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

N558262888

FACILITY: ROBERT BOSCH L.L.C.		**SRN / ID:** N5582
LOCATION: 38000 HILLS TECH DR, FARMINGTN HLS		**DISTRICT:** Warren
CITY: FARMINGTN HLS		**COUNTY:** OAKLAND
CONTACT: Herbert Daumann , Coordinator, EH&S		**ACTIVITY DATE:** 05/09/2022
STAFF: Kaitlyn Leffert	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: FY2022 Scheduled Inspection		
RESOLVED COMPLAINTS:		

On May 9th, 2022, I, Kaitlyn Leffert, conducted a scheduled inspection of Robert Bosch, LLC (Source Registration Number: N5582), located at 3800 Hill Tech Drive, Farmington Hills. The purpose of the inspection was to determine the facility's compliance with the requirements of the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1944 PA 451, as amended (Act 451); the administrative rules; and the conditions of Permit to Install (PTI) Number 259-05A.

Robert Bosch, LLC is an internal company that develops and supplies products and technology for use in the automotive industry. The facility in Farmington Hills serves as the North American headquarters. The facility houses office space, as well as a variety of research and development activities, including engine testing. There is not any manufacturing that takes place at this facility. Bosch is permitted to operate gasoline dynamometers, both with and without catalytic convertor controls, natural gas-fired boilers used to provide heat to the building, and diesel-fired equipment.

I first contacted Herb Daumann on Thursday, May 5th to schedule the inspection and request the required records. I received the requested records on May 6th and the inspection was scheduled for May 9th. Prior to the inspection, I reviewed the records and noted that all requested information was accounted for.

Facility Inspection

I arrived at the facility and met Herb Daumann, Zachary Massa, Alex Murphy, Health, Safety, and Environment, Bosch Group. We first met to discuss the purpose of my inspection and to briefly review the records that were provided prior to the inspection. Following this initial meeting, I was led on a walk through of the facility.

Bosch conducts a wide variety of engine testing at this facility. The types of engines tested and the length of time that tests may take is widely variable. The facility operates a total of 11 dynamometers. The first three dynos we walked by during the inspection were 81, 82, and 83. There was not currently any testing being done in any of these test cells. Next, I inspected Dyno No. 11, where testing was currently happening. I was informed that the engine being tested had two catalytic convertors installed on it. Fuel usage in the cells is tracked digitally along with the other parameters being measured during testing.

Dyno No. 4 is the largest dynamometer at the facility and was currently conducting a test during my inspection. In addition, Dyno No.5 was also currently testing at the time of my inspection. The remaining dynamometers, identified as test cell numbers 6, 7, 8, 9, and 10, were not testing at the

time of inspection. Dyno No. 6 is used for testing small engines, and I was informed that this test cell had not been used in many years.

In addition to the permitted testing cells, Bosch also operates a few chassis dynamometers. Chassis dynamometers, or whole vehicle dynamometers, are not subject to the requirement to obtain a permit to install since they are considered mobile sources of air pollution. One of the chassis dynamometers is used for environmental testing, to test how vehicles operate in varying environmental conditions. There was not currently a vehicle being tested in that cell. The other two chassis dynamometers are for more standard vehicle testing and were in the process of testing at the time of my inspection.

Fuels used in the test cells are stored in underground storage tanks. During the inspection, we walked by the area where the underground storage tanks are located.
Bosch also has six natural gas fired boilers and two diesel-fired emergency generators at the facility. During the inspection, I observed the diesel fired emergency generators and most of the natural gas -fired boilers. One of the boilers was located on the roof and there was not someone available to take me up there to inspect it. Two of the natural gas fired boilers, EU-113BOILPK and EU-105BOILK, are subject to 40 CFR Part 60, Subpart Dc, Standard of Performance for Small Industrial-Commercial -Institutional Steam Generating Units.

One of the emergency generators is a 60kW engine installed in 2013, which is subject to 40 CFR Part 60, Subpart IIII, New Source Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. An emissions certification to demonstrate compliance with this subpart was submitted to EGLE in 2017. The other emergency generator is 405 kW generator installed in 1995, which is not subject to 40 CFR Part 60 Subpart IIII.

Records Review
All recordkeeping required by PTI No. 259-05A was provided to me via email prior to the inspection on May 6th. The records provided by the facility included fuel usage for all test cells and fuel burning equipment at the facility, as well as monthly and 12-month rolling carbon monoxide (CO) emissions calculations.

PTI No. 259-05A, FG-FACILITY S.C. 4.3(a) requires Bosch to maintain monthly records of gasoline and indolene fuel usage for each dynamometer. For dynamometers testing engines without catalytic control (EU-EngDynNCgas), combined gasoline/indolene fuel usage is limited to 41,000 gallons per 12-month rolling time period. I was provided copies of fuel usage records, which indicated that 12-month rolling fuel usage in EU-ENgDynNCgas at the end of April 2022 was 301 gallons. This was also the highest 12-month rolling usage over the previous three years.

Bosch also maintains monthly fuel usage records for all natural-gas and diesel-fired equipment, as required by FG-FACILITY S.C. 4.3 (b). There is not any permit limit on fuel usage associated with these types of equipment, but fuel usage is used to calculate carbon monoxide emissions. In April 2022, FG-Diesel used 332 gallons of diesel fuel. In March 2022, FG-Boiler used 6,625 Mscf of natural gas.

The provided records included monthly and 12-month rolling emissions calculations for CO, as required by FG-FACILITY S.C. 4.3(f). PTI No. 259-05A specifies a CO destruction efficiency of 96% for each catalytic convertor, as well as the CO emission factors to be used in the emissions calculations (FG-FACILITY, S.C. 4.3 (c) and (d)). Bosch is using the permitted CO emissions factors and the 96% destruction efficiency in their calculations. The permit limits CO emissions to 90 tons per year (tpy), as determined on a 12-month rolling time period. At the end of April 2022, 12-month rolling CO emissions were 7 tpy. The highest 12-month rolling emissions over the previous five years were recorded from December 2017 to March 2018, at 20 tpy. Based on the provided records, Bosch appears to be operating in compliance with the permitted CO emission limits.

EU-113BOILPK and EU-105BOILK are subject to 40 CFR Part 60, which records the facility to maintain records of monthly natural gas usage (40 CFR 60.42c(g)). Bosch maintains monthly records of natural gas usage for both of these boilers, as well as the total natural gas usage for all six natural gas fired boilers combined. In March 2022, both EU-113BOILPK and EU-105BOILK used 1.6 MMSCF of natural gas. Total natural gas usage across all six boilers was 6.6 MMSCF.

Conclusion

Based on my on-site inspection and review of recordkeeping, Robert Bosch appears to be operating in compliance with all conditions of PTI No. 259-05A, 40 CFR Part 60 Subpart Dc, as well as all other applicable state and federal air quality regulations.

NAME Kaitlyn Leffert DATE 06/22/2022 SUPERVISOR K. Kelly