

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

B160754647

FACILITY: GM FLINT ENGINE OPERATIONS		SRN / ID: B1607
LOCATION: 2100 W. BRISTOL RD., FLINT		DISTRICT: Lansing
CITY: FLINT		COUNTY: GENESEE
CONTACT: Madeline Mahnick , Environmental Engineer		ACTIVITY DATE: 08/19/2020
STAFF: Daniel McGeen	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection, and review of recordkeeping, which are both partial compliance evaluation (PCE) activities, conducted as part of a Full Compliance Evaluation.		
RESOLVED COMPLAINTS:		

On 8/19/2020, the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD) conducted a scheduled inspection of General Motors (GM) LLC Flint Engine Operations (FEO), as a Partial Compliance Evaluation (PCE) activity, part of a Full Compliance Evaluation (FCE). Another PCE activity, review of facility recordkeeping, is also documented in this activity report.

Purpose:

The purpose of this FCE was to determine compliance with the facility's Renewable Operating Permit, and applicable state and federal air pollution regulations.

Environmental contacts:

- Monica Walker, Environmental Engineer (on and after 10/9/2020); 586-922-3587; monica.1.walker@gm.com
- Madeline Mahnick, Environmental Engineer (prior to 10/9/2020); 810-236-4638; madeline.mahnick@gm.com
- Karen Carlson, Senior Environmental Engineer, 517-204-9011; karen.i.carlson@gm.com
- Julie Lenz, Staff Environmental Engineer; 810-234-4906; julie.lenz@gm.com

Facility description:

This facility is principally involved with engine assembly operations for GM.

Emission units in the current ROP, MI-ROP-B1607-2017:

Emission unit* ID	Emission unit description	Installation/modification date	Flexible group** ID	Compliance status
EU-COLDCLNRS	Plant wide cold cleaners.	01/01/2006	FG-COLDCLEANERS	Compliance
EU-MARKING-PENS	Miscellaneous marking pen usage.	01/2010	FG-RULE287(2)(C)	Compliance
EU-SGE-CLEANING	Miscellaneous maintenance cleaning operation for SGE.	10/2015	FG-RULE290	Compliance
EU-SGE-SEALERS	Other sealer application to SGE engine assembly process.	03/2015	FG-RULE287(2)(C)	Compliance
EU-SGE-RTV	Room temperature vulcanizing (RTV) process to robotically apply silicone sealer between small gasoline engine mating surfaces.	10/2015	NA	Compliance
EU-DIESELGEN#1	A 380 HP-diesel emergency generator located north of F Dock, intended to support the Computer Room in the event of a power outage.	01/2006	FG-EMERGENCY-ENGINES	Compliance
EU-DIESELGEN#2	A 80 HP-diesel emergency generator located north of F dock, intended to support the emergency lights in the event of a power outage.	01/2002	FG-EMERGENCY-ENGINES	Compliance
EU-FIREPUMPENG#1	A 265 HP-diesel fire pump engine located in the Fire Pump House.	01/1999	FG-EMERGENCY-ENGINES	Compliance
EU-FIREPUMPENG#2	A 265 HP-diesel fire pump engine located in the Fire Pump House.	01/2004	FG-EMERGENCY-ENGINES	Compliance

*An emission unit is any part of a stationary source that emits or has the potential to emit an air contaminant.

**A flexible group is used in a permit to install (PTI) or Renewable Operating Permit (ROP) to combine two or more emission units that have common or identical requirements.

Emission units not in the current ROP, but in the proposed ROP, MI-ROP-B1606-20XX, Section 3:

Emission unit ID	Emission unit description	Installation/modification date	Flexible group ID
EU-CSS-CLEANING	CSS miscellaneous cleaning operations	04-2017	FG-RULE 290
EU-CSS-SEALERS	CSS other sealer application process	04-2017	FG-RULE 287(2)(c)
EU-CSS-RTV	CSS Room Temperature Vulcanizing (RTV) application process	04-2017	FG-RULE 290
EU-SGE-EMERGEN	A 100 KW natural gas fired emergency generator supporting SGE operations	10-01-2018	FG-EMERGENERATOR-3, in Section 3 of proposed ROP No. MI-ROP-B1606-20XX

Emission units required to be in the ROP application but not required to be in the current ROP or proposed ROP:

Emission unit ID	Emission unit description	ROP exemption rule	PTI exemption rule	Compliance status
EU-HEATERS	Natural gas-fired space heaters	212(4)(c)	282(2)(b)(i)	Compliance
EU-SGE-INDUCHARD	SGE Induction hardening process	212(4)(c)	282(2)(a)(i)	Compliance
EU-FAM0BOILER	Lochnivar, hot water heater, stack; 0.27 MMBtu/hr, natural gas-fired	212(4)(d)	282(2)(b)(i)	Compliance
L-6 Locker Room	Hot water heater which replaced EU-HFV6BOILER	212(4)(d)	282(2)(b)(i)	Compliance
EU-MACHINING	Wet and dry production machining	212(4)(e)	285(2)(l)(v)(C)	Compliance
EU-PARTSWASHING	Process for washing engines with production washer fluids	212(4)(d)	281(2)(k) and 285(2)(l)(iii)	Compliance
EU-ENG COLDTEST	Engine cold test process	212(4)(d)	284(2)(i)	Compliance

Regulatory overview:

GM FEO, State Registration Number (SRN) B1607, has a very small amount of air emissions, on an annual basis. However, it is contiguous and adjacent to the GM Flint Assembly Plant, SRN B1606, which is a major source of Hazardous Air Pollutants (HAPs). Therefore, Flint Engine Operations is also considered to be a major source, based on the definition from Section 112 of the Clean Air Act.

Because it does not support the primary activity of the assembly plant, Flint Engine Operations has so far been treated as a separate stationary source, and has its own Renewable Operating Permit (ROP), MI-ROP-B1607-2017. However, because it is under common control with Flint Assembly, and shares the same first two digits of its Standard Industrial Classification (SIC) code, GM now considers it to be part of the same stationary source. GM also considers the adjacent and contiguous GM Flint Metal Center (FMC), SRN B1608, to be part of the same stationary source, as 90% of its production goes to Flint Assembly, even though it does not share the first two digits of its SIC code with B1606 and B1607.

When GM submitted a ROP renewal application in 2018 for Flint Assembly, B1606, they proposed to include the FMC, B1608, and FEO, B1607, as Sections 2 and 3, respectively, of that ROP, No. MI-ROP-B1606-20XX. Section 2 will include the requirements for the FMC, while Section 3 will include the requirements for FEO. It is expected that upon issuance of the ROP for B1606, all 3 facilities will use that SRN, and the SRNs B1608 and B1607 will no longer be used. The draft MI-ROP-B1606-20XX has undergone public comment, and as of 9/11/2020, it is a proposed ROP, undergoing 45-day review by the U.S. Environmental Protection Agency (EPA).

The current ROP for FEO consists mostly of exempt emission units, which are exempt from needing a permit to install (PTI). Some of these are exempted by Michigan Air Pollution Control (MAPC) Rules 287(2)(c) and 290, while the flexible group FGOLDCLEANERS is exempted by MAPC Rules 281(2)(h) and/or 285(2)(r)(iv). Additionally, there are exempt emission units which were not required to be included in the ROP, and these are detailed in the ROP-exempt emission unit table.

PTI No. 231-08C was issued for a room temperature vulcanizing sealer material process, on 12/27/2016. It was subsequently rolled into the 2017 renewal of the ROP. The PTI itself was then voided, as the requirements are now contained within the ROP.

In 2017, FEO installed their CSS engine line. A December 2016 exemption demonstration letter was sent to AQD by GM, explaining which exemptions they believed were applicable for the proposed equipment. Although exempt, from needing a PTI, the CSS emission units are required to be in the ROP. They are presently in the proposed ROP, No. MI-ROP-B1606-20XX, Section 3, which is undergoing 45-day review by EPA.

This facility is not considered subject to 40 CFR Part 63, Subpart IIII, the *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Automobiles and Light Duty Trucks*, which is also known as the Auto Light Duty MACT (Maximum Achievable Control Technology).

This facility is not considered subject to 40 CFR Part 63, Subpart MMMM, the *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Metal Parts & Coatings*, per exemption 40 CFR 63.3881(b), because it uses less than 250 gallons per year of coatings containing HAPs.

The parts cleaners at this facility are not considered subject to 40 CFR Part 63, Subpart T, *National Emission Standards for Halogenated Solvent Cleaners*, because they use aqueous solutions rather than halogenated solvents.

There are five hot water heaters reported to be onsite. One of these was inaccurately referred to as a boiler in the 8/20/2014 and 12/10/2015 inspection reports by AQD. It is not subject to 40 CFR Part 63, Subpart DDDDD, the *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*. However, it was believed to be subject, at the time of the 2014 inspection. The change in status for this unit was described by GM staff as the result of litigation by industry regarding the regulation, and subsequent guidance by EPA, which exempted units such as this.

The facility is not subject to 40 CFR Part 63, Subpart HHHHHH, the *National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Coating Operations at Area Sources*, AQD Permit Engineer Julie Brunner determined, during the New Source Review process for an earlier PTI, No. 231-08A, which was voided in 2014. She noted that the facility does not do hand-held spray application of coatings, nor does it appear to use any of the HAPs identified in the NESHAP (chromium, cadmium, lead, manganese, and nickel).

Location:

Flint Engine Operations is bordered on the north by a new paint shop, built for the adjacent GM Flint Assembly, (SRN B1606). It is bordered on the west by the GM Flint Metal Center (SRN B1608), and on the east by Van Slyke Road, and some commercial and undeveloped properties, followed by residences. This has been a heavy industrial area for decades. To the south are commercial and/or industrial properties. The nearest residence is approximately 600 feet to the east of the facility.

Fee category:

Because the FEO is considered a major source under Title I of the federal Clean Air Act Amendments (CAAA), i.e. it has the potential to be a major source of HAPs when combined with the contiguous, adjacent source, it has been considered a Category C source under AQD's revised fee category system. When it becomes part of the same ROP as Flint Assembly, SRN B1606, and the FMC, SRN B1608, it will share the SRN B1606, and become a Category B fee source,. This is because the combined source will be major under Title III, i.e. it will have a PTE of over 100 TPY for one or more criteria pollutants. The SRNs B1607 and B1608 will no longer be used.

FEO currently reports to the Michigan Air Emission Reporting System (MAERS), under the SRN B1608. When FEO and the FMC merge with Flint Assembly under the SRN B1606, they will report emissions, from that point forward, under the shared SRN.

Recent history:

On 12/6/2017, AQD conducted an inspection of FEO, as part of a FCE. No instances of noncompliance could be found. The recent inclusion of FEO in the proposed ROP No. MI-ROP-B1606-20XX has previously been discussed in this activity report.

Complaint history:

The only complaints in AQD's Michigan Air Compliance Enforcement System (MACES) database attributed to FEO were two odor complaints in 2017, which the complainant later said were prompted by odors coming from their neighbor's residence, and not from GM.

Required safety apparel:

Personal protective equipment (PPE) required for this site includes closed toe shoes with sides of leather construction (not fabric), safety glasses with side shields, and high visibility safety vests. Hearing protection is not required. Finger jewelry must be removed prior to entering the plant.

Note: GM is able to provide safety glasses and safety vests, for visitors who do not have them. I had left my safety vest in the State car, mistakenly believing that the yellow color of the vest would inaccurately identify me as a crane operator. It turned out that a yellow vest would only pose a concern if worn at the adjacent FMC.

During the current COVID-19 pandemic, visitors are required to discard their existing face mask upon entering this plant, and to sanitize their hands, prior to putting on a GM-provided paper face mask. As an additional measure of protection for myself and those around me, I opted to wear a clear plastic face shield which attached to my hard hat, and this was worn in addition to the GM-provided mask.

Odor evaluation, pre-arrival:

At 8:41 AM, I drove eastbound on Bristol Road, just south of the FMC and the FEO plants. Weather conditions were sunny and 64 degrees F, with low humidity, and winds 0-5 miles per hour out of the northwest. There were no visible emissions detectable from the facility rooflines. I was able to barely detect an odor just past the FMC, but it was so faint that I could not identify its character. As I reached the corner of Bristol Road and Van Slyke Road, I was able to barely detect an odor of hot mix asphalt, from a nearby paving project.

The above odors did not violate EGLE Michigan Air Pollution Control (MAPC) Rule 901(b), which prohibits unreasonable interference with the comfortable enjoyment of life and property.

I drove north on Van Slyke, and drove into the residential subdivision immediately east of the Flint Assembly plant. No odors were detected. I then drove back to Van Slyke and Bristol Roads. On Bristol Road, south of FEO, I again was able to barely detect an odor which was too faint to identify. This odor was insufficient to violate MAPC Rule 901(b).

I parked to the south of the FEO administration building. As I neared the building on foot, I detected a distinct and definite odor which was reminiscent of coolant, as I approached the administration building. Winds were out of the northwest at 0-5 mph. It was not clear if this odor came from FMC or FEO, but the odor was onsite, and was insufficient to violate MAPC Rule 901(b).

Arrival:

At this time during the COVID-19 pandemic, EGLE guidance to inspectors on conducting inspections was as follows:

- pre-arrange inspections with facilities, to facilitate a plan to conduct the inspection while adhering to facility guidelines for safety,
- wear a mask during all field work, and
- ask if there have been any recent confirmed cases of COVID-19 at regulated facilities, upon arrival.

Therefore, the time and date for this inspection had been pre-arranged with the GM environmental contacts. The third bulleted item is a recently added step, and I neglected to ask about recent instances of COVID-19, if any, onsite.

As I entered the plant, I followed written instructions to dispose of the face mask I was wearing, sanitize my hands, and replace the mask with a GM-provided paper mask. I underwent a temperature check as I approached the security desk, and then signed in. I was subsequently met by Ms. Madeline Mahnick, Environmental Engineer. We went to a conference room, for a socially-distanced, pre-inspection meeting with Ms. Karen Carlson, Senior Environmental Engineer, and Ms. Julie Lenz, Staff Environmental Engineer.

Pre-inspection meeting:

The purpose of this site visit was to conduct a scheduled compliance inspection, and to review required recordkeeping, as Partial Compliance Evaluation (PCE) activities, part of a Full Compliance Evaluation (FCE). The U.S. Environmental Protection Agency Compliance Monitoring Strategy for Fiscal Year 2015 is that 50% of Title V major sources undergo a FCE this year.

I was given a verbal overview of current operations here. There are presently two engine lines at FEO; the SGE line, and the CSS line, described below.

1. The small gasoline engine or SGE line remains at the plant, and is still active. I was informed that it has two mods, or machining lines, of blocks, one mod of heads, and one mod of cranks. SGE assembly has gone from two shifts down to one, I was told, and SGE machining has gone from three shifts down to two.

2. The HF engine line has been replaced by a new production line, the CSS line, for light duty diesel engines. I was informed that the CSS line started production in 2019, and has one mod, or machining line, of blocks, one mod of heads, and one mod of cranks. Additionally, I was told that CSS assembly has one shift, and CSS machining has two, but both activities will add another shift in one month (i.e., September, 2020).

It was clarified that the L6 line is now called CSS. This project was described in a December 2016 exemption demonstration letter from GM to AQD. None of these individual emission units appeared to require a permit to install, as described in the exemption demonstration letter. Installation began in 2017. The individual emission units which comprise the CSS line are, in general, similar to exempt processes installed for the existing SGE line. I was informed that the CSS engines are sent to GM's Fort Wayne Assembly plant.

Note: Emission units for the FAM0 or Family 0 engine line have all been removed from the plant, with the exception to this being the hot water heater designated EU-FAM0BOILER.

Inspection:

Emission units from the ROP are discussed in the order in which they appear in the emission unit tables at the start of this inspection activity report.

EMISSION UNITS FROM THE CURRENT ROP, MI-ROP-B1607-2017:**1. EU-COLDCLNRS; FG-COLDCLEANERS:**

Cold cleaners may be described as cleaners using a solvent which are either unheated, or are heated to a temperature which is below the boiling point of the solvent. The two cold cleaners in this plant are really not cold cleaners, but aqueous cleaners, I was informed. It was explained that GM manages them as cold cleaners, and always has cold cleaners featured in the FEO ROP, even though they are not subject to these stricter requirements.

FGCOLDCLEANERS Special Condition (SC) No. II. 1 requires that cleaning solvents shall not be used containing more than 5% of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. It is my understanding that the two cold cleaners are using the same cleaning solution that they did in 2017, which is reported to contain no halogenated compounds.

I was shown one of the designated "cold cleaners" during this inspection. The air/vapor interface on the unit appears to be less than ten square feet. This is one of the two design requirement options under SC No. IV. 1.

The unit which I saw was equipped with a cover, which was closed, consistent with the requirement of SC No. IV. 3 to do so, when parts are not being handled. Ms. Mahnick pointed out the label clearly posted on the lid of the unit to remind operators to keep it closed, and the written operating instructions posted on a nearby wall. I did not detect any odors from the designated cold cleaner.

2. EU-MARKING-PENS; FG -RULE287(2)(C):

This emission unit is limited by the Rule 287(2)(c) exemption threshold to 200 gallons per month of coatings (minus water), maximum. The pens are used to apply small dots of various paint colors to engine parts, to verify that they have undergone necessary quality assurance checks.

Ms. Mahnick provided a print out of EU-MARKING-PEN recordkeeping, for 2020, year-to-date (YTD). The records track the number of pens used, and the gallons of coatings used. The month in 2020 with the highest usage so far was January, with 0.71 gallons. This is far below the 200 gallons, minus water, per month, limit contained within Rule 287(2)(c). It was noted that there was no usage of marking pens in April. It was stated that there was no engine production that month, due to the COVID-19 pandemic.

3. EU-SGE-CLEANING; FG-RULE290:

We observed the SGE manufacturing and assembly processes. EU-SGE-CLEANING is for miscellaneous cleaning associated with the SGE line. The applicable regulatory limit is the uncontrolled emission threshold of 1,000 pounds per month contained in the Rule 290 exemption.

Ms. Mahnick provided copies of monthly recordkeeping for EU-SGE-CLEANING; please see attached. Monthly non-carcinogenic VOC emissions were documented, and were verified as being far below the maximum 1,000 lbs/month of uncontrolled VOC emissions allowed by Rule 290 and the ROP; please see below.

1. January 2020: 0.46 lbs
2. February 2020: 0.45 lbs
3. March 2020: 4.01 lbs
4. April 2020: 0.00 lbs
5. May 2020: 0.08 lbs
6. June 2020: 0.27 lbs
7. July 2020: 0.61 lbs

4. EU-SGE-SEALERS; FG-RULE287(2)(C):

The SGE engines receive a sealer in the assembly process, which provides a seal between mating surfaces. The material used is primarily Loctite Sealer 150460, I was told in 2017, and that still appeared to be the case. The monthly usage is tracked under Rule 287(2)(c). I observed the robotic application of this material. There were no visible emissions from the application process.

Ms. Mahnick provided a copy of 2020 YTD recordkeeping for EU-SGE-SEALERS. So far, in 2020, 10.70 gallons of sealer were used, and all of it was Loctite 150460. The month with the highest

throughput was January, with 2.97 gallons used. This is far below the maximum allowed coating use of 200 gallons/month, minus water, under Rule 287(2)(c) and the ROP.

5. EU-SGE-RTV:

A room temperature vulcanizing (RTV) sealer is used for the SGE engines. There are a number of RTV stations in line, for different parts. They were exhausted to the exterior environment. The SGE RTV process is not exempt, due to the presence of a carcinogen. The PTI for this process, No. 231-08C, was rolled into the ROP when the ROP was most recently renewed. The PTI itself was then voided, because those regulatory requirements were now part of the current ROP.

We observed plasma treating of metal parts, and the subsequent application of the RTV sealer. There were no visible emissions from the process. It is my understanding that the plasma treating energizes the metal surface, to make it more receptive to the RTV.

There is a VOC limit of 1.2 TPY for this process in the ROP. Recordkeeping for EU-SGE-RTV was provided. The recordkeeping shows that over the 12-month period from August 2019 through the end of July 2020, total VOCs from this process were 175 lbs, or 0.09 tons. This is far below the 1.2 ton limit

The same recordkeeping form also showed a 12-month rolling average from August 2019 through July 2020. The months with the highest 12-month rolling ton values were August through October of 2019, each of which were at 0.3 tons. This is below the 1.2 ton limit.

6. EU-DIESELGEN#1; FG-EMERGENCY-ENGINES:

EU-DIESELGEN#1 was installed in January, 2006. It is one of four internal combustion engines (ICEs) in the flexible group FG-EMERGENCY-ENGINES. We observed this unit, which is a Cummins Power 380 horsepower (HP) generator. It is the easternmost of two generators within this flexible group. It was not operating at this time.

The hours of operation, as indicated on the non-resettable hour meter, were 187.1 since the unit first began operating.

Ms. Mahnick provided a print out of the hours of operation (please see attached), which are tracked per requirements for emergency generators. Such units must be below 100 hours of operation per year. The 2020 YTD hours of operation for emergency use were 0, while hours for non-emergency use were 5.4.

Keeping of maintenance records is also required, and I was given copies of these (please see attached). The records contained a detailed checklist showing each maintenance item performed. No issues were identified. Those items which were required to be done by 40 CFR Part 63, Subpart ZZZZ, the RICE MACT, were highlighted by Ms. Mahnick.

7. EU-DIESELGEN#2; FG-EMERGENCY-ENGINES:

EU-DIESELGEN#2 was installed in January, 2002. It is the second of four internal combustion engines (ICEs) in the flexible group FG-EMERGENCY-ENGINES, and is the westernmost in location. We observed this unit, which is a Generac 2000 series 80 HP unit. It was not operating at this time, and is adjacent to EU-DIESELGEN#1. It is still referred to as the HFV6 generator, I was told, even though that engine line was removed from the plant years ago. It is identified as the HFV6 emergency generator, in their recordkeeping.

The hours of operation for this unit, as indicated on the non-resettable hour meter, were 271.7 hours.

Ms. Mahnick provided print outs of the hours of operation (please see attached), which are tracked per requirements for emergency generators. Such units must be below 100 hours of operation per year. The 2020 YTD hours of operation for emergency use were 0, while hours for non-emergency use were 5.8.

Keeping of maintenance records is also required, and I was given copies of these (please see attached). The records contained a detailed checklist showing each maintenance item performed. No

issues were identified. Those items which were required to be done by 40 CFR Part 63, Subpart ZZZZ were highlighted.

8. EU-FIREPUMPENG#1; FG-EMERGENCY-ENGINES:

EU-FIREPUMPENG#1 was installed in January, 1999. It is diesel-fueled, and is the third of four internal combustion engines (ICEs) in the flexible group FG-EMERGENCY-ENGINES. We did not observe this unit during this inspection.

Ms. Mahnick provided a print out of the hours of operation so far in 2020 (please see attached), which are tracked per requirements for emergency generators. Such units must be below 100 hours of operation per year. The 2020 YTD hours of operation for emergency use were 0, while hours for non-emergency use were 16.6.

Ms. Mahnick also provided copies of maintenance records (please see attached). The records contained a detailed checklist showing each maintenance item performed. Those items which were required to be done by 40 CFR Part 63, Subpart ZZZZ were highlighted.

9. EU-FIREPUMPENG#2; FG-EMERGENCY-ENGINES:

EU-FIREPUMPENG#2 was installed in January, 2004. It is diesel-fueled, and is the fourth of four internal combustion engines (ICEs) in the flexible group FG-EMERGENCY-ENGINES. We did not observe this unit, during this inspection.

Ms. Mahnick provided a print out of the hours of operation (please see attached), which are tracked per requirements for emergency generators. Such units must be below 100 hours of operation per year. The 2020 YTD hours of operation for emergency use were 0, while hours for non-emergency use were 20.7.

She also provided copies of maintenance records (please see attached). The records contained a detailed checklist showing each maintenance item performed. Those items which were required to be done by 40 CFR Part 63, Subpart ZZZZ were highlighted.

INSPECTION OF PROCESSES WHICH ARE NOT IN THE CURRENT ROP, BUT ARE IN THE PROPOSED ROP, MI-ROP-B1606-20XX, SECTION 3:

The emission units for the CSS engine line are not in the current ROP, MI-ROP-B1607-2017, but are in the proposed combined ROP, MI-ROP-B1606-20XX, Section 3. This ROP is not yet in effect, so compliance with it could not be checked. However, these emission units were installed as exempt from needing a PTI, so it was possible to assess if they met the applicable exemption criteria.

10. EU-CSS-CLEANING; Rule 290:

This is for miscellaneous cleaning products applied to engines and engine manufacturing equipment, throughout CSS, as I understand it. I have been informed that these cleaning processes exhaust to the general, in-plant environment, as fugitive emissions. They are regulated under MAPC Rule 290.

Ms. Mahnick provided copies of monthly recordkeeping for EU-CSS-CLEANING; please see attached. Monthly non-carcinogenic VOC emissions were documented, and were verified as being far below the maximum 1,000 lbs/moth of uncontrolled VOC emissions allowed by Rule 290 and by Section 3 of the proposed ROP MI-ROP-B1606-20XX; please see below.

1. January 2020: 7.81lbs
2. February 2020: 5.00 lbs
3. March 2020: 4.01 lbs
4. April 2020: 0.00 lbs
5. May 2020: 0.15 lbs
6. June 2020: 6.17 lbs
7. July 2020: 6.60 lbs

11. EU-CSS-SEALERS; Rule 287(2)(c):

This is for applying sealer to the CSS engines. I saw no fugitive emissions from the CSS sealer application. These processes use Loctite 150460, a blue sealer, I was told.

Prior to the issuance of the proposed ROP MI-ROP-B1606-20XX, this process is subject to Rule 287(2) (c), which limits monthly application of coatings to not more than 200 gallons per month, minus water.

Ms. Mahnick provided a print out of their FGRULE287 Compliance Document for EU-CSS-SEALERS for 2020, YTD. It showed that the month with the highest usage of coatings was January, with 0.73 gallons total, far below the 200 gallons per month minus water maximum. Of the 0.73 gallons, 0.13 gallons was Loctite 565. That was the only use of a sealer other than Loctite 150460 this year, it appeared.

12. EU-CSS-RTV; Rule 290:

Unlike the SGE RTV process, the Room Temperature Vulcanizing sealer does not contain a carcinogen. This process was therefore able to utilize the Rule 290 permit exemption, whereas the SGE RTV process needed a PTI. I was told that the CSS RTV emits less than 1,000 lbs of uncontrolled VOC emissions per month, allowing it to utilize the Rule 290 exemption.

Ms. Mahnick provided a print out of EU-CSS-RTV recordkeeping. It showed the monthly VOC emissions for each month from August 2019 through July 2020. The highest monthly values were 35 lbs, in January and again in July of 2020. These values are far below the maximum uncontrolled 1,000 lbs of VOC per month allowed by Rule 290. This is the limit which will apply in the proposed ROP, MI-ROP-B1607-20XX.

13... EU-SGE-EMERGEN; not in current ROP, but in draft MI-ROP-B1606-20XX, Section 3:

This natural gas-fired, Generac emergency generator was installed in late 2018, and began operating in January 2019, I was told. It does not appear in the existing ROP for FEO, MI-ROP-B1607-2017, but rather in the draft combined ROP for B1606, B1607, and B1608, MI-ROP-B1606-20XX, Section 3. It was not operating, at the time of the inspection. It had a non-resettable hours meter, which was currently at 35.3 hours. I was advised that this is the only natural gas-fired generator they have.

Prior to the issuance of the proposed ROP MI-ROP-B1606-20XX, this generator is subject to Rule 285 (2)(g), for internal combustion engines with less than 10 million Btu/hour rated heat input capacity. It is also subject to the RICE MACT.

Ms. Mahnick provided a print out of the hours of operation for EU-SGE-EMERGEN (please see attached), which are tracked per requirements for emergency generators. Such units must be below 100 hours of operation per year. The 2020 YTD hours for emergency use were 0, and the hours for non-emergency use were 6.4.

Maintenance records identified no issues with the unit.

EMISSION UNITS NOT REQUIRED TO BE IN EITHER THE EXISTING OR RENEWED ROP BUT WHICH MUST BE IN THE RENEWAL APPLICATION FOR MI-ROP-B1607-20XX, SECTION 3:

Emission units not required to be in either the existing or the renewed ROP are discussed in the order in which they appear in the ROP-exempt emission unit table earlier in this report.

14. EU-HEATERS; Rule 282(2)(b)(i):

We did not examine these natural gas-fired space heaters during the inspection. They are exempted from inclusion in the ROP.

15. EU-SGE-INDUCHARD; Rule 282(2)(a)(i):

We observed induction hardening process units (used for crankshafts for the SGE engine line). Parts are heated by electric power, and then quenched with a water-based polymer quench solution, I was advised. They exhaust to the outside air through a Monroe Environmental mist collector, which was

pointed out to me. The induction hardening processes are considered exempt because they are heated electrically.

16 EU-FAM0BOILER; Rule 282(2)(b)(i):

EU-FAM0BOILER still provides hot water for restrooms and showers. As previously discussed in this report, it was not subject to 40 CFR Part 63, Subpart DDDDD, but had initially been considered subject. GM LLC had submitted initial notification for this unit under DDDDD, in May 2013. However, it had rated heat input capacity of less than 1.6 million Btu/hour and was therefore not subject to DDDD. There is a difference between the definitions of a boiler and a hot water heater, under the MACT. It was explained by GM LLC, during the 2015 inspection, that following litigation by industry over the boiler MACT, EPA provided clarification that hot water heaters over 120 gallons in capacity, but below 1.6 million Btu/hr, are not subject. This has a tank capacity of 250 gallons but is below 1.6 million Btu/hr.

17: L-6 Locker Room; Rule 282(2)(b)(i):

The hot water heater designated L-6 Locker Room replaced an existing unit, EU-HFV6BOILER, and was installed in the same location. FEO considers it to meet the Rule 282 exemption criteria.

18. EU-MACHINING; Rule 285(l)(vi)(C):

This emission unit includes the machining and coolant galleries for the SGE and CSS engine lines. The machining processes were enclosed in cabinets, and emissions were ducted to control devices. I did not see any fugitive emissions from any of these processes.

a.) SGE machining:

We observed some SGE processes running, although I was told one head line and one crank line were not running. There were no visible emissions from the operating SGE head line.

For wet machining processes, it is my understanding that mists and any metal particulates go to mist collectors. These are the larger air filtration units in the plant, and they exhaust to the outside air. No visible emissions could be seen inside the facility, and the only odor which I could detect inside was intermittent, and faint. It is my understanding that FEO staff conduct quarterly rooftop inspections at the plant, to check for any emission-related issues.

Ms. Mahnick showed me a mist collector for the SGE line, and explained that they have spinning spiral parts, which make use of centrifugal force to remove moisture from the air stream. These are followed by filters. No fugitive emissions could be seen from the mist collector, which looked to be in good physical condition. Collected metal chips are recycled. There is an onsite wastewater treatment plant, which separates oils from the wastewater.

Coolant galleries along the east wall of the plant feed water-based coolant into the machining systems. This liquid also serves as a lubricant. A washing solution is used to remove lubricants, chips, oils, and sealer.

I was also shown one of a number of cartridge filter dust collectors which serve dry machining processes. This control device exhausted to the in-plant atmosphere. There were no visible emissions from the exhaust system for this unit, or from the other similar collectors which I saw in the plant today.

b.) CSS machining:

Various CSS processes for machining metal were observed operating. There were no visible emissions. Some mild odors were detected near the processes. These machining units were each controlled by their own mist collectors, rather than a large, central mist collector, I was informed.

In the CSS crank department, I was shown a CSS crank induction hardening line. This electrically heats metal cranks, and subjects them to a water-based polymer quench. Emissions are exhausted to the outside air through a mist collector. I saw no fugitive emissions from the process, nor from the Monroe Environmental mist collector, before the exhaust duct exited the building.

Generally speaking, the CSS line is similar to the SGE line, I was told, but the CSS line has a block furnace. I was shown engine blocks entering and exiting a large furnace, which, is said to be heated to about 200 degrees F. When the blocks come out of the furnace, a liner is then installed. Subsequently, the block and liner are placed into a chiller, to be cooled. I observed these processes and saw no visible emissions at any time, during the cycle. This process was described in the GM 12/16/2016 exemption demonstration letter.

19. EU-PARTSWASHING; Rules 281(2)(k) 285(2)(l)(iii):

As I understand it, this process is for washing engines with production washer fluids. They are for cleaning metal parts as they are manufactured. Mist collectors are used for particulate control of emissions. I did not see any visible emissions inside the plant.

The Rule 281(2)(k) exemption applies to:

(k) Aqueous based parts washers.

The Rule 285(2)(l)(iii) exemption applies to:

(l) The following equipment and any exhaust system or collector exclusively serving the equipment:
(iii) Equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions.

20.) EU-ENG COLDTEST; Rule 284(2)(i):

The CSS diesel cold test process is considered by GM to be exempt under Rule 284(2)(i), as described in GM's ROP renewal application for Flint Assembly, FEO, and the Flint Metal Center. I was shown the cold test line. This performs a leak test, where an engine is placed into a cell, diesel fuel is injected, and the test is run. I was informed that the engine then goes to a station where the fuel is removed. There is no actual combustion of the diesel fuel, I was advised. I could not see or smell any emissions of diesel fuel from this process.

Rule 284(2)(i) applies to the following:

(i) Loading facilities handling less than 20,000 gallons per day for storage, mixing, blending, and handling of gasoline, and/or gasoline/ethanol blends, or for diesel fuel storage and handling.

MAERS reporting:

This facility is required to report air emissions to MAERS, annually. The MAERS report submitted to document the emissions during operating year 2019 was audited on 5/11/2020, and passed successfully. Reported emissions and throughputs complied with Rules 287(2)(c) and 290, with the ROP.

Departure:

I left the site shortly before 12 noon.

Conclusion:

No instances of noncompliance could be determined. Housekeeping practices at FEO were of very high quality.

NAME Daniel W. Maen

DATE 12/7/2020

SUPERVISOR B.M.