

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

B160732539

FACILITY: GM LLC FLINT ENGINE OPERATIONS		SRN / ID: B1607
LOCATION: 2100 W. BRISTOL RD., FLINT		DISTRICT: Lansing
CITY: FLINT		COUNTY: GENESEE
CONTACT: Katherine Saliga , Environmental Engineer		ACTIVITY DATE: 12/10/2015
STAFF: Daniel McGeen	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Partial Compliance Evaluation (PCE) activities, conducted as part of a Full Compliance Evaluation (FCE): 1.) scheduled inspection, and 2.) review of facility recordkeeping.		
RESOLVED COMPLAINTS:		

Emission Unit ID	Description	ROP or exemption rule	Flexible Group ID	State PTI, exemption rule, or federal rule	Status
1. EU-HF-CLEANING	Miscellaneous maintenance cleaning operation for HF.	MI-ROP-B1607-2012	FG-RULE290	290	C
2. EU-HF-SEALERS	Other sealer application to HF engine assembly process.	MI-ROP-B1607-2012	FG-RULE287(c)	287(c)	C
3. EU-COLDCLNRS	Plant wide cold cleaners.	MI-ROP-B1607-2012	FGCOLDCLEANERS	281(h) or 285(r)(iv)	C
4. EU-HF-RTV	Room temperature vulcanizing (RTV) sealer is applied via a robotic application system during the high feature (HF) engine assembly process	MI-ROP-B1607-2012	NA	NA	C
5. EU-SGE-RTV	RTV process used to robotically apply sealer to provide seal/gasket between engine mating surfaces.	NA	NA	PTI No. 231-08B	C
6. EU-FAM0-RTV	Removed RTV process for FAM0 engine line	MI-ROP-B1607-2012	FG-RULE290	290	C
7. EU-SGE-SEALER	Other sealer application to SGE engine assembly process.	MI-ROP-B1607-2012	FG-RULE287(c)	287(c)	C
8. EU-FAM0-SEALER	Removed application process for non-RTV sealers for FAM0 engine line.	MI-ROP-B1607-2012	FG-RULE287(c)	287(c)	C
9. EU-FAM0-RUSTPREV	Rust preventative application for FAM0; this product is no longer used.	MI-ROP-B1607-2012	FG-RULE287(c)	287(c)	No longer used
10. EU-MARKING-PENS	Miscellaneous marking pen usage.	MI-ROP-B1607-2012	FG-RULE287(c)	287(c)	C
11. EU-SGE-CLEANING	Miscellaneous maintenance cleaning operations for SGE.	MI-ROP-B1607-2012	FG-RULE290	290	C
12. EU-FAM0-CLEANING	Removed miscellaneous maintenance cleaning operations for FAM0	MI-ROP-B1607-2012	FG-RULE290	290	C
13. EU-MACHINING	Wet and dry production machining.	212(4)(d)	NA	285(l)(vi)(c)	C
14. EUPARTSWASHERS	Aqueous production parts washers.	212(4)(d)	NA	285(l)(iii)	C
15. EU-GENERATORS	4 emergency generators.	212(4)(d)	NA	285(g); 40 CFR 63, Subpart 7777	C
16. EU-HEATERS	Natural gas-fired space heaters.	212(4)(d)	NA	282(b)(i)	C
17. EU-INDUCTIONHARD	Induction hardening process	212(3)(c)	NA	282(a)(i)	C
18. HFV6Boiler	PVI, Hot Water Heater, stack; 0.5 MMBtu/hr, natural gas-fired.	212(4)(d)	NA	282(b)(i)	C
19. FAM0Boiler	Lochnivar, Hot Water Heater, Stack; 0.27 MMBtu/hr, natural gas-fired.	212(4)(d)	NA	282(b)(i)	C

On 12/10/2015, the Department of Environmental Quality (DEQ), Air Quality Division (AQD) conducted a

scheduled inspection of General Motors (GM) LLC Flint Engine Operations, 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.

Environmental contacts:

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Apurva Pujara, Senior Environmental Engineer, RE&F Energy & Environment; General Motors Company; 248-255-7795; apurva.pujara@gm.com

Facility description:

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

Regulatory overview:

Flint Engine operations has a very small amount of air emissions, on an annual basis. However, it is contiguous and adjacent to the GM Flint Assembly Plant, State Registration Number (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 is thus treated as a separate stationary source, and has its own Renewable Operating Permit (ROP).

The facility has a current ROP, MI-ROP-B1607-2010. The ROP consists of exempt emission units, which are exempt under Rules 287(c), 290, and 281(h) and/or 285(r)(iv). These are detailed in the emission unit table at the start of this activity report. Additionally, there are exempt emission units which were not required to be included in the ROP, and these are also detailed in the emission unit table.

On 4/9/2014, Permit to Install (PTI) No. 231-08A was issued, to allow for modification of the sealer in the existing engine area. This allowed the facility to use a specific room temperature vulcanizing (RTV) sealer for their line of Small Gasoline Engines (SGE). This PTI was replaced by PTI No. 231-08B on 10/23/2014, to allow for two stacks instead of one, for the RTV sealer, in the existing engine assembly area. This current PTI will be rolled into the ROP, during the next ROP renewal, which will take place in 2017.

This facility is not considered subject to 40 CFR Part 63, Subpart M, the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Metal Parts & Coatings, per exemption 40 CFR 63.3881(b), because FEO 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 Emissions Standards for Halogenated Solvent Cleaners, because they use aqueous solutions rather than halogenated solvents.

There are two hot water heaters onsite, inaccurately referred to as boilers in the 8/20/2014 inspection report by AQD. They are not subject to 40 CFR Part 63, Subpart D, the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. However, they were believed to be subject, at the time of the 2014 inspection. The change in status for these units 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 these.

The facility is not subject to 40 CFR Part 63, Subpart H, the NESHAP for Paint Stripping and Miscellaneous Coating Operations at Area Sources, AQD Permit Engineer Julie Brunner determined, during the New Source Review process for PTI No. 231-08A. 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. 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. There are no complaints associated with Flint Engine Operations in AQD files as far back as 1991, and possibly even earlier.

Fee category:

Because Flint Engine Operations is classified as a major source, it is considered a Category I source, and pays an annual Category I facility fee, and pays per ton of pollutants discharged. It annually reports estimated air emissions via the Michigan Air Emissions Reporting System (MAERS). Please see section on MAERS reporting, later in this report.

Arrival:

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. The time and date for this inspection had been arranged in advance, to accommodate schedules of the parties who needed to be present, including two DEQ student interns from the Office of Environmental Assistance, Ms. Olivia Ferreira, and Mr. Joshua Pulka. They took part in the inspection for educational purposes.

Prior to arrival, we drove along the south and east perimeter of the GM site, to check for odors and visible emissions. No visible emissions were noted. No odors were detected from Flint Engine Operations. Weather conditions were overcast and 50 degrees F, with winds 10-20 miles per hour, out of the south.

We arrived in the parking lot at 10:57 AM, and met with Ms. Katherine Saliga, Environmental Engineer, who is the environmental contact for this facility, and Mr. Apurva Pujara, Senior Environmental Engineer, from GM's RE&F, Energy & Environment, who supports a number of GM facilities in Michigan, and elsewhere. I provided a copy of the DEQ brochure *Environmental Inspections: Rights and Responsibilities*, and the boiler MACT card, per AQD procedure.

This facility assembles Small Gasoline Engines (SGE) and 6 cylinder High Feature (HF V-6) engines for GM. The SGE line recently replaced the Family 0 (FAM0) line, under PTI No. 231-08B. The SGE engines are for smaller cars, like the Chevrolet Cruze, whereas the HF engines are for smaller trucks and SUVs. It was explained that this is a "landfill free" facility.

We were informed that the two hot water heaters are not subject to 40 CFR Part 63, Subpart DDDDDD, contrary to what had been believed during the 8/20/2014 inspection. It was explained how EPA has provided guidance to industry, following litigation concerning this regulation. Mr. Pujara indicated that AQD will be sent written notification that these units are not subject, so that this change in status is on record.

Inspection:

Approximately in autumn of 2014, GM installed temporary validation equipment for the SGE line as a trial, to see if they could manufacture the SGE line here. The validation equipment was installed as exempt. The actual production machinery was not installed for some time, as it was still being designed. The first month of production for the actual SGE line was October, 2015. We were told that production is slow right now, because they are still working on improving the efficiency of the new production line, but they are gradually increasing, or ramping up, production.

The emission units are listed below, in the order they appear in the table at the start of this activity

report. The order in the table is the same as in the ROP, except for emission units for the SGE engine line, which are too new to have appeared in the 2012 ROP. SGE emission units are therefore listed ahead of the comparable FAM0 emission units that they replaced.

1.) EU-HF-CLEANING; RULE 290:

This is a miscellaneous maintenance cleaning operation for the HF product line.

Facility recordkeeping (attached) shows that there were 3.03 lbs per month of VOC, in the most recent month of recordkeeping, October, 2015, well below the 1,000 lbs per month of uncontrolled emissions allowed by Rule 290.

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

The HF engines receive a sealer in the assembly process, which is used for the oil pan and the face of the engines.

We were given a copy (attached) of year to date (YTD) recordkeeping for EU-HF-SEALERS. The Rule 287 (c) exemption criteria allows for no more than 200 gallons per month of coatings to be used. In 2015, the highest monthly throughput reported was 18.49 gallons, well below the 200 gallon monthly threshold.

3.) EU-COLDCLNRS; Rules 281(h) and/or 285(r)(iv):

We did not focus on the plant wide cold cleaners. These are cleaners using a solvent which are either unheated, or heated to a temperature below the boiling point of the solvent.

4.) EU-HF-RTV:

A Room Temperature Vulcanizing (RTV) sealer is used for the HF engines. This sealer contains a small amount of a single carcinogen, and is not exempted from the ROP. It is exhausted to the outside air, after filtration by a particulate filter. This emission unit has four work stations, two of which are robotic, with the remaining two being operated by hand.

This emission unit is limited by the ROP to 0.9 TPY VOC. Facility recordkeeping (attached), shows that 12 month rolling emissions were 0.5 TPY, for each month from January 2015 through October 2015, below the permitted limit. Monthly product usage, in lbs and gallons, and monthly VOC emissions, in lbs and tons, were also reported.

5.) EU-SGE-RTV; PTI No. 231-08B:

A RTV sealer is used for the SGE engines. It is exhausted to the exterior environment, and is not exempt, due to the presence of a carcinogen. It is regulated by a "stand alone" PTI No. 231-08B. This was a revision to PTI No. 231-08A, to allow for two exhaust stacks, instead of one. The PTI will be rolled into the ROP during the 2017 renewal process. The RTV is a putty-like material, we were advised, prior to setting up.

Facility recordkeeping (attached) for EU-SGE-RTV shows that there were only 2.72 lbs of VOCs emitted from this emission unit during October 2015., the first month of actual SGE production. The limit in the current PTI is 0.7 TPY.

From March through August 2015, this emission unit operated at a different, temporary location within the plant, for validation purposes, and was tracked for compliance under Rule 287. This is shown in the attached *SGE RTV Rule 287 Compliance Document*. The month with the highest product usage was July 2015, when 4.78 gallons per month were used, far below the Rule 287(c) criteria of no more than 200 gallons per month.

6.) EU-FAM0-RTV; Rule 290:

A RTV sealer was once used for the FAM0 engine line, and it ceased prior to August 2015, we were told. It exhausted to the in-plant environment.

Facility recordkeeping (attached) for EU-FAM0-RTV shows that the last month with production was July, 2015, with 98.66 lbs of VOC emissions reported. This was the highest reported monthly emission during the 2015 calendar year for this process, and was well below the 1,000 lbs of uncontrolled VOC emissions per month allowed by Rule 290.

7.) EU-SGE-SEALERS; Rule 287(c):

The SGE engines receive a sealer in the assembly process, which provides a seal between mating surfaces.

We received a copy (attached) of YTD 2015 recordkeeping for EU-SGE-SEALERS. It showed that the month with the highest coating usage was March, with 15.85 gallons. The next highest month was October, with 0.01 gallon usage. For every other month in 2015, 0.00 gallons were listed. These values were far below the Rule 287(c) exemption criteria, which allows for no more than 200 gallons of coatings per month.

8.) EU-FAM0-SEALER; Rule 287(c):

This emission unit is for application of other sealers (non-RTV) to the FAM0 engine assembly process. This process is no longer in use, or has been removed.

Facility recordkeeping (attached) shows that this process last operated in August, 2015. The Rule 287(c) exemption allows for no more than 200 gallons of coating use, per month. The month in calendar year 2015 with the highest usage rate of coatings was May, when 9.01 gallons were applied, far below the exemption threshold.

9.) EU-FAM0-RUSTPREV; Rule 287(c):

We were provided with a copy of 2015 year to date (YTD) recordkeeping for this emission unit, which no longer operates or has been removed. The record shows that there was no throughput during 2015, and that this product is no longer used at GM Flint Engine Operations.

10.) EU-MARKING-PENS; Rule 287(c):

This emission unit is limited by the exemption threshold to 200 gallons per month or less. 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.

We were provided with a copy of YTD 2015 recordkeeping for EU-MARKING-PENS (attached). The only month where 1.0 gallon or more of coating was used June, when 1.01 gallons were used. The next highest month was September, when 0.66 gallons were used. These values are far below the 200 gallon per month threshold of Rule 287(c).

11.) EU-SGE-CLEANING; Rule 290:

This emission unit is new, and was not in existence at the time the current ROP was issued. It will be added to the ROP, during the next renewal (2017). This emission unit is for miscellaneous cleaning associated with this product line.

Facility recordkeeping (attached) shows that for the month of October 2015, VOC emissions were 3.03 lbs, well below the 1,000 lbs per month of uncontrolled emissions allowed under Rule 290.

12.) EU-FAM0-CLEANING; Rule 290:

This emission unit, now removed, was for miscellaneous cleaning operations associated with the FAM0 product line.

Facility recordkeeping (attached) shows that it last ran in August, 2015, and had 40 lbs of VOC emissions that month, well below the 1,000 lbs per month of uncontrolled emissions allowed by Rule 290.

13.) EU-MACHINING; Rule 285(l)(vi)(c):

This emission unit includes machining and coolant galleries for the SGE engine line, as well as for the HF engine line.

For the SGE engines, 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.

Mist collectors are the larger air filtration units. All of the large machining lines are served by these units. These exhaust to the outside air. Mist collectors are different than mist eliminators, which serve the parts washers (EUPARTSWASHERS). Collected metal chips are recycled. There is an onsite wastewater treatment plant, which separates oils from the wastewater. Collected coolant is recycled and reused.

We observed a number of subassembly operations for SGE machined parts, prior to final assembly for the engines.

The HF engine line also has a series of machining operations with mist collectors, and coolant galleries with mist eliminators. The machining operations include finishing, polishing, and balancing processes, in enclosed cells.

14.) EUPARTSWASHERS; Rule 285(l)(iii):

We observed a number of parts washers, during the inspection. The cleaning solution is water mixed with a surfactant, we were informed. Mist eliminators provide particulate control, and are located within the exhaust stacks themselves. The eliminators are cyclone-like devices, which have paper filters as the final level of filtration.

15.) EU-GENERATORS; Rule 285(g):

They currently have 4 emergency generators. They are all existing, under the RICE MACT. It is my understanding that they do weekly and monthly readiness testing of the generators, and that readiness testing hours are tracked differently than actual emergency hours would be.

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

We did not examine these natural gas-fired space heaters, during the inspection.

17.) EU-INDUCTIONHARD; Rule 282(a)(i):

An induction hardening process for cranks is used in the HF and SGE engines and exhausts to the outside air. It is exempt under Rule 282(a)(i), as it has a maximum rated heat input of not more than 10,000,000 Btu/hr. It is exempt from being included in the ROP. Parts are heated by electric power and are quenched with a chemical product

18. and 19.) HFV6 Boiler and FAM0Boiler; Rule 282(b)(l):

There are two natural gas-fired hot water heaters onsite. They are hot water heaters for restrooms and

showers. As previously discussed in this report, they are not subject to 40 CFR Part 63, Subpart DDDDD, but were initially considered to be subject. They submitted initial notification for these units, in May 2013. However, they each have rated capacities of less than 1.6 million Btu/hr and are therefore not subject to DDDD. There is a difference between the definitions of a boiler and a hot water heater, under the MACT.

During the pre-inspection meeting, it was explained 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. These each have tank capacity of 250 gallons but are below 1.6 million Btu/hr. We were informed that GM will provide AQD with written documentation for our files, clarifying that they are not subject to the MACT. This was subsequently received, and added to the plant file.

These two hot water heaters are considered exempt from needing a PTI by Rule 282(b)(i).

Miscellaneous:

There are small maintenance areas within the plant with occasional metal working tools. These could easily be considered exempt under Rule 285(l)(vi)(A) and/or (B), because they are used on a non-production basis, and exhaust into the general in-plant environment.

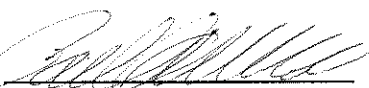
MAERS reporting for 2014 operating year:

A 2015 audit of the facility's MAERS report for the 2014 calendar year found the facility's emissions of Volatile Organic Compounds (VOCs) to be below the limits for emissions set by the ROP and Rule 290. Facility coatings throughput for various emission units in 2014 was below the 200 gallons per month allowed by Rule 287(c).

Conclusion:

No instances of noncompliance were observed. The facility was neat and well maintained. Odors inside the plant were minimal, and in many locations, were not detectable at all. We left the site at 1:10 PM, and drove downwind of the GM complex, but detected no odors from Flint Engine Operations. Weather conditions were overcast and 50 degrees F, with winds 10-20 mph out of the south.

NAME



DATE

7/22/2016

SUPERVISOR



