



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
General Motors Corporation Flint Assembly, Flint Metal Center, and Flint Engine Operations, Flint, Michigan

FROM: Charles Hall, Environmental Engineer
AECAB (MN-OH)

THRU: Brian Dickens, Section Chief
AECAB (MN-OH)

TO: File, General Motors Corporation Flint Assembly, Flint Metal Center, and Flint Engine Operations, Flint, Michigan

BASIC INFORMATION

Facility Names: General Motors Corporation Flint Assembly, Flint Metal Center, and Flint Engine Operations, Flint, Michigan

Facility Locations: GM Flint Assembly, G-3100 Van Slyke Road, Flint, Michigan
GM Flint Metal Center, G-2238 Bristol Road, Flint, Michigan
GM Flint Engine Operations, G-2100 Bristol, Flint, Michigan

Date of Inspection: 12 April 2022

EPA Inspectors:

1. Charlie Hall
2. Valeria Apolinario

Other Attendees:

1. Scott Applegate, Environmental Engineer, General Motors – Flint Assembly
2. Bob Byrnes, Michigan Department of Environment, Great Lakes, and Energy
3. Darren Dimma, Environmental Engineer, General Motors
4. Kimberly Gerlock, Environmental Engineer, General Motors
5. Julie Lenz, Environmental Engineer, General Motors
6. Madeline Mahnick, Environmental Engineer, General Motors
7. Eric Mwacalimba, Environmental Engineer, General Motors - Flint Engine Operations
8. Hannah Watts, Environmental Engineer, General Motors – Flint Metal Center

Contact Email Address: darren.dimma@gm.com

Purpose of Inspection: inspection of pickup truck assembly plant

Facility Type: pickup truck assembly plant

Regulations Central to Inspection: Michigan VOC State Implementation Plan Rules including R 336.1225, R 336.1702(a), R 336.1910, and R 336.1213(3). MI-ROP-B1606-2020.

Arrival Time: 08:25 EDT

Departure Time: 17:40 EDT

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided because General Motors is not a Small Business
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Applegate, Dimma, Gerlock, or Lenz, unless otherwise noted.

Company Ownership: The ownership of the facility has not changed in the last 5 years.

Process Description:

The facility assembles 3/4- and 1-ton pickup trucks from parts that are brought to the facility. Pickup truck body parts are stamped into their shapes on-site. In the body shop, pickup truck body parts are assembled and welded together. GM applies a corrosion protection sealant to some seams between body parts before welding. The truck bodies are conveyed to the paint shop where they are pre-treated in six consecutive dip tanks to clean the metal surfaces. After a six-step cleaning process, GM applies five layers of coatings (an electrocoated corrosion protector, a primer, two paint coats, and a clear coat) to the truck body. The emissions of volatile organic compounds from the electrocoat, primer, paint, and clear coat steps are controlled by six regenerative thermal oxidizers (RTO). The electrocoat is applied in a dip tank. The other layers are applied by robotic spray guns. Paint over spray is collected in a water bath below the spray line conveyors.

Other emission units at the facility include the following: below ground storage tanks for gasoline, diesel fuel, power steering fluid, and antifreeze; cleaning equipment for the paint spray

guns; windshield adhesive and sealant application; a room temperature vulcanizing process; several natural gas-fired emergency generators; fire pumps; cold cleaners with non-chlorinated solvents; five 8-million British thermal unit per hour (mmBTU/hr) boilers; two 5-mmBTU/hr water heaters; and two 2.2-mmBTU/hr boilers.

Staff Interview:

Each RTO is subject to a minimum temperature limit that was established during a performance test. GM performed the most recent performance test on each RTO in May 2021. GM established a temperature set point for each RTO that is 5, 15, or 20-degrees Fahrenheit (°F) above the temperature at which the RTO demonstrated compliance with the destruction efficiency standard. The RTOs with the temperature set point 15°F or 20°F have more variation in their VOC concentrations.

TOUR INFORMATION

EPA Tour of the Facility: Yes.

Data Collected and Observations: The inspectors collected the following temperature data for the six RTOs associated with Flint Assembly.

RTO Emission Unit	Date and Time of Observation	RTO Set Point, 3-hour average	RTO Temperature, instantaneous	Minimum Temperature Limit, 3-hour average
ELPO OVEN RTO 1 EU-ECOAT	4/12/22 @ 11:58am	1520°F	1523.8°F	1515°F
ELPO OVEN RTO 2 EU-ECOAT	4/12/22 @ 11:58am	1520°F	1509.7°F	1515°F
SEALER OVEN RTO EU-SEALERS & ADHESIVES	4/12/22 @ 12:06pm	1555°F	1559.3°F	1540°F
TOPCOAT OVEN RTO 1 EU THREE WET	4/12/22 @ 1:02pm	1515°F	1514.4°F	1510°F
TOPCOAT OVEN RTO 2 EU THREE WET	4/12/22 @ 1:05pm	1515°F	1510.1°F	1510°F
TOPCOAT BOOTH RTO EU THREE WET	4/12/22 @ 1:13pm	1575°F	1565.0°F	1555°F

Each RTO has two combustion chambers: Chamber A and Chamber B. The data acquisition system for the ELPO, Sealer, and Topcoat Oven RTOs records an instantaneous temperature reading of Chamber A and Chamber B every 5 minutes. The averaged chamber temperature is calculated from these instantaneous readings. The data acquisition system for the Topcoat Booth RTO records the averaged chamber temperature every 5 minutes. It takes the average of the two chamber temperatures and then calculates a 10-sample running average with a 1-second sampling rate. The oldest second rolls out of the calculation, and a new second rolls into the calculation.

Inspectors also visited Flint Metal Center and Flint Engine Operations. At Flint Metal Center, inspectors observed dry fabric filters within the maintenance paint shop booth, required by the facility's ROP, which are inspected every month.

Photos and/or Videos were not taken during the inspection.

Field Measurements such as opacity and leak detection and repair data were not collected during the inspection.

RECORDS REVIEW

The inspection team did not review records onsite.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

During the opening conference, the lead inspector requested the following documents:

- An aerial diagram of the facility;
- A list of all comfort cooling appliances and industrial process units that contain 50 or more pounds of an ozone depleting substance; and
- A process flow diagram.

Byrnes, the Michigan EGLE Auto Assembly Plant Expert, requested the following information, and Hall requested that GM provide a copy of this information to U.S. EPA:

MI-ROP-B1606-2020 SECTION 1 – FLINT ASSEMBLY

- April 2020 through February 2022 saleable vehicle production data by the month (can be part of emission records).
- For all control equipment (RTO's) provide the most recent destruction efficiency and operating temperature (unless they have not changed since July 2020).
- For capture efficiency and oven solvent loading please provide a summary of the most recent tested values (unless no changes since July 2020).
- Please provide a summary of the most recent particulate testing results and/or emission factors used in the particulate matter calculations.
- Please provide copies of the dry filter and water wash records for the week of February 7, 2022.

EU-PRETREATMENT

- Explain whether GM has changed any of the materials since July 2020. Please provide a copy of the SDS for any material changes.

EU-ECOAT

- Explain how VOC content is determined.

EU-SEALERS & ADHESIVES

- Explain how VOC content is determined.

EU-SOUND DAMP

- Explain how VOC content is determined.

EU-THREE WET

- Explain whether GM conducts batch verifications of the VOC contents.
- Explain whether GM uses any type of deodorizer or odor masking products in the Prime and Basecoat stacks or withing the water wash system. If GM does, please provide a SDS of the material being used.

EU-GLASS INSTALL

- Explain how VOC content is determined.

EU-FINAL REPAIR -

- Explain how VOC content is determined.
- Explain how the repair paint usage is determined.

EU-PURGE&CLEAN – records details**EU-EMERGENERATOR and EU-GAGENERATOR**

- Please provide the most recent hour meter reading.

FG-TANKS

- Please provide records for each tank (ID, capacity, installation date, material stored, vapor pressure, applicable requirements) SC VI.2.

FG-PAINT&ASSEMBLY

- Please provide copies of the 2020, 2021, and 2022 (if available) annual auto protocol reviews for TE, CE, OSL, etc.
- Explain whether GM has conducted any other authorized projects under SC IX.3 or IX.4 in the last 2 years.
- Provide a copy of the emissions summarized (VOC, PM, PM10, PM2.5, NOx and natural gas used) for each emission unit for the months of January 2021 through February 2022.
- Provide a copy of the detailed emissions for the month of February 2022 for each emission unit.
- Provide a copy of the monthly natural usages for Jan 2020 through December 2021.

FG-CONTROLS

- Copy of the O&M plan, SC III.1.
- Copy of the most recent repair/inspection records for the RTO's, SC VI.2.
- Copy of a water wash inspection records for the week of February 6, 2022.

- Copy of the 2 latest RTO bakeout records.
- Condensed copy of the RTO temperature records for the week of February 6, 2022.
- Copy of the latest thermocouple validation for each oxidizer.

FG-MACT

- Copy of the MACT emission report for February 2022.
- Monthly summary data for Jan-Dec 2021 and Jan 2022.

FG-NATGASEQUIP

- Copy of the NOx emission record and the million cubic feet per year record for 2020 & 2021.

FG63-5D-WTRHEATERS

- Copy of the most recent reporting submittal.

FG-COLD CLEANERS

- Provide a list of cold cleaners including information to document R285(r)(iv) and/or Rule 707 requirements.

FG-EMERGENCYENGINES

- Provide hours of operation for each engine, emergency and non for 2020 and 2021.
- Provide the latest record (if performed) of maintenance as listed SC III.1.

FG-EMERGENCYGENERATOR-1

- Provide hours of operation for each engine, emergency and non for 2020 and 2021.
- Provide the latest record (if performed) of maintenance as listed SC VI.1.

MI-ROP-B1606-2020 SECTION 2 – FLINT METAL CENTER

FG-RULE 287(2)(c)-2

- Copy of the gallons used each month for each EU for January 2020 through December 2021.

FG-COLD CLEANERS

- Provide a list of cold cleaners including information to document R285(r)(iv) and/or Rule 707 requirements (Id, date installed, air/vapor interface, R201 exemption, square feet, Reid vapor pressure, operating temperature, etc.).

FG-BOILER-MACT

- Provide a copy of the most recent tune-up.
- If using Liquid No2. Fuel, provide records of the hours of operation using liquid fuel No. 2.

FG-EXT-EMERGENCY

- Provide hours of operation for each engine, emergency and non as in SC VI.5 for 2020 and 2021.
- Provide the latest record (if performed) of maintenance as listed SC VI.4.

FG-NEW-EMERGENCY

- Provide hours of operation for each engine, emergency and non as in SC VI.1 for 2020 and 2021.

MI-ROP-B1606-2020 SECTION 3 – FLINT ENGINE OPERATIONS**EU-SGE-RTV**

- Provide a copy of the monthly materials used, VOC contents and VOC calculations determining the monthly emission rate for December 2021.
- Provide monthly VOC summary emissions for January 2020 through December 2021.

FG-RULE290-3

- Provide records for each EU identifying each contaminate emitted, controlled or uncontrolled, carcinogenic or non-carcinogenic, the ITSL or IRSL, each material used and calculations demonstrating R290 limits are met for each month of 2021.

FG-RULE 287(2)(c)-3

- Copy of the gallons used each month for each EU for January 2020 through December 2021.

FG-COLD CLEANERS-3

- Provide a list of cold cleaners including information to document R285(r)(iv) and/or Rule 707 requirements (Id, date installed, air/vapor interface, R201 exemption, square feet, Reid vapor pressure, operating temperature, etc.).

FG-EMERGENCYENGINES-3

- Provide hours of operation for each engine, emergency and non as in SC VI.5 for 2020 and 2021.
- Provide the latest record (if performed) of maintenance as listed SC VI.4.

FG-EMERGENERATOR-3

- Provide the latest copy of any record of testing, manufacturer certification and maintenance records.
- Provide a record of the total hours of operation and the hours of operation during non-emergencies for each month of 2021.

4/12/22 Inspection Question

- During the inspection, we observed a DURR Ecoclean unit that was part of the SGE Head Mod 2. Please explain the purpose of this unit and explain whether it uses heat provided by burning fuels or electricity. Also, please provide a copy of any SDS for materials being used within that piece of process equipment.

Compliance Assistance: The inspectors did not provide compliance assistance to GM.

Concerns: During the closing conference, the inspectors did not identify any areas of concern.

DIGITAL SIGNATURES

Report Author:

CHARLES HALL

Digitally signed by CHARLES
HALL

Date: 2022.06.02 12:34:46 -05'00'

Section Chief:

Brian Dickens

Digitally signed by Brian Dickens

Date: 2022.06.02 13:42:28
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