

State Registration Number

B6478

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number

MI-ROP-B6478-2021

DTE Gas Company Belle River Mills Compressor Station

State Registration Number (SRN): B6478

Located at

5440 Puttygut Road, China, Saint Clair County, Michigan 48054

Permit Number: MI-ROP-B6478-2021

Staff Report Date: April 19, 2021

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

APRIL 19, 2021 - STAFF REPORT	3
MAY 25, 2021 - STAFF REPORT ADDENDUM	9
JULY 15, 2021 - STAFF REPORT ADDENDUM	10

State Registration Number

B6478

RENEWABLE OPERATING PERMIT

ROP Number

MI-ROP-B6478-2021

APRIL 19, 2021 - 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:	DTE Gas Company Belle River Mills Compressor Station 5440 Puttygut Road China, Michigan 48054-2014
Source Registration Number (SRN):	B6478
North American Industry Classification System (NAICS) Code:	221210
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202000108
Responsible Official:	Tom Anderson, Manager -Transmission and Storage Operations 313-753-6476
AQD Contact:	Kaitlyn Leffert, Environmental Quality Analyst 586-249-6505
Date Application Received:	July 3, 2020
Date Application Was Administratively Complete:	July 30, 2020
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	April 19, 2021
Deadline for Public Comment:	May 19, 2021

Source Description

The DTE Gas Company, Belle River Mills (BRM) Compressor Station located at 5440 Puttygut Road, China, Michigan, is a natural gas storage and transmission facility. This facility is one of several natural gas and transmission facilities in the state that are owned and operated by DTE Gas Company. DTE's Belle River Mills Compressor Station receives sweet natural gas from various suppliers across the United States and Canada, which in turn is stored in an underground storage field. The underground storage field is used as a reservoir during the warmer non-heating months to ensure DTE's customers will receive an uninterrupted supply of natural gas during the cooler heating months. Some of the engines at this facility area also used to boost the pipeline transmission pressure of natural gas as needed per transmission conditions and customer demand.

The Belle River facility consists of five various sized horse power (HP) natural gas-fired 2-cycle lean burn reciprocating internal combustion engines, two 1,480 HP 4-cycle lean burn RICE, two natural gas-fired 4-cycle lean burn emergency generator RICE, three natural gas-fired turbine engines, five natural gas-fired boilers, eight process heaters, a glycol dehydration unit, a natural gas-fired ethylene glycol regenerator, seven storage tanks, a 75 HP natural gas-fired emergency generator, and a cold cleaner. The natural gas-fired 2-cycle lean burn RICE and the three turbine engines are used to increase the pressure of the natural gas to inject it into the underground storage field. The two 1,480 HP 4-cycle lean burn RICE are part of the refrigeration plant and are part of a process designed to remove heavy hydrocarbons during the withdrawal cycle when the field gas contains an unacceptable amount of heavy hydrocarbons. The turbine engines can be configured to inject or withdraw natural gas from the storage field by changing the attached centrifugal compressor. The majority of emissions from his storage facility area associated with the RICE and turbine engines.

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)	79.6
Nitrogen Oxides (NO _x)	360.7
Particulate Matter (PM)	12.3
Sulfur Dioxide (SO ₂)	0.6
Volatile Organic Compounds (VOCs)	22.9

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2019 by AQD:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Acetaldehyde	1.6
Acrolein	1.6
Butadiene - 1,3	0.2
Formaldehyde	11.6
Methane	2.9
Methanol	0.5
Nitrous Oxide	1.0
Toluene	0.2
Trime-Pentan	0.2

**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 Saint Clair County, which is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the 8-hour ozone standard. A portion of St. Clair County is also currently designated by the USEPA as a non-attainment area with respect to the SO₂ standard. Belle River Mills Compressor Station is not located within the sulfur dioxide non-attainment area.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit nitrogen oxides (NO_x), Carbon Monoxide (CO), and Volatile Organic Compounds (VOCs) exceeds 100 tons per year and 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.

Two of the 2-cycle lean-burn RICE, EU017 and EU018 (both a part of FGRULE818ENGINES), 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 (NSR) permitting the potential to emit of nitrogen oxides was greater than 250 tons per year.

Since the previous ROP was issued, the source has installed a 75-HP emergency generator (EUOFFICEGENSET) and a new process heater (EUCV1HTR; covered under FGBOILERS). The new equipment is being added to the permit through this ROP process and did not go through the Permit to Install (PTI) permitting process.

EUOFFICEGENSET, EUENGINEER1, EUENGINEER2, EU017, and EU018 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.

EUREFRIGPLANT at the stationary source is subject to the Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants promulgated in 40 CFR, Part 60, Subparts A and KKK.

FGTURBINES at the stationary source is subject to the Standards of Performance for Stationary Combustion Turbines promulgated in 40 CFR Part 60, Subparts A and KKKK.

EUDEHY at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Natural Gas Transmission and Storage Facilities promulgated in 40 CFR Part 63, Subparts A and HHH.

EUBUGENSETTURBIN, EUEMERGENZBLDG, EUENGINEER1, EUENGINEER2, and EUOFFICEGENSET 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.

EUREGRIGPLTLR, EUZBLDGCLR, EUAUXBLDGCLR, EULT3BLR, EULT1BLR, EUTECHBLDGCLR, EUBATHHTR, EUHMOHTR, EUNUGHTR, EUSUGHTR, EUE36LINEHTR, EUW36LINEHTR, EU24LINEHTR, and EUCV1HTR at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD. These emission units are in the flexible group FGBOILERS.

The AQD's Rules 287 and 290 were revised on December 20, 2016. FGRULE287(2)(c) and FGRULE290 are flexible group tables created for emission units subject to these rules. Emission units installed before December 20, 2016, can comply with the requirements of Rule 287 and Rule 290 in effect at the time of installation or modification as identified in the tables. However, emission units installed or modified on or after December 20, 2016, must comply with the requirements of the current rules as outlined in the tables.

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.

EUDEHY and EUREGEN do not 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) do not have potential pre-control emissions over the major source thresholds. EUDEHY is controlled by an enclosed flare emission control unit and has VOC and benzene emission limits. In the CAM Determination submitted by the source, pre-control emissions from EUDEHY were calculated to be 11.4 tpy VOC and 0.6 tpy benzene. EUREGEN is controlled by a thermal oxidizer with emission limits for VOC and benzene. The CAM determination provided by the source reported pre-control emissions to be 15.2 tpy VOCs and 2.1 tpy benzene.

The emission limitation(s) or standard(s) for carbon monoxide at the stationary source with the underlying applicable requirement(s) of 40 CFR PART 63, Subpart ZZZZ from EUENGINE1 and EUENGINE2 are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because the formaldehyde and VOC emission limits meet the CAM exemption for NSPS or MACT proposed after November 15, 1990.

FGCOMBUSTION does not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the flexible group does not have emission limits specific to the shared 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 containing emission units and flexible groups which are included in the Source-Wide PTI, that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-B6478-2016 are identified in Appendix 6 of the ROP.

PTI Number			
105-94	206-01	155-06D	165-07
141-13	32-15	147-15	

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
EU00042, EU00043, and EU00044	EULENNOXFURN1-3; Combination AC and forced air furnace in operations building	212(4)(c)	282(2)(b)(i)
EU00046, EU00047, and EU00048	EUJOHSONFURN1-3; Combination AC and forced air furnace in admin building	212(4)(c)	282(2)(b)(i)
EU00052	EUSOLARBLDGHTR; Natural gas-fired building heaters	212(4)(c)	282(2)(b)(i)
EU00053 & EU00054	EURADHTR#1RPR & EURADHTR#2RPR; Radiant heaters in the repair building	212(4)(c)	282(2)(b)(i)
EU00055 & EU00056	EURADHTR#3WELD & EURADHTR#4WELD; Radiant heaters in the welding building	212(4)(c)	282(2)(b)(i)
EU00057	EURADHTR#5GAR; Natural gas fired radiant heater in garage	212(4)(c)	282(2)(b)(i)
EU00064	EUPUMPBLDGHTR; Natural gas fired heater located in the pump building	212(4)(c)	282(2)(b)(i)
EU00065 & EU00066	EUSTOCKRMHTR1-2; Natural gas fired heaters located in the stock room	212(4)(c)	282(2)(b)(i)
EU00067	EUHOTWTRREPAIR; Natural gas fired hot water heater	212(4)(c)	282(2)(b)(i)
EU00069	EUHOTWTRCONTRL; Natural gas fired hot water heater	212(4)(c)	282(2)(b)(i)
EU00070, EU00071, EU00072, EU00073, EU00074, & EU00075	EUDEHYCATHRT1-6; Natural gas fired catalytic heaters located in the Dehy building	212(4)(c)	282(2)(b)(i)
EUZAIRCOMPHTR	Space heater located in the compressor building	212(4)(c)	282(2)(b)(i)
H1 and H2	TEG and used TEG storage tanks used for EUDEHY	212(4)(d)	284(2)(i)
J2 and J3	Fuel Tanks (less than gallons) for vehicle fueling	212(4)(d)	284(2)(g)
M1	Methanol Storage tank used to remove hydrates that form on the sides of the wells	212(4)(d)	284(2)(n)

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
P1 and P2	Pressurized Propane storage Tanks near Dehy building	212(4)(d)	284(2)(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 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 Joyce Zhu, Warren 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

B6478

RENEWABLE OPERATING PERMIT

MAY 25, 2021 - STAFF REPORT ADDENDUM

ROP Number

MI-ROP-B6478-2021

Purpose

A Staff Report dated April 12, 2021, 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:	Tom Anderson, Manager - Transmission and Storage Operations 313-753-6476
AQD Contact:	Kaitlyn Leffert, Environmental Quality Analyst 586-249-6505

Summary of Pertinent Comments

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

Changes to the April 19, 2021 Draft ROP

No changes were made to the draft ROP.

State Registration Number

B6478

RENEWABLE OPERATING PERMIT

JULY 19, 2021 - STAFF REPORT ADDENDUM

ROP Number

MI-ROP-B6478-2021

Purpose

A Staff Report dated April 12, 2021, 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 45-day EPA comment period as described in Rule 214(6). In addition, this addendum describes any changes to the proposed ROP resulting from these pertinent comments.

General Information

Responsible Official:	Tom Anderson, Manager - Transmission and Storage Operations 313-753-6476
AQD Contact:	Kaitlyn Leffert, Environmental Quality Analyst 586-249-6505

Summary of Pertinent Comments

No pertinent comments were received during the 45-day EPA comment period.

Changes to the May 25, 2021 Proposed ROP

No changes were made to the proposed ROP.