Gulf Power Company
Perdido Landfill Gas-to-Energy Facility

Facility ID No. 0330286
Escambia County

Initial Title V Air Operation Permit

Permit No. 0330286-002-AV

Permitting and Compliance Authority:

State of Florida
Department of Environmental Protection
Air Resource Management, Northwest District

160 W. Government Street, Suite 308
Pensacola, Florida 32502-5740

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DRAFT PERMIT

PERMITTEE:
Gulf Power Company
One Energy Place
Pensacola, Florida 32520-0100

Permit No. 0330286-002-AV
Perdido Landfill Gas-to-Energy Facility
Facility Id No. 0330286
Initial Title V Air Operation Permit

This is the initial Title V air operation permit for the Perdido Landfill Gas to Energy Facility, which is an electric, gas and sanitary services facility (Standard Industrial Classification No. 4911), located at 12196 Beulah Road across from Perdido Landfill, approximately 7/10 mile north of Interstate 10 in Cantonment, Escambia County, Florida. The UTM coordinates are Zone 16, 462.81 km East, and 3382.66 km North; Latitude: 30° 34' 33" North and Longitude: 87° 23' 16" West.

The Title V air operation permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, 62-213. The above named Permittee is hereby authorized to operate the facility in accordance with the terms and conditions of this permit.

Effective Date:
Renewal Application Due Date: Exp. DATE -225
Expiration Date: Eff. DATE + 5 years

(Draft)

_____

Rick Bradburn
Air Program Administrator

RB/rp/c

SECTION I. FACILITY INFORMATION.

This is the Initial Title V permit and follows construction permit 0330286-001-AC, issued January 7, 2010.

Subsection A. Facility Description

The facility is permitted for three Caterpillar G3520C spark ignition internal combustion engine/generator sets and auxiliary equipment. Two engines have been installed and operating. A third engine has yet to be constructed. Each engine/generator set has an approximate electrical power output of 1600 kilowatts and is rated at 2,233 brake horsepower and 6509 nominal Btu/brake horsepower-hour at 100% load. Each engine is designed for low NOx emissions combusting low pressure and low Btu landfill gas and is equipped with the following: an air inlet filter; exhaust silencer; a battery and charger; lube oil system; horizontal core radiator; individual gas meter and a non-resettable hour meter. If the landfill gas flow is too low or the landfill gas quality (Btu content) is too low the engines automatically shut off.

The landfill gas is piped to a fuel compressor, where gas flow, temperature and Btu content are measured. A liquid removal system traps liquids and large particulates and returns them to the landfill. Downstream of the compressor is a cooler with a 0.4 micron filter, to further remove condensate. The gas condition system is equipped with an automatic shut-off valve to close the gas supply upon engine shutdown. The engines combust the conditioned landfill gas, with the electric power output added to the distribution network. During periods of malfunction, maintenance, and repair of the engines or excess landfill gas, the landfill gas stream is routed to the Perdido Landfill Flare (Permit 0330246-003-AV, Emissions Unit 001), owned by the Escambia County Board of County Commissioners.

Auxiliary equipment includes oil equipment (day oil, new oil and waste oil storage tanks), electrical equipment (generator controls, switchgear, transformers, motor control center, relays and breakers), an air compressor, oil pumps and a coolant tank.

Approximately two 3,500 square foot buildings (one built, one planned), constructed of masonry block or similar building material, house the engines, generators, oil equipment, electrical equipment, landfill gas conditioning equipment and personnel operations.

EMISSIONS (TPY) BY OPERATING ALTERNATIVES	ALL LFG FLARING & INSIGNIFICANT	LFG FLARING WITH MAX ENGINES	LFG ENGINES & FLARING & INSIGNIFICANT	MAXIMUMS
CO	220	106	336	336
NO_X	40	14	63	63
HCl	2	1	1	2
HAPS	5	3	4	5
NMOC	25	12	12	25
PM	10	5	19	10
PM_{10}			1	1
SO_2	8	4	11	11

Flaring - Emissions from Escambia County Board of County Commissioners Perdido Landfill
Engines - Emissions from Gulf Power Gas to Energy Facility

Subsection B. Summary of Emissions Units

Regulated Emissions Units

EU No.	Brief Description
001	Three Landfill Gas Spark Ignition Internal Combustion Engine / Generator Sets

Subsection C. Applicable Regulations

Based on the initial Title V air operation permit application received March 16, 2011, this facility is not a major source of hazardous air pollutants (HAP). This facility operates stationary reciprocating internal combustion engines installed on January 7, 2010 and is subject to 40 CFR 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. The facility is not a PSD major source of air pollutants in accordance with Rule 62-212.400, F.A.C. A summary of applicable regulations is shown in the following Table.

Regulation	EU No(s)
40 CFR 60 Subpart A - NSPS General Provisions	001
40 CFR 60 Subpart JJJJ	001
Rule 62-210.200 (PTE), F.A.C.	001
Rule 62-4.070 (3), F.A.C.	001
Rule 62-212.400 (1) (b), F.A.C.	001
Rule 62-4.210 (2), F.A.C.	001
Rule 62-4.120 (2), F.A.C.	001
Rule 62-297.310 (7) (a)1., F.A.C.	001
Rule 62-297.310 (7) (a) 4., F.A.C.	001
Rule 62-297.310 (2) & (7), F.A.C.	001
Rule 62-297.401 (10), F.A.C.	001
Rule 62-297.620 (1), F.A.C.	001
Rule 62-204.800(8)(b) 80. & (d), F.A.C.	001
Rule 62-297.199, F.A.C.	001
Rule 62-297.310(8), F.A.C.	001

The following conditions apply facility-wide to all emission units and activities:

FW1. Appendices. Permittee shall comply with all documents identified in Section IV, Appendices, listed in the Table of Contents. Each document is an enforceable part of this permit unless otherwise indicated. [Rule 62-213.440, F.A.C.]

Emissions and Controls

FW2. Not federally Enforceable. 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" means 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) and 62-210.200(Definitions), F.A.C.]

FW3. General Volatile Organic Compounds (VOC) Emissions or Organic Solvents (OS) Emissions. Permittee shall allow no person to store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed-necessary and ordered by the Department. Nothing is deemed necessary and ordered at this time. [Rule 62-296.320(1), F.A.C., and permit 0330286-001-AC]

FW4. General Visible Emissions. No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20% opacity. EPA Method 9 is the method of compliance pursuant to Chapter 62-297, F.A.C. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]

FW5. Unconfined 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. Reasonable precautions to prevent emissions of unconfined particulate matter at this facility include:

a. Roads and parking areas will either be paved, gravel covered or maintained with water or other dust suppressants as needed for particulate matter control.

b. Abrasive blasting will be confined where possible.

[Rule 62-296.320(4)(c), F.A.C.; and, proposed by applicant in Title V air operation permit application received March 17, 2011.]

Annual Reports and Fees

See Appendix RR, Facility-wide Reporting Requirements for additional details.

FW6. Annual Operating Report. Permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by April 1 of each year. [Rule 62-210.370(3), F.A.C.]

FW7. Annual Emissions Fee Form and Fee. Annual Title V emissions fees are due (postmarked) by March 1 of each year. The completed form and calculated fee shall be submitted to: Major Air Pollution Source Annual Emissions Fee, P.O. Box 3070, Tallahassee, Florida 32315-3070. The forms are available for download by accessing the Title V Annual Emissions Fee On-line Information Center at the following Internet web site: http://www.dep.state.fl.us/air/emission/tvfee.htm. [Rule 62-213.205, F.A.C.]

FW8. Annual Statement of Compliance. Permittee shall submit an annual statement of compliance to the compliance authority at the address shown on the cover of this permit within 60 days after the end of each calendar year during which the Title V permit was effective. [Rules 62-213.440(3)(a)2. & 3. and (3)(b), F.A.C.]

FW9. Prevention of Accidental Releases (Section 112(r) of CAA). If and when the facility becomes subject to 112(r), Permittee shall:

a. Submit its Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center. Any Risk Management Plans, original submittals, revisions or updates to submittals, should be sent to: RMP Reporting Center, Post Office Box 10162, Fairfax, VA 22038, Telephone: (703) 227-7650.

b. Submit to the permitting authority Title V certification forms or a compliance schedule in accordance with Rule 62-213.440(2), F.A.C.

[40 CFR 68]

Subsection A. Emissions Unit 001

The specific conditions in this section apply to the following emissions unit:

EU No.	Brief Description
001	Three Landfill Gas Spark Ignition Internal Combustion Engine Generators

Two Caterpillar G3520C spark ignition internal combustion engines combust treated landfill gas from the Perdido Landfill, which is owned by the Escambia County Board of County Commissioners. The third engine, authorized by permit 0330286-001-AC issued January 7, 2010, has yet to be constructed.

Each engine / generator set has an approximate electrical power output of 1600 kilowatts and is rated at 2,233 brake horsepower and 6509 nominal Btu/brake horsepower-hour at 100% load. Each engine is designed for low NOx emissions combusting low pressure and low Btu landfill gas and is equipped with the following: an air inlet filter; an exhaust silencer; a battery and a charger; a lube oil system; a horizontal core radiator; an individual gas meter and a non-resettable hour meter. If the landfill gas flow is too low or the landfill gas quality (Btu content) is too low, the engines automatically shut off.

The landfill gas is piped to a fuel compressor, where gas flow, temperature and Btu content are measured. A liquid removal system traps liquid and large particulates and return it to the landfill. Downstream of the compressor is a cooler with a 0.4 micron filter, to further remove condensate. The gas condition system is equipped with an automatic shut-off valve to close the gas supply upon engine shutdown. The engines combust the conditioned landfill gas, with the electric power output added to the distribution network. During periods of malfunction, maintenance, and repair of the engines or excess landfill gas, the landfill gas stream is routed to the Perdido Landfill Flare (Permit 0330246-003-AV, Emissions Unit 001), owned by the Escambia County Board of County Commissioners.

Auxiliary equipment includes oil equipment (day oil, new oil and waste oil storage tanks), electrical equipment (generator controls, switchgear, transformers, motor control center, relays and breakers), an air compressor, oil pumps and a coolant tank.

Approximately two 3,500 square foot buildings (one built, one planned), constructed of masonry block or similar building material, house the engines, generators, oil equipment, electrical equipment, landfill gas conditioning equipment and personnel operations.

Essential Potential to Emit (PTE) Parameters

A.1. Methods of Operation: Authorized Fuel. This emissions unit is authorized to burn treated landfill gas. [Permit 0330286-001-AC and Rule 62-210.200 (PTE), F.A.C.]

A.2. Restricted Operation. The hours of operation are not limited (8760 hours per year). [Rules 62-4.070 (3) and 62-210.200 (PTE), F.A.C., and Permit 0330286-001-AC]

Emission Limitations and Standards

A.3. Emissions Standards:

a. The maximum allowable total emissions of CO for this emission unit (engines #1, #2, & #3 combined) are limited to 51.9 pounds per hour, 227.1 tons per year. [Permit 0330286-001-AC, Escape PSD; and Rules 62-212.400 (1) (b) and 62-4.210 (2), F.A.C.]
b. The maximum allowable visible emissions limitation for each engine is 10% opacity. [Permit 0330286-001-AC and Rule 62-4.120 (2), F.A.C.]

c. The emission standards of NO_X, and VOC from 40 CFR 60 Subpart JJJJ are applicable to this emissions unit. [Rule 62-4,120(2), F.A.C., Permit 0330286-001-AC, and 40 CFR 60.4233(e)]

Testing Requirements

A.4. Annual Compliance Tests. During each federal fiscal year (October 1 to September 30), the emissions unit shall be tested to demonstrate compliance with the emissions standards for Carbon Monoxide and Opacity. [Rule 62-297.310 (7) (a) 4., F.A.C.]

A.5. Performance Tests - 40 CFR 60 Subpart JJJJ. Permittee shall conduct subsequent performance tests as required in 40 CFR 60 Subpart JJJJ for NO_X, CO and VOC emissions every 8,760 hours of operation or three years, whichever comes first, thereafter to demonstrate compliance for each engine. [Rule 62-4.070 (3), F.A.C., and 40 CFR 60.4243]

A.6. Test Requirements. Permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Notification may be sent via e-mail to nwdair@dep.state.fl.us. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. Emissions tests are required to show compliance with the standards of the Department. The test results must provide reasonable assurance that the source is capable of compliance at the maximum operating rate. Annual compliance tests for each engine, for CO using EPA Method 10, shall be conducted each federal fiscal year (October 1- September 30) unless otherwise specified. Any new or replacement engine(s) shall be performance tested for CO using EPA Method 10. The Department shall be notified at least 15 days prior to testing to allow witnessing. Results shall be submitted to the Department within 45 days after testing. Testing of emissions shall be conducted with the source operating at capacity. For testing purposes only, the maximum rated capacity of each engine is 14.90 million Btu per hour (LHV) or 16.56 million Btu per hour (HHV). Capacity is defined as 90-100% of rated capacity. If it is impractical to test at capacity, sources may be tested at less than capacity; in this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department.

The Department can require special compliance tests in accordance with Rule 62-297.310 (7), F.A.C. Other test methods and alternate compliance procedures may be used only after prior Departmental approval has been obtained in writing.

[Rules 62-4.070, 62-297.310 (2) & (7), 62-297.401 (10), and 62-297.620 (1), F.A.C.]

A.7. 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
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources (The method shall be based on a continuous sampling train.)

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]

Records and Reports

A.8. Test Reports. Permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Combined Appendices, Facility-Wide Testing Requirements, of this permit. For each test run, the report shall also indicate the carbon monoxide emissions. [Rule 62-297.310 (8), F.A.C.]

A.9. Operational Data. Permittee shall record and maintain for inspection, monthly records showing the total hours of operation and quantity of landfill gas combusted for each engine. The records shall be maintained on site for five years and made available as necessary for Department inspection. [permit 0330286-001-AC and Rule 62-4.070 (3), F.A.C.]

A.10. Maintenance Plan & Records - 40 CFR 60 Subpart JJJJ. Permittee must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. [Rule 62-4.070 (3), F.A.C., and 40 CFR 60.4243 (b) (2) (ii)]

40 CFR 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

A.11. 40 CFR 60.4230 - Am I subject to this subpart?
(a) The provisions of this Subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a) (1) through (5) of this Section. For the purposes of this Subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) - (3) *Not Applicable*

(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) - (iv) *Not Applicable*

(5) *Not Applicable*

(b) - (f) *Not Applicable*

Emission Standards for Owners and Operators

A.12. 40 CFR 60.4233 - What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?
(a) - (d) *Not Applicable*
(e) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this Subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this Subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified.
(f) - (g) *Not Applicable*

(h) Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that Section applicable to field testing, except as indicated in paragraph (e) of this Section.

A.13. 40 CFR 60.4234 - How long must I meet the emission standards if I am an owner or operator of a stationary SI internal combustion engine?
Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in 40 CFR 60.4233 over the entire life of the engine.

Other Requirements for Owners and Operators

A.14. 40 CFR 60.4236 - What is the deadline for importing or installing stationary SI ICE produced in the previous model year?
(a) *Not Applicable*
(b) After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in 40 CFR 60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in 40 CFR 60.4233 may not be installed after January 1, 2010.
(c) - (e) *Not Applicable*

Compliance Requirements for Owners and Operators

A.15. 40 CFR 60.4243 - What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?
(a) *Not Applicable*
(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in 40 CFR 60.4233 (d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b) (1) and (2) of this Section.

(1) Purchasing an engine certified according to procedures specified in this Subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this Section.
(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in 40 CFR 60.4233 (d) or (e) and according to the requirements specified in 40 CFR 60.4244, as applicable, and according to paragraphs (b) (2) (i) and (ii) of this Section.

(i) If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(c) - (h) *Not Applicable*

Testing Requirements for Owners and Operators

A.16. 40 CFR 60.4244 - What test methods and other procedures must I use if I am an owner or operator of a stationary SI internal combustion engine?
Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this Section.
(a) Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in 40 CFR 60.8 and under the specific conditions that are specified by Table 2 to this Subpart.
(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR 60.8 (c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine.
(c) You must conduct three separate test runs for each performance test required in this Section, as specified in 40 CFR 60.8 (f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.
(d) To determine compliance with the NO_X mass per unit output emission limitation, convert the concentration of NO_X in the engine exhaust using Equation 1 of this Section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \qquad \text{(Eq. 1)}$$

Where:
ER = Emission rate of NO_X in g/HP-hr.
C_d = Measured NO_X concentration in parts per million by volume (ppmv).
1.912×10^{-3} = Conversion constant for ppm NO_X to grams per standard cubic meter at 20 degrees Celsius.
Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.
T = Time of test run, in hours.
HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

(e) To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this Section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \qquad \text{(Eq. 2)}$$

Where:
ER = Emission rate of CO in g/HP-hr.
C_d = Measured CO concentration in ppmv.
1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.
Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.
T = Time of test run, in hours.
HP-hr = Brake work of the engine, in HP-hr.

(f) For purposes of this Subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this Section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \qquad \text{(Eq. 3)}$$

Where:
ER = Emission rate of VOC in g/HP-hr.
C_d = VOC concentration measured as propane in ppmv.
1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.
Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.
T = Time of test run, in hours.
HP-hr = Brake work of the engine, in HP-hr.

(g) If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR 60 Appendix A, or Method 320 of 40 CFR 63 Appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this Section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this Section.

$$RF_i = \frac{C_{Mi}}{C_{Ai}} \qquad \text{(Eq. 4)}$$

Where:
RF_i = Response factor of compound i when measured with EPA Method 25A.
C_{Mi} = Measured concentration of compound i in ppmv as carbon.
C_{Ai} = True concentration of compound i in ppmv as carbon.

$$C_{icorr} = RF_i \times C_{imeas} \qquad \text{(Eq. 5)}$$

Where:
C_{icorr} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.
C_{imeas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$$C_{Peq} = 0.6098 \times C_{icorr} \qquad \text{(Eq. 6)}$$

Where:
C_{Peq} = Concentration of compound i in mg of propane equivalent per DSCM.

Notification, Reports, and Records for Owners and Operators

A.17. <u>40 CFR 60.4245 - What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?</u>
Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.
(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a) (1) through (4) of this Section.

(1) All notifications submitted to comply with this Subpart and all documentation supporting any notification.
(2) Maintenance conducted on the engine.
(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR 90, 1048, 1054, and 1060, as applicable.
(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to 40 CFR 60.4243 (a) (2), documentation that the engine meets the emission standards.

(b) For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

(c) Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231 must submit an initial notification as required in 40 CFR 60.7 (a) (1). The notification must include the information in paragraphs (c) (1) through (5) of this Section.

(1) Name and address of the owner or operator;
(2) The address of the affected source;
(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;
(4) Emission control equipment; and
(5) Fuel used.

(d) *Not Applicable*

General Provisions

A.18. <u>40 CFR 60.4246 - What Parts of the General Provisions apply to me?</u>
Table 3 to this Subpart shows which Parts of the General Provisions in 40 CFR 60.1 through 60.19 apply to you.

Definitions

A.19. <u>60.4248 - What definitions apply to this subpart?</u>
As used in this Subpart, all terms not defined herein shall have the meaning given them in the CAA and in Subpart A of this Part.

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) are given in 40 CFR 90.105, 40 CFR 1054.107, and 40 CFR 1060.101, as appropriate. The values for certified emissions life for stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) certified to 40 CFR 1048 are given in 40 CFR 1048.101(g). The certified emissions life for stationary SI ICE with a maximum engine power greater than 75

KW (100 HP) certified under the voluntary manufacturer certification program of this subpart is 5,000 hours or 7 years, whichever comes first.

Certified stationary internal combustion engine means an engine that belongs to an engine family that has a certificate of conformity that complies with the emission standards and requirements in this Part, or of 40 CFR 90, 40 CFR 1048, or 40 CFR 1054, as appropriate.

Combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and carbon dioxide (CO_2).

Emergency stationary internal combustion engine means any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. Stationary SI ICE used for peak shaving are not considered emergency stationary ICE. Stationary ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity are not considered to be emergency engines.

Engine manufacturer means the manufacturer of the engine. See the definition of "manufacturer" in this Section.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or non-road or stationary engines, and commonly or commercially known or sold as gasoline.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.

Manufacturer has the meaning given in Section 216 (1) of the Clean Air Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1048.801.

Model year means either: the calendar year in which the engine was originally produced, or the annual new model production period of the engine manufacturer if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year, and it must end by December 31 of the named calendar year. For an engine that is converted to a stationary engine after being placed into service as a non-road or other non-stationary engine, model year means the calendar year or new model production period in which the engine was originally produced.

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Other internal combustion engine means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

Pipeline-quality natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions, and which is provided by a supplier through a pipeline. Pipeline-quality natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1,100 British thermal units per standard cubic foot.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1:1. Engines originally manufactured as rich burn engines, but modified prior to June 12, 2006, with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Rotary internal combustion engine means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

Spark ignition means relating to either: a gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a non-road engine as defined at 40 CFR 1068.30 (excluding paragraph (2) (ii) of that definition), and is not used to propel a motor vehicle or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Stationary internal combustion engine test cell/stand means an engine test cell/stand, as defined in Subpart PPPPP of this Part, that test stationary ICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Subpart means i.e., 40 CFR 60 Subpart JJJJ.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

Volatile organic compounds means volatile organic compounds as defined in 40 CFR 51.100(s).

Voluntary certification program means an optional engine certification program that manufacturers of stationary SI internal combustion engines with a maximum engine power greater than 19 KW (25 HP) that do not use gasoline and are not rich burn engines that use LPG can choose to participate in to certify their engines to the emission standards in 40 CFR 60.4231(d) or (e), as applicable.

A.20. Applicable portions of 40 CFR 63 Subpart JJJJ - Tables 1, 2 and 3

Table 1 to Subpart JJJJ of 40 CFR 60 - NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥ 100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines > 25 HP

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards[a]					
			g/HP-hr			ppmvd at 15% O_2		
			NO_X	CO	VOC[d]	NO_X	CO	VOC[d]
Landfill/Digester Gas	HP ≥ 500	7/1/2007	3.0	[c]3.51	1.0	220	[c]428	80

[a]Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O_2.
[c] To escape the PSD threshold of 250 TPY CO, the maximum allowable emissions of CO for this emission unit, per engine, is 3.51 g CO per bhp-hr, or 428 ppmvd at 15% O_2. instead of Table JJJJ's limits of 5.0 and 610.
[d]For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

Table 2 to Subpart JJJJ of 40 CFR 60 - Requirements for Performance Tests

[As stated in 40 CFR 60.4244, you must comply with the following requirements for performance tests within 10 percent of 100 percent peak (or the highest achievable) load]

For each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary SI internal combustion engine demonstrating compliance according to 40 CFR 60.4244.	a. limit the concentration of NO_X in the stationary SI internal combustion engine exhaust.	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR 60 Appendix A or ASTM Method D6522-00 (2005)[a].	(a) If using a control device, the sampling site must be located at the outlet of the control device.
	ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR 60 Appendix A or ASTM Method D6522-00 (2005)[a].	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_X concentration.	
	iii. Determine the exhaust flow-rate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR 60.		
	iv. If necessary, measure	(4) Method 4 of 40 CFR 60	(c) Measurements to	

	moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	Appendix A, Method 320 of 40 CFR 63 Appendix A, or ASTM D6348-03 (incorporated by reference, see 40 CFR 60.17).	determine moisture must be made at the same time as the measurement for NO_X concentration.	
	v. Measure NO_X at the exhaust of the stationary internal combustion engine.	(5) Method 7E of 40 CFR 60 Appendix A, Method D6522-00 (2005)[a], Method 320 of 40 CFR 63 Appendix A, or ASTM D6348-03 (incorporated by reference, see 40 CFR 60.17).	(d) Results of this test consist of the average of the three 1-hour or longer runs.	
	b. limit the concentration of CO in the stationary SI internal combustion engine exhaust.	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR 60 Appendix A.	(a) If using a control device, the sampling site must be located at the outlet of the control device.
	ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR 60 Appendix A or ASTM Method D6522-00 (2005)[a].	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for CO concentration.	
	iii. Determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR 60.		
	iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR 60 Appendix A, Method 320 of 40 CFR 63 Appendix A, or ASTM D6348-03 (incorporated by reference, see 40 CFR 60.17).	(c) Measurements to determine moisture must be made at the same time as the measurement for CO concentration.	
	v. Measure CO at the exhaust of the stationary internal combustion engine.	(5) Method 10 of 40 CFR 60 Appendix A, ASTM Method D6522-00 (2005)[a], Method 320 of 40 CFR 63 Appendix A, or ASTM D 6348-03 (incorporated by reference, see 40 CFR 60.17).	(d) Results of this test consist of the average of the three 1-hour or longer runs.	
	c. limit the concentration of VOC in the stationary SI internal combustion engine exhaust.	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR 60 Appendix A.	(a) If using a control device, the sampling site must be located at the outlet of the

				control device.
	ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR 60 Appendix A or ASTM Method D6522-00 (2005)[a].	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for VOC concentration.	
	iii. Determine the exhaust flow-rate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR 60.		
	iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR 60 Appendix A, Method 320 of 40 CFR 63 Appendix A, or ASTM D6348-03 (incorporated by reference, see 40 CFR 60.17).	(c) Measurements to determine moisture must be made at the same time as the measurement for VOC concentration.	
	v. Measure VOC at the exhaust of the stationary internal combustion engine.	(5) Methods 25A and 18 of 40 CFR 60 Appendix A, Method 25A with the use of a methane cutter as described in 40 CFR 1065.265, Method 18 or 40 CFR 60 Appendix A, [cd]Method 320 of 40 CFR 63 Appendix A, or ASTM D6348-03 (incorporated by reference, see 40 CFR 60.17).	(d) Results of this test consist of the average of the three 1-hour or longer runs.	

[a]ASTM D6522-00 is incorporated by reference; see 40 CFR 60.17. Also, you may petition the Administrator for approval to use alternative methods for portable analyzer.

[b]You may use ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses, for measuring the O_2 content of the exhaust gas as an alternative to EPA Method 3B.
[c]You may use EPA Method 18 of 40 CFR 60 Appendix A, provided that you conduct an adequate pre-survey test prior to the emissions test, such as the one described in OTM 11 on EPA's Web site (*http://www.epa.gov/ttn/emc/prelim/otm11.pdf*).

[d]You may use ASTM D6420-99 (2004), Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography/Mass Spectrometry as an alternative to EPA Method 18 for measuring total nonmethane organic.

Table 3 to Subpart JJJJ of 40 CFR 60 - Applicability of General Provisions to Subpart JJJJ

[As stated in 40 CFR 60.4246, you must comply with the following applicable General Provisions]

General provisions citation	Subject of citation	Applies to subpart	Explanation
40 CFR 60.1	General applicability of the General Provisions	Yes	
40 CFR 60.2	Definitions	Yes	Additional terms defined in 40 CFR 60.4248.
40 CFR 60.3	Units and abbreviations	Yes	
40 CFR 60.4	Address	Yes	
40 CFR 60.5	Determination of construction or modification	Yes	
40 CFR 60.6	Review of plans	Yes	
40 CFR 60.7	Notification and Recordkeeping	Yes	Except that 40 CFR 60.7 only applies as specified in 40 CFR 60.4245.
40 CFR 60.8	Performance tests	Yes	Except that 40 CFR 60.8 only applies to owners and operators who are subject to performance testing in Subpart JJJJ.
40 CFR 60.9	Availability of information	Yes	
40 CFR 60.10	State Authority	Yes	
40 CFR 60.11	Compliance with standards and maintenance requirements	Yes	Requirements are specified in Subpart JJJJ.
40 CFR 60.12	Circumvention	Yes	
40 CFR 60.13	Monitoring requirements	No	
40 CFR 60.14	Modification	Yes	
40 CFR 60.15	Reconstruction	Yes	
40 CFR 60.16	Priority list	Yes	
40 CFR 60.17	Incorporations by reference	Yes	
40 CFR 60.18	General control device requirements	No	
40 CFR 60.19	General notification and reporting requirements	Yes	

Combined Contiguous Requirements with the Escambia County Board of County Commissioners Perdido Landfill Facility

A.21. Gulf Power Company's Perdido Landfill Gas-to-Energy Facility (Facility I.D. 0330286) shall properly dispose of all landfill gas received from the Escambia County Board of County Commissioners Perdido Landfill (Facility I.D. 0330246) by combustion in the Gulf Power facility's engines. [Application 0330286-002-AV]

A.22. Gulf Power Company's Perdido Landfill Gas-to-Energy Facility (Facility I.D. 0330286) will provide landfill gas information to Escambia County Board of County Commissioners Perdido Landfill (Facility I.D. 0330246) on a monthly basis for total volume and total MMBtu of gas combusted. The unit of volume for measurement of Landfill Gas shall be one thousand (1,000) cubic feet of Landfill Gas at standard conditions and calculated in accordance with industry standards. [Application 0330286-002-AV]

A.23. Gulf Power Company's Perdido Landfill Gas-to-Energy Facility (Facility I.D. 0330286) will monitor the engine operations and provide the designee for the Escambia County Board of County Commissioners Perdido Landfill (Facility I.D. 0330246) notice by the end of the following business day of engine shutdown or malfunction that causes the inability of the Gulf Power Company's Perdido Landfill Gas-to-Energy Facility (Facility I.D. 0330286) to combust landfill gas. [Application 0330286-002-AV]

A.24. Escambia County Board of County Commissioners Perdido Landfill (Facility I.D. 0330246) and Gulf Power Company's Perdido Landfill Gas-to-Energy Facility (Facility I.D. 0330286) are considered one contiguous facility for purposes of determining applicability of Prevention of Significant Deterioration (PSD) requirements. In determining whether any modification proposed for either or both facilities would result in a significant net emissions increase, baseline actual emissions and projected actual emissions of PSD pollutants combined from all emissions units at both facilities must be considered. [Application 0330286-002-AV]

A.25. Escambia County Board of County Commissioners Perdido Landfill (Facility I.D. 0330246), and Gulf Power Company's Perdido Landfill Gas-to-Energy Facility (Facility I.D. 0330286), will cooperate and share emissions information and other information needed to apply for construction and/or modification projects. [Application 0330286-002-AV]

A.26. Escambia County Board of County Commissioners Perdido Landfill (Facility I.D. 0330246), and Gulf Power Company's Perdido Landfill Gas-to-Energy Facility (Facility I.D. 0330286), will each provide the Department within 30 days of the issuance of this permit an inventory of emissions to evaluate the current status of the one contiguous facility as a Major Stationary Source for Prevention of Significant Deterioration. [Application 0330286-002-AV]