

State Registration Number
N6006

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N6006-2023

Autumn Hills Recycling and Disposal Facility

and

**North American Natural Resources, Inc.- Autumn Hills Compressor Station/Autumn Hills
Generating Station**

State Registration Number (SRN): N6006

Located at

700 56th Street, Zeeland, Ottawa County, Michigan 49464
and
5615 Adams Street, Zeeland, Ottawa County, Michigan 49464

Permit Number: MI-ROP-N6006-2023

Staff Report Date: March 20, 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).

TABLE OF CONTENTS

March 20, 2023 - STAFF REPORT	3
April 20, 2023 - STAFF REPORT ADDENDUM	9

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RENEWABLE OPERATING PERMIT

March 20, 2023 - STAFF REPORT

ROP Number

MI-ROP-N6006-2023

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	Autumn Hills Recycling and Disposal Facility 700 56 th Street Zeeland, Michigan 49464
Stationary Source Mailing Address: Section 2	North American Natural Resources, Inc.- Autumn Hills Compressor Station/Autumn Hills Generating Station 5615 Adams Street Zeeland, Michigan 49464
Source Registration Number (SRN):	N6006
North American Industry Classification System (NAICS) Code:	Section 1: 562212- Municipal Solid Waste Landfill Section 2: 221119- Other Electric Power Generation
Number of Stationary Source Sections:	2
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202200192
Responsible Official: Section 1	Matthew Rosser, District Manager 616-836-9065
Responsible Official: Section 2	Thomas Burgett, VP of Midstream Services CO2 713-420-4803
AQD Contact - District Inspector:	Michael Cox, Environmental Quality Analyst 616-240-3607
AQD Contact - ROP Writer:	Matthew Karl, Senior Environmental Quality Analyst 517-282-2126
Date Application Received:	October 5, 2022
Date Application Was Administratively Complete:	October 5, 2022
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	March 20, 2023
Deadline for Public Comment:	April 19, 2023

Source Description

SECTION 1:

Autumn Hills Recycling and Disposal Facility (RDF) is located in Zeeland, Michigan, Ottawa County. A branch of the Macatawa River runs along the southern border of the landfill. The landfill is bounded by Adams Street to the north, 48th Avenue to the east, East Ottogan Street to the south, and 56th Avenue to the west. The city of Drenthe is located a mile to the west of the landfill. There are 11 residences to the southeast of the landfill along 48th Avenue. There are two farms to the northeast of the landfill along Adams Street and two to the west along 56th Avenue. The North American Natural Resources, Inc. (NANR) – Autumn Hills Compressor/Generating station is located northwest of the landfill across the intersection of Adams Street and 56th Avenue along Adams Street.

Autumn Hills RDF is classified as a Type II landfill or Municipal Solid Waste (MSW) landfill. In Michigan, the Materials Management Division (MMD) establishes standards for Solid Waste Management. Rule 299.4104(d) defines a Type II landfill as:

"A landfill which receives household waste, municipal solid waste incinerator ash or sewage sludge and which is not a land application unit, surface impoundment, injection well, or waste pile. A municipal solid waste landfill also may receive other types of solid waste such as: construction and demolition waste, sewage sludge, commercial waste, nonhazardous sludge, hazardous waste from conditionally exempt small quantity generators, and industrial waste. Such a landfill may be publicly or privately owned."

The landfill began accepting waste in March 1992. The landfill was modified in 2014 and currently has a design capacity of 20 million cubic yards. As of June 2021, the facility has approximately 12,975,643 million cubic yards of waste in place. In 2021, the landfill accepted 159,664 tons of waste. Wastes accepted includes municipal waste, construction and demolition debris, foundry sand, ash, and low-level contaminated soils. The facility accepts asbestos containing materials; from August 2020-July 2021 the facility accepted 780 yards of friable asbestos waste. Waste materials arrive in a variety of vehicles that have the potential to generate fugitive particulate matter (PM) emissions from the roads around the landfill.

After waste is transported to the landfill, it is placed in one of the active working areas, known as cells, and is covered daily with soil or other cover materials. When a cell reaches its design capacity, a liner is installed to cover the waste. Over time, natural biological processes transform the waste materials and produce leachate and landfill gas (LFG). Initially, decomposition is aerobic until the oxygen supply is exhausted. Anaerobic decomposition of buried refuse creates most of the LFG. The LFG is comprised of methane (CH₄), carbon dioxide (CO₂), carbon monoxide (CO), hydrogen sulfide (H₂S), volatile organic compounds (VOC) and non-methane organic compounds (NMOC). NMOC is the primary regulated air pollutant associated with LFG generation. The uncontrolled mass emissions of NMOC calculated by the EPA Landfill Gas Model are 60.06 megagrams per year (Mg/yr). This requires the facility to have an active landfill gas collection and control system (GCCS). The GCCS uses a series of interconnected vertical and horizontal gas extraction wells that are operating under negative pressure to collect LFG throughout the landfill and route the gas to a main header, which then routes the gas either to an open flare control or to the Section 2 treatment system. The open flare control has the capacity to burn 3,000 standard cubic feet per minute of LFG.

The landfill also has one small maintenance cold cleaner, which uses mineral spirits as the cleaning solution.

SECTION 2

The NANR – Autumn Hills Compressor/Generating Station consists of two buildings where one building houses the landfill gas treatment system and the second building houses three internal combustion engines used to generate electricity. LFG produced at the Autumn Hills RDF is routed through a 1,200-

foot pipeline to the treatment system where the gas is filtered, dewatered, compressed, and cooled for subsequent reuse. Once treated, the landfill gas is either sent to the internal combustion engines to produce electricity or is introduced into a pipeline which routes the gas to a nearby Zeeland Farm Services (ZFS) facility that burns the gas in boilers and turbines. The internal combustion engines exhaust carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compounds (VOC), and formaldehyde.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2021**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	114.3
Nitrogen Oxides (NO _x)	20.7
PM10*	10.8
Sulfur Dioxide (SO ₂)	25.8
Volatile Organic Compounds (VOCs)	5.5

*PM10 = particulate matter that has an aerodynamic diameter of less than or equal to 10 micrometers.

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2021 for NMOC by the source, and PTE for individual HAPs for PTI No. 86-19 for Section 2:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
NMOC (HAP Surrogate per 40 CFR Part 63, Subpart AAAA)	16.6
Formaldehyde	26.8
Hydrogen Chloride (HCl)	1.6
Total Hazardous Air Pollutants (HAPs) (excluding NMOC)	29.6
Total Hazardous Air Pollutants (HAPs) (including NMOC)	46.2

**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 Ottawa 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 carbon monoxide (CO) exceeds 100 tons per year. In addition, 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 and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

Also, the stationary source was modified after July 17, 2014 and has a design capacity greater than 2.5 million cubic meters, and is therefore subject to the New Source Performance Standard (NSPS) for Municipal Solid Waste Landfills promulgated in 40 CFR Part 60, Subparts A and XXX. This NSPS requires a Part 70 Renewable Operating Permit. The NMOC emissions from the landfill are greater than 34 megagrams per year, so the source is required to install and maintain a landfill 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.

EULANDFILL at the stationary source is subject to the Standards of Performance for Municipal Solid Waste Landfills that commenced construction, reconstruction, or modification after July 17, 2014, promulgated in 40 CFR Part 60, Subparts A and XXX.

EUASBESTOS 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.

EULANDFILL, EUACTIVECOLL, EUOPENFLARE, and EUTREATMENTSYS at the stationary source are 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 landfill meets the applicability criteria of accepting waste after November 8, 1987, has additional capacity for waste deposition and meets the criteria of being collocated with a major source as defined in 40 CFR 63.2. Beginning no later than September 27, 2021, all landfills described in 40 CFR 63.1935 must meet the requirements of this subpart.

EUENGINE1, EUENGINE2R, and EUENGINE4 at the stationary source are subject to the New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and JJJJ. Additionally, FGSIRICEMACT (EUENGINE1, EUENGINE2R and EUENGINE4) are subject to the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

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."

The emission limitations and standards for NMOC at the stationary source with the underlying applicable requirements of 40 CFR Part 60, Subpart XXX and 40 CFR Part 63, Subpart AAAA from EULANDFILL are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because the emission limitations and standards meet the CAM exemption for NSPS or MACT proposed after November 15, 1990.

The emission limitations and standards for NO_x, CO and VOCs at the stationary source with the underlying applicable requirements of 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 63, Subpart ZZZZ from EUENGINE4 and FGSIRICEMACT are not subject to the federal CAM regulation because these engines do not have control devices.

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-N6006-2018 are identified in Appendix 6 of the ROP.

PTI Number			
330-97	28-01	362-08	72-13
86-19	102-98		

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
EUWASTEOILTANK	300-gallon waste oil storage tank.	R 336.1212(4)(d)	R 336.1284(2)(i)
EUAIRCOMPRESS	Two mobile diesel air compressor, 55 hp (0.14 MMBTU/hr) (One is third-party).	R 336.1212(4)(e)	R 336.1285(2)(g)
EUWATERPUMPS	One mobile diesel water pump (0.45 MMBTU/hr).	R 336.1212(4)(e)	R 336.1285(2)(g)
EUANTIFREEZE	Four 55-gallon drums of antifreeze.	R 336.1212(4)(e)	R 336.1285(2)(u)
EUDIESELTANK1	One 100-gallon diesel tank.	R 336.1212(4)(d)	R 336.1284(2)(g)(i)
EUUSED OILTANK	One 500-gallon used oil tank.	R 336.1212(4)(d)	R 336.1284(2)(i)
EUDIESEL TANKS2	Two mobile diesel tanks (one 1,200-gallon; one 11,000-gallon).	R 336.1212(4)(d)	R 336.1284(2)(g)(i)
EUFRACTANK	One Alder Frac-Tank (40,000-gallon).	R 336.1212(4)(d)	R 336.1284(2)(i)

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 Manager. 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
N6006

RENEWABLE OPERATING PERMIT
April 20, 2023 - STAFF REPORT ADDENDUM

ROP Number
MI-ROP-N6006-2023

Purpose

A Staff Report dated March 20, 2023, 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: Section 1	Matthew Rosser, District Manager 616-836-9065
Responsible Official: Section 2	Thomas Burgett, VP of Midstream Services CO2 713-420-4803
AQD Contact - District Inspector:	Michael Cox, Environmental Quality Analyst 616-240-3607
AQD Contact - ROP Writer:	Matthew Karl, Senior Environmental Quality Analyst 517-282-2126

Summary of Pertinent Comments

A question was received by a member of the general public regarding the classification of the landfill.

Question:

Autumn Hills RDF is classified as a Type II landfill or Municipal Solid Waste (MSW) landfill. In Michigan, the Materials Management Division (MMD) establishes standards for Solid Waste Management. Rule 299.4104(d) defines a Type II landfill as:

"A landfill which receives household waste, municipal solid waste incinerator ash or sewage sludge and which is not a land application unit, surface impoundment, **injection well**, or waste pile. A municipal solid waste landfill also may receive other types of solid waste such as: construction and demolition waste, sewage sludge, commercial waste, nonhazardous sludge, hazardous waste from conditionally exempt small quantity generators, and industrial waste. Such a landfill may be publicly or privately owned."

Autumn Hills landfill applied and installed an injection well, does that mean it's no longer a type 2 landfill?

AQD's Response:

As you noted in the Rule 299.4104(d) definition below, "injection wells" are not considered part of the normal operations of a type II or municipal solid waste landfill. Having an injection well does not change the classification of the landfill, but it does require them to apply for and have approved a separate permit for the injection well operations. I have attached the fact sheet for the EPA's permit MI-139-11-0006 for the injection well.

The reason I noted that the Autumn Hills landfill is defined as a municipal solid waste landfill is because we are including federal requirements that apply to municipal solid waste landfill operations in this permit renewal.

Changes to the March 20, 2023 Draft ROP

No changes were made to the draft ROP.