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

B647857497

FACILITY: DTE Gas Co. - Belle River Mills Compressor Station		**SRN / ID:** B6478
LOCATION: 5440 PUTTYGUT RD., CHINA		**DISTRICT:** Warren
CITY: CHINA		**COUNTY:** SAINT CLAIR
CONTACT:		**ACTIVITY DATE:** 01/29/2021
STAFF: Joe Forth	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: On-site inspection with digital records evaluation.		
RESOLVED COMPLAINTS:		

On January 29, 2021, AQD staff Joseph Forth conducted a scheduled inspection at the DTE Energy, Belle River Mills Compressor Station (Belle River); located at 5440 Puttygut Road, China, Michigan. This facility is uniquely identified by the State Registration Number (SRN) of B6478. 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 (Act 451); the administrative rules and the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B6478-2016.

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 while currently it is not operational, the company was possibly planning to begin operation with it sometime in 2021. The 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 facility had planned testing to bring the refrigeration plant into production, but plans to start the refrigeration plant are currently on hold. 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 rates were 14 and 12.9 gpm (permit max is 30 gpm). The thermal oxidizer for EUDEHY was at 1647 degrees Fahrenheit at the time of inspection (permit minimum of 1400 degrees Fahrenheit), there were no visible emissions from the thermal oxidizer. 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\Joe Forth\B6478 DTE Belle River FY21 Inspection

Records were collected on different dates so some statements may reflect more recent data than others.

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 32.02 pounds (0.016 tons) of Benzene from February 2020 through January 2021. The highest 12-month total since the last inspection (December 2018) was in the period that ended in March 2019 at 120.69 pounds (0.06 tons) of Benzene.

I.2. VOC emission limit of 9 tons/year. EUDEHY emitted 389 pounds (0.195 tons) of VOC from February 2020 through January 2021. The highest period in the reviewed time frame was in the period that ended in March 2019 at 1157 pounds (0.579 tons) of VOC.

III.1. The glycol recirculation rates were 14.0 and 12.9 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 27.1 gpm on March 7 and 8, 2019.

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. Leak detection reports (LDAR) for 2020 were collected. 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 2020 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 1647 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.

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. However, DTE explained that may bring the plant into operation at some point in the future. In March 2020, the facility attempted to get the engines up to operating status to do some emission testing but were not able to reach the levels required for testing. This is the reason for the emissions recorded for the engines that power this EU in that month despite the EU not operating at the time of inspection. The facility also performed testing for the EU in March 2021 and appeared to pass the 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 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 highest recorded 12-month throughput was from August 2019 – July 2020 at 9,671 gallons.

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, but viewed it during the 12/19/2018 inspection and the tank on King Road was properly labeled with both "EUKingRdHCTank" and "hydrocarbon liquid condensate". Mr. Neruda assured me the label was 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 are 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:

EUENGINER1 (Not Being Operated): 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.

EUENGINER2 (Not Being Operated): 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.

EUHMOHEATER: 7.5 MMBtu/hr hot medium oil heater.

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, EUHMOHEATER, EULSTANK1-4 are in operation. 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, 2020 was 3.795 tons of NOx. The highest 12-month rolling total in the records provided was June 2019-May 2020, 5.537 tons of NOx.

I.2 CO emission limit of 89.9 tons/year, the 12-month rolling total as of December 31, 2020 was 9.515 tons of CO. The highest 12-month rolling total in the records provided was June 2019-May 2020, 14.052 tons of CO.

I.3 VOC emission limit of 35.9 tons/year, the 12-month rolling total as of December 31, 2020 was 5.338 tons of VOC. The highest 12-month rolling total in the records provided was in June 2019-May 2020, 7.923 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 2020 the engines individually operated in non-emergency situations for 79, 67, and 18.4 hours. All three 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 79, 67, and 18.4 hours. All three 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, consumption records provided. 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:

EUENGINER1 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.

EUENGINER2 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.

POLLUTION CONTROL EQUIPMENT:

93 percent efficient minimum CO oxidation catalyst systems.

The emission units in this flexible group have only been operated once since January 2019 in an attempt to test the emissions they were operated in March 2020 but were not able to get both up to testing specification and cancelled the test.

I.1-8 Emission rates and CO reduction confirmed during stack test in March, 2021.

III.1 According to Mr. Neruda the only fuel used in FGENGINES1-2 is natural gas. The MAERS report for the facility indicates only natural gas is used to fuel the emission units in FGENGINES1-2. DTE certifies to the accuracy of each MAERS report submittal.

III.2-4 Mr, Neruda showed me the oxidation catalyst controls with proper temperature and pressure monitors. The permittee has equipped the engines with the add-on controls so they are not subject to the 200 hour operation limit stated in III.3. Regardless, the permittee has only operated the engines for 28 hours combined since January 2019.

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

III.5 Compliance with the conditions of this flexible group guarantees compliance with the applicable conditions of 40 CFR Subpart ZZZZ.

III.6 The permittee appears to be maintaining and monitoring 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 The permittee has installed, operates and maintains a monitor for the catalyst inlet temperature.

IV.3 The permittee has installed, operates, and maintains a monitor for the pressure drop across each catalytic oxidizer.

IV.4 A CEMS has not been installed to monitor CO, O_2, or CO_2.

V.1-5 The facility hasn't needed to conduct regular testing as the engines have been considered non-operational. But as required by V.3 they tested alongside operation of the engines.

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.

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.

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 use 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 09/02/2020. For EU017, the NOx emission rate was 1.9 g/hp-hr. For EU018, the NOx emission rate was 2.0 g/hp-hr.

I.2 CO 3.0 g/hp-hr at 100% load emission limit confirmed via stack test on 09/02/2020. For EU017, the CO emission rate was 1.8 g/hp-hr. For EU018, the CO emission rate was 2.3 g/hp-hr.

I.3 70 pounds CO/hour emission limit confirmed via stack test on 09/02/2020. For EU017, the CO emission rate was not explicitly stated in the report, but by multiplying the 1.8 g/hp-hr by the average horsepower of the test and converting to pounds shows a CO emission rate of approximately 32.77 pounds per hour. Likewise for EU018 as for EU017, the CO emission rate was needed to be calculated. For EU018, the CO emission rate was 41.9 pounds/hour.

I.4 VOC 1.0 g/hp-hr at 100% load emission limit confirmed via stack test on 09/02/2020. For EU017, the VOC emission rate was non detect. For EU018, the VOC emission rate was non-detect.

Testing required every 3 years, but the facility tests more frequently; DTE has scheduled testing for this flexible group in August 2021.

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 are performed typically once per calendar year for FGULR818ENGINES. Thus satisfying the ROP requirement for testing at least once every 8760 hours or 3 years.

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.

V.5 The permittee satisfactorily notifies the TPU Supervisor and one the SEMI District Supervisor at least 7 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 1st to September 30th). 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 keeps all referenced records on file at the facility for at least five years.

VI.6 The permittee monitors and records the engine operating hours for each calendar month.

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

VII.4 The permittee satisfactorily submits 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.

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.

Special Conditions

I.1-3 NOx emission limit of 25 ppmv at 15% oxygen for EUTURBINE1, EUTURBINET70, and EUTURBINEC050. Compliance confirmed via stack tests performed March 2021 (C50 and T70) and April 2020 (Turbine 1). The NOx emission rate at 15% oxygen for EUTURBINE1 was 5.6 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. Compliance confirmed via stack test on 4/21/2020. The NOx emission rate at 15% oxygen for EUTURBINE1 was 5.6 ppm.

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.

Testing for Turbines T70 and C50 was performed in March 2021, AQD review of results provided in same folder as all other previously mentioned records.

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 8.638 tons from December 2016 to November 2017.

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 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 properly submits two complete test protocols and reports to the AQD district supervisor and the TPU supervisor.

V.4 The permittee properly notifies the AQD district supervisor and TPU supervisor at least 7 days prior to the anticipated test date.

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.

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.

FGBOILERS

Existing Gas 1 Fuel Subcategory boilers and process heaters that utilize only natural gas. Subject to 40 CFR Part 63 Subpart DDDDD (Industrial, Commercial, and Institutional Boilers and Process Heaters MACT). These existing boilers or process heaters must comply with this subpart no later than January 31, 2016, unless an extension is granted.

Emission Units: The collection of all existing industrial, commercial, and institutional boilers and process heaters within the Gas 1 Fuel subcategory. At the time of permit renewal:

Less than 5 MMBtu/hr

	EUREFRIGPLTBLR **EUZBLDGBLR** **EUAUXBLDGBLR** **EUPLT3BLR** **EUPLT1BLR** **EUTECHBLDGBLR** **EUBATHHTR**
Equal to or greater than 5 MMBtu/hr and less than 10 MMBtu/hr	**EUHMOHEATER** **EUNUGHTR** **EUSUGHTR** **EU24LINEHTR**
Equal to or greater than 10 MMBtu/hr	**EUE36LINEHTR** **EUW36LINEHTR**

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

III.2 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.

III.3 The permittee has not elected to deviate from the work practice standards noted in SC III.1 or III.2

III.4 The facility appears to have completed the appropriate tune-ups for the applicable boilers/process heaters.

III.5 The permittee completed the one-time energy assessment before the January 31st, 2016 deadline.

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 was keeping proper records on-site of for each occurrence, measurement, maintenance, corrective action, report or record.

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 satisfactorily submits boiler tune-up compliance reports.

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.

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.

IX.2 The permittee appears be in compliance with the applicable work practice standards.

IX.3-5 The permittee has not had a lapse in operation of more than one year after compliance demonstrations, so these conditions do not currently apply.

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-B6478-2016.

NAME Joseph M Fuller DATE 8-17-2021 SUPERVISOR K. Kelly