

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

A526264521

FACILITY: General Motors LLC - Milford Proving Ground		SRN / ID: A5262
LOCATION: 3300 General Motors Rd., MILFORD		DISTRICT: Warren
CITY: MILFORD		COUNTY: OAKLAND
CONTACT: Kenneth Fryer , Environmental Supervisor		ACTIVITY DATE: 07/13/2022
STAFF: Kerry Kelly	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: FY 2022 targeted inspection		
RESOLVED COMPLAINTS:		

On July 13, 2022, I (Kerry Kelly, EGLE-AQD) conducted a scheduled 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 (NREPA); the Air Pollution Control Rules; and the conditions of Renewable Operating Permit (ROP) MI-ROP-A5262-2021.

I arrived on site around 8:00 am. I met with Ken Fryer, Environmental Supervisor. Ken answered questions and provided a tour of facility. In addition, Ken provided records during the inspection.

General Motors LLC - Milford Proving Ground is a motor vehicle research and testing facility located on the western border of Oakland County. The facility is bordered to the east and south by rural residential properties. There are two lakes, Sloan and Pickett, along the north/northwest border of the property.

The ROP includes applicable requirements for four boilers, 33 emergency generator engines, 10 engine dynamometers, gasoline storage tanks, paint booths, soil remediation equipment, a thermal testing process, and other miscellaneous equipment/processes.

GM-MPG is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of carbon monoxide and nitrogen oxides exceeds 100 tons per year. The source is a synthetic minor opt-out for Hazardous Air Pollutants (HAP).

The stationary source is considered a major source with respect to Prevention of Significant Deterioration (PSD) because the potential to emit of nitrogen oxides is greater than 250 tons per year. No emission units at the stationary source were subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451, because at the time of New Source Review permitting, no physical or operational changes were made that would constitute a major permitting action.

COMPLIANCE EVALUATION **SOURCE-WIDE CONDITIONS**

The source-wide conditions cover all process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment. Individual and aggregate HAP emissions from GM-MPG are limited to 9.0 tons/year (tpy) and 22.5 tpy respectively. Ken provided monthly and 12-month rolling HAP emission calculations as required in S.C. VI.3.d-e for the 12-month periods ending January 2021 - May 2022 (Attachment 1).

The highest reported 12-month rolling individual HAP emissions was 5.8 tons of ethylene glycol during the 12-month period ending January 2021. In the records provided, the 12-month rolling individual HAP calculations for the 12-month rolling time periods ending July 2021 and September 2021 only included emissions for 11 months for each individual HAP. GM-MPG reported negative monthly ethylene glycol emissions for July 2020, Feb. 2021, May 2021, July 2021, Aug. 2021, Sept. 2021, and Feb. 2022. In addition, the 12-month rolling ethylene glycol emissions were negative for the 12-month time periods ending Sept. 2021 and Nov. 2021.

The highest 12-month rolling aggregate HAP emissions were 9.21 tons reported for the 12-month rolling time period ending July 2021.

I spoke with Ken on Sept. 12, 2022 about the negative ethylene glycol emissions. Ken stated that the ethylene glycol emissions are generated when GM-MPG crushes vehicles, ethylene glycol emissions are being calculated in accordance with the ROP, and that there were no negative 12-month rolling emissions. Based on my conversation with Ken, GM-MPG assumes the vehicles coming to the site contain 750 lbs ethylene glycol, 45% of the antifreeze in the vehicles is ethylene glycol, and that 100 vehicles are crushed monthly. The amount of ethylene glycol entering the facility monthly is the sum

of the amount of ethylene glycol in the vehicles coming in and the amount of ethylene glycol purchased each month. The amount leaving the facility in a month is the amount sent off as waste. Ken stated that some months GM-MPG over reports the amount of ethylene glycol, presumably because they do not count the amount of waste generated in a month if it is not sent during that month. Ken maintained that though this may result in negative emissions in the month the waste is being sent off, the over-reporting in the months when waste isn't sent off will make the 12-month rolling accurate. I did not see the negative 12-month rolling ethylene glycol emissions for 12-month time periods ending Sept. 2021 and Nov. 2021 until after I spoke with Ken. After speaking with my supervisor on Sept. 13, 2022 about the emissions calculations, I sent Ken an email stating that there were 12-month periods when the ethylene glycol emissions were negative and that I would be issuing a notice of violation as discussed in the next paragraph.

Source-Wide SC 3.d. requires records of the individual and aggregate HAP emission calculations using a mass balance approach and emission factors as approved by the AQD District Supervisor for determining the monthly emission rate in tons per calendar month be kept. I spoke with the AQD District Supervisor, Joyce Zhu, on Sept. 12 and 13, 2022 regarding the ethylene glycol emissions calculations and the inconsistencies between monthly emissions reported for several months. Joyce does not approve of GM-MPG's current method of calculating ethylene glycol emissions because it results in negative monthly and 12-month rolling ethylene glycol emissions.

A notice of violation will be issued to GM-MPG for not keeping records in accordance with Source-wide SC 3.d.

The Source-Wide natural gas usage is limited to 1500 billion BTU per year based on a 12-month rolling time period as determined at the end of each calendar month per SC II.1. Ken provided records of natural gas usage, in standard cubic feet and BTU heat input, on a 12-month rolling time period basis, as determined at the end of each calendar month for Source-Wide equipment, as required in SC VI.2, for January 2020 through May 2022 (Attachment 2). According to these records, the highest natural gas usage per 12-month rolling time period was approximately 541 billion BTU for January of 2020. This is below the facility natural gas usage limit of 1500 billion BTU per 12 month rolling time period per Source-Wide SC II.1.

EU-BOILER5, EU-BOILER6, and FG-BOILERS – Powerhouse (Building #9)

The boilers at GM-MPG are used for heating, humidification, and testing. I inspected each of the boilers in FG-BOILERS located in Building #9 during the inspection and noted the following:

Each boiler is equipped with a natural gas meter. EU-BOILER4 was the only boiler being operated at the time of the inspection.

EU-BOILER3 nameplate/labels state it is a Babcock FMD 1256 boiler, built in 1965, with a rating of 50,000 lbs of steam/hour. This information is consistent with the description in the ROP. I did not see a heat input rating on the boiler. The ROP description lists the heat input as 70 MMBTU/hour.

EU-BOILER4 nameplate/labels states it is a Keeler/Dorr boiler, built in 1988, with a rating of 40,000 lbs of steam/hour. The build year listed on the boiler (1988) is 23 years later than the install date listed in the description in the ROP (1965). I did not see a heat input rating on the boiler. The ROP description lists the heat input as 70 MMBTU/hour. The gas fuel flow from the meter at the time of the inspection read 29,702 cubic feet per hour which equals about 31.2 MMBTU/hour.

EU-BOILER5 and EU-BOILER6 nameplates/labels each state they are Nebraska Boilers, manufactured in 1980, with a steam rating of 40,000 btu/hour and surface area of 3664 square feet. The ROP description states the install date is April 1, 1993 for EU-BOILER5 and September 20, 1995 for EU-BOILER6. Ken asked another employee familiar with the boilers at the facility about the date discrepancy on the boilers. According to this employee, the boilers were moved from another GM facility to Milford Proving Grounds.

EU-BOILER5 and EU-BOILER6

The EU-BOILER5 and EU-BOILER6 tables in MI-ROP-A5262-2021 contain federally enforceable conditions established pursuant to Rule 201(1)(a). Though the ROP indicates both EU-BOILER5 and EU-BOILER6 were installed after June 9, 1989, the current and previous versions of the ROP/Source-wide Permit to Install (PTI) indicate only EU-BOILER6 is subject to the New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60 Subpart Dc. 40 CFR Part 60 Subpart Dc applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h). The only requirement in NSPS Dc for natural gas-fired boilers is to record and maintain records of the amount of each fuel combusted during each calendar month. GM-MPG keeps records of the amount of fuel combusted per calendar month for both EU-BOILER5 and EU-BOILER6.

NOx emissions from EU-BOILER5 and EU-BOILER6 are limited to 7.6 lb/hour based on a monthly average and 33.1 tpy based on a 12-month rolling time period in EU-BOILER5 & EU-BOILER6 SC I.1 and I.2. Ken provided records of the hourly and 12-month rolling NOx emissions from each of these boilers, required in EU-BOILER5 SC VI.2 and 3 and EU-BOILER6 SC VI.3 and 4 (Attachment 3).

EU-BOILER5 SC VI.3 and EU-BOILER6 SC VI.4 require the hourly NOx emissions be calculated in accordance with Appendix 7a. Appendix 7a specifies a NOx emission factor of 100 lbs NOx/MMscf of natural gas, Source: MAERS EF for SCC 1-03-006-02. The records provided indicate GM-MPG is using an emission factor of 50 lb NOx/MMscf of natural gas and the boiler emission factors are the EPA emission factors for low NOx boilers for SCC 1-03-006-02. According to AP-42, the 100 lb/NOx emission factor is the emission factor for uncontrolled boilers less than 100 MMBtu/hour heat input and the 50 lb/MMscf is the emission factor for boilers less than 100 MMBtu/hour equipped with low NOx burners. Ken stated, in an email dated 9/16/2022, that he visually confirmed that EU-BOILER6 has a low NOx burner and EU-BOILER5 does not. Ken also stated in the email that he will start the process of updating the records and making corrections as needed. The highest hourly NOx emission rates, according to the records provided, were 0.9 lb/hour in December 2020 and February 2022 for EU-BOILER5 and 1.0 lb/hour in December 2020 and February 2021 for EU-BOILER6. The highest pounds/hour NOx emission rate for EU-BOILER5, using the NOx emission factors for uncontrolled boilers, would be 1.8 lb/hour which is still within permit limits.

The 12-month rolling NOx emissions records Ken provided indicate the highest 12-month rolling NOx emissions were 2.8 tons reported in the 12-month period ending December 2020 for EU-BOILER5 and 3.9 tons for the 12-month period ending January 2020 for EU-BOILER6. The highest 12-month rolling NOx emission rate for EU-BOILER5, using the NOx emission factors for uncontrolled boilers, would be 5.6 tons which is still within permit limits.

GM-MPG is prohibited from burning any fuels other than sweet natural gas in EU-BOILER5 and EU-BOILER6 per FG-BOILER5 and EU-BOILER6 SC II.1. During the inspection, I only saw natural gas fuel lines for EU-BOILER5 and EU-BOILER6. In addition, the records provided indicate only natural gas is burned in EU-BOILER5 and EU-BOILER6.

Per FG-BOILER5 SC III.1, GM-MPG is required to operate and maintain EU-BOILER5 in a manner consistent with safety and good air pollution control practices for minimizing emissions. Ken provided records of preventative maintenance performed on EU-BOILER5 and EU-BOILER6 as required in EU-BOILER5 SC VI.4 and EU-BOILER6 SC VI.5.

EU-BOILER5 and EU-BOILER6 SC VIII.1 required exhaust gases from each boiler be discharged unobstructed vertically upwards to the ambient air through a stack with a maximum diameter of 60 inches and minimum height of 150 feet. I observed a brick stack near Building #9 that appeared to be about four times the building height. The boiler room supervisor stated emissions from EU-BOILER5 and EU-BOILER6 are exhausted through the brick stack. I did not have equipment to measure the stack height during the inspection. The 3D measurement feature on Google Earth Pro indicates the top of the stack is approximately 75 feet above the surface of the ground. Due to the height measured with Google Earth Pro being half the height listed in the ROP, it would be prudent to bring a height measurement device, such as a rangefinder, to verify the stack height for EU-BOILER5 and EU-BOILER6 during the next inspection at GM-MPG.

FG-BOILERS

This flexible group includes EU-BOILER3, EU-BOILER4, EU-BOILER5, and EU-BOILER6. Conditions in FG-BOILERS were established pursuant to Rule 201(1)(a).

NOx emissions from FG-BOILERS are limited to 0.14 lb/hour based on a 24-hour average in FG-BOILERS SC I.1. Compliance with this emission limit is demonstrated through FG-BOILERS SC V.1, VI.2 and Appendix 7a.

FG-BOILERS SC V.1 states verification of the emission rates from FG-BOILERS may be required. I did not see any stack tests reports or AQD requests for stack testing in AQD's files for GM-MPG. Ken provided records required in FG-BOILERS SC VI.1, VI.2 and Appendix 7a (Attachment 4). GM-MPG determines compliance with the limit by comparing the heating value in Btu/scf from the natural gas bill to the minimum heat value necessary to meet the NOx limit (emission factor in Appendix 7a /NOx limit in SC V.1) = 714 Btu/scf). Based on the information provided, the heating value of the natural gas is 1050 - 1060 Btu/scf, which is greater than the minimum necessary (714 Btu/scf) to meet the limit in FG-BOILERS SC I.1. This equals a monthly average NOx emission rate between 0.094 and 0.095 lb/MMBtu.

EU-GEN19

I inspected EU-GEN19, located near Building #43, and noted it is a Cummins/Ford Model ESG642 manufactured in April 2007. This generator is referred to Gen-27 in the records Ken provided. EU-GEN19 appears to be exempt from the requirements of Rule 201 pursuant to Rules 278 and 285(2)(g) and not subject to 40 CFR 63 Subpart ZZZZ (MACT ZZZZ) or 40 CFR 60 Subpart JJJJ (NSPS JJJJ) because it is a new engine as defined in MACT ZZZZ and was manufactured before July 1, 2008.

The only requirements in the ROP for EU-GEN19 are to operate and maintain the engine in a manner to minimize emissions (SC III.1) and not operate the engine for more than 500 hours per 12-month rolling time period (SC III.2). Ken provided maintenance records and 12-month rolling hours of operation for EU-GEN19 (Attachment 5). According to these records, GM appears to be properly maintaining the engine. In addition, the highest reported 12-month rolling hours of operation for EU-GEN19 between January 2021 and May 2022 was 16.9 hours reported in the 12-month period ending May 2021.

EU-REMEDATION

EU-REMEDATION consists of soil vapor extraction (SVE) wells, vacuum blower(s), and an air flow distribution system equipped with a catalytic oxidizer. Requirements in the ROP were established pursuant to Rule 201(1)(a) and 40 CFR Part 64 (CAM). I inspected EU-REMEDATION. During the inspection, EU-REMEDATION was not being operated. According to Ken, GM-MPG acquired the SVE unit from another GM facility and the unit has never been operated at GM-MPG because it wasn't needed. GM-MPG has reported, in the Michigan Air Emissions Reporting System (MAERS), that this emission unit was not operated each reporting year between 2015 and 2021. In addition, Ken provided emission records for January 2021 through May 2022 (Attachment 6) indicating there has not been any emissions from EU-REMEDATION. Compliance with the conditions in the ROP applicable to EU-REMEDATION were not evaluated because records indicate the unit has not been operated for the past two years at least.

EU-BURNPAD

EU-BURNPAD is an area used for fire training and thermal testing of vehicles for litigation purposes. Requirements in the ROP were established pursuant to Rule 201(1)(a). I inspected the burn pad and noted it was an open concrete pad. I did not see anything on the pad during the inspection. Ken provided records including the information required in the ROP (Attachment 7). These records indicate there have been no thermal/fire testing event on EU-BURNPAD during this time period. In addition, GM-MPG reported in MAERS that EU-BURNPAD was not operated in calendar years 2017 through 2021. Compliance with the conditions in the ROP applicable to EU-BURNPAD were not evaluated because records indicate the unit has not been operated for the past two years at least.

FG-ENGINEDYNOS – Building #94

This flexible group applies to the ten engine dynamometers at the facility. Requirements in the ROP for FG-ENGINEDYNOS were established pursuant to Rule 201(1)(a). The dynos in FG-ENGINEDYNOS are not subject to the NESHAP for Engine Test Cells/Stands, promulgated in 40 CFR 63 Subpart P, because the dynos are not located at a major source of HAPs.

Jerry and Mike from the engine testing unit showed Ken and I the test cells. Jerry stated that four of the engine cells do not use fuel and two use diesel, the remainder use gasoline. Engines are never tested without a catalytic converter according to Jerry. I inspected each of the cells and Jerry showed me the catalytic converter on each of the engines I inspected. None of the engines were burning fuel during the inspection. According to Jerry, a monitoring system called Veederroot is used to track the amount of gasoline and diesel fuel used in the test cells weekly.

FG-ENGINEDYNOS SC I.1 - I.6 specify short term (lb/day or lb/hour) and 12-month rolling CO, NOx, and VOC limits. FG-ENGINEDYNOS SC II.1 - II.2 specifies fuel use limit for the dynos. Ken provided records required in SC VI.1 - VI.7, to show compliance with the emission and fuel use limits, for December 2020 through May 2022 (Attachment 8). According to records, pounds per hour emissions assume three hours of operation per day. There were two sets of records provided, weekly and monthly on one spreadsheet and monthly and 12-month rolling on another spreadsheet. I noted that the monthly fuel use did not match between the spreadsheets. Some months the weekly and monthly fuel use is higher and some months the monthly/12-month rolling is higher. One large discrepancy is the October 2021; the weekly/monthly spreadsheet list 63.1 gallons of gasoline used during the month and the monthly/12 month rolling lists the monthly gasoline use as 606.9.

I asked Ken why the monthly fuel throughput was different between the spreadsheets. Ken responded that the fuel usage is provided by the technician that monitors the amount of fuel in our tanks with the Veeder Root system. Monthly they take the sum of the difference in readings for the whole month, but weekly they just take the reading on the same day every week. As fuel is delivered or transferred back and forth to our day tank, it can mess up the weekly readings. Going forward, I'm going to use the raw data as our weekly fuel usage that will also show the other fuel movement in the system. Ken also stated he noticed an error with the data entry in the specific month I brought up. According to Ken, the person transposing the data hit 9 instead of 0 for one of the entries. I don't recall which month the last comment was in reference to.

Maximum values from records are compared to permit limits below.

FG-ENGINEDYNOS

Material/Pollutant	Units	Month/Week of Max	Max	Limit
Fuel	gallons/year	October 2021	2,604	10,000
Fuel	gallons/day	June 21, 2021	32	350
CO	tons/year	October 2021	3.5	21.4
CO	lbs/day	June 21, 2021	71.4	1,498
NOx	tons/year	Multiple	0.3	1
NOx	lbs/hr (3 hr day)	June 21, 2021	1.96	4.4
VOC	tons/year	Multiple	0.2	1
VOC	lbs/hr (3 hr day)	October 2021	1.48 ^B	4.4

FG-ENGINEDYNOS SC V.1 states verification of the emission rates from FG-ENGINEDYNOS may be required. I did not see any stack tests reports or AQD requests for stack testing in AQD's files for GM MPG.

FG-BACKUPGENS – Building #136

This flexible group is for four emergency generators and six diesel rotary uninterruptible power supply (DRUPS) associated with the New Data Center. DRUPS are equipped with a flywheel that draws power from the utility to spin. Kinetic energy is generated by the flywheel. The momentum generates enough energy for "ride-through" before the diesel generator comes on, creating an uninterruptable power supply (UPS).

Requirements in the ROP for FG-BACKUPGENS were established pursuant to Rule 201(1)(a) and 40 CFR 60 Subpart IIII (NSPS for Stationary Compression Ignition Internal Combustion Engines).

I inspected each engine in FG-BACKUPGENS. The information on each engine's nameplate matches the description for the engine in the ROP.

FG-BACKUPGENS SC I.1 through I.2 limit the NOx emissions from each DRUPS to 61.56 lbs/hour and each generator to 44.10 lb/hour respectively. Compliance with these limits, according to the ROP, is demonstrated through stack testing upon AQD District Supervisor request. I did not see any stack test reports or AQD requests for stack testing in AQD's files for GM MPG.

GM MPG complies with the emissions limits in FG-BACKUPGENS SC I.3 through I.5 by purchasing certified engines and operating the engines according to the manufacturer written instructions, or procedures developed by the owner/operator and approved by the engine manufacturer, over the entire life of the engine. I saw the emission certification placard on two of the engines, EU-DRUPS1 and EU-GENERATOR1, during the inspection. Ken emailed me photos of the engine certifications for each engine in FG-BACKUPGENS on May 16, 2022.

The maximum sulfur content of the diesel fuel used in FG-BACKUPGENS is limited to 15 ppm (0.0015 percent) by weight in FG-BACKUPGENS SC II.1. Ken provided fuel certification record required in FG-BACKUPGENS SC VI.6. This record indicates the sulfur content of the fuel used in FG-BACKUPGENS is 15 ppm.

FG-BACKUPGENS SC II.1 and II.3 prohibit GM-MPG from operating each engine in FG-BACKUPGENS for more than 500 hours per 12-month rolling time period for any purpose and 100 hours per calendar year for non-emergency purposes. Ken provided records of the monthly hours of operation for each engine in FG-BACKUPGENS (Attachment 9). I calculated the 12-month rolling hours of operation using the monthly data for each engine and determined the highest 12-month rolling hours of operation were 16 hours for EU-DRUPS6 for the 12-month period ending October 2021. I observed that each engine was equipped with a non-resettable hours meter tracks operating hours as required in S.C. IV.1. Hour readings that I observed during the inspection are noted in the table below. The hours noted during the inspection match the hour meter reading for June 2022 in the records provided by Ken for each engine.

ROP ENGINE ID	FACILITY ENGINE ID	HOURS NOTED FROM METER DURING INSPECTION
EU-GENERATOR1	MG-1	105:59
EU-GENERATOR2	MG-2	106:48
EU-GENERATOR3	MG-3	87:45
EU-GENERATOR4	MG-4	83:37
EU-DRUPS1	DG-A1	118:20
EU-DRUPS2	DG-B1	113:16
EU-DRUPS3	DG-A2	62
EU-DRUPS4	DG-B2	Not noted
EU-DRUPS5	DG-A3	80:90

EU-DRUPS6

DG-B3

90:21

FG-BACKUPGENS SC III.2 specifies operating scenarios for the engines in FG-BACKUPGENS. Based on records of the operating times and engine load during operation, the engines are operating according to the scenarios allowed in SC III.2, in that, none of the engines were operated at the same time.

The nameplates I observed on the engines during the inspection indicate that each DRUPS has a 3490 kW (4680 HP) rating and each emergency generator has a 2500 kW (3,353 HP) rating. The kW ratings on the nameplates do not exceed the maximum ratings specified in FG-BACKUPGENS SC IV.2.

FG-OLDDATACTR – Building #24

This flexible group is for three diesel emergency generators located at the Old Data Center manufactured and constructed in 2007. I did not inspect these emergency generators to verify the ROP description while on site. Requirements in the ROP for FG-OLDDATACTR were established pursuant to Rule 201(1)(a). NSPS IIII requirements applicable to the engines in FG-OLDDATACTR are specified in FG-SUBPARTIIII in the ROP.

FG-OLDDATACTR SC I.1 limits the NOx emissions from each engine in the flexible group to 515 lb/1,000 gallons on an hourly basis. Compliance with this limit, according to the ROP, is demonstrated through stack testing upon AQD District Supervisor request. I did not see any stack test reports or AQD requests for stack testing in AQD's files for GM-MPG.

Ken provided monthly and 12-month rolling fuel use records for the engines in FG-OLDDATACTR from December 2020 through May of 2022 per S.C. VI.1 and 4 (Attachment 10). These records state only diesel fuel is used in these engines as specified in S.C. II.1 and show EU-GEN24 and EU-GEN25 have been offline since March 2021. The maximum diesel fuel used per 12-month rolling time period was 3,520 gallons, reported for the period ending February 2021, which is below the limit of 136,000 gallons in S.C. II.3.

GM-MPG is required to operate the engines in FG-OLDDATACTR in accordance with manufacturer's recommendations for safe and proper operation to minimize emissions during periods of startup, shutdown and malfunction. Ken provided records of the maintenance performed on the engines in FG-OLDDATACTR.

FG-GASTANKS

This flexible group applies to any new (placed into operation on or after 7/1/79) or modified gasoline storage tank of capacity greater than 2000 gallons that is exempt from the requirements of Rule 201 pursuant to Rule 278 and Rule 284 (2)(g). Rule 284(2)(g) exempts dispensing facilities for storage, mixing, blending and handling of gasoline and/or gasoline/ethanol blends, for natural gas storage and handling, or for diesel fuel storage and handling from Rule 201 requirements. A dispensing facility, according to Rule 104(g), means a location where gasoline is transferred to a motor vehicle tank from a stationary vessel. During the inspection, Ken showed me the location of one of the underground gasoline storage tanks which was near/under gasoline fuel pumps used to dispense gasoline into motor vehicles. I also observed an above ground storage tank with a gasoline label on it near Building #94.

Requirements in the ROP for FG-GASTANKS were established pursuant to Rule 703 and the NESHAP for Gasoline Dispensing Facilities (40 CFR Part 63, Subpart CCCCCC). EGLE-AQD has not accepted delegation to implement and enforce NESHAP Subpart CCCCCC. Compliance with NESHAP CCCCCC was not evaluated as a result. On August 11, 2022, GM-MPG submitted results of Performance Testing for Gasoline Dispensing Facilities (GDP) NESHAP as required by 40 CFR Part 63, Subpart CCCCCC (Sections 63.11110 - 63.11132) and 40 CFR Part 63, Subpart A (section 63.9).

Rule 703 includes procedures for loading of gasoline and requirements for tank design. I did not see any gasoline tanks being loaded during the inspection. Ken provided records, required in FG-GASTANKS SC VI.1, of the tank names, locations, capacities, installation dates, material contained, gasoline throughput, and whether each tank is equipped with a submerged fill pipe and vapor balance system (Attachment 11). These records indicate that all tanks are equipped with a submerged fill pipe and all but one (Tank A-125, located at Building #94) have a vapor recovery system. According to the records, Tank A-125 is a 4,000 gallon tank with 2, 2,000 gallon compartments and, therefore, not required to have an vapor recovery system referenced in Rule 703(2) and (3). Rule 703(2) and (3) apply to vessels greater than 2,000 gallons.

FG-RULE287(2)(c)

This flexible group is for paint booths exempt from obtaining a PTI per Rule 287(2)(c). According to the ROP, the paint booths are located in Building #'s 11, 25, and 70. Requirements in the ROP for FG-RULE287(2)(c) were established pursuant to Rule 287(2)(c) and Rule 213(3).

We visited the coating booths in Building #70. There are four paint booths at this location (P1,P2, T1, and T2). Two of the booths (P1 and P2) were being used during the inspection. I inspected the filters in booth T1 and noted the filters

appeared to be installed properly as required in S.C. IV.1. According to the paint area supervisor, the filters are changed based on the number of hours of use. Ken provided records of the filter replacements/paint booth maintenance as required in SC VI.1.b (Attachment 12). There are faults if the booths' pressure is out of balance.

Each paint booth included in FG-RULE287(2)(c) of the ROP is limited to 200 gallons of coating used per month in SC I.1. Ken provided coating usage records for the coating booths at GM-MPG for January 2020 through May 2022 (Attachment 13) as required in SC VI.1.a. These records indicate the highest monthly usage for all Rule 287(2)(c) booths combined was 31.6 gallons reported in April 2022.

There are also two paint mix rooms adjacent to the paint booths in building #70; one for water-based coatings and the other for solvent-based clear coating. The clear coat mixing room has a warning sign on the door that says Isocyanate Control Area. According to the Supervisor, PPG Clear Coat has isocyanate in it. A worker wearing a respirator was working in the clear coat paint kitchen. Containers of paint and waste in both paint kitchens were closed during the inspection.

There are also two BECCA paint gun cleaners, one solvent-based and the other water-based. The BECCA works by connecting the paint gun to a hose on the BECCA. A pneumatic pump pulls cleaning solution from a container below the basin through the hose and gun. Spent cleaning solution drains through an approximately 1 inch hole in the bottom of the cleaner basin, is filtered to remove solids, then stored in the cleaning solution container for re-use.

Labels on the Model 9880 indicate the solvent used is Safety Kleen Premium Solvent Blend and the capacity is 5 gallons. Labels on the Model 700 indicate the cleaner used is PPG SWX100. The SDS for the Safety Kleen Premium Solvent indicates it contains 100% petroleum distillates, hydrotreated light. The SDS for the PPG SWX100 cleaner indicates it is a waterborne cleaner containing \leq 5% cyclohexanone with no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in Section 3 of the SDS.

Requirements applicable to the BECCA Model 9880 are covered in the FG-COLDCLEANERS table in the ROP. Based on the information from the SDS, the BECCA Model 700 is exempt from the requirements in Rule 201 to have a PTI per Rule 278(2)(k) because it is a tank containing liquid with a volatile organic compound content of less than 5 %, by weight, and at a temperature below its boiling point that is used to spray, brush, flush, or immerse metallic and/or plastic objects for the purpose of cleaning or degreasing.

I also observed the stacks for the paint booths located in Building #25 during the inspection. I did not see any visible emissions from the paint booth stacks on Building #25.

FG-MACT6H

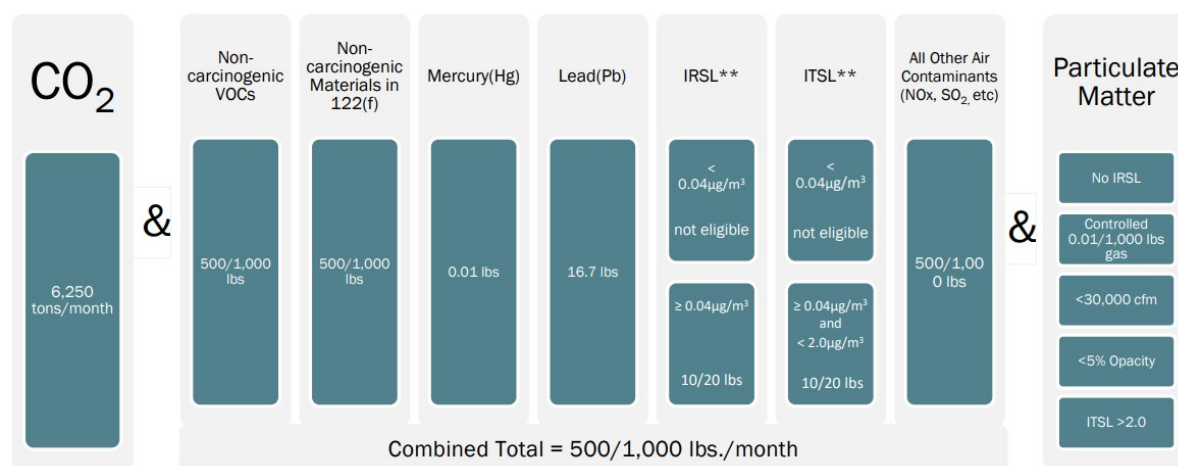
This flexible group contains requirements from the NESHAP for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources (40 CFR Part 63, Subpart HHHHHH). According to the ROP, the paint booths located in Building #'s 11, 25, and 70 are subject to 40 CFR Part 63, Subpart HHHHHH. EGLE-AQD has not accepted delegation to implement and enforce NESHAP Subpart HHHHHH. Compliance with NESHAP HHHHHH was not evaluated as a result.

FG-RULE290

This flexible group is for equipment exempt from obtaining a PTI per Rule 290(2). According to the ROP, processes exempt per Rule 290(2) are the steam cleaning of gasoline fuel tanks (EU-TANKPURGE) and the deployment of obsolete air bags ((EU-AIRBAGS) . Requirements in the ROP for FG-RULE290 were established pursuant to Rule 290 and Rule 213(3).

Ken provided records of emissions from EU-TANKPURGE and EU-AIRBAGS for January 2021 through May 2022, as required in S.C. VI.1 (Attachment 14). FG-RULE290 SC I.2.c prohibits the emissions of toxic air contaminants with an initial threshold screening level (ITSL) or initial risk screening level (IRSL) less than 0.04 microgram per cubic meter. The records provided indicate EU-TANKPURGE and EU-AIRBAGS do not emit any toxic air contaminants with an initial threshold screening level or initial risk screening level less than 0.04 microgram per cubic meter.

Limits set forth in Rule 290 (FG-RULE290 SC I.1-3) are displayed in the table below:



The records provided indicate EU-TANKPURGE and EU-AIRBAGS do not emit mercury or lead, the highest monthly VOC emissions from EU-TANKPURGE were 30.767 lbs (August 2021) with benzene (IRSL = 0.1 micrograms/meter cubed) about 0.9 lbs, and the highest monthly pollutant emissions from EU-AIRBAGS were 0.493 lbs of acetylene in May 2021.

During the inspection, I observed a tank being purged with air in Building #12. The tank was laying on the ground and had an approximately 6-inch diameter hose connected to it. The other end of the hose was connected to a stack that vented to the ambient air.

FG-COLDCLEANERS

This flexible group applies to any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278, Rule 278a and Rule 281(2)(h) or Rule 285(2)(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979. Rule 281(2)(h) exempts cold cleaners with an air/vapor interface not more than 10 square feet.

Requirements in the ROP for FG-COLDCLEANERS were established pursuant to Rule 707 and Rule 213(3). Rule 707 requires covers to be installed and the cover to be closed whenever parts are being handled in the cleaner, a device for draining parts be installed, instructions to be posted near the cleaner, and waste to be stored in closed containers.

GM-MPG provided a list of all cold cleaners and their locations throughout the facility per S.C. VI.2 (Attachment 15). These records indicate there are 24 cold cleaners at GM-MPG. The records indicate there are no halogenated solvents used in the cold cleaners as prohibited in FG-COLDCLEANERS SC I.1. All cold cleaners, according to the records and my observations, have an air/vapor interface less than 10 square feet, as required in FG-COLDCLEANERS SC IV.1 I inspected one cold cleaner in Building #73 and three cold cleaners located in Building #70 (one in the paint area on the lower floor and two in the vehicle maintenance area on the mid level). The cleaners were not being used during the inspection.

I observed that the BECCA gun cleaner/recycling system, located in the paint area, has a opening approximately 1.5 feet x 2 feet (3 square feet). The cold cleaner in Building #73A had an air/vapor interface of approximately 6 square feet. One parts washer in the maintenance area had a solvent/air interface of about 6 square feet and the other about 8 square feet. There was ZEP Dyna 143 label on the 8 square feet cold cleaner in the maintenance area. During the inspection I observed instructions were posted on each cold cleaner, as required in FG-COLDCLEANERS SC VI.3. The lid on each cold cleaner I inspected was closed, as required in FG-COLDCLEANERS SC IV.3. I saw that the BECCA gun cleaner has a device for draining parts as required in FG-COLDCLEANERS SC IV.2. I did not look inside the other three cold cleaners to see if they had a device for draining parts. All waste containers I observed during the inspection were closed.

FG-RICEMACT

This flexible group contains requirements from the NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE), located at an area source of HAP emissions (40 CFR Part 63, Subpart ZZZZ). According to the ROP, EU-GEN1, EU-GEN2, EU-GEN3, EU-GEN4, EU-GEN6, EU-GEN7, EU-GEN8, EU-GEN9, EU-GEN10, EU-GEN11, EU-GEN12, EU-GEN21, EU-GEN22 are subject to 40 CFR Part 63, Subpart ZZZZ and each engine is an existing emergency RICE. EGLE -AQD has not accepted delegation to implement and enforce NESHAP Subpart ZZZZ for area sources of HAP. Compliance with all requirements in NESHAP ZZZZ was not evaluated as a result. Ken provided records of the hours of operation of each engine in FG-RICEMACT. A cursory review of these records indicate each engine was operated for less than 100 hours for non-emergency purposes in calendar year 2021.

Based on the descriptions for each engine in FG-RICEMACT, each engine is exempt from the requirements of Rule 201 pursuant to Rules 278 and 285(2)(g). Rule 285(2)(g) exempts internal combustion engines that have less than 10,000,000 Btu/hour maximum heat input from the requirement to have a PTI.

I inspected one emission unit in FG-RICEMACT (EU-GEN10). EU-GEN10 is located outside of Building #94. The nameplate for EU-GEN10 indicates it is a 142 HP, diesel-fired, Caterpillar Model 3304 engine. I observed a 200 gallon diesel fuel tank near the generator. EU-GEN10 is identified in the records provided as Gen-16. Records indicate the generator has a kW rating of 125 (167.6 HP). The ROP states the engine is 134 HP. Based on the nameplate information, EU-GEN10 meets the PTI exemption in Rule 285(2)(g).

FG-SUBPARTIII & FG-SUBPARTJJJJ

The ROP lists four engines (EU-GEN18, EU-GEN23, EU-GEN24, EU-GEN25) in FG-SUBPARTIII list and five engines (EU-GEN14a, EU-GEN15a, EU-GEN20, EU-GEN30, EU-GEN31) in FG-SUBPARTJJJJ.

Requirements in the ROP for FG-SUBPARTIII & FG-SUBPARTJJJJ were established pursuant to 40 CFR Part 60, Subparts III (NSPS for Stationary Compression Ignition Internal Combustion Engines) and JJJJ (NSPS for Stationary Spark Ignition Internal Combustion Engines).

I inspected one emission unit in FG-SUBPARTJJJJ (EU-GEN15a) located at Barnes Circle, Building #41 - Lift Station. EU-GEN15a is listed as Gen-23 with a 103 kW (~138 HP) in the records provided. EU-GEN15a/Gen-23 is used to lift waste to the water treatment facility on site. I noted that the information I observed on the engine nameplate matches the description for EU-GEN15a in the ROP. The engine is equipped with an hours meter as required in S.C. IV.1. The hours meter read 75 hours during the inspection. Records provided state the hours meter reading for EU-GEN15a/Gen-23 was 73 hours, 31 minutes in June 2022.

Compliance with the emission limits in FG-SUBPARTIII & FG-SUBPARTJJJJ is demonstrated either through the purchase of an engine certified by the manufacturer to meet the limits or through testing at the owner's expense. The engines in FG-SUBPARTIII & FG-SUBPARTJJJJ are certified engines. Ken provided a copy of the EPA Certificate of Conformity for each engine in FG-SUBPARTIII & FG-SUBPARTJJJJ, required in FG-SUBPARTIII SC VI.2 & FG-SUBPARTJJJJ VI.3 (Attachment 16). These records indicate that each engine meets the applicable emission limits in 40 CFR Part 60, Subparts III and JJJJ.

FG-SUBPARTIII SC III.1, 2, and 4 & FG-SUBPARTJJJJ SC III.1 and 2 require GM to operate and maintain each engine in FG-SUBPARTIII & FG-SUBPARTJJJJ according to the manufacturer's emissions related instructions. Ken provided manufacturer's instructions and maintenance records required in FG-SUBPARTIII S.C. VI.4 and FG-SUBPARTJJJJ VI.2.

FG-SUBPARTIII SC III.6 and FG-SUBPARTJJJJ III.3 limit the total hours of operation of each engine to 500 hours per 12-month rolling time period. FG-SUBPARTIII SC III.7 and FG-SUBPARTJJJJ III.4 limit the hours of operation for maintenance, testing, and non-emergency situations for each engine to 100 hours per calendar year. Ken provided the hours of operation of each engine as required in FG-SUBPARTIII & FG-SUBPARTJJJJ SC VI.6 (Attachment 17) for January 2020 through June 2022. These records indicate the engine in FG-SUBPARTIII and FG-SUBPARTJJJJ with the highest 12-month rolling hours of operation was EU-GEN14a (Gen-22 in records) with 103.42 hours reported in the periods ending February and April 2021. EU-GEN14a was operated for 79.9 hours in July 2020 for emergency purposed according to the records. All other engines in FG-SUBPARTIII and FG-SUBPARTJJJJ were operated for less than 35 hours per 12-month rolling time period according to the records provided.

OTHER EQUIPMENT

CHASSIS DYNOS

A chassis dynamometer is a mechanical device that uses one or more fixed roller assemblies to simulate different road conditions within a controlled environment and is used for a wide variety of vehicle testing and development purposes.

While driving from Building #136 to Building #70, I saw a building with a sign that said Vehicle Emissions on Building 31. I asked Ken to see inside the building. Ken indicated the equipment in this building is used for engine testing of fully assembled vehicles that were previously determined to be mobile sources, not stationary sources. I told Ken about two determinations by EPA regarding chassis dynamometers.

The August 16, 2010 EPA determination regarding Hyundai America Technical Center, Inc. (Hyundai), states, in part, "In Hyundai's case, the chassis dynamometers are fully enclosed units into which motor vehicles are placed for emissions testing under various use conditions. The tailpipe emissions exhaust to a capture unit, and then pass through a gas chromatograph (to measure pollutant levels) and to a catalytic converter, an air pollution control device, and finally are

exhausted into the air from the stack." The 2010 determination goes on to state; "NSR and Title V generally cover only emissions from stationary sources. Section 302(z) of the Act defines stationary source as "any source of an air pollutant except those emissions resulting directly from an internal combustion engine for transportation purposes or from a nonroad engine or nonroad vehicle as defined in section [216 of the Act]." EPA interprets this definition as excluding emissions from internal combustion motor vehicle engines only when those engines are being used for transportation purposes. As noted above, in the case of the Hyundai facility, the vehicles are being tested on the chassis dynamometer are being used for testing purposes and have not yet been introduced into commerce. Thus, the emissions from the engines are not created while the vehicle is used for transportation purposes. Therefore, based on the information provided by Hyundai and Michigan Department of Natural Resources and Environment (MDNRE), EPA concludes that vehicle test cell emissions should be attributed to the stationary source, and MDNRE should count them for purposes of determining applicability of permitting requirements."

The November 27, 2012 EPA determination, regarding GM Lake Orion Assembly Plant, states, in part, "According to GM, a roll test is not a test of the engine. At the time a vehicle enters a roll test at Orion, it is ready for transportation. Such a vehicle has been assigned a VIN number, an emissions certification engine label, and a fuel economy window sticker." and "because the testing is done at a point when the vehicle is ready for introduction into commerce and the testing is for the purpose of checking the vehicle's readiness for transportation, we have concluded that the direct emissions from roll-off tests at the GM Orion facility are emissions resulting directly from internal combustion engines "for transportation purposes" within the meaning of Section 302(z) of the Clean Air Act and as such the engines in the vehicles tested are not subject to stationary source requirements."

In response to the mention of the EPA determinations, Ken forwarded an email sent on June 12, 2013, from the Michigan Department of Environmental Quality (MDEQ) Chief at the time, Vince Hellwig, to MDEQ supervisors and administrators that states, in part, "Recently, EPA did determine that the GM Orion chassis roll tests for the finished vehicles are mobile sources. EPA's Hyundai letter did not address chassis roll test at vehicle assembly plants, nor did it speak to chassis dynos at facilities other than Hyundai's Michigan facility." The email also states, "Due to lack of national consistency on this issue, no clear guidance from EPA and that neighboring states consider chassis dynos mobile sources, and AQD has determined that motor vehicle test operations including chassis dynos are subject solely to Title II of the CAA and are not stationary sources." and "Thus, absent a voluntary request from a company to include such operations in a stationary source permit, AQD will not include such activities in a PTI or ROP". AQD is still following the policy set for in the June 12, 2013 email from Vince Hellwig at this time. As a result, I did not evaluate stationary source applicability of the chassis dynos at GM-MPG and relied on EPA to determine/enforce mobile source requirements for the vehicles tested on the chassis dynos at the facility.

Inside the Vehicle Emissions building, I saw several booths large enough to drive a car into. I did not count the number of booths I observed. I did see a board on the wall near the booths that had labels "Towers 1 - 14". The AQD inspection report for GM-MPG, dated August 24, 2009, states there were 13 test cells in Building #31. During my inspection on July 13, 2022, I observed three vehicles (one black Chevy van, one Chevy flat bed towing vehicle, and one GMC van) with their hoods up, parked in bays in the building. On the bottom of the windshield on the driver's side of the black Chevy van, I saw a sticker that said "Non-saleable". On a plastic cover in the front of the engine compartment of the black Chevy flat bed towing vehicle, I saw a sticker that said "Conforms to Regulations: 2021 Incomplete". On a plastic cover near the engine above the hood of the GMC van, I saw a sticker that said "Conforms to Regulations: 2021".

While inspecting FG-ENGINEDYNOS in Building #94, I also observed 10 chassis dynamometers. According to Mike, two of the chassis dynos are for 4-wheel drive vehicles and the rest are for 2-wheel drive vehicles. The chassis dynos in Building #94 are used for pre-production vehicle development including fuel economy and noise and vibration testing. During the inspection, Cell C124 was being used for fuel economy testing. The vehicle is operated remotely. There was a prototype pick-up truck in cell C127. This vehicle was not being operated during the inspection. Mike indicated that the VINs with EX at end are non-saleable and scrapped when testing is complete.

ENGINE CARTS

It is noted in the July 12, 2017 AQD inspection report, that there are six "engine carts" located in building #42G used for warranty testing on older engines. According to the 7/12/2017 report, the engines were equipped with Tier II controls, i.e. catalytic converters similar to road vehicles, but they are not equipped with wheels or a vehicle frame. The AQD staff member who inspected the facility on 7/12/2017, Sam Liveson, indicated the engines appeared to be exempt from obtaining a Permit to Install per Rule 285(2)(g).

I asked Ken about the "engine carts" during the inspection, however, we did not go to Building #42 and, therefore, I did not inspect the "engine carts" during the 7/13/2022 inspection. I sent an email to Ken on August 31, 2022 asking for more information about the "engine carts". Ken sent an email response on 9/9/2022 stating the engine cart operations ended in February of 2019. Ken also attached an email from Randy Rinnas, Lab Manager, Fuels, Chemistry, Dyno, and Metallurgy

Labs, Milford Proving Grounds to four recipients with gm.com email addresses. Randy's email is dated 02/20/2019 and it states "effective Feb 28th the garage and dyno operations at 42A & 42G will be shut down."

In addition, in each MAERS report for reporting years 2019, 2020, and 2021, GM-MPG marked that the the "Fuel engine carts" "Did Not Operate This Year".

VEHICLE TEAR DOWN

While driving from Building #10 to Building #136, I saw three stacks on Building #73A. I asked Ken to see inside the building. Ken and I entered Building #73A. Inside Building #73A, I saw and heard someone using a tool that looked and sounded like a small jackhammer on a vehicle body. Ken and I talked to an employee in the building. This employee indicated that vehicle tear down, using air hammers and drills, is conducted in Building #73A. The emissions from the processes in this building are released to the general in-plant environment. I did not see any duct work or openings to stacks while inside Building #73. The vehicle tear down processes using air hammers and drills meets the PTI exemption in Rule 285(2)(l)(vi). I also inspected a cold cleaner in Building #73A. This cold cleaner was discussed in the section of this report pertaining to FG-COLDCLEANERS.

CONCLUSION

Based on my inspection observations and records review, GM-MPG appears to be in violation of Source-wide SC 3.d.

NAME K. Kelly

DATE 09/19/2022

SUPERVISOR Joyce