

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

A164159350

<b>FACILITY:</b> General Motors Lansing Grand River Assembly		<b>SRN / ID:</b> A1641
<b>LOCATION:</b> 920 TOWNSEND ST., LANSING		<b>DISTRICT:</b> Lansing
<b>CITY:</b> LANSING		<b>COUNTY:</b> INGHAM
<b>CONTACT:</b> Melissa Phipps , Environmental Engineer		<b>ACTIVITY DATE:</b> 09/30/2021
<b>STAFF:</b> Robert Byrnes	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Scheduled Inspection		
<b>RESOLVED COMPLAINTS:</b>		

On November 9, 2020 with a request for information/records which was emailed to Melissa Phipps and Karen Carlson at GM. The records were reviewed and the majority of this report was then written. On September 30, 2021 I conducted an announced site inspection at the GM-LGR facility (SRN A1641). The delay in the inspection date was due to the ongoing shortage of computer chips which has made production of vehicles difficult. I arrived at the facility at 8:00 am and met with Jeff Hummel, Melissa Phipps and Brent Cousino of GM. We began with a meeting deciding out the inspection plan, discussed facility changes, and talked about having an ROP Renewal meeting in December 2021.

During the Inspection, I visited the Stamping Plant which is currently running a single shift to stamp parts for other GM facilities. RTO#1 South and RTO#2 North were both visited to read through the maintenance logs (Neither RTO was up and running due to no production). The one date noted with an abatement equipment issue was also recently reported as a deviation in the September 15 reporting date. The final stop of the brief walkthrough was in the paint shop where they were not painting vehicles due to lack of computer chips. After visiting those buildings at the facility we concluded with a brief discussion outside and I left at approximately 9:45 am. The facility, when operating, will produce the Camaro, Cadillac CT4 and CT5 models.

### Protocol Review /Testing

A review of the 2018, 2019 and 2020 auto protocol review documents for Transfer Efficiency (TE), Destruction Efficiency (DE), Removal Efficiency (RE) and Capture Efficiency (CE) showed the following test results:

<b>OSL</b>	<b>Test Date</b>	<b>Completed By</b>	<b>Test Values (Lbs VOC/GAC)</b>
Basecoat Solid-Oven	4/1/16 thru 4/8/16	BASF	0.04
basecoat Metallic-Oven	4/1/16 thru 4/8/16	BASF	0.55
Basecoat Solid-Heated Flash	4/1/16 thru 4/8/16	BASF	3.48

Basecoat Metallic-Heated Flash	4/1/16 thru 4/8/16	BASF	3.75
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<b>Capture Efficiency</b>	<b>Test Date</b>	<b>Completed By</b>	<b>Test Values ((%)</b>
Guidecoat Booth	12/7/15 thru 12/10/15	BTEC	21.2
Guidecoat Oven	12/7/15 thru 12/10/15	BTEC	17.6
Clearcoat Booth	12/7/15 thru 12/10/15	BTEC	57.8
Clearcoat Oven	12/7/15 thru 12/10/15	BTEC	12.7

<b>Destruction Efficiency</b>	<b>Test Date</b>	<b>Completed By</b>	<b>Test Values ((%)</b>
Topcoat Booth DE	12/7/15 thru 12/10/15	BTEC	97.9
Topcoat Oven DE	12/7/15 thru 12/10/15	BTEC	94.02

<b>Transfer Efficiency</b>	<b>Date</b>	<b>Completed By</b>	<b>Test Values ((%)</b>
Guidecoat	5/31/16 thru 6/3/16	JLB	76
Basecoat Metallic	5/31/16 thru 6/3/16	JLB	61
Basecoat Solid	5/31/16 thru 6/3/16	JLB	62
Clearcoat	5/31/16 thru 6/3/16	JLB	61

**A copy of the annual auto protocol reviews are included as an attachment to this report. Due to the length of time since the last testing event(s), The requirement to repeat RE/DE testing will be discussed during the walk-through portion of this inspection.**

**Rotary Thermal Oxidizer No. 1 (South)**

The Rotary thermal oxidizer No. 1 controls VOC emissions from the ELPO tank enclosure, the ELPO oven, the prime oven and the 2 topcoat cure ovens. The RTO was previously tested in December 2015 and showed a DE of 94.2%. Actual operating parameters recorded during the inspection were as follows:

**Inlet temperature: (previously 305, 310, 313) degrees Fahrenheit**

**Outlet temperature: (previously 380, 369, 390) degrees Fahrenheit**

**Combustion Chamber Temperature: (previously 1609, 1641, 1591) degrees Fahrenheit (calibrated 03/20/2020)**

The operating temperature was well above the permit limit of 1400 degrees F. Temperature records were reviewed for the week of August 3<sup>rd</sup> 2020 through August 8, 2020. All data points appeared above 1500 degrees Fahrenheit during regular production hours. First shift paint production starts at 6:00am and second shift ends around 4:00 am the following day. The paint shop was not operated during the ramping up and cooling down periods shown in the chart. Records of maintenance for the thermal oxidizer noted the Differential RTO pressure at 18.5" (previously 18.8" & 13.8").

During a review of the maintenance logs in the RTO control room it was noted that no RTO bake outs had occurred in 2021. All other records appeared to be normal maintenance except for 1 malfunction which was reported as a deviation on September 15, 2021.

**Rotary Thermal Oxidizer #2 & Concentrators (North)**

The Rotary Thermal Oxidizer No. 2 controls the Guide coat bells, the Base coat flash, and the clear coat auto zones. Because of no production due to computer chip shortages no operating data could be collected. All of the following information is from the FY 2019 Inspection report.

**Inlet temperature: (previously 177, 168, 180) degrees Fahrenheit**

**Outlet temperature: (previously 390, 353, 375) degrees Fahrenheit**

**Combustion Chamber Temperature: (previously 1710, 1526, 1508) degrees Fahrenheit (calibrated 03/20/2020)**

The operating temperature was well above the permit limit of 1400 degrees F. However I believe the latest RTO DE testing required a temperature of 1500 degrees Fahrenheit. Temperature records were reviewed for the week of August 3<sup>rd</sup> 2020 through August 8, 2020. All data points appeared above 1500 degrees Fahrenheit during regular production hours. The values typically ranged from 1530-1550 degrees Fahrenheit for the oxidizer and 258-262 degrees Fahrenheit for the concentrator desorb inlet. First shift paint production starts at 6:00am and second shift ends around 4:00 am the following day. The paint shop was not operated during the ramping up and cooling down periods shown in the chart. Review of the

records of maintenance for the thermal oxidizer appeared normal as everything was mentioned in normal maintenance of the unit. Records of the maintenance for the thermal oxidizer noted the differential pressure for RTO #2 was at 16.1" (previously 13.6" & 13.0"). See attachments to this report to view the records mentioned above.

RTO #2 is preceded by 2 rotary concentrators. Both concentrators are used at the same time. A single line from the booths, splits into the 2 concentrators. The desorb temperature for the concentrator was at 000 degrees F (previously 276, 264 degrees F). which is above the permit limit of 250 degrees F. Review of the maintenance records showed the pressure drop across the desorb portion of the block was at 0.3-1.7". See Content Manager view any records mentioned above.

## Paint Shop

The phosphate process for vehicle bodies is done through a series of ten tanks. 1 & 2 are cleaner stages utilize soap, tanks 3 a & b use city water for rinse, tank 4 is a conditioner tank, tank 5 adds the nickel/zinc phosphating, tank 6 is for rinse, tank 7 is sealer and 8 a & b is for rinse. The ELPO process is a fully enclosed dip tank (112,000 gallons, 112 ft long, 79 degree's Fahrenheit) with enclosure tunnel until going up into the e-coat oven. Sealers are applied between the e-coat oven and guide coat booths. The cars are wet sanded and solvent wiped prior to entering the guide coat booths.

## EU-GUIDECOAT

The guide coat emission unit which uses grey and white solvent borne primers, consists of a Bell section (6 side and overheads) a manual section not currently being used and a cure oven.

## EU-TOPCOAT

The topcoat process consists of 2 identical parallel topcoat lines using water borne basecoats and solvent borne clearcoats. The lines each consist of a feather duster, a BC robot section (4 painters, 1 opener), a BC bell section (6 side and overheads), a BC robot section (6 painters), a manual section, a heated flash for basecoat. The clearcoat portion of the line consists of a CC robot bell section (6 side and 3 overheads) then (4 side and 3 overhead bells), an observation zone with back up manual sprayers not currently being utilized and finally a cure oven. The whole guidecoat and topcoat spray booth sections utilized all automated sprayers unless a manual is needed for quality or issues with existing robots.

The topcoat system uses a hydro purge with additive for the BC sections. No purge is collected due to the high water content and it goes straight to the booth water. No VOC credit is taken for hydro purge as the do not send it off as waste. The clear coat booths have purge cups for the robots and the bell purge is collected internally from the bell system. Only the bell cups are released into the booth water. Cleaning for both the base coat and clear coat booths is done with a high pressure water sprayer. Cleanup is minimized by utilizing masking and petroleum jelly like protective coatings which are washed into the booth water when finished/cleaning.

**OLD MACT**

**GM was historically subject to MACT EEEE because of their Methanol storage tank which is used for windshield wiper fluid. As of 8/30/2019 the GM LGR facility stopped using Methanol as the windshield washer fluid and switched to Ethanol based windshield washer fluid. The facility will no longer be subject to MACT EEEE when the conditions for FG-OLD are either removed by ROP modification or ROP Renewal.**

**However, the requirements for MACT EEEE remain in the ROP and will likely be removed at renewal time in 2022. They are not subject to any emission limitations, operating limits or work practice standards. No further notifications are required unless they make one of the following changes to the affected facility:**

- a. Any storage tank became subject to control under this subpart EEEE.
- b. Any storage tank greater than 5,000 gallons became part of the affected source, but is not subject to any emission limitations, operating limits or work practice standards of this subpart.

**AUTO MACT**

GM has provided their semiannual compliance certifications as required. All information was timely and complete. Records of the HAP emission calculations were requested for the month of September 2019 through August 2020 for review as part of this inspection. A review of the records showed the facility is in compliance with all applicable emission limits. Copies of the September 2019 through August 2020 HAP records are included with this report.

<b>Pollutant</b>	<b>MACT Limit</b>	<b>Actual Emissions August 2020</b>
<b>HAP – PS, Topcoat, Glass Install, Final Repair</b>	<b>0.5 lbs HAP/GSA</b>	<b>0.04 lbs HAP/GSA</b>
<b>HAP – Sealers and Adhesives</b>	<b>0.01 Lbs HAP/Lb material</b>	<b>0.00 Lbs HAP/Lb material</b>
<b>HAP – Deadener</b>	<b>0.01 Lbs HAP/Lb material</b>	<b>0.00 Lbs HAP/Lb material</b>

**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. Final Repair emissions were reviewed and the facility uses the assumed transfer efficiency (TE) of 40% as allowed by 40 CFR 63.3161(h).**

**VOC/HAP Calculations**

Review of the VOC calculations was performed for the month of August 2020. All processes associated with painting and assembling of automobiles were included in the tpy and lb VOC/job calculations. A review of the records showed the facility is in compliance with all applicable emission limits. Copies of the records for August 2020 are included as an attachment to this report. See table below.

### FG-Facility

Special Condition/Pollutant	Limit	Time Period	Actual Emissions August 2020	Compliance
SC I.1 VOC	606 tpy	12 month rolling	108	Yes
SC I.3 VOC	5.73 lb/job	12 month rolling	5.03	Yes
SC I.4 NOx	36.5 tpy	12 month rolling	17.14	Yes
SC II.1 NG usage limit	769 MMCF/yr	12 month rolling	*350	Yes
*Emissions include ASH and Heating				

Under the Flexibility provisions of FG-Facility SC IX.3 the GM LGR facility has a note to file dated 11/20/2020 for the addition of 2 new heater boxes for the basecoat heated flash. The current heated flash area is 60 foot long and this will not change. The 2 existing heater boxes are 3.0 Mbtu and the 2 new heater boxes are 2.5 Mbtu. This process should be fully validated in time for the start of production on January 4, 2021.

### FG-Cold Cleaners

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

A copy of all cold cleaners operated at the facility was obtained. The Body, Paint and General Assembly areas have a total of 21 parts washers. The complete list showed a unique identifier, the air/vapor interface area, the Reid vapor pressure of each solvent used, etc. A review of the attached sheet of cold cleaners shows each unit complies with the requirements of Rule 707(2). Some Units (2, 3, 5, 6 & 7) stated remote reservoir (not sure what this meant) but a check of each ones ratio of height to the width of the cleaner were all greater than 0.7. See attachment for more details.

## **Odors**

For the GM-LGR facility, there have been no complaints since 8/28/17 complaints.

## **Body Shop**

A walk through of the body shop was not conducted during this site visit. Previously we viewed the various door panels, hoods, body parts, etc. being welding and assembled throughout the plant. The body shop contained various welding and laser brazing operations which are exempt under Rule 285(i). The welding operations were controlled by Torit cartridge filters and exhaust into the plant environment. 2 laser welders are operated in complete enclosures and are vented internally as well. Various sealers are used in various places to seal body panels which are being put together prior to going to the paint shop. The sealer emissions are included with the other sealer usages accounted for in the paint and final assembly areas.

## **Stamping Plant & Logistics Optimization Center (LOC)**

GM also has a stamping plant building and the LOC building. Stamping of body panels is done at this facility for the Camaro and Cadillac models. Various welding and body/door panel lines weld, seal and complete body part assemblies. Sealer materials are included with EU-Sealers & Adhesives emission calculations. The LOC stores and distributes Camaro and Cadillac modules/car parts for the final assembly portion of the plant. Both the Stamping Plant and LOC were previously added several inspections ago under the flexibility provisions of MI-ROP-A1641-2012b. The LOC also previously added taller parts racking for additional storage of parts.

## **MACT DDDDD – Boiler MACT**

The facility mainly gets all its hot water by using steam provided from the Lansing Board of Power and Light (LBPL). However, they do have one on demand hot water heater as previously described (See the Jim Ecklund email response to additional questions dated August 11, 2017). Jim's email stated the unit is subject to the "hot water heater" definition and does not have a capacity, or it is less than 120 gallons and exempt from requirements as it is an on demand heater with no tank.

## **MACT ZZZZ – Emergency Engines**

There are currently 7 emergency generators at the facility. Copies of the maintenance records were obtained for the fire pump engines (2) and the hours of operation were obtained for the 7

engines from January 2020 through August 2020. The 12 month rolling hours of operation were below 50 hours for each individual engine. Maintenance records were provided for each engine either from Cummings or Peerless Midwest Inc. Each engine record shows the hour meter start, hour meter end, total hours, hours for maintenance and testing, hours for non-emergency, emergency hours, total non-emergency hours for the year and 12-month rolling hour total. Copies of the records are attached to the hard copy of this report.

**Conclusion:**

The site inspection concluded in the morning with a discussion outside the paint shop.

There were no outstanding issues at the GM Lansing Grand River assembly plant and based upon my review at this time the Lansing Grand River Assembly Plant is currently in compliance with their ROP obligations.

NAME Robert ByrnesDATE 09/30/2021SUPERVISOR B.M.