

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

B280850397

FACILITY: DTE Electric Company - Northeast Peaking Facility		SRN / ID: B2808
LOCATION: 6401 EAST EIGHT MILE ROAD, WARREN		DISTRICT: Southeast Michigan
CITY: WARREN		COUNTY: MACOMB
CONTACT: Stefanie Ledesma , Associate Environmental Engineer		ACTIVITY DATE: 09/09/2019
STAFF: Shamim Ahammod	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Conducted a scheduled inspection of DTE Electric Company-Northeast Peaking facility to determine the company's compliance with the requirements of ROP No. MI-ROP-B2808-2017.		
RESOLVED COMPLAINTS:		

On Monday, September 9, 2019, Michigan Department of Environment, Great Lakes and Energy-Air Quality Division (EGLE-AQD) staff, I (Shamim Ahammod) conducted a scheduled inspection of 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 hat, safety glasses, hearing protection, and hard soled boots are required to be worn when on-site.

SOURCE DESCRIPTION

DTE Electric Company-Northeast Peaking facility is designed to generate additional electricity during periods of high customer demand. 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).

INSPECTION

At around 8:54 AM, at the front gate of the facility, I met with Mr. Tim Ellsworth, SPO-Plant Operations and Ms. Stefanie Ledesma, Associate Environmental Engineer, DTE Energy. I introduced myself, provided credentials and stated the purpose of the inspection to them.

During the pre-inspection meeting, I discussed the facility's emissions units those are included in the current ROP. After that we 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 turbines 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.

REGULATORY ANALYSIS

EU CTG12-1

EU CTG12-1 is an 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. According to Ms. Ledesma, Northeast EU CTG 12-1 only burned natural gas in 2018 and 2019.

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 a fuel (attachment 1). 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 which might result in highly variable sulfur content or heating value."

As stated in SC III.2 and 40 CFR 60.331(u), the pipeline-quality natural gas shall not have a total sulfur content in excess of 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 (attachment 1).

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 on a monthly basis (attachment 2). According to Ms. Ledesma, Northeast EU CTG 12-1 only burned natural gas in 2018 and 2019.

EU BSE CTG12-1

This group consists of 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 September 26, 2018 (attachment 3).

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. Ledesma.

Per SC III.4, according to Ms. Ledesma, Northeast EU BSE CTG12-1 is operated in accordance with DTE Northeast CTG 12-1 Black Start procedures and DTE Peakers have developed their own maintenance plan titled "Annual Black Start Checklist" in which maintenance components of the engine are inspected annually.

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. Ledesma, 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. Ledesma provided a record keeping all maintenance conducted on emission unit (attachment 4).

Other requirements

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

Monitoring/record keeping

As required in SC VI.1, Ms. Ledesma provided a record showing source-wide natural gas consumption rate for each calendar month (attachment 5).

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

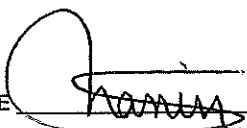
As required in SC II.1, Ms. Ledesma provided a document named "2017 Marathon F-11502 Signed Agreement with Sulfur Specifications" (attachment 6). I reviewed this document and verified that sulfur content of No. 2 fuel oil is 15 PPM (0.0015%) which is below the sulfur content limit of 1% by weight.

Monitoring/record keeping

As required in SC VI.1, permittee keeps record of the sulfur content of fuel oil used in EU CTG13-1 and EU CTG13-2. Ms. Ledesma provided a document named "2017 Marathon F-11502 Signed Agreement with Sulfur Specifications" (attachment 6). As required in SC VI.2, Ms. Ledesma provided a record showing no. 2 fuel oil consumption for each calendar month for last 12-month (attachment 5).

Conclusion

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

NAME 

DATE 9.26.2019 SUPERVISOR SK