

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

A403364143

FACILITY: The Dow Chemical Company U.S.A., Midland		SRN / ID: A4033
LOCATION: 1790 Building, MIDLAND		DISTRICT: Bay City
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Rebekah Meyerholt , Environmental Specialist		ACTIVITY DATE: 11/18/2021
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: New FGDIVERSIONDIESELS. On site inspection of two new diversion diesels. Engine A operating, tested. Engine B not installed and first attempt to test in May failed. Engine B Tested Aug 3, 2022.		
RESOLVED COMPLAINTS:		

Dow SRN A4033 FCE 2022-2027 FGDIVERSIONDIESEL

Dow has replaced two former non-emergency diesel engines with two new non-emergency diesel engines. The diesel engines (Engine A and Engine B) are used to divert influent wastewater and storm water away from the on-site wastewater treatment plant (WWTP) to wastewater storage tanks for a variety of reasons including diverting high flows and high strength waste for WWTP operational needs.

The facility has conducted a 278(a) evaluation and documented that they meet a Part 201 exemption per Rule 282(2)(b)(ii).

2(b) Fuel-burning equipment which is used for...electric power generation ...which burns only the following fuels(ii) No. 1 and No. 2 fuel oils ...that contain not more than 0.40% sulfur by weight and the equipment has a rated heat input capacity of not more than 20,000,000 BTU per hour.

The Working Draft ROP will contain updated conditions for compliance with applicable requirements in 40 CFR Part 63 Subpart ZZZZ and 40 CFR Part 60 Subpart IIII.

At the time of the inspection and tests the facility appeared to be in compliance with requirements.

Attachments:

EPA 2020 year engine Caterpillar Engine Certification of conformity

Caterpillar Engine CARB certification Model year 2020

Engine A

April 1, 2022 Operations Screen

February 22, 2022 one minute differential pressure, inlet temperature, speed sensor, and 4 hour rolling average temperatures

November 18, 2021 RPM and % load

November 18, 2021 Catalyst inlet and outlet temperatures

May 17, 2022 Catalyst inlet and outlet temperatures, inlet and outlet differential pressure

These are two identical diesel engines that are used at 1246 building to power pumps that pump wastewater from the WWTP to the Diversion tanks. Both engines use Diesel fuel No. 2 that has <0.0015% sulfur and the heat input capacity is 2,671,655 BTU/hr based on the conversion of 1050 bhp to BTU/hr.

Both engines are new, non-emergency combustion ignition engines >500 HP. The engines are Tier 4 Certified from the manufacturer to meet the requirements of 40 CFR 60.4111(c).

The diversion diesel engines are each equipped with oxidation catalysts with continuous monitoring of each catalyst inlet temperature.

Engine model number: CAT Model C27

Year of purchase: 2020

Manufacturer site-rates brake horsepower: 1,050

Total displacement: 27.0 liters

Design max RPM=1800, Actual Max RPM = 1600

The engines have a percent load monitor that is used rather than a RPM value. The RPM value generated by the current operations monitoring initially provides a reading consistent with speed but the facility observed a gradual degradation of the RPM reading accuracy. The RPM readings drift may be from ongoing mechanical interference. The site is exploring a remedy to the RPM monitoring issue.

Field checks have verified that at an engine speed value of 100% the RPMs are 1850.

Emission limits

The facility is choosing to comply with the emission limit for CO contained in 40 CFR Part 63 Subpart ZZZZ Table 2a for compression engines.

1.Except during periods of startup

- a. Reduce CO emissions by 70 percent or more.

Testing on Engine A in November 2021 and May 2022, and testing on Engine B in Aug 2022, has demonstrated the engines reduce CO emissions by 70% or more

Material Limits

The facility is required to burn diesel fuel with a maximum sulfur content of 15 ppm. The analytical provide reported a non-detect for sulfur. However, the analysis had a Reporting Limit of 27 ppm.

Documentation from the fuel supplier was used to verify the fuel had sulfur content of <15 ppm

Operational limits

The facility appears to be operating per applicable operational requirements contained in 40 CFR Part 63 Subpart ZZZZ Table 2b including:

Operate and maintain the engines to minimize emissions

Minimize the engines time spent at idle and minimize the engines startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.

Prepare a site specific continuous parameter monitoring plan (CPMP)

Design/equipment parameters

As required by Table 2b of 40 CFR Part 63 Subpart ZZZZ the facility

a. maintains the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test.

b. maintains the temperature of each stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.

For each engine the permittee operates and maintains a CPMS in continuous operation according to the procedures in the site-specific monitoring plan and according to the following requirements:

- a. The CPMS collects data at least once every 15 minutes
- b. The temperature sensor has a minimum tolerance of 2.8 °C (5 °F) or 1 percent of the measurement range, whichever is larger.
- c. conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in the site-specific monitoring plan at least annually.
- d. Conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan.

Per the site specific monitoring plan the diesel engine thermocouples will be calibrated annually.

Testing/Sampling

Engine A was installed and an initial test conducted in November 2021 and a second test on May 17,2022. Engine B was installed and an initial test performed on August 3, 2022.

The facility provided the required notification of the tests to the Supervisors for AQD TPU and Bay City District office.

Monitoring record keeping

The facility conducts required monitoring and maintains records of NOCS, performance test, malfunctions, and, pollution control and monitoring equipment maintenance.

Catalyst inlet temperatures and pressure drop are monitored and recorded.

Reporting

The facility has submitted an initial NOC, semi annual NOCS and MACT ZZZZ reports, test notifications, test plans and test result reports.

NAME *Kathy Brewer*

DATE 9/9/2022

SUPERVISOR *Chris Kane*