

State Registration Number
P0668

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-P0668-2019

Marquette Board of Light and Power

Marquette Energy Center (MEC)

State Registration Number (SRN): P0668

Located at

2200 Wright Street, Marquette, Marquette County, Michigan 49855

Permit Number: MI-ROP-P0668-2019

Staff Report Date: July 8, 2019

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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JULY 8, 2019 - 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:	Marquette Board of Light and Power Marquette Energy Center (MEC) 2200 Wright Street Marquette, Michigan 49855
Source Registration Number (SRN):	P0668
North American Industry Classification System (NAICS) Code:	221112
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Initial Issuance
Application Number:	201800091
Responsible Official:	Thomas Carpenter, Executive Director 906-458-5765
AQD Contact:	Sydney Bruestle, Environmental Quality Analyst 906-236-3995
Date Application Received:	July 18, 2018
Date Application Was Administratively Complete:	July 25, 2018
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	July 8, 2019
Deadline for Public Comment:	August 7, 2019

Source Description

Marquette Board of Light and Power (MBLP), Marquette Energy Center (MEC) operates a new power plant located at 2200 Wright Street in Marquette, Michigan. The power plant finished installation in 2017 and includes three Wärtsilä 18V50DF reciprocating internal combustion engines (power plant engines) equipped with selective catalytic reduction (SCR) and oxidation catalyst emissions control systems, a black start emergency diesel generator (EDG), and fuel oil and reagent storage capacity. The power plant was located at a site that already contained a small liquefied petroleum gas (LPG)-fired engine and miscellaneous natural gas-fired heaters (such as space heaters). These engines were installed to satisfy the need for additional electricity generation capacity because the Marquette Board of Light and Power shut down the Shiras Steam Plant June 2017.

The three Wärtsilä 18V50DF engines are dual-fired engines. They can operate on natural gas with a diesel pilot fuel or 100% diesel fuel. The engines are not equipped with spark plugs, so to operate on natural gas, a small amount of diesel is required to provide the ignition from compression.

The emergency diesel generator is designed to fire ultra-low sulfur diesel fuel. The auxiliary power generated provides necessary service loads to equipment required for startup of the Wärtsilä engines, including fuel supply system, lube oil pumps, radiators, and reagent pumps for SCR system. The black start EDG is designed to provide up to 400 kW power during emergency situations. The EDG is designed to meet applicable new source performance standards (NSPS) emissions requirements. The engine is used only in case of an emergency and for periodic testing.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2018**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	2
Lead (Pb)	0
Nitrogen Oxides (NO _x)	15
Particulate Matter (PM)	11.6
Sulfur Dioxide (SO ₂)	0.75
Volatile Organic Compounds (VOCs)	48

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2017 by Marquette Board of Light and Power:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Formaldehyde	0.5
Dibenzo(a,h) anthracene	0.3
Acrolein	0.1
N-Hexane	0.1
Total Hazardous Air Pollutants (HAPs)	1.3

**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.

The stationary source is in Marquette 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 nitrogen oxides, carbon monoxide, and VOCs exceeds 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 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 nitrogen oxides and VOCs to less than 250 tons per year.

EUENGINE01, EUENGINE02, and EUENGINE03 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.

EUENGINE01, EUENGINE02, EUENGINE03, and EUEDG at the stationary source are subject to the Standards of Performance for Stationary Compression Ignition Combustion Engines promulgated in 40 CFR Part 60, Subparts A and IIII.

Both NSPS Subparts IIII and JJJJ contain the following definition for spark ignition:

Spark ignition means relating to either: a gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines. If the annual average ratio of the primary fuel is less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis, then it is considered a spark ignition engine. Different flexible groups are applicable depending upon this ratio. If the engine is considered a spark ignition engine, then FGNGOP is applicable. If the engine is considered a compression ignition engine, then FGDIESELOP is applicable, each engine is assessed separately.

EUENGINE01, EUENGINE02, EUENGINE03, and EUEDG 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 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."

EUENGINE01, EUENGINE02, and EUENGINE03 have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the unit(s) have potential pre-control emissions over the major source thresholds. While EUENGINE01, EUENGINE02, and EUENGINE03 are subject to CAM, none of the engines are defined as "large pollutant specific emission units" (PSEU), therefore a CAM plan is not required with the initial application. Part 64.5(b) states

the facility must supply a CAM Plan with the ROP renewal, at that time CAM language will be added to the ROP.

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.

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
EUHEATERS	Miscellaneous heaters with a combined capacity of 3 MMBTU/hr used for plant heating	282(b)(i)	212(4)(b)

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 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 Ed Lancaster, Marquette 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.

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AUGUST 13, 2019 - STAFF REPORT ADDENDUM

Purpose

A Staff Report dated July 8, 2019, 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:	Thomas Carpenter, Executive Director 906-458-5765
AQD Contact:	Sydney Bruestle, Environmental Quality Analyst 906-236-3277

Summary of Pertinent Comments

Marquette Board of Light and Power Marquette Energy Center commented on FGNGOP Section V., Condition 3. Language from PTI 204-15A was added to the ROP requiring testing within 180 days of permit issuance. The facility completed the required testing within 180 days of the PTI issuance as the language required. This condition should be modified to require testing at least once every 5 years.

U.S. Environmental Protection Agency (EPA) commented the draft ROP did not properly address potentially applicable requirements pursuant to the Clean Air Act Acid Rain Program. It is likely that the source is subject to the new unit exemption provisions in 40 CFR 72.7.

Changes to the May 30, 2019 Draft ROP

FGNGOP Section V., Condition 3 was modified. Language requiring stack testing within 180 days of permit issuance was removed because this was intended to be completed within 180 days of the issuance of PTI 204-15A and was completed July 25, 2019. Language requiring stack testing at least every 5 years was added.

Marquette Board of Light and Power Marquette Energy Center is subject to the new unit acid rain permit exemption provisions in 40 CFR 72.2. Special Conditions IX. 4 & 5 were added to FGNGOP and FGDIESELOP to cover the requirements of 40 CFR 72.7.