

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

A403347959

FACILITY: The Dow Chemical Company U.S.A., Midland		SRN / ID: A4033
LOCATION: 1790 Building, MIDLAND		DISTRICT: Saginaw Bay
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Jennifer Kraut ,		ACTIVITY DATE: 02/26/2019
STAFF: Kathy Brewer	COMPLIANCE STATUS: Compliance	
SUBJECT: FGDIVERSIONDIESEL Inspection		SOURCE CLASS: MEGASITE
RESOLVED COMPLAINTS:		

FGDIVERSIONDIESEL Inspection 2-26-2019

Dow Chemical Contact: Jenny Kraut MDEQ AQD TPU staff present: Jeremy Howe

Emission Units EUDIVERSIONDIESELA-S1 and EUDIVERSIONDIESELB-S1 are each direct injection compression ignition 12 cylinder, 1050 Horsepower. The engines were installed in 1986 and are operated pumps that divert influent wastewater and storm water away from the on-site wastewater treatment plant to wastewater storage tanks. The site uses the pumps to manage flow from intense precipitation events and to control waste stream flows to the headworks of the WWTP. The engines are usually run to provide power to on site diversion pumps that direct flow to large holding tanks.

Based on the information reviewed during the inspection the facility is complying with the requirements of 40 CFR Part 63 Subpart ZZZZ

For the applicability of the 40 CFR Part 63 MACT ZZZZ the engines are classified as reciprocating internal combustion engines (RICE), located at an existing (commenced construction or reconstruction before December 19, 2002) major source of Hazardous Air Pollutants (HAPs), used for non-emergency purposes, and are greater than 500 brake horsepower (bhp).

EUDIVERSIONDIESELA-S1, EUDIVERSIONDIESELB-S1 are RICE located at an existing major source of HAPs, used for non-emergency purposes, and are greater than 500 brake horsepower. Each is equipped with a single stage catalytic reduction and closed crankcase ventilation system.

Emission limits for CO and engine testing requirements are in 40 CFR Part 63, Subpart ZZZZ and the conditions in FGDIVERSIONDIESEL-S1 of ROP-MI-A4033-2017b.

The emissions are verified through stack testing. I conducted the inspection while stack testing was being conducted on both engines. The engines were last tested on March 30, 2016.

No occurrence of new, reconstructed or rebuilt engines happened in 2017 or 2018.

Attachments

Diversion Diesel Engines Site Specific Monitoring Plan
Operations screen shot of January 22, May 3, and October 1, 2018 One minute average temperatures and catalyst differential pressure
Diesel Fuel SDS

AQD file review

Jan – Dec 2017 Annual Compliance & Semi Annual ROP Deviation Reports

Jan – Dec 2018 Semi Annual Compliance Report

Jan – Jun 2017 MACT ZZZZ compliance report

Jul – Dec 2017 MACT ZZZZ compliance report

Jan – Dec 2018 MACT ZZZZ compliance report

MAERS 2017 emissions.

Emission Limits

Emission limits, CO instantaneous readings during the test, and, established catalyst differential pressure are the following.

Source	Differential pressure (inches H2O) from previous test	CO limit (4 hour rolling average)	EPA Method	Test CO reading (corrected to 15% O2)	Time
EUDIVERSIONDIESEL A-S1	Diesel A: -0.4 to 3.6	≤23 ppmvd @ 15% O ₂ each engine -OR- ≥70% reduction pre and post catalyst, each engine	3A (Oxygen concentration), 10 (CO concentration)	10.35	~ 2:35
EUDIVERSIONDIESEL B-S1	Diesel B: -1.1 to 2.9			8.4	11:03
				8.6	11:20

The emissions are verified through stack testing. The engines were last tested on March 30, 2016.

Preliminary results from the current test indicate the engines were in compliance with the allowed limits.

The facility stated that the emissions are included in the emissions for the EUC3-S1, the WWTP. The MAERS Activity screen for EUC3 does not list fuels usage or provide a separate activity tab for the engines.

Material Limits

We reviewed the Safety Data sheets for fuel suppliers. All sulfur content was below 15 ppm and Cetane was >40. Reasonable inquiry includes annual review to determine if any change in fuel suppliers or characteristics.

Material	Limit	Equipment	Compliance demonstration	Comment
1. Diesel Fuel Sulfur Content	15 ppm	Each engine of FGDIVERSIONDIESELS-S1	Annual review of SDS from fuel suppliers to determine if any change in fuel components and annual analysis of sulfur	2018 : No changes in fuel and no detectable sulfur found in sample analysis report
2a. Diesel Fuel Cetane Index	≥40	Each engine of FGDIVERSIONDIESELS-S1	44	February 2, 2019 sample result
OR				
2b. Diesel Fuel Aromatic Content	≤35% by volume	Each engine of FGDIVERSIONDIESELS-S1		

Process/Operational Restrictions

The site has data recorders at the engines for catalyst inlet temperature and pressure drop. The data is downloaded monthly and reviewed for compliance. One minute data point averages are recorded for pressure drop and temperature. Engines are run monthly for testing in addition to time run for operational needs. Reviewed example for EUDIVERSIONDIESELA-S1 and EUDIVERSIONDIESELB-S1 January, May, and October, 2018. Attached data from EUDIVERSIONDIESELA-S1 Jan 22, 2018 10:20 -11:20 AM and 15:00 -16:00 PM ; May 23, 2018 0:35 – 1:35; Oct 1, 2018 5:00 – 6:00 AM; EUDIVERSIONDIESELB-S1 Jan 26, 2018 15:00-16:00 ; May 23, 2018 15:12-16:09; October 10, 2018 20:00 -21:00

Date/Engine	Selected Time (engine may be run more than one day or more than once each day)	Catalyst pressure drop Engine A . - 0.4 to 3.6	Catalyst pressure drop Engine B -1.1 to 2.9	Difference from test established value (< 2 inches)	Catalyst inlet temperature (F) >450F, <1350F
Jan 22, 2018 EUDIVERSIONDIESELA-S1	10:20 -17:18	All data reviewed within in range	All data reviewed within in range	Yes	All data reviewed within in range
Jan 26, 2018 EUDIVERSIONDIESELB-S1	14:53 -16:10 (test only)	All data reviewed within in range	All data reviewed within in range	Yes	All data reviewed within in range
May 2018					All data reviewed within in range
May 23, 2018 EUDIVERSIONDIESELA-S1	0:35 -3:00	All data reviewed within in range	All data reviewed within in range	Yes	All data reviewed within in range
May 23, 2018 EUDIVERSIONDIESELB-S1	15:12- 16:09	All data reviewed within in range	All data reviewed within in range	Yes	All data reviewed within in range
October 2018		All data reviewed within in range	All data reviewed within in range	Yes	All data reviewed within in range
October 1, EUDIVERSIONDIESELA-S1	1:32 – 8:48	All data reviewed within in range	All data reviewed within in range	Yes	
Oct 10 EUDIVERSIONDIESELB-S1	15:22 – 21:23	All data reviewed within in range	All data reviewed within in range	Yes	All data reviewed within in range
Feb 26 instantaneous EUDIVERSIONDIESELA-S1			All data reviewed within in range	Yes	
EUDIVERSIONDIESELB-S1	11:15	1.1	All data reviewed within in range	Yes	559.3
	11:25	1.1			566.9

Design/Equipment Parameters

Review of on site monitoring records and Semi annual 40 CFR Part 63 Subpart ZZZZ reports indicate the monitors were operated as required. The required site specific monitoring plan is attached and addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (b)(1)(i) through (v) of this section and in §63.8(d).

Monitoring/Recordkeeping

The engines are monitored for the required inlet catalyst temperature catalyst differential pressure.

Monitoring for RPM, pump discharge pressure, and, diesel use for each engine was reviewed during the current test. The information is recorded by HAP guard. Catalyst differential pressure and inlet temperatures were recorded from meters located at each engine (HAP guard). Diesel use is based on percent tank level change and converted to gallons.

All required gauges and monitoring systems were installed and appeared to be operating properly.

Process equipment	Run number	Time of observation	RPM (1750 - 1850 proposed)	Pump discharge pressure (0-50 psig proposed)	Diesel use (18-26 gals for A; 32-38 for B)	Differential pressure (inches H2O) < 2" change of test established value -0.4 to 3.6 proposed	Inlet Temperature (degrees F) >450F,<1350F
EUDIVERSIONDIESELA-S1	1	~14:40	1781.47	28.78	15 (1% tank level)		
EUDIVERSIONDIESELA-S1 Catalyst	1	~14:40				1.2	540.1
EUDIVERSIONDIESELB-S1	2	11:15	1827	40.5	3% tank level for both tests	Differential pressure (inches H2O) < 2" change of test established value -1.1 to 2.9 proposed	Inlet Temperature (degrees F) >450F,<1350F
	2	11:25	1827.9	43.9			
EUDIVERSIONDIESELB-S1 Catalyst	1	11:15				1.1	559.3
	2	11:25				1.1	566.9

Established set points in engine (HAP guard) module control directs diesel to ramp up to RPM so 30 minute window not exceeded before target temperature reached. Clutch set to not engage manually above 1000 RPM. Reviewed "Diesel Tank & diesel operations procedure" that specify start up process. Catalyst Inlet temperature >100 degrees and inlet pressure >1, signals to HAP guard to beginning monitoring Alarms will occur if monitoring indicates problem. (Catalytic inlet temperature, Inlet pressure, or 4 hour rolling temperature)

The record of operating conditions can be reviewed to determine compliance with operating requirements including during start up, shutdown or malfunctions.

Date	Engine	Hours operated	SSM time
Jan 2018	EUDIVERSIONDIESELA-S1	9	None
	EUDIVERSIONDIESELB-S1	2	None

May 2018	EUDIVERSIONDIESELA-S1	24	None
	EUDIVERSIONDIESELB-S1	5	None
October 2018	EUDIVERSIONDIESELA-S1	42	None
	EUDIVERSIONDIESELB-S1	14	None

Reporting

MACT ZZZZ reports:

Jan – June 2017 No Deviations, No SSM, No excess emissions

July -Dec 2017 No Deviations, No SSM, No excess emissions. EUDIVERSIONDIESELA-S1 operated 94 hours; EUDIVERSIONDIESELB-S1 operated 18 hours

Jan-June 2018 No SSM w/Excess emissions. Diversion Diesel A: 109 hours operated. 0% excess emissions; 0%CPMS downtime. Diversion Diesel B: 28 hours operated. 0% excess emissions; 0%CPMS downtime.

No Deviations reported in ROP Annual or Semi Annual Compliance reports from January 2017 through July 2018.

NAME KRB

DATE 4/5/2019

SUPERVISOR C. Howe