

State Registration Number

B2796

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number

MI-ROP-B2796-2024

**DTE ELECTRIC COMPANY
St. Clair Power Plant/Belle River Power Plant/Blue Water Energy Center**

State Registration Number (SRN): B2796

Located at

4505 King Road, China Township, St. Clair County, Michigan 48054

Permit Number: MI-ROP-B2796-2024

Staff Report Date: February 19, 2024

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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FEBRUARY 19, 2024 - STAFF REPORT

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MI-ROP-B2796-2024

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 St. Clair/Belle River Power Plant/Blue Water Energy Center 4505 King Road China Township, Michigan 48054-4420
Source Registration Number (SRN):	B2796
North American Industry Classification System (NAICS) Code:	221112
Number of Stationary Source Sections:	3
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201900198
Responsible Official – Section 1, Belle River Power Plant:	Mark Chesney, Plant Manager, Energy Supply 810-300-0242
Responsible Official – Section 2, Peakers	Biljana Pecov, Plant Manager, Energy Supply 248-342-3621
Responsible Official – Section 3, Blue Water Energy Center	Lezley Filzek, Plant Manager, Energy Supply 586-484-5197
AQD Contact:	Kerry Kelly, Senior Environmental Quality Analyst 586-506-9817
Date Application Received:	December 3, 2019
Date Application Was Administratively Complete:	December 3, 2019
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	February 19, 2024
Deadline for Public Comment:	March 20, 2024

Source Description

The DTE Electric Company St. Clair/Belle River Power Plant/Blue Water Energy Center is an electric generating facility composed of: St. Clair Power Plant located at 4901 Pointe Drive, East China; Belle River Power Plant located at 4505 King Road, China Township; and Blue Water Energy Center located at 4400 River Road, China Township in St. Clair County. Included in this electric generating facility are the Peakers. St. Clair Power Plant had been in operation since the mid-1950's; Belle River Power Plant has been operational since 1984; and Blue Water Energy Center since November 2021.

The power plants, including the peaking units, are considered a single stationary source based on the definition found in Michigan Administrative Rule 119(r).

St. Clair Power Plant had consisted of the following coal-fired boilers: EU-BOILER1-SC, EU-BOILER2-SC, EU-BOILER3-SC, EU-BOILER4-SC, EU-BOILER6-SC, EU-BOILER7-SC. The St. Clair boilers were also permitted to be fired with fuel oil no. 6, fuel oil no. 2, off-specification recycled used oil, and biodiesel (Boiler 7 only). DTE submitted documentation to EGLE-AQD and USEPA stating that each of the boilers at St. Clair Power Plant have been permanently retired. According to the documentation, EU-BOILER1-SC was permanently retired March 27, 2019, EU-BOILER4-SC was permanently retired on November 13, 2017, and EU-BOILER2-SC, EU-BOILER3-SC, EU-BOILER6-SC, and EU-BOILER7-SC were permanently retired on May 31, 2022. DTE sent a letter to EGLE-AQD Permit Section requesting the Permits to Install (PTI) for EU-BOILER2-SC, EU-BOILER3-SC, EU-BOILER4-SC, EU-BOILER6-SC, EU-BOILER7-SC (PTI Nos. 149-18 and 16-22) be voided. PTI Nos. 149-18 and 16-22 were voided on January 17, 2023 and December 20, 2022 respectively.

The Belle River Power Plant, Section 1, has two electric generating units (EU-BOILER1-BR and EU-BOILER2-BR), each with a maximum gross design generating output of 697 MW. Pulverized coal is the primary fuel for the boilers at Belle River Power Plant.

Blue Water Energy Center has two natural gas-fired Combustion Turbine Generators (CTG) (EU-CTGHRSG1, EU-CTGHRSG2) rated at 3,658 million British Thermal Units per hour (MMBTU/hr) each.

The stationary source's 15 peaking units are now combined in Section 2 of the ROP. All Peakers were combined into one section because they are now under control of a single authorized representative. The Belle River Peakers consist of five 2.5 MW diesel electric generators (EU-DG11-1-BP, EU-DG11-2-BP, EU-DG11-3-BP, EU-DG11-4-BP, EU-DG11-5-BP) and three 82.4 MW natural gas-fired combustion turbine electric generators (EU-CTG12-1-BP, EU-CTG12-2-BP, EU-CTG13-1-BP); the St. Clair Peakers consist of one 23 MW natural-gas fired combustion turbine electric generator (EU-CTG11-1-SP) and two 2.75 MW diesel electric generators (EU-DG12-1-SP, EU-DG12-2-SP); and the Dean Peakers consist of four 82.4 MW each natural gas-fired combustion turbine electric generators (EU-CTG12-2-DP, EU-CTG12-1-DP, EU-CTG11-1-DP, EU-CTG11-2-DP).

The St. Clair Fuels Company and Belle River Fuels Company, reduced emissions fuel processing plants, chemically treated coal with materials that reduce mercury and acid gas emissions. The emission units at St. Clair Fuels Company were retired July 20, 2021. In a letter dated September 12, 2023, DTE stated Belle River Fuels Company, LLC (Section 4) has ceased operations and will not operate in the future. The requirements for St. Clair Fuels Company and Belle River Fuels Company were removed from the ROP.

Particulate emissions from St. Clair Power Plant and Belle River Power Plant were/are controlled through the use of electrostatic precipitators and baghouses. Nitrogen oxides are controlled by installing low-NOx burners in the boilers and combustion turbines. The CTGs at Blue Water Energy Center are equipped with a combined oxidation catalyst for the control of CO and VOCs, and selective catalytic reduction (SCR) with dry low NOx burners for the control of nitrogen oxides.

EU-BOILER1-BR and EU-BOILER2-BR at Belle River Power Plant are equipped with Continuous Emissions Monitoring Systems (CEMs) to measure gas flow, particulate matter, sulfur dioxide, carbon dioxide, nitrogen oxides and opacity.

The Belle River and Dean CTGs (EU-CTG12-1-BP, EU-CTG12-2-BP, EU-CTG13-1-BP, EU-CTG12-2-DP, EU-CTG12-1-DP, EU-CTG11-1-DP, and EU-CTG11-2-DP) are equipped with CEMs to monitor the nitrogen oxide and carbon monoxide emissions and oxygen content of the exhaust gas.

EU-CTGHRSG1-BW, EU-CTGHRSG2-BW at Blue Water Energy Center are equipped with CEMs to monitor the nitrogen oxide and carbon monoxide emissions and oxygen content of the exhaust gas.

Other emission sources at the power plants include auxiliary boilers, flyash handling systems, coal handling systems, a railcar coal dumping facility, and cold parts cleaners.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2022**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	11,739
Lead (Pb)	0.03
Nitrogen Oxides (NO _x)	246
PM10*	30
Sulfur Dioxide (SO ₂)	24
Volatile Organic Compounds (VOCs)	48

* Particulate matter (PM) that has an aerodynamic diameter less than or equal to a nominal 10 micrometers

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2022 by DTE Electric Company:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Hydrogen Chloride (HCl)	40
Hydrogen Flouride (HF)	11
Total Hazardous Air Pollutants (HAPs)	53

**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.

DTE Electric Company is a stationary source, located in St. Clair County, and is engaged in the generation of electricity for sale. A portion of St. Clair County is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the SO₂ standard. The stationary source is located within the portion of St. Clair County currently designated by the USEPA as non-attainment with respect to the SO₂ standard.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of all criteria pollutants 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 and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

EU-BOILER1-BR and EU-BOILER2-BR at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of 40 CFR 52.21, because at the time of New Source Review permitting the potential to emit of carbon monoxide was greater than 100 tons per year.

EU-CTG12-1-BP, EU-CTG12-2-BP, EU-CTG13-1-BP, EU-CTG12-2-DP, EU-CTG12-1-DP, EU-CTG11-1-DP, and EU-CTG11-2-DP at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of 40 CFR 52.21, because at the time of New Source Review permitting the potential to emit carbon monoxide was greater than 100 tons per year, the potential to emit nitrogen oxides was greater than 40 tons per year, and the potential to emit PM10 is greater than level of 15 tons per year.

EU-CTGHRSG1-BW, EU-CTGHRSG2-BW, EU-AUXBOILER-BW, EU-FUELHTR1-BW, EU-FUELHTR2-BW, EU-EMENGINE-BW, EU-FPENGINE-BW, and EU-SPACEHEATERS-BW at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of 40 CFR 52.21, because at the time of New Source Review permitting the potential to emit nitrogen oxides (NOx), carbon monoxide (CO), particulate matter (PM), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns (PM2.5), volatile organic compounds (VOCs), sulfuric acid mist (H2SO4), and greenhouse gases as carbon dioxide equivalent (CO2e) were greater than 100 tons per.

EU-CTGHRSG1-BW, EU-CTGHRSG2-BW, EU-AUXBOILER-BW, EU-FUELHTR1-BW, EU-FUELHTR2-BW, EU-EMENGINE-BW, EU-FPENGINE-BW, EU-CTLUBEOILTANKS-BW, EU-STLUBEOILTANKS-BW, EU-STHYDROOILTANK-BW, EU-STSEALOILTANK-BW, EU-FUELOILTANK-BW, EU-GCLUBEOILTANKS-BW, EU-BFPOILTANKS-BW, EU-EMFUELTANK-BW, EU-DLNNH3TANKS-BW, EU-SPACEHEATERS-BW, EU-COOLINGTOWER-BW, EU-COLDCLEANER-BW: Sulfur dioxide emissions did not undergo BACT review because DTE chose to limit the total annual SO₂ emissions to less than significance levels for the Blue Water project. Restrictions were added to the final permit (PTI No. 19-18) to ensure that the total SO₂ emissions from the facility will remain under 40 tpy.

The source has applicable requirements for GHG as a result of review under the Prevention of Significant Deterioration regulations. These Best Available Control Technology (BACT) requirements for GHG are included in the ROP. The mandatory Greenhouse Gas Reporting Rule under 40 CFR Part 98 is not an ROP applicable requirement and is not referenced in the ROP.

Although EU-CTG11-1-SP, EU-PARTSCLN-SC, EU-FIREPUMP-SC, EU-PARTSCLN-BR, EU-FIREPUMP-BR, EU-DG12-1-SP, and EU-DG12-2-SP, were installed after August 15, 1967, this equipment was exempt from New Source Review (NSR) permitting requirements at the time it was installed. However, future modifications of this equipment may be subject to NSR.

Part 7 rules apply to FG-COLDCLNRS-SC, FG-COLDCLNRS-BR, FG-ISLANDS-BR, and EU-COLDCLNR-BW.

R 336.1224 applies to FG-ISLANDS-BR, EU-AUXBOILER-BW, FG-CTGHRSG-BW, FG-FUELHTR-BW, FG-TANKS-BW, and FG-SPACEHTRS-BW.

R 336.1225 applies to FG-BOILERS-BR, FG-ISLANDS-BR, FG-CTG-BP, FG-CTG-DP, FG-REF-BRFC, EU-AUXBOILER-BW, EU-EMENGINE-BW, EU-FPENGINE-BW, FG-CTGHRSG-BW, FG-FUELHTR-BW, FG-TANKS-BW, and FG-SPACEHTRS-BW.

The following is a list of significant changes from the previous ROP (MI-ROP-B2796-2015c):

- Removed EU-BOILER2-SC, EU-BOILER3-SC, EU-BOILER6-SC, EU-BOILER7-SC, FG-BLR_GEN-SC, FG-BLR2-3-SC, FG-ASH_HAND-SC, FG-ESPCAM-SC, FG-ISLANDS-SC, FG-MATS-SC, & Acid Rain Permit. These EUs and FGs were retired May 31, 2022.
- St. Clair Fuels Company LLC, (Section 7) and Belle River Fuels Company, LLC (Section 4) in MI-ROP-B2796-2015c ceased operations in 2022 and were removed from the ROP.
- Removed NOx PEMS conditions from Dean Peakers and inserted NOx CEMS conditions from PTI Nos. 331-98C and 116-01B.
- Added conditions from PTI Nos. 19-18 and 19-18B, applicable to Blue Water Energy Center.
- Added conditions from PTI No. 51-22, applicable to Belle River Power Plant.

EU-BOILER1-BR and EU-BOILER2-BR, at the stationary source are subject to the Standards of Performance for Fossil-Fuel-Fired Steam Generators promulgated in 40 CFR Part 60, Subparts A and D.

EU-CTG12-1-BP, EU-CTG12-2-BP and EU-CTG13-1-BP 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-AUXBOILER-BW and FG-FUELHTR-BW at the stationary source are 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-EMENGINE-BW, and EU-FPENGINE-BW at the stationary source are subject to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and IIII.

EU-CTGHRSG1-BW and EU-CTGHRSG2-BW at the stationary source are subject to the Standards of Performance for Stationary Combustion Turbines promulgated in 40 CFR Part 60, Subparts A and KKKK.

EU-CTGHRSG1-BW and EU-CTGHRSG2-BW at the stationary source are subject to the Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units promulgated in 40 CFR Part 60, Subparts A and TTTT.

EU-FIREPUMP-SC, EU-DG12-1-SP, EU-DG12-2-SP, EU-FIREPUMP-BR, EU-DG11-1-BP, EU-DG11-2-BP, EU-DG11-3-BP, EU-DG11-4-BP, EU-DG11-5-BP, EU-EMENGINE-BW and EU-FPENGINE-BW at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

EU-NAUXBLR-BR, EU-SAUXBLR-BR, EU-AUXBOILER-BW, EU-FUELHTR1-BW and EU-FUELHTR2MACT-BW 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.

EU-BOILER1-BR and EU-BOILER2-BR at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Coal-and-Oil-Fired Electric Utility Steam Generating Units promulgated in 40 CFR Part 63, Subparts A and UUUUU. Part 15 of Michigan Air Pollution Control Rules adopted pursuant to Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), addresses new requirements pertaining to mercury in the State of Michigan. These rules were intended to limit mercury emissions from electric generation units as of January 1, 2015. Rule 1502a, however, recognizes that the Part 15 permitting requirements defer to 40 CFR Part 63, Subpart UUUUU.

EU-CTGHRSG1-BW and EU-CTGHRSG2-BW at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Combustion Turbines promulgated in 40 CFR Part 63, Subparts A and YYYY.

EU-BOILER1-BR, EU-BOILER2-BR, EU-CTG12-1-BP, EU-CTG12-2-BP, EU-CTG13-1-BP, EU-CTG12-2-DP, EU-CTG12-1-DP, EU-CTG11-1-DP, EU-CTG11-2-DP EU-CTGHRSG1-BW and EU-CTGHRSG2-BW at the stationary source are subject to the federal Acid Rain program promulgated in 40 CFR Part 72.

EU-BOILER1-BR, EU-BOILER2-BR, EU-CTG12-1-BP, EU-CTG12-2-BP, EU-CTG13-1-BP, EU-CTG12-2-DP, EU-CTG12-1-DP, EU-CTG11-1-DP, EU-CTG11-2-DP EU-CTGHRSG1-BW and EU-CTGHRSG2-BW 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-BOILER1-BR, EU-BOILER2-BR, EU-CTG12-1-BP, EU-CTG12-2-BP, EU-CTG13-1-BP, EU-CTG12-2-DP, EU-CTG12-1-DP, EU-CTG11-1-DP, EU-CTG11-2-DP EU-CTGHRSG1-BW and EU-CTGHRSG2-BW 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.

EU-BOILER1-BR, EU-BOILER2-BR, EU-CTG12-1-BP, EU-CTG12-2-BP and EU-CTG13-1-BP at the stationary source are subject to the Cross-State Air Pollution Rule NO_x Ozone Season Group 3 Trading Program pursuant to 40 CFR Part 97, Subpart GGGGG.

On November 15, 2016, a violation notice was issued because there was a discrepancy between the mercury process monitor and the certified sorbent trap monitors. The violation was resolved on May 19, 2017, because the permittee determined the cause of the discrepancy.

On July 23, 2020, the United States District Court for the Eastern District of Michigan entered a consent decree between the United States, DTE Energy, and Plaintiff-Intervenor Sierra Club resolving DTE's violations of the Clean Air Act. The Clean Air Act (CAA) enforcement action was brought by the United States against DTE on August 5, 2010. The government alleged that DTE had violated two provisions of the CAA – the Prevention of Significant Deterioration provision and the New Source Review provision – by carrying out major modifications at Unit 2 of its Monroe Power Plant in Monroe, Michigan, without obtaining permits, installing the requisite pollution-reducing technologies, or achieving the “lowest achievable emissions rate.” In 2014, both Sierra Club and the United States filed amended complaints, both of which included substantially similar allegations regarding modified units at two additional facilities operated by DTE – the Belle River Power Plant in East China, Michigan, and the Trenton Channel Power Plant in Trenton, Michigan. The consent decree requires DTE to Retrofit, Refuel, or Repower St. Clair Units 2-3 and 6-7 by no later than December 31, 2022.

The requirements in the consent decree, applicable to St. Clair Power Plant and Belle River Power Plant, were included in PTI Nos. 16-22 and 51-22 respectively. PTI No. 16-22 was voided on December 20, 2022. DTE requested to remove all requirements for the following equipment/process at St. Clair Power Plant from the ROP stating the equipment/process were retired/ceased operation as of May 31, 2022: EU-BOILER2-SC, EU-BOILER3-SC, EU-BOILER6-SC, EU-BOILER7-SC, FGBLRGEN-SC, FG-BLR2-3-SC, FG-ASH_HAND-SC, FG-ESPCAM-SC, FG-ISLANDS-SC, FGMATS-SC, & Acid Rain Permit. The conditions in PTI No. 51-22 were incorporated into the ROP and Source-wide PTI during this ROP renewal.

A schedule of compliance is required by Civil Action No. 2:10-cv-13101 (ECF No. 282) filed on July 22, 2020 and was added to Appendix 2 of the ROP.

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 or standards for PM, SO₂, and NO_x from EU-BOILER1-BR and EU-BOILER2-BR (Section 1, FG-BOILERS-BR) at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(vi), because the emission limitations specified in FG-BOILERS-BR, SC I.1 and I.2 for Particulate Matter (PM), SC I.4 and I.5 for SO₂ and SC I.6 and I.7 for NO_x meet the CAM exemption for a continuous compliance determination method.

EU-ASHSILO#1-BR and EU-ASHSILO#2-BR (Section 1, FG-ASH_HAND-BR) 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 units do not have potential pre-control emissions over the major source thresholds. The pre-control PM PTE from each silo at Belle River Power Plant (EU-ASHSILO#1-BR and EU-ASHSILO#2-BR) is 0.2477 tons per year.

EU-TRANSFER_HS-SC, and EU-CRUSHER_HS-SC (Section 1, FG-SC-COALHAND-BR) 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 units do not have potential pre-control emissions over the major source thresholds. Each unit is controlled by enclosures, sprays, or baghouse dust collectors. The pre-control emission rates were determined by a mass balance analysis provided by the permittee. The EU-TRANSFER_HS-SC pre-control PM PTE emissions are 22.4 tons per year. The EU-CRUSHER_HS-SC pre-control PM emissions are 16.1 tons per year.

EU-TRANS_HS-BR and EU-COALSILOS-BR, and EU-CASCADES-BR (Section 1, FG-BR-COALHAND-BR) 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 units do not have potential pre-control emissions over the major source thresholds. The unit emissions are controlled by enclosures, sprays, fogging systems, wet dust extraction units or dust collectors. The pre-control emission rates were determined by a mass balance analysis provided by the permittee. The aggregate pre-control PM PTE emissions are 33.25 tons per year.

The emission limitations or standards for Filterable PM, Hydrogen Chloride (HCl), and Mercury (Hg) at the stationary source with the underlying applicable requirement(s) of 40 CFR 63.9991, 40 CFR Part 63, Subpart UUUUU, Table 2.1, from EU-BOILER1-BR, EU-BOILER2-BR (Section 1, FG-MATS-BR) are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because 0.030 lb/MMBTU Filterable PM, 0.0020 lb/MMBTU, Hydrogen Chloride (HCl), and 1.2 lb/TBTU Mercury (Hg) meet the CAM exemption for NSPS or MACT proposed after November 15, 1990.

EU-BLR01-DSI_SILO1-BR, EU-BLR01-DSI_SILO2-BR, EU-BLR02-DSI_SILO1-BR, EU-BLR02-DSI_SILO2-BR, EU-BLR01-ACI_SILO-BR, EU-BLR02-ACI_SILO-BR (Section 1, FG-ISLANDS-BR) 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 units do not have potential pre-control emissions over the major source thresholds. The unit emissions are controlled by bin vent filters or dust collectors on each unit. The pre-control emission rates were determined by a mass balance analysis provided by the permittee. The aggregate pre-control PM PTE emissions are 45.2 tons per year.

EU-AUXBOILER-BW (Section 3) 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 unit does not have potential pre-control emissions over the major source thresholds. The pre-control NO_x PTE from EU-AUXBOILER-BW at Blue Water Energy Center is less than 16 tons per year.

The emission limitation or standard for NO_x at the stationary source with the underlying applicable requirement(s) of 40 CFR 60.4320(a), 40 CFR Part 60, Subpart KKKK, Table 2.1, from EU-CTGHRSG1-BW and EU-CTGHRSG2-BW (Section 3, FG-CTGHRSG-BW) are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because 15 ppm at 15% O₂ NO_x limit meets the CAM exemption for NSPS or MACT proposed after November 15, 1990.

The emission limitations or standards for NOx and CO from EU-CTGHRSG1-BW and EU-CTGHRSG2-BW (Section 3, FG-CTGHRSG-BW) at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(vi), because FG-CTGHRSG-BW, SC I.1, I.2 and I.3 for NOx and SC I.5, I.6 and I.7 for CO meet the CAM exemption for a continuous compliance determination method.

EU-COOLINGTOWER-BW (Section 3, FG-COOLINGTWR-BW) do not have PM, PM10, and PM2.5 emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the emission unit do not have a control device.

The emission limitations or standards for formaldehyde at the stationary source with the underlying applicable requirement(s) of 40 CFR 63.6100, 40 CFR Part 63, Subpart YYYY, Table 1, from EU-CTGHRSG1-BW, EU-CTGHRSG2-BW (Section 3, FG-MACT YYYY-BW) are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(i) because 91 ppmvd or less at 15-percent O2 limit meets the CAM exemption for NSPS or MACT proposed after November 15, 1990.

The following Emission Units/Flexible Groups are subject to CAM:

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
FG-CTGHRSG-BW	VOC/ 0.0026 lb/MMBTU (each unit) Hourly, except during startup and shutdown	R 336.1205(1)(a) & (b) R 336.1702(a) R 336.2810	Combined oxidation catalyst and selective catalytic reduction (SCR)	CO = 0.0045 lb/MMBTU, based on a 12-hour rolling average as determined each operating hour	FG-CAM-OXCAT	No
FG-CTGHRSG-BW	VOC/ 0.0013 lb/MMBTU (each unit without duct burner firing) Hourly, except during startup and shutdown	R 336.1205(1)(a) & (b) R 336.1702(a) R 336.2810	Combined oxidation catalyst and selective catalytic reduction (SCR)	CO = 0.0045 lb/MMBTU, based on a 12-hour rolling average as determined each operating hour	FG-CAM-OXCAT	No

*Presumptively Acceptable Monitoring (PAM)

DTE Electric's Blue Water Energy Center (BWEC) operates two 3,658 MMBTU/hr natural gas-fired combustion turbine generators (CTG), each coupled with a heat recovery steam generator (HRSG). The HRSG is equipped with a natural gas-fired duct burner rated at 800 MMBTU/hr to provide heat for additional steam production. The CTG/HRSG is equipped with a combined oxidation catalyst for the control of carbon monoxide (CO) and volatile organic compounds (VOC's), and selective catalytic reduction (SCR) with dry low NOx burners for the control of nitrogen oxides.

Both VOC and CO form due to incomplete combustion of the natural gas fuel during firing; CO and VOC trend in the same direction, if CO emission increase, then VOC emissions increase. Catalytic oxidation reduces carbon monoxide & VOC emissions to meet permit compliance.

Much like a car's catalytic converter, the CTG-HRSG's oxidation catalyst system contains precious metals to catalyze the oxidation reaction and convert volatile organic compounds and CO in the presence of oxygen to carbon dioxide and water vapor. The oxidation process takes place spontaneously, without the requirement for introducing reactants. The performance of these oxidation catalyst systems on combustion turbines reduces CO by 90%+ and VOC by 50% with little variation for different ambient temperatures. CO monitoring is the surrogate of choice in monitoring VOC. Therefore, monitoring CO emissions indicates oxidation catalyst's performance and provides reasonable assurance of VOC compliance.

Carbon monoxide emissions, as measured by CO CEMS and reported to the data acquisition handling system (DAHS), provides data demonstrating compliance with the VOC emission limits described above. The CAM averaging period will be aligned with the air permit's prescribed CO monitoring requirements. The permitted CO limit is 0.0045 lb/MMBTU, based on the hourly, 12-hour rolling average as determined each operating hour, except during startup and shutdown.

The existing CO CEMS was certified under 40 CFR 60.13 and Appendix B of Part 60 using Performance Specification 4 - Specifications and Test Procedures for CO Continuous Emission Monitoring Systems in Stationary Sources. The certified CO CEMS maintains ongoing QA under requirements in Appendix F to Part 60. Those Part 60 practices assure appropriate collection of representative data, quality assurance to validate data, and proper data acquisition frequency and data handling to report results which provide appropriate compliance assurance monitoring of the CO and thus the VOC emission standard found in the permit.

The CEMS monitors provide data to a certified data acquisition and handling system (DAHS), which collects all data, integrates all the quality assurance activities, computes the appropriate emission averages, and produces the quarterly electronic data reports (EDRs) per 40 CFR Part 75, which are submitted to EPA. The DAHS also is programmed to produce appropriate alarms for the pollutant being monitored and can generate CAM excursion alarms. The DAHS can also generate the reports of all CAM exceedances.

In the CAM Plan, DTE indicated that they may conduct future correlation testing between VOC emissions & CO CEMS data or some other operating parameter to define a different indicator for the proper operation of the control equipment. One option DTE Electric may select as they gain experience with the catalytic oxidizer is to operate the unit in a manner to produce varying response for VOC and then compare the data of the monitored pollutant (CO) and various operating parameters to develop a different correlation. DTE would submit a revised CAM plan if it ever changes the indicator or the indicator range and an application to modify the ROP to incorporate these changes.

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-B2796-2015c are identified in Appendix 6 of the ROP.

PTI Number			
21-69A	523-81	261-01	176-09A
322-72	56-89	31-04	89-10
418-74	331-98B	203-04	133-11A
7-75	383-99	288-05	18-14
412-76	390-99	177-07	
412-76A	379-00	177-07A	
483-79	116-01	164-08C	

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
003-016	Natural Gas Heater in Pipe Shop	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
003-019	Natural Gas Heater in Pipe Shop	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
003-022	Natural Gas Heater in Pipe Shop	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
003-024	Natural Gas Heater in Pipe Shop	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
003-026	Natural Gas Heater in Pipe Shop	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
003-028	Natural Gas Heater in Pipe Shop	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
012-021	Natural Gas Heater in No. 1 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
012-022	Natural Gas Heater in No. 1 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
012-025	Natural Gas Heater in No. 1 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
012-026	Natural Gas Heater in No. 1 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
012-033	Natural Gas Heater in No. 1 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
013-009	Natural Gas Heater in No. 2 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
013-011	Natural Gas Heater in No. 2 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
013-012	Natural Gas Heater in No. 2 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
013-013	Natural Gas Heater in No. 2 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
014-001	Natural Gas Heater in No. 3 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
014-002	Natural Gas Heater in No. 3 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
014-004	Natural Gas Heater in No. 3 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
014-007	Natural Gas Heater in No. 3 Screen House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
016-008a	Natural Gas Furnace--Old Construction Building /DMS	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
016-008b	Natural Gas Furnace--Old Construction Building /DMS	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
016-008c	Natural Gas Heater Old Construction Building Garage	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
016-008d	Natural Gas Heater Old Construction Building Garage	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
016-008e	Natural Gas Heater Old Construction Building Garage	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
018-004	Clubhouse Furnace, Natural Gas	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
018-005	Clubhouse Furnace, Natural Gas	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-062A	Natural Gas Hot Water Boiler (Hot water Heater)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-062B	Natural Gas Hot Water Boiler (Hot water Heater)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-063	Natural Gas Hot Water Boiler (perimeter heating system)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-064A	Natural Gas Hot Water Boiler (Space Heating)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-064B	Natural Gas Hot Water Boiler (Space Heating)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-064C	Natural Gas Hot Water Boiler (Space Heating)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-157	Heating Boiler, West Tractor House	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-184N	Natural Gas Space Heater for 3TH5 Building (North)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-184S	Natural Gas Space Heater for 3TH5 Building (West)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-219W	Natural Gas Space Heater for 3TH6 Bldg. (West)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-219S	Natural Gas Space Heater for 3TH6 Bldg. (South)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
022-219	Applied Air Heater for 3TH6 Bldg.	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
CRUSHE	Natural Gas Space Heater for Crusher House (East)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
CRUSHW	Natural Gas Space Heater for Crusher House (West)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
10-107A	Gasoline Storage Tank in Garage	R 336.1212(4)(d)	R 336.1284(2)(g)(ii)
LNTank1	Liquid Nitrogen Storage Tank	R 336.1212(4)(d)	R 336.1284(2)(j)
LHTank1	Liquid Hydrogen Storage Tank	R 336.1212(4)(d)	R 336.1284(2)(i)
LOTank1	Liquid Oxygen Storage Tank	R 336.1212(4)(d)	R 336.1284(2)(i)
LCO2Tank1	Liquid CO2 Storage Tank	R 336.1212(4)(d)	R 336.1284(2)(i)
PropaneTank1	Propane Tank (Sonic Cleaning of Unit 7)	R 336.1212(4)(d)	R 336.1284(2)(b)
PropaneTank2	Propane Tank (Fire School Training)	R 336.1212(4)(d)	R 336.1284(2)(b)
05-009W	3TH8 West Heater	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
05-009E	3TH8 East Heater	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
05-067N	3TH7 North Heater	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
05-067S	3TH7 South Heater	R 336.1212(4)(c)	R 336.1282(2)(b)(i)

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
05-082N	3TH9 North Heater	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
05-082S	3TH9 South Heater	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
10-058	Natural Gas Heater	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
10-107	Underground Gasoline Storage Tank in Garage	R 336.1212(4)(d)	R 336.1284(2)(g)
LNTank1	Liquid Nitrogen Storage Tank	R 336.1212(4)(d)	R 336.1284(2)(j)
LHTank1	Liquid Hydrogen Storage Tank	R 336.1212(4)(d)	R 336.1284(2)(j)

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 at the time of issuance of the ROP except for requirements listed in Appendix 2. The table in Appendix 2 contains a Schedule of Compliance developed pursuant to Rule 119(a)(i). The applicant must adhere to this schedule and provide the required certified progress reports at least semiannually or in accordance with the schedule in the table. A Schedule of Compliance for any applicable requirement that the source is not in compliance with at the time of ROP issuance is supplemental to, and shall not sanction non-compliance with, the applicable requirements on which it is based.

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 Ms. 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
B2796

RENEWABLE OPERATING PERMIT
MARCH 26, 2024 - STAFF REPORT ADDENDUM

ROP Number
MI-ROP-B2796-2024

Purpose

A Staff Report dated February 19, 2024, 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, Belle River Power Plant:	Mark Chesney, Plant Manager, Energy Supply 810-300-0242
Responsible Official – Section 2, Peakers	Biljana Pecov, Plant Manager, Energy Supply 248-342-3621
Responsible Official – Section 3, Blue Water Energy Center	Lezley Filzek, Plant Manager, Energy Supply 586-484-5197
AQD Contact:	Kerry Kelly, Senior Environmental Quality Analyst 586-506-9817

Summary of Pertinent Comments

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

Changes to the February 19, 2024 Draft ROP

No changes were made to the draft ROP.