

State Registration Number
N7113

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N7113-2022

Michigan Public Power Agency - Kalkaska CT No. 1

State Registration Number (SRN): N7113

Located at

1750 Prough Road, Kalkaska, Kalkaska County, Michigan 49646

Permit Number: MI-ROP-N7113-2022

Staff Report Date: April 25, 2022

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

STAFF REPORT – APRIL 25, 2022

ROP Number

MI-ROP-N7113-2022

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:	Michigan Public Power Agency Kalkaska CT No. 1 1750 Prough Road, Kalkaska, Michigan 49646
Source Registration Number (SRN):	N7113
North American Industry Classification System (NAICS) Code:	221112
Number of Stationary Source Sections:	One
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202000177
Responsible Official:	Patrick Bowland General Manager & CEO 517-853-1571
AQD Contact:	Sharon G. Leblanc, Environmental Quality Analyst 989-217-0055
Date Application Received:	December 21, 2020
Date Application Was Administratively Complete:	December 23, 2020
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	April 25, 2022
Deadline for Public Comment:	May 25, 2022

Source Description

Michigan Public Power Agency (MPPA) operates an electric power plant located on Prough Road, in a small industrial area approximately two miles south-southwest of Kalkaska, Michigan. The unmanned station is operated as a "peaking plant", meaning that it operates mostly for short periods of "peak load" when demand for electricity is high. The facility was constructed in 2002 and may run one or both turbines as required. It may be started and brought on-line remotely. When in operation, an operator is normally onsite to monitor the activities, though they can also be monitored from Company offices in Traverse City, Michigan.

The facility contains one Pratt and Whitney FT-8 Twin Pac turbine set consisting of two combustion turbines fired by natural gas and utilizing water injection and low-NOx burners for controlling emissions of nitrogen oxides. The turbines are coupled to an electric generator with an ISO nominal rating of 55 MW. The facility also has a diesel engine for operating a fire pump, and a natural gas-fired "line heater" to preheat natural gas fuel before the fuel is supplied to the turbines.

The Facility is controlled using operating software that is programmed using operating curves of water to fuel ratios established during testing. The software is reported to shut down the Facility should any parameters exceed the ranges and thresholds established during testing.

Since the last ROP renewal, changes at the facility have included: upgrade of turbine control hardware and software (2017), installation of a trailer to act as an office/breakroom for staff, and replacement of EUHTRBOILER (2017).

Local Area

Located in Kalkaska County, the Village of Kalkaska was reported to have a population of 2,020 at the time of the 2010 census. The Village is located along U.S. Highway 131 (US Hwy 131) and is approximately 25 miles east of Traverse City, Michigan.

In the 1970s, the oil and gas industry provided a boost to the local economy, which presently relies heavily on services and tourism. In addition, Marijuana and manufacturing are also important to the local economy. Kalkaska county is known nationally as a fishing destination. In 1916, author Ernest Hemmingway wrote about his experiences in his story titled "The Battler". The Village has annually hosted the National Trout Festival in April since 1933. The Village also hosts a Winter Fest in January in support of winter recreational activities.

The Boardman River System begins in the Mahan Swamp located NE of the Village of Kalkaska. From the Mahan Swamp, the Boardman River System flows to the SW approximately 40 miles between Kalkaska and Grand Traverse Counties before turning north and emptying into Grand Traverse Bay. The referenced system drains approximately 186,000 acres. The North Branch of the Boardman River runs thru the southern portion of the Village of Kalkaska. The Falling Creek tributary runs westerly within 1-mile of the stationary source and feeds the North Branch of the Boardman River.

Public Schools located in the Village of Kalkaska within a 5 mile- radius of the stationary source include:

- Kalkaska High School, located 3.36 miles N-NE
- Birch Street Elementary, located 3.48 miles N-NE
- Cherry Street Intermediate, located 3.18 miles N-NE
- Kalkaska Middle School, located 3.43 miles N-NE
- Northside Educational Center, located 3.6 miles N-NE

Other locations of interest include:

- Kalkaska Memorial Health Center, located 3.09 miles N-NE
- Kalkaska County Sheriff's Department, 3.5 miles N-NE
- Kalkaska City Airport, 2.46 miles N

EQUIPMENT

EUs identified in the ROP EU Summary Table consist of:

- EUTURBINE1A
- EUTURBINE1B

Two NG-fired, simple cycle, 273.15 MMBtu/Hr nominal heat input, Pratt and Whitney FT8-1 Twin Pac turbine set (FGTURBINES). They are nominally rated at 55 MW and 546.3 MMBtu/Hr combined.

The two EUs are equipped with low NO_x-burners and water injection for pollution controls. The water injection system controls the flame temperature in turbine engine (AKA gas generator) to manage NO_x emissions. Demineralized water is drawn from the storage tank, pressurized and then injected through the fuel nozzles into the turbine combustion chambers.

The startup procedures are fully automated once the start sequence is initiated by the operator. NG is obtained by directly from the pipeline and is reported to be conditioned by heating (if necessary) prior to use as fuel.

- EUFPENGINE

One John Deere, 6.8-liter, 210 HP diesel engine used as backup power for the fire pump. The EU is reported to be an emergency generator, used once per year for maintenance purposes, and in case of emergency when the primary electric motor for the pump is unavailable. The main energy source for the fire pump is reported to be electrical energy off the grid. Permit conditions associated with the referenced EU are required under 40 CFR Part 63, Subpart ZZZZ for RICE. Conditions associated with the referenced RICE MACT are incorporated into the EU.

In addition to the above referenced EUs, a review of MAERS identified the following additional EUs which are reported to be exempt from permitting under Rule 282 (2)(b)(i):

- EUHEATBLR

250,000 Btu/Hr boiler used for seasonal heating the building enclosing the turbines. Installed in 2002. The unit was replaced in 2017 with a replacement boiler system rated from 45,000 to 260,000 BTU/Hr for enclosure heating. A review of exemptions indicates that the unit may be exempt from permitting under Rule 282(2)(b) for space heaters.

- EUGASHEATER

1MMBtu/Hr heat input, inline NG-fired heater for incoming NG fuel for FGTURBINES. Installed in 2006. This EU has been identified in previous site inspection reports as being exempt from permitting under Rule 282(b)(i). At the time of the July 9, 2020, site inspection, maintenance activities were being conducted on the regulator(s) associated with the NG heater.

Additional equipment onsite consists of:

- One approximately 210,000-gallon water tank of water for fire suppression, and
- One approximately 330,000-gallon tank of demineralized water for NO_x control

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

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	9.29
Lead (Pb)	NR
Nitrogen Oxides (NO _x)	10.14
Particulate Matter (PM) (Filterable/Primary)	0.0009/0.747
Sulfur Dioxide (SO ₂)	0.073
Volatile Organic Compounds (VOCs)	0.24

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2020 by AQD:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Acetaldehyde	0.004
Acrolein	0.0007
Benzene	0.001
Butadiene	0.00005
Formaldehyde	0.080
Naphthalene	0.0002
Propylene oxides	0.003
Toluene	0.015
Xylene isomers	0.007
Total Hazardous Air Pollutants (HAPs)	0.11

**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 Kalkaska County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is not considered a major source of criteria pollutant emissions under 40 CFR, Part 70 since the stationary source has accepted legally enforceable permit conditions limiting the potential to emit nitrogen oxides to below 100 tons per year.

The stationary source is a minor source of HAP emissions because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year.

The stationary source is considered a “synthetic minor” source in regard to the Prevention of Significant Deterioration regulations of 40 CFR 52.21 because the stationary source accepted legally enforceable permit conditions limiting the potential to emit of NO_x to less than 250 tons per year.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because it is subject to Title IV, the Acid Rain provisions of the Federal Clean Air Act and regulations promulgated under 40 CFR Part 72. All sources subject to 40 CFR Part 72 are also subject to 40 CFR Part 70.

No EUs were installed prior to August 15, 1967. As a result, none are considered "grandfathered" and not subject to New Source Review (NSR) permitting requirements. The Facility did not undergo a "Major" NSR based on PTE. However, future modifications of this equipment may be subject to NSR.

No changes to MI-ROP-N7113-2016A have been proposed by the stationary source during this renewal.

The following EUs at the stationary source are subject to the Standards of Performance promulgated in 40 CFR Part 60:

Emission Units	40 CFR Part 60, Subparts	Standard of Performance
EUTURBINE1A EUTURBINE1B	Part 60, Subparts A and GG	Standards of Performance for Stationary Gas Turbines

Note that EUTURBINE1A & EUTURBINE1B are **not** subject to 40 CFR Part 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines. This subpart is applicable only to Turbines greater than 10 MMBtu/hr heat input at peak load constructed, modified or reconstructed after February 18, 2005 (after the 2002 construction date).

EUHEATBLR at the stationary source is **not** subject to the National Emissions Standards for Hazardous Air Pollutants for Small Steam Generating Units promulgated in 40 CFR Part 60 Subpart DC. EUHEATBLR is a space heater and has a design heat input of less than 2.9 MW (10 MMBtu/hr).

EUFENGINE is **not** subject to 40 CFR Part 60 Subpart JJJJ – Spark Ignition RICE as EUFPENGINE has an installation date of 2002 (prior to 2006 applicability date).

None of the EUs at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants were promulgated in 40 CFR Part 61.

The following EUs at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

Emission Units	40 CFR Part 63, Subparts	National Emission Standards for HAPs
EUFENGINE	Part 63, Subparts A and ZZZZ	Stationary Reciprocating Internal Combustion Engines (RICE) AKA RICE MACT

Conditions for EUFPENGINE under 40 CFR Part 63, Subpart A and ZZZZ have been incorporated into the ROP. The AQD is not delegated the regulatory authority for this area source MACT.

EUHEATBLR at the stationary source is **not** subject to the National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources promulgated in 40 CFR Part 63, Subparts A and JJJJJJ (Boiler Area Source MACT). The Boiler Area Source MACT specifically states in 40 CFR 63.11195 gas-fired boilers are not subject to the subpart.

EUGASHEATER at the stationary source is **not** subject to the National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources promulgated in 40 CFR Part 63, Subparts A and JJJJJJ (Boiler Area Source MACT). By definition, EUGASHEATER warms incoming NG fuel, has a heat input of less than 1.6 million BTU/hr and is a process heater and is excluded from the subpart.

EUTURBINE1A & EUTURBINE1B at the stationary source are subject to the federal Acid Rain program promulgated in 40 CFR Part 72.

EUTURBINE1A & EUTURBINE1B at the stationary source are subject to the Cross-State Air Pollution Rule NO_x Annual Trading Program pursuant to 40 CFR Part 97, Subpart AAAAA.

EUTURBINE1A & EUTURBINE1B at the stationary source are subject to the Cross-State Air Pollution Rule NO_x Ozone Season Group 2 Trading Program pursuant to 40 CFR Part 97, Subpart EEEEE.

EUTURBINE1A & EUTURBINE1B at the stationary source are subject to the Cross-State Air Pollution Rule SO₂ Group 1 Trading Program pursuant to 40 CFR Part 97, Subpart CCCCC.

EUTURBINE1 and EUTURBINE1B at the stationary source are **not** subject to R 336.1801 because they currently meet the definition of peaking units in R 336.1801(14).

No Letters of Violation have been issued to the stationary source since the last ROP renewal. The most recent compliance issues occurred in 2006 and 2007 and involved problems with the sources Data Acquisition System (DAS). These compliance issues were considered resolved on March 18, 2008.

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 limitation(s) or standard(s) for NO_x emissions from EUTURBINE1A and EUTURBINE1B at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation under 40 CFR Part 64.2(b)(1)(iv), because NO_x emission limitation(s) or standard(s) apply solely under an emission trading program (CSAPR). Therefore, EUTURBINE1A and EUTURBINE1B are exempt from CAM requirements for NO_x.

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.

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-N7113-2016a are identified in Appendix 6 of the ROP.

PTI Number			
25-02	25-02A	25-02B	

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
EUGASHEATER	NG-fired heater to pre-heat turbine fuel, 1MMBtu/Hr heat input.	R. 336.1212(4)(b)	R. 336.1282(b)(i)
EUHEATBLR	250,000 Btu/Hr, NG-fired space heater for turbine enclosure.	R. 336.1212(4)(b)	R. 336.1282(b)(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 Shane Nixon, Cadillac/Gaylord 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
N7113

RENEWABLE OPERATING PERMIT
MAY 26, 2022- STAFF REPORT ADDENDUM

ROP Number
MI-ROP-N7113-2022

Purpose

A Staff Report dated April 25, 2022, 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:	Patrick Bowland, General Manager & CEO 517-853-1571
AQD Contact:	Sharon G. LeBlanc, Environmental Quality Analyst 989-217-0055

Summary of Pertinent Comments

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

Changes to the April 25, 2022 Draft ROP

No changes were made to the draft ROP.