is the construction of a net 60.0 MW electric power plant utilizing a grate-type suspension boiler (GSB), fueled by clean woody biomass. The GSB will provide steam to a steam turbine generator (STG). The proposed plant will be located in Manatee County at 11805 US Highway 41 North in Port Manatee, Palmetto, Manatee County. The plant will be located immediately west of U.S. Highway 41 and approximately 2 miles southwest of the Manatee County municipal airport. The GSB will use biodiesel or as a backup ultra low sulfur distillate (ULSD) fuel oil (FO) as startup, shutdown and bed stabilization fuels. Biodiesel or ULSD FO will also be used as the fuels for all emergency equipment.

The FBE project will incorporate the following pollution control equipment and measures:

- Efficient combustion in the GSB and emergency equipment to minimize formation of particulate matter (PM/PM₁₀/PM_{2.5}), nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compounds (VOC);
- Limitation of biomass to clean woody untreated biomass to minimize sulfur dioxide (SO₂) and hazardous air pollutant (HAP) formation, including hydrogen chloride (HCl) and hydrogen fluoride (HF);
- Use of inherently clean fuels for startup, shutdown and bed stabilization of the GSB and the operation of emergency equipment;
- An oxidation catalyst (ox-cat) to reduce CO and VOC;
- Ammonia (NH₃) injection into a selective catalytic reduction (SCR) reactor to destroy NO_x and help in the reduction of VOC and dioxin/furan (D/F);
- An in-duct sorbent injection system (IDSIS) of lime, trona, or sodium bicarbonate to control SO₂, HCl, HF and other acid gas HAP;
- An electrostatic precipitator (ESP) to further control PM/PM₁₀/PM_{2.5} and to remove injected sorbents; and,
- Reasonable precautions and best management practices to minimize emissions from biomass handling, storage and processing and ash (bottom and fly) handling, storage and shipment.

The project will incorporate the following emission measurement systems:

- Continuous emission monitoring systems (CEMS) for CO, SO₂, NO_x, HCl, and HF; and,
- A continuous opacity monitoring system (COMS) for visible emissions (VE).

This project will consist of the following emissions units (EU).

Facility ID No. 0810226	
EU ID No.	Emission Unit Description
001	Feedstock delivery, handling and preparation
002	Woody biomass-fueled, grate-type suspension boiler (GSB) with a maximum heat input capacity of 833 mmBtu per hour (mmBtu/hr) on a 4 hour average basis
003	Ash handling, storage and shipment
004	500 kilowatt (kW) emergency generator
005	250 kW emergency fire pump
006	Cooling Tower

Facility Regulatory Classification

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility operates 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 62-213, F.A.C.
- The facility is not a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.
- The facility is subject to the provisions of the Clean Air Interstate Rule (CAIR), including applicable portions of Chapters 62-204, 62-210 and 62-296, F.A.C.
- The facility is subject to Chapter 62-204-800, F.A.C for New Source Performance Standards (NSPS) under Section 111 of the Clean Air Act (CAA) and National Emissions Standards for Hazardous Air Pollutants (NESHAP) under Section 112 of the CAA.

SECTION 2. ADMINISTRATIVE REQUIREMENTS (DRAFT PERMIT)

1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Department. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. All documents related to applications for permits shall be submitted to the Air Resource Section of the Department's Southwest District Office at: 13051 North Telecom Parkway, Temple Terrace, Florida 33637-0926 (Ph: 813-632-7600).
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 Southwest District Office at: 13051 North Telecom Parkway, Temple Terrace, Florida 33637-0926 (Ph: 813-632-7600).
3. Appendices: The following Appendices are attached as a part of this permit and the permittee must comply with the requirement of the appendices:
 - Appendix ASTM ASTM Standard D6751-09 for Biodiesel;
 - Appendix BMP Best Management Practices Plan;
 - Appendix CC Common Conditions;
 - Appendix CEMS Continuous Emissions Monitoring System (CEMS) Requirements;
 - Appendix CF Citation Formats and Glossary of Common Terms;
 - Appendix CTR Common Testing Requirements;
 - Appendix Db NSPS, 40 CFR 60, Subpart Db – Standards of Performance Small Industrial-Commercial-Institutional Steam Generating Units;
 - Appendix F 40 CFR 75, Appendix F, Section 5 - Measurement of Boiler Heat Input Rate;
 - Appendix GC General Conditions;
 - Appendix GP Identification of General Provisions - NSPS 40 CFR 60, Subpart A from and NESHAP 40 CFR 63, Subpart A;
 - Appendix IIII NSPS, Subpart IIII - Stationary Compression Ignition Internal Combustion Engines; and
 - 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.]
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.]

SECTION 2. ADMINISTRATIVE REQUIREMENTS (DRAFT PERMIT)

7. Source Obligation:

- (a) 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.
- (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 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.
- (c) At such time that the affected source becomes a major source of HAP by virtue of a relaxation in any enforceable limitation which was established by this permit or by actually equaling or exceeding 10 TPY of any HAP or 25.0 TPY of all HAP, then the requirements of 40 CFR 63, Subpart B - Requirements for Control Technology With Clean Air Act Sections, Sections 112(g) and 112(j), shall apply to the source as though construction had not yet commenced on the source.

[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. Objectionable Odors Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]
{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.}
- 10. Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Department's Bureau of Air Regulation in Tallahassee and a copy to the Region 4 Office of the U.S. Environmental Protection Agency (EPA) in Atlanta, Georgia. This permit does not specify the Acid Rain program requirements. These will be included in the Title V air operation permit. [40 CFR 72].
- 11. 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

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matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter. Appendix BMP of this permit provides a Best Management Plan (BMP) of reasonable precautions specific to the FBE facility to control fugitive PM emissions. General 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 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.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

A. Feedstock delivery, handling and preparation (EU-001)

This section of the permit addresses the following emissions unit.

EU ID No. 001	Emission Unit Description
	<p><u>Feedstock delivery, handling and preparation:</u> This emission unit will consist of three primary components: (1) a stackout system; (2) a reclaim system; and, (3) an emergency short-term fuel feed system.</p> <ul style="list-style-type: none">• <u>Stackout System:</u> All clean woody biomass feedstock will be delivered to the project site via truck. The fuel trucks will have an average net load of 25 tons of wood chips. The truck receiving system will be equipped with two hydraulically operated truck dumpers, which will slide each 25 ton load into a 50 ton capacity, fully-enclosed live-bottom receiving hopper. The hoppers will have a discharge rate capability of 150 tons per hour (TPH). The stackout system will provide approximately 20,000 tons of biomass storage, using a stacking system that continuously adjusts the height of the discharge just above the pile height, to minimize dust.• <u>Reclaim System:</u> Wood chips will be reclaimed from the storage pile via a drag chain or auger type reclaimers to a covered conveyor which will transfer the material to a sizing screen system and then transfer the screened fuel to another covered conveyor. Fugitive emissions will be controlled by a fabric filter. The covered reclaim conveyors are rated at 150 TPH. The anticipated average reclaim rate is estimated equal to 68 TPH. Conveyors will transport the feedstock to a storage silo (day bin) within the boiler structure. All conveyors will be covered to reduce particulate emissions.• <u>Emergency Short-Term Fuel Feed System:</u> An at grade back-up emergency fuel storage area, located adjacent to the fuel truck access road, sufficient for an additional 30,000 tons of fuel, will be used in the event of major repairs to the stack out or reclaim systems. The emergency pile will be transferred to the truck dump hoppers via front-end loaders and will utilize the enclosed by-pass conveyor to by-pass the stacker to transport the material directly to the boiler.

EQUIPMENT

1. Equipment: The permittee is authorized to construct Emission Unit EU-001, which consists of a stackout, a reclaim and emergency short-term fuel feed systems containing the following equipment classified as potential sources of PM/PM₁₀/PM_{2.5} emissions hence forth called PM:
 - a. Truck Dumper Areas: Truck Dumpers #1 and 2 and two (2) Self-Dumping Stations;
 - b. Enclosed Conveyor Systems: Enclosed Conveyor Systems for woody biomass handling. Associated drop points within the conveyor system shall be enclosed and fugitive emissions controlled by fabric or bin vent filters where technically feasible;
 - c. Woody Biomass Storage Areas: The stackout and emergency fuel storage areas and associated drop points from conveyor system to storage areas shall be designed to minimize fugitive PM emissions; and,
 - d. Boiler Storage Silo (Day Bin): The day bin shall be constructed with a bin vent screen to control PM emissions.[Application No. 0810226-001-AC; and Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]
2. Control of Fugitive Emissions: To minimize fugitive PM, woody biomass conveyors shall be covered. Dust collectors shall be installed on the conveyor transfer drop points where practical. Vent screens associated with the fuel bins shall be installed on the fuel bins to minimize PM emissions.

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

A. Feedstock delivery, handling and preparation (EU-001)

*{Permitting Note: One small section of the conveyance belt of the conveyors near the receiving point shall provide for visible inspection from above so that woody biomass that does not meet **Condition 6** of this subsection can be removed.}*

[Application No. 0810226-001-AC and Rule 62-4.070, F.A.C. Reasonable Assurance]

3. **Baghouses:** Based on the preliminary design, the permittee shall install the following baghouses. Each baghouse shall be designed and maintained to achieve an outlet dust loading rate of 0.01 grains per dry standard cubic feet (gr/dscf) in its exhaust. Based on the final engineering design needs, additional baghouses may be installed as necessary to control fugitive dust from material handling and storage. The Compliance Authority shall be notified 180 days before FBE becomes operational of any final engineering design changes. Should the preliminary design change, the permittee shall provide final design details for all baghouses in the application for a Title V air operation permit along with a concurrent modification of this air construction permit.
 - a. *Stackout Baghouse* shall control dust from the screen and hog enclosure.
 - b. *Reclaim Baghouse* shall control dust from the magnetic separator and screening enclosure.
 - c. *Emergency Fuel Feed System Baghouse #1* shall control dust from the screening enclosure.
 - d. *Emergency Fuel Feed System Baghouse #2* shall control dust from the boiler house enclosure.

[Application No. 0810226-001-AC; and Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

4. **BMP Plan:** A BMP plan shall be utilized to minimize fugitive PM emissions from receiving, handling, storage and processing of woody biomass. Best management practices shall be utilized to reduce the potential for spontaneous combustion of stored woody biomass and odors. A preliminary BMP plan is contained in Appendix BMP of this permit. This plan also includes quality control and assurance (Q&A) procedures to ensure woody biomass delivered by vendors and suppliers to the FBE facility meet the requirements given in the BMP plan. No later than 180 days before the FBE facility becomes operational, a final BMP plan shall be filed with the Compliance Authority to reflect the final engineering designs of the biomass receiving, handling, storage and processing systems. The final BMP plan will also be incorporated into the Title V operating permit.

*{Permitting Note: As part of that final BMP, technical information may be provided by FBE to the Compliance Authority based on the final engineering of the fuel conveyance system that describes methods or equipment designed to control fugitive PM emissions from the conveyor transfer drop points. These methodologies and equipment designs may obviate the requirement to install dust collectors on the conveyor transfer drop points stipulated in **Condition 2** of this subsection.*

Acceptance of the final BMP by the Compliance Authority with the reference to the specific design of the conveyor transfer drop points may satisfy the requirement to install dust collectors.}

{Permitting Note: PM emissions from this emission unit during operation of the FBE facility are estimated to be 10.2 tons in any consecutive twelve month period, of this amount 2.8 tons are PM₁₀.}

[Application No. 0810226-001-AC; Rule 62-4.070, F.A.C. Reasonable Assurance, and Rule 62-296.320, F.A.C.]

PERFORMANCE RESTRICTIONS

5. **Hours of Operation:** The hours of operation of this emissions unit is not limited (i.e., unrestricted at 8,760 hours per year).

[Application No. 0810226-001-AC; and Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

A. Feedstock delivery, handling and preparation (EU-001)

6. Clean Woody Biomass: Municipal Solid Waste (MSW) is prohibited from use at this facility. The fuel to be received, handled, stored and processed shall consist of untreated woody biomass as defined in the Appendix BMP of this permit. Inspection and testing procedures describe in Appendix- BMP shall be followed to insure that appropriate woody biomass is used as fuel and that MSW is not used as fuel.
[Application No. 0810226-001-AC and Rules 62-4.070(3) F.A.C., and 40 CFR 60.51b.]
7. Clean Woody Biomass Storage Areas: Clean woody biomass storage areas shall consist of the stackout and emergency fuel feed storage piles. The stackout pile will contain approximately 20,000 tons of woody biomass while the emergency pile will contain approximately 30,000 tons of woody biomass. Biomass placed in the piles will be largely managed by mechanical means. The biomass will then be taken by covered conveyors to the boiler storage silo and from there to the GSB boiler. Each storage pile area will be on level, firm ground and wet suppression used as necessary to control fugitive dust emissions. [Application No. 0810226-001-AC]
8. Emergency Biomass Pile Storage Restriction: Due to concerns about odor and the fire hazard posed by spontaneous combustion, the longest duration that biomass shall be stored in the emergency pile before it is combusted in the GSB is 30 days. [Rules 62-296.320(2), F.A.C. and 62-4.070(3) F.A.C.]
9. Paved Roadways and Gravel Areas: Fugitive dust emissions from the plant's paved roadways and gravel areas shall be controlled in accordance with **Condition 11 of Section 2** of this permit and the BMP plan.
[Rule 62-4.070, F.A.C. Reasonable Assurance, and Rule 62-296.320, F.A.C.]

EMISSIONS STANDARDS

10. General Opacity: As determined by EPA Method 9, there shall be no visible emissions greater than 10% opacity, except for one 6 minute period no greater than 20% from the outlets of the drop points, transfer points, vent screens and dust collectors associated with this emission unit.
[Application No. 0810226-001-AC and Rule 62-212.400(5)(c), F.A.C.].
11. Opacity from Baghouses: Opacity from the baghouses of this emission unit shall not exceed 5% opacity based on EPA Method 9 during initial and annual tests.
[Rule 62-4.070(3) F.A.C., Reasonable Assurance]

TESTING AND MONITORING REQUIREMENTS

12. Initial VE Compliance Tests: The outlets of the drop points, transfer points, the silo vent screens associated with the fuel bins and the baghouses of this emissions unit shall be tested to demonstrate initial compliance with the emissions standards for opacity. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the emission unit. [Rules 62-4.070(3) and 62-297.310(7)(a)1, F.A.C.]
13. Annual VE Compliance Tests: During each federal fiscal year (October 1st to September 30th), the outlets of the drop points, transfer points, the silo vent screens associated with the fuel bins and the baghouses of this emissions unit shall be tested to demonstrate compliance with the emissions standards for opacity. [Rule 62-297.310(7)(a)4, F.A.C.]
14. 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.]

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A. Feedstock delivery, handling and preparation (EU-001)

15. 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

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

16. 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.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

B. Grate-Type Suspension Biomass Boiler (EU-002)

This section of the permit addresses the following emissions units.

EU ID No. 002	Emission Unit Description
	<p><u>Description:</u> The boiler will be a woody biomass-fueled grate-type suspension boiler (GSB) wherein wood is combusted on water cooled movable grates. The heat from the exhaust will be recovered to generate superheated steam to generate 60.0 MW (net) of electricity in a STG.</p> <p><u>Fuels:</u> The primary fuel will be clean woody biomass as described in Appendix BMP of this permit. Biodiesel or as a backup ULSD FO will be used for startup, shutdown and bed stabilization of the GSB.</p> <p><u>Capacity:</u> The maximum heat input capacity is 833 mmBtu per hour (4-hour average basis). The steam production capability will be approximately 560,000 pounds per hour (lb/hour) at 1,550 psi and 960 degrees °F.</p> <p><u>Controls:</u> Efficient combustion of woody biomass in the GSB boiler to minimize formation of PM, NO_x, CO and VOC; limitation of biomass to woody untreated biomass to minimize SO₂ and HAP formation; use of an inherently clean fuels for startup, shutdown and bed stabilization; a oxidation catalyst (ox-cat) to further control CO, VOC, and HAP; NH₃ injection into SCR reactor to destroy NO_x and help in the reduction of VOC, HAP and D/F; an IDSIS to further control SO₂ and HAP, including HCl; and, an ESP with a design efficiency of 99.9% to further control PM and VE, (i.e. opacity) and remove injected sorbents.</p> <p><u>Stack Parameters:</u> The stack will be approximately 9.3 feet in diameter (maximum) and 145 feet tall (minimum). Exhaust flue gas will exit the stack at the following approximate conditions: an exit temperature of 300 °F and a volumetric flow rate of 265,972 actual cubic feet per minute (acfm).</p> <p><u>CEMS and COMS:</u> Emissions of CO, NO_x, SO₂, HCl and HF will be monitored and recorded by CEMS. VE will be monitored and recorded by a COMS.</p> <p><u>Applicability of NSPS 40 CFR Subpart Db:</u> This unit is subject to NSPS Subpart Db – for Industrial-Commercial-Institutional Steam Generating Units because it has a maximum heat input capacity greater than 100 mmBtu/hr from all combusted fuels and is not subject to NSPS Subpart Da because it has a maximum heat input capacity of less than 250 mmBtu/hr from the combustion of fossil fuels.</p>

EQUIPMENT

- Construction of GSB: The permittee is authorized to construct one GSB with startup burners, overfire air ports, steam drum, superheater, economizer, air heater, ash hoppers, ducts, STG, fuel feeding equipment, air-cooled condensing unit, air pollution control equipment and other associated equipment. [Application No. 0810226-001-AC]
- Air Pollution Control Equipment: To comply with the emission standards of this permit, the permittee shall install the following add-on air pollution control equipment on the GSB.
 - ESP: The permittee shall design, install, operate and maintain an ESP to control PM and VE. The control efficiency of the ESP shall be 99.9% as demonstrated by an emission limit of 0.01 gr/dscf at 7% oxygen (O₂) at its outlet.
[Application No. 0810226-001-AC and Rule 62-4.070(3), F.A.C.]
 - SCR System: The permittee shall design, install, operate, and maintain an NH₃-based SCR system including reagent storage tank, pumps, metering system, injection grid, reactor and catalyst to reduce NO_x emissions in the flue gas exhaust and achieve the NO_x emissions standards specified in this subsection. The SCR shall be brought on line and functioning

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

B. Grate-Type Suspension Biomass Boiler (EU-002)

properly whenever the boiler is in operation in accordance with the manufacturer's procedures and guidelines. [Application No. 0810226-001-AC and Rule 62-4.070(3), F.A.C.]

- c. IDSIS: An IDSIS shall be installed that consists of the pumps, the metering and injection equipment required to inject the sorbent into the GSB duct work to control SO₂ and HAP acid gas emissions. A sorbent injection rate will be set to the amount necessary (lb/hr) to control SO₂ and HAP emissions to the standards specified in this subsection.
[Application No. 0810226-001-AC and Rule 62-4.070(3), F.A.C.]
 - d. Ox-Cat: The permittee shall design, install, operate and maintain an ox-cat to control CO, VOC and HAP emissions to the emission standards specified in this section.
[Application No. 0810226-001-AC and Rule 62-4.070(3), F.A.C.]
 - e. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emissions of air pollutants without this equipment operating properly.
[Rule 62-210.650, F.A.C.]
3. Biodiesel and ULSD FO Storage Tanks: The permittee is authorized to construct two 50,000 gallon tanks to store biodiesel and ULSD FO for use as GSB fuels for startup, shutdown and bed stabilization and for use in emergency equipment. The biodiesel used at the FBE facility must meet the ASTM D6751-09 Standard for biodiesel given in Appendix ASTM of this permit.
[62-4.070(3), Reasonable Assurance]
- {Permitting Note: The biodiesel and ULSD FO storage tanks at the FBE facility are not subject to NSPS Subpart Kb because they are larger or equal to 40,000 gallons (151 cubic meters) and store liquids (biodiesel and ULSD FO) with a maximum true vapor pressure less than 3.5 kPa (0.51 pounds per square inch (psi)). Accordingly they are unregulated emissions units.}*
- [40 CFR 60.110b(a) and (c); Rule 62-204.800(7)(b), F.A.C.]
4. Sorbent Storage Silos: The permittee is authorized to construct sorbent storage silos with bin vent filters to control fugitive dust emissions during loading from trucks to store lime, trona, or sodium bicarbonate for use by the IDSIS. Bin vent filters shall be installed on the sorbent storage silos to control PM emissions. The bin vent filters shall be designed to achieve a PM emission rate of 0.01 gr/dscf. [Application No. 0810226-001-AC and Rule 62-4.070(3), F.A.C.]

PERFORMANCE REQUIREMENTS

5. Authorized Fuels: The GSB is authorized to combust as its primary fuel clean woody biomass as defined in **Appendix BMP** of this permit. In addition, the GSB is authorized to combust biodiesel and as a backup ULSD FO for startup, shutdown and bed stabilization. The biodiesel must meet the ASTM specification given in Appendix ASTM of this permit. As per **Condition 7** below, the burner equipment to fire fossil fuels in the GSB shall have the physical capabilities to burn less than 250 mmBtu/hr of fossil fuel heat input consisting of ULSD FO to satisfy the heat input limitation requirements of NSPS, Subpart Db.
- {Restriction of fossil fuels to ULSD FO satisfies the requirement to determine BACT for PM and SO₂ to the extent that fossil fuel is fired in accordance with Rule 62-296.410, F.A.C. for this class of boiler.}*
- [Application No. 0810226-001-AC; Rules 62-4.070(3), 62-296.410, 62-210.200(PTE), F.A.C., and NSPS, Subpart Db]
6. Heat Input Rate from all Fuels: The maximum heat input capacity from all fuel combinations to the GSB is 833 mmBtu per hour on a 4-hour average basis.
[Application No. 0810226-001-AC; NSPS Subpart Db; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

B. Grate-Type Suspension Biomass Boiler (EU-002)

7. Heat Input from Fossil Fuels: The maximum heat input capacity to combust ULSD FO in the GSB, as determined by the physical design and characteristics of the boiler is limited to less than 250 mmBtu/hr.
[Application No. 0810226-001-AC; NSPS Subpart Db; Rules 62-4.070(3); and 62-210.200(PTE), F.A.C.]
8. Operational Hours: The hours of operation of this emission unit are not restricted (8760 hours/year).
[Application No. 0810226-001-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

9. Emission Limits: Emissions from GSB shall not exceed the following standards.

Pollutant	Initial (I) or Annual (A) Test	CEMS/COMS Based Averages	
NO _x ^a	15.1 lb/hr (I)	15.1 lb/hr 12-month, rolled monthly	0.20 lb/mmBtu 30-day basis
SO ₂ ^b	12.1 lb/hr (I)	12.1 lb/hr, 12-month, rolled monthly	
CO ^c	22.3 lb/hr (I)	22.3 lb/hr, 12-month, rolled monthly	
HCl ^d	2.25 lb/hr (I)	9.86 TPY 12 month, rolled monthly	Σ (HCl, HF) = 11.5 TPY 12 month, rolled monthly ^e
HF ^d	2.25 lb/hr (I)	9.86 TPY 12 month, rolled monthly	
PM/PM ₁₀ ^{f, g}	7.6 lb/hr (I,A) 0.01 lb/mmBtu (I,A) 0.01 gr/dscf @ 7% O ₂	10 percent (%) opacity (6-minute blocks) 20% opacity (one 6-minute block per hour)	
THC ^h	(I)	Not applicable	
SAM ⁱ	(I)	Not applicable	
Σ (CH ₄ O, C ₆ H ₆ , CH ₂ O, C ₈ H ₈ C ₂ H ₄ O, Cl ₂ , CH ₂ Cl ₂ ; C ₇ H ₈) ^j	2.75 lb/hr (12.0 TPY) (I,A)	Not applicable	
NH ₃ Slip ^k	10 ppmvd @ 7% O ₂ (I,A)	Not applicable	

- a. NO_x limit in pounds per million Btu heat input (lb/mmBtu) on a 30-day basis is pursuant to NSPS Subpart Db. Mass rate limit in pounds per hour insures annual emissions will be less than 250 tons per year (TPY).
- b. Use of low sulfur fuels including wood, biodiesel and ULSD FO insure that uncontrolled SO₂ emissions are less than 0.32 lb/mmBtu. Therefore, no specific limit from NSPS Subpart Db applies. Mass rate limit in lb/hr insures annual emissions will be less than 250 TPY.
- c. Mass rate CO emission limit insures annual emissions will be less than 250 TPY.
- d. Individual HCl and HF mass emission limits to provide reasonable assurance that annual emissions of each HAP will be less than 10 TPY.
- e. Combined HCl and HF mass rate helps provide reasonable assurance that the facility aggregate PTE of HAP is less than 25 TPY.

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

B. Grate-Type Suspension Biomass Boiler (EU-002)

- f. Compliance with the PM/PM₁₀ concentration emission limit insures compliance with the 40 CFR 60, Subpart Db limit of 0.030 lb PM/mmBtu (filterable PM only). Mass rate limit insures annual emissions will be less than 250 TPY. The gr/dscf emission limit applies to bin vent filters of sorbent storage silos.
 - g. During startups, shutdowns and malfunction the following limits apply: 20% opacity (6-minute blocks) except for one 6-minute block per hour of 27%.
 - h. Total hydrocarbon (THC) as a surrogate for VOC. One initial test required to verify emission rate.
 - i. One initial test required to verify emission rate.
 - j. CH₄O, C₆H₆, CH₂O, C₈H₈, C₂H₄O, Cl₂, CH₂Cl₂, C₇H₈ means: acrolein; benzene; formaldehyde; styrene; acetaldehyde; chlorine; dichloromethane; and toluene, respectively. Initial and annual tests to verify mass emission rates for these organic HAP to provide reasonable assurance that the facility aggregate potential to emit HAP is less than 25 TPY.
 - k. Ammonia (NH₃) slip in parts per million by dry volume at 7% oxygen (ppmvd @ 7% O₂).
[Application No. 0810226-001-AC; Rules 62-210.200(PTE), 62-296.406, 62-296.410, and 62-4.070(3)(Reasonable Assurance), F.A.C. to avoid triggering PSD Requirements under Rule 62-212.400, F.A.C.; 40 CFR 60, Subpart Db]
10. Sorbent Storage Silos VE: As determined by EPA Method 9, there shall be no VE greater than 5% opacity from the bin vent filters of the sorbent storage silos during loading by truck.
[Application No. 0810226-001-AC; Rules 62-4.070(3), 62-210.200(PTE), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]
11. PM Emission Standard: PM emissions from bin vent filters of the sorbent storage silos shall not exceed 0.01 gr/dscf @ 7% O₂. [Application No. 0810226-001-AC; Rules 62-4.070(3), 62-210.200(PTE), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]
12. Bin Vent Filter PM Standard by Opacity Measurement: A VE reading of 5% opacity or less may be used to demonstrate compliance with the PM emission standard in **Condition 11** above. A VE reading greater than 5% opacity will require the permittee to perform a PM emissions test on the bin vent filter within 60 days to show compliance with the PM standard.
[Application No. 0810226-AC; Rules 62-296.603; 62-296.712, F.A.C.; and 40 CFR 60.122(a)(2) and Rule 62-4.070, F.A.C. Reasonable Assurance]
13. Acid Gas HAP Testing: In accordance with EPA Method 26 or 26A, the permittee shall conduct initial performance tests to determine the acid gas HCl and HF HAP emission rates. The emissions rates of HCl and HF shall not exceeded 2.25 lb/hr (9.86 TPY) individually and 11.5 TPY combined. The initial performance tests shall be conducted after completing shakedown of all equipment and beginning commercial operation with the CO CEMS fully functional. Shakedown shall not exceed 180 days after first fire. CO emissions from the CEMS shall be reported for each test run.
[Rule 62-4.070(3), F.A.C.]
14. Inorganic and Organic HAP Testing: In accordance with EPA Method 320, the permittee shall conduct initial and annual performance tests to determine CH₄O, C₆H₆, CH₂O, C₈H₈, C₂H₄O, Cl₂, CH₂Cl₂ and C₇H₈ emission rates. The combined emissions rate of the seven key organic HAP plus CL₂ shall not exceeded 2.75 lb/hr (12.0 TPY). The initial performance tests shall be conducted after completing shakedown of all equipment and beginning commercial operation with the CO CEMS fully functional. Shakedown shall not exceed 180 days after first fire. CO emissions from the CEMS shall be reported for each test run. Annual performance tests shall be conducted during each federal fiscal year (October 1 – September 30). [Rule 62-4.070(3), F.A.C.]
15. Individual and Total Annual HAP Emission Cap: HAP emissions are limited to less than 10 TPY of any individual HAP or 25.0 TPY of all HAP. [Rule 62-4.070(3), F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

B. Grate-Type Suspension Biomass Boiler (EU-002)

CONTINUOUS EMISSION MONITORS

16. Continuous Monitoring Requirements: The permittee shall install, calibrate, maintain and operate CEMS and a diluent monitor to measure and record the emissions of SO₂, NO_x, CO, HCl and HF from the boiler stack in a manner sufficient to demonstrate continuous compliance with the CEMS-based emission standards in **Condition 9** above (see Appendix CEMS for further information). The permittee shall install, calibrate, maintain and operate COMS to measure and record the opacity to demonstrate compliance with the COMS-based emission standard in **Condition 9** above. 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 the CEMS or COMS based VE, SO₂, NO_x, CO, HCl or HF standard, the permittee shall notify the Compliance Authority.
- a. SO₂ CEMS: - The SO₂ CEMS shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Record keeping 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. The CO monitor span values shall be set, considering the allowable methods of operation and corresponding emission standards.
 - d. HCl CEMS: The HCl CEMS shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 15, EPA Method OTM 22 or alternative specifications approved by the Department. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, EPA Method OTM 23 or alternative procedures approved by the Department. A Data Assessment Report shall be made each calendar quarter and reported semiannually to the Compliance Authority. The RATA tests required for the HCl monitor shall be performed using EPA Method 26 or 26A as detailed in Appendix A of 40 CFR 60 or by Method 320 as detailed in Appendix A of 40 CFR 63. The HCl monitor span values shall be set, considering the allowable methods of operation and corresponding emission standards. Approval of specific initial performance specifications and quality assurance and control (Q&A) procedures must be provided to the Department prior to installation and operation of the CEM system.
 - e. HF CEMS: The HF CEMS shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 15, EPA Method OTM 22 or alternative specifications approved by the Department. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, EPA Method OTM 23 or alternative procedures approved by the Department. A Data Assessment Report shall be made each calendar quarter and reported semiannually to the Compliance Authority. The RATA tests required for the HF monitor shall be performed using EPA Method 26 or 26A as detailed in Appendix A of 40 CFR 60 or by Method 320 as detailed in Appendix A of 40 CFR 63. The HF monitor span values shall be set, considering the allowable methods of operation and corresponding emission standards. Approval of specific initial performance specifications and quality assurance and control (Q&A) procedures must be provided to the Department prior to installation and operation of the CEM system.

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B. Grate-Type Suspension Biomass Boiler (EU-002)

- f. 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.
- g. Diluent Monitor: The oxygen (O₂) or carbon dioxide (CO₂) 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.
[Application No. 0810226-001-AC; Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subpart Db and Appendices]

STARTUP, SHUTDOWN, AND MALFUNCTION REQUIREMENTS

- 17. Malfunction Notifications: In case of excess emissions resulting from malfunctions, each owner or operator shall notify the Compliance Authority. 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 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.]
- 18. Operating Procedures: 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.]
- 19. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited.
- 20. Emission Limit Compliance and Excess Emission: Because of the long-term nature of all of the NO_x, SO₂, CO, HF and HCl CEMS-based mass emission rate limits and to avoid triggering PSD and a case-by-case MACT 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. [Rules 62-210.700(4), 62-210.200(PTE) and 62-4.070(3), F.A.C.]
- 21. 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% based on 6-minute block averages, except for one 6-minute block per hour that shall not exceed 27% opacity.
[Rules 62-210.700(5), 62-210.200(PTE) and 62-4.070(3), F.A.C.]

TESTING REQUIREMENTS

- 22. Boiler Heat Input Rate Calculation: Section 5 of Appendix F of 40 CFR 75 provides a methodology for calculation of the heat input rate to a boiler using F-Factors. The applicable portions of 40 CFR 75 for the calculation of the heat input rate to the biomass GSB at the FBE facility is contained in Appendix F of this permit. This procedure shall be used to calculate the heat input rate in mmBtu/hr to the boiler when using clean woody biomass as its primary fuel and biodiesel as a startup and

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

23. **Initial and Annual Stack Tests:** In accordance with test methods specified in this permit, the boiler stack shall be tested to demonstrate initial compliance with the emission standards for NH₃, CO, NO_x, PM, SO₂, SAM, THC, opacity (boiler and bin vent filters of sorbent storage silos), HCl and HF. In accordance with test methods specified in this permit, the boiler stack shall be tested to determine emissions rates of CH₄O, C₆H₆, CH₂O, C₈H₈, C₂H₄O, Cl₂, CH₂Cl₂, and C₇H₈. Tests of the bin vent filters shall be conducted while the silos are being loaded with sorbent from trucks. 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 CH₄O, C₆H₆, CH₂O, C₈H₈, C₂H₄O, Cl₂, CH₂Cl₂, C₇H₈, NH₃ slip, PM and opacity (vent filter stacks of sorbent storage silos) shall also be conducted during each federal fiscal year (October 1st to September 30th). Tests shall be conducted between 90 and 100% of the maximum heat input rate when firing only the primary fuels. CEMS data for CO, NO_x, SO₂, HCl and HF along with COMS data for opacity shall be reported for each run of the required tests for CH₄O, C₆H₆, CH₂O, C₈H₈, C₂H₄O, Cl₂, CH₂Cl₂, C₇H₈, NH₃ and PM. 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% of permitted capacity of the boiler; otherwise this permit will be modified to reflect the true maximum boiler capacity as constructed.}*
24. **Sorbent Storage Silos PM Compliance Test:** The initial and annual VE tests in **Condition 22** of this subsection with regard to the bin vent filters of the sorbent storage silos serve as a surrogate for the PM emissions tests. If the VE emissions standard in **Condition 10** of this subsection is not met for the bin vent filters, a PM test utilizing EPA Method 5 must be conducted on bin vent filter stack to show compliance with the PM emissions standard in **Condition 11** of this subsection within 60 days. [Rule 62-297.620(4), F.A.C.]
25. **Test Methods:** Any required stack tests shall be performed in accordance with the following methods or updates thereof.

EPA Method	Description of Method and Comments
CTM-027	Measurement of NH ₃ Slip
320	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 <i>{Notes: Methods shall be performed as necessary to support other methods.}</i>
5, 5B, 17	Measurement of PM
6C	Measurement of SO ₂ Emissions (Instrumental)
7E	Measurement of NO _x Emissions (Instrumental)
9	Visual Determination of the Opacity
10	Measurement of CO Emissions (Instrumental) <i>{Note: The method shall be based on a continuous sampling train.}</i>
18	Measurement of Gaseous Organic Compound Emissions (Gas Chromatography) <i>{For concurrent use with EPA Method 25A to deduct emissions of methane and ethane from the THC emissions measured by Method 25A.}</i>
19	Calculation Method for NO _x , PM, and SO ₂ Emission Rates

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25	Determination of Total Gaseous Nonmethane Organic Emissions as Carbon
25A	Measurement of Gaseous Organic Concentrations (Flame Ionization)
26, 26A	Determination of HCl and HF 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.

[Rules 62-204.800, F.A.C. and 40 CFR 60, Appendix A]

OTHER MONITORING REQUIREMENTS

26. 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.
[Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]
27. SCR Ammonia Injection: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain a flow meter to measure and record the ammonia injection rate for the SCR system for the steam generating unit. The permittee shall document the general range of NH₃ flow rates required to meet the NO_x standard over the range of load conditions by comparing NO_x emissions with ammonia flow rates. During NO_x CEMS downtimes or malfunctions, the permittee shall operate at an NH₃ flow rate that is consistent with the documented flow rate for the given load condition. Records shall be maintained on site and made available upon request.
[Rule 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

28. 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 or gallons per hour as appropriate) and emission rates (NH₃ slip in ppmvd @ 7% oxygen; PM, THC, SAM, NO_x, SO₂, CO, CH₄O, C₆H₆, CH₂O, C₈H₈, C₂H₄O, Cl₂, CH₂Cl₂; C₇H₈, HCl and HF in lb/hr).
[Rule 62-4.070(3), F.A.C.]
29. Monthly Operations Summary: By the tenth calendar day of each month, the permittee shall record the following for each fuel used in the biomass boiler in a written or electronic log for the previous month of operation: hours of operation; tons of clean woody biomass and gallons of biodiesel; 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 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) F.A.C. Reasonable Assurance]
30. Quarterly CO, NO_x, SO₂, HCl, HF 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, SO₂, HCl, HF and opacity emissions including periods of startups, shutdowns, malfunctions, and CEMS and COMS systems monitor availability for the previous quarter. If opacity COMS data is excluded from a compliance determination during the quarter due to a malfunction, the permittee shall include a description of the malfunction, the actual emissions recorded, and the actions taken to correct the malfunction in the quarterly report. 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.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

C. Ash and Handling, Storage and Shipment (EU-003)

This section of the permit addresses the following emissions unit.

EU ID No. 003	Emission Unit Description
	<p><u>Ash handling, storage and shipment:</u> The combustion of biomass in the proposed boiler will result in the formation of bottom and fly ash. Bottom ash will be collected from the boiler by a submerged drag-chain conveyor, which will deliver the wet ash to the ash silo. The fly ash is the entrained exhaust particulate matter captured by the ESP. An enclosed conveyor will be used to transport the fly ash from the ESP to the ash storage silo. The storage silo will be equipped with a baghouse to minimize any fugitive dust emissions from the transfer operations. The baghouse will be designed to achieve a PM emission rate of 0.01 gr/dscf. Ash from the storage silo will be loaded, via an ash conditioning mixer which produces a non-dusting material, to a truck for removal off-site.</p>

EQUIPMENT

1. Equipment: The permittee is authorized to construct Emission Unit EU-003, which consists of ash (fly and bottom) handling, storage and shipment systems containing the following equipment:
 - a. Fly Ash Handling: The fly ash handling system consisting of enclosed hoppers, drop points and conveyors associated with the collection and transfer of fly ash to a storage silo from the ESP used to control PM emissions from the biomass boiler.
 - b. Fly Ash Storage: A fly ash storage system consisting a storage silo and baghouse to control PM emissions.
 - c. Fly Ash Shipment: The fly ash shipment system consisting of the drop points, conditioner and chutes associated with the transfer of the fly ash from the storage silo to trucks for shipment.
 - d. Bottom Ash Handling and Shipment: The bottom ash handling and shipment system consisting of the hoppers, drop points, and submerged drag-chain conveyor associated with the collection, transfer and shipment of bottom ash from the biomass boiler to the storage silo.

[Application No. 0810226-001-AC]
2. Air Pollution Control Equipment: To comply with the emission standards of this subsection, the permittee shall install and operate the following air pollution control equipment on the ash (fly and bottom) handling, storage and shipment emission unit.
 - a. Enclosures and Dust Collectors: To minimize fugitive PM, bottom and fly ash conveyors shall be covered. Where practical, dust collectors shall be installed on the bottom ash and fly ash transfer points, drop points, hoppers and chutes.

[Application No. 0810226-001-AC and Rule 62-4.070, F.A.C. Reasonable Assurance].
 - b. Fly Ash Silo Baghouse: One baghouse shall be installed and maintained to remove PM from the fly ash storage silo exhaust. The baghouse shall be installed and operational before the silo is operated. The baghouse will be designed to achieve a PM emission rate of 0.01 gr/dscf.

[Application No. 0810226-001-AC; Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

PERFORMANCE RESTRICTION

3. Hours of Operation: The hours of operation of this emissions unit is not limited (i.e., unrestricted at 8,760 hours per year).

EMISSIONS STANDARDS

4. VE Standard: As determined by EPA Method 9, there shall be no visible emissions greater than 10% opacity, except for one 6 minute period no greater than 20% from the bottom and fly ash conveyors, transfer points, drop points, hoppers, chutes and dust collectors. As determined by EPA Method 9,

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

C. Ash and Handling, Storage and Shipment (EU-003)

there shall be no visible emissions greater than 5% opacity from the ash silo baghouse.

[Rule 62-4.070, F.A.C. Reasonable Assurance and Rule 62-212.400(5)(c), F.A.C.]

5. PM Emission Standard: PM emissions from baghouse of the fly ash silo shall not exceed 0.01 gr/dscf @ 7% O₂. [Application No. 0810226-001-AC; Rules 62-4.070(3), 62-210.200(PTE), F.A.C. and Rule 62-4.070, F.A.C. Reasonable Assurance]
6. Baghouse PM Standard by Opacity Measurement: A VE reading of 5% opacity or less may be used to demonstrate compliance with the PM emission standard in **Condition 5** above. A VE reading greater than 5% opacity will require the permittee to perform a PM emissions stack test within 60 days to show compliance with the PM standard.
[Application No. 0810226-AC; Rules 62-296.603; 62-296.712, F.A.C.; and 40 CFR 60.122(a)(2) and Rule 62-4.070, F.A.C. Reasonable Assurance]
7. Best Management Practices to Control Unconfined Emissions of PM: To ensure the emission standards with regard to opacity and PM of this subsection are complied with, the procedures set forth in **Condition 11** of **Section II** of this permit, "Unconfined Emissions of Particulate Matter," shall be adhered to where practical and cost effective. In addition, the procedures set forth in Appendix BMP of this permit with regard to fugitive emissions shall be adhered to.
[Application No. 0810226-001-AC; Rule 62-4.070, F.A.C. Reasonable Assurance, and Rule 62-296.320 F.A.C.]

TESTING AND MONITORING REQUIREMENTS

8. Initial Compliance Tests: The bottom and fly ash conveyors, transfer points, drop points, hoppers, chutes, dust collectors and fly ash silo baghouse associated with this emission unit shall be tested to demonstrate initial compliance with the VE standards specified in **Condition 4** of this subsection. The initial tests shall be conducted within 180 days after initial operation.
[Rule 62-297.310(7)(a)1., F.A.C. and Rule 62-4.070(3), F.A.C.]
9. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the bottom and fly ash conveyors, transfer points, drop points, hoppers, chutes and dust collectors and ash silo baghouse associated with this emission unit shall be tested to demonstrate compliance with the VE emissions standards specified in **Condition 4** of this subsection.
[Rule 62-297.310(7)(a)4, F.A.C. and Rule 62-4.070(3), F.A.C.]
10. Fly Ash Silo PM Compliance Test: The initial and annual VE tests in **Conditions 8 and 9** of this subsection with regard to the ash silo baghouse shall serve as a surrogate for the PM emissions tests. If the VE emissions standard in **Condition 4** of this subsection is not met for the ash silo baghouse, a PM test utilizing EPA Method 5 must be conducted on baghouse stack to show compliance with the PM emissions standard in **Condition 5** of this subsection within 60 days.
[Rule 62-297.620(4), F.A.C.]
11. Bag Leak Detection: The permittee shall maintain continuous operation of bag leak detection systems, including records, on the ash storage silo baghouse. Baghouse leak detection records shall be kept on site and made available upon request. [Rule 62-4.070(3), F.A.C.].
12. Test Methods: Any required tests shall be performed in accordance with the following methods.

Method	Description of Method and Comments
EPA 5	Determination of Particulate Emissions. The minimum sample volume shall be 30 dry standard cubic feet.
EPA 9	Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT PERMIT)

C. Ash and Handling, Storage and Shipment (EU-003)**RECORDS AND REPORTS**

13. 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.]

Draft

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

D. Emergency Electrical Generator (EU-004)

This section of the permit addresses the following emissions units.

EU ID No.	Emission Unit Description
004	One emergency diesel generator with a maximum design rating of 500 kW

NSPS AND NESHAP APPLICABILITY

1. NSPS Subpart IIII Applicability: This 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]
2. NESHAPS Subpart ZZZZ Applicability: The emergency generator is a Liquid Fueled Reciprocating Internal Combustion Engines (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. [40 CFR 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)]

EQUIPMENT

3. Emergency Generators: The permittee is authorized to install, operate, and maintain one emergency generator with a maximum design rating of 500 kW (671 horsepower (hp)) or smaller. [Application No. 0810226-001-AC and Rule 62-210.200 (PTE), F.A.C.]

PERFORMANCE RESTRICTIONS

4. Hours of Operation: The emergency generator may operate up to 500 hours per year for maintenance and testing purposes. [Application No. 0810226-001-AC and Rule 62-210.200 (PTE), F.A.C.]
5. Authorized Fuel: The emergency generator shall fire biodiesel or as a backup ULSD FO fuels only. The biodiesel must meet the ASTM specification given in Appendix ASTM of this permit. [Application No. 0810226-001-AC and Rule 62-210.200 (PTE), F.A.C.]

EMISSION STANDARDS

6. Emissions Limits: The emergency generator shall comply with the following emission limits and demonstrate compliance in accordance with the procedures given in 40 CFR 60, Subpart IIII. A link to the full text of Subpart IIII is given in Appendix IIII of this permit. Manufacturer certification, when using ULSD FO and, if available, biodiesel, can be provided to the Department in lieu of actual stack testing.

Emergency Generator (≥ 450 kW and ≤ 560 kW)	CO (g/kW-hr) ¹	PM (g/kW-hr)	SO ₂ ² (% S)	NMHC ³ +NO _x (g/kW-hr)
Subpart IIII (2007 and later)	3.5	0.2	0.0015	4.0

1. g/kW-hr means grams per kilowatt-hour
2. SO₂ emission standard will be met by using biodiesel or ULSD FO in the emergency generator with vendor certification of sulfur content of 0.0015% or less.
3. NMHC means Non-Methane Hydrocarbons.

[Application No. 0810226-001-AC and Subpart IIII and Rule 62-4.070(3), F.A.C.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

D. Emergency Electrical Generator (EU-004)

RECORDS AND REPORTS

7. 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. [40 CFR 60.4211]

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SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

E. Emergency Firewater Pump (EU-005)

This section of the permit addresses the following emissions unit.

EU ID No.	Emission Unit Description
005	One emergency diesel fire pump engine with a maximum design rating of 250 kW

NSPS AND NESHAP APPLICABILITY

1. NSPS Subpart IIII Applicability: The fire pump engine is an Emergency Stationary Compression Ignition Internal Combustion Engine (Stationary ICE) and shall comply with applicable provisions of 40 CFR 60, Subpart IIII.
[40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines]
2. NESHAP Subpart ZZZZ Applicability: The emergency pump engine is a Liquid Fueled Reciprocating Internal Combustion Engines (RICE) and shall comply with applicable provisions of 40 CFR 63, Subpart ZZZZ. Pursuant to 40 CFR 63.6590(c) the fire pump engine must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII.
[40 CFR 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)]

EQUIPMENT

3. Engine Driven Fire Pump: The permittee is authorized to install, operate, and maintain one emergency diesel fire pump engine. The pump engine will have a maximum rating of 250 kW (335 hp) or smaller. [Application No. 0810226-001-AC and Rule 62-210.200(PTE), F.A.C.]

PERFORMANCE RESTRICTIONS

4. Hours of Operation: The fire pump engine may operate up to 250 hours per year for maintenance and testing purposes. [Application No. 0810226-001-AC and Rule 62-210.200 (PTE), F.A.C.]
5. Authorized Fuel: This unit shall fire biodiesel or as a backup ULSD FO fuels only. The biodiesel must meet the ASTM specification given in Appendix ASTM of this permit.
[Application No. 0810226-001-AC and Rule 62-210.200 (PTE), F.A.C.]

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. A link to the full text of Subpart IIII is given in Appendix IIII of this permit. Manufacturer certification, when using USLD FO and, if available, biodiesel, may be provided to the Department in lieu of actual testing. [40 CFR 60.4211 and Rule 62-4.070(3), F.A.C.]

Emergency Pumps (≥ 300 hp and < 600 hp)	CO (g/hp-hr) ¹	PM (g/hp-hr)	SO ₂ ² (% S)	NMHC+NO _x (g/hp-hr)
Subpart IIII (2009 and later)	2.6	0.15	0.0015	3.0

1. g/hp-hr means grams per horsepower-hour.
2. SO₂ emission standard will be met by using biodiesel or ULSD FO in the fire pump engine with vendor certification of sulfur content of 0.0015% or less.

[Application No. 0810226-001-AC; 40 CFR 60, Subpart IIII; and Rule 62-4.070(3), F.A.C.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

E. Emergency Firewater Pump (EU-005)

RECORDS AND REPORTS

7. 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]

Draft

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

F. Cooling Tower (EU-006)

This section of the permit addresses the following emissions unit.

EU ID No.	Emission Unit Description
006	Cooling tower with a design circulating water flow rate of 1,100 gallons per minute (gpm).

Equipment Design

1. Cooling Tower Design: The permittee is authorized to construct a cooling tower system for the GSB/STG system with mist eliminators designed for a drift rate of 0.01% of the circulating water flow rate. [Application No. 0810226-001-AC; and Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

Performance Requirements

2. Hours of Operation: Operation of the cooling tower system is not restricted (8,760 hours per year). [Application No. 0810226-001-AC and Rule 62-210.200 (PTE), F.A.C.]
3. Circulating Water Flow Rate: Upon request, the applicant shall provide a means for determining the circulating water flow rate through the cooling tower system. [Rule 62-4.070, F.A.C.]
4. Drift Rate: The permittee shall provide certification along with the application for Title V air operation permit that the cooling tower was constructed and installed to the design specifications in this permit. After this certification is provided, the cooling tower will be considered an unregulated emissions unit. [Rules 62-4.070 and 62-210.200 (PTE), F.A.C.]