

State Registration Number
N6207

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N6207-20XX

Smiths Creek Landfill and Blue Water Renewables, LLC

State Registration Number (SRN): N6207

Located at

6779 Smiths Creek Road, Smiths Creek, St. Clair County, Michigan 48074

Permit Number: MI-ROP-N6207-20XX

Staff Report Date: October 2, 2023

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan’s Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source’s applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

General Information

Stationary Source Mailing Address: Section 1	Smiths Creek Landfill- St. Clair County 200 Grand River Avenue, Suite 201 Port Huron, Michigan 48060
Station Source Mailing Address: Section 2	Blue Water Renewables, LLC- DTE Biomass Energy One Energy Plaza, 400 WCB Detroit, Michigan 48226
Source Registration Number (SRN):	N6207
North American Industry Classification System (NAICS) Code:	Section 1: 562212- Solid Waste Landfill Section 2: 221118- Other Electric Power Generation
Number of Stationary Source Sections:	2
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202200217
Responsible Official: Section 1	Matthew Williams, Landfill Manager 810-989-6979
Responsible Official: Section 2	Kevin Dobson, VP - DTE Biomass Energy 313-548-8126
AQD Contact -District Inspector:	Iranna Konanahalli, Senior Environmental Engineer 586-596-7630
AQD Contact - ROP Writer:	Matt Karl, Senior Environmental Quality Analyst 517-282-2126
Date Application Received:	November 23, 2022
Date Application Was Administratively Complete:	November 23, 2022
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	October 2, 2023
Deadline for Public Comment:	November 1, 2023

Source Description

Section 1: Smiths Creek Landfill

Smiths Creek Landfill is located on Smiths Creek Road near the village of Smiths Creek, St. Clair County, Michigan. The landfill is owned and operated by the County of St. Clair. The nearest roads to the source are to the north: Smiths Creek Road, east: Sturdevant Road, south: Yager Road, and west: Burns Road. There are residential properties along each of these roads. There are two businesses and a US Post Office to the northwest of the landfill property.

Smiths Creek Landfill is a Type II Sanitary Landfill. The landfill originally opened in 1967. The landfill has undergone several expansion modifications since then, with the most recent construction of Cell 8 in May 2018. As of August 1, 2018, the landfill has a design capacity of 27.3 million cubic yards (21.02 million Mg). Currently, Smiths Creek Landfill owns approximately 265 acres, of which 160 acres are permitted for solid waste.

The original 56-acre landfill was located on the north side of the property. This portion of the 56-acre landfill is closed and does not have a synthetic liner or active landfill gas collection system. This portion of the landfill has a passive landfill gas collection system that routes landfill gas to seven (7) solar vent flares operated in accordance with a USEPA Approved Final Control Plan dated July 16, 2002.

The newer portion of the landfill (active 1989) is currently used to landfill municipal solid waste, construction and demolition debris, asbestos containing materials, foundry sand, low-level contaminated soils, and coal fly ash. Solid waste arrives in a variety of vehicles that potentially generate fugitive particulate matter (PM) emissions. The deposited waste is placed into active portions of the landfill, or "cells" and is covered with soil or other approved materials daily. When a cell reaches its design capacity, a cover system and active landfill gas collection system is installed. The active landfill gas collection system has 106 extraction wells as of March 11, 2019.

After emplacement in the landfill, waste initially undergoes aerobic microbial activity which produces predominantly nitrogen (N₂) and carbon dioxide (CO₂) gas. As oxygen levels decline, anaerobic microbial activity dominates and the gas composition changes to methane (CH₄), carbon dioxide (CO₂) and non-methane organic compounds (NMOC). The NMOC consists of various hazardous air pollutants (HAPs), greenhouse gases, and volatile organic compounds (VOCs). The landfill has been evaluated to generate potential uncontrolled NMOC emissions of greater than 50 Mg per year.

The collected landfill gas is piped to the blower station and can be routed to an open flare emission control or to the Section 2 Blue Water Renewables facility. The open flare control is a 2-in-1 open flare with one common shroud and one common burner system that has a 10-inch diameter pipe with a 2,000 standard cubic foot per minute (scfm) capacity, and a 3-inch diameter pipe with a 30-200 scfm capacity. Combustion of landfill gas results in emissions of nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), PM, VOCs, and various HAPs.

The landfill uses a bioreactor in cells 2, 3, 4, 6, and 7 and is approved to use it in cell 8. The bioreactor uses liquid septic waste received from the county. Injection of this nutrient rich waste into the landfill increases microbial activity, which accelerates the degradation of the emplaced waste and increases methane gas production.

Section 2: Blue Water Renewables, LLC

Blue Water Renewables is an electricity generating facility located at the same address as the landfill, that uses landfill gas as fuel for two (2) engine/generator sets. The facility has a treatment system that filters, de-waters and compresses landfill gas before use in the engines. The treatment system removes

particulate matter to at least the 10-micron level, compresses the gas, and removes enough moisture to ensure good combustion in the engines. The two (2) engines are Caterpillar G3520C, each rated at 2,233 brake horsepower (BHP) at 100% load and are capable of producing 1.6 megawatt (MW) gross electrical output. The electricity produced is sold to the electrical power grid. The engines are equipped with air-to-fuel controllers to ensure good combustion. Burning the landfill gas in the engines results in emissions of NO_x, CO, SO₂, PM, VOCs, and various HAPs (formaldehyde).

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2022**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	121.30
Nitrogen Oxides (NO _x)	22.23
PM10*	9.24
Sulfur Dioxide (SO ₂)	22.77
Volatile Organic Compounds (VOCs)	4.30

* Particulate matter (PM) that has an aerodynamic diameter less than or equal to a nominal 10 micrometers.

The following table lists Hazardous Air Pollutant emissions and potential to emit (PTE) as calculated for the source by AQD:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
NMOC-uncontrolled (HAPs surrogate)	50.67
Formaldehyde	18.6
Hydrochloric Acid	4.9
Toluene	0.3
Total Hazardous Air Pollutants (HAPs)	26.3

**As listed pursuant to Section 112(b) of the federal Clean Air Act.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

St. Clair County is currently designated by the United States Environmental Protection Agency (USEPA) as an attainment area with respect to the 8-hour ozone standard.

A portion of St. Clair County is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the SO₂ standard.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70 because the potential to emit of carbon monoxide (CO) exceeds 100 tons per year and the potential to emit of any single HAP (formaldehyde) regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year and the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

The stationary source is considered a “synthetic minor” source in regards to the Prevention of Significant Deterioration regulations of The Michigan Air Pollution Control Rules Part 18, Prevention of Significant Deterioration of Air Quality because the stationary source accepted legally enforceable permit conditions limiting the potential to emit of carbon monoxide (CO) to less than 250 tons per year.

Emergency engines (EUGENERAC-28HP-NG, EUKOHLER-18HP-NG) and landfill gas-fired engines (EUCENGINE1 and EUCENGINE2) at the stationary source are subject to the Standards of Performance for Stationary Spark Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and JJJJ.

EULANDFILL-ASBESTOS at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Asbestos promulgated in 40 CFR Part 61, Subparts A and M.

Emergency engines (EUGENERAC-28HP-NG, EUKOHLER-18HP-NG) and landfill gas-fired engines (EUCENGINE1 and EUCENGINE2) at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

The stationary source was subject to the Standards of Performance for Municipal Solid Waste Landfills promulgated in 40 CFR Part 60, Subparts A and WWW. On June 21, 2021, the facility became subject to the Federal Plan Requirements for Municipal Solid Waste Landfills that commenced construction on or before July 17, 2014, and have not been modified or reconstructed since July 17, 2014, as specified in 40 CFR Part 62, Subpart OOO. The stationary source is considered a legacy landfill under the Federal Plan. Michigan is not currently the authorized representative and is implementing and enforcing this regulation through the ROP.

The stationary source is subject to the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as promulgated in 40 CFR Part 63, Subparts A and AAAA. The permittee has opted to comply with the provisions for the operational standards in 40 CFR 63.1958 (as well as the provisions in 40 CFR 63.1960 and 40 CFR 63.1961) for a Municipal Solid Waste Landfill with a gas collection and control system. The regulatory language in 40 CFR Part 62, Subpart OOO and 40 CFR Part 63, Subpart AAAA are similar but not identical. Where applicable, similar citations are grouped together.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

No emission units have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because all emission units at the stationary source either do not have a control device or those with a control device do not have potential pre-control emissions over the major source thresholds.

Please refer to Parts B, C and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

Source-Wide Permit to Install (PTI)

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-N6207-2018 are identified in Appendix 6 of the ROP.

PTI Number			
163-09	163-09A	163-09C	163-09D

Streamlined/Subsumed Requirements

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

Non-applicable Requirements

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

Processes Not in the Draft ROP

The following table lists PTI exempt processes that were not included in the Draft ROP pursuant to Rule 212(4). These processes are not subject to any process-specific emission limits or standards.

Emission Unit ID	Description of Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
Septage Building Boiler	Check GHG for fuel. 0.1 MMBTU/hour capacity	Rule 212(4)(c)	Rule 282(2)(b)(i)
Scale House/Office Heater	Natural Gas Heater – 0.1 MMBTU/hour capacity	Rule 212(4)(c)	Rule 282(2)(b)(i)
Shop Comfort Heater-Propane	Propane heater <50 MMBTU/hour	Rule 212(4)(c)	Rule 282(2)(b)(i)
Shop Hot Water Heater	Propane-fueled hot water heater 0.04 MMBTU/hour	Rule 212(4)(c)	Rule 282(2)(b)(i)
Leachate Building Heaters	Check GHG for fuel. UH1&2: 0.135 MMBTU/hour, UH4,5,6,&7: 0.26 MMBTU/hour	Rule 212(4)(c)	Rule 282(2)(b)(i)
Pretreatment Building	Check GHG for fuel. UH3: 0.3 MMBTU/hour	Rule 212(4)(c)	Rule 282(2)(b)(i)
Propane Storage Tank	500-gallon propane tank (outside shop building)	Rule 212(4)(d)	Rule 284(2)(b)
Used Oil Tank	250 gallon used oil tank in shop	Rule 212(4)(d)	Rule 284(2)(i)
Grinder	Grinder equipment in shop	Rule 212(4)(e)	Rule 285(2)(l)(vi)
Shop Comfort Heater-Used Oil	175,000 BTU/hour used oil furnace – combusts oil generated from on-site equipment	Rule 212(4)(c)	Rule 282(2)(b)(iv)

Draft ROP Terms/Conditions Not Agreed to by Applicant

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

Action taken by EGLE, AQD

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Brad Myott, Field Operations Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.