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

B335068781

FACILITY: FCA US LLC – Trenton Engine Complex		SRN / ID: B3350
LOCATION: 2300 VAN HORN RD, TRENTON		DISTRICT: Detroit
CITY: TRENTON		COUNTY: WAYNE
CONTACT: Christopher Cvetkovski , Plant Engineer/Environmental Coordinator		ACTIVITY DATE: 08/22/2023
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Fiscal Year 2023 Inspection		
RESOLVED COMPLAINTS:		

SCHEDULED INVESTIGATION REPORT
(PCE for an FCE source)

Date of Investigation: August 22, 2023**Source:** FCA US LLC – Trenton Engine Complex**SRN:** B3350**Address:** 2300 Van Horn Road, Trenton, Michigan 48183**Subject:** Fiscal Year 2023 Inspection**Author:** Sam Liveson and Jeff Korniski, Air Quality Division, Detroit District Office**Facility Background:**

The FCA US LLC – Trenton Engine Complex (Trenton Engine), also known as the Stellantis – Trenton Engine Complex, produces two variations of the 3.6-liter V-6 Pentastar engines, the Classic and the Upgrade, used in FCA/Stellantis vehicles. Until recently, the site at 2300 Van Horn Road was home to two distinct engine plants known as Trenton North and Trenton South. Trenton North was decommissioned as an engine plant in November 2022 after a retooling of Trenton South allowed for both the Classic and Upgrade engines to be produced in that plant. Trenton North is now used as a logistics center.

Manufacturing at Trenton Engine includes engine component machining (wet and dry), assembly, and testing. Particulate emissions from machining operations are controlled by filters that vent internally and oil mist eliminators for the crankshaft, engine block, and engine head machining areas that vent to the ambient air. The combustion of gasoline in five engine test cells is the largest source of potential emissions at the site, followed by natural gas fueled boilers, hot water generators, and other heating devices.

The site is classified as a Title V major source because the permitted emissions of carbon monoxide exceeds 100 tons per year, primarily due to the presence of the five gasoline fueled engine test cells. The facility is classified as a non-major source, or “area source”, of hazardous air pollutants (HAPs) because the potential to emit HAPs is less than 10 tons per year for any individual HAP and less than 25 tons per year for aggregate HAPs.

Summary of Facility Visit:

On 8/22/2023 at approximately 10:00 AM, Air Quality Division (AQD) staff Sam Liveson and Jeff Korniski arrived at Trenton Engine for an onsite inspection. Facilities Engineer/Environmental Coordinator Christopher Cvetkovski led a team of FCA staff that escorted AQD staff through the plant and answer questions regarding facility operations.

Trenton North is now utilized as a warehouse and logistics center supporting Stellantis/FCA U.S. manufacturing plants, including Trenton South. A few of the former in-plant particulate filtration devices remain in place, otherwise, all usable engine manufacturing equipment has been removed from Trenton North to be utilized (as needed) at Trenton South.

Engine manufacturing activities were occurring during the plant walkthrough of Trenton South. Boring and grinding equipment is used to form and shape crankshafts, engine blocks, and cylinder heads. Both “wet” (while using cutting oils and coolants) and “dry” (without the use of oils and coolants) machining is utilized. Particulate from machining operations is generally controlled by particulate filtration devices or oil mist collectors and vented back into the in-plant environment. Particulate and metal chips from certain wet machining equipment is controlled by oil mist collectors that vent to the ambient air through three stacks, one of which is devoted to the exhaust from each of the three main machining areas: crankshaft, engine block, and cylinder head. Each particulate control device is fitted with a pressure drop gauge with the pressure drop range for proper operation indicated on the gauge. The main oil mist collector for the

control of metal chips from cylinder head wet machining operations was observed. The pressure drop gauge read 3 inches water gauge, which was at the upper end of the proper operating range for this collector. The three exhaust stacks were observed while on the roof and each appeared to meet the minimum height requirement of 45 feet established in the permit. Neither visible emissions nor odors were observed while on the roof of Trenton South nor at any other time while outside on the plant property.

Fully assembled engines undergo a systematic, tiered testing regime for quality control. Every assembled engine is given basic tests, like an air leak test, while on the line. A certain percentage of assembled engines undergo testing in a “hot test stand”, where the engine is run on natural gas. And then a certain percentage of those engines undergo testing in a typical engine test cell, where the engine is run on gasoline to assess its performance. It was explained that, mechanically, a combustion engine can operate on many different fuels. It is the ancillary parts of the fully formed engine, like the gaskets, that restrict the fuel use to gasoline (in this case) once the engine is installed in a vehicle. As observed, there are two hot test stands and five engine test cells installed at the facility. Each vents uncontrolled to the ambient air through a dedicated stack. The five engine test cell stacks were observed while on the roof and each appeared to meet the minimum height requirement of 35.4 feet.

There are two diesel fire water pumps and one gasoline emergency engine installed at the site. The north fire water pump was visited during the site visit and was observed to have an hour meter installed.

The site visit concluded at about 11:47 AM. The facility’s various natural gas fired heating equipment, gasoline storage tanks, and the Rule 290 claimed equipment were not viewed during this site visit.

Compliance Status:

Trenton Engine was issued renewal ROP No. MI-ROP-B3350-2022 on 2/18/2022. No Permits to Install (PTI) have been issued to the facility since ROP renewal. Prior to the inspection of 8/22/2023 the last site inspection was conducted on 10/1/2020. In general, this report covers compliance activities that have occurred in the past year. Compliance information was obtained from the annual emissions inventory (MAERS) and periodic reports submitted by Trenton Engine.

MI-ROP-B3350-2022, General Conditions (GC)

GC 11 – Compliance – Visible emissions limited to 20% over a six-minute average, with the exception of one 27% six-minute period per hour, unless otherwise specified in the ROP or in a federal new source performance standard. This limit applies to point source (non-fugitive) emission units at the plant – No visible emissions were noted at any time during the site visit.

GC 12 – Compliance – Nuisance emissions prohibited – No citizen complaints have been received by the AQD Detroit District Office for Trenton Engine in the period since the last inspection.

GCs 19 through 23, 25 (and under individual EU/FG tables at SCs VII.1 through 3) – Compliance – Semiannual deviation reports, Rule 912 reports, compliance certifications and report certifications – The most recent semiannual deviation reports and the annual certification were received on 7/17/2023. These documents were received on the same day because a file review revealed that the original submissions had either incorrect dates or could not be located in the file, and the facility resubmitted the reports.

GC 24 – Compliance – Submissions to the Emissions Inventory – The AQD received this facility’s MAERS database for calendar year 2022 on 3/13/2023.

MI-ROP-B3350-2022, SOURCE-WIDE, Special Conditions (SC)

SOURCE-WIDE contains facility wide emission limits for CO and NOx to ensure the stationary source was a synthetic minor source for the Prevention of Significant Deterioration (PSD) regulations during its initial construction and during subsequent modifications to date.

SCs I.1 and 2, VI.1 – Compliance – Facility-wide emissions of CO and NOx limited to 271.4 and 93.8 tons per 12-month rolling period, respectively; records required; these limits apply to aggregate emissions from permitted, exempt, and grandfathered equipment – Facility-wide CO and NOx emissions are reported at 70.2 tons and 14.6 tons, respectively, for calendar year 2022 in MAERS.

MI-ROP-B3350-2022, FG-DYNOS, Special Conditions

These special conditions pertain to the five gasoline-fired engine test cells (dynamometers). The engine test cells are not subject to 40 CFR 63, Subpart P – National Emission Standards for Hazardous Air Pollutants for Engine Test Stands/Cells because the facility is not a major source of hazardous air pollutants (HAPs).

SCs I.1 through 4, V.1 and 2, VI.2 – Compliance – Hourly CO and NOx emissions limited to 3.12 pounds per gallon and 0.300 pounds per gallon, respectively; testing on one of the five engine test cells to be conducted every five years; annual CO and NOx emissions limited to 210.6 tons and 20.25 tons, respectively; records.

The most recent test was conducted on 4/27/2022 and measured CO and NOx emissions from EU-DYNO4. The test report was received on 6/28/2022. The CO emission rate measured 2.07 pounds per gallon, which is less than the CO emission limit of 3.12 pounds per gallon. The NOx emission rate measured 0.28 pounds per gallon, which is less than the NOx emission limit of 0.300 pounds per gallon. Calendar year 2022 CO and NOx emissions are reported at 64.4 tons and 1.7 tons, respectively, which are less than their respective annual limits.

SCs II.1 and 2, III.1 and 2, VI.2 and 3 – Compliance – Shall not operate more than five engine test cells at a time; only combust unleaded gasoline; limited to 48 gallons per hour and 135,000 gallons per year; records, with hourly records based on monthly records unless prorated rate exceeds 90% of the hourly limit.

The facility only has five engine test cells currently installed. Only unleaded gasoline is combusted in the engine test cells. Calendar year 2022 gasoline usage is reported at 32,702 gallons over 3,856 hours, for an average of 8.5 gallons per hour.

SCs VIII.1 through 5 – Compliance – Each engine test cell shall vent unobstructed vertically at a height not less than 35.4 feet above ground and with a maximum diameter/dimension of 33.0 inches – These stacks were viewed from the roof level during the inspection of 8/22/2023 and judged in compliance with these requirements, though measurements were not performed.

MI-ROP-B3350-2022, FG-COMBUSTION, Special Conditions

FG-COMBUSTION is a flexible group that contains Boiler 1, Boiler 5, and the Rule 282(2)(b) exempt natural gas fired equipment at the facility, with the exception of the hot test stands.

SCs I.1 and 2, VI.3 – Compliance – Annual NOx and CO emissions limited to 72.14 tons and 60.60 tons, respectively; records, including a calculation of the PM emissions – Calendar year 2022 NOx and CO emissions are reported at 12.7 tons and 5.8 tons, respectively, which are less than their respective annual limits. PM10 and PM2.5 emissions are each reported at 0.93 tons.

SCs II.1, III.1, VI.2 – Compliance – Only burn natural gas (with the exception of the boilers); annual natural gas usage limited to 1,374 million cubic feet, records – Calendar year 2022 natural gas usage is reported at 227.2 million cubic feet, which is less than the annual limit.

MI-ROP-B3350-2022, FG-BLR1&BLR5, Special Conditions

Boiler 1 and Boiler 5 are natural gas fired boilers rated at 60 million Btu/hr and 180 million Btu/hr, respectively.

Boiler 1 was installed in 1953 which predates the 6/9/1989 applicability date for the federal Standards of Performance for New Stationary Sources (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Unit at 40 CFR 60, Subpart Dc.

Boiler 5 was installed in 1969 which predates the 6/19/1984 applicability date for the NSPS for Industrial-Commercial-Institutional Steam Generating Units at 40 CFR 60, Subpart Db.

The two boilers may be subject to the National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources at 40 CFR 63, Subpart JJJJJ. However, the AQD is not delegated the regulatory authority for this standard.

SCs I.1 through 3, V.1 and 2, VI.2 – Compliance – CO emissions from Boiler 1 and Boiler 5 while firing natural gas each limited to 0.084 pounds per million Btu on an hourly basis; NOx emissions from Boiler 1 while firing natural gas limited to 0.10 pounds per million Btu (lb/MMBtu) on an hourly basis; NOx emissions from Boiler 5 while firing natural gas limited to 0.28 lb/MMBtu on an hourly basis; testing every five years; records of natural gas usage.

The most recent test was conducted on 1/18/2023 and the test report was received on 3/13/2023. CO emissions for Boilers 1 and 5 were measured at less than 0.0002 lb/MMBtu and 0.010 lb/MMBtu, respectively, less than the emission limit of 0.084 lb/MMBtu. NOx emissions for Boiler 1 were measured at 0.010 lb/MMBtu, equivalent to the emission limit. NOx emissions for Boiler 5 were measured at 0.11 lb/MMBtu, less than the emission limit of 0.28 lb/MMBtu.

Calendar year 2022 natural gas usage is reported at 78.1 million cubic feet for Boiler 1 and 30.7 million cubic feet for Boiler 5.

SCs VIII.1 and 2 – Compliance – Each boiler shall vent unobstructed vertically at a height not less than 84 feet above ground and with a maximum diameter/dimension of 66.0 inches – These stacks were not viewed during the inspection of 8/22/2023 but have been judged to be in compliance in the past.

MI-ROP-B3350-2022, FG-HOT TEST, Special Conditions

Two natural gas-fired engine test stands.

SCs I.1, II.1, IV.1, VI.1 and 2 – Compliance – Annual NOx emissions from the two hot test stands (combined) limited to 1.42 tons; natural gas usage limited to 1.0 million cubic feet per year; records.

Calendar year 2022 NOx emissions are reported at 23 pounds, which is less than the annual limit. Calendar year 2022 natural gas usage is reported at 0.057 million cubic feet, which is less than the annual limit.

SCs VIII.1 and 2 – Compliance – Each hot test stand shall vent unobstructed vertically at a height not less than 40 feet above ground and with a maximum diameter/dimension of 12 inches – These stacks were not viewed during the inspection of 8/22/2023 but have been judged to be in compliance in the past.

MI-ROP-B3350-2022, FG-WETMACHINE, Special Conditions

Wet machining equipment controlled by oil mist collectors that vent to the ambient air through three stacks, one of which is devoted to the exhaust from each of the three main machining areas: crankshaft, engine block, and cylinder head.

SCs I.1 through 3 – Compliance – PM10 emissions limited to 0.0018 grains per dry standard cubic foot and 1.21 pounds per hour; visible emissions limited to 5% opacity – Compliance with the PM10 emission limits is based on proper operation of the control devices. No visible emissions were observed from the three exhaust stacks during the inspection.

SCs III.1, IV.1, VI.1 and 2 – Compliance – Oil mist collectors installed and operating properly; malfunction abatement plan (MAP) developed based on manufacturer's maintenance; records identifying inspections of collectors and changeout of filters – The facility maintains an MAP, which was provided as a part of the ROP permit renewal process. Records were not requested as a part of this inspection.

SCs VIII.1 through 3 – Compliance – Exhaust from the oil mist collectors controlling emissions from the crankshaft, engine block, and cylinder head wet machining areas shall vent unobstructed vertically at a height not less than 45 feet above ground and with a maximum diameter/dimension of 25.2 inches – These stacks were viewed from the roof level during the inspection of 8/22/2023 and judged in compliance with these requirements, though measurements were not performed.

MI-ROP-B3350-2022, FG-OTHER MACHINING LINES, Special Conditions

Compliance – This flexible group represents the collection of emission units exempt under Rule 285(2)(l)(vi)(C) for metal machining equipment venting to the ambient air through an oil mist collector or a particulate filtration system. Although exempt, these emission units remain subject to the Rule 331(1)(a) emission limit of 0.10 pounds particulate per 1000 pounds of exhaust gases calculated on a dry gas basis. Compliance with the limit is based on proper maintenance of the control devices. These control devices are listed in the facility's MAP and undergo the same maintenance as the control devices within FG-WETMACHINE.

MI-ROP-B3350-2022, FG-EMERG-RICE-CI, FG-EMERG-RICE-SI, Special Conditions

Compliance – The facility has two diesel emergency fire pump engines and one gasoline emergency engine that are exempt under Rule 285(2)(g) because the heat input capacity of each is less than 10 million Btu per hour. The three engines do appear to be subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines at 40 CFR 63, Subpart ZZZZ, and the special conditions within the two flexible groups are based on this standard. The AQD is not delegated the regulatory authority for this standard. However, the north fire water pump was visited during the site visit and was observed to have an hour meter installed.

MI-ROP-B3350-2022, FG-GAS-DISP, Special Conditions

Compliance – The facility has two gasoline storage tanks with capacities of 560 gallons and 3000 gallons. Because their capacities are each less than 75 cubic meters (19,812 gallons) they are not subject to the Standards of Performance for Volatile Organic Liquid Storage Vessels at 40 CFR 60, Subpart Kb. The two storage tanks do appear to be subject to the National Emission Standard for Gasoline Dispensing Facilities at 40 CFR 63, Subpart CCCCCC, and the special

conditions within the flexible group is based on this standard. The AQD is not delegated the regulatory authority for this standard.

MI-ROP-B3350-2022, FG-RULE 290, Special Conditions

Compliance – The facility claims the exemption under Rule 290 for four emission units: EU-PROD_INKS, EU-ADHESIVE, EU-METHANOL, and EU-IPA. Based on the calendar year 2022 emission report, it appears Rule 290 remains eligible for these emission units. The highest annual emissions are reported for isopropyl alcohol (EU-IPA) at 2.4 tons which averages to less than 1000 pounds per month uncontrolled when the emission unit is utilized on a consistent basis throughout the year.

MI-ROP-B3350-2022, EU-YARD, Special Conditions

Compliance – The facility maintains and operates within a Fugitive Dust Control Plan to comply with the 5% opacity limit. No visible fugitive emissions were observed while onsite during the inspection.

Conclusion:

At the time of completion of the investigation the FCA US LLC – Trenton Engine Complex appears to be in compliance with applicable State and federal regulations.

NAME 

DATE 11/26/2024

SUPERVISOR 