

State Registration Number
N6873

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N6873-
2020

DTE Electric Company - Renaissance Power Plant

State Registration Number (SRN): N6873

Located at

950 North Division Street, Carson City, Montcalm County, Michigan 48811

Permit Number: MI-ROP-N6873-2020

Staff Report Date: July 6, 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

July 6, 2020 - STAFF REPORT

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MI-ROP-M6873-
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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:	DTE Electric Company - Renaissance Power Plant 950 North Division Street Carson City, Michigan 48811
Source Registration Number (SRN):	N6873
North American Industry Classification System (NAICS) Code:	221112
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201900166
Responsible Official:	Margaret Guillaumin, Plant Manager, Fossil Generation - Peakers 313-701-3383
AQD Contact:	Kaitlyn DeVries, Environmental Quality Analyst 616-558-0552
Date Application Received:	September 26, 2019
Date Application Was Administratively Complete:	September 26, 2019
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	July 6, 2020
Deadline for Public Comment:	August 5, 2020

Source Description

DTE Electric Company - Renaissance Power Plant is a natural gas-fired electric generating peaking facility comprised of four (4) simple cycle combustion turbines. Support equipment for the electrical generation activities include a diesel-fired emergency backup generator, a diesel-fired fire pump for fire control, a natural gas fired heating unit used for conditioning the natural gas for the combustion turbines and a small cold cleaner for maintenance activities.

The facility is located on the north side of downtown Carson City; the areas to the east, west, and north of the facility are rural/agricultural.

Each of the four (4) Siemens-Westinghouse Model 501F turbines are equipped with low-NOx burners. Each unit is nominally rated at 1,900 MMBTU/hr heat input and are capable of producing 215 megawatts (MW) of electrical power. Nitrogen Oxide (NOx) and Carbon Monoxide (CO) emissions are monitored from the facility via a continuous emissions monitoring system (CEMS).

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2019**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	35.91
Lead (Pb)	0
Nitrogen Oxides (NO _x)	195.7
Particulate Matter (PM)	5.5
Sulfur Dioxide (SO ₂)	2.22
Volatile Organic Compounds (VOCs)	13.9

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2019 by the facility. This source is considered a minor source of HAPS.

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Formaldehyde	1.2

**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 Montcalm 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 and nitrogen oxides 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.

EU-TURBINE1SC, EU-TURBINE2SC, EU-TURBINE3SC and EU-TURBINE4SC (FG-TURBINE1-4SC) at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of The Michigan Air Pollution Control Rules Part 18, Prevention of Significant Deterioration of Air Quality because at the time of New Source Review permitting the potential to emit of carbon monoxide and nitrogen oxides were greater than 100 tons per year.

EU-TURBINE1SC, EU-TURBINE2SC, EU-TURBINE3SC and EU-TURBINE4SC (FG-TURBINE1-4SC) at the stationary source are subject to the Standards of Performance for Stationary Gas Turbines promulgated in 40 CFR Part 60, Subparts A and GG.

EU-HEARTERSC at the stationary source is subject to the Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60, Subparts A and Dc.

EU-EDG and EU-DFP at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE Area Source MACT) promulgated in 40 CFR Part 63, Subparts A and ZZZZ. The ROP contains special conditions provided by DTE in their application for applicable requirements from 40 CFR Part 63, Subparts A and ZZZZ. The AQD is not delegated the regulatory authority for this area source MACT.

EU-TURBINE1SC, EU-TURBINE2SC, EU-TURBINE3SC and EU-TURBINE4SC at the stationary source are subject to the federal Acid Rain program promulgated in 40 CFR Part 72.

EU-TURBINE1SC, EU-TURBINE2SC, EU-TURBINE3SC and EU-TURBINE4SC 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.

EU-TURBINE1SC, EU-TURBINE2SC, EU-TURBINE3SC and EU-TURBINE4SC 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.

EU-TURBINE1SC, EU-TURBINE2SC, EU-TURBINE3SC and EU-TURBINE4SC 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.

Two (2) Violation Notices were issued by the AQD to the facility in 2019 for the failure to conduct stack testing and for exceedance of the PM10 emission limit for FG-TURBINE1-4SC. The facility subsequently re-tested and the re-test indicated passing results. While no formal compliance plan was required due to the failure, additional testing has been requested. Additionally, due to the failure, updates to the testing requirements were included in the ROP for FG-TURBINE1-4SC to test each of the four (4) turbines once every five (5) years.

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 subject to the federal Compliance Assurance Monitoring (CAM) rule pursuant to 40 CFR Part 64, because none of the emission units at the stationary source do not have a control device. The low-NO_x burners are integral to the process and are therefore not considered a control device.

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-N6873-2015 are identified in Appendix 6 of the ROP.

PTI Number			
298-00	298-00A	166-06	

Streamlined/Subsumed Requirements

The following table lists explanations of any streamlined/subsumed requirements included in the ROP pursuant to Rules 213(2) and 213(6). All subsumed requirements are enforceable under the streamlined requirement that subsumes them.

Emission Unit/Flexible Group ID	Condition Number	Streamlined Limit/ Requirement	Subsumed Limit/ Requirement	Stringency Analysis
FG-TURBINE1-4SC	Special Condition (SC) I.1	15.0 ppmv, at 15% Oxygen, Dry/ R 336.1205(1)(a) R 336.1205(1)(b) 40 CFR 52.21(j)	75 ppmv at 15% Oxygen, Dry/ 40 CFR 60.332(a)(1)	The NOx concentration of 75 ppmv, at 15% oxygen, dry, from the NSPS is less stringent than the 15.0 ppmv at 15% oxygen, dry from the PSD BACT requirements.
FG-TURBINE1-4SC	SC II.1	Pipeline quality natural gas sulfur content of 0.5 grain per 100 standard cubic feet/ R 336.1702(a) 40 CFR 52.21	0.8% by weight or 8,000 ppm by weight total sulfur. / 40 CFR 60.333(b)	Pipeline quality natural gas is defined as 0.0068 weight percent of sulfur, 680 parts per million by weight (ppmw) total sulfur and 338 parts per million by volume (ppmv) at 20 degrees Celsius total sulfur as defined in 40 CFR 60.331(u). Thus, the sulfur content limit of 0.5 grains per 100 standard cubic feet is more stringent. The facility maintains a custom fuel monitoring schedule as per 40 CFR 60.334(h).

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
EU-Naturalgascondensatetank1	Natural Gas condensate tank (< 40,000 gallons) located in the fuel gas heater area.	R 336.1212(4)(d)	R 336.1284(2)(e)

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 Heidi Hollenbach, Grand Rapids 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 10, 2020 - STAFF REPORT ADDENDUM

Purpose

A Staff Report dated July 6, 2020, 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:	Margaret Guillaumin, Plant Manager, Fossil Generation - Peakers 313-701-3383
AQD Contact:	Kaitlyn DeVries, Environmental Quality Analyst 616-558-0552

Summary of Pertinent Comments

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

Changes to the July 6, 2020 Draft ROP

No changes were made to the draft ROP.