

State Registration Number
N6004

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N6004-2019a

City of Midland Utilities Division

State Registration Number (SRN): N6004

Located at

4311 East Ashman Street, Midland, Midland County, Michigan 48642

Permit Number: MI-ROP-N6004-2019a

Staff Report Date: October 8, 2018

Amended Date: May 12, 2020

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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RENEWABLE OPERATING PERMIT

OCTOBER 8, 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; 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:	City of Midland Utilities Division 4311 East Ashman Street Midland, Michigan 48642
Source Registration Number (SRN):	N6004
North American Industry Classification System (NAICS) Code:	562212
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201800074
Responsible Official:	Scott O'Laughlin, Landfill Superintendent 989-839-6989
AQD Contact:	Gina McCann, Senior Environmental Quality Analyst 989-439-2282
Date Application Received:	May 29, 2018
Date Application Was Administratively Complete:	May 29, 2018
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	October 8, 2018
Deadline for Public Comment:	November 7, 2018

Source Description

City of Midland Utilities Division (Landfill) is a municipal solid waste (MSW) landfill, with a bioreactor, landfill gas collection and treatment system, and a landfill gas-to-energy facility. The Landfill is located in Midland, Michigan, and owned and operated by the City of Midland. This ROP is being issued for the active Type II sanitary landfill, including the bioreactor, active landfill gas collection system, treatment system, two spark ignition reciprocating internal combustion engines each with a 1.6 megawatt gross electrical output, and a 2,000 scfm open flare. The Landfill has a design capacity greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) of non-methane organic compounds. The Landfill was modified since May 30, 1991. Landfill gas (LFG) generated at the site is treated and burned off-site or the gas is burned in an open flare.

In addition to MSW, the Landfill accepts inert wastes such as construction and demolition debris, low level contaminated soils, and asbestos containing waste. The solid waste is transported to the facility to an area (cell) where it is deposited on the working surface. Solid waste is handled by a variety of vehicles that potentially generate fugitive dust emissions. The deposited waste is covered daily with soil or other MDEQ approved alternate cover. When a cell reaches its design capacity, a liner is installed covering the waste.

MSW initially undergoes aerobic microbial activity, which produces predominately nitrogen gas and carbon monoxide. 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 (HAPs), greenhouse gases, and volatile organic compounds (VOCs).

The Landfill has an on-site gas treatment system which filters, dewateres, compresses, and cools the LFG prior to sending it via pipeline to reciprocating internal combustion engines (RICE) located at the City of Midland wastewater treatment plant (WWTP). The RICE burn the LFG and gas from the WWTP anaerobic solids digester. The RICE are owned and operated by the City of Midland. The Landfill, LFG treatment system, and the RICE are part of the same stationary source.

There are no atmospheric vents or emissions from the landfill gas treatment system; any gas not conditioned in the system is burned in the open flare at the Landfill. The RICE use the conditioned gas as fuel for the generation of electricity for the power grid.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2017**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	62.99
Lead (Pb)	0.00
Nitrogen Oxides (NO _x)	14.34
Particulate Matter (PM)	1.57
Sulfur Dioxide (SO ₂)	0.12
Volatile Organic Compounds (VOCs)	2.68

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2017 by City of Midland Utilities Division:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
NMOC (HAP surrogate per 40 CFR Part 63, Subpart AAA)	7.04
Total Hazardous Air Pollutants (HAPs)	7.04

**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.

The stationary source is in Midland County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the source is subject to the New Source Performance Standard (NSPS) for Municipal Solid Waste Landfills, which was promulgated in Title 40 Code of Federal Regulations, Part 63, Subparts A and AAAA. Additionally, the engines at the gas-to-energy facility have expected emissions of 181 tons per year of Carbon Monoxide.

New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills, Emission Guidelines (EG), codified as 40 CFR Part 60, Subpart WWW, are applicable to MSW landfills, which have a construction, reconstruction, or modification date after May 30, 1991. Subpart WWW 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 an NMOC emission rate report. Furthermore, subject facilities are required to submit an initial design plan and install a LFG collection and control system that meets 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 emission rate is submitted to the regulatory agency which shows that the MSW Landfill produces 50 Megagrams or greater per year NMOC. City of Midland Utilities Division’s initial (Tier 1) estimates of NMOC emissions were greater than 50 megagrams per year. The facility missed the deadline to submit Tier 2 testing and is therefore required to install a gas collection and control system.

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451, because at the time of New Source Review permitting the potential to emit of each criteria pollutant was less than 250 tons per year.

EU-LANDFILL is subject to the MACT for Municipal Solid Waste Landfills promulgated in 40 CFR Part 63, Subpart AAAA because it was modified after 1991 and has a design capacity greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m³) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) of non-methane organic compounds. The potential to emit for hazardous air pollutants is below the major source thresholds.

City of Midland Utilities Division was granted approval to operate a bioreactor at the site on April 19, 2013. Non-dewatered wastewater treatment digested sludge will be added to cell 16 and a portion of cell 15 for the purpose of accelerating the decomposition process and increasing methane gas production within the cell. The anaerobic digester sludge will contain approximately 95% water and 5% solids. EU-BIOREACTOR is subject to the bioreactor regulations within the National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, Subpart AAAA. Specifically, City of Midland Utilities Division must comply with 63.1947(c), since the bioreactor will be located at an existing source and liquid addition will not occur until after January 17, 2006. The operation of the bioreactor must also comply with 63.1960 through 63.1985 of 40 CFR Part 63, Subpart AAAA. A gas collection and control system must be expanded into the bioreactor cells prior to the addition of liquid waste per 63.1955(d).

EU-TREATMENTSYS is subject to 40 CFR Part 60, Subpart A and WWW because the equipment controls emissions from an NSPS affected source.

The source is also subject to NSPS Subpart JJJJ for spark ignition reciprocating internal combustion engines (SI ICE) as well as the NESHAP for Reciprocating Internal Combustion Engines ("RICE"), 40 CFR Part 63, Subpart ZZZZ.

EUCENGINE1 and EUCENGINE2 at the stationary source are subject to the New Source Performance Standards for spark ignition reciprocating internal combustion engines promulgated in 40 CFR Part 60, Subparts A and JJJJ. A BACT evaluation performed during the issuance of PTI No. 45-10B determined that the emission limit of 1.0 g/bhp-hr VOC specified in NSPS JJJJ is BACT for this source.

EUCENGINE 1 and EUCENGINE2 at the stationary source are subject to the Maximum Achievable Control Technology Standards for Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ. The potential to emit any single HAP, formaldehyde, regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year single.

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. ROP-MI-N6004-2014 are identified in Appendix 6 of the ROP.

PTI Number			
179-11	366-07		

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

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
Propane Storage Tanks - Landfill	Two (2) propane storage tanks located at the City of Midland Landfill - a 500 gallon tank adjacent to the landfill office and a 1,000 gallon tank located adjacent to the maintenance building	R 284(2)(b)	R 212(4)(d)
Propane Space Heaters - Landfill Maintenance Building	Four (4) propane space heaters located in the landfill maintenance building - One (1) Aire-Flo 80AF gas furnace: 110,000 BTU/hr Three (3) Trane model GHNDO10ADF2000A: 100,000 BTU/hr	R 282(2)(b)(i)	R 212(4)(c)
Natural Gas Boilers - WWTP	Two (2) natural gas fired boilers with heat input of 4,850,000 BTU/hr	R 282(2)(b)(i)	R 212(4)(c)
Propane Hot Water Heater - Landfill Maintenance Building	One (1) propane hot water heater located in the maintenance building with heat input of 30,000 BTU/hr	R 282(2)(b)(i)	R 212(4)(c)
Propane Furnaces - Landfill Office	Three (3) propane furnaces used for zone heating of the landfill office building each with heat input of 100,000 BTU/hr	R 282(2)(b)(i)	R 212(4)(c)

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 Chris Hare, Saginaw Bay 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.

State Registration Number

N6004

RENEWABLE OPERATING PERMIT

ROP Number

MI-ROP-N6004-2019

**DECEMBER 6, 2018 - STAFF REPORT
ADDENDUM**

Purpose

A Staff Report dated October 8, 2018, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. 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 Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Scott O'Laughlin, Landfill Superintendent 989-839-6989
AQD Contact:	Gina McCann, Senior Environmental Quality Analyst 989-439-2282

Changes to the October 8, 2018 Draft ROP

No comments were received from the public. Comments were received from USEPA and changes were made to the October 8, 2018, draft ROP as follows:

EPA Comment 1:

Staff Report, Regulatory Analysis. Please clarify and correct the source's major source status with respect to aggregate and individual hazardous air pollutants (HAPs). The third paragraph states that the source is major for both aggregate and individual HAPs, the seventh paragraph generally states that HAPs are below the major source thresholds, and the twelfth paragraph states that formaldehyde emissions are major.

AQD Response:

City of Midland Utilities Division is a major source of HAPs. The potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, formaldehyde, is equal to or more than 10 tons per year.

EPA Comment 2:

Staff Report, Source-Wide Permit to Install and Appendix 6, Permits to Install. Together, the Permit to Install table in the Staff Report and Appendix 6 of the Renewable Operating Permit address the source's construction permit history and document the Permit to Install underlying applicable requirement origin and authority, as required by 40 CFR §70.6(a)(1)(i). It appears that some permit to install actions are not included, even though they were documented in the previous Renewable Operating Permit. Please review the source's permitting record and identify the Permits to Install in the Staff Report or Appendix 6, in accordance with MDEQ's Renewable Operating Permit Manual.

AQD Response:

Permit to Install (PTI) 45-10B should be included in the Source-Wide PTI table in Appendix 6. The facility once had two separate SRNs. PTI 45-10B was issued under SRN P0072. The facility made a stationary source demonstration and was combined under SRN N6004.

PTI 179-11 should not be in the Source-Wide PTI table. This permit was issued for a used oil burner and the equipment has since been replaced and new equipment installed under PTI 179-17, which is identified in Appendix 6 of the Renewable Operating Permit.

EPA Comment 3:

EU-FURNACE. This section of the permit includes conditions established pursuant to Permit to Install # 179-17. Please review all conditions in EU-FURNACE and include the Footnote 1 and Footnote 2 designations, as appropriate, to each condition that is enforceable pursuant to Title I of the Clean Air Act, Michigan Rules 201(1)(a) or (b), and the state procedures for identifying the Source-wide Permit to Install.

AQD Response:

Conditions in EU-FURNACE were reviewed and Footnote 1 and Footnote 2 designations were appropriately added to each condition where applicable.

EPA Comment 4:

EU-FURNACE. In accordance with the monitoring requirements in 40 CFR §70.6(a)(3) and (c)(1), please either 1) supplement the monitoring and recordkeeping (including data collection frequency, data averaging, and calculations) in the permit to assure compliance with the 0.17 pound per hour SO₂ limit or 2) provide justification in the Staff Report verifying that the existing monitoring in VI.2 is sufficient to assure compliance with the hourly SO₂ limit.

AQD Response:

The material limit specified in special condition II.4 limits the sulfur content of all fuels used in EU-FURNACE to not exceed 1.0 percent by weight. This material limit restricts the sulfur thereby limiting the SO₂ content to below 0.17 pounds per hour.

Additional testing language was added to verify compliance with the 0.17 SO₂ limit if the 1.0 percent by weight sulfur content of the fuel cannot be met.

EPA Comment 5:

EU-FURNACE. Section VI. includes a requirement for noncertified visible emissions readings. Typically, noncertified readings are only used to detect the presence or absence of visible emissions, and they typically require subsequent certified readings and/or corrective action for units that do not normally have any detectible visible emissions. In contrast, EU-FURNACE is a used oil furnace subject to a six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity. In accordance with 40 CFR §70.6(a)(3) and (c)(1), please either 1) supplement the monitoring and recordkeeping in the permit as necessary to assure compliance with the opacity limits, or 2) provide justification in the Staff Report verifying how the existing permit conditions are sufficient to assure compliance.

AQD Response:

Additional conditions were added under VI. Monitoring/Recordkeeping to supplement the monitoring and recordkeeping in the permit to assure compliance with the opacity limits.

EPA Comment 6:

EU-FURNACE. Please correct each of the four references to Appendix A in EU-FURNACE to Appendix 3, pertaining to used oil compliance monitoring.

AQD Response:

As recommended, each of the four references to Appendix A in EU-FURNACE were changed to reference Appendix 3, pertaining to used oil compliance monitoring.

EPA Comment 7:

FGICENGINES. This section of the permit includes conditions established pursuant to Permits to Install #45-10, #45-10A, and #45-10B. Please review all conditions in FGICENGINES and include the Footnote 1 and Footnote 2 designations, as appropriate, to each condition that is enforceable pursuant to Title I of the Clean Air Act, Michigan Rules 201(1)(a) or (b), and the state procedures for identifying the Source-wide Permit to Install.

AQD Response:

Conditions in FGICENGINES were reviewed and Footnote 1 and Footnote 2 designations were appropriately added to each condition where applicable.

EPA Comment 8:

FGICENGINES. Section III.2. is missing the identification of the underlying applicable requirement(s). In accordance with 40 CFR §70.6(a)(1)(i), please add the underlying origin and authority for these permit conditions.

AQD Response:

As recommended, the underlying applicable requirements in Section III.2 of FGICENGINES were added. A formatting issue had pushed the underlying applicable requirements into an additional condition. The added underlying applicable requirements were derived from PTI 45-10B.

EPA Comment 9:

Plans referenced in the permit. Several conditions in the permit refer to requirements to develop and operate in accordance with specific plans. Please ensure that these plans are readily accessible in the permit record, including online Internet availability if feasible. As addressed by EPA's March 5, 1996 "White Paper Number 2 for Improved Implementation of The Part 70 Operating Permits Program," information cited or cross-referenced in permits should be current and readily available to the permitting agency and to the public. The referenced plans include: surface monitoring design plan (EU-LANDFILL), startup, shutdown, malfunction plans (EU-ACTIVECOLL, EU-OPENFLARE), preventative maintenance plan (EU-TREATMENTSYS), and malfunction abatement/preventative maintenance plan (FGICENGINES).

AQD Response:

The referenced plans are a part of the ROP Renewal Application and available online, as well as listed individually.

Additional Changes:

A citation error was discovered under EUBIOREACTOR, special condition VI.2. The condition referenced Table 1 of 40 CFR Part 60, Subpart AAAA. The referenced table is actually in 40 CFR Part 63, Subpart AAAA. Part 60 was changed to Part 63.

State Registration Number

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RENEWABLE OPERATING PERMIT

ROP Number

MI-ROP-N6004-2019a

MAY 12, 2020 - STAFF REPORT FOR RULE 216(2) MINOR MODIFICATION

Purpose

On January 22, 2019, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-N6004-2019 to City of Midland Utilities Division pursuant to Rule 214 of the administrative rules promulgated under Act 451. Once issued, a company is required to submit an application for changes to the ROP as described in Rule 216. The purpose of this Staff Report is to describe the changes that were made to the ROP pursuant to Rule 216(2).

General Information

Responsible Official:	Scott O'Laughlin, Landfill Superintendent 989-839-6989
AQD Contact:	Caryn E. Owens, Environmental Engineer 231-878-6688
Application Number:	202000075
Date Application for Minor Modification was Submitted:	April 23, 2020

Regulatory Analysis

The AQD has determined that the change requested by the stationary source meets the qualifications for a Minor Modification pursuant to Rule 216(2).

Description of Changes to the ROP

The AQD added applicable ROP reporting requirements to FG-RICEMACT (SC VII.1 - SC VII.3), and updated SC VII.4 to align the 40 CFR Part 63, Subpart ZZZZ (RICEMACT), with state annual reporting requirements. The annual; report submission changed from January 31st to March 31st for the previous reporting year January 1st - December 31st. The RICEMACT allows for this change in 40 CFR 63.6650(g) and 40 CFR 63.6650(b)(5).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements associated with the emission unit(s) involved with the change as of the date of approval of the Minor Modification to the ROP.

Action Taken by EGLE

The AQD proposes to approve a Minor Modification to ROP No. MI-ROP-N6004-2019, as requested by the stationary source. A final decision on the Minor Modification to the ROP will not be made until any affected states and the United States Environmental Protection Agency (USEPA) has been allowed 45 days to review the proposed changes to the ROP. The delegated decision maker for the AQD is the District Supervisor. The final determination for approval of the Minor Modification will be based on the contents of the permit application, a judgment that the stationary source will be able to comply with applicable emission limits and other requirements, and resolution of any objections by any affected states or the USEPA.