

M4085
MAVIA

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

M408569248

FACILITY: FCA US LLC - Mack Avenue Engine Plant		SRN / ID: M4085
LOCATION: 11570 WARREN AVENUE EAST, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT:		ACTIVITY DATE: 09/26/2023
STAFF: Jill Zimmerman	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT:		
RESOLVED COMPLAINTS:		

**SCHEDULED INVESTIGATION REPORT
(PCE for an FCE source)**

Date of Investigation: September 26, 2023**Date of Report:** September 26, 2023**Source:** FCA US LLC – Mack Avenue Engine Plant**SRN:** M4085**Address:** 11570 E. Warren Avenue, Detroit, Michigan 48214**Subject:** Fiscal Year 2023 Inspection (Off-Site)**Author:** Jill Zimmerman and Jeff Korniski, Air Quality Division, Detroit District Office**Facility Background:**

The FCA US LLC – Mack Avenue Engine Plant (FCA Mack Engine) was a complex that previously comprised two engine plants located along St. Jean Street between Warren Avenue and Mack Avenue. Mack Avenue Engine Plant I was the southern plant along Mack Avenue that historically produced V-8 engines and Mack Avenue Engine Plant II was the northern plant along Warren Avenue that historically produced V-6 engines. Because the two plants shared the same industrial grouping, owner, and property they were considered one stationary source for air permitting and compliance purposes and assigned an SRN of M4085.

The M4085 stationary source operated as a Title V major source and remains permitted to emit over 100 tons per year of carbon monoxide (CO) within ROP No. MI-ROP-M4085-2015a, issued on 6/24/2015 and revised on 11/17/2015. The potential to emit CO was largely due to engine testing at the site fueled by gasoline (engine test stands) and natural gas (hot test stands).

In 2019 FCA (now Stellantis) announced that the engine plants would be converted into a new automobile assembly plant with a third building, the new paint shop, to be constructed between, and connected to, the two existing buildings. Construction and renovation was completed in 2021. Installation and operation of the new assembly plant is permitted under Permit to Install (PTI) No. 14-19A, issued 10/30/2020, which is a revision to the initial PTI No. 14-19, issued 4/26/2019. Nearly all emissions generating equipment formerly associated with the two engine plants was removed during the conversion of the two buildings into an automobile assembly plant. Only a diesel fueled emergency fire pump (EU-FIRE_PUMP3 in ROP No. MI-ROP-M4085-2015a) and a collection of existing natural gas fired air handling units (EU-HEATERS) remain. This equipment predates the construction of the new assembly plant and is not included in PTI No. 14-19A.

The FCA Jefferson North Assembly Plant at 2101 Conner has operated just to the southeast of the Mack engine plants since 1991. The conversion of the Mack site into an assembly plant created a single stationary source comprising the two assembly plants because both share the same industrial grouping, share the same owner, and are located on adjacent properties. The combined site retains the existing SRN, N2155, originally assigned to the Jefferson North Assembly Plant alone. The stationary source is known as the Stellantis Detroit Assembly Complex and the two individual assembly plants are known as the Detroit Assembly Complex – Mack and the Detroit Assembly Complex – Jefferson.

The N2155 stationary source operates as a major Title V source under the existing ROP No. MI-ROP-N2155-2017 issued on 6/9/2017 to the FCA Jefferson North Assembly Plant. In the ROP renewal application, submitted on 11/4/2021, FCA retained the existing ROP conditions for the Detroit Assembly Complex – Jefferson, included the PTI No. 14-19A conditions for the new Detroit Assembly Complex – Mack, and included the emission units that carried over from the former engine plants (EU-FIRE_PUMP3 and EU-HEATERS). However, the renewal of the N2155 ROP has not yet

been completed. Therefore, although existing within the N2155 stationary source both EU-FIRE_PUMP3 and EU-HEATERS are regulated under M4085 and the ROP No. MI-ROP-M4085-2015a, which remains an active permit.

Summary of Off-Site Inspection and Compliance Status:

As an existing Title V major source with an active ROP, the M4085 stationary source was scheduled for a full compliance evaluation (FCE) within the 2023 fiscal year; the last FCE was conducted in 2021. The N2155 stationary source had its last FCE in the 2022 fiscal year and will be scheduled again for an FCE in 2024. As the only equipment remaining from M4085 is now physically a part of the N2155 stationary source it was decided to align the FCE periods for the two SRNs until the existing equipment from M4085 is incorporated into a renewed ROP for N2155 and ROP No. MI-ROP-M4085-2015a is voided. As a result, an on-site inspection of M4085 will be conducted as a part of the on-site inspection of N2155 scheduled for fiscal year 2024. Therefore, it was decided to conduct an off-site inspection of M4085 in fiscal year 2023.

The equipment within ROP No. MI-ROP-M4085-2015a consists of three engine test cells fueled by gasoline (FG-DYNOS); two natural gas fired hot test stands (FG-HOTTESTS); natural gas fired air handling units, heaters, ovens, and hot water boilers (EU-HEATERS); two underground gasoline storage tanks (FG-GAS_DISP); three diesel fired emergency fire pumps (FG-EMERG_RICE); various engine machining operations (FG-RULE331); and various engine adhesive, ink marking, and solvent cleaning operations (FG-RULE290). All emission units, whether permitted, exempt, or grandfathered, are also grouped into the facility-wide flexible group FG-FACILITY. In addition, PTI No. 47-18 was issued on 6/8/2018 which allowed FCA to replace the two existing hot tests stands (EU-HOTTEST1S, EU-HOTTEST2S) with two newer versions (EU-HOTTEST2018A, EU-HOTTEST2018B).

FCA was required to submit a ROP renewal application for M4085 by 12/24/2019. Though the closure of the engine plants had been announced, FCA submitted an ROP renewal application for M4085 on 12/20/2019 to allow remaining equipment to continue to operate. FCA identified this equipment as EU-HEATERS and three diesel fired emergency fire pumps (FG-EMERG_RICE). FCA identified all other equipment as having been removed from the site. An AQD inspection of 3/2/2020 confirmed the engine test stands, hot test stands, and all other emission units associated with the engine manufacturing operations had been removed. In addition, it was learned that the two existing fire pumps for the north building (Mack I) had been replaced while the existing fire pump (EU-FIRE_PUMP3) for the south building (Mack II) remained. This is consistent with the information later submitted within the ROP renewal application for N2155 which lists only EU-HEATERS and EU-FIRE_PUMP3 as a part of the stationary source.

MI-ROP-M4085-2015a, General Conditions (GC)

GCs 19 through 23, 25 – Compliance – Semiannual deviation reports, Rule 912 reports, compliance certifications and report certifications – As required, FCA/Stellantis has continued to submit ROP deviation reports for M4085 independent of those submitted for N2155. The most recent semiannual deviation reports were received on 9/18/2023 and 3/15/2023, and the most recent annual certification was received on 3/15/2023.

GC 24 – Compliance – Submissions to the Emissions Inventory – The AQD received this facility's MAERS database for calendar year 2022 on 3/15/2023.

MI-ROP-M4085-2015a, FG-EMERG_RICE, Special Conditions (SC)

These special conditions pertain to the diesel fired compression ignition engine that is a part of the emergency fire pump identified as EU-FIRE_PUMP3; according to the ROP, this fire pump was installed in 1/11/1999. EU-FIRE_PUMP1 and EU-FIRE_PUMP2 have been replaced by two new emergency fire pumps, EUFIREPUMP1 and EUFIREPUMP2; these two new fire pumps were a part of the assembly plant installation and are included within PTI No. 14-19A.

The compression ignition engine within EU-FIRE_PUMP3 is rated at 368 horsepower which, assuming a conservative 25% conversion from heat to mechanical energy, calculates to a heat input capacity of 3.68 million Btu per hour (MMBtu/hr). This engine appears exempt from the PTI program pursuant to Rule 285(2)(g) because the heat input capacity is less than 10 MMBtu/hr. The engine is not subject to 40 CFR Part 60, Subpart IIII because it was constructed prior to 7/11/2005 (40 CFR 60.4200(a)(1) through (4)). The engine is subject to 40 CFR 63, Subpart ZZZZ for emergency fire pumps and has a compliance date of 5/3/2013. The requirements in this subpart are incorporated into the ROP within the flexible group table.

SCs III.1 through 6, V.1, VI.1 through 3, IX.1 – Compliance – In summary, emergency engines of this kind are to be operated properly, to be inspected and maintained according to a prescribed schedule, and to be operated only under emergency conditions (except for limited non-emergency use and limited use for maintenance and readiness testing). A non-resettable hour meter is required to be installed on the engine to track its usage. During an inspection of 1/28/2021, AQD confirmed EU-FIRE_PUMP3 was equipped with an hour meter that read 480.8 hours. At present, AQD presumes that EU-FIRE_PUMP3 is in compliance with the requirements of FG-EMERG_RICE. The compliance status of all

emergency fire pumps at the site, including EU-FIRE_PUMP3, will be evaluated during the fiscal year 2024 inspection of the N2155 stationary source.

MI-ROP-M4085-2015a, FG-FACILITY, Special Conditions (SC)

This flexible group represents all permitted, exempt, and grandfathered process equipment at the M4085 stationary source. Currently, FG-FACILITY comprises EU-HEATERS and EU-FIRE_PUMP3. EU-HEATERS is a collection of air handling units, each with a heat input capacity of less than 6 MMBtu/hr. Each air handling unit appears exempt from the PTI program pursuant to Rule 282(2)(b)(i) because the heat input capacity is less than 50 MMBtu/hr.

SCs I.1 and 2, VI.2.d, e, f, g – Compliance – Facility-wide emissions of nitrogen oxides (NOx) and CO limited to 93.7 tons per 12-month rolling period and 244 tons per 12-month rolling period, respectively; records required.

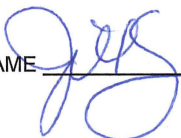
NOx and CO emissions are reported at 17455 pounds (8.7 tons) and 3491 pounds (1.7 tons), respectively, from EU-HEATERS for calendar year 2022 in MAERS. EU-HEATERS is the only emission unit contained in the MAERS submittal. Emissions from the emergency fire pump, when operated for readiness and maintenance, are expected to be on an order of 1 ton or less. The gasoline fueled engine test stands and the natural gas fired hot test stands, now removed, were the predominant sources of NOx and CO at M4085.

SCs II.1 and 2, IV.1, VI.2.b and c – Compliance – Facility-wide natural gas usage limited to 725.3 million cubic feet per 12-month rolling period; facility-wide gasoline usage limited to 135,000 gallons per 12-month rolling period; records required.

Natural gas usage in EU-HEATERS is reported at 174.55 million cubic feet for calendar year 2022 in MAERS. The hot test stands no longer contribute to the use of natural gas at this facility. The engine test stands no longer utilize gasoline at the facility and the two underground gasoline storage tanks used to fuel the engine test stands have been removed. When in operation, the emergency fire pump uses diesel fuel.

Conclusion:

At the time of the investigation the remaining elements of the former M4085 FCA US LLC – Mack Avenue Engine Plant appear in compliance with applicable requirements. The M4085 stationary source remains active because these existing elements, a collection of natural gas fired air handling units and a diesel fired emergency fire pump engine, have not yet been incorporated into the ROP for the N2155 stationary source. Until it is incorporated, future inspections of the M4085 equipment will coincide with inspections of the N2155 stationary source.

NAME 

DATE 10/13/23 SUPERVISOR JK