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

N291555205

FACILITY: TOYOTA MOTOR NORTH AMERICA R&D		**SRN / ID:** N2915
LOCATION: 1555 WOODRIDGE, ANN ARBOR		**DISTRICT:** Jackson
CITY: ANN ARBOR		**COUNTY:** WASHTENAW
CONTACT: Joshua Strapic , Engineer		**ACTIVITY DATE:** 09/18/2020
STAFF: Diane Kavanaugh Vetort	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Major ROP Source Full compliance evaluation and Partial compliance evaluation (records review) under separate entry.		
RESOLVED COMPLAINTS:		

N2915 Toyota Motor North America (TMNA) 1555 and 1588 Woodridge, Ann Arbor referred to as " Ann Arbor Campus".

FULL COMPLIANCE EVALUATION (FCE) COMPLETE SCHEDULED COMPLIANCE INSPECTION CONDUCTED VIRTUALLY (Microsoft Teams) WITH WALKING TOUR ONSITE WITH CONTACTS JOSH STRAPEC AND ROSARIO HALBERSTADT. Due to the current Stay Home Stay Safe executive order and COVID-19 pandemic EGLE-AQD is attempting to conduct prioritized and abbreviated inspections with use of virtual and electronic records in cases where this is possible. PARTIAL COMPLIANCE EVALUATION (PCE) RECORDS REVIEW IS UNDER SEPARATE MACES ENTRY.

TMNA Contacts: Josh Strapec, Environmental Engineer, 734-695-4992, josh.strapec@toyota.com

Rosario Martinez Halberstadt, rosario.halberstadt@toyota.com

On September 18, 2020, the EGLE AQD conducted a complete scheduled compliance inspection virtually at the Toyota Motor North America (TMNA) facility located at 1555 and 1588 Woodridge, Ann Arbor, MI. The purpose of the inspection is to determine TMNA's compliance status with applicable federal and state Air Pollution Control Regulations, particularly Michigan Act 451, Part 55 Air Pollution Control, the administrative rules and the conditions of their Title V Renewable Operating Permit (ROP) MI-ROP-N2915-2017c.

Prior to the inspection on September 9, 2020 I sent email communication to TMNA contacts in order to scheduled the inspection and request the required records.

This facility also has an installed permit exempt natural gas fired Emergency Generator subject to federal National Emission Standard for Hazardous Air Pollutant (HAP) for Reciprocating Internal Combustion Engines (RICE) 40 CFR Part 63, Subpart ZZZZ also referred to as Maximum Achievable Control Technology (MACT) standard or RICE MACT. The facility is also subject to the Gasoline Dispensing Facilities MACT Subpart CCCCCC for dispensing fuel to engine testing dynamometers and fleet vehicles.

TMNA operates what they call two "campuses". The Ann Arbor site is a Major Stationary Source ROP subject facility (N2915) and the York Twp. site, Platt Rd. has a HAP Opt Out Permit (P0615). Both TMNA facilities are Minor (Area) Sources of HAPs. During this review period ROP Certifications and Deviation Reports were all received timely and reviewed. TMNA does not have any outstanding non-compliance issues.

TMNA operates vehicle and engine research and developmental testing for their automobile manufacturing company at the Ann Arbor location. The site contains two buildings referred to as Evaluation and Powertrain. TMNA contacts Josh and Rosario set up a Teams meeting prior to today. On September 18, 2020, I spoke to them via Teams for a pre-inspection meeting.

PRE-INSPECTION CONFERENCE

AQD explained the purpose of the inspection and requested general facility information and updates. TMNA representatives provided the following general information. Current operation is 2 or 3 shifts depending on testing. There have been lots of changes due to COVID and the retrofits made within the facility. There have been no significant changes impacting process equipment or permits since the last expansion and addition of the two GenSets and fuel tanks (included in a permit revision). There is nothing planned at this time. Today operation is unknown until they go out through the facility to see.

The inspection will focus on: Source-Wide Conditions; FG-CAM; FGCONTROLLED; FG-GENSETS; FG-

GDFMACT and FG-TANKS.

FACILITY SITE INSPECTION and ROP MI-ROP-N2915-2017c REVIEW

The last permit revision reorganized the EU/FG significantly, and added a Source-Wide Table for operational flexibility and for the facility to restrict Carbon Monoxide (CO) emissions to below Prevention of Significant Deterioration (PSD) major source level. The current ROP contains the following FG Tables with applicable requirements: FG-CAM, FGULEV, FGLEV, FGCONTROLLED, FGUNCONTROLLED, FGTANKS, FGGENSETS, FGGDFMACT, FGRICEMACT, FGRULE287(2)(c).

FGUNCONTROLLED EU are: EU-COLD, EU-EG3, EU-EG4, EU-CHDY6, EU-CHDY7

FGCONTROLLED EU are: EU-EG6, EU-EG1, EU-EG2, EU-EG5, EU-TM1, EU-TM4, EU-TM5, EU-EG7, EU-EG8, EU-EG9.

FGULEV and FGLEV are EU, mostly CHDY, tested to meet these standards of catalytic control.

Today's inspection included both the Evaluation Building (EV, 1555) and Powertrain Building (PT, 1588). Emission Units and Flexible Groups (EU/FG) are located in both buildings and are identified mostly by EV or PT. TMNA operates both Chassis dynamometers (CHY) and Engine Test Stands/Cells dynamometers (EG). Gasoline is the primary fuel used and the facility has multiple above ground and underground storage tanks (FG-TANKS, FG-GDFMACT).

Upon commencing the inspection in EV 1555, TMNA informed me that no engine test cells were currently operating. I requested that Josh obtain information on the Regenerative Thermal Oxidizer (RTO) air pollution control equipment and associated Engine Dynamometer flexible group FG-EG789. The RTO was observed to be operating without any associated EGs in operation. The RTO is kept at temperature due to the time and energy it takes to start up and shut down and to get it to the required operating temperature. AQD received and approved TMNA's RTO Malfunction Abatement Plan (MAP) on 4-19-18. I observed the control panel and the temperature was being recorded; required minimum is 1425 degrees F. TMNA set a Temperature automatic shut-off at 1440 degrees F, shuts off associated operating Dyno(s). I observed the current temperature reading was 1509 degrees F. The RTO and FG-EG789 are also subject to the federal Compliance Assurance Monitoring (FG-CAM) requirements. The RTO appeared to be operating in compliance. Photo received of operating screen attached to report to file.

The FGCONTROLLED and the FG-CAM conditions and plan are also applicable for EU: EG1, 2, 5, TM1, 4, 5 all for Catalyst Control Systems (CCS). A Programmable Logic Controller (PLC) is used to monitor fuel throughput in lieu of reaching a minimum temperature in certain Engine Types and Testing scenarios. I observed CCS were installed on one of the subject Test Cells. TM6 is electric, TM1, 4, and 5 were not operating and EG-5 was not operating.

I observed the FG-GENSETS, these are the two new natural gas fired stationary generators, 1,573 bhp (1,141 kW). GenSet #2 was operating and that is normal, one will be used as standby, or backup. The Units appeared to be in excellent condition, they are large units with individual exhaust stacks. Each Unit is equipped with a Catalyst and LEANOX air-to-fuel controllers. I was able to see the catalyst section located in stack. Units are non-certified Generators subject to federal New Source Performance Standards (NSPS) Subpart JJJJ with NOx, CO and VOC limits. Per TMNA they are scheduled to have performance testing on October 9th. IMPACT is the test consultant and AQD received received and approved the test protocol. Photo received for operating screen showing some operating data for the LEANOX system. Photo attached to report to file.

During the inspection I observed the two newest Above Ground Gasoline Storage Tanks were installed and operating properly. We observed the tanks from beyond a fenced location. The tanks are fenced in together and are located next to the new RG-GENSETS.

- The **West tank** consists of 3 compartments at 4,000 gallons each. = 12,000 gallon capacity

- The **East tank** consists of 4 compartments at 3,000 gallons each. = 12,000 gallon capacity

- Each compartment has a vent with an **outside diameter of 3.5 Inches**.

- Each **vent height** is approximately **34.25 ft** (411 Inches) from the concrete pad.

FG-GDFMACT records require gasoline throughput of less than 100,000 gallons on an annual average determined monthly. TMNA stated they are in compliance with this. I requested these records be submitted to me.

EUEMERGEN – TMNA said they run weekly tests and do annual maintenance. The Unit was reviewed previously by AQD.

EG-6 was not operating today. This Test Cell was the last to have been performance tested in 2017.

The inspection in PT 1588 found no Engine Test Cells were operational. I observed EG1. AQD inquired as to the current commonly tested engine size or type. Josh determined TMNA is testing engines currently that are 2.0L to 5.7L. The CCS control is attached to the dynamometer and they are all similar however may be different configurations. The Control Panel for each Cell monitors liters per hour fuel, and ambient temperature, Catalyst in/out temperatures and Air to Fuel Ratio. (Photo received attached to report to file).

I observed Cell EG3, also not operating. Engine block with an inline catalyst.

TM stands for Transmission dynos, also equipped with CCS control. Josh checked this area and found they were also not operating.

I observed the fuel tanks located outside the building. FG-TANKS (TANK 1, TANK 2, TANK 5): TANK1 serves Fleet vehicles and has GDF MACT limit of 100,000 gallons annual average monthly throughput. Monthly report indicates @ 4000 gallons per month is average.

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COMPLIANCE SUMMARY

I requested and received all necessary recordkeeping following the inspection and it is attached to this report for the files. Three photos were obtained from the inspection: Photo 1 operating screen for the RTO; Photo 2 operating screen for GENSET2; and Photo 3 operating screen for EG1 CCS.

AQD determined TMNA is in substantial compliance with the conditions of their ROP, MI-ROP-N2915-2017c and with the applicable federal and state administrative rules.

Compliance testing is pending for FG-GENSETS on October 9, 2020 and will be observed by AQD.

NAME Adriane Kavanaugh Vetort DATE 9/18/20 SUPERVISOR