FLINT ASSEMBLY
CAM PLAN DESCRIPTION – THREE WET PROCESS
Revision Date: November 25, 2024

I. BACKGROUND

A. Emissions Unit

Description: Two parallel coating processes each consisting of an automatic basecoat prime booth, an ambient flash-off area, an automatic basecoat booth, a heated flash-off area, an automatic clearcoat booth, a curing oven, a cooling zone, and a finesse booth. Three regenerative thermal oxidizers control VOC emissions from the two clearcoat booths, the two ambient and two heated flash-off areas, and the four curing ovens.

Identification: EU-THREE WET

Facility: General Motors LLC - Flint Assembly
G-3100 Van Slyke Road
Flint, MI 48551

B. Applicable Regulation, Emissions Limit, and Monitoring Requirements

Permit No. MI-ROP-B1606-2020

Volatile Organic Compounds Emissions Limits, specified in FG-Paint & Assembly:

649.6 TPY, Rules 336.1205(1)(a) and (1)(b), 336.1702(a)
4.8 pounds per job, Rule 336.1702(a)

Monitoring Requirements: RTO combustion chamber temperature

Potential Pre-Control Emissions: 1,284.9 tons per year (TYP; EU-THREE WET only)

C. Control Technology

EU-THREE WET has three RTOs, each with minimum destruction efficiency of 95%. Based on the May 2021 performance tests, the tested inlet flow rate is displayed in the below table. A description of the EU-THREE WET zones controlled by RTO is also provided.

EU-THREE WET zone	RTO	Tested inlet flow rate, scfm
Clearcoat paint spray booths and flash off areas	Spray Booth RTO	65,924
Topcoat 1 curing ovens (100 and 200)	Topcoat Line 1 RTO	10,341
Topcoat 2 curing ovens (300 and 400)	Topcoat Line 2 RTO	10,001

II. MONITORING APPROACH

	Compliance Indicator: RTO Temperature
A. Indicator	RTO combustion temperature is measured with two thermocouples, one per combustion chamber. The average of the two readings is used for compliance with the minimum temperature required by the permit. The temperatures are monitored continuously and recorded at equally spaced intervals at least once every 15 minutes.
B. Indicator Range	The RTO temperature shall be at a minimum as determined by the most recent approved destruction efficiency test showing compliance with a minimum destruction efficiency of 95%. The minimum temperatures determined during the May 2021 compliance tests are 1552, 1500, and 1500-degrees Fahrenheit for the Spray Booth, Topcoat Line 1, and Topcoat Line 2 RTOs, respectively. These temperatures were reported in the test report dated July 14, 2021.
C. ByPass System Detection	The permit flexible group, FG-Controls, condition no. VI. 5 requires bypass monitoring, during production, for each bypass valve such that the valve or closure method cannot be opened without creating an alarm condition for which a record shall be made.

III. PERFORMANCE CRITERIA

	Compliance Indicator: RTO Temperature
A. Data Representativeness	There is a thermocouple located in each combustion chamber.
B. Verification of Operational Status	NA - The system is not new and has not been modified.
C. QA/QC Practices & Criteria	Validation of thermocouple accuracy or recalibration of each thermocouple a minimum will occur once every 12 months. The thermocouple may be replaced in lieu of validation.
D. Monitoring Frequency	Continuous, and recorded at equally spaced intervals at least once every 15 minutes.
E. Data Collection Procedures and Averaging Period; and excursion determination	An electronic data file records average combustion temperature from the two thermocouples at least every 15 minutes during coating operations. Compliance with the minimum combustion temperature is based upon the average combustion temperature recorded every 15 minutes. Further, GM calculates three-hour averages of the combustion temperature when any one data point falls below the minimum required temperature, per EU-THREE WET, special condition no. IV.1. Excursion determinations will be performed based upon the EGLE CAM template requirements. The temperature monitoring excursion summary is shown below, based upon the April 30, 2019, template found on the ADQ EGLE website:

	a. A temperature excursion is defined as a confirmed three-hour period during which the average fails to meet the specified temperature requirements in special conditions. Note: the averaging time for a temperature excursion is 3 hours. b. A monitoring excursion is defined as a failure to properly monitor as required in special conditions. Upon confirming that an excursion has occurred, site personnel will document the excursion and initiate corrective action as soon as practical.

IV. JUSTIFICATION

A. Rational for Selection of Performance Indicators

The RTO combustion chamber temperature was selected because it is indicative of the VOC destruction occurring within the RTO and is a widely accepted method of monitoring. If the chamber temperature decreases significantly, then complete combustion may not occur, reducing the destruction efficiency. Therefore, the requirement to monitor temperature and maintain appropriate records is a justification for assuring VOC destruction efficiency. Temperature monitoring is specifically identified in the monitoring/recordkeeping requirements under the current ROP flexible group, FG-CONTROLS.

B. Rational for Selection of Indicator Ranges

The selected indicator is the minimum average combustion chamber temperature, as determined by the most recent approved destruction efficiency test showing compliance with a minimum destruction efficiency of 95%. This minimum temperature is specified in the current ROP under EU-THREE WET design/equipment parameters.

C. Performance Test

In May 2021, VOC Destruction Efficiency performance testing of each of these three RTOs, was conducted. The destruction efficiency by each RTO is displayed in the below table. These values demonstrate compliance with the permit required minimum of 95%. A copy of the performance test, “MW049AS-007582-RT-732” prepared by Montrose Air Quality services, dated July 14, 2021, sent to the District Supervisor and Technical Programs Unit on July 21, 2021, and August 25, 2021.

EU-THREE WET zone	RTO	Tested destruction efficiency, %
Clearcoat paint spray booths and flash off areas	Spray Booth RTO	95.4
Topcoat 1 curing ovens (100 and 200)	Topcoat Line 1 RTO	97.0
Topcoat 2 curing ovens (300 and 400)	Topcoat Line 2 RTO	97.3