

Michigan Department of Environmental Quality
Air Quality Division

State Registration Number
N6207

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N6207-2018

Smiths Creek Landfill and Blue Water Renewables, LLC

SRN: N6207

Located at

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

Permit Number: MI-ROP-N6207-2018

Staff Report Date: March 5, 2018

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) requires that the Michigan Department of Environmental Quality (MDEQ), 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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RENEWABLE OPERATING PERMIT

MARCH 5, 2018 - STAFF REPORT

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 of 1990 and Michigan's Administrative Rules for Air Pollution Control pursuant to 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:	Smiths Creek Landfill (Section 1 SCL) and Blue Water Renewables, LLC (Section 2 BWR) 6779 Smiths Creek Road Smiths Creek, Michigan 48074
Source Registration Number (SRN):	N6207 (P0262 is subsumed into N6207)
North American Industry Classification System (NAICS) Code:	562212 for Sec. 1 (SCL: Smiths Creek Landfill) and 221119 for Sec. 2 (BWR: Blue Water Renewables)
Number of Stationary Source Sections:	2
Is Application for a Renewal or Initial Issuance?	Renewal
Application Numbers:	201600183 for SCL and 20170078 for BWR to incorporate changes contained in PTI No. 163-09D
Responsible Official:	Sec. 1 SCL: Mr. Matthew Williams, Landfill Manager Phone: 810-989-6979 E-mail: mWilliams@StClairCounty.org Sec. 2 BWR: Mr. Mark R. Hill, Jr., VP - Operations Phone: 734-302-5359 E-mail: Mark.Hill@DTEEnergy.com
AQD Contact:	Iranna Konanahalli, Sr. Environmental Engineer 586-753-3741 or Konanahalli@Michigan.gov
Date Application Received:	11/17/2016
Date Application Was Administratively Complete:	11/17/2016
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	March 5, 2018
Deadline for Public Comment:	April 4, 2018

Source Description

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.

Smiths Creek Landfill is a Type II Sanitary Landfill. The landfill opened in 1967. The landfill has a design capacity of 27.3 million cubic yards (19.8 million Mg). The landfill accepts municipal solid waste (MSW) and inert wastes such as construction and demolition debris, foundry sand, ash and low level contaminated soils. The landfill also accepts asbestos waste. The solid waste is transported to an area (cell) of the landfill where it is deposited on the working surface of the cell. Solid waste arrives in a variety of vehicles that potentially generate fugitive dust emissions. The deposited waste is covered with soil or other MDEQ alternate daily cover materials (ADCM) on a daily basis. When a cell reaches its design capacity, a cover system is installed, covering the waste. Landfill gas (LFG) is controlled using an active gas collection system and combusted in an open flare or, preferably in two (2) spark ignition (SI) reciprocating internal combustion lean burn engines (RICE) to produce electricity.

MSW initially undergoes aerobic microbial activity, which produces predominately nitrogen gas and carbon dioxide. As oxygen levels decline, gas composition changes to a mixture of methane and carbon dioxide. LFG typically contains a small percentage of non-methane organic compounds (NMOC). The NMOC fraction consists of various organic hazardous air pollutants (HAP), greenhouse gases, and volatile organic compounds (VOC).

New Source Performance Standards (NSPS), Standards of Performance for Municipal Solid Waste Landfills, Emission Guidelines (EG), codified as 40 CFR 60 Subpart WWW, are applicable to MSW landfills, which have a construction, reconstruction or modification date after May 30, 1991. Subpart WWW (3W) requires subject facilities with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, to submit an initial design capacity report and a NMOC emission rate report within 90 days after the effective date of the Federal Plan, which was approved January 7, 2000. Furthermore, subject facilities are required to submit a design plan and install a LFG collection and control system (if NMOC emissions are greater than or equal to 50 megagrams/year) that meet the provisions of 60.752 through 60.759 (Subpart WWW). A gas collection and control system is required to be installed 30 months after the NMOC emissions rate report is submitted to the regulatory agency which shows that the MSW Landfill produces 50 Megagrams or greater per year NMOC. Smiths Creek Landfill submitted information indicating that the NMOC emissions are greater than 50 megagrams per year. The facility did conduct Tier 2 testing, in accordance with the regulation, verifying its NMOC emissions. Therefore, Smiths Creek Landfill was required to install the gas collection and control system by October 2002. However, the regulation does contain provisions for Tier 3 testing that, depending on the NMOC results of the test, allow for delayed installation of the gas collection and control system.

Smiths Creek has a design capacity of 19.8 million megagrams and was last modified June 26, 2013. Consequently, Smiths Creek is subject to the standards of 40 CFR 60 Subpart WWW and the provisions of R336.1210. On November 17, 2016, Smiths Creek submitted a ROP renewal application in accordance with Title V provisions.

Smiths Creek operates a septage bioreactor at the site. As of April 2018, septage has been introduced into Cells 2, 3, 4, 6, and 7. The bioreactor has increased methane gas production within the cells and accelerates the degradation of the waste. The addition of the bioreactor subjects the facility to the bioreactor regulations within the National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, Subpart AAAA. The operation of the bioreactor must also comply with 63.1960 through 63.1985 of 40 CFR 63, Subpart AAAA since the facility was required to install a gas collection and control system per 60.752(b)(2) of NSPS Subpart WWW. 63.1955(d) requires a subjected source to extend the gas collection and control system into the new cell of the bioreactor prior to the addition of liquid waste. Thus, the schedule in 60.752(b)(2)(ii)(A)(2) does not apply to bioreactors (the 2/5 year rule). Smiths Creek submitted several different models to estimate the expectant gas generation rate after the addition

of the bioreactor. Based on these models, Smiths Creek does not believe a higher capacity flare will have to be installed to accommodate the increased gas production at the site.

Blue Water Renewables, LLC has two reciprocating internal combustion engines (RICE) which combust landfill gas (LFG) from Smiths Creek Landfill to produce electricity. The RICE engines are permitted under Permit-To-Install Number (PTI No.) 163-09D (FG-ICENGINES: EU-ICENGINE1 and EU-ICENGINE2) dated May 31, 2017. The electricity produced is sold to the electrical power grid. In addition to the two RICEs, the facility has a LFG treatment system which dewateres, filters, and compresses the LFG prior to it being combusted in the engines. The treatment system comprises the primary control mechanism for the LFG produced and collected by Smiths Creek Landfill.

Blue Water Renewables, LLC has been issued Permit-To-Install (PTI) Number PTI No. 163-09D (P0262) (FG-ICENGINES: EU-ICENGINE1 and EU-ICENGINE2) dated May 31, 2017, to operate two reciprocating internal combustion engines to convert LFG to electricity. Blue Water Renewables, LLC is totally dependent upon Smiths Creek Landfill to provide the LFG which is combusted in its two internal combustion engines. The two companies have a contractual agreement in which Smiths Creek Landfill sells LFG to Blue Water Renewables, LLC. The contractual and spatial relationship between the two facilities establishes Smiths Creek Landfill as the controlling entity of the partnership. Therefore, the two facilities are considered to be one stationary source based on the definition of stationary source in Michigan State Air Pollution Rule 336.1119(r). An agreement was made between AQD management and the managements of Smiths Creek Landfill and Blue Water Renewables, Inc. This agreement allowed the two entities (SCL and BWR) to have separate ROPs (MI-ROP-N6207-2012 and MI-ROP-P0262-2012); together these entities comprise one single stationary source. As result of this policy being reversed, a consolidated ROP (Sec. 1: SCL and Sec. 2: BWR) is being issued under SRN N6207 subsuming P0262.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2016**.

TOTAL STATIONARY SOURCE EMISSIONS (MAERS-2016)

Pollutant	Tons per Year (SCL and BWR, respectively)
Carbon Monoxide (CO)	8 and 92
Lead (Pb)	0
Nitrogen Oxides (NO _x)	0.6 and 16
Particulate Matter (PM)	3 and 6
Sulfur Dioxide (SO ₂)	1 and 5
Volatile Organic Compounds (VOCs)	17 and 8

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.

The stationary source is located in St. Clair County, which is currently designated by the U.S. Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants except March 2, 2015 (*Sierra Club v. McCarthy*, No. 3-13-cv-3953 (SI) (N.D. Cal. March 2, 2015), US EPA court-ordered July 2, 2016, deadline determination for SO₂ (partial county due to Belle River Power Plant and St. Clair Power Plant) for 1-hour standard. On June 3, 2010, the EPA strengthened the health-based or

“primary” standard for SO₂ by establishing a 1-hour standard at a level of 75 parts per billion. On July 25, 2013, the EPA designated 29 areas in 16 states as nonattainment, but did not at that time designate other areas.

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 based upon August 18-19, 2015, stack tests for BWR RICE engines and PTI No.163-09D, FG-ICENGINES, I.7 limit of 2.12 pounds of formaldehyde per hour per engine which operate nearly 8,760 hours per year per engine) regulated by the federal Clean Air Act, Section 112, is equal to or more than 10 tons per year and/or 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. PTI No. 163-09D (P0262), FGFACILITY, I.1 limits CO emissions to 225 tons per year.

EU-LANDFILL-SCL1, EU-ALGCS-SCL1, EU-OPENFLARE-SCL1, EU-VENTFLARE-SCL1 and EU-TREATMENTSYS-BWR2 at the stationary source are subject to the New Source Performance Standards for Municipal Solid Waste Landfills promulgated in 40 CFR, Part 60, Subparts A and WWW (3W).

FG-ICENGINES-BWR2 (EU-ICENGINE1-BWR2 and EU-ICENGINE2-BWR2; Caterpillar G3516 engine corresponding to EU-ICENGINE3-BWR2 for 0.8 MW electrical power output, was never installed) and FG-EMERGENS-SCL1 (EU-GENERAC-28HP-NG (Generac) and EU-KOHLER-18HP-NG (Kohler)) at the stationary source is subject to New Source Performance Standards for Spark Ignited Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 60, Subparts A and JJJJ (4J).

EU-ASBESTOS-SCL1 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.

EU-LANDFILL-SCL1, EU-ALGCS-SCL1, EU-OPENFLARE-SCL1, EU-VENTFLARE-SCL1, and EU-BIOREACTOR-SCL1 at the stationary source are subject to the Maximum Achievable Control Technology Standards for Municipal Solid Waste Landfills promulgated in 40 CFR, Part 63, Subparts A and AAAA (4A).

FG-EMERGENS-SCL1 (EU-GENERAC-28HP-NG (Generac) and EU-KOHLER-18HP-NG (Kohler)) at the stationary source are subject to the Maximum Achievable Control Technology Standards for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subparts A and ZZZZ (4Z).

AQD issued September 23, 2014, Violation Notice to Blue Water Renewables (DTE Energy) for exceeding the Single Hazardous Air Pollutant (HAP) emission limit of 9 TPY (formaldehyde) and failing comply with NESHAP / MACT 4Z. AQD settled the issues with Consent Order AQD No. 25-2015. DTE Energy (DTE Biomass Energy) of Ann Arbor requested termination of AQD No. 25-2015 via the June 21, 2017 letter from Mark R. Hill, Jr. to Lynn Fiedler. AQD agrees to terminate the consent order. Hence, the requirements of the consent order have not been incorporated into this ROP.

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 under 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-N6207-2012 effective June 6, 2012 and MI-ROP-P0262-2012 effective June 6, 2012 are identified in Appendix 6 of the ROP.

PTI Number	
163-09	Approved: 10/26/2009 and voided: 02/11/2015: On October 26, 2009, AQD approved PTI No. 163-09 for two Caterpillar G3520C SI RICE engines [G3520C, 2,233 bhp at 100% load producing 1.6 megawatt gross electrical power output] and one Caterpillar G3516 SI RICE engine [G3516, 1,148 bhp at 100% load producing 800 kilowatt gross electrical power output]. Smallest of three engines, Caterpillar G3516 engine for 0.8 MW electrical power output, was never installed.

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 in Application Not Identified in Draft ROP

There were no processes listed in the ROP Application as exempt devices under Rule 212(4). Exempt devices are not subject to any process-specific emission limits or standards in any applicable requirement.

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 the MDEQ, 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 Joyce Zhu, Southeast Michigan District 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.

Purpose

A Staff Report dated March 5, 2018, was developed in order to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by R 336.1214(1). The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in R 336.1214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Sec. 1 SCL: Mr. Matthew Williams, Landfill Manager Phone: 810-989-6979 E-mail: mWilliams@StClairCounty.org Sec. 2 BWR: Mr. Mark R. Hill, Jr., VP - Operations Phone: 734-302-5359 E-mail: Mark.Hill@DTEEnergy.com
AQD Contact:	Iranna Konanahalli, Sr. Environmental Engineer 586-753-3741 or Konanahalli@Michigan.gov

Summary of Pertinent Comments

No pertinent comments were received during the 30-day public comment period.

Changes to the March 5, 2018 Draft ROP

No changes were made to the draft ROP.