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

B276363953

FACILITY: U.S. Army Garrison-Detroit Arsenal		**SRN / ID:** B2763
LOCATION: 6501 E Eleven Mile Rd, WARREN		**DISTRICT:** Warren
CITY: WARREN		**COUNTY:** MACOMB
CONTACT: Peter L. Schappach , Environmental Protection Specialist		**ACTIVITY DATE:** 08/08/2022
STAFF: Kaitlyn Leffert	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: FY2022 Inspection		
RESOLVED COMPLAINTS:		

On August 8th, 2022, I, Kaitlyn Leffert, Michigan Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) staff, conducted an inspection of U.S. Army Garrison – Detroit Arsenal, located at 6501 E. Eleven Mile Road, Warren, MI. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the administrative rules; and Permit to Install (PTI) Numbers 146-02 and 566-96B.

U.S. Army Garrison – Detroit Arsenal is a research and development facility, with buildings used for office space, research laboratories, vehicle testing, and facility operations and maintenance. The facility is permitted to operate 10 emission test cells (PTI No. 566-96B), as well as the ventilation hood associated with a can crushing operation (PTI No. 146-02). PTI No. 566-96B also contains facility-wide opt-out limits for NOx, CO, VOCs, and HAPs.

Facility Inspection

I arrived at the facility at 1:00 pm on August 8th and met Peter Schappach, Chief, Environmental Division, U.S. Army Garrison – Detroit Arsenal. I explained the purpose of my inspection.

We first went to the building where the can crushing operations are located. PTI No. 146-02 covers the ventilation hood associated with the can crushing operations. The permit does not contain any specific requirements, beyond the dimensions of the stack associated with this process. When entering the building, I observed the stack associated with the can crusher. It appeared to meet the minimum height and maximum diameter dimensions specified in the permit. The can crusher was not operating during my inspection. The can crusher is mostly used for crushing aerosol cans, along with some paint cans. When I asked how often the crusher operates, I was told it operates for approximately 3 hours per week.

U.S. Army Garrison – Detroit Arsenal has an internal hazardous material management system where are materials are entered into the internal tracking system and assigned a barcode. Following use, the material can be scanned to determine what the material is, where it was used, and how it is to be disposed of. This system allows staff to track all materials in use on the site. It is also how the facility can track VOC- and HAP-containing materials that are used. This hazardous material management and recordkeeping system satisfies the requirement that the facility maintain records of all VOC and HAP- containing materials, including records of percent VOC or HAP, usage rates and disposal records, and purchase orders for these materials (PTI No. 566-96B, S.C. 2.8).

Engine Test Cells

The facility is permitted to operate ten engine testing cells. The engine testing area includes six standard dynamometer testing cells, two whole vehicle testing stands, one large test cell for whole

tanks, and a testing area for battery testing. The battery testing area is technically composed of three separate small test cells. No fuel is combusted in the battery testing area and therefore no ambient air emissions are released at the facility from battery testing.

During my inspection, the test cells were in various stages of testing. Depending on the tests being done, total time to set up and execute the testing can range from hours to weeks or months. All of the fuel-burning test cells can use either F24 jet fuel or diesel fuel. However, the facility has not been using diesel fuel and therefore F24 jet fuel is the only fuel being used in the test cells.

In addition to the permitted engine test cells, the facility also operates a Power and Energy Vehicle Environmental Laboratory (PEVEL). This is used to test whole vehicles under a variety of environmental conditions. The vehicle testing in the PEVEL is considered to be a mobile source of emissions and therefore is not subject to the requirement to obtain an air permit to install or stationary source air quality regulations enforced by EGLE.

Coating Operations
The facility also has two coating booths, which are used to coat metal vehicle parts. Prior to coating, the parts are hung on metal racks and pretreated with a liquid alkaline cleaner that is spray applied. Waste solvents from this process run into a drain which then collects in a closed storage barrel. The metal racks with the hanging parts are then wheeled into one of the two paint booths, where coatings are applied by hand using spray paint guns. The coatings used at the facility are primarily water based. Each paint booth is equipped with filters at one end of the booth. These filters are changed based on pressure within the paint booths. An increase in pressure in the booth indicates that the filters are becoming saturated and need to be replaced. There is also a paint storage and a small paint mixing room adjacent to the coating area. All coatings are stored in closed containers and organized in chemical storage cabinets. The coatings used are all labeled and tracked through the facilities hazardous material management system.

The coating booths are considered exempt according to Rule 287(2)(c)(i), which requires that coating usage is less than 200 gallons per month and records of monthly coating usage are maintained. I was provided records of daily and monthly coating usage at the facility. Monthly coating usage ranged from 69.57 to 84.69 gallons per month over the period of January 2021 to June 2022.

In addition to coating operations, this building also houses welding, deburring, and drilling equipment, which all vent to the general in-plant environment. The deburring and drills are considered exempt from the requirement to obtain a permit to install according to Rule 285(2)(l)(vi) and the welding operations are considered exempt according to Rule 285(2)(i).

Boilers and Emergency Generators
The facility has several emergency generators and natural gas-fired boilers used to supply supplemental and back-up power to the operations at the facility. During my inspection, Peter Schappach led me on walking tour of the facility to see each of the emergency generators and natural gas fired boilers located on the property.

There are a total 13 boilers at the facility. The boilers at the facility are considered exempt from the requirement to obtain a permit to install per Rule 285(2)(g). The boilers are subject to the Area

Source Boiler MACT standard, as specified in 40 CFR Part 63 Subpart JJJJJ, but do not have any applicable requirements under this part. Boilers at the facility that are over 10 MMBTU/hr are also subject to the requirements of 40 CFR Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. This NSPS requires that the facility maintain records of fuel usage for these boilers. Fuel usage records were provided following the inspection.

The facility has 14 emergency generators. The new diesel emergency engines at the source are subject to 40 CFR 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The new natural gas-powered generators are subject to 40 CFR 60 Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

In order to demonstrate compliance with both 40 CFR 60 Subpart JJJJ and 40 CFR 60 Subpart IIII, all emergency engines must be certified and maintain records of non-emergency operating hours for each engine. Both standards also limit non-emergency operating time to 100 hours, including time for maintenance checks and readiness testing. The facility provided records during the inspection last year demonstrating that all of the emergency engines at the facility are certified.

I was provided records of emergency generator usage for 2020 and so far in 2021. Total non-emergency hours so far in 2021 for each emergency generator ranged from 5.9 to 14.2 hours. In 2022, total non-emergency hours of operation ranged from 7.3 to 29.8 hours. The hours log for the emergency generators indicates that all emergency generators satisfied the requirements of 40 CFR Part 60 Subparts JJJJ and IIII.

In December 2020, it was identified that one of the emergency generators had exceeded the allowed 100 hours of non-emergency operation. The issue was identified to be a programming error resulting in the generator automatically turning on at regular intervals during the fall and winter of 2020. Based on the provided records, this programming was adequately corrected and there has not been a recurrence of this issue in 2021 or 2022 so far.

Existing area source reciprocating internal combustion engines (RICE) are also subject to 40 CFR Part 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary RICE (commonly known as the RICE MACT). EGLE has not accepted delegation to implement and enforce the RICE MACT at area sources of HAPs and therefore compliance with this standard was not assessed.

Records Review: PTI No. 566-96B
Following the inspection, I was provided copies of requested records.

EU-ENGINETEST
The facility maintains records of monthly and 12-month rolling NOx emissions calculations and fuel usage for EU-ENGINETEST, required by S.C. 1.5 and 1.6. Emissions of nitrogen oxides (NOx) from the engine testing operations are limited to 22.5 tpy, as determined on a 12-month rolling time period (S.C. 1.1a). At the end of June 2022, 12-month rolling emissions of NOx are recorded to be 2,523 pounds, or 1.27 tpy. This was also the highest 12-month rolling total NOx emissions over the past year. The provided records indicate that U.S. Army Garrison is operating in compliance with the permitted NOx emission limit for EU-ENGINETEST.

I was provided copies of records of fuel usage in the engine test cells. Diesel fuel usage in the test cells is not to exceed 50,000 gallons per 12-month rolling time period (S.C. 1.2). Diesel fuel is no longer used in the engine test cells and therefore 0 gallons were used in 2021 and 2022 so far. Jet fuel usage is limited to 150,000 gallons per 12-month rolling time period (S.C. 1.3). At the end of June 2022, 12-month rolling fuel usage was 25,826 gallons, which was also the highest 12-month rolling total fuel usage over the past year. Fuel usage from month to month varies widely depending on the tests being run in each engine test cell. Based on the provided records, Detroit Arsenal appears to be operating in compliance with the fuel usage limits for EUENGINETEST.

Facility-Wide

PTI No. 566-96B sets facility-wide emission limits for NOx, CO, VOC, and hazardous air pollutants (HAPs), as determined based on a 12-month rolling time period (S.C. 2.1). The facility is also required to maintain records of monthly and 12-month rolling emissions calculations for all pollutants with permitted emission limits (S.C. 2.3 through 2.6). The facility provided 12-month rolling emissions calculations for the period ending in June 2022. U.S. Army Garrison – Detroit Arsenal was not able to provide a summary of 12-month rolling emissions by month. I requested that this type of record be incorporated into the new recordkeeping system, which they are in the process of developing. The facility will submit copies of emissions records every 3 months going forward to demonstrate ongoing compliance with recordkeeping requirements. In addition, compliance with all recordkeeping requirements will be verified during the FY23 inspection.

A summary table of 12-month rolling emissions at the end of June 2022, along with the associated permit limits is provided below. Based on the provided emissions calculations, U.S. Army Garrison – Detroit Arsenal appears to be in compliance with all facility-wide emission limits.

Table 1: Summary of 12-Month Rolling Emissions with the Permit Limits for HAPs, NOx, CO, and VOC

Pollutant	12-Month Rolling Emissions at the end of June 2022 (tpy)	Emissions Limit from PTI No. 566-96B (tpy)
Aggregate HAPs	0.21	22.4
Hexane (Highest Individual HAP)	0.09	8.9
NOx	9.2	89.9
CO	4.6	54.0
VOC	1.9	25.0

Detroit Arsenal is required to maintain records of monthly facility wide fuel usage (S.C. 2.7). The facility provided monthly and annual fuel usage in 2021 for all boilers, generators, and engine test cells. These records are used to calculate facility-wide emissions and are also required by the NSPS and MACT standards that the boilers and generators are subject to.

Conclusion

U.S. Army Garrison was found to not be maintaining a summary of 12-month rolling emissions calculations, as requried by FG-FACILITY, Conditions 2.3 through 2.6. To demonstrate ongoing compliance with permit requirements, the facility will continue to submit records of emissions

calculations to AQD every three months for the next year. Based on my inspection and review of available records, U.S. Army Garrison – Detroit Arsenal appears to be operating in compliance with all other conditions of PTIs No. 556-96B and 142-02, as well as all other applicable air quality rules and regulations.

NAME Kaitlyn Leffert DATE 10/11/2022 SUPERVISOR K. Kelly