

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

B280356962

<b>FACILITY:</b> DTE Electric Company - Placid Peaking Facility		<b>SRN / ID:</b> B2803
<b>LOCATION:</b> 4912 EDGAR ROAD, CLARKSTON		<b>DISTRICT:</b> Warren
<b>CITY:</b> CLARKSTON		<b>COUNTY:</b> OAKLAND
<b>CONTACT:</b> Stefanie Ledesma , Staff Environmental Engineer		<b>ACTIVITY DATE:</b> 01/21/2021
<b>STAFF:</b> Shamim Ahammod	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Conducted a scheduled virtual inspection of DTE Electric Company-Placid Peaking Facility (B2803) to determine the company's compliance with the requirements of the ROP No. MI-ROP-B2803-2018a.		
<b>RESOLVED COMPLAINTS:</b>		

On January 21, 2021, at about 1:00 PM, I (Shamim Ahammod), Michigan Department of Environmental Great lakes and Energy (EAGLE-AQD) staff, I, Shamim Ahammod, conducted a scheduled virtual inspection of DTE Electric Company-Placid Peaking Facility (B2803) located at 4812 Edgar, Clarkston, 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 ROP No. MI-ROP-B2803-2018a.

### SOURCE DESCRIPTION

The facility has five Peaker engines: EU00001, EU00002, EU00003, EU00004, and EU00005. Each engine is a General Motors Electro-Motive Division model MP45-B, 3600 horsepower, 20-cylinder, 2 stroke compression ignitions, reciprocating internal combustion diesel engine (RICE) with a displacement of 10.57 liters per cylinder used to drive a 2.75-megawatt electrical generator connected to each engine. All engines were installed in 1970. These engines are used to generate additional electricity during periods of high customer demand.

### VIRTUAL INSPECTION

On January 21, 2021, at 1:00 PM, I prearranged a Microsoft Team Meeting for the scheduled virtual inspection with Ms. Stefanie Ledesma, Associate Environmental Engineer, DTE Energy. I discussed the facility's emissions units that are included in the current ROP. Via video call, I observed five Peaker engines. At the time of the inspection, no emission units were in operation. 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.

During the virtual inspection, I have taken a note of the operating hours of the engines:

Emission units	Operating hours of the engines as of January 21, 2021 (hours)
EU00001- PLACID DG 12 PEAKERS, 12-1	7635.2 hours
EU00002 PLACID DG 12 PEAKERS, 12-2	7499 hours
EU00003 PLACID DG 12 PEAKERS, 12-3	7117.8 hours
EU00004 PLACID DG 12 PEAKERS, 12-4	7440 hours
EU00005 PLACID DG 12 PEAKERS, 12-5	7272.7 hours

**POST INSPECTION & REGULATORY ANALYSIS:**

After completing a brief virtual tour of the facility, I discussed the conditions of ROP No. MI-ROP-B6480-2018a with Ms. Stefanie Ledesma and requested the records.

**FGPEAKERS****FLEXIBLE GROUP CONDITIONS**

FGPEAKERS consists of five Peaker engines. These emissions unit are identified as EU00001, EU00002, EU00003, EU00004, and EU00005, each with emissions controlled by a diesel oxidation catalyst.

Pollution Control Equipment: Diesel oxidation catalyst

**Emission Limits**

Per SC I.1, on July 9-13, 2018, emission tests were performed on Units 12-1 to 12-5 for carbon monoxide (CO) destruction efficiency. The results of the emissions testing are given below:

Test Date	Source Unit	CO Reduction (%)	CO reduction limit (%)
7-9-18	DG 12-1	81.2	70% or more
7-10-18	DG 12-2	81.1	70% or more
7-13-18	DG 12-3	79.4	70% or more
7-12-18	DG 12-4	83.3	70% or more
7-11-18	DG 12-5	80.3	70% or more

The results of the testing indicate that Units 12-1 to 12-5 comply with 40 CFR part 63 Subpart ZZZZ requirements of reducing CO emissions by 70% or more.

**Material Limits:**

Per SC II.1, A copy of the Fuel Oil Supply Agreement between Marathon Petroleum Company and DTE was provided via email for Ultra Low Sulfur No. 2 Diesel (No. 2 MV15). The term of this agreement is from January 1, 2021 to December 31, 2023. It lists by wt. as 15 ppm (0.0015% by wt) which is below the limit of 1.5% sulfur by weight as specified in SC II.1.

**Process/Operational Restrictions**

Per SC III.2 and SC III.3, I received and reviewed the CPMS (Continuous Parameter Monitoring Systems) data from September 2017 through December 2020 for each of the five engines at Placid Peaking Station. This includes temperature at the catalyst inlet, 4-hour rolling averages, and pressure drop (monthly) across the catalyst. The facility appeared to be within the required ranges.

Per SC III.2, The permittee shall not operate an engine in FGPEAKERS unless the pressure drop across the catalyst does not change by more than two inches of water from the pressure drop across the catalyst that was measured during the initial performance test of the oxidation catalyst. I reviewed the CPMS data from January through December 2020 and found the pressure drop was less than two inches of water across the catalyst.

Per SC III.3, and SC VI.10.a, I received and reviewed the CPMS data from January to December 2020. The measurements were presented for every 15 minutes of operations. I found the oxidation catalyst inlet temperature (4 hours rolling average) of the engine in FGPEAKERS was greater than or equal to 450°F and less than or equal to 1350°F.

**Design/Equipment Parameters**

Per SC IV.1, the permittee shall not operate an engine in FGPEAKERS unless the catalytic oxidation system for that engine is installed, maintained, and operated satisfactorily and according to tie the procedures in their site-specific monitoring plan (40 CFR 63.66039(a), 40 CFR 63.6625(b), 40 CFR 63.6640). The five catalytic oxidation systems are installed for all five of the Placid Peaker engines, one per unit. I have attached a picture of the catalytic oxidation system at the end of this report. Each engine has a separate enclosure shed. The engines are vented on the roof of the shed and the catalyst is installed in a horizontal run of ductwork on the roof. A short elbow directs the exhaust gases upwards to the ambient air about 10 to 15 feet from ground level. I reviewed the CPMS data to verify the 4-hour rolling-averages temperature at the catalyst inlet, and pressure drop (monthly) across the catalyst.

### **Testing/Sampling**

Per SC V.1, On July 9-13, 2018, an emission test was conducted on five (5) 3,600 Brake-HP diesel engines to satisfy the requirements of 40 CFR Part 63 Subpart ZZZZ. The results of the emissions testing are described in Emission Limit section.

### **Monitoring/Recordkeeping**

Per SC VI.1, the permittee shall maintain a complete record of fuel oil specification and/or a fuel oil analysis for each delivery, or storage tank of fuel oi. A copy of the Fuel Oil Supply Agreement between Marathon Petroleum Company and DTE was provided via email for Ultra Low Sulfur No. 2 Diesel (No. 2 MV15). The term of this agreement is from January 1, 2021 to December 31, 2023. It lists by wt. as 15 ppm (0.0015% by wt).

As required in SC VI.2 and SC VI.3, I received the CPMS (Continuous Parameter Monitoring Systems) data from September 2017 through December 2020 for each of the five engines at Placid Peaking Station. This includes 4-hour rolling-averages temperature at the catalyst inlet, and pressure drop (monthly) across the catalyst. The facility appeared to be within the required ranges.

Per SC VI.5, the permittee shall maintain records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. These records shall be kept on file and made available to the Department upon request (40 CFR 63.6655(a)(2), 40 CFR 63.6660). There was no occurrence of a malfunction of operation or the air pollution control and monitoring equipment from January through December 2020.

According to SC VI.8, The permittee shall maintain records of action taken during periods of malfunction to minimize, including corrective actions to restore malfunction process and air pollution control and monitoring equipment to its normal or usual manner of operation. These records shall be kept on file and made available to the Department upon request (40 CFR 63.6655(a)(5), 40 CFR 63.6660, 40 CFR 63.6605(b)). I was provided a copy of the annual maintenance inspection form (attached) via email. There was no period of malfunction at Placid Peaker Station from January through December 2020.

Per SC VI.9(a), I received and reviewed the CPMS (Continuous Parameter Monitoring Systems) data from September 2017 through December 2020 for each of the five engines at Placid Peaking Station. This includes 4-hour rolling-averages temperature at the catalyst inlet, and pressure drop (monthly) across the catalyst.

Per SC VI.9(c), there was no out of control period from September 2017 through December 2020.

Per SC VI.9(d), there were no excess emissions or parameter monitoring exceedances during startups, shutdowns, or malfunctions from January through December 2020.

Per SC VI.9(c), there were no excess emissions or parameter monitoring exceedances from January through December 2020.

Per SC VI.10(a) and SC VI.10(b), I was provided the CPMS (Continuous Parameter Monitoring Systems) data from September 2017 through December 2020 for each of the five engines at Placid Peaking Station. This includes 4-hour rolling-averages temperature at the catalyst inlet, and pressure drop (monthly) across the catalyst.

### **Reporting**

As specified in SC VII.2 and SC VII.3, semiannual and annual reports are being submitted on time and no deviations were noticed.

**Stack/vent Restrictions:** NA

### **Other Requirements**

As mentioned in SC IX.1, the permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. Emission testing on five (5) 3,600 Brake-HP diesel engines was conducted on July 9-13, 2018 to satisfy the requirements of 40 CFR Part 63 Subpart ZZZZ.

Based on an off-site inspection, review of records, and discussion with the facility's staff, the facility appears to comply with the conditions of ROP No. MI-ROP-B2803-2018a.

Figure: Catalytic Oxidation system (FGPEAKERS, Design/Equipment Parameters, SC IV.1)



NAME *[Signature]*

DATE February 12, 2021 SUPERVISOR *Joyce [Signature]*