



DEPARTMENT ORDER

**Waste Management Disposal
Services of Maine, Inc.
d/b/a Crossroads Landfill
Somerset County
Norridgewock, Maine
A-816-77-8-A**

**Departmental
Findings of Fact and Order
New Source Review
NSR #8**

FINDINGS OF FACT

After review of the air emission 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 (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (the 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 C.M.R. ch. 115, Minor Modification
NAICS CODES	562212
NATURE OF BUSINESS	Solid Waste Landfill
FACILITY LOCATION	357 Mercer Road, Norridgewock, Maine

B. NSR License Description

Waste Management Disposal Services of Maine, Inc. (WMDSM) d/b/a Crossroads Landfill has requested a New Source Review (NSR) license amendment to install a new flare (Flare #4) that will replace Flare #3.

This license also lowers the particulate matter emission limits for Flare #1 for consistency with the other flares and to reflect use of a more appropriate emission factor. This is an administrative change and does not reflect any physical or operational changes to this unit.

C. Emission Equipment

The following equipment is addressed in this NSR license:

Flares

Equipment	Maximum Heat Input Capacity (MMBtu/hr)	Maximum Flow Rate (scfm)
Flare #1	60.0	2,000
Flare #3*	75.0	2,500
Flare #4	75.0	2,500

* Flare #3 is being removed as part of this licensing action.

D. Project Description

WMDSM has proposed the installation of a new flare (Flare #4). Flare #4 has the same capacity as Flare #3. It will be placed adjacent to the Phase 14 landfill, and Flare #3 will be permanently disabled or removed from the site within 90 days after initial startup of Flare #4. The purpose of this project is to replace and move the flare to a more convenient location to reduce the amount of pipe required to convey the gas to a control device.

E. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The application for WMDSM does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing, or recordkeeping requirements.

The modification of a major source is considered a major or minor modification based on whether or not expected emissions increases exceed the "Significant Emission Increase" levels as given in *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. For a major stationary source, the expected emissions increase from each new, modified, or affected unit may be calculated as equal to the difference between the post-modification projected actual emissions and the baseline actual emissions for each NSR regulated pollutant.

1. Baseline Actual Emissions

Baseline actual emissions (BAE) are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to submittal of a complete license application. January 2021 through December 2022 has been used as the 24-month baseline period from which to determine baseline actual emissions for all pollutants for emission units affected as part of this project.

BAE for existing modified and affected equipment are based on actual annual emissions reported to the Department through *Emissions Statements*, 06-096 C.M.R. ch. 137.

BAE for new equipment are considered to be zero for all pollutants.

The results of this baseline analysis are presented in the table below.

Baseline Actual Emissions (1/2021 – 12/2022 Average)

Equipment	PM (tpy)	PM₁₀ (tpy)	PM_{2.5} (tpy)	SO₂ (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)
Flare #3	0.5	0.5	0.5	4.0	2.1	11.4	0.1
Flare #4	–	–	–	–	–	–	–
Total	0.5	0.5	0.5	4.0	2.1	11.4	0.1

2. Projected Actual Emissions

Projected actual emissions (PAE) are the maximum actual annual emissions anticipated to occur in any one of the five years (12-month periods) following the date existing units resume regular operation after the project or any one 12-month period in the ten years following if the project involves increasing the unit's design capacity or its potential to emit of a regulated pollutant.

Typically, new emission units must use potential to emit emissions for projected actual emissions. However, Flare #4 is considered a replacement unit pursuant to 40 C.F.R. § 51.166(b)(32) because it:

- will completely take the place of Flare #3;
- is identical in size and function as Flare #3;
- does not change the basic design parameters of the landfill; and
- Flare #3 will be permanently removed from the site.

Pursuant to 40 C.F.R. § 51.166(b)(7)(ii), replacement units are considered existing emissions units. Therefore, projected actual emissions may be used for this unit instead of potential to emit.¹ PAE from Flare #4 are based on firing 830 scfm of landfill gas. This conservatively assumes that no landfill gas will be delivered to Flare #1 and that any landfill gas not consumed by the facility’s engines will be burned by Flare #4. The calculations below also assume a total reduced sulfur (TRS) concentration in the landfill gas of 739 ppmv. This is the maximum measured TRS concentration in samples collected in 2021 and 2022.

Projected actual emissions from the affected equipment are shown below.

Projected Actual Emissions

Equipment	PM (tpy)	PM₁₀ (tpy)	PM_{2.5} (tpy)	SO₂ (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)
Flare #3	–	–	–	–	–	–	–
Flare #4	1.9	1.9	1.9	26.4	7.5	40.5	0.6
Total	1.9	1.9	1.9	26.4	7.5	40.5	0.6

3. Emissions Increases

Emissions increases are calculated by subtracting BAE and excludable emissions from the PAE. The emissions increases are then compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions 1/2021 – 12/2022 (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	0.5	1.9	+1.4	25
PM ₁₀	0.5	1.9	+1.4	15
PM _{2.5}	0.5	1.9	+1.4	10
SO ₂	4.0	26.4	+22.4	40
NO _x	2.1	7.5	+5.4	40
CO	11.4	40.5	+29.1	100
VOC	0.1	0.6	+0.5	40

¹ See letter from Anna Marie Wood, Director, EPA Air Quality Policy Division to Michael G. Dennis, Newport News Shipbuilding, March 20, 2018, https://www.epa.gov/sites/default/files/2018-04/documents/newport_news_2018.pdf

4. Classification

Since emissions increases do not exceed significant emissions increase levels, this NSR license is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations*, 06-096 C.M.R. ch. 115.

This NSR license is not licensing a new major stationary source of an NSR pollutant that is not greenhouse gases (GHG) nor is it authorizing a major modification for an NSR pollutant to an existing major stationary source. Therefore, greenhouse gases are not considered subject to regulation in this license pursuant to 40 C.F.R. §§ 51.166(b)(48)(iii - iv).

WMDSM has submitted an application to incorporate the requirements of this NSR license into the facility's Part 70 air emission license.

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 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental, and energy impacts.

B. Flare #4

Flare #4 will replace Flare #3 and will be located adjacent to the Phase 14 landfill. Flare #4 will be part of WMDSM's collection and control system for the landfill. It is a control device designed to achieve 98% overall destruction of volatile organic compounds (VOC) and non-methane organic compounds (NMOCs). A small amount of propane is used as a pilot light.

The facility's landfill gas-to-energy plant (LFGTE plant) is the primary combustion device in the control system, and the facility's flares are the backup or auxiliary combustion

devices. These control devices may operate individually or simultaneously to combust the collected landfill gas.

Emissions of SO₂ are caused by combustion of total reduced sulfur (TRS) compounds in the landfill gas. WMDSM controls emissions of SO₂ by managing the acceptance of material to limit TRS concentrations within the landfill gas to less than 1,500 ppmv at 50% methane on average. This limit is comparable to concentrations at other landfill facilities in Maine. Compliance is demonstrated by regular testing of the landfill gas pursuant to WMDSM's current air emission license.

The emission limits for Flare #4 were based on the following:

- PM/PM₁₀/PM_{2.5} – 17 lb/MMscf of CH₄ based on AP-42 Table 2.4-5 dated 11/98
- SO₂ – based on combusting landfill gas with a maximum sulfur content of 1,500 ppm by weight
- NO_x – 0.068 lb/MMBtu based on AP-42 Table 13.5-1 dated 2/18
- CO – 0.37 lb/MMBtu based on 06-096 C.M.R. ch. 115, BACT and manufacturer's specifications
- VOC – based on 98% control
- Visible Emissions – 06-096 C.M.R. ch. 115, BACT

BACT for emissions from the landfill continues to be operation and maintenance of a collection and control system designed to meet the criteria in 40 C.F.R. Part 60, Subpart XXX. Flare #4 shall be operated within the equipment boundaries of 40 C.F.R. § 60.18 and the emission limits listed in the tables below.

Unit	Pollutant	lb/MMBtu
Flare #4	PM	0.017

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Flare #4	1.28	1.28	1.28	36.77	5.10	27.75	0.39

Visible emissions from Flare #4 shall not exceed 20% opacity on a six-minute block average basis.

C. Flare #1

Particulate matter emission limits for Flare #1 were originally established in A-816-71-C-A (issued 5/1/2002) and were subsequently repeated in other NSR licenses. At the time, emissions were based on an emission factor of 0.085 lb/MMBtu. However, a lower

emission factor of 17 pounds per million scf of methane from AP-42 Table 2.4-5 has traditionally been used to calculate particulate matter emissions from flares from both this landfill and others throughout the state. Therefore, the emission limits for PM, PM₁₀, and PM_{2.5} for Flare #1 shall be updated from 5.10 lb/hr to 1.02 lb/hr to reflect use of the more appropriate emission factor. This is an administrative change and is not the result of any physical or operational change.

D. Incorporation Into the Part 70 Air Emission License

Pursuant to *Part 70 Air Emission License Regulations*, 06-096 C.M.R. ch. 140 § 1(C)(8), for a modification at the facility that has undergone NSR requirements or been processed through 06-096 C.M.R. ch. 115, the source must apply for an amendment to their Part 70 license within one year of commencing the proposed operations, as provided in 40 C.F.R. Part 70.5. An application to incorporate the requirements of this NSR license into the Part 70 air emission license was submitted to the Department concurrent with the application for this NSR license amendment.

E. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee and establishing the facility's potential to emit (PTE). Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included except when required by state or federal regulations.

The totals listed are based on expected generation of gas from the landfill and do not reflect operation of all equipment at full capacity. Instead, they reflect maximum anticipated emissions associated with full operation of the engines with excess gas burned at the flares. WMDSM is restricted to the total emissions listed below based on a federally enforceable license condition.

Maximum potential emissions were calculated based on the following assumptions:

- Operating the LFGTE engines 8,760 hr/year each;
- Combusting 577 scfm for 8,760 hr/year in Flare #1;
- Combusting 1,733 scfm for 8,760 hr/year in Flare #4;
- Operating the emergency generators for 100 hrs/yr each; and
- A facility-wide emission limit for VOC of 39.9 tpy.

These assumptions form the basis of the licensed facility-wide annual emissions limits.

This information does not represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

Total Licensed Annual Emissions for the Facility
Tons/year
 (used to calculate the annual license fee)

	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOC
Flare #1	1.3	1.3	1.3	37.4	5.2	28.2	–
Flare #4	3.9	3.9	3.9	111.7	15.5	84.3	–
LFGTE Engines #1 & #2	7.5	7.5	7.5	76.7	25.9	181.1	–
Emerg. Gen. #1	–	–	–	–	0.2	–	–
Emerg. Gen. #2	–	–	–	–	0.2	–	–
Emerg. Gen. #3	–	–	–	–	0.2	0.4	–
Biosolids Processing Facility	–	–	–	–	–	–	–
Facility-Wide	–	–	–	–	–	–	39.9
Total TPY	12.7	12.7	12.7	225.8	47.2	294.0	39.9

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

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 (see license A-816-77-1-A issued on 7/11/08). An additional ambient air quality analysis is not required for this NSR license.

This determination is based on information provided by the applicant regarding the expected construction and operation of the proposed emission units. If the Department determines that any parameter (e.g., stack size, configuration, flow rate, emission rates, nearby structures, etc.) deviates from what was included in the application, the Department may require WMDSM to submit additional information and may require an ambient air quality impact analysis at that time.

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9

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 New Source Review License Amendment A-816-77-8-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the specific conditions below.

Severability. The invalidity or unenforceability of any provision of this License Amendment or part thereof shall not affect the remainder of the provision or any other provisions. This License Amendment 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 (2) of NSR License A-816-77-1-A (7/11/2008) and Conditions (2) and (3) of NSR License A-816-77-6-M (2/19/2019).

(1) Flares

- A. WMDSM shall operate and maintain a landfill gas collection and control system except for periods of construction, maintenance, or malfunctions on the system.
- B. WMDSM shall operate each flare within the equipment parameter boundaries established in 40 C.F.R. § 60.18.
- C. WMDSM is license to install and operate Flare #4. Flare #3 shall cease operation and be permanently disabled or removed from the site within 90 days of the initial startup of Flare #4. WMDSM shall notify the Department of the date of initial startup of Flare #4 and date of shutdown of Flare #3.

D. Flare Emission Limits

(Emission limits are on a 1-hour block average basis unless otherwise stated.)

1. Emissions from the flares shall not exceed the following limits:

Unit	Pollutant	lb/MMBtu
Flare #1	PM	0.017
Flare #3	PM	0.017
Flare #4	PM	0.017

2. Emissions from the flares shall not exceed the following limits:

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Flare #1	1.02	1.02	1.02	29.41	4.08	22.20	0.31
Flare #3	1.28	1.28	1.28	36.77	5.10	27.75	0.39
Flare #4	1.28	1.28	1.28	36.77	5.10	27.75	0.39

- E. Visible emissions from each flare shall not exceed 20% opacity on a six-minute block average basis.

[06-096 C.M.R. ch. 115, BACT]

The following shall replace Condition (6) of NSR License A-816-77-6-M (2/19/2019).

(2) Facility Wide Emission Limits

WMDSM shall not exceed the following emission limits on a 12-month rolling total basis [06-096 C.M.R. ch. 115, BACT]:

Pollutant	Ton/year
PM	12.7
PM ₁₀	12.7
PM _{2.5}	12.7
SO ₂	225.8
NO _x	47.2
CO	294.0
VOC	39.9

The following is a New Condition:

- (3) If the Department determines that any parameter value pertaining to construction and operation of the emissions units, including but not limited to stack size, configuration, flow rate, emission rates, nearby structures, etc., deviates from what was submitted in the application or ambient air quality impact analysis for this air emission license, WMDSM may be required to submit additional information. Upon written request from the Department, WMDSM shall provide information necessary to demonstrate AAQS will not be exceeded, potentially including submission of an ambient air quality impact analysis or an application to amend this air emission license to resolve any deficiencies and ensure compliance with AAQS. Submission of this information is due within 60 days of the Department's written request unless otherwise stated in the Department's letter.
[06-096 C.M.R. ch. 115, § 2(O)]

DONE AND DATED IN AUGUSTA, MAINE THIS 20th DAY OF March, 2024.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for
MELANIE LOYZIM, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 12/22/2023

Date of application acceptance: 1/2/2024

Date filed with the Board of Environmental Protection:

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

