Florida Department of Environmental Protection

Memorandum

To: Jeff Koerner, Permitting and Compliance Section

From: Tammy McWade, Permitting and Compliance Section

Date: May 25, 2011

Subject: Draft Air Permit No. 0250615-012-AC
PSD-FL-414
Waste Management, Inc., Medley Landfill
Landfill Gas-to-Energy Project

The Medley Landfill is an existing municipal solid waste landfill. Waste Management, Inc. proposes to construct and operate a landfill gas-to-energy plant at the existing Medley Landfill, which will use landfill gas to fuel six lean-burn reciprocating internal combustion engine/generator sets. The six engines will be capable of generating a nominal 9.6 megawatts (MW) of power to the electrical grid. The two existing flares will be retained and relocated adjacent to the engines as additional combustion devices for the landfill gas. The landfill gas will be routed through a landfill gas treatment system and then to the engines. As necessary, residual landfill gas will be routed to the flares.

The proposed project is subject to preconstruction review pursuant to Rule 62-212.400, Florida Administrative Code (F.A.C.) for the Prevention of Significant Deterioration (PSD) of Air Quality for emissions of CO, NO_X and PM/PM_{10}. The draft permit includes the following determinations of the Best Available Control Technology (BACT): emissions of CO and NOx will be minimized by the lean-burn combustion design combined with good operating and maintenance practices; and emissions of PM/PM_{10} will be controlled by filtration in the landfill gas treatment system prior to combustion.

Day 90 of the permitting time clock is June 13, 2011.

I recommend your approval of the attached draft permit package.

Attachments

JFK/ttm

P.E. CERTIFICATION STATEMENT

PERMITTEE

Waste Management, Inc.
2700 Northwest 48th Street
Pompano Beach, FL 33073

Draft Permit No. 0250615-012-AC
PSD-FL-414
Medley Landfill
Landfill Gas-to-Energy Project
Miami-Dade County, Florida

PROJECT DESCRIPTION

Waste Management, Inc. operates the existing Medley Landfill, which is an existing municipal solid waste landfill located in Miami-Dade County at 9350 Northwest 89th Avenue in Medley, Florida. Waste Management, Inc. proposes to construct and operate a landfill gas-to-energy plant at the existing Medley Landfill, which will use landfill gas to fuel six lean-burn reciprocating internal combustion engine/generator sets. The six engines will be capable of generating a combined nominal 9.6 megawatts (MW) of power to the electrical grid. The two existing flares will be retained and relocated adjacent to the engines as additional combustion devices for the landfill gas. The landfill gas will be routed through a landfill gas treatment system and then to the engines. As necessary, residual landfill gas will be routed to the flares.

In addition to the general preconstruction review requirements of Rule 62-212.300, Florida Administrative Code (F.A.C.), the proposed project is subject to the major stationary source preconstruction review requirements of Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality for emissions of CO, NO_X, PM and PM_{10}. The draft permit includes the following Best Available Control Technology (BACT) determinations: emissions of CO and NOx will be minimized by the lean-burn combustion design combined with good operating and maintenance practices; and emissions of PM and PM_{10} will be controlled by filtration in the landfill gas treatment system prior to combustion. The Department's full review of the project and rationale for issuing the draft permit is provided in the Technical Evaluation and Preliminary Determination.

I HEREBY CERTIFY *that the air pollution control engineering features described in the above-referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify any other aspects of the proposal (including, but not limited to, the electrical, civil, mechanical, structural, hydrological, geological and meteorological features).*

5-25-11

Jeffery F. Koerner, P.E.
Registration Number: 49441

(Date)

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

May 25, 2011

Electronically Sent – Received Receipt Requested

Mr. Tim Hawkins, South Florida Market Area Vice President
Waste Management, Inc. of Florida, Medley Landfill
2700 Northwest 48th Street
Pompano Beach, FL 33073

Re: Draft Air Permit No. 0250615-012-AC
PSD-FL-414
Medley Landfill
Landfill Gas-to-Energy Project

Dear Mr. Hawkins:

On August 16, 2010, you submitted an application for an air construction permit subject to the preconstruction review requirements of Rule 62-212.400, Florida Administrative Code, for the Prevention of Significant Deterioration (PSD) of Air Quality. The project requests authorization to construct and operate a landfill gas-to-energy plant at the existing Medley Landfill, which will use landfill gas to fuel six reciprocating internal combustion engine/generator sets. The six engines will be capable of generating a nominal 9.6 megawatts (MW) to the electrical grid. This work will be conducted at the existing Medley Landfill, which is located in Miami-Dade County at 9350 Northwest 89th Avenue in Medley, Florida. Enclosed are the following documents: Written Notice of Intent to Issue Air Permit; Public Notice of Intent to Issue Air Permit; Technical Evaluation and Preliminary Determination; and Draft Permit with Appendices.

The Public Notice of Intent to Issue Air Permit is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project. If you have any questions, please contact the Project Engineer, Tammy McWade, at 850/717-9086 or me at 850/717-9083.

Sincerely,

Jeffery F. Koerner, Program Administrator
Permitting and Compliance Section
Division of Air Resource Management

Enclosures

JFK/ttm

WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

In the Matter of an
Application for Air Permit by:

Waste Management, Inc.
2700 Northwest 48th Street
Pompano Beach, FL 33073

Authorized Representative:
Mr. Tim Hawkins, South Florida Market Area Vice President

Draft Permit No. 0250615-012-AC
PSD-FL-414
Medley Landfill
Landfill Gas-to-Energy Project
Miami-Dade County, Florida

Facility Location: Waste Management, Inc. operates the existing Medley Landfill, which is located in Miami-Dade County at 9350 Northwest 89th Avenue in Medley, Florida.

Project: The Medley Landfill is an existing municipal solid waste landfill. The applicant proposes to construct and operate a landfill gas-to-energy plant at the existing Medley Landfill, which will use landfill gas to fuel six reciprocating internal combustion engine/generator sets. The six engines will be capable of generating a nominal 9.6 megawatts (MW) of power. The two existing flares will be retained and relocated adjacent to the engines as additional combustion devices for the landfill gas. The landfill gas will be routed through a landfill gas treatment system and then to the engines. As necessary, residual landfill gas will be routed to the flares. The project is subject to the preconstruction review requirements of Rule 62-212.400, Florida Administrative Code (F.A.C.) for the Prevention of Significant Deterioration (PSD) of Air Quality for the following pollutants: carbon monoxide (CO), nitrogen oxides (NO_X), total particulate matter (PM) and particulate matter with a mean particle diameter of 10 microns or less (PM_{10}). Details of the project are provided in the application and the enclosed Technical Evaluation and Preliminary Determination.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters 62-4, 62-210 and 62-212, F.A.C. The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Florida Department of Environmental Protection's Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Bureau of Air Regulation's physical address is 111 South Magnolia Drive, Suite 4, Tallahassee, Florida and the mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Bureau of Air Regulation's phone number is 850/717-9000.

Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above.

Notice of Intent to Issue Air Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of the proposed equipment will not adversely impact air quality and that the project will comply with all applicable provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

Public Notice: Pursuant to Section 403.815, F.S. and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Permit

(Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet the requirements of Sections 50.011 and 50.031, F.S. in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Permitting Authority at the address or phone number listed above. Pursuant to Rule 62-110.106(5) and (9), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within 7 days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit and requests for a public meeting for a period of 30 days from the date of publication of the Public Notice. Written comments must be received by the Permitting Authority by close of business (5:00 p.m.) on or before the end of this 30-day period. In addition, if a public meeting is requested within the 30-day comment period and conducted by the Permitting Authority, any oral and written comments received during the public meeting will also be considered by the Permitting Authority. If timely received comments result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice. All comments filed will be made available for public inspection.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within 14 days of receipt of this Written Notice of Intent to Issue Air Permit. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of the attached Public Notice or within fourteen 14 days of receipt of this Written Notice of Intent to Issue Air Permit, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how each petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.

Jeffery F. Koerner, Program Administrator
Permitting and Compliance Section
Division of Air Resource Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Written Notice of Intent to Issue Air Permit package (including the Written Notice of Intent to Issue Air Permit, the Public Notice of Intent to Issue Air Permit, the Technical Evaluation and Preliminary Determination and the Draft 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 5/25/11 to the persons listed below.

Mr. Tim Hawkins, Waste Management, Inc. (thawkins@wm.com)
Mr. James Kisiel, P.E., Waste Management Inc. (jkisiel@wm.com)
Mr. David A. Buff, P.E., Golder Associates, Inc. (dbuff@golder.com)
Mr. Lennon Anderson, SED Office (lennon.anderson@dep.state.fl.us)
Ms. Mallika Muthias, Miami-Dade DERM (muthim@miamidade.gov)
Ms. Kathleen Forney, EPA Region 4 (forney.kathleen@epa.gov)
Ms. Heather Abrams, EPA Region 4 (abrams.heather@epa.gov)
Ms. Ana M. Oquendo, EPA Region 4 (oquendo.ana@epa.gov)
Ms. Vickie Gibson, DEP BAR Reading File (victoria.gibson@dep.state.fl.us)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

(Clerk) 5/25/11 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection
Division of Air Resource Management, Bureau of Air Regulation

Draft Air Permit No. 0250615-012-AC / PSD-FL-414
Waste Management, Inc., Medley landfill
Miami-Dade County, Florida

Applicant: The applicant for this project is Waste Management, Inc. The applicant's authorized representative and mailing address is: Tim Hawkins, South Florida Market Area Vice President, Waste Management, Inc., Medley Landfill, 2700 Northwest 48th Street, Pompano Beach, FL 33073.

Facility Location: Waste Management, Inc. operates the existing Medley Landfill, which is located in Miami-Dade County at 9350 Northwest 89th Avenue in Medley, Florida.

Project: The Medley Landfill is an existing municipal solid waste landfill. The applicant proposes to construct and operate a landfill gas-to-energy plant at the existing Medley Landfill, which will use landfill gas to fuel six lean-burn reciprocating internal combustion engine/generator sets. The six engines will be capable of generating a combined nominal 9.6 megawatts (MW) of power to the electrical grid. The two existing flares will be retained and relocated adjacent to the engines as additional combustion devices for the landfill gas. The landfill gas will be routed through a landfill gas treatment system and then to the engines. As necessary, residual landfill gas will be routed to the flares. The project will result in the following potential emissions increases at the existing landfill: 455 tons/year of carbon monoxide (CO); 78 tons/year of nitrogen oxides (NO_X); 31 tons/year of particulate matter (PM), particulate matter with a mean particle diameter of 10 microns or less (PM_{10}) and particulate matter with a mean particle diameter of 2.5 microns or less ($PM_{2.5}$); 39 tons/year of sulfur dioxide (SO_2); and 37 tons/year of volatile organic compounds (VOC).

The proposed project is subject to preconstruction review pursuant to Rule 62-212.400, Florida Administrative Code (F.A.C.) for the Prevention of Significant Deterioration (PSD) of Air Quality for emissions of CO, NO_X, PM and PM_{10}. In accordance with this rule, the Department is required to make a determination of the Best Available Control Technology (BACT) for CO, NOx, PM and PM_{10} emissions. The draft permit includes the following preliminary BACT determinations: emissions of CO and NOx will be minimized by the lean-burn combustion design combined with good operating and maintenance practices; and emissions of PM/PM_{10} will be controlled by filtration in the landfill gas treatment system prior to combustion.

The Department reviewed the air quality analysis prepared by the applicant. The project has no predicted significant impact for any pollutants in the nearest PSD Class I area (Everglades National Park). Therefore, a multi-source modeling analysis for PSD Class I increment was not required. The Department reviewed a multi-source modeling analysis for PSD Class II increment because the project has predicted significant impacts for nitrogen dioxide (NO_2) and PM_{10} in the Class II area in the vicinity of the project. The following table shows the maximum predicted PSD Class II increments consumed in micrograms per cubic meter ($\mu g/m^3$) by all sources in the area, including this project, for NO_2 and PM_{10}.

Pollutant	Averaging Time	Allowable Increment ($\mu g/m^3$)	Increment Consumed ($\mu g/m^3$)	Percent
NO_2	Annual	25	6	24
PM_{10}	24-hour	30	13	43
	Annual	17	2	12

(Public Notice to be Published in the Newspaper)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters 62-4, 62-210 and 62-212, F.A.C. The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Florida Department of Environmental Protection's Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Bureau of Air Regulation's physical address is 111 South Magnolia Drive, Suite 4, Tallahassee, Florida and the mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Bureau of Air Regulation's phone number is 850/717-9000.

Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. In addition, electronic copies of these documents are available on the following web site by entering draft permit number: http://www.dep.state.fl.us/air/emission/apds/default.asp.

Notice of Intent to Issue Air Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of the proposed equipment will not adversely impact air quality and that the project will comply with all applicable provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit and requests for a public meeting for a period of 30 days from the date of publication of the Public Notice. Written comments must be received by the Permitting Authority by close of business (5:00 p.m.) on or before the end of this 30-day period. In addition, if a public meeting is requested within the 30-day comment period and conducted by the Permitting Authority, any oral and written comments received during the public meeting will also be considered by the Permitting Authority. If timely received comments result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice. All comments filed will be made available for public inspection.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of this Public Notice or receipt of a written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name,

address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how each petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

TECHNICAL EVALUATION

&

PRELIMINARY DETERMINATION

APPLICANT

Waste Management, Inc. of Florida
2700 Northwest 48th Street
Pompano Beach, FL 33073

Medley Landfill
ARMS Facility ID No. 0250615

PROJECT

Draft Permit No. PSD-FL-414
Project No. 0250615-012-AC

Landfill Gas-to-Energy Project

COUNTY

Miami-Dade County, Florida

PERMITTING AUTHORITY

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, Florida 32399-2400

May 25, 2011

1. GENERAL INFORMATION

State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations defined in the following Chapters of the F.A.C.: 62-4 (Permitting Requirements); 62-204 (Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference); 62-210 (Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms); 62-212 (Preconstruction Review, PSD Review and BACT, and Non-attainment Area Review and LAER); 62-213 (Title V Air Operation Permits for Major Sources of Air Pollution); 62-296 (Emission Limiting Standards); and 62-297 (Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures). PSD applicability and the preconstruction review requirements of Rule 62-212.400, F.A.C. are discussed in Section 2 of this report. Additional details of the other state regulations are provided in Section 3 of this report.

Federal Regulations

The Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 identifies New Source Performance Standards (NSPS) for a variety of industrial activities. Part 61 specifies National Emissions Standards for Hazardous Air Pollutant (NESHAP) based on specific pollutants. Part 63 specifies NESHAP provisions based on the Maximum Achievable Control Technology (MACT) for given source categories. Federal regulations are adopted in Rule 62-204.800, F.A.C. Additional details of the applicable federal regulations are provided in Section 3 of this report.

Facility Description and Location

The facility is a municipal solid waste landfill with a Standard Industrial Classification Code of SIC No. 4911. The facility is located at 9350 Northwest 89th Avenue in Medley, Florida. The UTM coordinates are Zone 17, 565.04 kilometers (km) East, and 2,860.02 km North. This existing facility is located in Miami-Dade County, an area designated as "attainment/maintenance" for the pollutant ozone, and attainment for all other criteria pollutants in accordance with Rule 62-204.340, F.A.C.

The Medley Landfill is an open Class I Landfill with a design capacity greater than 2.5 million megagrams by mass or 2.5 million cubic meters by volume. This landfill commenced construction prior to 1980 as a lime rock quarry that was backfilled with fill and municipal solid waste (MSW) placed above the groundwater table. The landfill started receiving waste prior to 1980 and was modified or reconstructed between 1987 and 1993 when Cells 1, 2, and 3 were constructed with geosynthetic liners to accept an estimated 5 million cubic yards of MSW. Between 1997 and 2000, Phase 1, 2, and 3 were developed with geosynthetic liners to accept an estimated 7 million cubic yards. In 2003, the saddle fill was constructed with a geosynthetic liner to provide an additional 2 million cubic yards. Yearly waste acceptance is approximately 700,000 tons.

The nonmethane organic compounds (NMOC) emissions are calculated to be greater than 50 megagrams per year, based on EPA's uncontrolled emission rate estimates. This landfill does not contain a bioreactor and is an active asbestos waste disposal site. Landfill gas emissions are collected and controlled through an extraction well-field system with open and closed flares.

The facility currently operates two flares – one 3,000 standard cubic feet per minute (scfm) open utility flare (EU 001) used primarily as backup, and one 6,000 scfm enclosed flare (EU 005) used as the primary flare. The first flare (EU 001) was installed in 1990. A second flare (EU 005) was installed in October of 2003 and started operation November 5, 2003. Neither the enclosed flare nor the open flare is equipped with a bypass in which landfill gas can bypass the control device in a un-combusted manner.

Primary Regulatory Categories

- The existing facility is not a major source of hazardous air pollutants (HAP).
- The existing facility has no units subject to the acid rain provisions of the Clean Air Act.
- The existing facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The existing facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The landfill is subject to applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations.
- The existing facility is subject to applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations.

Project Description

On August 16, 2010, the Department received an application from Waste Management, Inc. of Florida to construct and operate a landfill gas-to-energy facility at the existing Medley Landfill. The applicant proposes to install six Caterpillar (CAT) Model G3520C reciprocating internal combustion engine/electrical generator sets. The six engines will fire landfill gas to generate a total of 9.6 megawatts (MW, nominal) of power (1.6 MW per engines).

The landfill currently generates 4,000 standard cubic feet per minute (scfm) of landfill gas. Each engine uses approximately 588 scfm of landfill gas, giving a total of 3,528 scfm of landfill gas for all six engines. The two existing flares will be retained and relocated adjacent to the engines as backup control devices or to control emissions when more landfill gas is generated than can be handled by the engines. The landfill gas will be transported from the landfill gas collection system to a landfill gas treatment system consisting of: a knock-out vessel to remove water; air-to-gas coolers to remove moisture and control the landfill gas temperature; a filtration system to remove particles larger than 1 micron from the landfill gas; and a gas compressor and blower system. Only treated landfill gas will be delivered to the engines; any excess landfill gas will not be treated, but directly routed to the flares.

The following existing emissions units will be affected by this project.

EU ID	Emission Unit Description
001	Flare #1 – 3,000 scfm open utility (candle type) flare
002	Fugitive non-methane organic compounds (NMOC) and hazardous air pollutant (HAP) emissions from the natural decomposition reactions associated with the landfill, which are not collected by the landfill gas collection system.
005	Flare #3 – 6,000 scfm enclosed flare

The following new emissions units will be added by this project.

EU ID	Emission Unit Description
006	Six Caterpillar (CAT) Model G3520C (CAT 3520) lean-burn internal combustion engines and generator sets

Processing Schedule

08/16/2010 Department received the application for an air pollution construction permit.

09/15/2010 Department requested additional information.

11/22/2010 Department received additional information; however, information relating to the hydrogen sulfide (H_2S) content of the landfill gas and Air Quality Modeling Analysis was not included.

12/15/2010 Department requested additional information.

03/15/2011 Department received additional information; application complete.

2. PSD APPLICABILITY REVIEW

General PSD Applicability

The Department regulates major stationary sources in accordance with Florida's PSD program pursuant to Rule 62-212.400, F.A.C. PSD preconstruction review is required in areas that are currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for these regulated pollutants. As defined in Rule 62-210.200, F.A.C., a facility is considered a "major stationary source" if it emits or has the potential to emit 5 tons per year of lead, 250 tons per year or more of any PSD pollutant, or 100 tons per year or more of any PSD pollutant and the facility belongs to one of the 28 listed PSD major facility categories. PSD pollutants include: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); Fluorides (F); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as nonmethane organic compounds (NMOC); and mercury (Hg).

For major stationary sources, PSD applicability is based on emissions thresholds known as the "significant emission rates" as defined in Rule 62-210.200, F.A.C. Emissions of PSD pollutants from the project exceeding these rates are considered "significant" and the Best Available Control Technology (BACT) must be employed to minimize emissions of each PSD pollutant. Although a facility may be "major" for only one PSD pollutant, a project must include BACT controls for any PSD pollutant that exceeds the corresponding significant emission rate. Rule 62-210.200, F.A.C. defines "BACT" as:

> *An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account:*
>
> *1. Energy, environmental and economic impacts, and other costs;*
>
> *2. All scientific, engineering, and technical material and other information available to the Department; and*
>
> *3. The emission limiting standards or BACT determinations of Florida and any other state;*
>
> *determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.*
>
> *If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of an emissions unit or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation.*
>
> *Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.*
>
> *In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60, 61, and 63.*

In addition, applicants must provide an Air Quality Analysis that evaluates the predicted air quality impacts

resulting from the project for each PSD pollutant.

PSD Applicability for the Project

The project is located in Miami-Dade County, which is in an area that is currently in attainment with the state and federal AAQS or otherwise designated as unclassifiable. According to Table 3-3 of the application, the applicant provides the following PSD applicability analysis summarizing the proposed project emissions.

Table A. Applicant's Annual Emission Summary and PSD Applicability Analysis

Pollutant	Baseline Actual Emissions (TPY)	Projected Actual Emissions (TPY)	Increased from Project (TPY)	Significant Emissions Rate (TPY)	Subject to PSD?
CO	164.3	619.4	455	100	Yes
NO_X	32.6	110.6	78	40	Yes
PM/PM_{10}	8.51	39.5	31	25/15/10	Yes
SO_2	225.9	264.9	39	40	No
VOC	7.21	44.3	37	40	No

Notes:

a. "TPY" means tons per year.

b. Baseline actual emissions were calculated based on the highest consecutive 2-year average reported in the air operating report for each pollutant during the years 2000 to 2009. Projected actual emissions are based on worst-case engine/flare combination. The increase from the project is the difference between the projected and baseline actual emissions.

c. With regard to particulate matter with a mean particle diameter of 2.5 microns or less ($PM_{2.5}$), the Department adopted by reference the federal ambient air quality standard for $PM_{2.5}$, but has not yet promulgated the implementing regulations for PSD preconstruction review (e.g., define $PM_{2.5}$ as a PSD pollutant with a significant emission rate for PSD applicability). We are in the process of completing a rulemaking action to implement this remaining piece of the $PM_{2.5}$ program.

As shown in the table, the project is subject to PSD preconstruction review for CO, NO_X and PM/PM_{10} in accordance with the provisions of Rule 62-212.400, F.A.C. Therefore, BACT determinations are required for CO, NO_X and PM/PM_{10} emissions. An air quality modeling analysis is required for CO, nitrogen dioxide (NO_2) and PM_{10} emissions.

3. PROJECT DETAILS

Landfill Gas Availability

The Medley Landfill currently generates approximately 4,000 scfm of landfill gas (LFG), which is being controlled by two existing flares: a 6,000 scfm enclosed flare and a 3,000 scfm open flare. Each engine can fire approximately 588 scfm of landfill gas per engine for a total of 3,528 scfm total for six engines. This is approximately 5.08 million standard cubic feet per day (MMscf per day). The current landfill gas generating capacity is adequate to fuel and power all six engines. According to the landfill gas projection recovery model (gas curves), the future estimated landfill production rate is estimated to be 7,317 scfm by the year 2025.

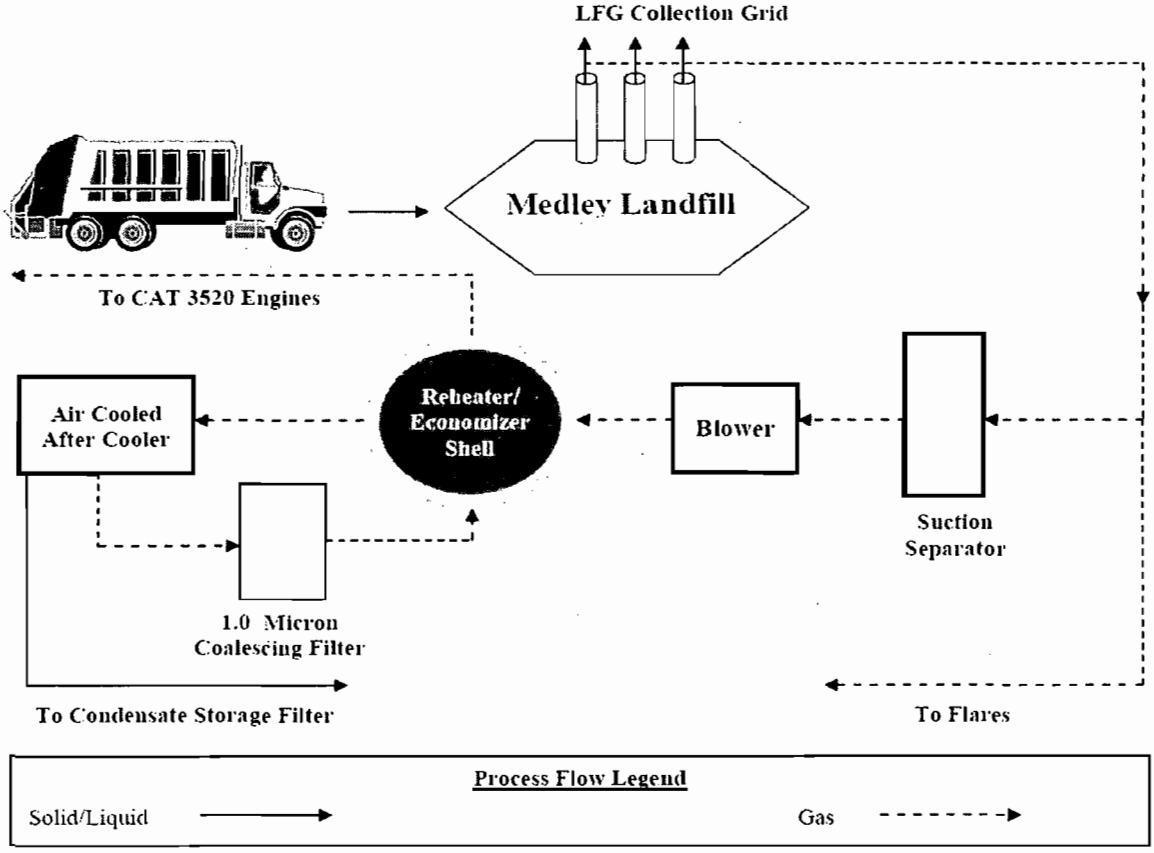
Treatment of Landfill Gas

The equipment and processes used to treat (dewater, filter and compress) the collected landfill gas prior to its combustion as fuel in the proposed engines will consist of the following.

- Landfill gas will pass through the suction separator, which is used for moisture knockout and mechanically filters the gas in the initial portion of the treatment system.

- Landfill gas enters the blowers, which supply the compressor. The heat of compression increases the temperature of the gas.
- Landfill gas in excess of the engines design capacity bypasses the treatment system prior to being routed to the flares for destruction.
- Landfill gas is dewatered by cooling the gas in the after-cooler to condense remaining water vapor in the landfill gas to condensate.
- Landfill gas passes through a coalescing filter to remove particles down to 1 micron. The cooled and filtered gas is then reheated in the re-heater/economizer to vaporize any remaining moisture before being fired in the engines.

Attachment 1: Process Flow Diagram – LFG Treatment System for Medley Landfill



CAT G3520C Engines/Generator Specifications (EU 006 – EU 011)

Each of the six identical CAT Model G3520C engines/generators sets will have the following specifications:

- Each engine is designed to fire low-pressure, lean fuel mixtures (lean-burn) and produce low combustion by-product emissions. Each engine is equipped with an air-to-fuel ratio controller to monitor engine performance parameters and automatically adjust the air-to-fuel ratio and ignition timing to maintain efficient fuel combustion, which also minimizes air pollutant emissions.
- Each engine will be fired exclusively with landfill gas generated by and received from the Medley Landfill.
- Each engine will fire a maximum of approximately 588 scfm of landfill gas.
- Each engine will have power generation rating of 2,233 brake horsepower (bhp).
- Each engine will be connected to an electrical generator rated at 1.6 MW, nominal.

- The maximum fuel consumption rate of each engine is 588 scf per minute or 35,280 scf per hour.
- Based on a landfill gas heating value of 500 Btu per scf, the maximum heat input rating for each engine is 17.64 million Btu (MMBtu) per hour.

With all six engines operating, the proposed landfill gas project will have a total electrical generating capacity of 9.6 MW, nominal. Emissions produced by the combustion of landfill gas in the six gas engines will be exhausted to ambient air through individual stacks connected to the engine exhaust manifolds. Five of the six engines will be housed in an enclosed building and the sixth engine will be located outside the building. Each engine exhaust stack is 33-feet tall and equipped with a silencer.

New Source Performance Standards (NSPS) Provisions

The landfill gas engines and generator sets are subject to applicable NSPS provisions in 40 Code of Federal Regulations (CFR) 60 for Subpart A (General Provisions) and Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines). These regulations establish operating limitations and emissions standards for CO, NO_X and VOC. The vendor, Caterpillar, will not certify the CAT G3520C engines when burning landfill gas as fuel. Therefore, the engines must meet the following emission standards required by 40 CFR 60.4233(e), as defined by Table B of this subpart.

Table B: CAT G3520C Emission Limits

Pollutant	NSPS Subpart JJJJ Emission Standards	Proposed Limits	Regulation
CO	5.0 g/bhp-hr	3.5 g/bhp-hr	Rule 62-212.400(BACT), F.A.C.
NO_X	3.0 g/bhp-hr	0.6 g/bhp-hr	Rule 62-212.400(BACT), F.A.C.
VOC	1.0 g/bhp-hr	0.163 g/bhp-hr (0.8 lb/hour)	Rule 62-212.400(12), F.A.C., Avoids PSD Review

The engines must be tested to demonstrate compliance with these emissions standards. The draft permit will identify NSPS Subpart A and JJJJ in the Appendices.

In addition, the existing landfill gas collection and control system must meet the applicable requirements of the following NSPS provisions: Subpart A (General Provisions) and Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills) in 40 CFR 60. When operating, the CAT G3520C engines will serve as the control device to meet the applicable NSPS Subpart WWW requirements.

National Emission Standards for Hazardous Air Pollutants (NESHAP) Provisions

The landfill gas engines are subject to applicable NESHAP provisions in 40 CFR 63 for Subpart A (General Provisions) and Subpart ZZZZ (Reciprocating Internal Combustion Engines). Pursuant to 40 CFR 63.6590, these units comply with NESHAP Subpart ZZZZ by complying with NSPS Subpart JJJJ. The draft permit will identify NESHAP Subpart A and ZZZZ in the Appendices.

Emission Standards

Based on Waste Management's experience operating similar equipment at various other facilities and the Best Available Control Technology (BACT) analysis, the applicant proposes the following maximum emission rates for the CAT G3520C engines:

- NO_X: 0.60 grams per brake-horsepower hour (g/bhp-hour)
  3.0 lb/hour and 12.9 TPY per engine
  77.4 TPY for all six engines
- CO: 3.5 g/bhp-hour
  17.2 lb/hour and 75.5 TPY per engine
  453.0 TPY for all six engines

- VOC/NMOC: 0.163 g/bhp-hour
  0.80 lb/hour and 3.5 TPY per engine
  21.0 TPY for all six engines
- $PM/PM_{10}/PM_{2.5}$: 0.24 g/bhp-hour
  1.2 lb/hour and 5.2 TPY per engine
  31.2 TPY for all six engines
- SO_2: 830 ppmv of H_2S and 588 scfm
  4.9 lb/hour and 21.3 TPY per engine
  127.8 TPY for all six engines

Potential CO, NO_X and $PM/PM_{10}/PM_{2.5}$ emissions were based on the results of BACT analyses. These emissions were estimated using emission factors developed by Waste Management based on operating similar units at other Waste Management sites. VOC emissions were estimated based on the assumption that 100 % of the non-methane organic compounds (NMOC) emissions are VOCs. The calculation of the potential NMOC emissions were based on compliance with the emission limit specified in New Source Performance Standards (NSPS) Subpart WWW. Based on these requirements, the NMOC mass emissions were calculated using the NMOC concentration of 20 parts per million by volume dry (ppmvd) as hexane at 3% oxygen (O_2) in the exhaust gases.

Sulfur dioxide (SO_2) emissions can be produced during the combustion of landfill gas since it contains sulfur-bearing compounds (such as hydrogen sulfide (H_2S)) that are oxidized at normal engine operating temperatures. Site-specific sulfur content analyses have not been performed on the landfill gas generated by the landfill. Potential SO_2 emissions were estimated based on a maximum H_2S content of the landfill gas of 830 ppmv to avoid PSD review. It is assumed that all the H_2S is converted to SO_2 during combustion of the landfill gas.

Hazardous Air Pollutants

Hazardous Air Pollutants (HAP) as specified in Rule 62-210.200(155), F.A.C are produced during the combustion of landfill gas to be used as fuel by the internal combustion engines since:

1. HAP compounds are present in the gas generated by Medley Landfill and the fuel combustion process is not 100% complete (ie. a small portion of the HAPs pass through the fuel combustion system).
2. When combusted, chlorinated compounds present in landfill gas can form hydrogen chloride (HCl), which is a regulated HAP.

Site-specific HAP content analyses have not been performed on the landfill gas generated by Medley Landfill. Therefore, data developed by EPA in AP-42, Section 2.4 (Table 2.4-1) were used to estimate the total potential HAP content of the landfill gas to be used as fuel. Based on the maximum operating scenarios, the applicant estimates total annual HAP emissions (engines plus flares) to be 1.1 tons per year (TPY).

Flares (EU-001 and EU-002)

Two existing flares will be retained, but will be relocated adjacent to the landfill gas-to-energy plant. The two existing flares consist of:

- *Open Flare (EU 001)*: The 3,000 scfm candle type open flare was installed in 1990, which is used primarily as a backup flare. The open flare stack is 2 feet in diameter with a height of 58 feet above ground. The flare is subject to a minimum exit velocity requirement of 18.3 meters per second. The flare is designed for an overall 98% destruction efficiency of total hydrocarbons at a design flow with a landfill gas methane content of 40% to 60%.
- *Enclosed Flare (EU 005)*: The 6,000 scfm enclosed flare was installed in 2003, which is used as the primary flare. The enclosed flare stack is 12.5 feet in diameter with a height of 55 feet above ground. The flare is subject to a minimum temperature requirement of 1,400° F. The flare is designed for an overall 99% destruction efficiency for total hydrocarbons and 98% destruction efficiency for NMOC.

The flares will operate under the following scenarios: when the engines are not available because of downtime or maintenance; or when landfill gas is generated in excess of the design fuel requirements of the proposed engines. The landfill gas will not be treated when combusted in the flares.

NSPS Provisions

The existing Medley Landfill is subject to the following applicable provisions: NSPS Subparts A (General Provisions) and WWW (Standards of Performance for Municipal Solid Waste Landfills) in 40 CFR 60. The existing flares have met the applicable requirements of these subparts. The draft permit will authorize the relocation of these flares, but will not change any currently applicable requirements with regard to these regulations.

NESHAP Provisions

The existing Medley Landfill is subject to the following applicable NESHAP provisions: Subpart M (Standards for Asbestos) in 40 CFR 61; and Subparts A (General Provisions) and AAAA (National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills) in 40 CFR 63. The existing flares have met the applicable requirements of these subparts. The draft permit will authorize the relocation of these flares, but will not change any currently applicable requirements with regard to these regulations.

4. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) DETERMINATION

The project to install six landfill gas engines is a physical modification of the facility. As previously described, the project is subject to PSD preconstruction review for CO, NO_X and $PM/PM_{10}/PM_{2.5}$ emissions from the landfill gas engines (EU-006 – EU-011).

General Discussion of Emissions

The CAT G3520C engines are the primary source of CO, NO_X and PM_{10} emissions from this project. Table C summarizes the potential annual emissions produced from the engines and the flares.

Table C: Potential Annual Emissions

Pollutant	Tons/Year	
	CAT G3520C Engines	Open/Enclosed Flares
CO	452.8	166.6
NO_X	77.4	33.0
PM_{10}	31.0	8.5

The applicant reviewed data in EPA's RACT/BACT/LAER Clearinghouse (RBLC) to identify control technology determinations for the operation of reciprocating internal combustion engines firing landfill gas. The following table summarizes this information.

Table D: CO, NO_X and PM BACT Determination for landfill gas fired internal combustion engines.

Facility	Engine Type and Size	Date	Control Method CO/NO_X	Type	g/bhp-hour		
					CO	NO_X	PM_{10}
Sampson County Disposal, LLC (NC)	CAT 3520 2233 HP	09/09/2009	GCP	BACT	2.75	0.5	0.15
Pine Tree Landfill (ME)	LFG-ICE 1359 HP	10/15/2007	---	BACT	2.75	0.65	---
University of New Hampshire (NH)	LFG-ICE 2233 HP	07/25/2007	Combustion Controls	BACT/LAER	2.75	0.5	0.10
Waste Management Midpenn (VA)	CAT 3516 1148 HP	05/29/2007	GCP	BACT	2.7[a]	1.45[a]	1.52[b]

Facility	Engine Type and Size	Date	Control Method CO/NO_X	Type	g/bhp-hour		
					CO	NO_X	PM_{10}
Brevard Energy, LLC (FL)	CAT 3520 2233 HP	03/06/2007	GCP	BACT	2.75	0.6	0.27
Seminole Energy, LLC (FL)	CAT 3520 2146 HP	01/17/2007	GC	BACT	2.75	0.6	0.24
Monmouth County Reclamation Center (NJ)	LFG-ICE 1468 HP	12/12/2006	---	CBC/LAER	2.53	0.53	0.12
Manchester Renewable Power Corp. (NJ)	CAT 2233 HP	10/06/2006	A/F Controller	BACT/LAER	2.75	0.5	0.20[b]
Burlington County Resource Recovery (NJ)	Jenbacher 2012 HP	08/03/2006	GCP	CBC/LAER	2.5	0.6	0.16
Trail Ridge Energy, LLC (FL)	CAT 3520 2233 HP	02/24/2006	GC	BACT	2.75	0.6	0.24
Ridgewood Rhode Island Generation (RI)	CAT 3520 2229 HP	01/05/2005	A/F Controller	BACT/LAER	2.75	0.5	0.10
Bio Energy Texas, LLC (TX)	CAT 3520 2172 HP	07/23/2004	Lean Burn Design	BACT	2.8	0.6	0.15
Carlton Farms Landfill (MI)	LFG-ICE 1095 HP	12/23/2003	GCP				
Northwest Regional Landfill (AZ)	LFG-ICE 1410 HP	10/27/2003	Proper Operation & Maintenance	BACT	2.5	0.6	---
Carbon Limestone LFG (OH)	LFG-ICE 1877 HP	04/10/2003	Lean Burn Design	BACT	2.27	1.2	0.097
Chino Basin Desalter Authority (CA)	LFG/DG-ICE 1408 HP	06/18/2002	A/F Controller	BACT	2.5	0.6	0.049
MM San Bernardino Energy (CA)	LFG-ICE 1850 HP	05/16/2002	A/F Controller	BACT	2.5	0.6	---
Reliant Security LFGTE (TX)	Jenbacher 2231 HP	01/31/2002	GCP	BACT	3.0	0.6	0.039
Reliant Energy Galveston Plant (TX)	Jenbacher 2343 HP	01/24/2002	---	CBC	3.0	0.6	0.095

Abbreviations: Horsepower (HP); Landfill Gas (LFG); Internal Combustion Engines (ICE); Case-By-Case (CBC); Good Combustion Practices (GCP); Good Combustion (GC); and Air/Fuel Controller (A/F Controller)

a. Project shows BACT limit for CO as 239 tons/year and NO_X as 128.30 tons/year, conversion done for 8 engines operating 8,760 hours/year.

b. BACT limit for $PM_{2.5}$ also.

The specified CO and NO_X BACT/LAER determinations are applicable to the operation of lean-burn engines with air-to-fuel ratio control. The proposed CAT G3520C engines have a power rating of 2,233 bhp. As shown in the table, for landfill gas engines rated greater than 1,100 bhp and less than 2,400 bhp, the CO BACT ranges from 2.27 to 3.0 g/bhp-hour. The corresponding NO_X BACT/LAER range from approximately 0.5 to 0.6 g/bhp-hour. It is important to note that the low CO BACT determination of 2.27 g/bhp-hour corresponds to a NO_X BACT standard of 1.2 g/bhp-hour.

BACT Emission Limits Proposed by Applicant (per Engine)

Pollutant	Emission Limit	Control Technology
CO	3.5 g/bhp-hr and 17.23 lb/hour	Lean-burn engine with air-to-fuel controller
NO_X	0.6 g/bhp-hr and 2.95 lb/hour	Lean-burn engine with air-to-fuel controller
PM_{10}	0.24 g/bhp-hr and 1.18 lb/hour	Pretreatment of landfill gas and good combustion practices

BACT for CO and NOx

Combustion byproducts are generally controlled by an efficient combustion design, but catalytic technologies are available for reducing these emissions. Since CO and NO_X emissions are related combustion byproducts, these pollutants will be grouped together for convenience of review.

Identification of Control Technologies

The applicant provided the following control technologies:

- *Combustion Design and Air-Fuel Controllers:* The design and operation of the combustion chamber is the primary mechanism in controlling CO emissions. The CAT G3520C engines are designed for high-combustion efficiency to extract the most useful energy from the landfill gas possible, which will minimize CO emissions. Combustion controls include technologies designed to limit the formation of CO and NO_X by controlling the combustion temperature and the mixing of air and fuel in the combustion zone. Combustion controls for NO_X include injection timing retard, pre-ignition chamber combustion, controlling air-to-fuel ratio, or de-rating of the engine. The primary NO_X control is a lean-burn combustion design, which uses approximately 75% more air than needed for complete combustion into the combustion chambers. The weak air-fuel mixture leads to lower combustion temperatures and therefore reduces thermal NO_X formation. The proposed CAT G3520C engines are lean-burn engines equipped with an electronic air-fuel ratio controller that will minimize incomplete combustion and maintain a proper balance between CO and NO_X emissions.
- *Oxidation Catalyst:* In the presence of an oxidation catalyst at a given temperature, excess oxygen in the exhaust reacts with CO to form CO_2. This option includes non-selective catalytic reduction (NSCR). The primary design is a flow through exhaust device that contains a honeycomb structure covered with a layer of chemical catalyst that operates at high temperatures. This layer contains small amounts of precious metal that promote the complete oxidation of pollutants in the exhaust stream. This control device will reduce CO emissions as well as VOC emissions, depending on the type and concentration. Destruction efficiencies for CO and VOC emissions can be greater than 90%.
- *Selective Catalytic Reduction (SCR):* The basic principle of SCR is the injection of ammonia (NH_3) into the exhaust stream prior to a catalyst. In the presence of a catalyst, ammonia and NO_X will be reduced to nitrogen (N_2) and water vapor (H_2O). Several different catalysts are available for use at different exhaust gas temperatures. Such systems can also include an oxidation catalyst for CO reduction. Removal efficiencies may be greater than 90%.
- *Regenerative Selective Catalytic Reduction (RSCR):* Regenerative selective catalytic reduction is a new technology targeted for tail-end applications. RSCR utilizes beds of ceramic media to retain the temperature of the flue gas in the optimum range for the catalytic reaction (approximately 300° F to 400° F), which is a key operating parameter for effective NO_X removal. Such systems are capable of 95% heat recovery, which minimizes operating costs while reducing NOx emissions by 80% to 90% or more. Such systems can also include an oxidation catalyst for CO reduction.
- *Selective Non-Catalytic Reduction (SNCR):* Selective non-catalytic reduction uses ammonia injection into the high temperature combustion zone or flue gas. This is a post-combustion control technology that reduces NO_X to nitrogen and water vapor. The chemical reaction for this technology is driven by high temperatures (1600°F to 2100°F) normally found in combustion sources. Removal efficiencies may be greater than 50% depending on the application.

Discussion of Technically Infeasible Control Options and Ranking of Remaining Options

Landfill gas contains siloxanes, which are a class of compounds that exist in the form of R_2SiO, where R is a hydrogen atom or a hydrocarbon and Si is silicon. Siloxanes are present in certain landfill waste streams such as toiletries, cosmetics and other personal grooming items. When combusted, such compounds produce silica (SiO_2), which can quickly poison a catalyst rendering it ineffective. A separate treatment system to remove SiO_2

would be necessary to avoid the adverse effects of deposits and the rapid decrease in reactivity of the catalyst.

The California Air Resource Board (CARB) has developed and published *Guidance for the Permitting of Electrical Generation Technologies* in July 2002, to assist companies and organizations in the permitting of electrical generating equipment. In this guidance document, CARB:

- Recognizes the benefits of generating electricity from waste gases (landfill and digester gas) and the recovery of useful energy.
- Indicates that waste gases "... contain impurities that, if combusted will likely poison catalyst-based post combustion control systems."
- Determines that additional fuel treatment and post combustion controls have limited success and/or have not been proven to be cost effective in reducing air pollutant emissions from waste combustion applications.

Other state regulatory agencies (e.g., Texas, Rhode Island and New Jersey) have made similar determinations and issued permits that specify BACT for LFG-fueled engines that do not include the use of add-on emission controls because of catalyst poisoning by siloxanes. Such poisoning leads to poor reduction efficiencies and eventually destruction and early replacement of the catalyst. In the preamble to the NSPS for Stationary Spark Ignition Internal Combustion engines and the NESHAP for Reciprocating Internal Combustion Engines, EPA agrees siloxanes will poison the catalyst in add-on control technologies such as SCR, NSCR and oxidation catalysts, which makes the equipment ineffective in a very short period of time.

To employ a catalytic technology would require a siloxane removal system. For a previous project the Department contacted Applied Filter Technology (AFT), which has been active in the biogas-to-energy business since 1996 and has 167 biogas-to-energy systems in operation around the world. For ten years, the AFT siloxane removal systems have primarily been used in conjunction with combustion turbines to achieve guaranteed LFG specifications that are intended to protect the combustion turbines, which operate within close mechanical tolerances. The percentage of siloxane removal required for protecting a combustion turbine is much less than the siloxane removal efficiency required for protecting a catalyst. In addition, AFT does not have any experience in using the siloxane removal system for engines and the protection of the catalyst used in add-on control. It appears that a siloxane removal system that can protect the landfill gas engines as well as the control catalyst is still on the horizon.

In September of 2010, the Medley Landfill reported a siloxane level of 21 ppm (1.6 micrograms (ug)/Btu), which is higher than the level recommended by the engine manufacturer, Caterpillar (0.60 ug/Btu). This will mean more frequent preventative maintenance as well as major maintenance overhauls. Therefore, add-on control technologies using a catalyst are considered technically infeasible for this project due to premature deactivation by siloxanes. Also, SNCR is not feasible for the landfill gas engines because there is no high-temperature window that will forward this chemical reaction. The remaining control option is combustion design and controls. As previously shown by the applicant, data in the RBLC database (2002 – 2009) supports the lean-burn combustion design, air-fuel controller and good combustion practices as BACT for landfill gas engines.

Selection of BACT and Rationale

The applicant proposes to use efficient combustion design and air-fuel controllers to establish BACT for CO as 3.5 g/bhp-hour and for NOx as 0.6 g/bhp-hour. As shown in previous Table D summarizing BACT standards posted in the RBLC database, the range of previous CO BACT standards is 2.27 to 3.0 g/bhp-hour and NOx BACT standards is 0.5 to 1.45 g/bhp-hour. The applicant's proposed limits are based on Waste Management's experience with operating similar landfill gas-fired engines and the ambient temperatures in south Florida. Caterpillar LLC states that a nominal CO emission rate from the CAT G3520C engines is 2.5 g/bhp-hour; however, this is only representative of the first 100 hours of operation. Caterpillar LLC also specifies a "not to exceed" limit of 4.13 g CO/bhp-hour at 100% load. The proposed limits are lower than NSPS Subpart JJJJ emissions standards of 5.0 g CO/bhp-hour and 3.0 g NOx/bhp-hour.

For several previous projects using the CAT G3520C engines firing landfill gas, the Department established CO BACT as 2.75 g/bhp-hour and NOx BACT as 0.6 g/bhp-hour, which were based on the applicant's proposals as well as the efficient combustion design and air-fuel controllers. The engines have been installed and are in operation. Two of these applicants have pending projects to increase the CO emissions standards stating that the gradual degradation of the engines will cause higher CO emissions. The Department is currently reconsidering these previous determinations because of the inverse relationship between CO and NOx emissions. In other words, an engine can be tuned to achieve low NOx emissions at the price of higher CO emissions or vice versa.

In 2009, the Bay Air Quality Management District issued a white paper[1] discussing this very issue. Based on actual test data (62 individual tests) for firing landfill gas in three types of spark-ignited reciprocating internal combustion engines (15 total engines), the report indicates the following:

- The engines were annually demonstrating compliance with the CO and NOx standards; however, this appeared to be more of a function of careful preparation of the engine for the annual test rather than the design of the engine.
- The same engine type could be "biased for low NOx emissions" (0.5 g NOx/bhp-hour or less with greater than 2.1 g CO/bhp-hour) or "biased for low CO emissions" (2.1 g CO/bhp-hour or less with greater than 0.5 g NOx/bhp-hour) depending on the air-fuel controller.
- The exhaust from some of the tested engines was periodically monitored throughout the year by hand-held portable probes. This data showed degradation with regard to CO emissions such that many engines were frequently in excess of the CO standard. The report indicates a gradual CO increase of up to 1.5 g/bhp-hour over a year of operation.

The conclusion of the report is that CO and NOx emissions standards should be paired when relying on combustion design and control. As shown below, the Bay Air Quality Management District chose to establish standards based on a low NOx bias or a low CO bias and then allow the CO standard to increase approximately 1.5 g/bhp-hour over a year of operation calling the upper CO standard a "not to exceed (NTE)" limit:

Low NOx Bias:	NOx:	0.5 g/bhp-hour
	CO:	2.5 g/bhp-hour (and NTE 3.9 g/bhp-hour)
Low CO Bias:	NOx:	0.6 g/bhp-hour
	CO:	2.1 g/bhp-hour (and NTE 3.6 g/bhp-hour)

The applicant's proposed BACT limits of 3.5 g CO/bhp-hour and 0.6 g NOx/bhp-hour appear to be in line with this concept and is based on actual performance of these engines at Waste Management's other facilities. Therefore, considering all available information, the Department establishes the following preliminary paired BACT standards for the proposed engines:

CO: 3.5 g/bhp-hour and 17.2 lb/hour (initial and annual EPA Method 10 stack test)
NOx: 0.6 g/bhp-hour and 3.0 lb/hour (initial and annual EPA Method 7E stack test)

This will allow the engines to be tuned for NOx emissions while providing adequate room for reasonable CO emission levels.

BACT for Particulate Matter

Identification of Available Control Technologies

"Smoke" is defined as the collection of airborne solid and liquid particulates and gases emitted as products of incomplete combustion. In AP-42 Section 3.3, EPA identifies two types of smoke that may be emitted from internal combustion engines during stable operations: blue smoke and black smoke, both which indicate problems with the engine operation. Blue smoke is emitted when lubricating oil leaks (result from normal wear

[1] "Revisiting BACT for Lean Burn Landfill Gas Fired Internal Combustion Engines"; Toxics Section, Engineering Division, Bay Air Quality Management District; February 26, 2009.

on piston rings and seals) into the combustion chamber of the engine and is partially burned. Black smoke is agglomerated carbon particles (soot) formed in regions of the combustion mixtures that are oxygen deficient. Black smoke reflects inefficient combustion. Proper maintenance is the most effective method of preventing blue smoke emissions from all types of internal combustion engines, while proper design minimizes black smoke. The applicant identified the following control techniques for reducing and minimizing particulate matter emissions from the engines.

- *Fuel Pre-Treatment (Filtration):* The landfill gas will be pre-treated to remove moisture and condensable impurities as well as filtered to remove particulate matter before combustion.
- *Good Combustion Practices:* The primary options for reducing and minimizing particulate matter emissions from the engines typically include optimizing the design of the combustion chamber, implementing practices that improve the oxidation process to minimize incomplete combustion and proactive maintenance, which are collectively referred to as good combustion practices.
- *Add-On Controls (Filtration):* Wet or dry filtration equipment could be added to capture and filter the exhaust gas to remove particulates.

Identification of Technically Feasible Control Alternatives and Ranking

According to Section 2.4 in AP-42 (Municipal Solid Waste Landfills), data posted in the RBLC database, and other recent permits and permit applications, no add-on controls have been required for reducing particulate matter from engines firing landfill gas. Landfill gas contains siloxanes, which are oxidized to silicon dioxide during combustion. This abrasive substance is also very sticky and can clog add-on controls such as fabric filters making them inoperable in a short period of time. As previously discussed, the technology to remove siloxane from landfill gas for engines is just emerging. In addition, satisfactory pretreatment of the landfill gas makes it cost prohibitive to install add-on particulate controls and/or a siloxane removal system. Therefore, post-combustion add-on control technologies are not considered appropriate for internal combustion engines. Therefore, the combination of fuel pre-treatment combined with good combustion practices is selected as the top control option.

Selection of BACT and Rationale

As shown in previous Table D summarizing BACT standards posted in the RBLC database, the range of previous BACT for particulate matter ranges from 0.039 to 1.52 g/bhp-hour. Florida's most recent BACT determination for a similar landfill gas engine was 0.24 g/bhp-hour based on fuel pretreatment and good combustion practices. Although initial stack tests for particulate matter emissions from new landfill gas engines have been very low (< 0.1 g/bhp-hour), subsequent tests on the same equipment tend to show higher emission levels with increased engine operating hours. Based on operating experience, Caterpillar, Inc. confirms an increase in particulate matter resulting from normal wear and tear on piston rings and seals. Therefore, the Department establishes the following work practice standards as the preliminary BACT determination for particulate matter from the engines:

- The permittee shall install, operate and maintain a landfill gas pretreatment system to dewater, compress and filter (down to 1 micron) the landfill gas prior to combustion in the engines.
- The permittee shall implement the following good combustion practices to minimize particulate matter emissions: lean-burn combustion design, efficient combustion through the air-fuel controller and preventive and periodic maintenance in accordance with the requirements of NSPS Subpart JJJJ.
- As determined by EPA Method 9, visible emissions from the landfill gas engines shall not exceed 10% opacity.

The above work practice standards should achieve a particulate matter (PM/PM_{10}) emission rate of less than 0.24 g/bhp-hour.

Discussion of $PM_{2.5}$ Emissions

The Department adopted by reference the federal ambient air quality standard for $PM_{2.5}$, but has not yet promulgated the implementing regulations for PSD preconstruction review (e.g., define $PM_{2.5}$ as a PSD pollutant with a significant emission rate for PSD applicability). We are in the process of completing a rulemaking action to implement this remaining piece of the $PM_{2.5}$ program. The draft permit includes the following requirements, which address $PM_{2.5}$ emissions:

- Use of landfill gas as the only fuel;
- Requirement to pre-treat the LFG with filtration down to 1 micron prior to combustion;
- Sampling, analysis and reporting requirements to ensure that the project remains minor with respect to SO_2 emissions, which is a precursor of $PM_{2.5}$ emissions; and
- Establishing a NOx standard of 0.6 g/bhp-hour (another precursor of $PM_{2.5}$ emissions), which is 80% below the applicable 2008 NSPS Subpart JJJJ limitation of 3.0 g/bhp-hour.

Also, regional SO_2 and NOx emissions (precursors of $PM_{2.5}$ emissions) have dramatically decreased in recent years due to regulatory programs such as the Clean Air Interstate Rule (CAIR). For additional details, see the discussion under the "Additional Impacts Analysis" (page 23) in the Air Quality Analysis in Section 6 of this Technical Evaluation and Preliminary Determination. The Department believes that these techniques and limitations effectively minimize $PM_{2.5}$ emissions.

5. OTHER REQUIREMENTS

Based on the PSD applicability analysis, emissions of SO_2 (39 tons/year) and VOC (37 tons/year) are just below the PSD significant emission rates. Emissions of SO_2 may vary greatly depending on the wastes being land filled. Therefore, the draft permit requires semiannual sampling, analysis and reporting to ensure the SO_2 emissions remain minor with respect to this project. The VOC emissions will be a function of the combustion controls and compliance with the CO BACT standard will ensure low VOC emissions. The draft permit specifies the NSPS Subpart JJJJ limit of 1.0 g VOC/bhp-hour as well as a limit of 0.8 lb VOC/hour to avoid PSD preconstruction review.

6. AIR QUALITY ANALYSIS

This section provides a general overview of the modeling analyses required for PSD preconstruction review followed by the specific analyses required for this project.

Overview of the Required Modeling Analyses

Pursuant to Rule 62-212.400, F.A.C., the applicant is required to conduct the following analyses for each PSD significant pollutant:

- A preconstruction ambient air quality analysis,
- A source impact analysis based on EPA-approved models, and
- An additional impact analysis.

For the purposes of any required analysis, NO_X emissions will be modeled as NO_2 and only $PM_{10}/PM_{2.5}$ emissions will be considered when modeling particulate matter.

Preconstruction Ambient Monitoring Analysis

Generally, the first step is to determine whether the Department will require preconstruction ambient air quality monitoring. Using an EPA-approved air quality model, the applicant must determine the predicted maximum ambient concentrations and compare the results with regulatory thresholds for preconstruction ambient monitoring, known as de minimis air quality levels. The regulations establish de minimis air quality levels for

several PSD pollutants as shown in Table E. For ozone, there is no de minimis air quality level because it is not emitted directly. However, since NO_2 and VOC are considered precursors for ozone formation, the applicant may be required to perform an ozone ambient impact analysis (including the gathering of ambient air quality data) for any net increase of 100 tons per year or more of NO_2 or VOC emissions.

If the predicted maximum ambient concentration is less than the corresponding de minimis air quality level, Rule 62-212.400(3)(e), F.A.C. exempts that pollutant from the preconstruction ambient monitoring analysis. If the predicted maximum ambient concentration is more than the corresponding de minimis air quality level (except for non-methane hydrocarbons), the applicant must provide an analysis of representative ambient air concentrations (pre-construction monitoring data) in the area of the project based on continuous air quality monitoring data for each such pollutant with an Ambient Air Quality Standard (AAQS). If no such standard exists, the analysis shall contain such air quality monitoring data as the Department determines is necessary to assess ambient air quality for that pollutant.

Table E. Regulatory Thresholds for Preconstruction Ambient Monitoring

PSD Pollutant	De Minimis Air Quality Levels
Carbon monoxide (CO)	575 µg/m³, 8-hour average
Nitrogen dioxide (NO_2)	14 µg/m³, annual average;
Particulate Matter (PM_{10})	10 µg/m³, 24-hour average
Sulfur dioxide (SO_2)	13 µg/m³, 24-hour average
Lead (Pb)	0.1 µg/m³, 3-month average
Fluorides (F)	0.25 µg/m³, 24-hour average
Total reduced sulfur (TRS)	10 µg/m³, 1-hour average
Hydrogen sulfide (H_2S)	0.2 µg/m³, 1-hour average
Reduced sulfur compounds (RSC)	10 µg/m³, 1-hour average
Mercury (Hg)	0.25 µg/m³, 24-hour average

If preconstruction monitoring data is necessary, the Department may require the applicant to collect representative ambient monitoring data in specified locations prior to commencing construction on the project. Alternatively, the Department may allow the requirement for preconstruction monitoring data to be satisfied with data collected from the Department's extensive ambient monitoring network. Preconstruction monitoring data must meet the requirements of Appendix B of 40 CFR 58 during the operation of the monitoring stations. The preconstruction monitoring data will be used to determine the appropriate ambient background concentrations to support any required AAQS analysis.

Finally, after completing the project, the Department may require the applicant to conduct post-construction ambient monitoring to evaluate actual impacts from the project on air quality.

Source Impact Analysis

For each PSD-significant pollutant identified above, the applicant is required to conduct a source impact analysis for affected PSD Class I and Class II areas. This analysis is to determine if emissions from this project will significantly impact levels established for Class I and II areas. Class I areas include protected federal parks and national wilderness areas (NWA) that are under the protection of federal land managers. Table F identifies the Class I areas located in Florida or that are within 200 kilometers in nearby states. Class II areas represent all other areas in the vicinity of the facility open to public access that are not Class I areas.

Table F. Class I Areas

Class I Area	State	Federal Land Manger
Bradwell Bay NWA	Florida	U.S. Forest Service
Chassahowitzka NWA	Florida	U.S. Fish and Wildlife Service
Everglades National Park	Florida	National Park Service
Okefenokee NWA	Georgia	U.S. Fish and Wildlife Service
St. Marks NWA	Florida	U.S. Fish and Wildlife Service
Wolf Island NWA	Georgia	U.S. Fish and Wildlife Service

Although the Department has not yet adopted Significant Emission Rates (SER), Significant Impact Levels (SIL) or AAQS for $PM_{2.5}$, the applicant modeled $PM_{2.5}$ with respect to the federal maximum 24-hour and annual impacts as discussed further below. In conducting this analysis, the applicant conservatively assumed that all

PM_{10} is actually $PM_{2.5}$ and scaled the SIL for PM_{10} in proportion to the ratio of the respective national AAQS to develop SIL applicable to $PM_{2.5}$. The rationale for the SIL used for $PM_{2.5}$ is as follows:

- The promulgated annual SIL for PM_{10} is 2% of the corresponding state/national AAQS;
- The project-specific annual SIL for $PM_{2.5}$ is also 2% of the corresponding NAAQS;
- The promulgated 24-hour SIL for PM_{10} is 3.3% of the state/national AAQS; and
- The project-specific SIL for $PM_{2.5}$ is also 3.3% of the NAAQS.

The applicant believes this approach encompasses all meaningful $PM_{2.5}$ sources capable of interacting with the Medley Landfill for the purposes of determining impacts with respect to the 24-hour and annual NAAQS for $PM_{2.5}$.

Although the Department has not yet adopted the new NAAQS NO_2 based on a 1-hour average, the applicant modeled for both the 1-hour and annual levels. To conduct this modeling, the applicant proposed project-specific SIL for the first submittal of the NO_2 modeling equal to 5% of the NAAQS for NO_2. This level was based on the SIL for CO, which is 5% of the corresponding NAAQS and the only other pollutant with a 1-hour average (Rule 62-204.200(29), F.A.C.). The second submittal of NO_2 modeling results used 4% of the NAAQS for NO_2, based on the fact that the 4% SIL is more conservative than the initial 5% SIL.

Based on the initial significant impact analysis, no additional modeling is required for any pollutant with a predicted ambient concentration less than the corresponding significant impact level. However, for any pollutant with a predicted ambient concentration exceeding the corresponding significant impact level, the applicant must conduct a full impact analysis. In addition to evaluating impacts caused by the project, a full impact modeling analysis also includes impacts from other nearby major sources (and any potentially-impacting minor sources within the radius of significant impact) as well to determine compliance with:

- The PSD increments and the federal air quality related values (AQRV) for Class I areas.
- The PSD increments and the AAQS for Class II areas.

As previously mentioned, for any net increase of 100 tons per year or more of VOC or NO_2 subject to PSD, the applicant may be required to perform an ambient impact analysis for ozone including the gathering of ambient ozone data.

PSD Models

PSD Class II Area: The EPA-approved American Meteorological Society and EPA Regulatory Model (AERMOD) dispersion model was used to evaluate short range impacts from the proposed project in the surrounding Class II Area and also in the Everglades National Park (ENP) Class I area. In November of 2005, the EPA promulgated AERMOD as the preferred regulatory model for predicting pollutant concentrations within 50 kilometers of a source. The AERMOD model is a replacement for the Industrial Source Complex Short-Term model (ISCST3). The AERMOD model calculates hourly concentrations based on hourly meteorological data. The model can predict pollutant concentrations for annual, 24-hour, 8-hour, 3-hour and 1-hour averaging periods. In addition to the PSD Class II modeling, it is also used to model the predicted impacts for comparison with the de minimis ambient air quality levels when determining preconstruction monitoring requirements.

For evaluating plume behavior within the building wake of structures, the AERMOD model incorporates the Plume Rise Enhancement (PRIME) downwash algorithm developed by the Electric Power Research Institute (EPRI). A series of specific model features recommended by the EPA are referred to as the regulatory options. The applicant used the EPA-recommended regulatory options in each modeling scenario and building downwash effects were evaluated for stacks below the good engineering practice (GEP) stack heights.

Meteorological data used in the AERMOD model consisted of a concurrent five-year period of hourly surface weather observations from the National Weather Service office located at Miami International Airport and twice-daily upper air soundings from Florida International University (FIU) in Miami. The five-year period of

meteorological data was from 2001 through 2005. This station was selected for use in the evaluation because it is the closest primary weather station to the project area and is most representative of the project site.

PSD Class I Area: The California Puff (CALPUFF) dispersion model was used to evaluate the pollutant emissions from the proposed project in the ENP Class I area beyond 50 km from the proposed project. Meteorological MM4 and MM5 data used in this model was from 2001, 2002 and 2003. CALPUFF is a non-steady state, Lagrangian, long-range transport model that incorporates Gaussian puff dispersion algorithms. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, line, area, and volume sources. The CALPUFF model has the capability to treat time-varying sources, is suitable for modeling domains from tens of meters to hundreds of kilometers, and has mechanisms to handle rough or complex terrain situations.

Stack Height Considerations

GEP stack height means the greater of 65 meters (213 feet) or the maximum nearby building height plus 1.5 times the building height or width, whichever is less. Where the affected stacks did not meet the requirements for GEP stack height, building downwash was considered in the modeling analyses. Based on a review of this application, the Department determines that the project complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.

Additional Impact Analysis

In addition to the above analyses, the applicant must provide an evaluation of impacts to: soils, vegetation, and wildlife; air quality related to general commercial, residential and industrial growth in the area that may result from the project; and regional haze in the affected Class I areas.

PSD Significant Pollutants for the Project

As discussed previously, the proposed project will increase emissions of the following pollutants in excess of the PSD significant emissions rates: CO, NO_X and $PM/PM_{10}/PM_{2.5}$. For the purposes of any required analysis, NO_X emissions will be modeled as NO_2 and only $PM_{10}/PM_{2.5}$ emissions will be considered when modeling particulate matter.

Preconstruction Ambient Monitoring Analysis

Using the AERMOD model, the applicant predicted the following maximum ambient impacts from the project.

Table G. De Minimis Air Quality Levels

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	De Minimis Concentration ($\mu g/m^3$)	Greater than De Minimis?
NO_2	Annual	5	14	No
PM_{10}	24-hr	16	10	Yes
$PM_{2.5}$	24-hr	16	2.3	Yes
CO	8-hr	400	575	No

As shown above, CO and NO_2 are exempt from preconstruction monitoring because the predicted impacts are less than the de minimis levels. $PM_{10}/PM_{2.5}$ are not exempt because their predicted impacts are greater than the de minimis levels. In addition, the project results in PSD net emissions increases of 78 TPY of NO_X and 37 TPY of VOC which is below the threshold of 100 tons/year for each pollutant; therefore no ozone ambient impact analysis is required. The Department maintains an extensive quality-assured ambient monitoring

network throughout the state and data gathered from these monitors can be used to address the $PM_{10}/PM_{2.5}$ impacts. The table below summarizes impacts for all major pollutants in the area. Unless otherwise noted, the table reflects ambient data from 2008-2010 available from existing nearby monitoring locations in Miami-Dade.

Table H. Ambient Air Quality Measurements Near to the Project Site

Pollutant	Location	Averaging Period	Ambient Concentration			
			Compliance Period	Value	Standard	Units
Ozone	Univ. of Miami Rosenstiel	8-hour	2008-10	68[a]	75 [a]	ppb
PM_{10}	Miami Fire Station	24-hour	2008-10	72	150 [b]	$\mu g/m^3$
		Annual	2008-10	26[c]	50 [c]	$\mu g/m^3$
$PM_{2.5}$	Palm Springs Fire Station	24-hour	2007-09	14[d]	35[d]	$\mu g/m^3$
		Annual	2007-09	7[e]	15[e]	$\mu g/m^3$
NO_2	Univ. of Miami Rosenstiel	1-hour	2008-10	73[f]	188[f]	$\mu g/m^3$
		Annual	2008-10	18	100[c]	$\mu g/m^3$
CO	Metro Annex	1-hour	2008-10	3,000	40,000 [g]	$\mu g/m^3$
		8-hour	2008-10	2,300	10,000 [g]	$\mu g/m^3$

a. Represents the 3-year average of the 4th highest daily maximum.
b. Value not to be exceeded on more than an average of one day per year over a 3-year period.
c. Represents the arithmetic mean.
d. Represents the 3-year average of the 98th percentile of 24-hour concentrations.
e. Represents the 3-year average of the weighted annual mean.
f. Represents the 98th percentile of the annual distribution of daily maximum 1-hour concentrations.
g. Value not to be exceeded more than once per year.
h. "ppb" means parts per billion.

The existing monitoring data show no violations of any ambient air quality standards. The Department determines that the data collected from these monitors is representative of the air quality in the vicinity of the project and may be used to satisfy the preconstruction monitoring requirements for $PM_{10}/PM_{2.5}$. As necessary, the above ambient concentrations may be used as the ambient background concentrations for any required AAQS analysis.

Source Impact Analysis for PSD Class I Areas

Affected PSD Class I Areas

For PSD Class I areas within 200 kilometers of the facility, Table I identifies each affected Class I area as well as the distance to the facility and the number of receptors used in the modeling analysis.

Table I. Affected PSD Class I Modeling Identities

PSD Class I Area	Distance	Receptors
Everglades National Park (ENP)	19	265

For the preliminary significant impact analysis, the highest short-term predicted concentrations will be compared to the respective significant impact levels. Since five years of data are available, the highest-second-high (HSH) short-term predicted concentrations will be used for any required AAQS and PSD Class II increment analysis with regard to short-term averages. However, for annual averages, the highest predicted annual average will be compared with the corresponding annual level.

Results of PSD Class I Significant Impact Analysis

Using the CALPUFF model, the applicant predicted the following maximum ambient impacts from the project.

Table J. Significant Impact Analysis for PSD Class I Area

Pollutant	Averaging Time	Max. Predicted Impact ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Significant Impact?	Affected Class I Area
NO_2	Annual	0.02	0.1	No	ENP
PM_{10}	24-hour	0.11	0.30	No	ENP
PM_{10}	Annual	0.01	0.20	No	ENP

As shown, the maximum predicted impacts are less than the corresponding significant impact levels for each pollutant. Therefore, a full impact analysis for the PSD Class I areas is not required.

Source Impact Analysis for PSD Class II Areas

For the preliminary significant impact analysis, the highest short-term predicted concentrations will be compared to the respective significant impact levels. Since five years of data are available, the highest-second-high (HSH) short-term predicted concentrations will be used for any required AAQS and PSD Class II increment analysis with regard to short-term averages. However, for annual averages, the highest predicted annual average will be compared with the corresponding annual level.

Results of the Significant Impact Analysis

Table K shows the results of the preliminary PSD Class II significant impact analysis.

Table K. Significant Impact Analysis for PSD Class II Areas (Vicinity of Facility)

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Significant Impact?	Radius of Significant Impact (km)
NO_2	1-hour	105	7.5	Yes	8.5
	Annual	4	1	Yes	0.8
PM_{10}	24-hour	16	5	Yes	0.4
	Annual	2	1	Yes	0.7
$PM_{2.5}$	24-hour	16	1.2	Yes	3.7
	Annual	2	0.3	Yes	1.7
CO	1-hour	600	2,000	No	None
	8-hour	400	500	No	

The predicted impacts of NO_2 and $PM_{10}/PM_{2.5}$ are greater than the corresponding PSD Class II significant impact levels; therefore, a full impact analysis for each of these pollutants is required within the applicable significant impact area as defined by the predicted radius of significant impact identified above. For annual average NO_2 and for PM_{10} emissions, a PSD Class II increment analysis and an AAQS analysis was conducted.

Receptor Grids for Performing PSD Increments and AAQS Analyses

For the PSD Class II increment and AAQS analyses, receptor grids are normally based on the size of the significant impact area for each pollutant.

PSD Class II Increment Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant from a regulatory baseline concentration. For PM_{10}, the baseline concentrations

were established in 1977 with a baseline year of 1975 for existing major sources. For NO_2, the baseline concentration was established in 1988 with a baseline year of 1988 for existing major sources. The emission values input into the model for predicting increment consumption are based on the maximum emissions rates from increment-consuming sources at the facility as well as all other increment-consuming sources in the vicinity of the facility. The preliminary analysis indicated NO_2 and PM_{10} to be significant for this project. The following table summarizes the results of the PSD Class II increment analysis.

Table L. PSD Class II Increment Analysis

Pollutant	Averaging Time	Maximum Predicted Impacts ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)	Greater than PSD Class II Allowable Increment?
NO_2	Annual	6	25	No
PM_{10}	24-hour	13	30	No
	Annual	2	17	No

As shown above, the maximum predicted impacts are less than the allowable PSD Class II increments.

AAQS Analysis

For each pollutant subject to an AAQS analysis, the total impact on ambient air quality is obtained by adding an ambient background concentration to the maximum predicted concentration from modeled sources. The ambient background concentration accounts for all sources that are not explicitly modeled. The following table summarizes the results of the AAQS analysis for the affected pollutants.

Table M. AAQS Analysis

Pollutant	Averaging Time	Modeled Sources ($\mu g/m^3$)	Ambient Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	AAQS ($\mu g/m^3$)	Greater than AAQS?
PM_{10}	24-hour	10	72	82	150	No
	Annual	2	27	29	50	No
$PM_{2.5}$	24-hour	20	14	34	35	No
	Annual	3	8	11	15	No
NO_2	1-hour	109	73	182	188	No
	Annual	9	21	30	100	No

As shown in this table, impacts from the proposed project are not expected to cause or significantly contribute to a violation of any AAQS.

For the annual average $PM_{2.5}$ impacts the average of the highest modeled individual year's annual averages paired with the 3-year average of the annual $PM_{2.5}$ concentrations is used to arrive at the total annual impact, and for the 24-hour average $PM_{2.5}$ impacts the average of the first highest modeled annual 24-hour concentrations paired with the 3-year average of 98th percentile 24-hour averages is used to arrive at the total 24-hour average $PM_{2.5}$ impact.

On February 9, 2010, EPA issued a new 1-hour average NAAQS for NO_2. The new NAAQS is 100 ppb based on a 1-hour average (equivalent to 188 ug/m^3) and became effective on April 12, 2010. The procedures for determining modeled impacts for comparison to this standard have been evolving over the last year from very conservative to a more typical analysis that is not overly conservative. There have been three clarification memos issued by the EPA - two in June 2010, and one in March 2011 concerning the implementation of the new standard.

First NOx AAQS Analysis

The applicant submitted two 1-hour NO_2 impact analyses. The first one submitted in August, 2010, was based solely on NO_2 Tier 1 (assumes a 100% conversion of NO_X to NO_2) and Tier 2 (assumes a 75% ambient equilibrium ratio of NO_2 to NO_X or a 75% conversion of NO_x to NO_2) modeling results. The Tier 2 ratio of 75 percent requires justification for short-term use. In accordance with EPA's March 19, 2009, "AERMOD Implementation Guidance", the urban mode was selected and used. The urban mode estimates the effects of urban heat islands. The applicant used a 5 ppb (approximately 10 ug/m^3) significant impact level (SIL) for this submittal, which resulted in a radius of significant impact of 4.5 kilometers. The applicant used a value for the monitored background 1-hour concentration based on the maximum predicted 98th percentile 1-hour NO_2 concentration, instead of the overall highest hourly background NO_2 concentration from a representative monitor. The latter value was based on EPA's recommended very conservative modeling guidance for complying with the new standard that was issued in June 2010. The applicant had already performed the modeling analysis using the former value before EPA issued the June 2010 guidance. The Department sent a request for additional information in September 2010 requesting that the applicant use the EPA recommended background concentration. However, EPA issued further clarification guidance in March 2011, after the second submittal was received, which allows for use of the maximum predicted 98th percentile 1-hour NO_2 concentration background value as a conservative approach, instead. In addition, EPA established the use of an 80% equilibrium ratio of NO_2 to nitrogen oxide (NO) without justification, in lieu of the 75% conversion value used to give Tier 2 modeling results in the first submittal. The Department reanalyzed the first submittal results based on this new information. The results predict NO_2 impacts less than the new standard as shown in the table above.

Subsequent NOx AAQS Analyses

The Department relied on the results from the first submittal, which show compliance with the 1-hour standard. However, the second submittal will be presented for completeness. The applicant's second submittal of modeling results was in January 2011. The urban mode was also used for this submittal. The changes in the modeling inputs included an increase in stack heights of the engines from 10.1 meters (33 feet) to 15.24 meters (50 feet), the use of a 4% SIL and the use of the Tier 3 ozone limiting method (OLM) for determining 1-hour NO_2 impacts. For OLM, an in-stack ratio of 0.1 was used for the large fossil fuel-fired boilers and an in-stack ratio of 0.2 was used for the turbines at the power plant sources included in the cumulative source inventory. In-stack ratios of all other sources, including the project sources were set at 1.0, which means that 100% of NOx emissions from these sources were considered as NO_2 emissions and as a result, impacts from these other sources were actually based on Tier 1 (full conversion) and were not subject to the ozone titration mechanism.

There is enough information in the literature to support the use 0.1 as in-stack ratio for boilers. For example, the MACTEC (Evaluation of Bias in AERMOD-Plume Volume Molar Ratio Method (PVMRM), prepared by MACTEC for Alaska Department of Environmental Conservation, June 2005) study used a representative ratio for boilers of 0.05. Hanrahan used an in-stack ratio of 0.1 for boilers in the initial design of PVMRM. The Air Pollution Control Technology Handbook (By Karl B. Schnelle, Charles Arnold Brown) states that the typical NO_2/NO_X ratio in boiler emissions is equivalent to 0.05 to 0.09. The applicant provided information from combustion turbines at two power plants in Georgia in order to justify the use of 0.2 for turbines. The radius of impact in the second submittal was 8.5 km. There was one distant facility, FPL Fort Lauderdale (28 km away), that had different emission rates in the two submittals. In the first submittal the two banks of 12 gas turbines were modeled at 631 lb/hour per bank (allowable emission rate for one turbine in each bank), and in the second submittal the turbines were modeled at the allowable emission rate for all gas turbines in both banks, which was 15,144 lb/hour. Because of the difference in emission rates, when the applicant remodeled the NO_2 emission impacts were much higher and the use of Tier 3 was implemented. However, the recent actual emissions from these units are much, much lower. Based on discussions with plant personnel and annual operating reports, these units will act in the future more like emergency units than normal backup units. Actual emissions were only 100 TPY in 2009 for Ft. Lauderdale. The units all combined have operated less than 200 hours since 2003. The maximum actual operating hours from these units within the last ten years occurred in 2002 when these

turbines operated an average of 386 hours. These units operate four to six hours on the coldest mornings or on very hot afternoons for six to eight hours. They rarely operate more than two cold or hot days in a row. Based on EPA guidance contained in the March 2011 clarification these units were treated as intermittent sources in the modeling inputs for the first submittal and retained as regular emitting sources in the second submittal. In addition, the time periods that produced the maximum impact from these sources were generally 4 meters/second (m/s) or less. A plume would be transported about 14 km in an hour with this wind speed. With lower wind speeds the plume would be transported even shorter distances. Therefore, given the distance that these units are located from the project, it is highly unlikely that the plumes from these units would be transported to critical areas around the project.

Non-regulatory options like OLM may be used for regulatory purposes according to Appendix W in 40 CFR 60, which contains modeling guidelines and has been adopted in the Florida air rules by reference. An alternative refined model may be used provided:

- The model has received a scientific peer review;
- The model can be demonstrated to be applicable to the problem on a theoretical basis;
- The databases which are necessary to perform the analysis are available and adequate;
- Appropriate performance evaluations of the model have shown that the model is not biased toward underestimates; and
- A protocol on methods and procedures to be followed has been established.

Based on information provided by the San Joaquin Valley Air Pollution Control District, the first four items have already been met. In addition, the OLM method is a Region 10 approved method in the state of Alaska. The applicant did not provide a protocol, but did provide enough information to satisfy the last item.

The applicant submitted a third modeling analysis in May of 2011 which further clarified and confirmed the results in the second submittal. No impact values for comparison to the AAQS were changed.

In summary, the Medley project will use LFG that is currently being flared as fuel to produce usable electrical energy. This project benefits the environment by recovering useful energy in the LFG and generating electricity. The Department encourages renewable energy projects, including waste-to-energy projects.

Additional Impacts Analysis

Current Air Quality Status

Ozone is a key indicator of the overall state of regional air quality. It is not emitted directly from combustion processes. Rather it is formed from VOC and NO_X emitted primarily from regional industrial and transportation sources. VOC is also emitted from fires and vegetation (e.g. isoprene). These two precursors participate in photochemical reactions that occur on an area-wide basis and are highly dependent on meteorological factors.

There are two ozone monitors in Miami-Dade. Ozone limits and measurements are summarized on 3-year blocks, rolled annually. The reported value was calculated by taking the maximum 8-hour readings recorded each day during the three years. The 4th highest of the recorded maxima are identified for each year and then the average of those three values is identified as the compliance value. The average of the annual 4th highest measurements (design value) over the period 2008-2010 at the monitor (designated as University of Miami-Rosenstiel) recording the highest readings in Miami-Dade is 68 parts per billion (ppb).

Emissions of $PM_{2.5}$ (also known as PM_{fine}) are another key indicator of the overall state of regional air quality. Some is directly emitted as a product of combustion from transportation and industrial sources as well as fires. Much of it consists of particulate nitrates and sulfates formed through chemical reactions between gaseous precursors such as SO_2 and NO_X from combustion sources and ammonia (NH_3) naturally present in the air or added by other industrial sources.

There are six $PM_{2.5}$ monitors in Miami-Dade County. $PM_{2.5}$ limits and measurements are summarized on three year blocks, rolled annually. The reported value for $PM_{2.5}$ given in Table H was calculated by taking the average 24-hour readings recorded each day during the three years (2007-2009). The value for each year that exceeds 98% of all daily measurements within that year is identified for each year and then the average of those three numbers is identified as the value compared with the standard. The value calculated in the described manner for $PM_{2.5}$ measured at the Palm Springs Fire Station is given in Table H as 14 micrograms per cubic meter ($\mu g/m^3$) compared with a standard of 35 $\mu g/m^3$. The simple average of all measurements within each three years (2007-2009) was also calculated and then the mean of the three annual averages (7 $\mu g/m^3$) was reported and compared with the standard of 15 $\mu g/m^3$.

The following discussion provides additional information about recent emission trends of SO_2 and NO_X, which are precursors of $PM_{2.5}$ and/or ozone. There is a regional effort underway through the Clean Air Interstate Rule (CAIR) and other regulatory programs to reduce emissions of $PM_{2.5}$ precursors including NO_X and SO_2. Power plant VOC emissions are not as significant as NO_X as a precursor of ozone. Regional SO_2 emission reductions from existing power plants between 2007 and 2009 are listed in Table N. Emissions of SO_2 from power plants in Florida were reduced by nearly 120,000 TPY and regional SO_2 emissions were reduced by over 1.25 million TPY.

Table N. SO_2 Emission Reductions from Power Plants in the Southeast between 2007 and 2009

State	2007 (TPY)	2009 (TPY)	Reduction (TPY)	Reduction (%)
Alabama	447,189	277,971	169,218	38
Florida	317,582	197,682	119,900	38
Georgia	635,484	262,258	373,226	59
Kentucky	379,837	252,001	127,836	34
Mississippi	69,796	40,160	29,636	43
North Carolina	370,826	110,948	259,878	70
South Carolina	172,726	97,940	74,786	43
Tennessee	237,231	108,042	129,189	12
Total	**2,630,671**	**1,347,002**	**1,283,669**	**49**

The state and regional SO_2 reduction trends will continue as coal-fueled power plants continue to install scrubbers to control SO_2 emissions. Regional NO_X emission reductions from existing power plants between 2007 and 2009 are listed in Table O.

Table O. NO_X Emission Reductions from Power Plants in the Southeast between 2007 and 2009

State	2007 (TPY)	2009 (TPY)	Reduction (TPY)	Reduction (%)
Alabama	122,374	49,610	72,764	59
Florida	184,171	84,252	99,919	54
Georgia	107,471	57,566	49,905	46
Kentucky	174,840	78,767	96,073	55
Mississippi	48,546	26,601	21,945	45
North Carolina	59,417	38,782	20,635	35
South Carolina	46,062	21,213	24,849	54

State	2007 (TPY)	2009 (TPY)	Reduction (TPY)	Reduction (%)
Tennessee	102,886	27,911	74,975	73
Total	**845,767**	**384,702**	**461,065**	**55**

In just two years, NO_X emissions from power plants in Florida were reduced by nearly 100,000 TPY and regional NO_X emissions were reduced by over 460,000 TPY. The state and regional NO_X reduction trends will continue as coal-fueled power plant operators throughout the southeastern states continue to install SCR systems to control NO_X.

The figure below shows even more substantial SO_2 and NOx reductions in Florida since 1998. The graph also includes SO_2 and NOx emissions in 2010, which shows the continuing downward trend.

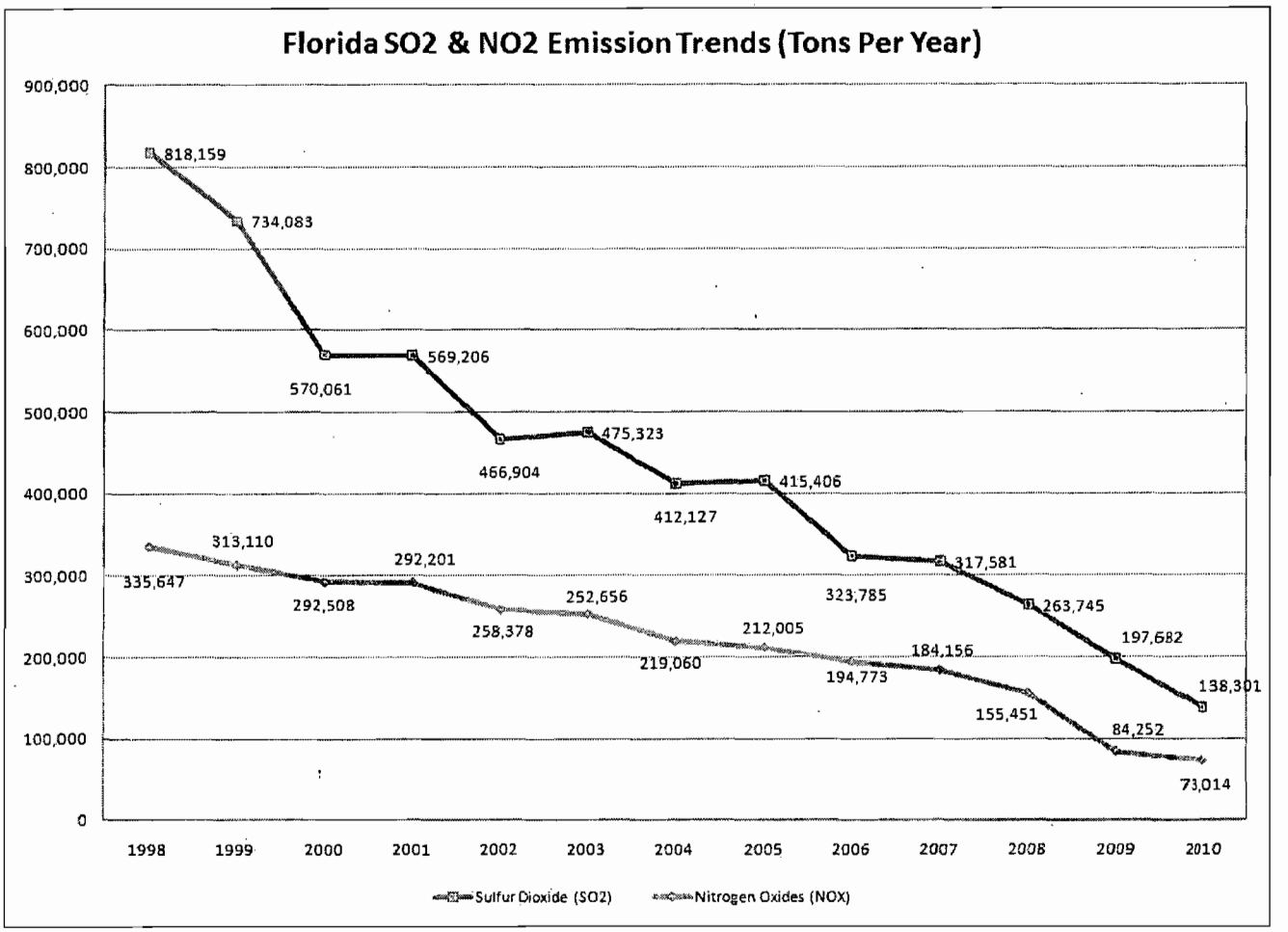


Figure 1. SO_2 and NO_X Reductions from Florida Facilities (1998-2010)

In addition, Florida Power & Light (FPL) facilities are among the largest sources of SO_2 and NO_X nearest to the proposed Medley site. For example, the FPL Ft. Lauderdale and Port Everglades facilities have permitted allowable NOx emissions of over 73,000 and 58,000 TPY, respectively. These sources are 28 and 33 kilometers northeast of Medley facility. However, the actual emissions for these facilities are 3,000 and 2000 TPY, respectively. Both facilities have banks of 12 gas turbines, two for Ft. Lauderdale and one for Port Everglades. These units have "permitted allowable" emissions of 66,028 and 33,057 TPY, respectively. However, the actual emissions from these peak demand units were only 100 TPY for Ft. Lauderdale and 10 TPY for Port Everglades

in 2009. The maximum actual emissions from these units within the last ten years occurred in 2002 when Ft. Lauderdale emitted 947 TPY and Port Everglades emitted 346 TPY. These emissions should continue to fall as the repowered units at the FPL Cape Canaveral, Riviera Beach and West County facilities establish full operation. Projected emissions increases from this project are 39 TPY of SO_2 and 78 TPY of NO_X. To put emissions from the existing FPL facilities and the Medley Landfill project into another perspective, the Department graphed the SO_2 and NO_X emission trends during the period 1998-2009 from FPL fossil-fueled plants located in the Florida peninsula. These trends are shown in the graph below. Most of the plants are in South Florida. The data source for both of these graphs is the EPA Clean Markets Acid Rain database.

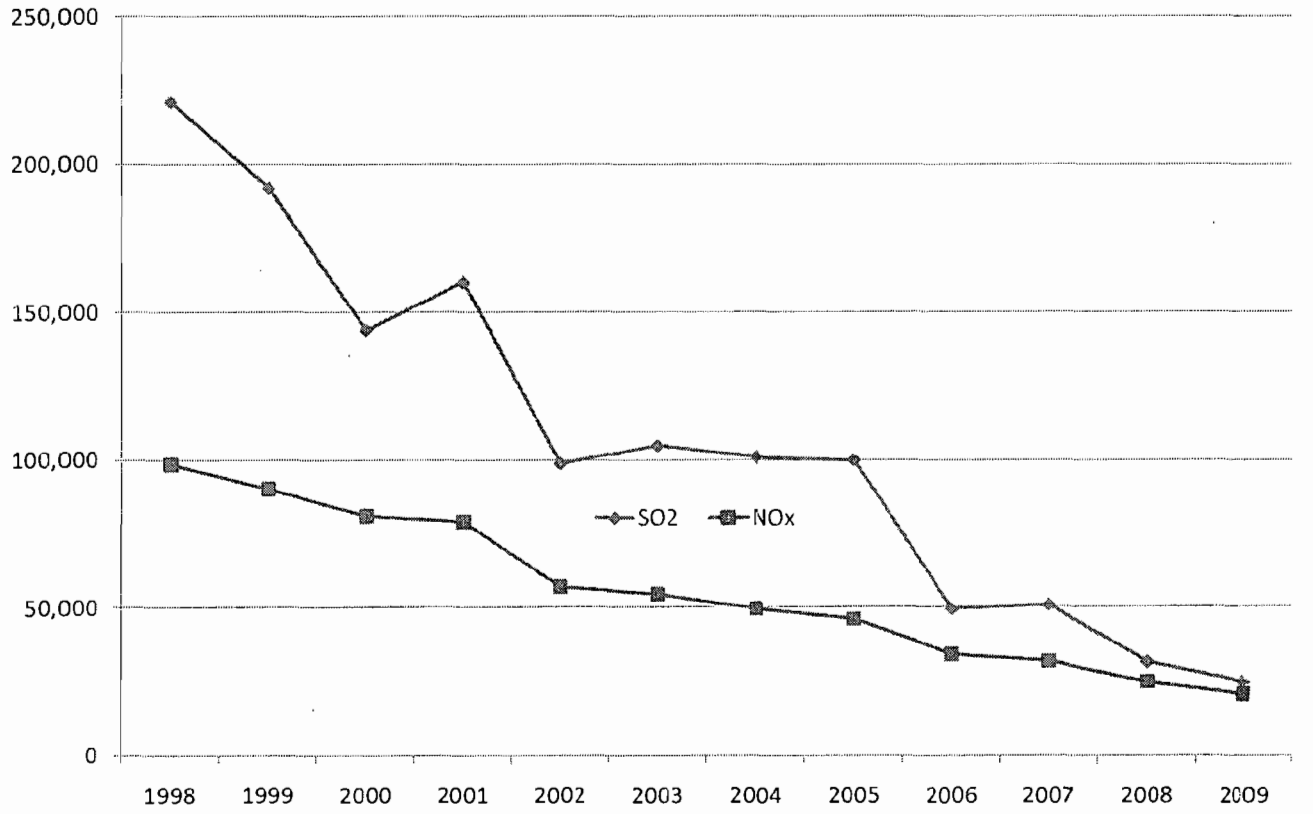


Figure 2. SO_2 and NO_X Reductions (Tons/Year) at FPL Peninsular Facilities (1998-2009)

The largest non-FPL NO_X sources in the area based on actual emissions are the Miami-Dade Resource Recovery facility approximately 3 kilometers southwest, TARMAC Pennsuco Cement about 4 kilometers northwest and Miami Cement (CEMEX) about 12 kilometers southwest of the proposed project. In 2009, these facilities had actual annual emissions of 1200, 800 and 800 TPY of NO_X, respectively. These values are significantly less than annual emissions from these sources in 2002, which were 1200, 2500 and 1300 TPY, respectively.

The contribution of 39 TPY of SO_2 and 78 TPY of NO_X from Medley will not affect the general, overwhelming and continuing downward trends in $PM_{2.5}$ and ozone precursors. Similarly, it will not have an appreciable effect on local or regional $PM_{2.5}$ and ozone concentrations.

In addition the overall reduction in $PM_{2.5}$ precursor emissions from stationary sources and the transportation sources (due to use of cleaner fuels) has contributed to the clear decline in ambient $PM_{2.5}$ levels in South Florida during the same period as shown in the next figure.

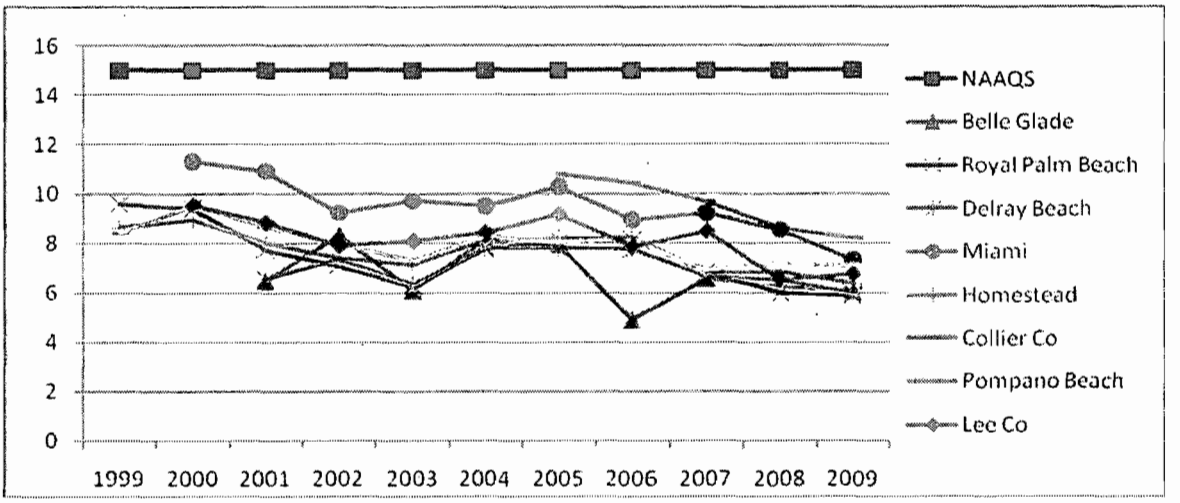


Figure 3. South Florida Annual Average ($\mu g/m^3$) $PM_{2.5}$ Trends in (1999 – 2009)

Basically the pronounced reductions in annual average $PM_{2.5}$ trends in Miami are consistent with the above mentioned reductions in emissions from stationary and transportation sources.

Impacts on Soils, Vegetation and Wildlife

The maximum predicted ground-level concentrations of NO_2, CO and PM_{10} from the proposed project and all other nearby sources are below the corresponding AAQS. The AAQS are designed to protect both the public health and welfare. As such, this project is not expected to have a harmful impact on soils, vegetation or wildlife in the vicinity of the project.

Air Quality Impacts Related to Growth

The proposed modification will not significantly change employment, population, housing, commercial development, or industrial development in the area to the extent that a significant air quality impact will result.

Visibility Analysis

The analysis to determine the potential adverse plume visibility effects in the portions of the Everglades located within 50 kilometers was based on Visual Impact Screening and Analysis (VISCREEN) computer model. A Level 1 analysis was performed. In addition for portions of the ENP greater than 50 km from the project, CALPUFF was used to determine regional haze impacts, and the results were well below the federal land manager's (FLM) screening criteria. The FLM concluded from these analyses that no significant impact on the Class I area was expected.

Nitrogen and Sulfur Deposition

Total nitrogen deposition rates on the PSD Class I area was also predicted using CALPUFF. The maximum predicted nitrogen deposition rates are below the threshold levels recommended by the federal land manager.

7. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the Draft Permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the Draft Permit. Tammy McWade and Jeff Koerner are the project engineers responsible for reviewing the application and drafting the permit changes. Cleve Holladay is the meteorologist responsible for reviewing and approving the ambient air quality analyses. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

DRAFT PERMIT

PERMITTEE

Waste Management, Inc.
2700 Northwest 48th Street
Pompano Beach, FL 33073

Authorized Representative:
Mr. Tim Hawkins, South Florida Market Area Vice President

Air Permit No. 0250615-012-AC
Expires: June 1, 2016
PSD-FL-414
Medley Landfill
Facility ID No. 0250615
Landfill Gas-to-Energy Project

PROJECT

This is the final air construction permit, which authorizes the installation and operation of six lean-burn engine/generators sets that will fire landfill gas to produce up to a combined nominal 9.6 megawatts (MW) of power to the electrical grid. The proposed work will be conducted at the existing Medley Landfill, which is a municipal solid waste (MSW) landfill categorized under Standard Industrial Classification No. 4911. The existing facility is located in Miami-Dade County at 9350 Northwest 89th Avenue in Medley, Florida. The UTM coordinates are Zone 17, 565.04 kilometers East and 2,860.02 kilometers 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.

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

Executed in Tallahassee, Florida

(DRAFT)

Michael P. Halpin, P.E., Director
Division of Air Resource Management

(Date)

CERTIFICATE OF SERVICE

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

Mr. Tim Hawkins, Waste Management, Inc. (thawkins@wm.com)
Mr. James Kisiel, P.E., Waste Management Inc. (jkisiel@wm.com)
Mr. David A. Buff, P.E., Golder Associates Inc. (dbuff@golder.com)
Mr. Lennon Anderson, SED Office (lennon.anderson@dep.state.fl.us)
Ms. Mallika Muthias, Miami-Dade DERM (muthim@miamidade.gov)
Ms. Kathleen Forney, EPA Region 4 (forney.kathleen@epa.gov)
Ms. Heather Abrams, EPA Region 4 (abrams.heather@epa.gov)
Ms. Vickie Gibson, DEP BAR Reading File (victoria.gibson@dep.state.fl.us)

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)

FACILITY DESCRIPTION

The existing facility consists of the following active emissions units.

ID No.	Emission Unit Description
001	Flare #1 is an open, candle-type utility flare with a capacity of 3,000 standard cubic feet per minute (scfm) of landfill gas.
002	This emissions unit consists of miscellaneous fugitive non-methane organic compounds (NMOC) and hazardous air pollutant (HAP) emissions from the natural decomposition reactions associated with the landfill, which are not collected by the landfill gas collection system.
005	Flare #3 is an enclosed flare with a capacity of 6,000 scfm of landfill gas (LFG).

PROPOSED PROJECT

This permit authorizes the construction and initial operation of a landfill gas-to-energy plant at the existing Medley Landfill, which will use landfill gas to fuel six lean-burn reciprocating internal combustion engine/generator sets. The six engine/generator sets will deliver a combined nominal 9.6 MW of power to the electrical grid. Prior to combustion in the engines, the landfill gas will be routed through a landfill gas treatment system, which includes dewatering (a moisture knock-out vessel), gas compressors and blowers, air-to-gas coolers and 1 micron particulate filtration. Exhaust gas from each engine will exit an individual stack that is 33 feet tall and equipped with a silencer. Five of the six engines will be housed in an enclosed building. The sixth engine will be located outside the building. The two existing flares will be retained, relocated adjacent to the engines and used as necessary to control residual landfill gas not fired in the engines. The project is subject to PSD preconstruction review for carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM), particulate matter with a mean particle diameter of 10 microns or less (PM_{10}) and particulate matter with a mean particle diameter of 2.5 microns or less ($PM_{2.5}$).

This project will add the following emissions units.

ID No.	Emission Unit Description
006 - 011	Six lean-burn reciprocating internal combustion engine/generator sets

FACILITY REGULATORY CLASSIFICATION

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is an existing PSD major stationary source in accordance with Rule 62-212.400, F.A.C.
- The facility operates or will operate units subject to the following applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations (40 CFR 60): Subpart A (General Provisions), Subpart WWW (MSW Landfills) Subpart JJJJ (Spark Ignition Reciprocating Internal Combustion Engines).
- The facility operates or will operate units subject to the following applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations (40 CFR 63): Subpart A (General Provisions), Subpart AAAA (MSW Landfills) and Subpart ZZZZ (Reciprocating Internal Combustion Engines).

1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Department. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. Copies of all documents related to applications for permits shall also be submitted to the Compliance Authority.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Southeast District Office and Miami-Dade County Environmental Resources Management (DERM). The mailing address and phone number of the Southeast District Office is: 400 North Congress Avenue, Suite 200, West Palm Beach, Florida 33401. The mailing address and phone number of the Miami-Dade County Environmental Resources Management (DERM) is 701 Northwest 1st Court, Suite 200, Miami, Florida 33136.
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); Appendix E (Final BACT Determinations); Appendix F (NSPS Provisions); and Appendix G (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. Actual Emissions Reporting: This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (12), F.A.C. for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., the permittee is subject to the following monitoring, reporting and recordkeeping provisions.

   a. The permittee shall monitor the emissions of any PSD pollutant that the Department identifies could increase as a result of the construction or modification and that is emitted by any emissions unit that could be affected; and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 10 years following resumption of regular operations after the change. Emissions shall be computed in accordance with the provisions in Rule 62-210.370, F.A.C., which are provided in Appendix C of this permit.

   b. The permittee shall report to the Department within 60 days after the end of each calendar year during the 10-year period setting out the unit's annual emissions during the calendar year that preceded submission of the report. The report shall contain the following:

      1) The name, address and telephone number of the owner or operator of the major stationary source;

      2) The annual emissions calculations pursuant to the provisions of 62-210.370, F.A.C., which are provided in Appendix C of this permit;

      3) If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and

      4) Any other information that the owner or operator wishes to include in the report.

   c. The information required to be documented and maintained pursuant to subparagraphs 62-212.300(1)(e)1 and 2, F.A.C., shall be submitted to the Department, which shall make it available for review to the general public.

   For this project, the permit requires the annual reporting of actual sulfur dioxide (SO_2) emissions from the flares and landfill gas engines. *{Permitting Note: Baseline SO_2 emissions were reported as 225.9 tons/year.}*

   [Application 0250615-012-AC and Rules 62-212.300(1)(e) and 62-210.370, F.A.C.]

9. Title V Permit: This permit authorizes new construction of the proposed emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to each Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

A. Landfill Gas Engines (EU-006 - 011)

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
006 - 011	Six lean-burn, spark-ignited reciprocating internal combustion engine/generator sets (Caterpillar Model G3520C or equivalent) fired with landfill gas.

{Permitting Note: In accordance with Rule 62-212.400(PSD), F.A.C., the above engines are subject to Best Available Control Technology (BACT) determinations for the following pollutants: CO, NO_X, $PM/PM_{10}/PM_{2.5}$. The final BACT determinations are presented in Appendix E of this permit.}

EQUIPMENT

1. Landfill Gas Engine/Generator Sets: The permittee is authorized to install and operate six lean-burn, spark-ignited reciprocating internal combustion engine/generator sets (Caterpillar Model G3520C or equivalent) that will fire landfill gas with the following nominal design specifications per engine: a maximum engine rating of 2,233 brake-horsepower (bhp) at 100% load; a nominal electrical generator rating of 1.6 MW; and a heat input rate of approximately 17.6 MMBtu/hour from landfill gas.

   a. Each engine shall be equipped with an air-to-fuel ratio controller and ignition timing to maintain efficient fuel combustion.

   b. Each engine shall be equipped with an automatic fail-safe block valve which must be designed to stop the flow of landfill gas in the event of an engine failure. Excess landfill gas not fired in the engines shall be flared in accordance with the requirements of Subpart WWW in 40 CFR 60.

   c. Each engine shall be equipped with a non-resettable elapsed time meter to indicate the elapsed engine operating time in cumulative hours.

   d. A gas flow meter shall be installed to monitor the total flow rate to all of the landfill gas engines.

   {Permitting Note: The heat input rate is based on 100% load (2,233 bhp), a nominal landfill gas heating value of 500 British thermal units *(Btu) per scf and an approximate landfill gas firing rate of 588 scfm per engine.}* [Application No. 0250615-012-AC; and Rules 62-4.070(3), 62-210.200(PTE) and 62-212.400(PSD), F.A.C.]

2. Landfill Gas Treatment System: The permittee shall install a landfill gas treatment system that includes initial gas dewatering (moisture knock-out vessel), gas compressors and blowers, air-to-gas coolers and particulate removal. The particulate filtration system shall be designed to remove particles down to 1 micron via primary and polishing filters. The gas treatment system shall not be equipped with atmospheric vents. [Application No. 0250615-012-AC and Rule 62-212.400(PSD), F.A.C.]

3. Hours of Operation: Operation of the new engine/generator sets is not limited (8760 hours per year). [Application No. 0250615-012-AC and Rule 62-210.200(PTE), F.A.C.]

PERFORMANCE REQUIREMENTS

4. Permitted Capacity: Each landfill gas engine has a maximum power rating of 2,233 bhp at 100% load (approximately 17.6 MMBtu/hour). The electrical generator set has a nominal power rating of 1,600 kilowatts. [Rule 62-210.200(PTE), F.A.C.]

5. Authorized Fuel: Only landfill gas shall be fired in the engine/generator sets. [Application No. 0250615-012-AC and Rule 62-210.200(PTE), F.A.C.]

6. 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 40 CFR 60, Subpart JJJJ. [Rule 62-212.400(BACT), F.A.C. and NSPS Subpart JJJJ in 40 CFR 60]

7. Applicable NSPS Provisions: The landfill gas 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 F of this permit. [NSPS Subparts A and JJJJ in 40 CFR 60 and Rule 62-204.800, F.A.C.]

8. Applicable NESHAP Provisions: The landfill gas 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 40 CFR 63.6590, the landfill gas engines shall comply with NESHAP Subpart ZZZZ by complying with NSPS Subpart JJJJ. [NESHAP Subparts A and ZZZZ in 40 CFR 63 and Rule 62-204.800, F.A.C.]

EMISSIONS STANDARDS

9. Nitrogen Oxides: The emissions of NO_X from each engine/generator set shall not exceed 0.6 gram per brake horsepower hour (g/bhp-hour) and 3.0 lb/hour. [Rule 62-212.400(BACT), F.A.C.]

10. Carbon Monoxide: The emissions of CO from each engine/generator set shall not exceed 3.5 g/bhp-hour and 17.2 lb/hour. [Rule 62-212.400(BACT), F.A.C.]

11. Volatile Organic Compounds: The emissions of VOC from each engine/generator set shall not exceed 1.0 g/bhp-hour and 0.8 lb/hour. *{Permitting Note: The "g/bhp-hour" limit is the NSPS Subpart JJJJ standard and the "lb/hour" limit allows the project to avoid PSD preconstruction review for VOC emissions.}* [NESHAP Subparts A and JJJJ in 40 CFR 63 and Rules 62-204.800 and 62-212.400(12), F.A.C.]

12. Particulate Matter: The permittee shall minimize emissions of particulate matter by installing, operating and maintaining the required landfill gas treatment system as well as maintaining the air-to-fuel ratio to ensure efficient combustion. In addition, as determined by EPA Method 9, visible emissions from each engine/generator set shall not exceed 10% opacity, based on a six-minute average. *{Permitting Note: Based on these work practice standards, the maximum emissions of $PM/PM_{10}/PM_{2.5}$ from each engine/generator are estimated to be 0.24 g/bhp-hour, 1.2 lb/hour and 5.2 tons/year}.* [Rule 62-212.400(BACT), F.A.C.]

13. Hydrogen Chloride (HCl): Emissions of HCl from the facility (engines plus flares) shall not exceed 9.9 tons per consecutive 12 months based on the landfill gas analysis and consumption. [Application No. 0250615-012-AC and Rules 62-4.070(3), 62-210.200(PTE) and 62-212.400(12), F.A.C.]

MONITORING REQUIREMENTS

14. Landfill Gas Sampling/Analysis: At least semiannually, the permittee shall obtain the following representative samples of landfill gas: a sample taken during each required compliance stack test; and a sample taken during the next semiannual period and no earlier than 5 months since the previous sample was taken. A representative sample 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 (i.e., with valves open for all operating cells). Each sample shall have an ultimate analysis conducted for at least sulfur. For at least one sample each year, the analysis shall also report chlorine. Results shall also be reported as SO_2 and HCl emission factors in terms of lb/million standard cubic feet (lb/MMscf) of landfill gas. 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 and 62-212.400, F.A.C.]

TESTING REQUIREMENTS

15. Test Requirements: During each required compliance stack test, the permittee shall operate a tested landfill gas engine at permitted capacity (90% to 100% of 2,233 bhp). The permittee shall notify the Compliance Authority in writing at least 15 days prior to any scheduled stack 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)(a)9, F.A.C.]

16. Test Methods: Tests required by this permit 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
7 or 7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)
18	Measurement of Gaseous organic Compound Emissions by Gas Chromatography *{Note: the emission standards are based on VOC measured as methane.}*
25A	Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer*{Note: the emission standards are based on VOC measured as methane.}*

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, 62-212.400(BACT) and Appendix A of 40 CFR 60]

17. Initial Compliance Tests: Each landfill gas engine shall be tested to demonstrate initial compliance with the emissions standards for CO, NOx and VOC under 40 CFR 60, Subpart JJJJ as well as the BACT standards of this permit. In addition, each unit shall be tested for opacity in accordance with EPA Method 9. 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. [Rules 62-212.400(BACT), 62-297.310(7)(a)1, F.A.C. and NSPS Subpart JJJJ in 40 CFR 60]

18. Periodic Compliance Tests: Every 8,760 engine hours or at least once every three years, whichever comes first, each landfill gas engine shall be tested to demonstrate compliance with the emissions standards for CO, NOx and VOC under 40 CFR 60, Subpart JJJJ as well as the BACT standards of this permit. During these periodic tests, at least one landfill gas engine shall also be tested for opacity in accordance with EPA Method 9. [Rules 62-212.400(BACT), 62-297.310(7)(a)1 and 4, F.A.C., and NSPS Subpart JJJJ in 40 CFR 60]

MONITORING REQUIREMENTS

19. Monthly Records: Within ten calendar days following each month, the permittee shall observe and record the following information in a written log: number of hours of operation of each engine; total monthly landfill gas flow rate to all engines combined; and hydrochloric acid (HCl) and sulfur dioxide (SO_2) emissions for the month and previous 12 months, rolling total. Emissions of HCl and SO_2 shall be calculated

from the monthly fuel consumption as well as the analytical results for the chlorine and sulfur contents of the landfill gas representative of the given month of operation. [Rule 62-210.200 (232), F.A.C.]

RECORDS AND REPORTS

20. 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. As a minimum, the test report, other than for an EPA test, shall provide the applicable information identified in Rule 62-297.310(8)(c). [Rule 62-297.310(8), F.A.C.]

Contents

CITATION FORMATS

The following illustrate the formats used in the permit to identify applicable requirements from permits and regulations.

Old Permit Numbers

Example: Permit No. AC50-123456 or Permit No. AO50-123456

Where: "AC" identifies the permit as an Air Construction Permit
"AO" identifies the permit as an Air Operation Permit
"123456" identifies the specific permit project number

New Permit Numbers

Example: Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

Where: "099" represents the specific county ID number in which the project is located
"2222" represents the specific facility ID number for that county
"001" identifies the specific permit project number
"AC" identifies the permit as an air construction permit
"AF" identifies the permit as a minor source federally enforceable state operation permit
"AO" identifies the permit as a minor source air operation permit
"AV" identifies the permit as a major Title V air operation permit

PSD Permit Numbers

Example: Permit No. PSD-FL-317

Where: "PSD" means issued pursuant to the preconstruction review requirements of the Prevention of Significant Deterioration of Air Quality
"FL" means that the permit was issued by the State of Florida
"317" identifies the specific permit project number

Florida Administrative Code (F.A.C.)

Example: [Rule 62-213.205, F.A.C.]

Means: Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

Example: [40 CRF 60.7]

Means: Title 40, Part 60, Section 7

GLOSSARY OF COMMON TERMS

° F: degrees Fahrenheit
µg: microgram
AAQS: Ambient Air Quality Standard
acf: actual cubic feet
acfm: actual cubic feet per minute
ARMS: Air Resource Management System (Department's database)
BACT: best available control technology
bhp: brake horsepower
Btu: British thermal units
CAM: compliance assurance monitoring
CEMS: continuous emissions monitoring system
cfm: cubic feet per minute
CFR: Code of Federal Regulations

CAA: Clean Air Act

CMS: continuous monitoring system

CO: carbon monoxide

CO_2: carbon dioxide

COMS: continuous opacity monitoring system

DARM: Division of Air Resource Management

DEP: Department of Environmental Protection

Department: Department of Environmental Protection

dscf: dry standard cubic feet

dscfm: dry standard cubic feet per minute

EPA: Environmental Protection Agency

ESP: electrostatic precipitator (control system for reducing particulate matter)

EU: emissions unit

F: fluoride

F.A.C.: Florida Administrative Code

F.A.W.: Florida Administrative Weekly

F.D.: forced draft

F.S.: Florida Statutes

FGD: flue gas desulfurization

FGR: flue gas recirculation

ft^2: square feet

ft^3: cubic feet

gpm: gallons per minute

gr: grains

HAP: hazardous air pollutant

Hg: mercury

I.D.: induced draft

ID: identification

kPa: kilopascals

lb: pound

MACT: maximum achievable technology

MMBtu: million British thermal units

MSDS: material safety data sheets

MW: megawatt

NESHAP: National Emissions Standards for Hazardous Air Pollutants

NO_X: nitrogen oxides

NSPS: New Source Performance Standards

O&M: operation and maintenance

O_2: oxygen

Pb: lead

PM: particulate matter

PM_{10}: particulate matter with a mean aerodynamic diameter of 10 microns or less

ppm: parts per million

ppmv: parts per million by volume

ppmvd: parts per million by volume, dry basis

QA: quality assurance

QC: quality control

PSD: prevention of significant deterioration

psi: pounds per square inch

PTE: potential to emit

RACT: reasonably available control technology

RATA: relative accuracy test audit

RBLC: EPA's RACT/BACT/LAER Clearinghouse

SAM: sulfuric acid mist

scf: standard cubic feet

scfm: standard cubic feet per minute

SIC: standard industrial classification code

SIP: State Implementation Plan

SNCR: selective non-catalytic reduction (control system used for reducing emissions of nitrogen oxides)

SO_2: sulfur dioxide

TPD: tons/day

TPH: tons per hour

TPY: tons per year

TRS: total reduced sulfur

UTM: Universal Transverse Mercator coordinate system

VE: visible emissions

VOC: volatile organic compounds

General Conditions

The permittee shall comply with the following general conditions from Rule 624.160, F.A.C.

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permitconditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiateenforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approveddrawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditionsof this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in subsections 403.987(6) and 403.722(5), F.S., the issuance of this permit does not convey anyvested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not awaiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment oftitle, and not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fundmay express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penaltiestherefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (andrelated appurtenances) that are installed and used by the permittee toachieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities orsimilar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, uponpresentation of credentials or other documents as may be required by law and at reasonable times, access to thepremises where the permitted activity is located or conducted to:

   a. Have access to and copy any records that must be kept under conditions of the permit;

   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliancewith this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition orlimitation specified in this permit, the permittee shall immediately provide the Department with the followinginformation:

   a. A description of and cause of noncompliance; and

   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time thenoncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of thenoncompliance. The permittee shall be responsible for any and all damages which may result and may be subject toenforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data andother information relating to the construction or operation of this permitted source which are submitted to theDepartment may be used by the Department as evidence in any enforcement case involving the permitted sourcearising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedureand appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology (landfill gas engines: CO, NO_X and PM/PM_{10}/$PM_{2.5}$);

    b. Determination of Prevention of Significant Deterioration (landfill gas engines: CO, NO_X and PM/PM_{10}/$PM_{2.5}$); and

    c. Compliance with New Source Performance Standards (landfill gas engines: NSPS Subparts A and JJJJ in 40 CFR 60).

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:

        (a) The date, exact place, and time of sampling or measurements;

        (b) The person responsible for performing the sampling or measurements;

        (c) The dates analyses were performed;

        (d) The person responsible for performing the analyses;

        (e) The analytical techniques or methods used;

        (f) The results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Unless otherwise specified in the permit, the following conditionsapply to all emissions units and activities at the facility.

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions ofthis permit or the regulations. [Rule 62-4.130, F.A.C.]

2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed 2 hours in any 24-hour period unless specifically authorized by the Department for longer duration. Pursuant to Rule 62-210.700(5), F.A.C., the permit subsection may specify more or less stringent requirements for periods of excess emissions. Rule 62-210-700(Excess Emissions), F.A.C., cannot vary or supersede any federal NSPS or NESHAP provision. [Rule 62-210.700(1), F.A.C.]

4. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

5. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]

6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds (VOC) or organic solvents (OS) without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]

7. 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. [Rules 62-296.320(2) and 62-210.200(Definitions), F.A.C.]

8. 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. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]

9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shallbe minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

RECORDS AND REPORTS

10. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least 5 years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rule 62-213.440(1)(b)2, F.A.C.]

11. Emissions Computation and Reporting

    a. *Applicability.* This rule sets forth required methodologies to be used by the owner or operator of a facility for computing actual emissions, baseline actual emissions, and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for computing emissions for purposes of the reporting requirements of subsection 62210.370(3) and paragraph 62-212.300(1)(e), F.A.C., or of any permit condition that requires emissions be computed in accordance

with this rule. This rule is not intended to establish methodologies for determining compliance with the emission limitations of any air permit. [Rule 62-210.370(1), F.A.C.]

b. *Computation of Emissions.* For any of the purposes set forth in subsection 62-210.370(1), F.A.C., the owner or operator of a facility shall compute emissions in accordance with the requirements set forth in this subsection.

(1) Basic Approach. The owner or operator shall employ, on a pollutant-specific basis, the most accurate of the approaches set forth below to compute the emissions of a pollutant from an emissions unit; provided, however, that nothing in this rule shall be construed to require installation and operation of any continuous emissions monitoring system (CEMS), continuous parameter monitoring system (CPMS), or predictive emissions monitoring system (PEMS) not otherwise required by rule or permit, nor shall anything in this rule be construed to require performance of any stack testing not otherwise required by rule orpermit.

(a) If the emissions unit is equipped with a CEMS meeting the requirements of paragraph 62-210.370(2)(b), F.A.C., the owner or operator shall use such CEMS to compute the emissions of the pollutant, unless the owner or operator demonstrates to the department that an alternative approach is more accurate because the CEMS represents still-emerging technology.

(b) If a CEMS is not available or does not meet the requirements of paragraph 62-210.370(2)(b), F.A.C, but emissions of the pollutant can be computed pursuant to the mass balance methodology of paragraph 62-210.370(2)(c), F.A.C., the owner or operator shall use such methodology, unless the owner or operator demonstrates to the department that an alternative approach is more accurate.

(c) If a CEMS is not available or does not meet the requirements of paragraph 62-210.370(2)(b), F.A.C., and emissions cannot be computed pursuant to the mass balance methodology, the owner or operator shall use an emission factor meeting the requirements of paragraph 62-210.370(2)(d), F.A.C., unless the owner or operator demonstrates to the department that an alternative approach is more accurate.

(2) Continuous Emissions Monitoring System (CEMS).

(a) An owner or operator may use a CEMS to compute emissions of a pollutant for purposesof this rule provided:

1) The CEMS complies with the applicable certification and quality assurance requirements of 40 CFR Part 60, Appendices B and F, or, for an acid rain unit, the certification and quality assurance requirements of 40 CFR Part 75, all adopted by reference at Rule 62-204.800, F.A.C.; or

2) The owner or operator demonstrates that the CEMS otherwise represents the most accurate means of computing emissions for purposes of this rule.

(b) Stack gas volumetric flow rates used with the CEMS to compute emissions shall be obtained by the most accurate of the following methods as demonstrated by the owner or operator:

1) A calibrated flow meter that records data on a continuous basis, if available; or

2) The average flow rate of all valid stack tests conducted during a five-year period encompassing the period over which the emissions are being computed, provided all stack tests used shall represent the same operational and physical configuration of the unit.

(c) The owner or operator may use CEMS data in combination with an appropriate f-factor, heat input data, and any other necessary parameters to compute emissions if such method is demonstrated by the owner or operator to be more accurate than using a stack gas volumetric flow rate as set forth at subparagraph62-210.370(2)(b)2., F.A.C., above.

(3) Mass Balance Calculations.

(a) An owner or operator may use mass balance calculations to compute emissions of a pollutant for purposes of this rule provided the owner or operator:

1) Demonstrates a means of validating the content of the pollutant that is contained in or created by all materials or fuels used in or at the emissions unit; and

2) Assumes that the emissions unit emits all of the pollutant that is contained in or created by any material or fuel used in or at the emissions unit if it cannot otherwise be accounted for in the process or in the capture and destruction of the pollutant by the unit's air pollution control equipment.

(b) Where the vendor of a raw material or fuel which is used in or at the emissions unit publishes a range of pollutant content from such material or fuel, the owner or operator shall use the highest value of the range to compute the emissions, unless the owner or operator demonstrates using site-specific data that another content within the range is more accurate.

(c) In the case of an emissions unit using coatings or solvents, the owner or operator shall document, through purchase receipts, records and sales receipts, the beginning and ending VOC inventories, the amount of VOC purchased during the computational period, and the amount of VOC disposed of in the liquid phase during such period.

(4) Emission Factors.

(a) An owner or operator may use an emission factor to compute emissions of a pollutant for purposes of this rule provided the emission factor is based on site-specific data such as stack test data, where available, unless the owner or operator demonstrates to the department that an alternative emission factor is more accurate. An owner or operator using site-specific data to derive an emission factor, or set of factors, shall meet the following requirements.

1) If stack test data are used, the emission factor shall be based on the average emissions per unit of input, output, or gas volume, whichever is appropriate, of all valid stack tests conducted during at least a five-year period encompassing the period over which the emissions are being computed, provided all stack tests used shall represent the same operational and physical configuration of the unit.

2) Multiple emission factors shall be used as necessary to account for variations in emission rate associated with variations in the emissions unit's operating rate or operating conditions during the period over which emissions are computed.

3) The owner or operator shall compute emissions by multiplyingthe appropriate emission factor by the appropriate input, output or gas volume value for the period over which the emissions are computed. The owner or operator shall not compute emissions by converting an emission factor to pounds per hour and then multiplying by hours of operation, unless the owner or operator demonstrates that such computation is the most accurate method available.

(b) If site-specific data are not available to derive an emission factor, the owner or operator may use a published emission factor directly applicable to the process for which emissions are computed. If no directly-applicable emission factor is available, the owner or operator may use a factor based on a similar, but different, process.

(5) Accounting for Emissions During Periods of Missing Data from CEMS, PEMS, or CPMS. In computing the emissions of a pollutant, the owner or operator shall account for the emissions during periods of missing data from CEMS, PEMS, or CPMS using other site-specific data to generate a reasonable estimate of such emissions.

(6) Accounting for Emissions During Periods of Startup and Shutdown. In computing the emissions of a pollutant, the owner or operator shall account for the emissions during periods of startup and shutdown of the emissions unit.

(7) Fugitive Emissions. In computing the emissions of a pollutant from a facility or emissions unit, the owner or operator shall account for the fugitive emissions of the pollutant, to the extent quantifiable, associated with such facility or emissions unit.

(8) Recordkeeping. The owner or operator shall retain a copy of all records used to compute emissions pursuant to this rule for a period of five years from the date on which such emissions information is submitted to the department for any regulatory purpose.

[Rule 62-210.370(2), F.A.C.]

c. *Annual Operating Report for Air Pollutant Emitting Facility*

(1) The Annual Operating Report for Air Pollutant Emitting Facility (DEP Form No. 62-210.900(5)) shall be completed each year for the following facilities:

a. All Title V sources;

b. All synthetic non-Title V sources;

c. All facilities with the potential to emit ten (10) tons per year or more of volatile organic compounds or twenty-five (25) tons per year or more of nitrogen oxides and located in an ozone nonattainment area or ozone air quality maintenance area; and

d. All facilities for which an annual operating report is required by rule or permit.

(2) Notwithstanding paragraph 62-210.370(3)(a), F.A.C., no annual operating report shall be required for any facility operating under an air general permit.

(3) The annual operating report shall be submitted to the appropriate Department of Environmental Protection (DEP) division, district or DEP-approved local air pollution control program office by April 1 of the following year. If the report is submitted using the Department's electronic annual operating report software, there is no requirement to submit a copy to any DEP or local air program office.

(4) Emissions shall be computed in accordance with the provisions of subsection 62-210.370(2), F.A.C., for purposes of the annual operating report.

(5) Facility Relocation. Unless otherwise provided by rule or more stringent permit condition, the owner or operator of a relocatable facility must submit a Facility Relocation Notification Form (DEP Form No. 62-210.900(6)) to the Department at least 30 days prior to the relocation. A separate form shall be submitted for each facility in the case of the relocation of multiple facilities which are jointly owned or operated.

[Rule 62-210.370(3), F.A.C.]

Unless otherwise specified in the permit, the following testing requirements apply to all emissions units that require testing.

COMPLIANCE TESTING REQUIREMENTS

1. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

2. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. [Rule 62-297.310(2), F.A.C.]

3. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]

4. Applicable Test Procedures:

   a. Required Sampling Time.

      (1) Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes.

      (2) Opacity Compliance Tests. When either EPA Method 9 or DEP Method 9 is specified as the applicable opacity test method, the required minimum period of observation for a compliance test shall be sixty (60) minutes for emissions units which emit or have the potential to emit 100 tons per year or more of particulate matter, and thirty (30) minutes for emissions units which have potential emissions less than 100 tons per year of particulate matter and are not subject to a multiple-valued opacity standard. The opacity test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. Exceptions to these requirements are as follows:

         (a) For batch, cyclical processes, or other operations which are normally completed within less than the minimum observation period and do not recur within that time, the period of observation shall be equal to the duration of the batch cycle or operation completion time.

         (b) The observation period for special opacity tests that are conducted to provide data to establish a surrogate standard pursuant to Rule 62-297.310(5)(k), F.A.C., Waiver of Compliance Test Requirements, shall be established as necessary to properly establish the relationship between a proposed surrogate standard and an existing mass emission limiting standard.

         (c) The minimum observation period for opacity tests conducted by employees or agents of the Department to verify the day-to-day continuing compliance of a unit or activity with an applicable opacity standard shall be twelve minutes.

   b. Minimum Sample Volume. Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

c. Calibration of Sampling Equipment. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

d. Calibration of Sampling Equipment. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1.

e. Allowed Modification to EPA Method 5. When EPA Method 5 is required, the following modification is allowed: the heated filter may be separated from the impingers by a flexible tube.

TABLE 297.310-1 CALIBRATION SCHEDULE

ITEM	MINIMUM CALIBRATION FREQUENCY	REFERENCE INSTRUMENT	TOLERANCE
Liquid in glass thermometer	Annually	ASTM Hg in glass ref. thermometer or equivalent or thermometric points	+/-2%
Bimetallic thermometer	Quarterly	Calibration liquid in glass	5° F
Thermocouple	Annually	ASTM Hg in glass ref. thermometer, NBS calibrated reference and potentiometer	5° F
Barometer	Monthly	Hg barometer or NOAA station	+/-1% scale
Pitot Tube	When required or when damaged	By construction or measurements in wind tunnel D greater than 16" and standard pitot tube	See EPA Method 2, Fig. 2-2 & 2-3
Probe Nozzles	Before each test or when nicked, dented, or corroded	Micrometer	+/- 0.001" mean of at least three readings; Max. deviation between readings, 0.004"
Dry Gas Meter and Orifice Meter	1. Full Scale: When received, when 5% change observed, annually	Spirometer or calibrated wet test or dry gas test meter	2%
	2. One Point: Semiannually		
	3. Check after each test series	Comparison check	5%

[Rule 62-297.310(4), F.A.C.]

5. Determination of Process Variables:

a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

6. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C. Sampling facilities include sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must also comply with all applicable Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

   a. Permanent Test Facilities. The owner or operator of an emissions unit for which a compliance test, other than a visible emissions test, is required on at least an annual basis, shall install and maintain permanent stack sampling facilities.

   b. Temporary Test Facilities. The owner or operator of an emissions unit that is not required to conducta compliance test on at least an annual basis may use permanent or temporary stack sampling facilities. If the owner chooses to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, such temporary facilities shall be installed on the emissions unit within 5 days of a request by the Department and remain on the emissions unit until the test is completed.

   c. Sampling Ports.

      (1) All sampling ports shall have a minimum inside diameter of 3 inches.

      (2) The ports shall be capable of being sealed when not in use.

      (3) The sampling ports shall be located in the stack at least 2 stack diameters or equivalent diameters downstream and at least 0.5 stack diameter or equivalent diameter upstream from any fan, bend, constriction or other flow disturbance.

      (4) For emissions units for which a complete application to construct has been filed priorto December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 15 feet or less. For stacks with a larger diameter, four sampling ports, each 90 degrees apart, shall be installed. For emissions units for which a complete application to construct is filed on or after December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 10 feet or less. For stacks with larger diameters, four sampling ports, each 90 degrees apart, shall be installed. On horizontal circular ducts, the ports shall be located so that the probe can enter the stack vertically, horizontally or at a 45 degree angle.

      (5) On rectangular ducts, the cross sectional area shall be divided into the number of equal areas in accordance with EPA Method 1. Sampling ports shall be provided which allow access to each sampling point. The ports shall be located so that the probe can be inserted perpendicular to the gas flow.

   d. Work Platforms.

      (1) Minimum size of the working platform shall be 24 square feet in area. Platforms shall be at least 3 feet wide.

      (2) On circular stacks with 2 sampling ports, the platform shall extend at least 110 degrees around the stack.

      (3) On circular stacks with more than two sampling ports, the work platform shall extend 360 degrees around the stack.

      (4) All platforms shall be equipped with an adequate safety rail (ropes are not acceptable), toe board, and hinged floor-opening cover if ladder access is used to reach the platform. The safety rail directly in line with the sampling ports shall be removable so that no obstruction exists in an area 14 inches below each sample port and 6 inches on either side of the sampling port.

   e. Access to Work Platform.

      (1) Ladders to the work platform exceeding 15 feet in length shall have safety cages or fall arresters with a minimum of 3 compatible safety belts available for use by sampling personnel.

      (2) Walkways over free-fall areas shall be equipped with safety rails and toe boards.

f. Electrical Power.

(1) A minimum of two 120-volt AC, 20-amp outlets shall be provided at the sampling platform within 20 feet of each sampling port.

(2) If extension cords are used to provide the electrical power, they shall be kept on the plant's property and be available immediately upon request by sampling personnel.

g. Sampling Equipment Support.

(1) A three-quarter inch eyebolt and an angle bracket shall be attached directly above each port on vertical stacks and above each row of sampling ports on the sides of horizontal ducts.

(a) The bracket shall be a standard 3 inch × 3 inch × one-quarter inch equal-legs bracket which is 1 and one-half inches wide. A hole that is one-half inch in diameter shall be drilled through the exact center of the horizontal portion of the bracket. The horizontal portion of the bracket shall be located 14 inches above the centerline of the sampling port.

(b) A three-eighth inch bolt which protrudes 2 inches from the stack may be substituted for the required bracket. The bolt shall be located 15 and one-half inches above the centerline of the sampling port.

(c) The three-quarter inch eyebolt shall be capable of supporting a 500 pound working load. For stacks that are less than 12 feet in diameter, the eyebolt shall be located 48 inches above the horizontal portion of the angle bracket. For stacks that are greater than or equal to 12 feet in diameter, the eyebolt shall be located 60 inches above the horizontal portion of the angle bracket. If the eyebolt is more than 120 inches above the platform, a length of chain shall be attached to it to bring the free end of the chain to within safe reach from the platform.

(2) A complete monorail or dual rail arrangement may be substituted for the eyeboltand bracket.

(3) When the sample ports are located in the top of a horizontal duct, a frame shall be provided above the port to allow the sample probe to be secured during the test.

[Rule 62-297.310(6), F.A.C.]

7. Frequency of Compliance Tests. The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required.

(a) General Compliance Testing.

(1) The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit.

(2) For excess emission limitations for particulate matter specified in Rule 62-210.700, F.A.C., a compliance test shall be conducted annually while the emissions unit is operating under soot blowing conditions in each federal fiscal year during which soot blowing is part of normal emissions unit operation, except that such test shall not be required in any federal fiscal year in which a fossil fuel steam generator does not burn liquid and/or solid fuel for more than 400 hours other than during startup.

(3) The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to sub-subparagraph 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:

(a) Did not operate; or

(b) In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours,

(4) During each federal fiscal year (October 1 – September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:

(a) Visible emissions, if there is an applicable standard;

(b) Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and

(c) Each NESHAP pollutant, if there is an applicable emission standard.

(5) An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.

(6) For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup.

(7) For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to paragraph 62-296.405(2)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup.

(8) Any combustion turbine that does not operate for more than 400 hours per year shall conduct a visible emissions compliance test once per each five-year period, coinciding with the term of its air operation permit.

(9) The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator.

(10) An annual compliance test conducted for visible emissions shall not be required forunits exempted from air permitting pursuant to subsection 62-210.300(3), F.A.C.; units determined to be insignificant pursuant to subparagraph 62-213.300(2)(a)1., F.A.C., or paragraph 62-213.430(6)(b), F.A.C.; or units permitted under the General Permit provisions in paragraph 62-210.300(4)(a) or Rule 62-213.300, F.A.C., unless the general permit specifically requires such testing.

(a) Special Compliance Tests. When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department.

(b) Waiver of Compliance Test Requirements. If the owner or operator of an emissions unit that is subject to a compliance test requirement demonstrates to the Department, pursuant to the procedure established in Rule 62-297.620, F.A.C., that the compliance of the emissions unit with an applicable weight emission limiting standard can be adequately determined by means other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate matter sources equipped with a bag house or specifying a fuel analysis for sulfur dioxide emissions, the Department shall waive the compliance test requirements for such emissions units and order that the alternate means of determining compliance be used, provided, however, the provisions of paragraph 62-297.310(7)(b), F.A.C., shall apply.

[Rule 62-297.310(7), F.A.C.]

REPORTS

8. Test Reports:

a. The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test.

b. 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.

c. 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. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information.

(1) The type, location, and designation of the emissions unit tested.

(2) The facility at which the emissions unit is located.

(3) The owner or operator of the emissions unit.

(4) The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.

(5) The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.

(6) The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.

(7) A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.

(8) The date, starting time and duration of each sampling run.

(9) The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.

(10) The number of points sampled and configuration and location of the sampling plane.

(11) For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.

(12) The type, manufacturer and configuration of the sampling equipment used.

(13) Data related to the required calibration of the test equipment.

(14) Data on the identification, processing and weights of all filters used.

(15) Data on the types and amounts of any chemical solutions used.

(16) Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.

(17) The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.

(18) All measured and calculated data required to be determined by each applicable test procedure for each run.

(19) The detailed calculations for one run that relate the collected data to the calculated emission rate.

(20) The applicable emission standard and the resulting maximum allowable emission rate for the emissions unit plus the test result in the same form and unit of measure.

(21) A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

MISCELLANEOUS

9. Stack and Duct: The terms stack and duct are used interchangeably in this rule. [Rule 62-297.310(9), F.A.C.]

PROJECT DESCRIPTION

EU No.	Emission Unit Description
006 - 011	Six Caterpillar Model G3520C lean-burn reciprocating internal combustion engine/generator sets

Waste Management, Inc. operates the existing Medley Landfill, which is a municipal solid waste landfill located in Miami-Dade County at 9350 Northwest 89th Avenue in Medley, Florida. Waste Management, Inc. proposes to construct and operate a landfill gas-to-energy plant at the Medley Landfill, which will use landfill gas to fuel six lean-burn Caterpillar Model No. CAT G3520C engine/generator sets capable of producing a combined nominal 9.6 megawatts (MW) of power to the electrical grid. The two existing flares will be retained and relocated adjacent to the engines as additional combustion devices for the landfill gas. The landfill gas will be routed through a landfill gas treatment system and then to the landfill gas engines. If necessary, residual landfill gas will be routed to the flares. The landfill gas treatment system includes initial gas de-watering (moisture knock-out vessel), gas compressors and blowers, air-to-gas coolers and particulate filtration.

Exhaust gas from each engine will exit an individual stack (33 feet tall) equipped with a silencer. Five of the six engines will be housed in an enclosed building. The sixth engine will be located outside the building. In accordance with Rule 62-212.400, F.A.C., the proposed project is subject to PSD major stationary source preconstruction review for emissions of CO, NO_X and PM/PM_{10}.

FINAL BACT DETERMINATIONS

In accordance with Rule 62-212.400, F.A.C., the Department specifies the following BACT determinations for each engine.

Pollutant	BACT Standard	Control Technology	Compliance Method
CO	3.5 g/bhp-hour and 17.2 lb/hour	Combustion design combined with good combustion and maintenance practices.	EPA Method 10
NO_X	0.6 g/bhp-hour and 3.0 lb/hour		EPA Method 7 or 7E
PM/PM_{10}	*Work Practice Standard*: The landfill gas pretreatment system shall include a filtration system to remove particulate down to 1 micron.		Design and maintenance records
	Work Practice Standard: Visible emissions from each engine exhaust stack shall not exceed 10% opacity, based on a six-minute average.		EPA Method 9

This section indentifies the federal New Source Performance Standards (NSPS) in 40 CFR 60 that may be applicable to emissions units regulated by this project.

NSPS SUBPART A - GENERAL PROVISIONS

The following emission units are subject to applicable NSPS in 40 CFR 60, which are adopted by reference in Rule 62-204.800(8), F.A.C.

EU No.	Emission Unit Description
006 - 011	Six Caterpillar Model G3520C (CAT 3520) lean burn internal combustion engines

The affected emission units are subject to the applicable General Provisions in Subpart A of the New Source Performance Standards including: §60.1 (Applicability); §60.2 (Definitions(; §60.3 (Units and Abbreviations); §60.4 (Address); §60.5 (Determination of Construction or Modification); §60.6 (Review of Plans); §60.7 (Notification and Record Keeping); §60.8 (Performance Tests); §60.9 (Availability of Information); §60.10 (State Authority); §60.11 (Compliance with Standards and Maintenance Requirements); §60.12 (Circumvention); §60.13 (Monitoring Requirements); §60.14 (Modification); §60.15 (Reconstruction); §60.16 (Priority List); §60.17 (Incorporations by Reference); §60.18 (General Control Device Requirements); §60.19 (General Notification and Reporting Requirements). The General Provisions are not included in this permit, but can be obtained from the Department upon request.

40 CFR PART 60, SUBPART JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

Source: 73 FR 3591, Jan. 18, 2008, unless otherwise noted.

What This Subpart Covers

§ 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, thedate that construction commences is the date the engine is ordered by the owner or operator.

(1). Manufacturers of stationary SI ICE with a maximum engine power less than or equal to 19 kilowatt (KW) (25 horsepower (HP)) that are manufactured on or after July 1, 2008.

(2). Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline fueled or that are rich burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:

(i). On or after July 1, 2008; or

(ii). On or after January 1, 2009, for emergency engines.

(3). Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are not gasoline fueled and are not rich burn engines fueled by LPG, where the manufacturer participates in the voluntary manufacturer certification program described in this subpart and where the date of manufacture is:

(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). On or after January 1, 2008, for lean burn engines witha maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii).On or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv).On or after January 1, 2009, for emergency engines.

(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). on or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii).on or after July 1, 2008, for engines with a maximum engine power les than 500 HP; or

(iv).on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

(5). Owners and operators of stationary SI ICE that commence modification or reconstruction after June 12, 2006.

(b) The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, youmust continue to comply with the provisions ofthis subpart as applicable.

(d) For the purposes of this subpart, stationary SI ICE using alcohol-based fuels are considered gasoline engines.

(e) Stationary SI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR parts 90 and 1048, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(f) Owners and operators of facilities with internal combustion engines that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

Emission Standards for Manufacturers

§ 60.4231 What emission standards must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing such engines?

(a) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008 to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as follows:

If engine replacement is...	and manufacturing dates are...	the engine must meet emission standards and related requirements for non handheld engines under...
below 225cc	July 1, 2008 to December 31, 2011	40 CFR part 90
below 225cc	January 1, 2012 or later	40 CFR part 1054
at or above 225 cc	July 1, 2008 to December 31, 2010	40 CFR part 90
at or above 225 cc	January 1, 2011 or later	40 CFR part 1054

(b) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that use gasoline and that are manufactured on or after the applicable date in §60.4230(a)(2), or manufactured on or after the applicable date in §60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergencystationary SI ICE with a maximum engine power greater than 25 HP and less than 130 HP that are manufactured on or after the applicable date in §60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less

than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cubic centimeters (cc) to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(c) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICEwith a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that are rich burn engines that use LPG and that are manufactured on or after the applicable date in §60.4230(a)(2), or manufactured on or after the applicable date in §60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SIengines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergency stationary SI ICE with a maximum engine power greater than 25 HP and less than 130 HP that are manufactured on or after the applicable date in §60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements fornew nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SIICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to he certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(d) Stationary SI internal combustion engine manufacturers who choose to certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) under the voluntary manufacturer certification program described in this subpart must certify those engines to the certification emission standads for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers who choose to certify their emergency stationary SI ICE greater than 25 HP and less than 130 HP, must certify those engines to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate. For stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) manufactured prior to January 1, 2011, manufacturers may choose to certify these engines to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP.

(e) Stationary SI internal combustion engine manufacturers who choose to certify their 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) under the voluntary manufacturer certification program described in this subpart must certify those engines to the emission standards in Table Ito this subpart. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) that are lean burn engines that use LPG to the certification emission standards for new nonroad SI engines in 40 CFR part 1048. For stationary SI ICE with a maximum engine power greater than or equal to 100 HP (75 KW) and less than 500 HP (373 KW) manufactured prior to January 1, 2011, and for stationary SI ICE with a maximum engine power greater than or equal to 500 HP (373 KW) manufactured prior to July 1, 2010, manufacturers may choose to certify these engines to the certification emission standards for new nonroad SI engines in 40 CFR part 1048 applicable to enginesthat arenot severe duty engines.

(f) Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, to the extent they apply to equipment manufacturers.

[73 FR 3591, Jan. 18, 2008, as amended by 73 FR 59175, Oct. 8, 2008]

§ 60.4232 How long must my engines meet the emission standards if I am a manufacturer of stationary SI internal combustion engines?

Engines manufactured by stationary SI internal combustion engine manufacturers must meet theemission standards as required in §60.4231 during the certified emissions life of the engines.

Emission Standards for Owners and Operators

§ 60.4233 What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?

(a) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008, must comply with the emission standards in §60.4231(a) for their stationary SI ICE.

(b) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in §60.4230(a)(4) that use gasoline must comply with the emission standards in §60.4231(b) for their stationary SI ICE.

(c) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in §60.4230(a)(4) that are rich burn engines that use LPG must comply with the emission standards in §60.4231(c) for their stationary SI ICE.

(d) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40CFR 1048.101(c) for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP, may optionally choose to meet those standards.

(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 certfication emission standards in 40 CFR part 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 operatorsmay meet the CO certification (not field testing) standard for which the engine was certified.

(f) Owners and operators of any modified or reconstructed stationary SI ICE subject to this subpart must meet the requirements as specified in paragraphs (f)(1) through (5) of this section.

(1). Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified inparagraph (a) of this section.

(2). Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that use gasoline engines, that are modified or reconstructed after June 12, 2006, must comply with the same emission standardsas those specified in paragraph (b) of this section.

(3). Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are rich burn engines that use LPG, that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (c) of this section.

(4). Owners and operators of stationary SI natural gas and lean burn LPG engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (d) or (e) of this section, except that such owners and operators of non-emergency engines and emergency engines greater than or equal to 130 HP must meet a nitrogen oxides (NO_X) emission standard of 3.0 grams per HP-hour (g/HP-hr), a CO emission standard of 4.0 g/HP-hr (5.0 g/HP-hr for non-emergency engines less than 100 HP), and a volatile organic compounds (VOC) emission standard of 1.0 g/HP-hr, or a NO_Xemission standard of 250 ppmvd at 15 percent oxygen (O_2), a CO emission standard 540 ppmvd at 15 percent O_2(675 ppmvd at 15 percent $O_2$for non-emergency engines less than 100 HP), and a VOC emission standard of 86 ppmvd at 15 percent O_2, where the date of manufacture of the engine is:

(i). Prior to July 1, 2007, for non-emergency engines with a maximum engine power greater than or equal to 500 HP;

(ii). Prior to July 1, 2008, for non-emergency engines with a maximum engine power less than 500 HP;

(iii). Prior to January 1, 2009, for emergency engines.

(5). Owners and operators of stationary SI landfill/digester gas ICE engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as hose specified in paragraph (e) of this section for stationary landfill/digester gas engines.

(g) Owners and operators of stationary SI wellhead gas ICE engines may petition the Administrator for approval on a caseby-case basis to meet emission standards no less stringent than the emission standards that apply to stationary emergency SI engines greater than 25 HP and less than 130 HP due to the presence of high sulfur levels in the fuel, as specified in Table 1 to this subpart. The request must, at a minimum, demonstrate that the fuel has high sulfur levels that prevent the use of aftertreatment controls and also that the owner has reasonably made all attempts possible to obtain an engine that will meet the standards without the use of aftertreatment controls. The petition must request the most stringent standards reasonably applicable to the engine using the fuel.

(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.

§ 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 §60.4233 over the entire life of the engine.

Other Requirements for Owners and Operators

§ 60.4235 What fuel requirements must I meet if I am an owner or operator of a stationary SI gasoline fired internal combustion engine subject to this subpart?

Owners and operators of stationary SI ICE subject to this subpart that use gasoline must use gasoline that meets the per gallon sulfur limit in 40 CFR 80.195.

§ 60.4236 What is the deadline for importing or installing stationary SI ICE produced in the previous model year?

(a) After July 1, 2010, owners and operators may not install stationary SI ICE with a maximum engine power of less than 500 HP that do not meet the applicable requirements in §60.4233.

(b) (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 §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 §60.4233 may not be installed after January 1, 2010.

(c) For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in §60.4233 after January 1, 2011.

(d) In addition to the requirements specified in §§60.4231 and 60.4233, it is prohibited to import stationary SI ICE less than or equal to 19 KW (25 HP), stationary rich burn LPG SI ICE, and stationary gasoline SI ICE that do not meet the applicable requirements specified in paragraphs (a), (b), and (c) of this section, after the date specified in paragraph (a), (b), and (c) of this section.

(e) The requirements of this section do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location.

§ 60.4237 What are the monitoring requirements if I am an owner or operator of an emergency stationary SI internal combustion engine?

(a) Starting on July 1, 2010, if the emergency stationary SI internal combustion engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(b) Starting on January 1, 2011, if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(c) If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine.

Compliance Requirements for Manufacturers

§ 60.4238 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines≤19 KW (25 HP) or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(a) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§ 60.4239 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that use gasoline or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(b) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§ 60.4240 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that are rich burn engines that use LPG or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(c) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§ 60.4241 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines participating in the voluntary certification program or a manufacturer of equipment containing such engines?

(a) 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 certify their engines to the emission standards in §60.4231(d) or (e), as applicable, under the voluntary certification program described in this subpart. Manufacturers who certify their engines under the voluntary certification program must meet the requirements as specified in paragraphs (b) through (g) of this section. In addition, manufacturers of stationary SI internal combustion engines who choose to certify their engines under the voluntary certification program, must also meet the requirements as specified in §60.4247.

(b) Manufacturers of engines other than those certified to standards in 40 CFR part 90 or 40 CFR part 1054 must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must follow the same test procedures that apply to large SI nonroad engines under 40 CFR part 1048, but must use the D-1 cycle of International Organization of Standardization 8178-4: 1996(E) (incorporated by reference, see 40 CFR 60.17) or the test cycle requirements specified in Table 5 to 40 CFR 1048.505, except that Table 5 of 40 CFR 1048.505 applies to high load engines only. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal

30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

(c) Certification of stationary SI ICE to the emission standards specified in §60.4231(d) or (e), as applicable, is voluntary, but manufacturers who decide to certify are subject to all of the requirements indicated in this subpart with regard to the engines included in their certification. Manufacturers must clearly label their stationary SI engines as certified or non-certified engines.

(d) Manufacturers of natural gas fired stationary SI ICE who conduct voluntary certification of stationary SI ICE to the emission standards specified in §60.4231(d) or (e), as applicable, must certify their engines for operation using fuel that meets the definition of pipeline-quality natural gas. The fuel used for certifying stationary SI natural gas engines must meet the definition of pipeline quality natural gas as described in §60.4248. In addition, the manufacturer must provide information to the owner and operator of the certified stationary SI engine including the specifications of the pipeline-quality natural gas to which the engine is certified and what adjustments the owner or operator must make to the engine when installed in the field to ensure compliance with the emission standards.

(e) Manufacturers of stationary SI ICE that are lean burn engines fueled by LPG who conduct voluntary certification of stationary SI ICE to the emission standards specified in §60.4231(d) or (e), as applicable, must certify their engines for operation using fuel that meets the specifications in 40 CFR 1065.720.

(f) Manufacturers may certify their engines for operation using gaseous fuels in addition to pipeline-quality natural gas; however, the manufacturer must specify the properties of that fuel and provide testing information showing that the engine will meet the emission standards specified in §60.4231(d) or (e), as applicable, when operating on that fuel. The manufacturer must also provide instructions for configuring the stationary engine to meet the emission standards on fuels that do not meet the pipeline-quality natural gas definition. The manufacturer must also provide information to the owner and operator of the certified stationary SI engine regarding the configuration that is most conducive to reduced emissions where the engine will be operated on gaseous fuels with different quality than the fuel that it was certified to.

(g) A stationary SI engine manufacturer may certify an engine family solely to the standards applicable to landfill/digester gas engines as specified in §60.4231(d) or (e), as applicable, but must certify their engines for operation using landfill/digester gas and must add a permanent label stating that the engine is for use only in landfill/digester gas applications. The label must be added according to the labeling requirements specified in 40 CFR 1048.135(b).

(h) For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

(i). For engines being certified to the voluntary certification standards in Table 1 of this subpart, the VOC measurement shall be made by following the procedures in 40 CFR 1065.260 and 1065.265 in order to determine the total NMHC emissions by using a flame-ionization detector and non-methane cutter. As an alternative to the nonmethane cutter, manufacturers may use a gas chromatograph as allowed under 40 CFR 1065.267 and may measure ethane, as well as methane, for excluding such levels from the total VOC measurement.

[73 FR 3591, Jan. 18, 2008, as amended by 73 FR 59176, Oct. 8, 2008]

§ 60.4242 What other requirements must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

(a) Stationary SI internal combustion engine manufacturers must meet the provisions of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as applicable, as well as 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1048 or 1054, except that engines certified pursuant to the voluntary certification procedures in §60.4241 are subject only to the provisions indicated in §60.4247 and are permitted to provide instructions to owners and operators allowing for deviations from certified configurations, if such deviations are consistent with the provisions of paragraphs §60.4241(c) through (f). Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the

provisions of 40 CFR part 1060, as applicable. Labels on engines certified to 40 CFR part 1048 must refer to stationary engines, rather than or in addition to nonroad engines, as appropriate.

(b) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054 for that model year may certify any such family that contains both nonroad and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such enginesunder those parts. This provision also applies to equipment or component manufacturers certifying to standards under 40 CFR part 1060.

(c) Manufacturers of engine families certified to 40 CFR part 1048 may meet the labeling requirements referred to in paragraph (a) of this section for stationary SI ICE by either adding a separate label containing the information required in paragraph (a) ofthis section or by adding the words "and stationary" after the word "nonroad" to the label.

(d) For all engines manufactured on or after January 1, 2011, and for all engines with a maximum engine power greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, a stationary SI engine manufacturer that certifies an engine family solely to the standards applicable to emergency engines must add a permanent label stating that the engines in that family are for emergency use only. The label must be added according to the labeling requirements specified in 40 CFR 1048.135(b).

(e) All stationary SI engines subject to mandatory certification that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230. Stationary SI engines subject to standards in 40 CFR part 90 may use the provisions in 40 CFR 90.909. Manufacturers of stationary engines with a maximum engine power greater than 25 HP that are not certified to standards and other requirements under 40 CFR part 1048 are subjectto the labeling provisions of 40 CFR 1048.20 pertaining to excluded stationary engines.

(f) For manufacturers of gaseous-fueled stationary engines required to meet the warranty provisions in 40 CFR 90.1103 or 1054.120, we may establish an hour-based warranty period equal to at least the certified emissions life of the engines (in engine operating hours) if we determine that these engines are likely to operate for a number of hours greater than the applicable useful lifewithin 24 months. We will not approve an alternate warranty under this paragraph (f) for nonroad engines. An alternate warranty period approved under this paragraph (f) will be the specified number of engine operating hours or two years, whichever comes first.The engine manufacturer shall request this alternate warranty period in its application for certification or in an earlier submission. We may approve an alternate warranty period for an engine family subject to the following conditions:

(1). The engines must be equipped with non-resettable hour meters.

(2). The engines must be designed to operate for a number of hours substantially greater than the applicable certified emissions life.

(3). The emission-related warranty for the engines may not be shorter than any published warranty offered by the manufacturer without charge for the engines. Similarly, the emission-related warranty for any component shall not be shorter than any published warranty offered by the manufacturer without charge for that component.

[73 FR 3591, Jan. 18, 2008, as amended by 73 FR 59177, Oct. 8, 2008]

Compliance Requirements for Owners and Operators

§ 60.4243 What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?

(a) If you are an owner or operator of a stationary SI internal combustion engine that is manufactured after July 1, 2008, andmust comply with the emission standards specified in §60.4233(a) through (c), you must comply by purchasing an engine certified to the emission standards in §60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine wilhot be considered out of compliance. In addition, you must meet one of the requirements specified in (a)(1) and (2) of this section.

(1). If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator.

(2). If you do not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, your engine will be considered a non-certified engine, and you must demonstrate compliance according to (a)(2)(i) through (iii) of this section, as appropriate.

(i). If you are an owner or operator of a stationary SI internal combustion engine less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions, but no performance testing is required if you are an owner or operator.

(ii). If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 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 within 1 year of engine startup to demonstrate compliance.

(iii). 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 an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §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 §60.4233(d) or (e) and according to the requirements specified in §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 combustionengine 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 an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(c) If you are an owner or operator of a stationary SI internal combustion engine that must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according paragraph (b)(2)(i) or (ii) of this section, except that if you comply according to paragraph (b)(2)(i) of this section, you demonstrate that your non-certified engine complies with the emission standards specified in §60.4233(f).

(d) Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The owner or operator may petitionthe Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance andtesting of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hoursper year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supplypower as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than

emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited.

(e) Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233.

(f) If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(g) It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

(h) If you are an owner/operator of an stationary SI internal combustion engine with maximum engine power greater than or equal to 500 HP that is manufactured after July 1, 2007 and before July 1, 2008, and must comply with the emission standards specified in sections 60.4233(b) or (c), you must comply by one of the methods specified in paragraphs (h)(1) through (h)(4) of this section.

(1). Purchasing an engine certified according to 40 CFR part 1048. The engine must be installed and configured according to the manufacturer's specifications.

(2). Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3). Keeping records of engine manufacturer data indicating compliance with the standards.

(4). Keeping records of control device vendor data indicating compliance with the standards.

Testing Requirements for Owners and Operators

§ 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 §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 §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 §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:

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

Where:

ER = Emission rate of CO in g/HP-hr.

Cd= 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:

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

Where:

ER = Emission rate of VOC in g/HP-hr.

Cd= 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 part 60, appendix A, or Method 320 of 40 CFR part 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.

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

Where:

RFi= 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 in ppmv as carbon.

$C_{corr} = RF_i \times C_{imeas}$ (Eq. 5)

Where:

Ci_{corr}= Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

Ci_{meas}= Concentration of compound i measured by EPA Method 320, ppmv as carbon.

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

Where:

CPeq= Concentration of compound i in mg of propane equivalent per DSCM.

Notification, Reports, and Records for Owners and Operators

§ 60.4245 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?

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, documentationfrom the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 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 §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 notmeet 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 §60.4231 must submit an initial notification as required in §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, modelyear, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

(d) Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed.

[73 FR 3591, Jan. 18, 2008, as amended by 73 FR 59177, Oct. 8, 2008]

General Provisions

§ 60.4246 What parts of the General Provisions apply to me?

Table 3 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

Mobile Source Provisions

§ 60.4247 What parts of the mobile source provisions apply to me if I am a manufacturer of stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

(a) Manufacturers certifying to emission standards in 40 CFR part 90, including manufacturers certifying emergency engines below 130 HP, must meet the provisions of 40 CFR part 90. Manufacturers certifying to emission standards in 40 CFR part 1054 must meet the provisions of 40 CFR part 1054. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060 to the extent they apply to equipment manufacturers.

(b) Manufacturers required to certify to emission standards in 40 CFR part 1048 must meet the provisions of 40 CFR part 1048. Manufacturers certifying to emission standards in 40 CFR part 1048 pursuant to the voluntary certification program must meet the requirements in Table 4 to this subpart as well as the standards in 40 CFR 1048.101.

(c) For manufacturers of stationary SI internal combustion engines participating in the voluntary certification program and certifying engines to Table 1 to this subpart, Table 4 to this subpart shows which parts of the mobile source provisions in 40 CFR parts 1048, 1065, and 1068 apply to you. Compliance with the deterioration factor provisions under 40 CFR 1048.205(n) and 1048.240 will be required for engines built new on and after January 1, 2010. Prior to January 1, 2010, manufacturers of stationary internal combustion engines participating in the voluntary certification program have the option to develop their own deterioration factors based on an engineering analysis.

[73 FR 3591, Jan. 18, 2008, as amended by 73 FR 59177, Oct. 8, 2008]

Definitions

§ 60.4248 What definitions apply to this subpart?

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 part 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 part 90, 40 CFR part 1048, or 40 CFR part 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 subcomponents comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine potion 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 (CO2).

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 nonroad 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 nonroad 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 nonroad 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 40 CFR part 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 §60.4231(d) or (e), as applicable.

[73 FR 3591, Jan. 18, 2008, as amended by 73 FR 59177, Oct. 8, 2008]

Table 1 to Subpart JJJJ of Part 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]
Non-Emergency SI Natural Gas[b] and Non-Emergency SI Lean Burn LPG[b]	100≤HP<500	7/1/2008	2.0	4.0	1.0	160	540	86
		1/1/2011	1.0	2.0	0.7	82	270	60
Non-Emergency SI Lean Burn Natural Gas and LPG	500≥HP<1,350	1/1/2008	2.0	4.0	1.0	160	540	86
		7/1/2010	1.0	2.0	0.7	82	270	60
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500=≥HP<1,350)	HP≥500	7/1/2007	2.0	4.0	1.0	160	540	86
	HP≥500	7/1/2010	1.0	2.0	0.7	82	270	60
Landfill/Digester Gas (except lean burn 500≥HP<1,350)	HP<500	7/1/2008	3.0	5.0	1.0	220	610	80
		1/1/2011	2.0	5.0	1.0	150	610	80
	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Landfill/Digester Gas Lean Burn	500≥HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Emergency	25>HP<130	1/1/2009	[c]10	387	N/A	N/A	N/A	N/A
	HP≥130		2.0	4.0	1.0	160	540	86

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 O2.

b. Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2A do not have to comply with the CO emission standards of Table 1 of this subpart.

c. The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of NO_X+HC.

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 Part 60—Requirements for Performance Tests

[As stated in §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 §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 part 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 part 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 flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR part 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 part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03 (incorporated by reference, see §60.17).	(c) Measurements to 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 part 60, appendix A, Method D6522–00(2005)[a], Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03 (incorporated by reference, see §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 part 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	(2) Method 3, 3A, or 3Bb of 40 CFR part 60, appendix A	(b) Measurements to determine	

For each	Complying with the requirement to	You must	Using	According to the following requirements
	stationary internal combustion engine exhaust at the sampling port location;	or ASTM Method D6522–00(2005)[a].	O_2concentration 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 part 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 part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03 (incorporated by reference, see §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 part 60, appendix A, ASTM Method D6522–00(2005)[a], Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see §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 part 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_2concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b]of 40 CFR part 60, appendix A or ASTM Method D6522–00(2005)[a].	(b) Measurements to determine O_2concentration must be made at the same time as the measurements for VOC concentration.	
	iii. Determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 19 of 40 CFR part 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 part 60, appendix A, Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03 (incorporated by reference, see §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 part 60, appendix A, Method 25A with the use of a methane cutter as described in 40 CFR 1065.265, Method	(d) Results of this test consist of the average of the three 1-hour or longer runs.	

For each	Complying with the requirement to	You must	Using	According to the following requirements
		18 or 40 CFR part 60, appendix A,[cd] Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03 (incorporated by reference, see §60.17).		

[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 part 60, appendix A, provided that you conduct an adequate presurvey 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 Part 60—Applicability of General Provisions to Subpart JJJJ

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

General provisions citation	Subject of citation	Applies to subpart	Explanation
§60.1	General applicability of the General Provisions	Yes	
§60.2	Definitions	Yes	Additional terms defined in §60.4248
§60.3	Units and abbreviations	Yes	
§60.4	Address	Yes	
§60.5	Determination of construction or modification	Yes	
§60.6	Review of plans	Yes	
§60.7	Notification and Recordkeeping	Yes	Except that §60.7 only applies as specified in §60.4245
§60.8	Performance tests	Yes	
§60.9	Availability of information	Yes	
§60.10	State Authority	Yes	
§60.11	Compliance with standards and maintenance	Yes	

General provisions citation	Subject of citation	Applies to subpart	Explanation
	requirements		
§60.12	Circumvention	Yes	
§60.13	Monitoring requirements	No	
§60.14	Modification	Yes	
§60.15	Reconstruction	Yes	
§60.16	Priority list	Yes	
§60.17	Incorporations by reference	Yes	
§60.18	General control device requirements	No	
§60.19	General notification and reporting requirements	Yes	

Table 4 to Subpart JJJJ of Part 60—Applicability of Mobile Source Provisions for Manufacturers Participating in the Voluntary Certification Program and Certifying Stationary SI ICE to Emission Standards in Table 1 of Subpart JJJJ

[As stated in §60.4247, you must comply with the following applicable mobile source provisions if you are a manufacturer participating in the voluntary certification program and certifying stationary SI ICE to emission standards in Table 1 of subpat JJJJ]

Mobile source provisions citation	Subject of citation	Applies to subpart	Explanation
1048 subpart A	Overview and Applicability	Yes	
1048 subpart B	Emission Standards and Related Requirements	Yes	Except for the specific sections below.
1048.101	Exhaust Emission Standards	No	
1048.105	Evaporative Emission Standards	No	
1048.110	Diagnosing Malfunctions	No	
1048.140	Certifying Blue Sky Series Engines	No	
1048.145	Interim Provisions	No	
1048 subpart C	Certifying Engine Families	Yes	Except for the specific sections below.
1048.205(b)	AECD reporting	Yes	
1048.205(c)	OBD Requirements	No	
1048.205(n)	Deterioration Factors	Yes	Except as indicated in 60.4247(c).
1048.205(p)(1)	Deterioration Factor Discussion	Yes	
1048.205(p)(2)	Liquid Fuels as they require	No	
1048.240(b)(c)(d)	Deterioration Factors	Yes	
1048 subpart D	Testing Production-Line Engines	Yes	
1048 subpart E	Testing In-Use Engines	No	
1048 subpart F	Test Procedures	Yes	
1065.5(a)(4)	Raw sampling (refers reader back to the specific emissions regulation for guidance)	Yes	
1048 subpart G	Compliance Provisions	Yes	
1048 subpart H	Reserved		

Mobile source provisions citation	Subject of citation	Applies to subpart	Explanation
1048 subpart I	Definitions and Other Reference Information	Yes	
1048 appendix I and II	Yes		
1065 (all subparts)	Engine Testing Procedures	Yes	Except for the specific section below.
1065.715	Test Fuel Specifications for Natural Gas	No	
1068 (all subparts)	General Compliance Provisions for Nonroad Programs	Yes	Except for the specific sections below.
1068.245	Hardship Provisions for Unusual Circumstances	No	
1068.250	Hardship Provisions for Small-Volume Manufacturers	No	
1068.255	Hardship Provisions for Equipment Manufacturers and Secondary Engine Manufacturers	No	

NESHAP Provisions

In accordance with Rule 62-204.800, F.A.C., the following federal regulations in Part 63 of Title 40 of the Code of Federal Regulations were adopted by reference. The original federal rule numbering has beenretained.

{Permitting Note: The engines covered by this permit in EU-006 – EU-011 are regulated as shown in the following table. Only the Section §63.6590 of Subpart ZZZZ is included because of the limited applicability and requirements.}

EU No.	Engine	Rule Applicability
006 - 011	Six lean burn internal combustion engine/generator sets (Caterpillar Model No. G3520C) that combust landfill or digester gas equivalent to 10% or more of the gross heat input on an annual basis	As defined in 40 CFR 63 NESHAP Subpart ZZZZ, the proposed engines are defined as "new units located at an area source". To comply with the 40 CFR 63 NESHAP Subpart ZZZZ requirements, the installed engines must meet the 40 CFR 60 NSPS Subpart JJJJ requirements for spark ignition engines. No further requirements apply for such engines under 40 CFR 63 NESHAP Subpart ZZZZ.

§ 63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) *Affected source.* An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICEtest cell/stand.

(1) *Existing stationary RICE.*

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstructionof the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of thestationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new orreconstructed stationary RICE.

(2) *New stationary RICE.*

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or afterDecember 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commencedconstruction of the stationary RICE on or after June 12, 2006.

(3) *Reconstructed stationary RICE.*

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source ofHAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction iscommenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet thedefinition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) *Stationary RICE subject to limited requirements.*

(1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(vi) Existing residential emergency stationary RICE located at an area source of HAP emissions;

(vii) Existing commercial emergency stationary RICE located at an area source of HAP emissions; or

(viii) Existing institutional emergency stationary RICE located at an area source of HAP emissions.

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9674, Mar. 3, 2010; 75 FR 37733, June 30, 2010; 75 FR 51588, Aug. 20, 2010]

Livingston, Sylvia

From: Livingston, Sylvia
Sent: Wednesday, May 25, 2011 4:13 PM
To: 'thawkins@wm.com'
Cc: 'jkisiel@wm.com'; 'dbuff@golder.com'; Anderson, Lennon; 'muthim@miamidade.gov'; 'forney.kathleen@epa.gov'; 'abrams.heather@epa.gov'; 'oquendo.ana@epa.gov'; Gibson, Victoria; McWade, Tammy; Koerner, Jeff; Walker, Elizabeth (AIR)
Subject: Waste Management Inc. of FL - Medley Landfill; 0250615-012-AC/ PSD-FL-414
Attachments: 0250615-012-AC_Intent.pdf

Tracking:

Recipient	Delivery	Read
'thawkins@wm.com'		
'jkisiel@wm.com'		
'dbuff@golder.com'		
Anderson, Lennon	Delivered: 5/25/2011 4:13 PM	
'muthim@miamidade.gov'		
'forney.kathleen@epa.gov'		
'abrams.heather@epa.gov'		
'oquendo.ana@epa.gov'		
Gibson, Victoria	Delivered: 5/25/2011 4:13 PM	
McWade, Tammy	Delivered: 5/25/2011 4:13 PM	Read: 5/25/2011 4:15 PM
Koerner, Jeff	Delivered: 5/25/2011 4:13 PM	
Walker, Elizabeth (AIR)	Delivered: 5/25/2011 4:13 PM	

Dear Sir/ Madam:

Attached is the official **Notice of Intent to Issue** for the project referenced below. Click on the link displayed below to access the permit project documents and send a "reply" message verifying receipt of the document(s) provided in the link; this may be done by selecting "Reply" on the menu bar of your e-mail software, noting that you can view the documents, and then selecting "Send".

Note: We must receive verification that you are able to access the documents. Your immediate reply will preclude subsequent e-mail transmissions to verify accessibility of the document(s).

Click on the following link to access the permit project documents:

http://ARM-PERMIT2K.dep.state.fl.us/adh/prod/pdf_permit_zip_files/0250615.012.AC.D_pdf.zip

Owner/Company Name: WASTE MANAGEMENT INC. OF FLORIDA
Facility Name: MEDLEY LANDFILL
Project Number: 0250615-012-AC / PSD-FL-414
Permit Status: DRAFT
Permit Activity: CONSTRUCTION
Facility County: MIAMI-DADE
Processor: Tammy McWade

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Access these documents by clicking on the link provided above, or search for other project documents using the "*Air Permit Documents Search*" website at http://appprod.dep.state.fl.us/air/emission/apds/default.asp.

Livingston, Sylvia

From: Schilke, Aaron [ASchilke@wm.com]
Sent: Thursday, May 26, 2011 10:15 AM
To: Livingston, Sylvia
Subject: FW: Waste Management Inc. of FL - Medley Landfill; 0250615-012-AC/ PSD-FL-414

On behalf of Tim Hawkins, this email serves as verification of receipt of the email below. I have accessed the documents in the permit project link.

Regards,

Aaron Schilke
Environmental Protection Manager
Waste Management Inc of Florida
954-226-9279 (mobile)
954-956-2222 (office)
aschilke@wm.com

From: Hawkins, Tim
Sent: Wednesday, May 25, 2011 4:15 PM
To: Tindell, Bryan
Subject: Fw: Waste Management Inc. of FL - Medley Landfill; 0250615-012-AC/ PSD-FL-414

From: Livingston, Sylvia [mailto:Sylvia.Livingston@dep.state.fl.us]
Sent: Wednesday, May 25, 2011 03:13 PM
To: Hawkins, Tim
Cc: Kisiel, James; dbuff@golder.com <dbuff@golder.com>; Anderson, Lennon <Lennon.Anderson@dep.state.fl.us>; muthim@miamidade.gov <muthim@miamidade.gov>; forney.kathleen@epa.gov <forney.kathleen@epa.gov>; abrams.heather@epa.gov <abrams.heather@epa.gov>; oquendo.ana@epa.gov <oquendo.ana@epa.gov>; Gibson, Victoria <Victoria.Gibson@dep.state.fl.us>; McWade, Tammy <Tammy.McWade@dep.state.fl.us>; Koerner, Jeff <Jeff.Koerner@dep.state.fl.us>; Walker, Elizabeth (AIR) <Elizabeth.Walker@dep.state.fl.us>
Subject: Waste Management Inc. of FL - Medley Landfill; 0250615-012-AC/ PSD-FL-414

Dear Sir/ Madam:

Attached is the official **Notice of Intent to Issue** for the project referenced below. Click on the link displayed below to access the permit project documents and send a "reply" message verifying receipt of the document(s) provided in the link; this may be done by selecting "Reply" on the menu bar of your e-mail software, noting that you can view the documents, and then selecting "Send".

Note: We must receive verification that you are able to access the documents. Your immediate reply will preclude subsequent e-mail transmissions to verify accessibility of the document(s).

Click on the following link to access the permit project documents:

http://ARM-PERMIT2K.dep.state.fl.us/adh/prod/pdf_permit_zip_files/0250615.012.AC.D_pdf.zip

Owner/Company Name: WASTE MANAGEMENT INC. OF FLORIDA
Facility Name: MEDLEY LANDFILL
Project Number: 0250615-012-AC / PSD-FL-414
Permit Status: DRAFT
Permit Activity: CONSTRUCTION
Facility County: MIAMI-DADE
Processor: Tammy McWade

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Access these documents by clicking on the link provided above, or search for other project documents using the "*Air Permit Documents Search*" website at http://appprod.dep.state.fl.us/air/emission/apds/default.asp.

Permit project documents are addressed in this email may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible, and verify that they are accessible. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record. If you have any problems opening the documents or would like further information, please contact the Florida Department of Environmental Protection, Bureau of Air Regulation

Thanks,

Sylvia Livingston
Division of Air Resource Management (DARM)
Department of Environmental Protection
850/717-9043 (*New Phone*)
sylvia.livingston@dep.state.fl.us

Note: The attached document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Herschel T. Vinyard Jr. is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

Waste Management recycles enough paper every year to save 41 million trees. Please recycle any printed emails.