

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B647847929

FACILITY: DTE Gas Company - Belle River Compressor Station		SRN / ID: B6478
LOCATION: 5440 PUTTYGUT RD., CHINA		DISTRICT: Southeast Michigan
CITY: CHINA		COUNTY: SAINT CLAIR
CONTACT: Joe Kotwicki , Environmental Specialist		ACTIVITY DATE: 12/19/2018
STAFF: Joe Forth	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On-site inspection		
RESOLVED COMPLAINTS:		

On December 19, 2018, 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 Kotwicki, Associate Environmental Specialist. Mr. Kotwicki escorted me during the site inspection. We were accompanied by Joe Neruda, Environmental Specialist. Mr. Neruda explained that he would soon be taking over Mr. Kotwicki's role at the compressor station. Belle River Mills Compressor Station operates 24/7 and employs 30 total people, including operations and office. Mr. Kotwicki 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. Kotwicki 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 2019. 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. In February 2019, AQD received a test plan for the refrigeration plant to take place in March 2019. The test was not performed as the engine was not able to reach the required NGP. Plans to start the refrigeration plant are currently on hold. We continued the inspection, I was shown that the sight glass for the thermal oxidizer for EUREGEN (a glycol regeneration unit for the refrigeration plant) had been replaced. The sight glass had been discovered to have a crack in it during the last AQD inspection. EUREGEN itself is not currently being operated. 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 12.8 gpm (permit max is 30 gpm). The thermal oxidizer for EUDEHY was at 1639 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 MDEQ (now EGLE) AQD provided cold cleaner operating procedures sticker clearly posted. Mr. Kotwicki showed me the various engines and turbines at the facility. No concerns arose while inspecting these pieces of equipment. All seemed to be properly maintained and operating

in accordance with air regulations. We continued the inspection by reviewing the permit conditions and recordkeeping. Hard copies of collected records are attached to the printed report. Finally, we traveled to the nearby King Road storage tank location (EUKingRdHCTank). The tank was clearly marked with "EUKingRdHCTank" and "Hydrocarbon Liquid Condensate" as is required. The inspection concluded at that point and I left the facility.

ROP No.: MI-ROP-B6478-2016

All mentioned reports are located within the company file unless stated otherwise.

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 only produced 38.80 pounds of Benzene from November 2017 to December 2018. (See Attachment 1)

I.2. VOC emission limit of 9 tons/year. EUDEHY only produced 471 pounds of VOC from November 2017 to December 2018. (See Attachment 1)

III.1. The glycol recirculation rate was 12.8 gpm at the time of inspection, the ROP max limit is 30 gpm. Glycol recirculation rate records were provided. (See Attachment 3)

III.2. The process vents for EUDEHY appeared to be connected via closed vent system to the control device.

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.

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. The ECU (thermal oxidizer) appeared to be properly installed and operated. The temperature at the time of inspection was 1639 degrees Fahrenheit (ROP minimum limit of 1400 degrees Fahrenheit).

IV.3. The closed vent system appeared to be properly installed and operated, no emissions were detectable at the time of inspection.

V.1. The permittee provided wet gas stream sampling results, the results appear to contain the required information. Gas analysis reports for 2017 and 2018 were provided. (See Attachment 2)

V.2. The permittee monitors the flow rate of natural gas to EUDEHY in mmscf/day. (See Attachment 3)

V.3. The actual benzene emissions using GRI-GLYCALC were determined. (See Attachment 3)

V.4. The permittee performs detectable emissions testing annually for closed vent systems. Leak detection reports (LDAR) for 2018 were collected. (See Attachment 5)

VI.1. The permittee monitors and records the glycol re-circulation rate and produces a daily average. The flow rate at the time of inspection was 12.8 gpm. (See Attachment 3)

VI.2. The permittee satisfactorily maintains the temperature monitoring device for the ECU. The temperature monitor device is calibrated once per year. 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. (See Attachment 4)

VI.3. The provided calibration report shows the temperature monitor has an accuracy within +/-2.5% of the temperature being measured. (See Attachment 4)

VI.4. VOC and benzene emission rates for each month were provided. Due to use of GRI-GLYCALC, wet gas sampling was also provided. Emissions records see Attachment 1. Wet gas analysis see Attachment 2.

VI.5.

- A. Wet gas analysis (See Attachment 2)
- B. Monthly glycol recirculation rate (See Attachment 3)
- C. No occurrences of ECU low temperatures or shut offs, no record collected.

VI.6. 12-month rolling emissions for both VOC and Benzene provided. From January 2017 to December 2018, no month experienced a 12-month total exceedance for either pollutant. (See Attachment 1)

VI.7. Permittee provided records for their weekly, quarterly, and yearly Leak Detection and Repair (LDAR) inspections. No leaks were detected in any system for 2018. (See Attachment 5)

VI.8-11. No such equipment designated unsafe to inspect.

VI.12. No leaks detected during 2018 leak inspections. (See Attachment 5)

VI.13. Records of inspections where no leaks were detected were provided. (See Attachment 5)

VI.14. No occurrences of malfunction of the equipment nor control for EUDEHY, no records collected.

VII.1-5. The permittee appears to have complied with this reporting requirement.

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 applicated 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.

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. (See Attachment 6)

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 July 2016-June2017 at 16,352 gallons. (See Attachment 8)

VI.1 Permittee keeps records of monthly additions and subtractions of liquid to EUKingRdHCTank. (See Attachment 8)

VI.2 Permittee keeps monthly and 12-month rolling records of the throughput, in gallons, of EUKingRdHCTank. (See Attachment 8)

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

IX.1 The tank on King Road was properly labeled with both "EUKingRdHCTank" and "hydrocarbon liquid condensate".

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

Information for EUCOLDCLEANER (See Attachment

II.1 The solvent used in EUCOLDCLEANER does not contain any halogenated compounds (Zep Dyna 143)

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 (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.

EUENGINE2 (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 in relations to these emission units.

FGCOMBUSTION Special Conditions

I.1 NOx emission limit of 35.9 tons/year, the 12-month rolling total as of November 2018 was 3.228 tons of NOx. The highest 12-month rolling total in the records provided was in January 2016, 8.715 tons of NOx.

I.2 CO emission limit of 89.9 tons/year, the 12-month rolling total as of November 2018 was 8.213 tons of CO. The highest 12-month rolling total in the records provided was in June 2016, 15.953 tons of CO.

I.3 VOC emission limit of 35.9 tons/year, the 12-month rolling total as of November 2018 was 4.680 tons of VOC. The highest 12-month rolling total in the records provided was in June 2016, 9.091 tons of VOC.

III.3 Every emission unit in FGCOMBUSTION only uses sweet natural-gas for fuel.

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. (See Attachment 10).

VI.3 NOx emissions calculated using most recent stack test results. (See Attachment 10)

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

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: 1,818 HP (1,356 kW) 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: 1,818 HP (1,356 kW) 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 According to the tariff sheet, the permittee uses only sweet natural-gas as a fuel source for FGEMERGENS (See Attachment 17).

III.1 Neither engine in FGEMERGENS exceeds the operating time limits of 100 hours of non-emergency use (non-emergency use does not include maintenance/routine testing). (See Attachment 11)

III.2 Neither engine in FGEMERGENS exceeds the 850 hour 12-month rolling time period limit. (See Attachment 11)

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

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. (See Attachment 11)

IV.2 The nameplate capacity for the engines in FGEMERGENS does not exceed 1,818 HP.

VI.1 Fuel usage records for FGEMERGENS were provided. (See Attachment 11)

VI.2 Hours of operation (both emergency and non-emergency) records were provided. (See Attachment 11)

VI.3 Engine information and specifications are kept on record for each engine in FGEMERGENS.

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

VIII.1 The stack for SVBUGENSETTURBIN 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 FGENGINE5.

VI. The permittee monitors and records the natural gas consumption for each emission unit in FGENGINE5. (See Attachment 12)

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

FGENGINE5R1-2

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:

EUENGINE5R1 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.

EUENGINE5R2 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 not been operated as far back as January 2015.

The facility still keeps appropriate records of emissions, fuel usage, and operating hours. However, these values are all zero. (See Attachment 13)

The facility is planning to possibly restart operation of the engines in 2019 with the start of the use of the refrigeration plant, which FGENGINE5R1-2 serve.

A more complete compliance evaluation for this flexible group will be performed during the performance test for the equipment and the next scheduled inspection.

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 this reporting requirement.

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 EU5KTANK. (See Attachment 14)

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

VI.1a-e Emissions records/evaluation for EU5KTANK were provided (See Attachment 14)

VI.2 Inventory of all emission units exempt pursuant to Rule 290 was provided. (See Attachment 14)

VI.3 Visible emissions evaluation for all noncarcinogenic particulate air contaminants pursuant to rule 290(a)(iii). No such particulate contaminants are emitted from EU5KTANK.

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

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 08/21/2018.

I.2 CO 3.0 g/hp-hr at 100% load emission limit confirmed via stack test on 08/21/2018

I.3 70 pounds/hour emission limit confirmed via stack test on 08/21/2018

I.4 VOC 1.0 g/hp-hr at 100% load emission limit confirmed via stack test on 08/21/2018

III.1 The permittee only uses pipeline quality natural gas as fuel for FGRULE818ENGINES.

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 within 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 FGRULE818ENGINES. Thus satisfying the ROP requirement for testing at least once every 3 years.

V.4 The permittee must and satisfactorily does submit two complete test protocols; one to the TPU Supervisor and one to 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 to 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. (See

Attachment 12)

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 last two stack tests have been performed in August of 2017 and 2018.

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 (See Attachment 15)
- b. Calendar date of record (Each record is properly dated)
- c. Type and quantity of fuel used (See Attachment 12)
- d. The results of all compliance tests (Reviewed but not collected)

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. (See Attachment 16)

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 to 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, EUTURBINE70, and EUTURBINEC050. Compliance confirmed via stack tests performed on 4/11/2017 and 4/24/2018

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 4/24/2018.

I.5 NOx emission limit of 5.34 lb/hr for EUTURBINET70. Compliance confirmed via stack tests performed on 4/11/2017.

I.6 NOx emission limit of 3.67 lb/hr for EUTURBINEC50. Compliance confirmed via stack tests performed on 4/11/2017.

I.7 CO emission limit of 5.42 lb/hr for EUTURBINET70. Compliance confirmed via stack tests performed on 4/11/2017.

I.8 CO emission limit of 3.72 lb/hr for EUTURBINET70. Compliance confirmed via stack tests performed on 4/11/2017.

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. (See Attachment 10)

II.1 The permittee only burns natural gas for fuel for FGTURBINES.

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. (See Attachment 17)

III.3 EUTURBINET70 and EUTURBINEC50 are equipped with a manufacturer approved electric-start sequence.

IV.1 Each turbine in FGTURBINES is equipped with a low-NOx burner.

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. (See Attachment 17)

VI.3 The permittee demonstrates compliance with the sulfur content limit in the fuel via adoption of the tariff sheet. (See Attachment 17)

VI.4 The permittee monitors the natural gas usage for each turbine, on a monthly basis, in FGTURBINES. (See Attachment 10)

VI.5 The permittee keeps monthly and 12-month rolling time period fuel use records for each turbine in FGTURBINES. (See Attachment 10)

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. (See attachment 10)

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. (See Attachment 17)

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.

III.1 The permittee showed 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.

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 this reporting requirement.

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 *[Signature]*

DATE 6-3-19

SUPERVISOR *[Signature]*