

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

B656129511

FACILITY: General Motors Powertrain Wixom Facility		SRN / ID: B6561
LOCATION: 30240 Oak Creek Drive, WIXOM		DISTRICT: Southeast Michigan
CITY: WIXOM		COUNTY: OAKLAND
CONTACT: Russ O'Blenes, Senior Manager		ACTIVITY DATE: 05/07/2015
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection of Opt-Out Source.		
RESOLVED COMPLAINTS:		

On May 7, 2015 I conducted an unannounced, scheduled, level 2 inspection of General Motors Powertrain Wixom Facility (GM Powertrain), located at 30240 Oak Creek Drive in Wixom, Michigan. The purpose of this inspection was to determine the facility's compliance with the federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the conditions of Permit to Install (PTI) No. 302-06.

I arrived on site around 12:50 PM. I met with Mr. Russ O'Blenes, Senior Manager, and with Ms. Natalie Pryde, Client Services Manager from T&M Associates. Mr. O'Blenes traveled from the GM Powertrain office in Pontiac upon my arrival and Ms. Pryde traveled from Novi since Ms. Sandy Kramarich, Environmental Engineer, is unavailable. Mr. O'Blenes and Ms. Pryde provided records and a site walkthrough. I provided Mr. O'Blenes and Ms. Pryde with my contact information and a copy of the pamphlet "DEQ Environmental Inspections: Rights and Responsibilities."

Opening Meeting

GM Powertrain uses dynamometers to perform testing for race engines for racing development. These engines are used specifically in races such as NASCAR and World Challenge. According to Mr. O'Blenes, the races have tight rules on fuel depending on race class. For example, Indianapolis 500 requires E85 (85% Ethanol) and NASCAR requires E15. These requirements are why the facility tests fuel such as leaded gasoline and ethanol. Engine variables such as power, reliability, and driveability are tested. The company has approximately 101 employees and operates the dynamometers from 7 am until 9 pm or later if three shifts are run.

Facility Walk-Through

There are three engine test cells located at the facility. Two of the test cells have one absorber each to absorb load from the engine. The third test cell has a pair of absorbers to model the effect of torque from two tires coming off the engine. The dynamometers can test a maximum of 1100 horsepower from an engine. Ambient air is input into the dynamometers. The type of fuel input to the engine depends on the gear ratio of the engine being tested.

Engine test cell 1 was operating during the inspection. A computer simulates the load and operation on the engine that occurred during an actual race. Calculations are performed to determine if the engine in the test cell would have performed better or worse than the engine that was used during the race. No odors or opacity were observed during the fuel cell operation.

We visited the fuel room where fuel is stored in three 250 gallon tanks and one 750 gallon tank. All tanks were sealed and no odors were observed. Fuel travels through pipes directly from these tanks to the dynamometers. Fuel storage and handling equipment are included in PTI No. 302-06.

Miscellaneous Equipment

A machining area includes several CNC routers, wire bending equipment, and other machining equipment. This equipment does not appear to emit to ambient air and so appears to be exempt from permitting requirements per R 285(vi)(B).

Two cold cleaners are present throughout the facility. Mineral spirits provided by Safety Kleen are used in the cold cleaners. Mr. O'Blenes provided the Material Safety Datasheet (MSDS) for the mineral spirits. Both cold cleaners were labeled and closed. The cold cleaners appear to be exempt from permitting requirements per R 281(h).

A natural gas-fired boiler for space heating is present at the facility. Its nameplate maximum heat input capacity is 9 MMBTU/hr. This boiler appears to be exempt from permitting requirements via R 282(b)(i). The boiler does not appear to be subject to New Source Performance Standard (NSPS) Part 60 Subpart Dc because its heat input capacity does not exceed 10 MMBTU/hr.

Recordkeeping

Per PTI No. 302-06 Special Condition (S.C.) 1.8 and 2.4a & b, GM Powertrain provided records of gallons of fuel used since January of 2014 through March of 2015. The 12-month rolling total for April of 2014 through March of 2015 was 14,899 gallons and average daily use was 41.49 gallons, below the permit limits of 35,000 gallons on a 12-month rolling basis and 1484.3 gallons daily per S.C. 1.2. Because the daily fuel use is below 90% of the daily limit, fuel use records are based upon monthly recordkeeping per S.C. 1.9.

GM Powertrain provided carbon monoxide (CO) and lead monthly and 12-month rolling total emission calculations for April of 2014 through March of 2015 per S.C. 1.5 and 1.7 respectively. The 12-month rolling total for CO emissions is 19.29 tons per year (tpy), below the limit of 54.6 tpy per S.C. 1.1b. The maximum CO emission per hour is 22.64 pounds CO/hr (pph), below the limit of 409.6 pph per S.C. 1.1a. Because this hourly emission is below 90% of the hourly limit, emissions are based on monthly fuel use records per S.C. 1.6. Lead emissions are 6.95 pounds (lbs) per year, well below the limit of 0.52 tpy per S.C. 1.1c.

Mr. O'Blenes provided an MSDS and a Specification Sheet for leaded fuel used since February of 2014. This documentation of lead content in the leaded gasoline appears to satisfy S.C. 1.10.

GM Powertrain provided monthly and 12-month rolling HAP emission calculations for April of 2014 through March of 2015 per S.C. 2.4d & e. HAP containing materials at the facility include fuel used in engine test cells and natural gas used in the boiler. The main HAP of concern is formaldehyde from fuel combustion in engine test cells. The 12-month rolling total for formaldehyde for April of 2014 through March of 2015 is 98 lbs, well below the individual HAP limit of 8.9 tpy per S.C. 2.1a. The 12-month rolling aggregate HAP emissions is 0.1 tons (203 lbs), well below the permit limit of 22.4 tpy of aggregate HAPs per S.C. 2.1b.

CO and Lead Emission Factors

In an email from May 15, 2015, Mr. O'Blenes explained that CO and lead emissions are calculated based on emission factors from gallons of fuel used. Conversion factors are used to calculate the heating value per gallon of E85 (0.0988 MMBtu/gal), Methanol (0.0647 MMBtu/gal), and gasoline (0.125 MMBtu/gal) used.

From the above heating values, emission factors are used to calculate CO and lead emissions. Emission factors used are given below. CO Emission Factors are based on a stack test conducted at the facility in June of 2006.

Lead Emission Factors

Unleaded	0.0009 lb lead/MMBtu (basis: AAMA Study for Gasoline)
Leaded	0.058 lb lead/MMBtu (basis: AAMA Study for Gasoline)

The lead emission factors for E85 and Methanol use the same value as Unleaded:

E85	0.0009 lb lead/MMBtu (using unleaded factor in lieu of more specific EF for E85)
Methanol	0.0009 lb lead/MMBtu (using unleaded factor in lieu of more specific EF for E85)

CO Emission Factors

E85	16.1 lb CO/MMBtu – (basis: June 2006 stack test data)
Methanol	7.8833 lb CO/MMBtu – (basis: 85% Methanol - FTP Emissions Test Results from Flexible Fuel Methanol Dodge Spirits and Ford Econoline Vans; SAE International Spring Fuels and Lubricants Meeting, May 6-8, 1996. Uncontrolled Emissions based on 90% catalyst Efficiency.)

Unleaded	24 lb CO/MMBtu – (basis: AAMA Study for Gasoline*)
Leaded	24 lb CO/MMBtu – (basis: AAMA Study for Gasoline*)

* 24 lb/MMBtu is a conservative emission factor. Stack test data from June 2006 calculated an emission factor of 23.46 lb/MMBtu

MAERS

Per Operational Memorandum 13, facilities with opt-out permits should be included in the Michigan Air Emissions Reporting System (MAERS) database. Because GM Powertrain has an opt-out permit, I discussed with AQD MAERS Coordinator Renee Denison requesting that the facility submit 2014 emission data to MAERS;

however the 2014 report deadline of March 15th has passed and it would be difficult to require that GM Powertrain submit a report by June 1st. It was decided that GM Powertrain will be required to submit 2015 emission data. I discussed this requirement with Mr. O'Blenes and with Ms. Pryde.

Facility Relocation

Mr. O'Blenes and Ms. Pryde shared that this facility is planned to be absorbed into the GM Powertrain Pontiac location in the first quarter of next year. I discussed with Ms. Pryde that it appears relocating the engine test cells will require a Permit to Install application.

Compliance

Based on the AQD inspection and records review, it appears that GM Powertrain is in compliance with the federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the conditions of PTI No. 302-06.

NAME *Sam Liri*

DATE *5/27/15*

SUPERVISOR *CJE*