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

B280861891

FACILITY: DTE Electric Company - Northeast Peaking Facility		**SRN / ID:** B2808
LOCATION: 6401 EAST EIGHT MILE ROAD, WARREN		**DISTRICT:** Warren
CITY: WARREN		**COUNTY:** MACOMB
CONTACT: Amanda Kosch , Technical Supervisor		**ACTIVITY DATE:** 01/12/2022
STAFF: Shamim Ahammod	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Conducted full compliance evaluation (FCE).		
RESOLVED COMPLAINTS:		

On January 12, 2022, the Michigan Department of Environment, Great Lakes and Energy-Air Quality Division (EGLE-AQD) staff, I (Shamim Ahammod) conducted a scheduled inspection of the DTE Electric Company-Northeast Peaking facility (SRN: B2808) located at 6401 East Eight Mile Road, Warren, Michigan. The purpose of the inspection was to determine the company's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the Air Pollution Control Rules; and the conditions of Renewable Operating Permit (ROP) No. MI-ROP-B2808-2017.

Flame-resistant clothing, hard hats, safety glasses, N-95 Mask, hearing protection, and hard soled boots are required to be worn when on-site.

Source Description
The DTE Electric Company - Northeast Peaking Facility is located in an area zoned industrial. The nearest commercial building is approximately 1,500 feet away and the nearest residential building is approximately 2,000 feet away. This peaking station's function is to provide electrical power during peak periods of consumer demand occurring mainly in the summer months.

The facility is composed of four natural gas-fired combustion turbines (EU CTG11-1, EU CTG11-2, EU CTG11-3, and EU CTG11-4), one oil or natural gas-fired combustion turbine generator (EU CTG12-1), two oil-fired jet turbine generators, and one black start diesel engine (EU BSE CTG12-1). The units were commissioned between September 1966 and June 1971, and no modifications have been reported. Each unit has a separate building and stack.

Regulatory Analysis
The stationary source is located in Macomb County, which is currently designated by the U.S. Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70 because the potential to emit nitrogen oxides exceeds 100 tons per year.
The stationary source is considered to be a minor source of HAP emissions because the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year.

No emissions units at the stationary source are currently subject to the Prevention of Significant Deterioration (PSD) regulations of The Michigan Air Pollution Control Rules Part 18, Prevention of Significant Deterioration of Air Quality or 40 CFR 52.21 because the process equipment was constructed/installed prior to June 19, 1978, the promulgation date of the PSD regulations.

EU CTG11-2, EU CTG11-3, and EU CTG11-4 were installed prior to August 15, 1967. As a result, this equipment is considered "grandfathered" and is not subject to New Source Review (NSR) permitting requirements. However, future modifications of this equipment may be subject to NSR.

Although EU CTG12-1, EU CTG11-1, EU CTG13-1, EU CTG13-2, and EU BSE CTG12-1 were installed after August 15, 1967, this equipment was exempt from New Source Review (NSR) permitting requirements at the time it was installed. However, future modifications of this equipment may be subject to NSR.

EU BSE CTG12-1 at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.
No emission units have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule under 40 CFR Part 64, because all emission units at the stationary source do not have a control device.

Onsite Inspection
At around 11:10 AM, at the front gate of the facility, I met with Mr. Darrick Thomas, AA-Operator. He opened the gate and instructed me to follow him. At peaker units, I met with DTE Staff, Ms. Amanda Kosch, Technical Supervisor, Mr. Fautaupea Fesili, Combustion Turbine Specialist, and Ms. Marie Reid, DTE Temporary employee. I introduced myself, provided credentials, and stated the purpose of the inspection to them. Mr. Thomas provided the safety instructions prior tour to the facility. After that, I toured the facility to observe the emissions units. At the time of the inspection, the facility was not in operation. I observed four natural gas-fired combustion turbine generators (EU CTG11-1, EU CTG11-2, EU CTG11-3, and EU CTG11-4), one oil or natural gas-fired combustion turbine generator (EU CTG12-1), two oil-fired jet turbine generator and one black start diesel engine (EU BSE CTG12-1) at the facility. I was informed that these engines only need to be operated when the electricity demand is high. The engines run mainly in summer and during really cold winter weather. According to Mr. Fesili, EUCTG13-2 is out of service.

REGULATORY ANALYSIS
EU CTG12-1
EU CTG12-1 is a No. 2 oil or natural gas-fired combustion turbine generator with a 24 MW capacity at a temperature of 20 degrees Fahrenheit**.**

Material Limit
The permittee shall use No.2 oil or natural gas as a fuel in the combustion turbine. The maximum sulfur content in No. 2 fuel oil is 1.11 lb/MMBTU of heat input. Ms. Kosch provided the following fuel usage record for the EU CTG 12-1 for 2021.

	Natural Gas Usage (MCF)	Diesel
Jan. 2021	0	0
Feb. 2021	30119	0
March 2021	0	0
April 2021	0	0
May 2021	342	0
June 2021	2133	0
July 2021	1459	0
Aug. 2021	3709	0
Sept. 2021	0	0
Oct. 2021	0	0
Nov. 2021	0	0
Dec. 2021	0	0

It appears the permittee only uses natural gas as fuel in EU CTG 12-1 in 2021.

Process/operational restrictions
Per SC III.1 of EU CTG12-1, the permittee shall burn only pipeline-quality natural gas, as defined in 40 CFR 72.2, in the combustion turbines at this facility. The permittee only uses natural gas as fuel. Pipeline quality natural gas definition in 40 CFR 60.331(u), "Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary
conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Equivalents of this in other units are as follows: 0.068 weight percent total sulfur, 680 parts per million by weight (ppm) total sulfur, and 338 parts per million by volume (ppmv) at 20 degrees Celsius total sulfur. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 British thermal units (Btu) per standard cubic foot. Natural gas does not include the following gaseous fuels: landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process that might result in highly variable sulfur content or heating value."

As stated in SC II.1 and 40 CFR 60.331(u), the pipeline-quality natural gas shall not have a total sulfur content over 20 grains of sulfur per 100 Standard Cubic Foot (SCF) and have a caloric value between 950 and 1100 BTU per standard cubic foot. I reviewed a record verifying the natural gas consumed by combustion turbines at this facility does not contain more than 5 grain of total Sulfur per 100 cubic feet and have a have a gross calorific value between 950 and 1100 British thermal units (Btu) per standard cubic foot.

Monitoring/recordkeeping
As specified in SC VI.2, the permittee maintained the record of the natural gas and No. 2 fuel oil consumed by EU CTG 12-1 for each calendar month every month. According to Ms. Kosch, Northeast EU CTG 12-1 only burned natural gas in 2020 and 2021.

EU BSE CTG12-1
EU BSE CTG12-1 is a 300-horsepower black start diesel engine located at an area source of HAP emissions.

Process/operational restrictions
Per SC III.1, the permittee changed oil and filter, inspected air cleaners, all hoses, and belts on 10/29/2021 (attachment 1).

Per SC III.3, DTE Northeast Peakers did not take the option to utilize the oil analysis program but has opted to change out the oil on an annual basis, according to Ms. Kosch. Per SC III.2 and 4, according to Ms. Kosch, Northeast EU BSE CTG12-1 is operated by DTE Northeast CTG 12-1 Black Start procedures and DTE Peakers have developed their own maintenance plan titled "it appears Annual Black Start Checklist" in which maintenance components of the engine are inspected annually. I received and reviewed the "Annual Black Start Checklist" and it attached to this report (attachment 2). It appears the permittee has performed their maintenance according to the maintenance plan.

Monitoring/recordkeeping
Per SC VI.1 of EU BSE CTG12-1, if using an oil analysis program, the permittee shall test for and record, and maintain the total base number, viscosity, and percent water content every 500 hours or annually. According to Ms. Kosch, DTE Northeast Peakers did not take the option to utilize the oil

analysis program but has opted to change out the oil on an annual basis. Therefore, the SC VI.1 is not applicable for the emission unit of EU BSE CTG12-1.

As specified in SC VI.2, Ms. Kosch provided all maintenance records conducted on the emission unit and record has been attached to this report (attachment 3).

Other requirements
Emission unit, EU BSE CTG12-1 appears to comply with the conditions of NESHAP as specified in 40 CFR part 63, Subpart A, and Subpart ZZZZ. These requirements are described in the Process/operational restrictions section (SC III.1, and SC III.4) and the Monitoring/recordkeeping section (SC VI.1, and SC VI.2) of EU BSE CTG12-1.

FGNATGASPKRS
This group consists of four natural gas-fired combustion turbine generators (EU CTG11-1, EU CTG11-2, EU CTG11-3, and EU CTG11-4), each with a 20 MW capacity at a temperature of 20 degrees Fahrenheit.

Process/operational restrictions
Per SC III.1 of FGNATGASPKRS, the permittee shall burn only pipeline-quality natural gas in the combustion turbine at this facility. The permittee only uses pipeline-quality natural gas as a fuel (attachment 2) in the combustion turbine. The permittee satisfies the pipeline-quality natural gas requirements, as defined in 40 CFR 72.2.
As stated in SC III.1 and 40 CFR 60.331(u), the pipeline-quality natural gas shall not have a total sulfur content over 20 grains of sulfur per 100 Standard Cubic Foot (SCF) and have a caloric value between 950 and 1100 BTU per standard cubic foot. I reviewed a record verifying the natural gas consumed by combustion turbines at this facility does not contain more than 5 grain of total Sulfur per 100 cubic feet and have a gross calorific value between 950 and 1100 British thermal units (Btu) per standard cubic foot.

Monitoring/record keeping
As required in SC VI.1, Ms. Kosch provided a record showing source-wide natural gas consumption rates for each calendar month.

2021	Jan	Feb	March	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Natural gas (MCF)	0	56,392	182	0	818	6,042	4,477	8,782	0	88.14	925.52	220
Total	77,927 MCF											

FGOILFIREDPKRS
Two No. 2 fuel oil-fired jet turbine generators, each with a 23 MW capacity at a temperature of 20 F. this group consists of EU CTG13-1 and EU CTG13-2.

Material limit
As required in SC II.1, Ms. Kosch provided a document named “Fuel Oil Supply Agreement”. The term of the agreement is from January 1, 2021, to December 31, 2023. I reviewed this document and verified that the sulfur content of No. 2 fuel oil is 15 PPM (0.0015%) which is below the sulfur content limit of 1% by weight.

Monitoring/record keeping
As required in SC VI.1, the permittee keeps a record of the sulfur content of fuel oil used in EU CTG13-1 and EU CTG13-2. See details in SC II.1 (Material Limit). As required in SC VI.2, Ms. Kosch provided a record showing no. 2 fuel oil consumption for each calendar month for the last 12-month.

Record of the No. 2 Fuel Oil consumption for each calendar month for (CTG-13s) both 13-1 & 13-2 combined.

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	Diesel (Gallons)
Jan. 2021	382
Feb. 2021	119510
March 2021	0
April 2021	3119
May 2021	7340
June 2021	83194
July 2021	27325
Aug. 2021	38827
Sept. 2021	2814
Oct. 2021	787
Nov. 2021	700
Dec. 2021	0
Total	283,998 Gallons

Based on an onsite inspection, review of records, and discussion with the facility's staff, the facility appears to be in compliance with the conditions of ROP No. MI-ROP-B2808-2017.

NAME _____ DATE 2/22/2022 SUPERVISOR K. Kelly