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April 5, 2010

Transmittal

Mr. Syed Arif, P.E.
Florida Department of Environmental Protection
Division of Air Resource Management - Bureau of Air Regulation
New Source Review Section
2600 Blair Stone Road, MS #5505
Tallahassee, FL 32399-2400

Re: Industrial Power Generating Company, LLC
Air Permit No. PSD-FL-408
Project No. 0250623-007-AC
Miami-Dade Solid Waste Management
South Dade Landfill Gas Engines
Miami-Dade County, Florida

Project No. G080670A

- For Review
- For Your Use
- As Requested

Sent By: Stephanie A. Jarrett, P.E./agd

ftc&h

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COPIES	DESCRIPTION
1	Professional Engineer Certification for James A. Susan, P.E. for the State of Florida
1	Draft Permit – <i>Miami-Dade Solid Waste Management South Dade Landfill Modification - Landfill Gas Engines</i>

COMMENTS

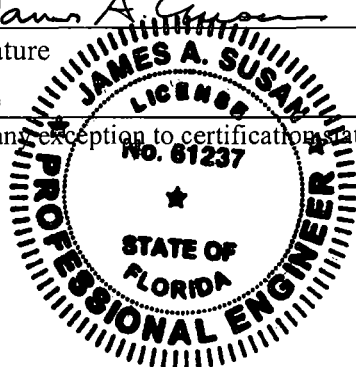
Included are our comments on INGENCO's draft construction permit.

By UPS

Professional Engineer Certification

1. Professional Engineer Name: <u>James A. Susan, P.E.</u> Registration Number: <u>61237</u>
2. Professional Engineer Mailing Address... Organization/Firm: <u>Fishbeck, Thompson, Carr & Huber, Inc.</u> Street Address: <u>1515 Arboretum Drive, SE</u> City: <u>Grand Rapids</u> State: <u>MI</u> Zip Code: <u>49546</u>
3. Professional Engineer Telephone Numbers... Telephone: <u>(616) 575-3824</u> ext. <u>3734</u> Fax: <u>(616) 575-8155</u>
4. Professional Engineer E-mail Address: <u>jasusan@ftch.com</u>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> <u>James A. Susan</u> Signature (seal) <u>3/31/10</u> Date

* Attach any exception to certification statement.



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 _____(DRAFT)_____ to the persons listed below.

Robert L. Greene, INGENCO rgreene@ingenco.com German Hernandez, Miami-Dade Solid Waste Management germanh@miamidade.gov James A. Susan, P.E., Fishbeck, Thompson, Carr & Huber, Inc. jasusan@ftch.com Lee Hoefert, DEP-SED lee.hoefert@dep.state.fl.us Mallika Muthiah, DERM muthiahm@miamidade.gov Kathleen Forney, EPA Region 4 (forney.kathleen@epa.gov) Dee Morse, NPS (dee_morse@nps.gov) Vickie Gibson, DEP-BAR (victoria.gibson@dep.state.fl.us) (for read file)

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.

(DRAFT)

(Clerk) (Date)

SECTION I – GENERAL INFORMATION (DRAFT PERMIT)

FACILITY DESCRIPTION

Miami-Dade Solid Waste Management South Dade Landfill Facility operates a municipal solid waste (MSW) landfill in Miami, Miami-Dade County which is allocated for Class I MSW. Methane-rich landfill gas produced from the decomposition of disposed waste materials is being collected by a gas recovery system. The collected gas is currently being diverted to the flaring system for control. INGENCO plans to construct and operate an electrical generation plant at the South Dade Landfill Facility. In order to reduce the amount of landfill gas (LFG) wasted by flaring, all available LFG from the landfill will be supplied to INGENCO for use as fuel to power the proposed internal combustion (IC) engine electrical generation plant. As a result of these changes, significant emission increases will occur for carbon monoxide (CO), particulate matter/particulate matter with an aerodynamic diameter of 10 microns or less (PM/PM₁₀) and nitrogen oxides (NOx).

PROJECT DESCRIPTION

The proposed project will consist of twenty-four (24) identical Detroit Diesel Series 60 dual fuel engines coupled to electrical generators. The electricity generation plant will consist of:

1. LFG treatment equipment (gas dewatering, filtration and compression equipments and processes).
2. Twenty-four (24) IC engines where each engine will be connected to a 350 kilowatt (kW) electrical generator; the plant will have the potential to generate 8 megawatts (MW) of electricity under base load operating conditions and will be interconnected to the Florida Power and Light distribution network through a nearby power line.
3. Ancillary equipment that supports the electricity generation operation consists of:
 - a. One 30,000 gallon diesel fuel tank to provide diesel oil storage for the engines.
 - b. One 1,000 gallon lube oil tank.
 - c. One 1,000 gallon used lube oil tank, and moisture conditioning equipment.
 - d. According to the applicant in the June 2, 2009 application, if necessary a 0.156 million british thermal units per hour (MMBtu/hr) Burnham boiler for providing heat to the building and a 275 gallon fuel oil tank for the boiler will be installed.
 - e. Cooling towers.

The IC engines will be arranged in four groups of six engines. The engines will be located near the existing LFG collection and control system transmission line, connected from the existing line to a blower/compressor that will be used to draw methane rich gas (fuel) from the landfill gas collection system to the proposed electricity generation plant. The exhausts from each group of six will be ducted together to a single stack. Therefore, there will be a total of four stacks in the electricity generation plant.

NEW EMISSION UNITS

This permit authorizes construction and installation of the following new regulated emission units:

ID	Emission Unit (EU) Description
003	Twenty-four (24) Detroit Diesel Series 60 Dual-Fuel Engines each coupled to a 350 kW generator capable of producing 8 MW of electricity.

Miami-Dade Solid Waste Management
South Dade Landfill INGENCO Project

Air Permit No. PSD-FL-408
Project No. 0250623-007-AC

SECTION I – GENERAL INFORMATION (DRAFT PERMIT)

REGULATORY CLASSIFICATION

The South Dade Landfill Facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), or volatile organic compounds (VOC) exceed 100 tons per year (TPY). The landfill facility is also classified as a Title V source since the design capacity of the landfill is greater than 2.5 million cubic meters and megagrams.

The facility is subject to the following regulations:

- 40 Code of Federal Regulations (CFR) 60, Subpart A, New Source Performance Standards (NSPS) General Provisions;
- 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills;
- 40 CFR 60, Subpart Cc, Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills;
- 40 CFR 63, Subpart A, General Provisions; and
- 40 CFR 63, Subpart AAAAA, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills.

The proposed landfill gas-fueled IC engine electrical generation plant will be subject to Prevention of Significant Deterioration (PSD) review with respect to Rule 62-210.200, F.A.C. due to its potential CO emissions being greater than 250 TPY. Best Available Control Technology (BACT) determinations are required for each pollutant emitted in excess of the Significant Emission Rates listed in Rule 62-210.200, F.A.C. For this project, the permit specifies BACT emissions standards for CO, NO_x and PM/PM₁₀ emissions.

APPENDICES

The following Appendices are attached as 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

Appendix E Summary of Best Available Control Technology Determinations

Appendix F NSPS Subpart A and NESHAP Subpart A, General Provisions

Appendix G NESHAP Subpart AAAAA, Municipal Solid Waste Landfills

RELEVANT DOCUMENTS:

The permit request and additional information received to make it complete are not a part of this permit; however, the information is discussed in the technical evaluation which is issued concurrently with this permit.

SECTION III – ADMINISTRATIVE REQUIREMENTS (DRAFT PERMIT)

1. Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department's Southeast District (SED) Office, 400 North Congress Avenue, Suite 200, West Palm Beach, Florida 33401. All applications for permits to construct or modify emissions unit(s) subject to the Prevention of Significant Deterioration or Nonattainment (NA) review requirements should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP), 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399-2400 (phone number 850/488-0114).
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications should be submitted to the Department's Southeast District Office, 400 North Congress Avenue, Suite 200, West Palm Beach, Florida 33401 and a copy to the Department of Environmental Resources Management, Air Quality Management Division, 701 Northwest 1st Court, Suite 400, Miami, Florida 33136.
3. General Conditions: The owner and operator are subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
4. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
5. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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 Florida Administrative Code Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297 and the Code of Federal Regulations Title 40, Parts 60 and 63, adopted by reference in the Florida Administrative Code (F.A.C.) regulations. The permittee shall use the applicable forms listed in Rule 62210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
6. Expiration: The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the Department's Southeast District Office of any delays in completion of the project which would affect the startup day by more than 90 days. [Rule 624.090, F.A.C.]
7. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration, but no later than 180 days after 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, 624.050, 62-4.220, and Chapter 62-213.420, F.A.C.]
8. Source Obligation: 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 constructions 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. [Rule 62-212.400(12)(a), F.A.C.]

SECTION III – ADMINISTRATIVE REQUIREMENTS (DRAFT PERMIT)

9. BACT Determination: For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. [40 CFR 52.21(j)(4)]
10. Annual Reports: Pursuant to Rule 62-210.370(3), F.A.C., Annual Operation Reports, the permittee is required to *submit annual reports on the actual operating rates and emissions from this facility*. Annual operating reports using DEP Form 62-210.900(5) shall be sent to the DEP's Southeast District office by April 1st of each year.
11. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.
12. 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.]

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS (DRAFT PERMIT)

SUBSECTION A. SPECIFIC CONDITIONS

The Specific Conditions listed in this section apply to the following emission units:

EMISSION UNIT No.	EMISSION UNIT DESCRIPTION
003	This permit authorizes the installation and operation of twenty-four (24) identical Detroit Diesel Series 60 engines. The engines are dual fuel (Landfill Gas and No. 2 fuel oil and/or biodiesel) each coupled to a 350 kW generator, capable of producing total of 8 MW of power. The engines will be arranged in four groups of six engines: group A, B, C and D. Each group of engines will comprise one stack. The engines are each 6 cylinder, 12.7 liter total displacement compression ignition. The engine generators are capable of producing 350 kW of power each with a nominal facility electricity generation of 8 MW. The landfill gas will go through a gas treatment system prior to combustion in the engines.

A. FUEL SPECIFICATIONS AND WORK PRACTICES

1. This permit authorizes the installation and operation of twenty-four (24) identical Detroit Diesel Series 60 dual fuel (landfill gas and No. 2 fuel oil and/or biodiesel) fired engines for the generation of up to a total of 8 megawatts (nominal rating) of electricity. The maximum power generation rating of each engine shall be 469 brake horsepower (bhp). 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. **[Rule 62-212.400, F.A.C.]**
{Permitting Note: The power generation rating of 469 bhp is based on an average fuel heating value requirement of 536 british thermal units per standard cubic feet (BTU/scf) and landfill gas usage of 114 standard cubic feet per minute (scfm) per engine.}
2. This permit authorizes the installation of a LFG Treatment System including gas compression (via blowers), liquids removal (via knock-out and chilling), and particulate removal (via 1 micron primary and polishing filters). The gas treatment system shall not be equipped with atmospheric vents. **[Rule 62-212.400, F.A.C.]**
3. Unless otherwise indicated, the modification/construction and operation of the Detroit Diesel internal combustion engines shall be in accordance with the capacities and specifications stated in the application. **[Rule 62-210.300, F.A.C.]**
4. The permittee shall provide documentation to the SED Office verifying that the twenty four (24) Detroit Diesel Series 60 internal combustion engines were manufactured prior to April 1, 2006. **[Rule 62-4.070(3), F.A.C.]**
5. Fuel fired in the engines is limited to LFG ranging from 1 to 96% gas fraction and No. 2 fuel oil and/or biodiesel. The use of any other fuel will require a modification to this permit. **[Rule 62-212.400, F.A.C.]**
{Permitting Note: The fuel heating value for diesel fuel is 137,000 british thermal units per gallon (Btu/gal) and the fuel heating value for biodiesel ranges from 130,000-145,000 BTU/gal.}
6. The owner or operator shall install, calibrate, operate and maintain monitoring devices to record the fuel flow (Landfill Gas and/or Diesel) and the hours of operation. **[Rule 62-4.070(3), F.A.C.]**
7. No. 2 Fuel oil and biodiesel shall be limited to a maximum sulfur content of 0.0015 percent by weight. The owner or operator shall determine the sulfur content of each delivery of diesel and/or biodiesel fuel received for this emissions unit using ASTM D 4057-88, Standard Practice for Manual Sampling of Petroleum and Petroleum Products and one of the following test methods for sulfur in petroleum products: ASTM D 129-

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS (DRAFT PERMIT)

91, ASTM D 2622-94, or ASTM D 4294-90 or a latest version. These methods are adopted by Rule 62297.440, F.A.C. The owner or operator may comply with this requirement by receiving records from the fuel supplier that indicate the sulfur content of the fuel delivered complies with the sulfur limit.

[Rule 62-4.070(3), F.A.C. and Application No. 0250623-007-AC]

- 8. The maximum sulfur content of the landfill gas shall not exceed 0.039 percent by weight. [Rule 62-210.200, F.A.C.]

- 9. ~~Nitrogen Dioxide emissions from the 24 dual-fuel diesel engines shall be controlled by supplementary inlet charge-air water-to-air cooling. The cooling system shall be capable of maintaining an hourly average inlet charge-air temperature not greater than 140°F.~~

~~The permittee shall operate each engine within 0.5% of the oxygen (O2) content in the exhaust gas at the air-to-fuel ratio that the tested engine demonstrated compliance during the performance test required by Specific Condition C-2 or the most recent performance test if a subsequent performance test is conducted. [Rule 624.070(3), F.A.C.]~~

- 10. The permittee shall install and maintain an automatic fail-safe block valve on each engine. The fail-safe block valve must stop the flow of LFG in the event of an engine failure. [Rule 62-4.070, F.A.C.]
- 11. Excess LFG not used as fuel in an engine must be flared in accordance with the requirements of 40 CFR 60 Subpart WWW. [Rule 62-4.070, F.A.C.]
- 12. Each engine/generator set may operate up to 8,760 hours per year. The permittee is limited to 500 hours per year operation, excluding startup and shutdown, on 100% fuel oil including bio-diesel. [Rule 62-210.200, F.A.C.]

Comment [SAJ1]: INGENCO requests condition be deleted because:

The oxygen content of the exhaust is dependent on output (kW), ratio of energy from LFG (gas fraction) and air temperature, which affects air density. This is not a practical control for a dual fuel diesel engine operating on a variable fuel such as LFG.

Comment [rlg2]: Based on discussions with Mr. Sayed Arif, who indicated that the department wished some readily tracked parameter to ensure compliance with permit conditions. INGENCO suggests the following: NO_x emissions will be controlled by limiting the charge air temperature not to exceed 140°F on an hourly average.

B. EMISSION AND PERFORMANCE REQUIREMENTS

- 1. **Nitrogen oxides (NOx):** The emission rate of NOx from each engine when operating at greater than 92% gas fraction shall not exceed 0.65 pounds per million british thermal unit (lb/MMBtu) and a maximum of 2.42 pounds per hour (lb/hr). Facility wide NOx emissions shall not exceed 254 tons per year (TPY). [Rule 62-212.400, F.A.C.]
- 2. **Carbon Monoxide (CO):** The emission rate of CO from each engine when operating at greater than 92% gas shall not exceed 0.86 lb/MMBtu and a maximum of 3.15 lb/hr. Facility wide CO emissions shall not exceed 331 TPY. [Rule 62-212.400, F.A.C.]
- 3. **Particulate Matter/Particulate Matter less than 10 microns (PM/PM10):** The emission rate of PM/PM10 from each engine shall not exceed 0.075 lb/MMBtu, and a maximum of 0.270, 28 lb/hr. Facility wide PM/PM10 emissions shall not exceed 29 TPY. [Rule 62-212.400, F.A.C.]
- 4. **Sulfur Dioxide (SO2):** The emission rate of SO2 from each engine shall not exceed 0.38 lb/hr. Facility wide SO2 emissions shall not exceed 39.9 TPY. [Rule 62-210.200, F.A.C.]

Comment [SAJ3]: General note on emission limits. Short term emission rates for NO_x and CO (i.e., lb/MMBTU and lb/hr) are dependent on ratio of energy from landfill gas (gas fraction) and fuel oil. Other INGENCO Permits have incorporated emission factor equations to account for the fuel ratio to emission factor dependence. We can create these equations upon request from FDEP.

Comment [SAJ4]: Based on emission calculations submitted with application

- 5. **Volatile Organic Compounds (VOC):** The emission rate of total VOC from each engine shall not exceed 0.360, 37 lb/hr. Facility wide total VOC emissions shall not exceed 38.6 TPY. [Rule 62-210.200, F.A.C.]

Comment [SAJ5]: Based on emission calculations submitted with application

- 6. **Hydrogen Chloride (HCl):** The emission rate of HCl from each engine shall not exceed 0.08 lb/hr. Facility wide HCl emissions shall not exceed 8.1 TPY. [Rule 62-210.200, F.A.C. and Appendix 4 of the application]

{Permitting Note: Project avoids PSD review based on permit limits.}

{Permitting Note: Project avoids PSD review for VOC based on emission limits.}

{Permitting Note: Engines escape case by case maximum available control technology (MACT) determinations since the facility modification is below the major source threshold of 10 TPY for any single hazardous air pollutant (HAP) or 25 TPY for total HAPs.}

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS (DRAFT PERMIT)

7. Visible emissions from each engine/generator set exhaust shall not exceed ~~10%~~20% opacity. [Rule 62-212.400, F.A.C.]

Comment [SAJ6]: INGENCO is requesting the opacity limit be raised to 20% (Rule 62-296.320(4)(b), F.A.C.) Because these engines are dual fuel, and operate on LFG/Fuel oil, there is a possibility that opacity will, on occasion, be slightly above 10%. INGENCO has attached VEE results showing that >10% opacity is possible.

C. TEST METHODS AND PROCEDURES

1. Sampling Facilities:

The permittee shall design each group of six internal combustion engine stacks to accommodate adequate testing and sampling locations in order to determine compliance with the applicable emission limits specified by this permit. Stack sampling facilities shall be installed in accordance with ~~Rule 62-297.310(6)~~, F.A.C. [Rule 62-297.310(6), F.A.C.]

Comment [rig7]: FLDEP assumes that filtration of landfill gas will reduce PM and therefore reduce opacity. This has not been shown in any case. Opacity from dual fuel diesel engines is a combination of NO₂ production, combustion efficiency and other factors. In general, INGENCO expects opacities, when operating at ~92% gas fraction to be in the 0%-5% range. Opacities operating on 100% oil could be 5%. At up to 30% gas fraction, the opacity could be >10%. INGENCO requests the change to 20% gas fraction based on Florida rules and our operating experience.

Comment [SAJ8]: INGENCO is requesting a variance. Based on the design of the stack, platforms cannot be constructed. Access to stacks will be by manlift.

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Comment [rig9]: Engine groups and engines, by practice will see rotating duty so that the operating time will be roughly the same for any group or engine (barring some extended down time). It is impractical to determine the testing between engines that have run almost identical times over 5 years. Testing one engine group/year will provide a test of all engines in the 5 year cycle. If I start on a normal basis after construction and test one engine per year on a 5 year permit cycle, I believe they get done once every 5 years. See end. Besides, all engines would be tested within the 5 year permit cycle.

Comment [SAJ10]: INGENCO request this condition be deleted. INGENCO submitted LFG sulfur content sample results for two different occasions during the permitting processes. The sample results were similar. INGENCO requests that this condition be deleted, and only sampling analysis during the initial and renewal tests be required.

2. Performance Test Methods:

Initial (I), Annual (A) and permit renewal (R) compliance tests shall be performed in accordance with the following reference methods as described in 40 CFR 60, Appendix A and 40 CFR 51 Appendix M, adopted by reference in Chapter 62-204.800, F.A.C. ~~Each individual engine group shall be tested (The initial compliance test) of each individual engine group shall be conducted within 60 days of achieving maximum production at which the individual engine group will be operated, but not later than 180 days after initial startup, to demonstrate initial compliance with emissions standards. Subsequent compliance tests and (annual compliance tests) shall be conducted on at least one of the six engines group from each group per year. The compliance tests shall be conducted when operating in dual fuel mode with the LFG gas fraction being greater than 90%. There shall be at least one engine group tested each year and the time between tests of an individual engine group shall not exceed five years. A different engine from each group shall be tested each year such that all engines from the four groups are tested during the six year cycle. The renewal compliance test shall be conducted on the engine group that operated the most during the five year cycle in each group.~~

- (a) EPA Method 5 – Determination of PM emissions from Stationary Sources (I,A);
- (b) EPA Method 6 or 6C – Determination of SO₂ emissions from Stationary Sources (I,R);
- (c) EPA Method 7 or 7E – Determination of NO_x Emissions from Stationary Sources (I,A);
- (d) EPA Method 9 – Visual Determination of the Opacity of Emissions from Stationary Sources (I,A);
- (e) EPA Method 10 – Determination of CO Emissions from Stationary Sources (I,A);
- (f) EPA Method 18, 25, 25A or 25C – Measurement of Gaseous Organic Compounds Emissions (I,R);
- (g) EPA Method 26 or 26A – Determination of HCl Emissions from Stationary Sources (I,R);
- (h) EPA Method 201 – Determinations of PM₁₀ Emissions (I,A)

EPA Methods 1 through 4 shall be used as necessary to support other test methods. No other test methods may be used for compliance testing unless prior DEP approval is received, in writing, from the Department. [Rule 62-297.310(7), F.A.C.]

3. The permittee shall comply with the following requirements to monitor the sulfur and chlorine content of the landfill gas:

a. ~~At least 180 days prior to commercial startup of the engines, the permittee shall sample and analyze the landfill gas~~

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~~for sulfur and chlorine content. The gas sample collected for the analyses shall be a composite sample and collected under normal operating conditions (i.e., with valves open for all operating cells). The gas sample collection and analyses for sulfur and chlorine content shall be done annually. Based on the sampling results and Rule 62-297.310(7)(b), F.A.C., the Department may request additional gas sampling and analyses. Results shall be reported as SO₂ and HCl emission factors in terms of lb/MMscf of landfill gas.~~

- b. ~~During each required compliance test conducted for HCl, the permittee shall sample and analyze the landfill gas for the chlorine content. Results for the compliance test shall be reported in terms of HCl emissions in lb/hr and the sample analysis result shall be reported as HCl emission factor in terms of lb/MMscf of landfill gas.~~
- c. Analysis of the chlorine content shall be used to track changes in the landfill gas. Based on the analysis, the Compliance Authority may require additional stack testing for HCl emissions to determine compliance with the emissions standard.
- d. During each required compliance test conducted for SO₂, the permittee shall sample and analyze the landfill gas for the sulfur content. Compliance with the landfill gas fuel sulfur specification shall be determined based on each analysis for the sulfur content of the landfill gas.

[Rules 62-210.200 and 62-212.400, F.A.C.]

- 4. The permittee shall ~~sample and analyze the heat content~~ of the landfill gas annually during each required compliance test and provide the results to the Department in the compliance test report. [Rule 62-4.070, F.A.C.]
- 5. Within 60 days of achieving the permitted capacity, but no later than 180 days after initial startup, the subject emissions units as described in Specific Condition C.2 shall be tested for compliance with the applicable emission limits. Subsequent compliance tests (Annual Compliance Tests) shall be run annually during each federal fiscal year (October 1st to September 30th). For the duration of all tests the emission units shall be operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum operating rate allowed by the permit. For this project, the maximum operating rate for each engine is 350 kW (.35 MW). If it is impracticable to test at permitted capacity, then the emission unit may be tested at less than permitted capacity (i.e., 90% of the maximum operating rate allowed by the permit); in this case, subsequent emission unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, then operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity in the permit. [Rule 62-297.310, F.A.C.]

Comment [SAJ11]: INGENCO normally samples and analyzes LFG for methane using a portable meter. Please confirm that this method is satisfactory.

D. RECORDKEEPING, REPORTING AND MONITORING REQUIREMENTS

- 1. Total landfill gas flow to the engines shall be continuously measured and recorded. [Rule 62-210.200, F.A.C.]
- 2. Gross electrical power generation (kw-hrs) shall be continuously measured and recorded for each engine individually and for the twenty four (24) engines combined. [Rule 62-210.200, F.A.C.]
- 3. Each engine/generator set shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time. [Rule 62-210.200, F.A.C.]
- 4. The permittee shall maintain the following records on a monthly basis:
 - a. The hours of operation of each engine/generator set for each fuel, including any start-up, shutdown or malfunction in the operations of the engine/generator set; and
 - b. The total landfill gas flow to each engine; and
 - c. Gross electrical power generation in kw-hr for each engine and the twenty four (24) engines combined.

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS (DRAFT PERMIT)

[Rule 62-210.200, F.A.C.]

5. The permittee shall record and maintain diesel fuel usage records for each generator, and for each group of generators including operation for repairs or maintenance, on a daily basis. The diesel fuel usage records for the generators shall be based on daily fuel meter readings. Within ten days of the end of each month, the owner or operator shall make records of monthly diesel fuel consumption from the daily records, and shall make records of consecutive 12 month diesel fuel consumption. [Rule 62-4.070(3), F.A.C.]
6. The owner or operator shall maintain records of sulfur content of each delivery of diesel fuel received for these emissions unit. [Rule 62-4.070(3), F.A.C.]
7. The permittee shall submit the results and the corresponding data of the site-specific HCl emission factor and the SO₂ emission factor within 45 days of gas sampling to the Bureau of Air Regulation. The results shall also be submitted to the Southeast District Office. [Rule 62-210.200, F.A.C.]

SECTION III – EMISSION UNIT(S) SPECIFIC CONDITIONS (DRAFT PERMIT)

Stack test estimate [RLG]

	<u>Group</u>				<u>Years between tests</u>
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	
<u>2010</u>	<u>Permit Issue and construct</u>				
<u>2011</u>	X				
<u>2012</u>		X			
<u>2013</u>			X		
<u>2014</u>				X	
<u>2015</u>	<u>Permit Expires and renewal application</u>				
<u>2016</u>	X				5
<u>2017</u>		X			5
<u>2018</u>			X		5
<u>2019</u>				X	5
<u>2020</u>	<u>Permit Expires and renewal application</u>				
<u>2021</u>	X				5
<u>2022</u>		X			5
<u>2023</u>			X		5
<u>2024</u>				X	5

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