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PERMITTEE

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Authorized Representative:
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Air Permit No. 0951340-001-AC
Expires: December 31, 2014
PSD-FL-418
Harvest Energy Garden - Orlando
Facility ID No. 0951340
Biogas-to-Energy and Fertilizer Project

PROJECT

This is the final air construction permit, which authorizes the installation and operation of a new biogas-to-energy and fertilizer plant – the Harvest Energy Garden - Orlando, which will be primarily classified as electrical services under Standard Industrial Classification No. 4911. The proposed new plant will be collocated with the Reedy Creek Wastewater Treatment Plant in Orange County at 2151 Bear Island Road in Lake Buena Vista, Florida. The UTM coordinates are Zone 17, 442.10 kilometers (km) East and 3139.02 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); Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

STATEMENT OF BASIS

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

Executed in Tallahassee, Florida
(Electronic Signature)

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CERTIFICATE OF SERVICE

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

Mr. John M. Eustermann, Harvest Power, Inc.: jeustermann@harvestpower.com
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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.
(Electronic Signature)
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PROPOSED PROJECT

Harvest Energy Orlando, LLC proposes to construct and operate a biogas-to-energy and fertilizer plant. The facility will receive food waste, thickened wastewater activated sludge, and other organic materials. The materials will be digested and converted to biogas and fertilizer. The project will be constructed on land leased from Reedy Creek Improvement District (RCID) and collocated with the existing RCID's wastewater treatment plant. The RCID and Walt Disney World currently operate under a single Title V air permit as a single facility. The project is considered an expansion of this existing facility and is subject to PSD preconstruction review for carbon monoxide and volatile organic compounds in accordance with Rule 62-212.400, F.A.C. Construction is scheduled to commence in 2012 and be completed in 2013.

The proposed new plant will consist of five main sections: a feedstock receiving and pre-treatment process; an anaerobic digestion process; a biogas, power generation, and heat recovery process; an odor removal process; and a digestate management/fertilizer production process. Biogas produced by the digesters will be directed to a biogas scrubber to remove hydrogen sulfide and pass through a condensate trap/gravel filter to remove water before being fired in the two 1.6 MW reciprocating internal combustion engine/electrical generator sets. If the engines are unavailable or more gas is produced than the engines can accommodate, a backup flare will combust the excess biogas before it is scrubbed. Emissions of organic compounds and odor-causing pollutants from the receiving building, three holding tanks, and the digestate handling and drying system will be minimized by the installation of a bio-scrubber designed for at least 90% removal of organic compounds.

Organic waste entering the facility will undergo a pre-treatment process to remove contaminants, such as glass, metals, plastic, etc. All inorganic material will be shipped off site to a landfill. The organic waste will be turned into a slurry and then sent to two continuously stirred tank reactor digesters, which break down the organics in the slurry to convert it to primarily methane and carbon dioxide. Exhaust from the engine/generator sets will be used to heat oil for an indirectly heated dryer. The engine/generator sets will also be equipped with water jackets to heat water for use in other processes at the facility. The remaining solids will be sent through a centrifuge to remove water and then to the indirectly heated dryer to further reduce the water content to produce a final fertilizer product.

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

EU No.	Description
001 - 002	Two nominal 1.6 MW Caterpillar Model G3520C lean-burn internal combustion engine/generator sets
003	Bio-Scrubber
004	Emergency Flare

FACILITY REGULATORY CLASSIFICATION

- The project will be a major source of hazardous air pollutants (HAP).
- The project will be a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The project includes no units subject to the acid rain provisions of the Clean Air Act.
- The project is subject to PSD preconstruction review in accordance with Rule 62-212.400, F.A.C.
- The project includes units subject to applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations.
- The project includes units subject to applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations.

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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 of Environmental Protection (Department). The mailing address for the Office of Permitting and Compliance is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); Appendix C (Common Conditions); Appendix D (Common Testing Requirements); and Appendix E (Final BACT Determinations); Appendix F (NSPS Subpart A); and Appendix G (NSPS Subpart JJJJ); Appendix H (NESHAP Provisions).

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.]

7. Source Obligation:

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

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

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

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

8. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply

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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 each Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

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A. Biogas Engines and Bio-Scrubber (EU 001 - 003)

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
001 - 002	Two nominal 1.6 MW Caterpillar Model G3520C lean-burn internal combustion engine/generator sets
003	Bio-Scrubber

{Permitting Note: In accordance with Rule 62-212.400(PSD), F.A.C., the above emission units are subject to Best Available Control Technology (BACT) determinations for carbon monoxide (CO) and volatile organic compounds (VOC). The final BACT determinations are presented in Appendix E of this permit. Other emissions standards and performance restrictions specified in this permit allow the emission units to avoid PSD preconstruction review for sulfur dioxide (SO_2) and nitrogen oxides (NO_X).

EQUIPMENT

1. The permittee is authorized to install and operate the following processes and equipment:
   a. Feedstock Receiving and Pre-Treatment Process, including: waste receiving and contaminate removal building; waste storage tanks; and blending tanks.
   b. Anaerobic Digestion Process, including: two continuously stirred tank reactor digesters; post digester; and integrated gasholder.
   c. Biogas, Power Generation and Heat Recovery Process, including: biogas scrubber and water knockout; emergency flare; two engine/generator sets; water jacket heat recovery for process heat; and thermal oil exhaust heat recovery for dryer.
   d. Odor Removal Process, including: collection ductwork and blower; bio- scrubber; and stack with real-time odor monitoring.
   e. Digestate Management/Fertilizer Production, including: centrifuge for liquid/solids separation; digestate solids indirect dryer; phosphorus recovery from centrate; and liquid effluent nitrification /de-nitrification.

   {Permitting Note: The storage vessels are well below the vapor pressure specified in NSPS Subpart Kb and the facility will not contain volatile organic liquid storage tanks. Therefore, the tanks are considered unregulated emissions units.} [Design and Application No. 0951340-001-AC]
2. Biogas Engine/Generator Sets: The permittee is authorized to install and operate two spark-ignited reciprocating internal combustion engine/generator sets (Caterpillar Model G3520C or equivalent) that will fire biogas with the following nominal design specifications per engine: a maximum engine rating of 2,242 brake-horsepower (bhp) at 100% load; a nominal electrical generator rating of 1.6 MW; and a heat input rate of approximately 18.2 million British thermal units (MMBtu)/hour from biogas. Each engine shall be equipped with:
   a. An air-to-fuel ratio controller and ignition timing to maintain efficient fuel combustion.
   b. An automatic fail-safe block valve, which must be designed to stop the flow of biogas in the event of an engine failure.
   c. A non-resettable elapsed time meter to indicate the elapsed engine operating time in cumulative hours.
   d. A gas flow meter to monitor the actual biogas flow rate to each engine.

   {Permitting Note: The heat input rate is based on 100% load (2,242 bhp), a nominal biogas heating value of 581.4 Btu/standard cubic feet (scf) and an approximate biogas firing rate of 525 scf per minute (scfm) per engine.} [Design, Application No. 0951340-001-AC, and Rule 62-212.400(BACT) for CO/VOC emissions]
3. Bio-Scrubber: The permittee shall install a bio-scrubber system to control the ventilation exhaust from the receiving building, three holding tanks, digestate handling, and drying system. The general design specifications for the bio-scrubber are:
   a. Flow rate of 41,800 cubic feet per minute (cfm);
   b. 50 parts per million (ppm) maximum water hardness;

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c. 90% or more removal of VOC emissions;

d. 99% removal of H_2S or < 0.1 ppm at the system discharge, whichever is greater;

e. Ammonia levels shall be < 10 ppm during average conditions and 25 ppm during peak conditions; and

f. 90% odor removal for inlet concentration levels between 5,000 and 15,000 odor unit (OU). For inlet conditions less than 5,000 OU, the outlet concentrations levels shall be less than 500 OU.

A pressure indicator and flow switch shall be installed to measure the differential pressure across the unit to control the water level. In addition, an alarm system shall be installed to warn of high/low water levels. [Design, Application No. 0951340-001-AC, and Rule 62-212.400(BACT) for VOC emissions]

PERFORMANCE STANDARDS AND RESTRICTIONS

4. Permitted Capacity: Each engine/generator set has a maximum engine power rating of 2,242 bhp at 100% load (approximately 18.2 MMBtu/hour) with an electrical generator rating 1.6 MW, nominal. [Design, Application No. 0951340-001-AC, and Rule 62-210.200(PTE), F.A.C.]

5. Authorized Fuel: Only biogas shall be fired in the engine/generator sets. [Design, Application No. 0951340-001-AC, and Rule 62-210.200(PTE), F.A.C.]

6. Hours of Operation: Operation of the new engine/generator sets and bio-scrubber is not limited (8,760 hours per year). [Design, Application No. 0951340-001-AC, and Rule 62-210.200(PTE), F.A.C.]

7. Operating Requirements: The permittee shall set the air-to-fuel ratio for each engine based on the most recent emissions tests demonstrating compliance with the standards specified in this permit and other operating conditions identified in NSPS Subpart JJJJ. [NSPS Subpart JJJJ in 40 CFR 60 and Rules 62-212.400(BACT) for CO/VOC emissions]

8. Applicable NSPS Provisions: The biogas engines are subject to, and shall comply with, the applicable provisions in NSPS Subpart A (General Provisions) and NSPS Subpart JJJJ (Stationary Spark Ignition Internal Combustion Engines) of 40 CFR 60, which are identified in Appendix E and F of this permit. [NSPS Subparts A and JJJJ in 40 CFR 60 and Rule 62-204.800, F.A.C.]

9. Applicable NESHAP Provisions: The biogas engines are subject to, and shall comply with, the applicable provisions in NESHAP Subpart A (General Provisions) and NESHAP Subpart ZZZZ (Reciprocating Internal Combustion Engines) of 40 CFR 63, which are identified in Appendix G of this permit. Pursuant to §63.6600(c) of this subpart, any stationary reciprocating internal combustion engine that combusts landfill gas or digester gas equivalent to 10% or more of the gross heat input on an annual basis is exempt from any emission limits and operating limitations contained in the subpart. The other requirements of NESHAP Subpart ZZZZ are met by complying with the requirements of NSPS Subpart JJJJ. [NESHAP Subparts A and ZZZZ in 40 CFR 63 and Rule 62-204.800, F.A.C.]

EMISSIONS STANDARDS

10. CO Standard: The emissions of CO from each engine/generator set shall not exceed 5.0 g/bhp-hour (equivalent 24.7 lb/hour). [NSPS Subpart JJJJ in 40 CFR 60 and Rule 62-212.400(BACT), F.A.C.]

11. VOC Standard: The emissions of VOC from each engine/generator set shall not exceed 1.0 g/bhp-hour (equivalent to 4.9 lb/hour). When calculating emission of VOC, emissions of formaldehyde should not be included. [NSPS Subpart JJJJ in 40 CFR 60 and Rule 62-212.400(BACT), F.A.C.]

12. NOx Standard: The emissions of NO_X from each engine/generator set shall not exceed 2.0 grams/brake horsepower-hour (g/bhp-hour, equivalent to 9.9 lb/hour). [NSPS Subpart JJJJ in 40 CFR 60]

13. NOx Emission Cap: The emissions of NO_X from the combustion sources in this project (EU-001, 002, and 004, combined) shall not exceed 39 tons per consecutive 12 months. Compliance with this NO_X emissions cap shall be demonstrated on a 12-month rolling basis using the following equation.

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$[(0.8 \text{ tons NOx/MMm}^3)(\text{Flare}_{\text{Biogas}})] + [(\text{EF}_{\text{engine}})(\text{lb/454})(\text{ton/2000 lb})(\text{Engine1}_{\text{bhp-hours}} + \text{Engine2}_{\text{bhp-hours}})] \leq 39.0 \text{ TPY, NOx}$

Where:

$\text{Flare}_{\text{Biogas}}$ = Rolling 12-month total of Biogas burned in flare (EU-004), million m^3 (MMm^3)

$\text{EF}_{\text{engine}}$ = NOx emission rate from most recent annual stack test, g/bhp-hour

$\text{Engine}_{\text{bhp-hours}}$ = Rolling 12-month total of operating bhp-hours for each engine (EU-001 and EU-002)

If necessary, the permittee shall adjust engine operation to comply with the NOx emissions cap. [Rule 62-212.400(12), F.A.C. to avoid PSD preconstruction review for NOx]

If necessary, the permittee shall adjust engine operation to comply with the NOx emissions cap. [Rule 62-212.400(12), F.A.C. to avoid PSD preconstruction review for NOx]

14. SO_2 Emission Cap: The emissions of SO_2 from the combustion sources in this project (EU-001, 002, and 004, combined) shall not exceed 39 tons per consecutive 12 months. Compliance with this SO_2 emissions cap shall be demonstrated on a 12-month rolling basis using the following information: the H_2S level in the scrubbed and unscrubbed biogas fired, the amount of biogas fired in each combustion source, and the assumption that all sulfur is converted to SO_2. [Rule 62-212.400(12), F.A.C. to avoid PSD preconstruction review for SO_2]

15. Objectionable Odor Prohibited: No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. An "objectionable odor" is defined 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." [Rule 62-296.320(2), F.A.C.]

TESTING REQUIREMENTS

16. Initial Compliance Tests: Each engine/generator set shall be tested to demonstrate initial compliance with the emissions standards for CO, NOx, and VOC pursuant to the NSPS Subpart JJJJ provisions in 40 CFR 60. The initial performance test must be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial startup of each unit. [NSPS Subpart JJJJ in 40 CFR 60 and Rules 62-204.800, 62-297.310(7), and 62-212.400(BACT), F.A.C. (for CO/VOC emissions)]

17. Periodic Compliance Tests: Every 8,760 engine hours or at least once every three years, whichever comes first, each engine/generator set shall be tested to demonstrate compliance with the emissions standards for CO, NOx and VOC pursuant to the NSPS Subpart JJJJ provisions in 40 CFR 60. [NSPS Subpart JJJJ in 40 CFR 60; and Rules 62-204.800, 62-297.310(7), and 62-212.400(BACT), F.A.C. (for CO/VOC emissions)]

18. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any scheduled stack tests. During each required compliance stack test, the permittee shall operate the tested engine/generator set at permitted capacity (2,018 bhp or greater). Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. *{Permitting Note: Although the NSPS provides for a 30-day test notification, a 15-day notice is sufficient in Florida.}* [Rule 62-297.310(7)(a)9, F.A.C.]

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

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7E	Determination of NOx Emissions from Stationary Sources
10	Determination of CO Emissions from Stationary Sources (based on continuous sampling train)
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)
320	Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy

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

MONITORING REQUIREMENTS

20. Biogas Sampling/Analysis: At least semiannually, the permittee shall obtain the following representative samples of scrubbed and unscrubbed biogas: during each required compliance stack test; and during the next semiannual period, but no earlier than 5 months since the previous sample was taken. The representative samples shall be taken in each calendar semiannual period (January – June and July – December) approximately six months apart. Each gas sample shall be collected under normal operating conditions with the appropriate canister (e.g., SUMMA®, Bottle-Vac Sampler, or equivalent). Each sample shall have an analysis conducted to determine the H_2S concentration. Based on the sampling results and Rule 62-297.310(7)(b)(Special Compliance Tests), F.A.C., the Compliance Authority may request additional gas sampling and analyses. [Rules 62-210.200(PTE) and 62-212.400(12), F.A.C. to avoid PSD review for SO_2 emissions]

21. Bio-Scrubber Design: Within 60 days of beginning construction on the biogas system, the permittee shall submit the final design specifications for the bio-scrubber including the designed VOC control efficiency. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C. for VOC emissions]

22. Monthly Records: Within ten calendar days following each month, the permittee shall observe and record the total monthly number of hours of operation of each engine, the average power produced (bhp) of each engine, the calculated monthly and 12-month rolling total emissions of NOx and SO_2 to demonstrate compliance with the emissions caps. [Rules 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

23. Test Reports: The required test report shall be filed with the Department, as soon as practical, but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. In addition to the information identified in Rule 62-297.310(8)(c), F.A.C., the test report shall also indicate the engine power (bhp) during the test and the biogas heating value. [Rule 62-297.310(8), F.A.C.]

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B. Utility Flare (EU 004)

This section of the permit addresses the following emissions unit.

EU No.	Emission Unit Description
004	An open utility, candlestick-type backup flare rated at 1,200 scfm of biogas (manufactured by Perennial Energy, Inc., Model No. FLR-301, or equivalent). The open flare stack will be 8 inches in diameter and 24 feet in height with a total volumetric flow rate of 3,454 acfm. At the design biogas flow rate with a biogas methane content 40% to 60%, the destruction efficiency is 98% overall destruction of total hydrocarbons.

EQUIPMENT

1. Backup Flare: The permittee is authorized to install a digester gas (biogas) backup flare with the following specifications:
   a. Open "candlestick-type" flare;
   b. Maximum biogas flow rate of 1,200 scfm; and
   c. Estimated maximum heat input rate of 41.9 MMBtu/hour.

   {Permitting Note: The heat input rate is based on a nominal methane heating value of 1,020 Btu/scf and a methane content of 57% in the biogas.}

   [Design and Application No. 0951340-001-AC]

2. Applicable NSPS Provisions: The utility flare is subject to, and shall comply with, the applicable provisions for flares in NSPS Subpart A (General Provisions) of 40 CFR 60, which are identified in Appendix E of this permit. [NSPS Subpart A in 40 CFR 60]

PERFORMANCE RESTRICTIONS

3. Authorized Fuel: Only biogas shall be fired in the flare. [Application No. 0951340-001-AC; and Rule 62-210.200(PTE), F.A.C.]

4. Restricted Operation: The flare shall not fire more than 2.96 MMm^3 of biogas during any consecutive 12-months. *{Permitting Note: This is equivalent to approximately 19% of the maximum design biogas generation rate of 15.6 MMm^3.}* [Rules 62-210.200(PTE) and 62-212.400(12), F.A.C. to avoid PSD review for SO_2 emissions]

EMISSIONS STANDARDS

5. Visible Emissions: Flares shall be designed for, and operated with, no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [Rule 62-296.800, F.A.C.; and 40 CFR 60.18(c)]

6. NOx Emission Cap: The emissions of NO_X from the combustion sources in this project (EU-001, 002, and 004, combined) shall not exceed 39 tons per consecutive 12 months. Compliance with this NO_X emissions cap shall be demonstrated on a 12-month rolling basis using the following equation.

   $[(0.8 \text{ tons NOx}/MMm^3)(Flare_{Biogas})] + [(EF_{engine})(lb/454)(ton/2000 \text{ lb})(Engine1_{bhp\text{-}hours} + Engine2_{bhp\text{-}hours})] \leq 39.0 \text{ TPY, NOx}$

   Where:

   $Flare_{Biogas}$ = Rolling 12-month total of Biogas burned in flare (EU-004), million m^3 (MMm^3)

   EF_{engine} = NOx emission rate from most recent annual stack test, g/bhp-hour

   $Engine_{bhp\text{-}hours}$ = Rolling 12-month total of operating bhp-hours for each engine (EU-001 and EU-002)

   If necessary, the permittee shall adjust engine operation to comply with the NOx emissions cap. [Rule 62-212.400(12), F.A.C. to avoid PSD preconstruction review for NOx]

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7. SO_2 Emission Cap: The emissions of SO_2 from the combustion sources in this project (EU-001, 002, and 004, combined) shall not exceed 39 tons per consecutive 12 months. Compliance with this SO_2 emissions cap shall be demonstrated on a 12-month rolling basis using the following information: the H_2S level in the scrubbed and unscrubbed biogas fired, the amount of biogas fired in each combustion source, and the assumption that all sulfur is converted to SO_2. [Rule 62-212.400(12), F.A.C. to avoid PSD preconstruction review for SO_2]

TESTING REQUIREMENTS

8. Initial Compliance Tests: The emission unit shall be tested to demonstrate initial compliance for visible emissions within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the unit. [Rules 62-4.070(3) and 62-297.310(7), F.A.C.]

9. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the emissions unit shall be tested to demonstrate compliance with the emissions standards for visible emissions. [Rule 62-297.310(7), F.A.C.]

10. 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 D (Common Testing Requirements) of this permit. *{Permitting Note: Although the NSPS provides for a 30-day test notification, a 15-day notice is sufficient in Florida.}*
[Rule 62-297.310(7), F.A.C.]

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

Method	Description of Method and Comments
22	Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares

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

MONITORING REQUIREMENTS

12. Work Practice: Good combustion practices will be utilized at all times to ensure emissions from the flare system are minimized. Owners or operators of flares used to comply with the provisions of this subpart shall be trained to monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators of flares shall monitor these control devices. [40 CFR 60.18(d) and Rule 62-296.800, F.A.C.]

13. Monitoring: The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. [40 CFR 60.18(f) and Rule 62-296.800, F.A.C.]

RECORDS AND REPORTS

14. Monthly Records: Within ten calendar days following each month, the permittee shall observe and record in a written log the duration and cause of each flare event, the hours of operation, and the amount of biogas fired for the month and the previous 12 months of operation. [Rules 62-4.070(3), F.A.C.]

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

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