

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

B160634585

<b>FACILITY:</b> General Motors LLC Flint Assembly		<b>SRN / ID:</b> B1606
<b>LOCATION:</b> G-3100 Van Slyke Rd., FLINT		<b>DISTRICT:</b> Lansing
<b>CITY:</b> FLINT		<b>COUNTY:</b> GENESEE
<b>CONTACT:</b> Ms. Alexandra Thibeault ,		<b>ACTIVITY DATE:</b> 05/11/2016
<b>STAFF:</b> Robert Byrnes	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> FY 2016 Scheduled Inspection.		
<b>RESOLVED COMPLAINTS:</b>		

On Wednesday May 11, 2016 Sue Thelen and I conducted an announced inspection at the GM-Flint Assembly facility (SRN B1606). We arrived at the facility at 8:00 am and met with Alex Thibeault, Apurva Pujara and David Randall of GM.

The GM Flint facility recently obtained new PTI's for a new paint shop and utility equipment (hot water). PTI 173-13B is for the new paint shop (includes netting and transition emission limits) and was issued on June 23, 2015. PTI 36-15A is for the new hot water heaters and space heating for both the new and existing buildings. This inspection was done primarily on the new paint shop and process equipment that will continue production into the future. A brief inspection was also conducted on the equipment covered by PTI 36-15A. The existing paint shop covered by MI-ROP-B1606-2014 was not inspected at this time. The existing paint shop is scheduled to end production by March 24, 2017 (see PTI 173-13B, FG-Transition SC III.1). The facility is currently operating under PTI's 173-13B, PTI 36-15A and MI-ROP-B1606-2014 as they have up to 1 year to submit an ROP modification to have them rolled into MI-ROP-B1606-2014. The ROP mod is due by March 24, 2017. During the inspection review the following dates of start-up were noted:

September 14, 2015 – Start-up date for Boiler #1-#5 (PTI 36-15A)  
 March 24, 2016 – Saleable production begins (PTI 173-13B, FG-Transition SC III.1)  
 March 24, 2016 – MACT IIII notification of startup (63.9(b)(4)(v) and 63.3110)

## PTI 173-13b

### **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 all the material MSDS were obtained and reviewed. There were 18 different materials all of which stated 0% VOC (calculated), 0% VOC EPA Method 24, 0% estimated, or 0% not applicable. Henkel Corporation is the provider of the pre-treatment materials. Copies of the MSDS are attached to this report.

### **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. Between the tank and oven there is an enclosure tunnel which ducts the tank VOC to the oven. Observation of the enclosure raised a question if there were any openings (there appeared to be at least one). I asked Apurva and Alex to verify the enclosure, possibly provide a drawing, and to walk to the system to verify the enclosure. It was discussed that this would be explained before or during a stack test preliminary review. 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 Parameter	Compliance?
EO-RTO#1	Oven section 1	1565 degrees Fahrenheit	Yes, (permit limit is 1400 degrees F).
EO-RTO#1	Oven section 2	1568 degrees Fahrenheit	Yes, (permit limit is 1400 degrees F).

The oxidizer has not had its Destruction Efficiency (DE) tested yet as the facility is still just ramping up from the beginning of saleable vehicle production in the new paint shop.

The e-coat system utilizes BASF as the coating supplier. Usages are likely to be determined by inventory/purchase records or provided by BASF. Method 24 will likely be performed by the supplier to determine the VOC content. Emissions records were not collected during this inspection because emissions from the new plant in total were reported as 3.5 tons for March 2016 (facility limit is 649.6 tpy). The main purpose of the inspection was to understand the new paint shop processes for future performance test plan reviews, document the new processes, and document the control devices, what they control and their operating parameters.

## EU-SELAERS & ADHESIVES

Sealers and adhesives are applied in both the body shop and the paint shop. The paint shop is currently using 2 manual application areas for sealers. During the July 2016 shutdown the facility plans to change or add robots and go away from the manual sealer application as production increases. 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 all 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	1587 degrees Fahrenheit	Yes, (permit limit is 1400 degrees F).

The oxidizer has not had its Destruction Efficiency (DE) tested yet as the facility is still just ramping up from the beginning of saleable vehicle production in the new paint shop.

## 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 obtained and 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. So 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 will be performed by BASF, the coating supplier 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	1552 degrees Fahrenheit	Yes, (permit limit is 1400 degrees F).
Topcoat Oven RTO#2	Topcoat Line 2, Oven #3 & #4	1554 degrees Fahrenheit	Yes, (permit limit is 1400 degrees F).
Clear Coat RTO	Heated Flash and Clear Coat	1572 degrees Fahrenheit	Yes, (permit limit is 1400

	Booth	degrees F).
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The following additional operating parameters were also available on the DURR RTO:

Inlet -1.1" wc

Inlet 90.5 degrees Fahrenheit

CV 31.1%

18.5" wc bed static

Testing of the EU-THREEWET is expected to occur in June at BASF for OSL and Capture Efficiency. Transfer Efficiency is expected to be conducted in July by JLB at the plant. Destruction Efficiency testing for the oxidizers has not been scheduled at this time.

## **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. Paint repair materials come from the main paint kitchen which sends the paint to EU-Three Wet. 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 can. A copy of the dry filter particulate control visual inspections is attached to this report. These records show the dates of the visual inspections, frequency, description, and filter type. From the filter records it appears there are 4 stalls and one enclosed booth where repairs are made.

## **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.

## **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 any fuel to a vehicle without an Onboard Refueling Vapor Recovery (ORVR) system unless VOC emissions are controlled by a VOC control devices. However, it is my understanding that diesel vehicles don't have ORVR systems. So this PTI will need to be revised to fix this issue.

Also, special condition VIII.1 requires that all exhaust gases shall not be exhausted to the ambient air at any time. I recall the fluid fill area for gasoline having vents or duct work that went outside. This issue should also be addressed in a revised PTI.

## **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 17.2 hours, 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.

## **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, purge solvent, spend 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, location within the plant, capacity, installation date, type of material, true 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 oven, 2 RTO's on Topcoat Line 1 & 2's cure ovens, and 1 RTO on the clear coat booths. A copy of the VOC emission records for January through March of 2016 and is attached to this report. Because the facility has just started saleable vehicle production, emissions are well below their respective limits as follows:

Permit Condition	Pollutant	Limit	Units	January 2016	February 2016	March 2016
I.1	VOC	649.6	Tons/year	1.9	2.5	3.5
I.2	VOC	4.8 <sup>a</sup>	Lbs/job	NA	NA	NA
I.3	PM	25.1	Tons/year	0.5	0.5	0.6
I.4	PM10	25.1	Tons/year	0.5	0.5	0.6
I.5	PM2.5	25.1	Tons/year	0.5	0.5	0.5
I.6	NOx	50	Tons/year	6.1	6.9	7.7
II.1	Natural Gas	1000	MMCF/year	121.1	139.0	154.3

<sup>a</sup> Compliance with this requirement will be determined at the end of the 12-month rolling time period.

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 one change under the flexibility provisions. On February 19, 2016 the facility claimed a change under flexibility provisions special condition IX.4 for the addition of a new 5,000 gallon purge reclaim tank.

## 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. No record of maintenance on the thermal oxidizers was requested at this time because they are new and likely have not required substantial maintenance. Copies of the water wash venture and water system inspection records were obtain from December 17, 2015 through May 2, 2016. All records indicate the systems were installed, maintained and operated in a satisfactory manner. A copy of the water wash inspection record is attached to this report.

OSL testing will be conducted from June 28<sup>th</sup> through July 1<sup>st</sup> 2016 at the BASF lab in Southfield. TE testing will be conducted from July 18<sup>th</sup> through July 22<sup>nd</sup> 2016 by JBL Industries. The spray equipment is anticipated to be calibrated during the first week of July shutdown prior to the testing.

## FG-MACT

This flexible group is the conditions for the Auto MACT Subpart IIII. During the inspection the question was asked of GM as to when the initial compliance demonstration was required. Based upon the reading 40 CFR 63.3170 and 63.3160a(1) through a(4) it appeared the initial compliance period started on 3/24/2016 (saleable vehicle production) and ended on the first full month ending on 4/30/2016. On May 13, 2016 Apurva Pujara from GM responded via e-mail (included as an attachment to this report) citing 40 CFR 63.3110(c). This part says that

via 63.9(h), the initial compliance demonstration will be completed no later than 60 days after the first day of the first full month following completion of performance testing. GM anticipates TE testing will be completed in July 2016 and based upon complying without add-on controls the initial demonstration will be due 60 days after completing TE testing. TE testing will likely be completed in July 2016 so the demonstration is likely to be completed no later than September 29, 2016.

## FG-TRANSITION

This Flexible Group covers the transition period covering the contemporaneous period for 12 months after saleable vehicle production began (March 24, 2016) at the new paint shop. These limits apply for the 12 month period after March 24, 2016 and end on March 24, 2017 at which time the old paint shop must be shut down. The tons per year emission limits in FG-Transition are for one 12 month cumulative time period only. Because at the time of inspection less than 2 months of data would have been collected, no request for data or review was conducted during this site review.

## FG-NETTING

This Flexible Group on has one requirement in that within 7 days of ceasing operation of the existing paint shop, the permittee shall notify the AQD District Supervisor.

## FG-BOILERS

This Flexible Group covers EU-Boilers 1 through 5 which are subject to 40 CFR Subpart DDDDD. The 5 boilers are all identical Cleaver Brooks natural gas fired with a capacity of 8 MMBTU/hr each. 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. These units supply hot water primarily to the new paint line processes.

## PTI 36-15A

PTI 36-15A was originally issued to GM for their steam elimination project, which was originally permitted in PTI No. 36-15. As part of the project, they plan to shut down the existing Power House. Currently, the Power House provides steam to the assembly plant for the existing paint line and other heating units throughout the plant. To address the heating needs of the assembly plant, some of the existing heating units that are utilizing steam will be converted to burn natural gas and additional new natural gas-fired units will be installed.

Flexible Group FG-NATGASEQUIP is for all natural gas-fired equipment in the existing assembly plant (excluding new paint shop). This FG is for a future limit, which will be utilized when the existing paint shop and existing boilers get shut down. At that point in time these limits will simply apply to the space heaters and air supply houses for building/space heating and air tempering. These limits exclude the new paint shop.

FG-RENTALBOILERS was for providing steam to the assembly plants existing paint line. However, these boilers were never installed as the facility continues to operate existing boilers #6 & #8. Existing Boilers #3 & #5 have been permanently shut down and will likely be requested to be removed from the ROP at some point in the future.

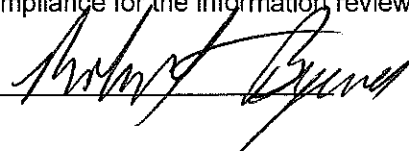
FG-2015ASMBLYPLNT is for natural gas fired equipment within the existing assembly plant (excluding the new paint shop), including the existing paint line. 2 rental boilers were included but have not been installed.

FG63-5D-WTRHEATERS is for a 3.5 mmbtu/hr north heater and a 4.0 mmbtu/hr south heater which have 40 CFR Part 63, Subpart DDDDD applicability.

## CONCLUSION:

Emissions records were not collected during this inspection because emissions from the new plant in total were well below their allowed permit limits. The main purpose of the inspection was to understand the new paint shop processes for future performance test plan reviews, document the new processes, and document the control devices, what the control and their operating parameters. After review of all the information obtained the facility is in compliance for the information reviewed and for the time periods covered.

NAME



DATE

6/16/16

SUPERVISOR

