

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection

B647866882

<b>FACILITY:</b> DTE Gas Co. - Belle River Mills Compressor Station		<b>SRN / ID:</b> B6478
<b>LOCATION:</b> 5440 PUTTYGUT RD., CHINA		<b>DISTRICT:</b> Warren
<b>CITY:</b> CHINA		<b>COUNTY:</b> SAINT CLAIR
<b>CONTACT:</b> Joe Neruda , Environmental Specialist		<b>ACTIVITY DATE:</b> 02/21/2023
<b>STAFF:</b> Mark Dziadosz	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> FY 23 Inspection		
<b>RESOLVED COMPLAINTS:</b>		

On Tuesday February 21, 2023, I, Michigan Department of Environment Great Lakes and Energy-Air Quality Division staff Mark Dziadosz conducted an announced scheduled inspection of the DTE Energy, Belle River Mills Compressor Station (Belle River Mills) (B6478); located at 5440 Puttygut Road, China, Michigan. The purpose of this inspection was to determine the facility's compliance with the requirements of the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B6478-2021.

### Facility Inspection

I entered the site and was greeted by Mr. Joe Neruda, Environmental Specialist. I presented my credentials and explained the purpose of the inspection. All requested records were collected electronically. Mr. Neruda escorted me during the site inspection. Belle River Mills Compressor Station operates 24/7 and employs 30 total people, including operations and office. Mr. Neruda explained that no changes have occurred to the facility since the last inspection. No new equipment was installed since the last inspection. We began the tour of the facility. I first noted that the safety flare was indeed lit. Mr. Neruda showed me the refrigeration plant. He told me that the refrigeration plant currently does not operate in production mode and the facility intends to begin dismantling the refrigeration plant and replace with a new dehydration unit. The refrigeration plant was originally built expecting there would be more liquids drawn up from the field, but it has not been necessary to operate the past few years. The refrigeration plant did not operate enough to require testing. Next, I was shown the natural gas dehydration building (EUDEHY), all equipment appeared to be well maintained and operating properly. During the inspection, the glycol recirculation rate was approximately 12 gpm (permit max is 30 gpm). The thermal oxidizer for EUDEHY was at 1640 degrees Fahrenheit at the time of inspection (permit minimum of 1400 degrees Fahrenheit), there were no visible emissions from the thermal oxidizer. The permittee received a violation notice (VN) on March 22, 2022, for not completing the "no detectable emissions" annual testing on the EUDEHY in 2021. This VN was resolved on May 2, 2022. To resolve the VN the facility

**must: complete annual leak testing at the same time as other leak testing at the facility; add the leak testing to the DTE emissions testing schedule; and add the test to the list of compliance tasks for the site. I was shown EUCOLDCLEANER (1 cold cleaner). It appeared to meet the process/operational restrictions and the design/equipment parameters specified in special conditions III.1 and III.2 in FG-COLDCLEANERS. The cold cleaner had the AQD provided cold cleaner operating procedures sticker clearly posted. Mr. Neruda showed me the various engines and turbines at the facility. No concerns arose while inspecting these pieces of equipment, none were operating at the time of inspection.**

**ROP No.: MI-ROP-B6478-2016**

**All records were collected electronically and can be located in: S:\Air Quality Division\STAFF\mark Dziadosz\B6478 DTE Belle River FY23 Inspection**

**EUDEHY:**

**Natural gas dehydration equipment located in the DEHY Building. Large existing glycol dehydration unit with a thermal oxidizer (enclosed flare). Subject to 40 CFR Part 63 Subpart HHH, National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities. Installation approved per PTI 206-01.**

**Special Conditions:**

**I.1. Benzene emission limit of 0.43 tons/year. EUDEHY emitted 6.5 pounds (0.003 tons) of Benzene from January 2022 through December 2022. The highest 12-month total since the last inspection (January 2021) was in the period that ended in February 2021 at 13.45 pounds (0.007 tons) of Benzene.**

**I.2. VOC emission limit of 9 tons/year. EUDEHY emitted 115 pounds (0.058 tons) of VOC from January 2022 through December 2022. The highest 12-month total since the last inspection (January 2021) was in the period that ended in December 2021 at 239.4 pounds (0.119 tons) of VOC.**

**III.1. The glycol recirculation rates were approximately 12.0 gpm at the time of inspection, the ROP max limit is 30 gpm (average of the two rates). The permittee monitors and records the glycol recirculation rate and produces a daily average. The highest reported rate was 28.6 gpm on March 28 and 29, 2022.**

**III.2 and IV.3 The process vents for EUDEHY appeared to be connected via closed vent system to the control device. The permittee performs detectable emissions testing annually for closed vent systems. The permittee received a violation notice (VN) on March 22, 2022 for not**

completing the “no detectable emissions” (LDAR) annual testing in 2021. This VN was resolved on May 2, 2022. To resolve the VN the facility must: complete annual leak testing at the same time as other leak testing at the facility; add the leak testing to the DTE emissions testing schedule; and add the test to the list of compliance tasks for the site. Records provided, as required in VI.8 through 13, indicate no parts of the closed vent system were designated as unsafe or difficult to inspect and no leaks were detected during 2021 and 2022 leak inspections. The close vent systems appeared to be properly installed and operated, no emissions were detectable at the time of inspection.

**III.3. The vent stream appears to be properly introduced to the control device.**

**III.4. EUDEHY appears to be properly equipped and operated with a satisfactorily monitored and operated control device (thermal oxidizer).**

**III.5 The control device for EUDEHY is operated at all times to comply with 40 CFR Part 63 Subpart HHH Section 1281(d)(4).**

**IV.1. The flash tank for EUDEHY appears to be properly installed, maintained, and operated. The flash tank exhaust gas is properly vented to the process control.**

**IV.2, VI.2 and VI.3. The ECU (thermal oxidizer) appeared to be properly installed and operated. The temperature at the time of inspection was 1640 degrees Fahrenheit (ROP minimum limit of 1400 degrees Fahrenheit). The permittee satisfactorily maintains the temperature monitoring device for the ECU. The temperature monitor device is calibrated once per year. The provided calibration report shows the temperature monitor has an accuracy within +/-2.5 degrees Celsius. The unit is also equipped with an alarm to signal if the temperature falls below 1450 degrees Fahrenheit and shut down if it falls below 1400 degrees Fahrenheit.**

**V.1 The permittee was able to provide records of analysis of the wet gas stream.**

**V.2 The permittee tracks daily, monthly, and annual natural gas usage.**

**V.3 The facility determines benzene emissions from EUDEHY using GRI-GLYCalc.**

**V.4 The facility performs annual “no detectable emissions” testing. The facility performed “no detectable emission” testing on 1/27/2022 and 9/21/2022. The testing on 1/27/2022 was for Calendar Year 2021 (due to not completing the testing in 2021).**

**VI.1-14. The permittee provided all required records.**

The permittee appears to have complied with the reporting requirements in EUDEHY SC VII.1-5.

VIII.1. The exhaust SVDEHY appeared to unobstructed allowing vertical emissions, stack parameters not confirmed during this inspection.

IX.1 The permittee appears to be complying with the applicable requirements of 40 CFR Part 63 Subpart HHH.

## **EUREFRIGPLANT**

Propane refrigeration plant including storage tank, flanges and valves. This emission unit was not operational at the time of inspection. DTE explained that this unit will be torn down and another Dehydration Unit will be built. The facility did operate the refrigeration plant in February and March 2022 for a total of 101.5 hours. According to Joe, the plant did not run enough to require leak testing.

### **Special Conditions**

VI.1-5 The facility monitors all flanges, valves, etc. at the facility, and reports when any leaks occur. No leaks occurred in the reviewed time period.

VII.1-5 The permittee appears to be meeting all required reporting requirements.

IX.1 The permittee appears to be meeting all applicable provisions of 40 CFR Part 60, Subparts A and KKK, as they apply to EUREFRIGPLANT.

## **EUREGEN**

Natural gas ethylene glycol regenerator with thermal oxidation controls and a heat exchanger used in glycol regeneration. This emission unit is located in the Refrigeration Plant. EUREGEN was also not being operated at the time of inspection, as it is part of the refrigeration plant.

Due to EUREGEN not being operated, full compliance was not evaluated at this time. Facility provided some emissions data for EUREGEN, the data confirms that the equipment was not operated, zero emissions.

## **EUKingRdHCTank**

Hydrocarbon liquid condensate storage tank located at 3891 King Road, China, Michigan.

### **Special Conditions**

II.1 A material limit of 103,000 gallons/year of hydrocarbon liquid condensate. The storage tank never exceeded the limit over a 12-month

rolling time period. The 12-month throughput from January 2022 through December 2022 was 1,886 gallons. A small amount of Brine is carried over to the hydrocarbon tank from the separation process. The permittee is also keeping track of brine/water removals from the tank. The total throughput (including brine) for the tank was 3,248 gallons.

III.1 The tank contains hydrocarbon condensate. The tank also contains a small amount of brine/water that remains after the separation process. In an e-mail on March 23, 2023, Joe Neruda explained the process:

**“The Gas pulled from the Rood Well goes through a 3-phase separator.**

**The 3-phase separator is a rectangular unit located on the Rood property adjacent to the well.**

**The separator removes the liquids Brine and Hydrocarbons from the gas.**

**In the 2<sup>nd</sup> phase of separation, the Brine is separated from the Hydrocarbons.**

**The Brine is then pumped to the 10,000-Gal Brine Tank and the Hydrocarbons are pumped to the 10,000-Gal HC tank.**

**However, the separation process is not 100% effective, a small percentage of Brine is carried over into the HC Tank. Over time the amount of Brine slowly accumulates and settles out on the bottom of the HC Tank. With the lighter Hydrocarbons remaining in the top portion of the tank.”**

**According to records provided by Joe Neruda, 1,362 gallons of brine/water was removed from the tank on 6/6/2022.**

**VI.1 Permittee keeps records of monthly additions and subtractions of liquid to EUKingRdHCTank.**

**VI.2 Permittee keeps monthly and 12-month rolling records of the throughput, in gallons, of EUKingRdHCTank.**

**VII.1-3. The permittee appears to have complied with these reporting requirements.**

**IX.1 I did not visit the location of the King Road tank during this inspection. Joe was able to show pictures of the tank and it was properly labeled with both “EUKingRdHCTank” and “hydrocarbon liquid condensate”. Mr. Neruda assured me the labels are still in place.**

## **FG-COLD CLEANERS**

**Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or**

**Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.**

**Emission Unit: EUCOLDCLEANER - Cold cleaner with a surface area of 10 square feet or less. This emission unit is located in the vehicle service garage.**

### **Special Conditions**

**II.1 The solvent used in EUCOLDCLEANER does not contain any halogenated compounds (Zep Dyna 143). The solvent has not changed since last inspection.**

**III.1 Cleaned parts are dried for at least 15 seconds or until dripping stops.**

**III.2 EUCOLDCLEANER receives routine maintenance and appears to be in good operating condition.**

**IV.1 a. EUCOLDCLEANER has an air/vapor interface of less than 10 square feet.**

**b. Emissions from EUCOLDCLEANER are released to the general in-plant environment.**

**IV.2 EUCOLDCLEANER is equipped with a device for draining cleaned parts.**

**IV.3 EUCOLDCLEANER is equipped with cover that remains closed while the cleaner is not in use.**

**IV.4 The Reid vapor pressure of the solvent used in EUCOLDCLEANER is less than 0.3 psia, therefore a mechanically assisted cover is not required.**

**IV.5 The Reid vapor pressure of the solvent used in EUCOLDCLEANER is less than 0.6 psia, and the cold cleaner is not heated.**

**VI.1 EUCOLDCLEANER is not heated.**

**VI.2 Serial number (1010430), installation date (Pre-2000), air/vapor interface area (8.13 square feet), and Reid vapor pressure (0.067 kPa) are kept on file.**

**VI.3 Written operating procedures for EUCOLDCLEANER were posted in an accessible, conspicuous location near the cleaner.**

**VII.1-3. The permittee appears to have complied with this reporting requirement.**

## **FGCOMBUSTION**

**This Flexible Group includes one 15,900 HP natural gas-fired turbine engine model Mars 100 driving, a centrifugal natural gas compressor, and refrigeration plant emission units that includes two 1,480 HP engines with compressors, a hot medium oil heater, a glycol regenerator, and 4 hydrocarbon liquid storage tanks.**

### **FGCOMBUSTION Emission Units:**

**EUENGINE1: 1,480 HP natural gas-fired 4-cycle lean-burn reciprocating internal combustion engine (RICE), with catalyst oxidation system operating at a minimum of 93% efficiency on CO oxidation. This engine is located in the refrigeration plant and is used to drive a propane refrigerant compressor. This unit operated in February and March 2021 for a total of 110 hours and January-March 2022 for a total of 119 hours. However, the refrigeration plant is not in operation. The unit was tested in March 2021.**

**EUENGINE2: 1,480 HP natural gas-fired 4-cycle lean-burn reciprocating internal combustion engine (RICE), with catalyst oxidation system operating at a minimum of 93% efficiency on CO oxidation. This engine is located in the refrigeration plant and is used to drive a propane refrigerant compressor. This unit operated in February and March 2021 for a total of 110 hours and January-March 2022 for a total of 119 hours. However, the refrigeration plant is not in operation. The unit was tested in March 2021.**

**EUHMOHEATER: 7.5 MMBtu/hr hot medium oil heater (not operated in 2021 or 2022).**

**EULSTANK1-4: Four 30,000-gallon hydrocarbon liquid storage tanks that are vented to the EUREGEN thermal oxidizer for emissions control.**

**EUREFRIGPLANT (Not Being Operated): Propane refrigeration plant including storage tank, flanges, and valves.**

**EUREGEN (Not Being Operated): Natural gas-fired ethylene glycol regenerator with thermal oxidation controls and a heat exchanger used in glycol regeneration.**

**EUTURBINE1: 15,900 HP natural gas-fired turbine engine model Mars 100 driving a centrifugal natural gas operated compressor.**

**Several of the emission units within FGCOMBUSTION are not being operated currently. However, EUTURBINE1 and EULSTANK1-4 are in full operation. EUENGINE1 and EUENGINE2 operated in February and March 2021 for a total of 110 hours and January-March 2022 for a total of**

**119 hours. Compliance for the conditions of this flexible group was determined using data from these emission units.**

### **FGCOMBUSTION Special Conditions**

**I.1 NOx emission limit of 35.9 tons/year, the 12-month rolling total as of December 31, 2022, was 5.25 tons of NOx. The highest 12-month rolling total in the records provided was in March 2022, 7.96 tons of NOx.**

**I.2 CO emission limit of 89.9 tons/year, the 12-month rolling total as of December 31, 2022, was 7.71 tons of CO. The highest 12-month rolling total in the records provided was in February 2022, 14.03 tons of CO.**

**I.3 VOC emission limit of 35.9 tons/year, the 12-month rolling total as of December 31, 2022, was 4.34 tons of VOC. The highest 12-month rolling total in the records provided was in February 2022, 7.99 tons of VOC.**

**III.3 Every emission unit in FGCOMBUSTION only uses sweet natural-gas for fuel according to Mr. Neruda. The MAERS report for the facility indicates only natural gas is used to fuel the emission units in FGCOMBUSTION. DTE certifies to the accuracy of each MAERS report submittal.**

**VI.1 The permittee is completing and keeping all required calculations.**

**VI.2 NOx, CO, and VOC emissions records were being kept and were collected.**

**VI.3 NOx emissions calculated using most recent stack test results emission rates.**

**VII.1-3. The permittee appears to have complied with these reporting requirements.**

### **FGEMERGENS**

**Two emergency generators operating on natural-gas, which are subject to the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE), 40 CFR 63 Subpart ZZZZ and subject only to the initial notification requirement.**

#### **Emission Unit:**

**EUBUGENSETTURBIN: 4-cycle lean-burn Caterpillar model G3516B natural gas-fired emergency generator that is located in the turbine annex building (Building 8). This emission unit powers the turbine building and appropriate ancillary equipment.**

**EUEMERGENZBLDG: 4-cycle lean-burn Caterpillar Model G3516B natural gas-fired emergency generator that is located in the generator building,**

east of the Z-engine building. This emission unit powers Plant 2, the Z330 building, and appropriate ancillary equipment.

### **Special Conditions**

**II.1 Mr. Neruda confirmed only sweet natural-gas is used as a fuel source for FGEMERGENS. The MAERS report for the facility indicates only natural gas is used to fuel the emission units in FGEMERGENS. DTE certifies to the accuracy of each MAERS report submittal.**

**III.1 None of the engines in FGEMERGENS exceed the operating time limits of 100 hours of non-emergency use (non-emergency use does not include maintenance/routine testing). According to records, for 2022 the engines individually operated in non-emergency situations for 58 and 62 hours, below the 100 hours of non-emergency operation limit.**

**III.2 None of the engines in FGEMERGENS exceed the 850 hour 12-month rolling time period limit. The engines were only operated in non-emergency situations. According to records the engines individually operated in non-emergency situations for 58 and 62 hours, below the 850 hours of total operation limit.**

**III.3 The engines in FGEMERGENS appear to be in good working condition, DTE properly maintain and operate the engines according to the OMP.**

**III.4 DTE only operates the emergency engines when there is a deviation of voltage or frequency of 5 percent or greater below the standard conditions.**

**IV.1 Each engine is equipped with a non-resettable hours meter, records of meter operating hours were collected.**

**IV.2 The nameplate capacity for the engines in FGEMERGENS does not exceed 1,818 HP, both engines are 1300 kw or 1743.3 HP.**

**VI.1-3 All required records were provided.**

**VII.1-3 The permittee appears to have complied with these reporting requirements.**

**VIII.1 The stack for SVBUGENSETURBIN appeared to be unobstructed and discharging vertically. Stack parameters not confirmed during the inspection.**

**VIII.2 The stack for SVEMERGENZBLDG appeared to be unobstructed and discharging vertically. Stack parameters not confirmed during the inspection.**

**IX.1 The permittee appears to have met the applicable provisions of 40 CFR 63 Subpart A and ZZZZ for FGEMERGENS.**

## **FGENGINES**

**Five 2-cycle reciprocating internal combustion engines (RICE) with natural gas fired compressors. The pipeline compressors attached to these engines are used to inject natural-gas into and withdraw natural gas from a storage field. This flexible group includes one 1,000 HP GMVC, two 2,000 HP GMVC, and two 10,000 HP Cooper Z330 engines. These engines are not subject to Subpart ZZZZ per 63.6590(b)(3)(i).**

### **Emission Unit:**

**EU014 GMVC compressor engine no. 1; 1,000 HP 2-cycle natural gas-fired RICE.**

**EU015 GMVC compressor engine no. 2; 2,000 HP 2-cycle natural gas-fired RICE**

**EU016 GMVC compressor engine no. 3; 2,000 HP 2-cycle natural gas-fired RICE**

**EU017 Cooper model Z330 compressor engine no. 4; 10,000 HP natural gas-fired 2-cycle lean-burn RICE. Some conditions applicable to EU017 originate in PTI 165-07.**

**EU018 Cooper model Z330 compressor engine no. 5; 10,000 HP natural gas-fired 2-cycle lean-burn RICE. Some conditions applicable to EU018 originate in PTI 165-07.**

**III.1 The permittee only uses pipeline quality natural gas as fuel for the units in FGENGINES according to Mr. Neruda. The MAERS report for the facility indicates only natural gas is used to fuel the emission units in FGENGINES. DTE certifies to the accuracy of each MAERS report submittal.**

**VI.1 The permittee monitors and records the natural gas consumption for each emission unit in FGENGINES. Fuel use records for FGENGINES were provided.**

**VII.1-3 The permittee appears to have complied with these reporting requirements.**

## **FGENGINESR1-2**

**Two 1,480 HP natural gas-fired 4-cycle lean-burn reciprocating internal combustion engines (RICE), each with a catalyst oxidation system operating at a minimum of 93% destruction efficiency on CO oxidation. These engines are located in the refrigeration plant and are used to drive propane refrigerant compressors. These engines are subject to Part 63 Subpart ZZZZ and Part 60 Subpart JJJJ. Installation approved per PTI 155-06D and PTI 32-15.**

**Emission Unit:**

**EUENGINE1 1,480 HP natural gas-fired 4-cycle lean-burn reciprocating internal combustion engine (RICE), with catalyst oxidation system operating at a minimum of 93% efficiency on CO oxidation. This engine is located in the refrigeration plant and is used to drive a propane refrigerant compressor. This unit operated in February and March 2021 for a total of 110 hours and January-March 2022 for a total of 119 hours. However, the refrigeration plant is not in operation. The unit was tested in March 2021 for NOX, CO, and VOC.**

**EUENGINE2 1,480 HP natural gas-fired 4-cycle lean-burn reciprocating internal combustion engine (RICE), with catalyst oxidation system operating at a minimum of 93% efficiency on CO oxidation. This engine is located in the refrigeration plant and is used to drive a propane refrigerant compressor. This unit operated in February and March 2021 for a total of 110 hours and January-March 2022 for a total of 119 hours. However, the refrigeration plant is not in operation. The unit was tested in March 2021 for NOX, CO, and VOC.**

**POLLUTION CONTROL EQUIPMENT:**

**93 percent efficient minimum CO oxidation catalyst systems.**

**These emission units in this flexible group (2 engines) have only operated a total of 229 hours in the past 2 years. These engines are part of the refrigeration plant, which is not in operation.**

**I.1-8 Emission rates and CO reduction confirmed during stack test in March, 2021. Formaldehyde was not tested, CO catalytic system used as a surrogate per 40 CFR Part 63 ZZZZ. Emission rates were: EUENGINESR1: NOx- 0.83 g/hp-hr (limit-1.3); CO- 96% reduction (limit-93%); VOC-ND (limit-1.0 g/hp-hr). EUENGINESR2: NOx- 1.08 g/hp-hr (limit-1.3); CO- 96% reduction (limit-93%); VOC-0.01 g/hp-hr (limit-1.0 g/hp-hr).**

**II.1 According to Mr. Neruda the only fuel used in FGENGINESR1-2 is natural gas. The MAERS report for the facility indicates only natural gas is used to fuel the emission units in FGENGINESR1-2. DTE certifies to the accuracy of each MAERS report submittal.**

**III.1 The permittee maintains and operates a catalytic oxidation system for each engine and monitors and records the temperature and pressure differential.**

**III.2 The permittee has not changed out the engines or reseated the piston rings in either engine. The permittee has only operated the engines for 229 hours combined since January 2021.**

**III.3 The permittee has only operated the engines for 229 hours combined since January 2021.**

**III.4 The permittee appears to be in compliance with the applicable regulations of 40 CFR 63 Subpart ZZZZ.**

**III.5 The permittee appears to be in compliance with these requirements.**

**III.6 The permittee appears to be operating and maintaining the engines in a consistent manner.**

**IV.1a The permittee maintains and operates a catalytic oxidation system for each engine and monitors and records the temperature and pressure differential.**

**IV.1b The permittee maintains a temperature greater than or equal to 450 °F and less than or equal to 1350 °F. Records provided show that aside from start up and shut down the temperature of the catalysts appear to be between the previously mentioned temperature range.**

**IV.1c The provided catalyst records show the difference in pressure between the inlet and outlet. The pressure drop appears to be within +/- 2 inches of water of 1.5 inches of water according to the records.**

**IV.2-3 The permittee has installed, operates and maintains a monitor for the catalyst inlet temperature and is meeting the temperature requirements.**

**IV.5 The permittee has installed, operates, and maintains a monitor for the pressure drop across each catalytic oxidizer.**

**IV.6 A CEMS has not been installed to monitor CO, O<sub>2</sub>, or CO<sub>2</sub>.**

**V.1-5 The facility hasn't needed to conduct regular testing as the engines have been considered non-operational. These emission units in this flexible group (2 engines) have only operated a total of 229 hours in the past 2 years. The emission units were tested in March 2021 for NO<sub>x</sub>, CO (surrogate for formaldehyde), and VOC. Emission rates were: EUENGINESR1: NO<sub>x</sub>- 0.83 g/hp-hr (limit-1.3); CO- 96% reduction (limit-93%); VOC-ND (limit-1.0 g/hp-hr). EUENGINESR2: NO<sub>x</sub>- 1.08 g/hp-hr (limit-1.3); CO - 96% reduction (limit-93%); VOC-0.01 g/hp-hr (limit-1.0 g/hp-hr).**

**VI.1-12 The facility appears to be keeping all required records for FGENGINESR1-2**

**VII.1-5 The facility appears to be in compliance with all reporting requirements of this flexible group.**

**VIII.1-2 Neither exhaust stack for FGENGINESR1-2 is obstructed, and both discharge vertically to ambient air. Exhaust stack parameters were not verified during the inspection.**

**IX.1 The permittee appears to be in compliance with the applicable provisions of n 40 CFR Part 60, Subparts A and Subpart JJJJ and 40 CFR Part 63, Subparts A and ZZZZ.**

#### **FG-RULE285(mm)**

**Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 285(mm).**

**Emission Unit: Transmission and distribution systems or field gas from gathering lines.**

**III.1-2 The permittee has a proper plan to minimize impacts to the environment and assure the safety of employees and the public in the event that a venting of more than 1,000,000 standard cubic feet of natural gas were to occur, be it for maintenance or transmission and distribution systems.**

**VII.1-6 The permittee appears to have complied with these reporting requirements. On 2/28/23 DTE reported an unplanned venting of natural gas due to a fault with a field device and associated shutdown. The facility released 1.5 MMSCF of natural gas. All notifications were done according to SC VII.6.**

#### **FG-RULE290**

**Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290.**

**Emission Unit: EUK5TANK - One 10,000-gallon horizontal tank used to receive and store liquids that result from scrubbing pipeline natural gas just prior to compression and to store liquids generated by the pigging of pipelines and hydrocarbon liquids from the equipment filter separator.**

**I.1-3 The permittee provided a report on the determination and calculation of all emissions from EUK5TANK.**

**III.1 The permittee has satisfactorily met the provisions of Rule 290 for all applicable emission units.**

**VI.1a-e Emissions records/evaluation for EUK5TANK were provided.**

**VI.2 Inventory of all emission units exempt pursuant to Rule 290 were provided.**

**VI.3 Visible emissions evaluation for all noncarcinogenic particulate air contaminants pursuant to rule 290(a)(iii). No such particulate contaminants are emitted from EUK5TANK.**

**VII.1-3 The permittee appears to have complied with these reporting requirements.**

### **FGRULE818ENGINES**

**Two Cooper model Z330 compressor engines No. 4 and No. 5; 10,000 HP natural gas-fired 2-cycle lean-burn reciprocating internal combustion engines (RICE) used to compress natural gas. Each engine is used to power a natural-gas pipeline compressor. These emission units are subject to State of Michigan Air Pollution Control Rule R 336.1818 (R818) due to them being capable of emitting more than 1 ton of NOx per Ozone Control Period.**

#### **Emission Unit:**

**EU017 Cooper model Z330 compressor engine No. 4; 10,000 HP natural gas-fired 2-cycle lean-burn RICE**

**EU018 Cooper model Z330 compressor engine No. 5; 10,000 HP natural gas-fired 2-cycle lean-burn RICE**

### **POLLUTION CONTROL EQUIPMENT**

**Each unit contains low emission combustion technology to reduce emissions of nitrogen oxides.**

#### **Special Conditions**

**I.1 NOx 3.0 g/hp-hr at 100% load emission limit confirmed via stack test on 07/12/2022 & 07/14/2022. For EU017, the NOx emission rate was 1.9 g/hp-hr. For EU018, the NOx emission rate was 2.2 g/hp-hr.**

**I.2 CO 3.0 g/hp-hr at 100% load emission limit confirmed via stack test on 07/12/2022 & 07/14/2022. For EU017, the CO emission rate was 1.7 g/hp-hr. For EU018, the CO emission rate was 2.0 g/hp-hr.**

**I.3 70 pounds CO/hour emission limit confirmed via stack test on 07/12/2022 & 07/14/2022. For EU017, the CO emission rate was 30.85 pounds per hour. For EU018, the CO emission rate was 36.59 pounds/hour.**

**I.5 VOC 1.0 g/hp-hr at 100% load emission limit confirmed via stack test on 07/12/2022 & 07/14/2022. For EU017, the VOC emission rate was 0.4 g/hp-hr. For EU018, the VOC emission rate was 0.4 g/hp-hr.**

**Testing required every 3 years, but the facility tests more frequently.**

**III.1 The permittee only uses pipeline quality natural gas as fuel for FGRULE818ENGINES. The MAERS report for the facility indicates only natural gas is used to fuel the emission units in FGRULE818ENGINES. DTE certifies to the accuracy of each MAERS report submittal.**

**IV.1 Both engines in FGRULE818ENGINES are equipped with low emission combustion technology.**

**V.1 NOx emission rates are tested within 90 days of the onset of Ozone season each year.**

**V.2 CO emission rates are tested and verified withing 90 days of the onset Ozone season each year.**

**V.3 CO, NOx, and VOC performance tests were performed on 07/12/2022 and 07/14/2022.**

**V.4 The permittee must and satisfactorily does submit two complete test protocols; one to the TPU Supervisor and one the SEMI District Supervisor at least 30 days prior to the proposed test date. Any modification to a test method is specified in the protocol. The permittee must and satisfactorily does submit two complete test reports; one to the TPU Supervisor and one the SEMI District Supervisor within 60 days of the final day of testing.**

**V.5 CO, NOx, and VOC performance tests are performed typically once per calendar year for FGULR818ENGINES. This meets the requirement of testing every 3 years or 8,760 hours, whichever comes first.**

**V.6 The permittee must and satisfactorily does submit two complete test protocols; one to the TPU Supervisor and one the SEMI District Supervisor at least 30 days prior to the proposed test date.**

**V.7 The permittee satisfactorily notifies the TPU Supervisor and the SEMI District Supervisor 30 days prior to the anticipated test date.**

**VI.1 The permittee monitors and records natural gas consumption for FGRULE818ENGINES.**

**VI.2 The permittee demonstrates compliance with the NOx emission rate via yearly stack tests during the ozone control period (May 1<sup>st</sup> to September 30<sup>th</sup>). The facility appears to schedule its stack tests for this flexible group during the ozone control period.**

**VI.3 The facility satisfactorily keeps records of emissions and operating information on site, available upon AQD request.**

**VI.4 The permittee keeps records of:**

**a. Identification and location of EU017 and EU018**

b. Calendar date of record (Each record is properly dated)

c. Type and quantity of fuel used.

d. The results of all compliance tests

**VI.5 The permittee monitors and records the engine operating hours for each calendar month.**

**VI.6 The permittee is maintaining all records to comply with 40 CFR Part 60 JJJJ.**

**VI.7 The permittee is maintaining all records related to maintenance conducted on the engines.**

**VI.8 These are non-certified engines.**

**VI.9 The permittee maintains a maintenance plan and documentation that the engine meets the emission limits in I.1, I.2, and I.5.**

**VII.1-3 The permittee appears to have complied with this reporting requirement.**

**VII.4 The permittee satisfactorily submits two complete test reports, one to the TPU Supervisor and one the SEMI District Supervisor.**

**IX.1 Upon review of the conditions of this flexible group, the permittee appears to be meeting the applicable emissions, reporting, and recordkeeping requirements of 40 CFR Part 60, Subpart JJJJ.**

## **FGTURBINES**

**Three natural gas-fired turbines each driving a centrifugal natural gas compressor. This flexible group includes:**

**Emission Unit:**

**EUTURBINE1 15,900 HP natural gas-fired turbine engine model Mars 100. Installation approved per PTI 155-06D and PTI 32-15.**

**EUTURBINET70 10,915 HP natural gas-fired turbine engine model Taurus 70. Installation approved per PTI 32-15.**

**EUTURBINEC50 6,130 HP natural gas-fired turbine engine model Centaur 50. Installation approved per PTI32-15.**

## **POLLUTION CONTROL EQUIPMENT**

**Low NOx burners.**

**I.1-3 NOx emission limit of 25 ppmv at 15% oxygen for EUTURBINE1, EUTURBINET70, and EUTURBINEC50. Compliance confirmed via stack tests performed March 2021 (C50 and T70) and June 2022 Turbine 1). The NOx emission rate at 15% oxygen for EUTURBINE1 was 5.0 ppm. The NOx emission rate at 15% oxygen for EUTURBINET70 was 11.2 ppm. The NOx emission rate at 15% oxygen for EUTURBINEC50 was 12.7 ppm.**

**I.4 NOx emission limit of 150 ppmv at 15% oxygen during operating loads of less than 75 percent of peak load or at operating temperatures of less than 0 degrees F for EUTURBINE1. According to DTE, EUTURBINE1 cannot operate at less than 75% peak load (outside of LoNox mode) or the turbine will go into “shutdown”. This condition has not been tested.**

**I.5 NOx emission limit of 5.34 lb/hr for EUTURBINET70. Compliance confirmed via stack tests performed on 3/16/21. NOx emission rate for EUTURBINET70 was 3.36 lb/hr.**

**I.6 NOx emission limit of 3.67 lb/hr for EUTURBINEC50. Compliance confirmed via stack tests performed on 3/16/21. NOx emission rate for EUTURBINEC50 was 2.40 lb/hr.**

**I.7-8 AQD has not requested additional testing for the CO emission rates of EUTURBINET70 and EUTURBINEC50. The engines were last tested for CO in April 2017. The CO emission rate for EUTURBINET70 during the test was 0.31 lb/hr satisfying the 5.42 lb/hour limit. The CO emission rate for EUTURBINEC50 during the test was 0.16 lb/hr satisfying the 3.72 lb/hr limit.**

**I.9 NOx emission limit of 39.5 tons/year determined monthly for a 12-month rolling time period. The facility has not exceeded the permitted limit. The highest 12-month period on record is 13.37 tons from February 2022 to January 2023.**

**II.1 The permittee only burns natural gas for fuel for FGTURBINES according to Mr. Neruda. The MAERS report for the facility indicates only natural gas is used to fuel the emission units in FGTURBINES. DTE certifies to the accuracy of each MAERS report submittal.**

**III.1 The permittee has a satisfactory malfunction abatement plan for FGTURBINES.**

**III.2 The total potential sulfur content of the natural gas in FGTURBINES does not exceed 0.06 lb of SO2 per MMBtu input. The provided gas tariff sheet shows the composition of the gas used at the facility.**

**III.3 EUTURBINET70 and EUTURBINEC50 are equipped with a manufacturer approved electric-start sequence according to the MAP.**

**IV.1 Each turbine in FGTURBINES is equipped with a low-NOx burner according to the MAP.**

**IV.2 Each turbine in FGTURBINES is equipped with a device to monitor the natural gas usage on a continuous basis.**

**V.1 Verification of NOx emission rates has been satisfactorily achieved; the permittee performs testing according to the parameters specified in the ROP.**

**V.2 The permittee confirmed the NOx emission rates within 60 days of achieving maximum production rate.**

**V.3 The permittee last verified NOx emission rates in March 2021.**

**V. 4 AQD has not requested additional testing for the CO emission rates of EUTURBINET70 and EUTURBINEC50. The engines were last tested for CO in April 2017. The CO emission rate for EUTURBINET70 during the test was 0.31 lb/hr satisfying the 5.42 lb/hour limit. The CO emission rate for EUTURBINEC50 during the test was 0.16 lb/hr satisfying the 3.72 lb/hr. The permittee properly submits two complete test protocols and reports to the AQD district supervisor and the TPU supervisor.**

**V.5 The permittee properly notifies the AQD district supervisor and TPU supervisor at least 30 days prior to the anticipated test date.**

**V.6 The permittee properly submits two complete test protocols and reports to the AQD district supervisor and the TPU supervisor.**

**VI.1 The permittee has not elected to continuously monitor appropriate parameters to determine that each turbine is running in low-NOx mode, the permittee instead elects to perform emissions testing.**

**VI.2 The permittee demonstrates compliance with the sulfur content in the fuel via adoption of the tariff sheet.**

**VI.3 The permittee demonstrates compliance with the sulfur content limit in the fuel via adoption of the tariff sheet.**

**VI.4 The permittee monitors the natural gas usage for each turbine, on a monthly basis, in FGTURBINES.**

**VI.5 The permittee keeps monthly and 12-month rolling time period fuel use records for each turbine in FGTURBINES.**

**VI.6 The permittee uses the worst-case emission factor, not the average, from the most recent stack test to determine the emission factor for NOx in terms of pounds per million cubic feet of natural gas for each turbine.**

**VI.7 The permittee calculates monthly and 12-month rolling time period NOx calculation records for FGTURBINES.**

**VII.1-3 The permittee appears to have complied with this reporting requirement.**

**VII.4 None of the turbines in FGTURBINES contain a continuous parameter monitoring system in order to demonstrate compliance with NOx emission limits.**

**VII.5 The permittee demonstrates compliance with the sulfur content limit in the fuel via adoption of the tariff sheet.**

**VII.6 The permittee properly submits two complete test reports to the AQD district supervisor and the TPU supervisor within 60 days of completion of the test.**

**VIII.1-3 The stacks associated with FGTURBINES appeared to be discharging vertically unobstructed into ambient air. Stack parameters were not verified during the inspection.**

**IX.1 The permittee properly notified the AQD in writing within 15 days of the original commencement of EUTURBINET70 and EUTURBINEC50.**

**IX.2 Upon review of the conditions of this flexible group, the permittee appears to be meeting the applicable emissions, reporting, and recordkeeping requirements of 40 CFR 60 Subpart KKKK.**

### **FGBOILERSGAS1**

**Requirements for existing boilers and process heaters that are designed to burn gas 1 subcategory fuel with a heat input capacity of 10 MMBTU/hr or greater at major sources of HAP emissions per 40 CFR Part 63, Subpart DDDDD (Boiler MACT). Units designed to burn gas 1 subcategory fuels include boilers or process heaters that burn only natural gas, refinery gas, and/or Other Gas 1 fuels. Units that burn liquid fuel for testing or maintenance purposes for less than a total of 48 hours per year, or that burn liquid fuel during periods of curtailment or supply interruptions are included in this definition.**

**Emission Units::**

**Equal to or greater than 10  
MMBtu/hr**

**EUE36LINEHTR  
EUW36LINEHTR  
EUCV1HTR**

**Special Conditions**

**II.1 The permittee only burns natural gas in FGBOILERS according to Mr. Neruda. The MAERS report for the facility shows that only natural gas is used as fuel for FGBOILERS.**

**III.1a-e The permittee provided documents showing that they had met the tune-up and Energy Assessment work practice standards for all process heaters.**

**III.5 The facility appears to have completed the appropriate tune-ups for the applicable boilers within the appropriate time frames.**

**III.6 The permittee appears to be operating and maintaining affected sources in a manner consistent with safety and good air pollution control practices for minimizing emissions. The monitoring, and operation and maintenance at the facility appears to support this.**

**VI.1 The permittee keeps copies of each notification and report submitted to comply with 40 CFR 63 Subpart DDDDD, such as Initial Notification or Notification of Compliance status, and semiannual compliance reports. Copies of these reports were provided.**

**VI.2 The permittee does not burn any other fuel except natural gas.**

**VI.3 The permittee appears to have complied with these recordkeeping requirements. Tune-up records are maintained on-site.**

**VI.4 The permittee appears to have complied with these recordkeeping requirements. All records were available for review and in a suitable form.**

**VI.5 The permittee appears to have complied with this recordkeeping requirement. Records are maintained for a period of at least 5 years.**

**VI.6 The permittee appears to have complied with this recordkeeping requirement. Records are maintained onsite or accessible from onsite for a period of at least 2 years.**

**VII.1-3 The permittee appears to have complied with these reporting requirements.**

**VII.4 The permittee does not intend to use any fuel except natural gas. If other fuels are used, the requirements of this condition will be followed.**

**VII.5 The permittee has satisfactorily submitted Notification of Compliance Status reports including each boiler/process heater. The reports include description of the affected units and applicable certifications of compliance.**

**VII.6 The permittee does include the following information in compliance reports:**

- a. **Company and Facility name and address.**
- b. **Process unit information, emissions limitations and operating parameter limitations.**
- c. **Date of report and beginning and ending dates of the reporting period.**
- d. **Date of the most recent tune-up for each unit, the date of the most recent burner inspection if not done annually, biennially or a 5-year period and was delayed until the next scheduled or unscheduled unit shut down.**
- e. **Statement by responsible official certifying the report.**

**VII.7 The permittee submits all reports electronically to CEDRI.**

**IX.1 Upon review of the conditions of this flexible group, the permittee appears to be meeting the applicable emissions, reporting, and recordkeeping requirements of 40 CFR 63 Subpart DDDDD.**

#### **FGBOILERSMALL**

**Requirements for existing boilers and process heaters with a heat input capacity of < 10 MMBTU/hr for major sources of HAP emissions per 40 CFR Part 63, Subpart DDDDD (Boiler MACT). These boilers or process heaters are designed to burn solid, liquid, or gaseous fuels.**

<b>Emission Units:</b>	<b>EUREFRIGPLTBLR</b>
<b>Equal to or less than 5 MMBtu/hr</b>	<b>EUZBLDGBLR</b>
<b>and only burns gaseous or light</b>	<b>EUAUXBLDGBLR</b>
<b>liquid fuels.</b>	<b>EUPLT3BLR</b>
	<b>EUPLT1BLR</b>
	<b>EUTECHBLDGBLR</b>
	<b>EUBATHHTR</b>

<b>Greater than 5 MMBtu/hr and less</b>	<b>EUHMOHEATER</b>
<b>than 10 MMBtu/hr that burns</b>	<b>EUNUGHTR</b>
<b>gaseous</b>	<b>EUSUGHTR</b>
<b>or light liquid fuels or any unit that</b>	<b>EU24LINEHTR</b>
<b>is less than 10 MMBtu/hr that burns</b>	
<b>any heavy liquid or solid fuels.</b>	

## Special Conditions

**III.1-3 The permittee provided documents showing that they had met the tune-up standards for all boilers/process heaters.**

**III.4 The facility appears to have completed the appropriate tune-ups for the applicable boilers within the appropriate time frames.**

**III.5 The permittee appears to be operating and maintaining affected sources in a manner consistent with safety and good air pollution control practices for minimizing emissions. The monitoring, and operation and maintenance at the facility appears to support this.**

**VI.1 The permittee keeps copies of each notification and report submitted to comply with 40 CFR 63 Subpart DDDDD, such as Initial Notification or Notification of Compliance status, and semiannual compliance reports. Copies of these reports were provided.**

**VI.2 The permittee appears to have complied with these recordkeeping requirements. All records were available for review and in a suitable form.**

**VI.3 The permittee appears to have complied with this recordkeeping requirement. Records are maintained for a period of at least 5 years.**

**VI.4 The permittee appears to have complied with this recordkeeping requirement. Records are maintained onsite or accessible from onsite for a period of at least 2 years.**

**VII.1-3 The permittee appears to have complied with these reporting requirements.**

**VII.4 The permittee has satisfactorily submitted Notification of Compliance Status reports including each boiler/process heater. The reports include description of the affected units and applicable certifications of compliance.**

**VII.5 The permittee does include the following information in compliance reports:**

- a. Company and Facility name and address.**
- b. Process unit information, emissions limitations and operating parameter limitations.**
- c. Date of report and beginning and ending dates of the reporting period.**
- d. Date of the most recent tune-up for each unit, the date of the most recent burner inspection if not done annually,**

biennially or a 5-year period and was delayed until the next scheduled or unscheduled unit shut down.

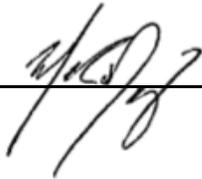
e. Statement by responsible official certifying the report.

IX.1 Upon review of the conditions of this flexible group, the permittee appears to be meeting the applicable emissions, reporting, and recordkeeping requirements of 40 CFR 63 Subpart DDDDD.

### Conclusion

The permittee appears to be in compliance with the regulations of the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the administrative rules and the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B6478-2021.

NAME



DATE April 4, 2023

SUPERVISOR

