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

A526235831

FACILITY: General Motors LLC - Milford Proving Ground		**SRN / ID:** A5262
LOCATION: 3300 General Motors Rd., MILFORD		**DISTRICT:** Southeast Michigan
CITY: MILFORD		**COUNTY:** OAKLAND
CONTACT: Rachel Gribas , Environmental Engineer		**ACTIVITY DATE:** 06/08/2016
STAFF: Samuel Liveson	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled inspection of a major source. Report revised 9-6-2016.		
RESOLVED COMPLAINTS:		

On June 8, 2016, AQD staff Tyler Salamasick and I conducted a scheduled, level 2 inspection of General Motors LLC - Milford Proving Ground (GM-MPG), located at 3300 General Motors Road in Milford, 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; the conditions of Renewable Operating Permit (ROP) MI-ROP-A5262-2016; and the conditions of Permit to Install (PTI) No. 97-12A.

AQD staff arrived on site around 9:00 am. We met with Ms. Rachel Gribas, Environmental Engineer; Ms. Brenda Korth, Lead Environmental Engineer; Ms. Melissa Phipps, Environmental Consultant from Tetra Tech, Inc.; and Charlotte, Intern with GM. Ms. Korth provided a facility walkthrough, and Ms. Korth and Ms. Phipps provided facility records. I provided Ms. Gribas with my contact information and a copy of the pamphlet "DEQ Environmental Inspections: Rights and Responsibilities."

Opening Meeting

GM-MPG has approximately 5000 employees and encompasses approximately 4000 acres. The facility conducts vehicle testing of all types. Some types of testing include emissions testing, road systems testing, brake testing, powertrain testing, high speed vehicle testing, crash testing (rollover), and altitude testing using cold chambers. Aspects of the facility such as the boilers and water treatment system are constantly operating.

GM-MPG is major for criteria pollutant nitrogen oxide (NOx) largely due to the main boilers on site. The facility opted-out of Title V regulations for hazardous air pollutants (HAPs). The facility was an ROP source until 2009 when it took R208A status. Because R208A rules are being rescinded, GM Milford re-obtained an ROP. This ROP was issued as an initial ROP on March 22, 2016.

Facility Walk-Through

FG-ENGINEDYNOS – Building #94

Engine dynamometers test for engine noise and vibration. There are ten dynamometers at the facility. Fuels used for engine testing include unleaded gasoline, diesel, and compressed natural gas. The engine testing facility generally operates 8 hours a day Monday through Friday with overtime Saturday. An engine test can take anywhere from half an hour to a full eight hour day.

We observed one dynamometer and its engine test cell on site. To determine fuel used at the dynamometers, environmental staff receive a monthly print-out of fuel used based on daily fuel used on site.

FG-ENGINEDYNOS Records
Ms. Gribas provided dynamometer fuel use records for January through April of 2016 per S.C. VI.1 and VI.2, and corresponding CO, NOx, and VOC emissions per S.C. VI.3 and VI.4. Maximum values from records are compared to permit limits below. According to records, pounds per hour emissions assume three hours of operation per day.

FG-ENGINEDYNOS						
Material/Pollutant	Units	Month of Max	Max	Limit	Exceeded?	Special Condition
Fuel	gallons/year	Jan 2016	2,230	10,000	No	II
Fuel	gallons/day	Apr 2016	10.3	350	No	II
CO	tons/year	Mar 2016	2.5	21.4	No	I
CO	lbs/day	Apr 2016	695	1498	No	I
NOx	tons/year	Jan-Apr 2016	0.3	1	No	I
NOx	lbs/hr (3 hr day)	Feb 2016	1.12	4.4	No	I
VOC	tons/year	Jan-Apr 2016	0.1	1	No	I
VOC	lbs/hr (3 hr day)	Apr 2016	0.56	4.4	No	I

EU-BOILER5, EU-BOILER6, and FG-BOILERS – Building #9
The boilers used on site are boilers #3, #4, #5, and #6. Because boilers #3 & #4 were installed in 1965, they appear to be grandfathered from Permit to Install requirements. Fuel oil day tanks have been removed so that the facility cannot operate using fuel oil per FG-BOILERS Special Condition (S.C.) II.1. Because boilers are restricted via a federally-enforceable condition to operate solely on pipeline quality sweet natural gas, they do not appear to be subject to 40 CFR Part 63 Subpart JJJJJJ – Industrial, Commercial, and Institutional Boilers per §63.11195(e).

Boiler #3 was operating during the facility inspection. From the operating panel, we observed that steam load so far for the day was 32,876 pounds, and that 498,377 standard cubic feet of natural gas had been used. To track natural gas usage, each boiler has a natural gas meter. We observed the natural gas meter on boiler #3. Natural gas flow was at 29,210 standard cubic feet per hour. Hot water from boilers is mainly used for heating throughout the proving grounds. A higher steam load is needed during the winter than summer.

Boiler #4 is currently down for maintenance. Generally, steam load allows one boiler to be offline for maintenance purposes. Major maintenance is performed on all boilers once a year. This year's annual maintenance is scheduled for July.

Boiler Records
Ms. Gribas provided natural gas usage records for January through April of 2016 for EU-BOILER5 per S.C. VI.1, and corresponding NOx emissions per S.C. VI.2 and VI.3. The highest hourly NOx emissions based on a monthly average were 1.1 pounds per hour (lb/hr) in January of 2016, below the limit of 7.6 lb/hr per S.C. I.1. 12-month rolling NOx emissions peaked at 1.1 ton per year (tpy) in January and February, below the facility limit of 33.1 tpy per S.C. I.1.

For EU-BOILER6, the maximum hourly emission of 1.2 lbs NOx/hr is below the limit of 7.6 lbs/hr per S.C. I.1, and the maximum 12-month rolling NOx emissions were 2.3 tpy in April of 2016, below the limit of 33.1 tpy per S.C. I.1. These records appear to be kept per S.C. VI.1-4. Daily records of natural gas usage were provided for April 24 through 30 per S.C. VI.1.

For FG-BOILERS, a record of monthly operating hours for each boiler was provided for January through April of 2016 per S.C. VI.1, as was natural gas usage for each boiler on a 12-month rolling time period basis per S.C. VI.2. Based on an emission factor of 100 lbs NOx per million cubic feet (MMCF) natural gas, and knowing the BTU per SCF for fuel provided (provided for April of 2016), records demonstrate emissions less than 0.14 lbs NOx/MMBTU per S.C. I.1.

FG-RULE287(c) – Building #25
Several paint booths are located on site in buildings #11, #25, and #70. These booths appear to be exempt from obtaining a Permit to Install per R 287(c). We visited the coating line located in building #25. This paint booth is related to vehicle crash testing on site. It was not operating during the inspection. The coating used is Corlar Primer, a fluorescent paint applied to the underside of vehicles to highlight details of the vehicle shape after a crash test. The employee working with this paint booth explained that a hoist is used to lift up vehicles to paint the underside. Paint is stored in a flammable safety cabinet, along with spray containers for coating application and a handwritten log of paint usage. According to the handwritten record, coating was last used on April 29th. Mesh filters are used and checked every quarter, but only replaced as needed. These filters appear to be installed properly per S.C. IV.1.

FG-RULE287(c) Records
Ms. Gribas provided monthly records of coating usage for all three booths on site from January through April of 2016 per S.C. VI.1(a) and IX.1. The highest usage was 41.2 gallons in Paint Booth 70 for February of 2016, below the limit of 200 gallons per S.C. II.1.

FG-RULE290
GM-MPG provided an inventory of emission units exempt per R290 per S.C. VI.2. These are the steam cleaning of fuel tanks (EU-TANKPURGE), the open burning of vehicles for litigation support or development testing (EU-BURNPAD), and an air stripper without control for groundwater remediation (EU-RULE290).

FG-RULE290 Records
GM-MPG keeps monthly records using monthly Exemption Recordkeeping Forms provided by the MDEQ per S.C. VI.1. For tank purge cleaning, considering an emission factor of 1.66E-2 lbs VOC/UST, the maximum lbs of carcinogenic air contaminants is 0.072 in April of 2016, below the R290 limit of 20 lbs/month per S.C. I.2.c. The maximum lbs of noncarcinogenic air contaminants is 1.7 pounds, below the R290 limit of 1000 lbs/month per S.C. I.2.a. The burn pad and air stripper have zero pounds of emissions for January through April of 2016. According to Ms. Gribas, the site did not have particulate emissions for opacity observations from January through April of 2016 per S.C. VI.3.

On August 8, 2016, MDEQ-AQD requested records for the recent use of EU-BURNPAD. Records provided timely by Ms. Gribas show GM-MPG burned four pounds of vehicle bumpers for litigation support. MDEQ-AQD considers this process open burning, and does not believe that AP-42 emission factors accurately represent emissions. It does not appear that GM-MPG can demonstrate that the open burning on EU-BURNPAD meets particulate emission limits in Rule 331. On August 17, 2016, MDEQ-AQD issued a violation notice for R 310(1) for the open burning of vehicle bumpers for litigation support.

FG-COLDCLEANERS – Building #94
GM-MPG provided a list of all cold cleaners and their locations throughout the facility per S.C. VI.2. We observed one cold cleaner located in building #94 related to dynamometer engine

testing. The solvent used is SK150, and the surface area appeared to be less than 10 square feet, and the cover was in place. Operating instructions were posted conspicuously next to the cold cleaner. The unit is serviced by Safety Kleen.

FG-SOILREMEDIATION & PTI No. 97-12A – Building #61
GM-MPG received PTI No. 97-12A for soil remediation equipment for a perched plume of light non-aqueous phase liquid. The plume resulted from a leaking underground storage tank on site. The original PTI No. 97-12 was a general permit for remediation that included the condition, "There shall be no benzene, toluene, ethylbenzene, xylene or gasoline emissions at the stationary source other than those covered by this general permit. (R 336.1225)." Because there are potential BTEX sources on site, such as emergency engines, engine testing operations, and fuel storage tanks, GM-MPG applied for a permit modification to remove this condition. PTI No. 97-12A is the site-specific remediation permit. AQD used discretion to avoid issuing a violation notice for this condition. GM-MPG submitted a modification request to incorporate PTI No. 97-12A into the facility ROP. The modified ROP was issued on June 27, 2016.

The remediation equipment includes carbon filtration to absorb soil vapors. The equipment is on site but has not been operated since PTI No. 97-12A was issued.

FG-GASTANKS –Building #43
Underground storage tanks throughout the facility provide fuel for testing and for site vehicles. Storage tanks with a capacity greater than 2,000 gallons are subject to R 606(1) and R 703(1) and R 703(2). We visited a refueling station on site adjacent to building #43. According to Ms. Korth, a vapor balance system is used during tank filling per S.C. III.3. Because I didn't observe tank filling during the inspection, I did not verify that tanks are equipped with a permanent submerged fill pipe per S.C. III.1 and 2. Fuel quantity is tracked during fuel transfers.

FG-BACKUPGENS – Building #136
This flexible group is for four emergency generators and eight DRUPS (diesel rotary uninterruptible power supply) devices associated with the New Data Center. AQD received notification that DRUPS generator 5 (EUDRUPS5) was installed in April 2016, and that emergency generator 3 (EUGENERATOR3) was installed in March of 2016. DRUPS units 7 & 8 have not yet been installed.

AQD staff visited EUDRUPS5 and EUGENERATOR3. A non-resettable hours meter tracked operating hours per S.C. IV.1. The following information was gathered from the engine nameplates:

Engine	EUDRUPS5	EUGENERATOR3
Model #	20V4000G83L	16V4000G83
Engine #	5282010400	5272012179
BHP	4680	3353
Power (KW)	3490	2500
Hours Meter	14:51	21:51
Date	Mar 2015	Apr 2015

The nameplate capacities are within the limits of S.C. IV.2. For DRUPS, a flywheel spins while power is on, and when power is interrupted, this kinetic energy generates an uninterruptable power supply (UPS).

FG-BACKUPGENS Records
Ms. Gribas provided dates and times of operation of EUDRUPS5 and EUGENERATOR3 per S.C. VI.2.b, as well as loading of these engines per S.C. VI.2.c. Engines have been used for several hours a month for maintenance and testing. 12-month rolling hours of operation are not yet available. Ms. Gribas provided certification documentation for EUDRUPS5 and EUGENERATOR3 per S.C. VI.3.a. Also provided were fuel specifications for diesel used in the engines per S.C. VI.6. The specifications provide a maximum sulfur content of 15 parts per million (ppm).

FG-OLDDATACTR – Building #24
This flexible group is for three diesel emergency generators located at the Old Data Center at GM-MPG manufactured and constructed in 2007. These emergency generators will be decommissioned in the future because of the startup of the New Data Center (Building #136). According to Ms. Korth, no peak shaving occurs at these emergency generators, and power from these engines is not sold to the grid per S.C. II.2 and VI.3. We observed Generator #1. The non-resettable hours meter we observed was not on. The power appears to be 2250 KW according to the engine nameplate, below the limit of 5 MW per S.C. III.2.

FG-OLDDATACTR Records
Ms. Gribas provided monthly and 12-month rolling fuel use of these emergency engines for January through April of 2016 per S.C. VI.4. Only diesel fuel is used per S.C. II.1. The maximum diesel fuel used per 12-month rolling time period was 19,745 gallons, below the limit of 136,000 gallons per S.C. II.3.

FG-SUBPARTIIII & FG-SUBPARTJJJJ
AQD staff visited EU-GEN20, the propane-fired emergency generator for building #103 onsite subject to FG-SUBPARTJJJJ. According to GM-MPG, the engine is equipped with an hours meter per S.C. IV.1, but we were unable to turn on the meter on site. Ms. Gribas provided maintenance records and hours of operation per S.C. VI.2 and VI.5 respectively. The engine is operated several hours a month for maintenance, and was used for several hours in February during a power outage. Operations per the 2016 calendar year are below 100 hours for non-emergency situations per S.C. III.3.a, and below 50 hours for non-emergency situations per S.C. III.3.b. Ms. Gribas provided a picture of the engine USEPA regulatory certification present on the engine per S.C. III.1.a.

We also visited two emergency generators on site owned and operated by Verizon and Sprint respectively. The Verizon generator appeared to be locked up, and the Sprint generator appeared to be near the water tower. Sprint may use the water tower as a cell tower. Because these emergency generators do not appear to be owned and operated by GM-MPG, they are not in the facility ROP.

Rule 285(m) – Wastewater Treatment
GM-MPG has process water and wastewater treatment equipment on site. According to Ms. Korth, the facility does not use city water. Four groundwater wells supply the water used at the facility. The water is treated with chlorine gas before use. Two drinking water storage tanks are located on site. MDEQ-AQD did not visit process water equipment on site.

MDEQ-AQD visited wastewater treatment equipment on site. Several pump stations provide water for treatment. Sanitary treatment includes three clarifies. Clarifiers one and two were in action during our visit. Water also travels through aerobic digesters and filters before being discharged to Mott Lake on site. Biosolids are land-applied. We observed two large bags of biosolids at the facility. This equipment appears to be exempt from obtaining a Permit to Install per R 285(m). This equipment does not appear to be required in an ROP application per R 212(3)(f).

Rule 281(h) - Building #41 & #31
There are "engine carts" located in building #41 and building #31 used for emissions and durability testing. They are equipped with Tier II controls, i.e. catalytic converters similar to road vehicles, but they are not equipped with wheels or a vehicle frame. MAERS emissions for engine carts provide a conservative estimate of emissions based on the worst-case emissions for one engine cart multiplied across all engine carts. In 2015, emissions of criteria pollutants were <0.04 tons of NOx, VOC, PM, and SO2, and <0.5 tons of CO. These engines appear to be exempt from permitting requirements per R 281(h). They don't appear to be subject to federal standards because they appear to be engine test cells.

Source-Wide Records

Natural Gas Usage
According to records provided by Ms. Gribas, the highest natural gas usage in 2016 was 517 billion British thermal units (BTU) in January of 2016. This is below the facility natural gas usage limit of 1500 billion BTU per 12 month rolling time period per Source-Wide Special Condition (S.C.) II.1. Ms. Gribas provided the most-recent fuel specification information from April of 2016 used to determine BTU heat input and fuel use.

Hazardous Air Pollutants (HAPs)
GM-MPG opted-out of major source regulations for HAPs by taking source-wide HAP limits below major source thresholds. For April of 2016, Ms. Gribas provided HAP containing materials and the amount of each HAP contained per S.C. VI.3.a-c. Ms. Gribas also provided HAP emission calculations monthly and per 12-month rolling time period per S.C. VI.3.d-e. The highest 12-month rolling total appears to be 14.17 tons in December of 2015, which is below the facility limit of 22.5 tons per year (tpy) per S.C. I.2. The highest individual HAP 12-month rolling total is 4.07 tpy of glycol ether, below the facility limit of 9.0 tpy per S.C. I.1.

Area Source NESHAP Applicability
According to records, the facility is subject to the following Area Source NESHAPs: 40 CFR Part 63 Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines; 40 CFR Part 63 Subpart BBBBBB - Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities (per GM-MPG, the facility appears to be a Bulk Gasoline Plant per the definition in §63.11100, and so appears to be subject per §63.11081(a)(4)); 40 CFR Part 63 Subpart CCCCCC - Gasoline Dispensing Facilities; and 40 CFR Part 63 Subpart HHHHHH – Paint Stripping Operations and Miscellaneous Surface Coating Operations at Area Sources. AQD has not accepted delegation of authority for these NESHAPs.

Conclusion
Based on the AQD inspection and records review, GM-MPG will receive a violation notice for the R 310(1) for the open burning of vehicle bumpers for litigation support.

NAME [signature] DATE 9/6/2016 SUPERVISOR SK