Waste Management Disposal Services of Maine, Inc.
d/b/a Crossroads Landfill
Somerset County
Norridgewock, Maine
A-816-77-4-A

Departmental
Findings of Fact and Order
New Source Review
NSR #4

FINDINGS OF FACT

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes Annotated (M.R.S.A.), Section 344 and Section 590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Waste Management Disposal Services of Maine, Inc. (WMDSM) d/b/a Crossroads Landfill
LICENSE TYPE	06-096 CMR 115, Minor Modification
NAICS CODES	562212
NATURE OF BUSINESS	Solid Waste Landfill
FACILITY LOCATION	357 Mercer Rd, Norridgewock, Maine

B. Amendment Description

WMDSM has proposed the replacement of their landfill gas-to-energy (LFGTE) engines (Engines #1 and #2). As required by maintenance guidelines, these engines should be overhauled regularly to maintain engine performance and operation. WMDSM proposes to do this work off-site by removal of each engine and replacement with one from their inventory of the same make, model, and maximum heat input. Once rebuilt, the engine(s) would be placed into inventory off-site or used as subsequent replacement units on-site.

C. Emission Equipment

The following equipment is addressed in this air emission license:

Landfill Gas-to-Energy Engines

Equipment	Maximum Heat Input Capacity (MMBtu/hr)	Output (kW)	Fuel Type, % sulfur	Stack #
Engine #1	17.85*	1,600	landfill gas, < 1,500 ppmv	4
Engine #2	17.85*	1,600	landfill gas, < 1,500 ppmv	5

* WMDSM has requested that the maximum heat input capacity of the engines be updated to 17.85 MMBtu/hr from 17.6 MMBtu/hr. This is a correction only and does not denote any change in engine or emissions profile.

D. Application Classification

The application for WMDSM does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing or record keeping. The definitions listed below cited in 40 CFR §51.165 are similarly referenced in 40 CFR §51.166.

Following is the definition of "replacement unit" per 40 CFR §51.165(a)(1)(xxi):

Replacement unit means an emissions unit for which all the criteria listed in paragraphs (a)(1)(xxi)(A) through (D) of this section are met. No creditable emission reductions shall be generated from shutting down the existing emissions unit that is replaced.
(A) The emissions unit is a reconstructed unit within the meaning of §60.15(b)(1) of this chapter, or the emissions unit completely takes the place of an existing emissions unit.
(B) The emissions unit is identical to or functionally equivalent to the replaced emissions unit.
(C) The replacement does not alter the basic design parameters (as discussed in paragraph (h)(2) of this section) of the process unit.
(D) The replaced emissions unit is permanently removed from the major stationary source, otherwise permanently disabled, or permanently barred from operation by a permit that is enforceable as a practical matter. If the replaced

emissions unit is brought back into operation, it shall constitute a new emissions unit.

Each proposed replacement LFGTE engine would take the place of an existing unit, would be the functional equivalent of the replaced emissions unit, and would not alter the basic design parameters of the process unit. The facility will not have more than two engines operating at any time without a permit modification to add additional emission units. Therefore, the replacement LFGTE engines meet the definition of replacement units. The removed engine may subsequently be used as a "replacement unit" for itself or another engine on-site.

Per 40 CFR §51.165(a)(1)(vii)(B), a replacement unit, as defined in paragraph (a)(1)(xxi) of this section, is an existing emissions unit. This means that the replacement LFGTE engines would not be considered "new" to this source, and thus not trigger New Source Review (NSR) permitting requirements.

Next it must be determined whether the replacement of the LFGTE engines would be considered a modification.

A modification means any physical change in or change in the method of operation of a source that would result in the emission increase of any regulated pollutant. Routine maintenance, repair, and replacement are not considered physical changes. A change in the actual number of hours of operation is not considered a change in the method of operation (provided it does not violate other federally enforceable permit conditions). In addition, the replacement of the LFGTE engines will not result in the emissions increase of any regulated pollutant as the actual emissions of all pollutants will remain the same both before and after the replacement resulting in no net emissions increase. (For further information see 40 CFR §51.165(a)(1)(v) and the definition of "Modification given in *Definitions Regulation,* 06-096 CMR 100.)

Therefore, the replacement of LFGTE Engines #1 and #2 with engines of the same make, model, and maximum heat input is determined not to be a modification of emissions units requiring New Source Review (NSR) permitting under *Minor and Major Source Air Emission License Regulations,* 06-096 CMR 115 (as amended).

This amendment does address additional recordkeeping and reporting requirements as well as applicable requirements for any replacement engines subject to New Source Performance Standards of 40 CFR Part 60.

Therefore, this amendment is determined to be subject to permitting under *Minor and Major Source Air Emission License Regulations* 06-096 CMR 115 (as amended) since the changes being made are not addressed or prohibited in the Part 70 air emission license. An application to incorporate the requirements of this amendment into the Part 70 air emission license has been submitted to the Department.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

B. LFGTE Engines

As discussed in Section I(D) above, the replacement of either LFGTE engine with an engine of the same make, model, and maximum heat input is not considered a modification of the source. WMDSM has requested language be added to their license to clarify the process and recordkeeping requirements applicable when such a replacement takes place.

1. Notification Requirements

At least 15 calendar days prior to installation of any replacement engine, WMDSM shall provide written notification to the Department (both to the Licensing Section and Regional Inspector). This notification shall contain the following information:

a. Emission unit number being replaced (i.e. Engine #1 or Engine #2);
b. Make, model, serial number, date of manufacture, and maximum heat input of the replacement engine (i.e. the engine new to the site);
c. Anticipated date installation will commence;
d. A statement that the replacement engine will meet the definition of a "replacement unit" as defined by 40 CFR §51.165(a)(1)(xxi);
e. A statement stating whether the engine is subject to 40 CFR Part 63, Subpart ZZZZ or 40 CFR Part 60, Subpart JJJJ or both.

Within seven days of initial startup of the replacement engine, WMDSM shall provide written notification to the Department (both to the Licensing Section and Regional Inspector) of the date of initial engine startup.

2. BPT

Since any replacement engine is not considered a new or modified emissions unit, it is not subject to Best Available Control Technology (BACT). However, it is subject to the BPT requirements for the engine it is replacing. This includes all existing emissions limitations, control requirements, and stack testing requirements. WMDSM shall do one of the following for each replacement engine:

a. Demonstrate compliance with the NO_x and CO g/bhp-hr emission limits and the PM lb/MMBtu emission limit by stack testing within 180 days of startup [06-096 CMR 115, BPT] (for engines not subject to 40 CFR Part 60, Subpart JJJJ); or
b. Conduct an initial performance test for NO_x, CO, and VOC in accordance with 40 CFR §60.4244 and Table 2 within 60 days after achieving maximum production, but no later than 180 days after initial startup [40 CFR §60.4243(b)]; or
c. Within 30 days of startup, if the engine was previously in service, provide documentation to the Department of previous testing which demonstrates that the engine meets the applicable emission standards.

3. National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63, Subpart ZZZZ

Any replacement engine originally installed prior to June 12, 2006 is subject to 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*. The requirements of Subpart ZZZZ are already addressed in WMDSM's current air emission license.

4. New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart JJJJ

If WMDSM installs a replacement engine manufactured on or after July 1, 2007 or any engine originally installed on or after July 1, 2009, , it will be subject to 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Spark Ignition Internal Combustion Engines*. Once an engine is replaced with a unit subject to Subpart JJJJ, any subsequent replacement engine shall meet the requirements of Subpart JJJJ as well.

The requirements for replacement LFGTE engines that are subject to Subpart JJJJ are outlined below.

a. Emission Standards

The engine is subject to numerical emission limits for NO_x, CO, and VOC under Subpart JJJJ (40 CFR §60.4233(e) and Table 1). The emission limits contained in this license for are determined to be at least as stringent as those contained in Subpart JJJJ.

b. Operational Requirements

WMDSM shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §60.4243(b)]

c. Performance Tests

(1) WMDSM shall conduct an initial performance test for NO_x, CO, and VOC on the engine in accordance with 40 CFR §60.4244 and Table 2 within 180 days of startup of the engine. [40 CFR §60.4243(b)]
(2) WMDSM shall conduct subsequent performance testing on the engine every 8,760 hours of operation or 3 years, whichever comes first. [40 CFR §60.4243(b)] If the engine is non-operational, WMDSM does not need to start up the engine solely to conduct a performance test. However, WMDSM must conduct the performance test immediately upon startup of the engine. [40 CFR §60.4244(b)]
(3) Each performance test shall be conducted within 10% of 100% peak (or the highest achievable) load. [40 CFR §60.4244(a)]
(4) WMDSM shall conduct three separate test runs for each performance test. Each test run must be conducted within 10% of 100% peak (or the highest achievable) load and last at least 1 hour. [40 CFR §60.4244(c)]
(5) WMDSM shall submit to the Department and EPA a copy of each performance test report within 60 days after the test has been completed. [40 CFR §60.4245(d)]
(6) WMDSM shall submit to the Department and EPA a testing notification at least 30 days prior to performance testing. [40 CFR §60.8]

d. Recordkeeping and Reporting

(1) WMDSM shall keep records of all maintenance conducted on the engine. [40 CFR §60.4245(a)(2)]
(2) If the engine is a certified engine, WMDSM shall maintain documentation from the manufacturer that the engine is certified to meet the applicable emission standards. [40 CFR §60.4245(a)(3)]

C. Incorporation into the Part 70 Air Emission License

The requirements in this 06-096 CMR 115 New Source Review amendment shall apply to the facility upon amendment issuance. WMDSM has also submitted an application to incorporate the requirements of this amendment into their Part 70 license which will be processed separately.

D. Annual Emissions

This amendment does not affect permitted annual emissions of any regulated pollutant.

III. AMBIENT AIR QUALITY ANALYSIS

WMDSM previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. An additional ambient air quality analysis is not required for this amendment.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-816-77-4-A pursuant to the preconstruction licensing requirements of 06-096 CMR 115 and subject to the standard and special conditions below.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIFIC CONDITIONS

The following shall replace Condition (4) of Air Emission Licenses A-816-77-1-A and A-816-77-2-A:

(1) Landfill Gas-Fired Engines

A. WMDSM shall fire only landfill gas, natural gas, or propane in the engines. [06-096 CMR 115, BPT]

B. At least 15 calendar days prior to installation of any replacement engine, WMDSM shall provide written notification to the Department (both to the Licensing Section and Regional Inspector). This notification shall contain the following information:

1. Emission unit number being replaced (i.e. Engine #1 or Engine #2);
2. Make, model, serial number, date of manufacture, and maximum heat input of the replacement engine (i.e. the engine new to the site);
3. Anticipated date installation will commence;
4. A statement that the replacement engine will meet the definition of a "replacement unit" as defined by 40 CFR §51.165(a)(1)(xxi);
5. A statement stating whether the engine is subject to 40 CFR Part 63, Subpart ZZZZ or 40 CFR Part 60, Subpart JJJJ or both.

[06-096 CMR 115, BPT]

C. Within seven days of startup of the replacement engine, WMDSM shall provide written notification to the Department (both to the Licensing Section and Regional Inspector) of the date of engine startup.
[06-096 CMR 115, BPT]

D. Emissions from Engines #1 and #2 (and any subsequent replacement unit subject to 40 CFR Part 63, Subpart ZZZZ) shall each not exceed the following limits:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.05	06-096 CMR 115, BPT	**Federally Enforceable**

Pollutant	g/bhp-hr	Origin and Authority	Enforceability
NO_x	0.6	06-096 CMR 115, BPT	**Federally Enforceable**
CO	4.2	06-096 CMR 115, BPT	**Federally Enforceable**

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	0.85	06-096 CMR 115, BPT	**Federally Enforceable**
PM_{10}	0.85	06-096 CMR 115, BPT	**Federally Enforceable**
SO_2	8.65	06-096 CMR 115, BPT	**Federally Enforceable**
NO_x	2.95	06-096 CMR 115, BPT	**Federally Enforceable**
CO	20.70	06-096 CMR 115, BPT	**Federally Enforceable**
VOC	0.02	06-096 CMR 115, BPT	**Federally Enforceable**

E. Emissions from any replacement unit for Engines #1 and #2 manufactured after July 1, 2007 shall each not exceed the following limits:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.05	06-096 CMR 115, BPT	**Federally Enforceable**

Pollutant	g/bhp-hr	Origin and Authority	Enforceability
NO_x	0.6	06-096 CMR 115, BPT	**Federally Enforceable**
CO	4.2	06-096 CMR 115, BPT	**Federally Enforceable**
VOC	1.0	40 CFR §60.4233(e) & Table 1	**Federally Enforceable**

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	0.85	06-096 CMR 115, BPT	**Federally Enforceable**
PM_{10}	0.85	06-096 CMR 115, BPT	**Federally Enforceable**
SO_2	8.65	06-096 CMR 115, BPT	**Federally Enforceable**
NO_x	2.95	06-096 CMR 115, BPT	**Federally Enforceable**
CO	20.70	06-096 CMR 115, BPT	**Federally Enforceable**
VOC	0.02	06-096 CMR 115, BPT	**Federally Enforceable**

F. WMDSM shall operate the engines such that the visible emissions from each stack does not exceed 20% opacity on a six (6) minute block average basis, for more than two (2) six (6) minute block averages in a 3-hour period. [06-096 CMR 115, BACT]

G. Performance Tests

WMDSM shall do one of the following for each replacement engine:

1. Demonstrate compliance with the NO_x and CO g/bhp-hr emission limits and the PM lb/MMBtu emission limit by stack testing within 180 days of startup (for engines not subject to 40 CFR Part 60, Subpart JJJJ); or
2. Conduct an initial performance test for NO_x, CO, and VOC in accordance with 40 CFR §60.4244 and Table 2 within 60 days after achieving maximum production, but no later than 180 days after initial startup [40 CFR §60.4243(b)]; or
3. Within 30 days of startup, provide documentation to the Department of previous testing which demonstrates that the engine meets the applicable emission standards.

H. WMDSM shall operate and maintain the coalescing filters on the landfill gas-fired engines in good working order. [06-096 CMR 115, BPT]

I. WMDSM shall sample landfill gas at the engine plant or flare inlet for TRS utilizing ASTM Method D5504, EPA Modified Method 16, or another method approved by the Department. If the average of TRS in the landfill gas exceeds 1,250 ppm at 50% methane during two (2) consecutive monitoring events, WMDSM shall reassess BACT for SO_2 emissions from the landfill and submit the revised BACT analysis to the Department within 90 days. [06-096 CMR 115, BPT]

J. The current Engines #1 and #2, and any subsequent replacement engine originally installed prior to June 12, 2006, shall meet the applicable requirements of 40 CFR Part 63, Subpart ZZZZ including the following:

1. Operation Requirements

	Operating Limitations
Non-Emergency, non-black start stationary RICE which combusts landfill gas equivalent to 10% or more of the gross heat input on an annual basis.	- Change oil and filter every 1,440 hours of operation or annually, whichever comes first; - Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and - Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

2. General Requirement to Minimize Emissions
   At all times the facility shall operate and maintain the LFGTE engines, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 CFR §63.6605(b)]

3. Operation & Maintenance
   WMDSM shall operate and maintain the LFGTE engines according to the manufacturer's emission-related written instructions or develop a site-specific maintenance plan which must provide, to the extent practicable, for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
   [40 CFR§63.6625(e)]

4. Startup Idle and Startup Time Minimization Requirements
   During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
   [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2d]

5. Optional Oil Analysis Program
   WMDSM has the option of utilizing an oil analysis program which complies with the requirements of §63.6625(i) in order to extend the specified oil change requirement. If this option is used, WMDSM must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.
   [40 CFR§63.6625(j)]

6. Record Keeping
   WMDSM shall keep records that include maintenance conducted on the LFGTE engines in order to demonstrate that they were operated and maintained in accordance with the facility's maintenance plan.
   [40 CFR §63.6655(e)]

K. Once an engine is replaced with a unit subject to 40 CFR Part 60, Subpart JJJJ, any subsequent replacement engine shall also meet the requirements of Subpart JJJJ. [06-096 CMR 115, BPT]

L. Any replacement LFGTE engine manufactured on or after July 1, 2007 or any engine originally installed on or after July 1, 2009 shall meet the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including the following:

1. WMDSM shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §60.4243(b)]

2. Performance Tests

   a. WMDSM shall conduct subsequent performance testing on the engine every 8,760 hours of operation or 3 years, whichever comes first. [40 CFR §60.4243(b)] If an engine is non-operational, WMDSM does not need to start up the engine solely to conduct a performance test. However, WMDSM must conduct the performance test immediately upon startup of the engine. [40 CFR §60.4244(b)]
   b. Each performance test shall be conducted within 10% of 100% peak (or the highest achievable) load. [40 CFR §60.4244(a)]
   c. WMDSM shall conduct three separate test runs for each performance test. Each test run must be conducted within 10% of 100% peak (or the highest achievable) load and last at least 1 hour. [40 CFR §60.4244(c)]
   d. WMDSM shall submit to the Department and EPA a copy of each performance test report within 60 days after the test has been completed. [40 CFR §60.4245(d)]
   e. WMDSM shall submit to the Department and EPA a testing notification at least 30 days prior to performance testing. [40 CFR §60.8]

3. Periodic Monitoring
   WMDSM shall monitor and record the following periodic monitors for the engine and its associated air pollution control equipment:

   a. Records of all maintenance conducted on the engine.
   [40 CFR §60.4245(a)(2)]
   b. If the engine is certified, documentation from the manufacturer that the engine is certified to meet the emission standards.
   [40 CFR §60.4245(a)(3)]

DONE AND DATED IN AUGUSTA, MAINE THIS 14 DAY OF December , 2015.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
AVERY T. DAY, ACTING COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 11/13/15
Date of application acceptance: 11/13/15

Date filed with the Board of Environmental Protection:

Filed
DEC 14 2015
State of Maine
Board of Environmental Protection

This Order prepared by Lynn Muzzey, Bureau of Air Quality.