

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

B160643851

FACILITY: General Motors LLC Flint Assembly		SRN / ID: B1606
LOCATION: G-3100 Van Slyke Rd., FLINT		DISTRICT: Lansing
CITY: FLINT		COUNTY: GENESEE
CONTACT: Karen Carlson , Senior Environmental Engineer		ACTIVITY DATE: 03/21/2018
STAFF: Robert Byrnes	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: 2018 Scheduled Inspection.		
RESOLVED COMPLAINTS:		

On Wednesday March 21, 2018 I conducted an announced inspection at the GM-Flint Assembly facility (SRN B1606). We arrived at the facility at 8:30 am and met with Karen Carlson and Tina Murray of GM. Also present at the inspection were Constantine Blathras and Beth Valenziano from permitting EPA Region V and Brad Myott, Lansing District Supervisor, AQD. The purpose of the inspection was to verify compliance with MI-ROP-B1606-2014a.

EU-PRETREATMENT

The pretreatment system is a series of dip tanks and sprays to clean vehicle bodies which have come from the body shop. The first few tanks/sprays do the cleaning of the body, the middle tanks apply a Zirconium (replaces phosphate pre-treatment) pre-treatment followed by rinse stages. Permit requirements for this emission unit state the materials used shall not contain any VOCs. Copies of 18 material MSDS were previously obtained and reviewed, all of which stated 0% VOC (calculated), 0% VOC EPA Method 24, 0% estimated, or 0% not applicable. Since the most recent inspection 1 additive material has been included which also has no VOC. See attached MSDS for the new pre-treatment additive MSDS. Henkel Corporation is the provider of the pre-treatment materials.

EU-ECOAT

The ELPO system consists of the dip tank, cure oven and scuff booth. Emissions from the ECOAT tank and oven are directed to 2 RTO's. The 2 RTO's were each 2 chamber with poppet valves and were manufactured by the Alliance Corporation. The following is a summary of the RTO and the observed operating temperature:

ID	Controls	Operating Parameters	Compliance?
EO-RTO#1	Oven section 1	1513 F inst. 378 F inlet 428 F exhaust 10,700 cfm 45.6 Hz 14.1" WC	Yes, (recent performance test was 97.2% DE at 1515 degrees F).
EO-RTO#1	Oven section 2	1504 F inst. 368 F inlet 422 F exhaust 11,000 cfm 45.8 Hz 14.3" WC	Yes, (recent performance test was 97.2% DE at 1515 degrees F).

The oxidizers were tested in October 2016. The e-coat system utilizes BASF as the coating supplier. Usages are determined by inventory/purchase records or provided by BASF. Formulation data as provided by the supplier is used to determine the VOC content of the E-coat materials.

EU-SELAERS & ADHESIVES

Sealers and adhesives are applied in both the body shop and the paint shop. The paint shop has switched from using manual application to mainly using robotic application for sealers. For underbody sealer, the facility has already installed 6 very large robots to lift the truck bodies and apply the sealers. However, these robots will likely not be used until the next generation truck. Most of the sealer and adhesive materials used are from the supplier EFTEC. VOC emissions from the sealer cure oven are ducted to an RTO. The Sealer oven RTO is a 2 chamber with poppet valves version (appeared same as e-coat) and was manufactured by the Alliance

Corporation. The following is a summary of the RTO and the observed operating temperature:

ID	Controls	Operating Parameter	Compliance?
Sealer Oven RTO	Sealer Oven	1548 F inst. 315 F inlet 394 F exhaust 48.6 Hz 13.0" WC	Yes, (recent performance test was 96.2% DE at 1555 degrees F).

VOC contents are determined by the Method 24 content listed on the MSDS. GM Flint assembly was recently approved to use the alternative method published in 40 CFR Part 63, Subpart PPPP to determine VOC content on 2-part sealer/adhesive materials.

EU-SOUND DAMP

The Sound Damp system is an acoustical damper product that is applied using robotic spray equipment. Permit requirements for this emission unit state the materials used shall not contain any VOCs. Copies of all the material MSDS were previously reviewed. The MSDS stated the VOC content was 0% theoretical. PPG is the provider of the Sound Damp materials. A Copy of the MSDS is attached to this report.

EU-THREE WET

This emission unit consists of 2 parallel topcoat systems where the primer, basecoat and clear coat is applied as wet on wet on wet. The process is as follows: a water-borne prime system which sprays grey or white primer with a heated flash area; a water-borne basecoat system which sprays the various colors with a heated flash area; followed by a solvent-borne clear coat system and a curing oven. Each of the top coat lines curing ovens are dual pass. Each line has a cure oven, and then each oven has a left and right side to them. As cars come out of the clear coat booths, they go either right or left into the respective lines curing oven. Method 24 is performed by BASF on a batch basis to determine the VOC content.

The 2 parallel line top coat cure ovens are ducted to cure oven RTO No. 1 and cure oven RTO No. 2. Each line has a separate RTO for the oven. The topcoat oven RTO's are a 2 chamber with poppet valves version (appeared same as e-coat) and was manufactured by the Alliance Corporation. The clear Coat Booths, the prime heated flashes, and the base coat heated flashes are ducted to a separate RTO. The clear coat booth RTO is a 2 chamber and was manufactured by DURR. The following operating parameters were observed during the inspection:

ID	Controls	Operating Parameter	Compliance?
Topcoat Oven RTO#1	Topcoat Line 1, Oven #1 & #2	1513 F inst. 278 F inlet 338 F exhaust 10,000 cfm 45.1 Hz 12.1" WC	Yes, (recent performance test was 98.7% DE at 1515 degrees F).
Topcoat Oven RTO#2	Topcoat Line 2, Oven #3 & #4	1520 F inst. 273 F inlet 335 F exhaust 9,683 cfm 46.5 Hz 12.76" WC	Yes, (recent performance test was 96.4% DE at 1515 degrees F).
Clear Coat DURR RTO	Heated Flash and Clear Coat Booth	1576 F inst. 24.8% CV 90 F inlet 18.1" WC 54.9 Hz 45 Hz alarm	Yes, (recent performance test was 96.0% DE at 1575 degrees F).

EU-GLASS INSTALL

The Glass Install process utilizes adhesive materials (Dow Beta Seal) to bond the windshield and rear windows to the vehicle. Method 24 analysis of the materials will be required (likely done by the supplier) unless the facility

requests the use of an alternative method to be approved by the District Supervisor.

EU-FINAL REPAIR

The Final Repair process is a series of dry filter booths used for repair paint application. Primer and Basecoat paint repair materials come from the main paint kitchen which sends the paint to EU-Three Wet. Clearcoat repair materials are unique (they are separately purchased cans of material) as they must repair 2k clearcoat without a high bake oven. BASF is the supplier who has already conducted a Method 24 (Not spray cans/tubes) analysis on each batch of coating received. Spray cans/tubes are determined using formulation data as there is no way of performing Method 24 on a tube or spray can. Records of material usages are kept by the paint shop mix room attendant for primers and basecoats. Clearcoat and other touch up material usages are determined from purchasing records.

A copy of the December 2017 dry filter particulate control inspection is attached to this report. This record shows the latest date in which the monthly record occurred. From the filter records it appears there are 4 stalls and one enclosed booth where repairs are made. The filters were inspected on 12/31/17.

EU-PURGE&CLEAN

The Purge process is for the solvents used for the cleanup of the facility paint systems. A solvent recovery system is in place for the solvent borne clear coat system. The clean process is for the manual body wiping of vehicles as well as booth and spray equipment cleaning. Method 24 is generally not performed on these materials as they are commonly 100 percent VOC and the manufacturer's chemical composition is adequate to determine the VOC content. A copy of the December 2017 VOC record was obtained, reviewed and is attached to the file report. The facility uses manifest records for purge solvent and then applies 100% CE, 96% DE for the remainder as solvent purge materials are only used in the fully controlled clear coat booths.

EU-VEHICLE FLUID FILL

The fluid fill process is where the various fluids such as power steering fluid, antifreeze, transmission fluid, refrigerant, windshield washer fluid and fuel are added. Vehicles are filled with gasoline or diesel fuel depending on the engine type.

Special condition IV.1 requires that the permittee shall not add gasoline (does not include diesel fuel) to a vehicle without an Onboard Re-fueling Vapor Recovery (ORVR) system unless VOC emissions are controlled by a VOC control device.

The facility uses diluted (with water) Methanol as windshield washer fluid. The methanol gets delivered to the dispensing area in large portable totes so it was originally thought to be exempt from the requirements 40 CFR 63, Subpart EEEE. After further new review, 63.2338(c) states:

(c) The equipment listed in paragraphs (c)(1) through (4) of this section and used in the identified operations is excluded from the affected source.

(2) Non-permanent storage tanks, transfer racks, transport vehicles, containers, and equipment leak components when used in special situation distribution loading and unloading operations (such as maintenance or upset liquids management).

This does not seem to fit the intent of not being subject due to portable tanks. In addition, containers are further defined as non-permanent storage tanks or "totes". A discussion regarding this issue occurred with Karen Carlson on 4/4/2018. Also, see Telephone notes in MACES for discussion summary. It was requested that GM look into history of the issue for clarification or information as to why "containers" were not subject to MACT EEEE.

Recent District Supervisor Meeting notes mentioned the possible applicability of 40 CFR Subpart R for Gasoline Distribution Facilities at Auto Assembly Plants. After review of 40 CFR 63.420(a) & 63.420(g), the facility does not meet the definition of Bulk Gasoline Terminal as they do not receive gasoline by pipeline, ship or barge (see 63.421). The facility is also not a Pipeline Breakout Station by definition as they are not connected to a pipeline (see 63.421). The gasoline storage tanks at this facility are subject to NSPS Kb.

EU-EMERGENERATOR

As part of the new paint shop, the facility has also installed a new emergency generator. The engine is a 383 HP natural gas fired engine. The new engine is subject to NSPS JJJJ for reciprocating internal combustion engines. The total engine hours were currently at 75 hours for February 2018 (Previously 17.2 hours on May 2016 inspection), well below 100 hours per 12 month rolling time period as limited in special condition III.1. The engine also read "EPA Certified" on the engine label information so the engine will not have to conduct the stack testing found in special condition V.1. The facility will be required to records of maintenance, total hours of operation and non-emergency hours of operation as found in special conditions III.3, VI.1 and VI.2.

EU-EMERGENERATOR

Review of this emission unit was not conducted during the inspection to see if this was a certified engine. Copies of monthly hour meter readings were obtained for January and February 2018. Total hours for this engine was 18.8 hour in February.

FG-TANKS

This flexible group is the conditions for the various liquid materials that are stored and used for trucks. The tanks contain, gasoline, diesel fuel, spent purge solvent, transmission fluid, and power steering fluid. A copy of the details for each tank was obtained during the inspection and is attached to the hard copy of this report. The attachment shows the ID, capacity, year of installation, type of material, vapor pressure and the applicable requirements as required by Special Condition VI.2.

FG-PAINT & ASSEMBLY

This flexible group covers equipment used for automotive assembly and painting operations. Six regenerative thermal oxidizers are used for the control of VOC emissions from the painting operations. 2 RTO's are on the E-Coat Oven (Section 1 & 2 with tanks emissions ducted to section 1), 1 RTO on the sealer over, 2 RTO's on Topcoat Line 1 & 2's cure ovens, and 1 RTO on the clear coat booths. The quarterly VOC emission records for October, November and December of 2017 is attached to this report. Emissions reported were below their respective limits as follows:

Permit Condition	Pollutant	Limit	Units	October 2017	November 2017	December 2017
I.1	VOC	649.6	Tons/year	331.7	333.6	336.1
I.2	VOC	4.8	Lbs/job	3.1	3.1	3.1
I.3	PM	25.1	Tons/year	6.0	6.3	6.5
I.4	PM10	25.1	Tons/year	6.0	6.3	6.5
I.5	PM2.5	25.1	Tons/year	6.0	6.3	6.5
I.6	NOx	50	Tons/year	29.6	29.9	29.9
II.1	Natural Gas	1000	MMCF/year	591.0	597.4	597.1

This Flexible Group also contains the flexibility provisions of the permit. Since the construction and start-up of the new paint shop, the facility has made the following changes under the flexibility provisions.

Date of Change	Physical Change	Change in Emissions	Pollutants Emitted	New Applicable Requirements?
February 17, 2016	New 5,000 gallon purge reclaim tank	USEPA Tanks program	VOC & TAC	None
June 15, 2017	New 4,407 gallon Virgin Waterborne Purge Solvent Tank (previously used totes)	USEPA Tanks program	VOC & TAC	None

The Auto Protocol (EPA-453/R-08-002) requires an annual review of operating conditions/parameters to

document the most recent testing remains valid for Transfer Efficiency (TE), Capture Efficiency (CE), Destruction Efficiency (DE), and Oven Solvent Loading (OSL). The facility conducted the annual review of the facility control efficiencies on 3/2/2018. The following tables document the results of the annual review.

Transfer Efficiency

Coating Type	Date Completed	Completed By	Test Value
Primer Surfacer	July/August 2016	JLB Industries	70.6%
Basecoat Solid	July/August 2016	JLB Industries	81.9%
Basecoat Metallic	July/August 2016	JLB Industries	76.4%
Clearcoat	July/August 2016	JLB Industries	79.6%

Oven Solvent Loading

Coating Type	Date Completed	Completed By	Zone	Test Values (lbs VOC/Gal Solids Applied)
Primer Surfacer	6/30/2016	BASF	Heated Flash	1.2148
Primer Surfacer	6/30/2016	BASF	Oven	0.1717
Basecoat Solid	6/30/2016	BASF	Heated Flash	1.6895
Basecoat Solid	6/30/2016	BASF	Oven	0.3914
Basecoat Metallic	6/30/2016	BASF	Heated Flash	2.4301
Basecoat Metallic	6/30/2016	BASF	Oven	0.4228

Capture Efficiency

Process	Date Completed	Completed By	Test Value
ECOAT Oven RTO	NA	NA	100%
Sealer Oven	8/19/16	Eftec NA	91.5%
Clearcoat Booth	6/30/16	BASF	79%
Clearcoat Oven	6/30/16	BASF	21%

Destruction Efficiency

Process	Date Completed	Completed By	Test Value
RTO 1 (Ecoat tank and oven)	11/3/2016	BTEC	97.2%
RTO 2 (Ecoat tank and oven)	11/3/2016	BTEC	97.2%
RTO (sealer Oven)	10/27/2016	BTEC	96.2%
RTO (clearcoat booth DURR)	10/25/2016	BTEC	96.0%
RTO 1 (topcoat oven)	10/28/2016 & 11/1/216	BTEC	98.7%
RTO 2 (topcoat oven)	11/1/2016	BTEC	96.4%

FG-CONTROLS

This Flexible Group covers the 6 regenerative thermal oxidizers that are used for VOC emission control. The oxidizers control emissions from the clear coat paint spray booths, the flash off areas, and cure oven portions of EU-ECOat, EU-Sealers and Adhesives & EU-Three Wet. This Flexible Group also covers the particulate control system for both the water wash (wet booth particulate control) and dry filter (dry booth particulate control) portions of the plant.

Verification of the proper oxidizer temperature were verified and documented in the individual emission units above. Records of maintenance on the thermal oxidizers was requested and is attached to this report. Thermocouples were validated on 11/8/2016 and again on 10/22/2017 (within the 18 month requirements in the ROP). Valve seal inspection, timing and heat media inspections were conducted 12/26/2017-12/28/2017. Other items of interest include Topcoat RTO 1 & 2 both had their heat media replaced on 4/17/17. The E-coat oven RTO's 1 & 2 had the top layer of media replaced on 11/24/2017.

A copy of the recent bake outs of the RTO's was obtained. Topcoat oven RTO's were baked out a couple times

in 2016 (no dates listed) as the length of time was refined to 48 hours at 600 degrees Fahrenheit. Ecoat oven RTO's 1 & 2 were baked out 11/10/2017-11/12/2017. The topcoat oven RTO's 1 was baked out again on 11/10/2017 while topcoat oven RTO 2 was baked out again on 12/27/2017. Comments/notes listed no opacity concerns but one instance had a slight odor detected on Van Slyke.

Copies of the water wash venture and water system inspection records were requested for the 3rd week of December 2017. I received a paint repair (final repair) document showing a target date of 12/16/2017 and an actfinish date of 12/31/2017. Records of the waterwash system inspection documented the waterwash was running and effective for the weeks of 12/4, 12/11 and 12/18/2017. FG-Controls special condition VI.3 requires weekly visual inspections for basecoat and clearcoat, monthly inspections for repair. The repair records should document dates and reasons for repairs but it did not appear to have any such record. A copy of the filter records is attached to the hard copy of this report.

FG-MACT

GM has provided their semiannual compliance certifications as required. All information was timely and complete. Summary records of the HAP emission calculations were requested for January 2017 through December 2017 for review as part of the site inspection. A review of the records showed the facility is in compliance with all applicable emission limits. Copies of the January 2017 through December 2017 HAP records are attached to this report.

Pollutant	MACT Limit	Actual Emissions December 2017
HAP – PS, Topcoat, Glass Install, Final Repair	0.5 lbs HAP/GSA	0.2 lbs HAP/GSA
HAP – Sealers and Adhesives	0.01 Lbs HAP/Lb material	0.00 Lbs HAP/Lb material
HAP – Deadener	0.01 Lbs HAP/Lb material	0.000 Lbs HAP/Lb material

GM uses the compliance method specified in 63.3091(b) which is the combined emissions from primer surfacer, topcoat, final repair, glass bonding primer and glass bonding adhesives. Electrodeposition is excluded from the grouping per 63.3092(a) since it contains no more than 1.0 percent by weight of any organic HAP and no more than 0.1 percent by weight organic HAP which is a carcinogen.

FG-BOILERS

This Flexible Group covers EU-Boilers 1 through 5 which provide hot water to the new paint shop. The 5 boilers are all identical Cleaver Brooks natural gas fired with a capacity of 8 MMBTU/hr each and are subject to 40 CFR Subpart DDDDD. These units must have their first biennial tune-up conducted no later than 25 months after initial start-up (September 14, 2015) as mentioned in their MACT notification received on September 15, 2015. After that they must test every 2 years or every 5 years if they have oxygen trim systems. These units supply hot water primarily to the new paint line processes.

FG-NATGASEQUIP

This Flexible Group covers all natural gas-fired equipment in the existing assembly plant (excludes the new paint shop). Emission units include: EU-NORTHHEATER, EUSOUTHHEATER, EU-NATGASEQUIP and EU-GAGENERATOR. Records of the NOx and natural gas usages for 2017 were obtained during the inspection. The following limits apply to FG-NATGASEQUIP:

Limit/permit condition	December 2017
NOx, 35.8 ton per year, SCI.1	19.1 tpy (below limit of 35.8 tpy)
709 MMcf natural gas per year (excluding EU-GAGENERATOR)	381.54 MMcf for 2017

FG63-5D-WTRHEATERS

This flexible group covers EU-NORTHHEATER and EU-SOUTHHEATER (5 MMBTU/hr each). These units are subject to 40 CFR Subpart DDDDD and must have their first biennial tune-up conducted no later than 25 months

after initial start-up (September 14, 2015) as mentioned in their MACT notification received on September 15, 2015. After this initial test these units must test every 25 months or every 5 years if they have oxygen trim systems. These units supply hot water/heat primarily to the north and south basements.

FG-COLDCLEANERS

This flexible group covers any cold cleaner that is exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(vi). A list of the cold cleaner/parts washers was obtained. GM pointed out some of the parts washers did not meet the definition of cold cleaner (<5% VOC cleaning material) but are still included in the list for informational purposes. The cold cleaner list those units meeting the definition of cold cleaner as being exempt under Rule 281(h) or Rule 285(r)(iv). However, for those installation dates (2016?) which coincided with the construction of the new paint shop permit, those would have been excluded from being exempt under Rule 278. Those not being a cold cleaner and subject to Rule 281(h) are exempt under Rule 285(r)(iv).

FG-EMERGENCY ENGINES

This flexible group covers the emergency back up generators for the facility. These engines are subject to the requirements of MACT ZZZZ. The emission units and information provided under this Flexible Group are:

Emission Unit	2016 Beginning Hours	2017 Ending Hours	Hours Operated in 2017
EU-FIREPUMPENGINE#1	225.9	246.9	21.0
EU-FIREPUMPENGINE#2	190.0	210.1	20.1
EU-NATGASGENERATOR#1	309	348.5	39.5
EU-NATGASGENERATOR#2	106.4	119.3	12.9
EU-NATGASGENERATOR#3	552.8	618.3	65.5
EU-NATGASGENERATOR#4	375.9	417.3	41.4
EU-NATGASGENERATOR#5	429.4	475.0	45.6
EU-NATGASGENERATOR#6	355.1	381.4	26.3

Copies of the latest maintenance records were also obtained for each engine. The documents for each engine were highlighted with the appropriate unit number, current hours, a check of the oil level, inspection of the air cleaner, a check of the ignition system (gas engines only) and a changing of the oil and amount of oil used. See maintenance reported which are attached to the hard copy of this report.

CONCLUSION:

At this point the only item in question is the MACT EEEE portable container issue. Further investigation will be conducted when time permits. Also, the facility may wish to discuss with the permit section on combining all natural gas limitations within the permit under the flexible permit provisions so that future additions of ASH and dock heaters could be made without subtracting their emissions from the FGNATGASEQUIP limits within the ROP. There were no other outstanding issues at the GM Flint assembly plant and based upon my review at this time, the GM Flint Assembly Plant was in compliance with all their ROP obligations in MI-ROP-B1606-2014a which was issued on October 14, 2014 and revised on December 20, 2017.

NAME Robert Byrnes DATE 4/12/18 SUPERVISOR B.M.I