

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

B645570297

FACILITY: CURTIS METAL FINISHING CO		SRN / ID: B6455
LOCATION: 6645 SIMS DRIVE, STERLING HTS		DISTRICT: Warren
CITY: STERLING HTS		COUNTY: MACOMB
CONTACT: Matt Ulewicz , General Manager		ACTIVITY DATE: 11/28/2023
STAFF: Adam Bognar	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS: C-24-00214		

On Tuesday, November 28, 2023, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) employee Adam Bognar conducted a scheduled inspection of Primat Curtis (the "Facility", "Curtis", or "CMF") located at 6645 Sims Drive, Sterling Heights, MI 48313. This facility was formerly known as "Curtis Metal Finishing". The purpose of this inspection was to determine the facility's compliance status with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) rules; and Permit to Install No. 383-00J.

Additionally, this inspection was conducted in response to complaint No. C-24-00214 received by AQD on November 13, 2023. The complainant alleges that chemicals are being released from a ventilation machine inside the facility due to malfunctioning equipment. The complaint was forwarded to AQD from the EPA National Response Center. The complaint was also forwarded to the Sterling Heights Fire Department. The Fire Department asked AQD for any information we had about what might be occurring. AQD reached out to the Sterling Heights Fire Department to coordinate a joint on-site inspection.

I arrived at the facility at around 1 pm. Sterling Heights Fire Department staff Shawn Allen (Assistant Fire Chief) and his colleague met me outside the facility. We introduced ourselves and I called my contact at Curtis, Matt Ulewicz, and let Matt know that the AQD and fire department are here for an unannounced inspection.

Matt Ulewicz, General Manager, met us outside the facility. I identified myself and stated the purpose of the inspection. Prior to inspecting the manufacturing facility, the three of us held a brief pre-inspection meeting. We discussed the nature of the recent complaint against Primat Curtis. Matt was aware that a complaint had been filed. Matt provided us with documents showing that OSHA had already been out to the site to investigate the same complaint. It appears that several regulatory agencies were contacted by the complainant. After the pre-inspection meeting, Matt accompanied us for an inspection of the manufacturing facility.

Curtis Metal Finishing performs coating operations on metal fasteners (nuts, bolts, screws) and other small metal parts. These parts are primarily for tier 1 automotive suppliers, making CMF a tier 2 automotive supplier. CMF also supplies industries such as military, aerospace, agricultural, and energy. There are approximately 159 total employees that operate the plant 24 hours a day, 5 days per week. CMF also operates on weekends depending on demand.

CMF operates 12 dip-spin coating lines, 1 e-coat (electrodeposition) coating line, and three phosphate coating lines. CMF is a synthetic minor source for HAP and VOC. HAP emissions are limited to 9 tons per year for individual HAPs and 22.4 tons per year for aggregate HAPs.

Generally, when parts arrive, they are first sent through one of the three phosphate lines (lines 11, 12, and 14). Each of these lines is made up of a series of tanks including rinse tanks, sulfuric acid pickling tanks, zinc phosphate tanks, an oil tank, a sealer tank, and a dry off oven. Parts are dipped into the zinc-phosphate solution and then rinsed in consecutive distilled water and city water tanks. Based on my observations during this inspection and record review, these three phosphate lines are exempt from Rule 201 requirements pursuant to Rule 290. I verified that CMF maintains records that demonstrate the Rule 290 exempt status.

After the phosphate lines, the parts are generally sent to either the e-coat line or one of the dip-spin lines.

The facility operates 12 dip-spin coating lines. All lines operate in a similar manner. In dip-spin coating, parts are coated by automatically loading them into a wire mesh basket and dipping the basket into a vat filled with coating. While still in the vat, the basket is lifted out of the liquid and spun on its vertical axis (sometimes horizontal). This spinning action causes excess coating on parts to flow off the part and back into the coating vat. After the excess coating is removed the parts are dropped to a conveyor and sent to a flash-off zone and then to a curing oven.

Emissions from the dip spin lines are controlled by two regenerative thermal oxidizers. RTO No. 1 controls line 21, 22, 23, 24, 25, 26, and 28. RTO No. 2 controls Line 27, Line 29, and Line 20. Line 18 and Line 19 are currently uncontrolled. Previously, Line 18 and Line 19 were controlled by a third thermal oxidizer. The oxidizer that controlled these two dip-spin lines experienced a catastrophic explosion in 2021. I observed that this oxidizer has been removed from the facility. Matt stated that they plan to install a new oxidizer eventually. Matt also stated that lines 18 and 19 will be sold and a new line is going to go in that building. The new line will be attached to a new thermal oxidizer. Dip spin line 20 is not controlled by an RTO and runs only EGLE AQD Rule 621 compliant coatings.

The facility operates one E-coat line, Line 42. E-coat coatings are applied by immersing the parts in a tank containing a coating solution. The e-coat line is anodic. A rectifier current is applied to the e-coat tank causing negatively charged coating to adhere to the positively charged metallic workpiece. After electrodeposition, the parts are rinsed in five-stage, countercurrent, permeate rinse tanks.

The rinse water from the electrodeposition process is treated in the on-site wastewater treatment facility. The wastewater treatment facility operates a clarifier to separate and removed the solids. A polymer is added to help precipitate the solids. The sludge is processed through a filter press. Matt stated that Curtis may get rid of the E-coat line and the associated wastewater treatment plant.

Treated water is discharged to the Detroit Water and Sewerage System. Based on my observations during this inspection, the water treatment system is exempt from Rule 201 requirements pursuant to Rule 285 (2)(m).

During this inspection I reviewed records from January 1, 2023 through November 1, 2023 (unless stated otherwise). This time period was selected because the last AQD inspection was in January 2023. The digital records I reviewed can be found in the AQD shared drive at the address below:

S:\Air Quality Division\STAFF\Bognar, Adam\Inspection Documents\Primat Curtis November 2023

PTI No. 383-00J

EUDIPSPIN

EUDIPSPIN consists of seven miscellaneous metal parts dip-spin coating lines (Lines 21-26, and 28) and seven associated cure ovens controlled by a common regenerative thermal oxidizer (RTO1).

Section I – SC 1: VOC Emissions are limited to 51.5 tons per year based on 13-four week rolling time periods. CMF is in compliance with this emission limit based on the records I reviewed. VOC emissions were reported highest during the eleventh 13-four week rolling time period in 2023 at 17.9 tons. The calculations are accurate based on the records I reviewed. I went through the raw calculation data, multiplied the stated usage by the stated VOC content, and summed these values together. The number I got matches with the reported VOC emissions for that time period. I collected material datasheets for two coatings that have relatively high use - B06JA and Solvent 150 - and verified that the material datasheet VOC content matches with what is used in the emissions calculations.

An overall control efficiency of 93.2% was used for these calculations (94.4% capture and 98.8% destruction. The stack test conducted in March 2002 determined that the overall control efficiency was 94.9% (95.7% capture and 98.8% destruction). I reached out to Curtis Metal Finishing to determine why they are using 93.2% as their overall control efficiency instead of what was determined during the stack test; however, AQD will accept this approach for this inspection since it conservatively overestimates emissions. The temperature of the RTO was not noted in the March 2002 stack test report.

Section I – SC 2: Limits the emission of Dibasic ester (CAS No. 627-93-0) to 3.7 tons per year based on 13 four-week rolling time periods. CMF is in compliance with this emission limit based on the records I reviewed. Dibasic ester emissions were reported highest during the eleventh 13-four week rolling time period in 2023 at 0.23 tons.

Section III – SC 1: States that the facility shall dispose of waste coating, reducers, additives, and solvents in a manner that minimizes the introduction of air contaminants to the outer air. I observed that coatings were stored in sealed containers. Matt stated that this waste is disposed of in closed 55-gallon drums and taken away by Republic Services (formerly US Ecology). CMF does not take into account any reclaimed or disposed material in their emission calculations.

Section III – SC 2: Requires CMF to implement and maintain a malfunction abatement plan (MAP) for EUDIPSPIN. CMF maintains a MAP for these emission units. This MAP was submitted to the

AQD on February 13, 2013 and found to be acceptable. I reviewed this MAP as part of my inspection in January 2023 and did not notice anything that needs to be changed. The facility is following the MAP based on the records I reviewed.

Section IV – SC 1: States that CMF shall not operate EUDIPSPIN unless the regenerative thermal oxidizer (RTO) is installed and operating properly. Proper operation includes maintaining a minimum temperature of 1400°F and a minimum VOC control efficiency of 83.6%. The RTO was operating during my inspection. According to the digital readout and the continuous monitor, RTO temperature was 1543°F.

RTO combustion chamber temperature records are maintained on circular charts and on hand-written logs. I reviewed the circular charts from August 2023 through November 2023. The RTO records indicate that RTO1 is operated above 1400°F. The temperature is maintained around 1550°F based on the circle charts I reviewed.

On October 20, 2023, there was a dip below 1400°F for around 3 hours. I asked Matt why the RTO temperature dipped on that day. Matt was able to show me that CMF maintained production records for that day showing that there was a power outage during the time the RTO was down. According to Matt and another production staff, the RTO has an interlock system that will shut down the dip spin conveyor belts if the RTO temperature falls below 1400°F. The curing ovens will still operate in this scenario. The records show that the lines associated with RTO1 were also down during this outage. This was the largest outage I noted during the period I reviewed.

There were several other shorter duration periods where the RTO went down during the period I reviewed. Matt provided me with a document showing each instance of RTO downtime, the reason for the downtime, and which lines were shut down due to the downtime. These instances line up with the temperature dips reported in the circular charts. Matt stated that RTO1 is very old and has been having more frequent issues than in the past. Matt stated that RTO1 will be replaced in the near future.

During each period of downtime, the coating lines routed to RTO1 are shut down (conveyor stopped) via an interlock system. I requested additional information about this interlock system. According to the IT Manager at Primat Curtis, George Argeropoulos, "There is currently programming logic on all the lines that will shut them down when the RTO goes down. How the programming works depends on the line type. For the Spring Tool Lines, the RTO signal is wired directly into a PLC input. The programming forces the machine into manual mode and will not let the line restart until the RTO comes back up. For the WMV and Reinhardt lines, the RTO signal is wired into the manufacturer system and their wiring and programming controls the shutdown." According to the maintenance employee I spoke with during my inspection, the lines will shut down if the RTO temperature is below 1400°F.

On November 11, 2023, an operator noted that the RTO was not working on Line 26. The operator noted that there were vapors in the air burning their eyes. I asked Matt about this record. Matt stated that this employee recently quit and reported this problem to Poison Control, OSHA, and the EPA. Matt stated that he had maintenance verify the motor, belts, and fume hood were all working properly. Matt noted that there were no issues reported from employees operating this line on 1st

and 2nd shifts, only on 3rd shift. I did not notice any strong odors when walking by Line 26 during my inspection. Matt stated that the operator's statements were inaccurate.

Section V – SC 1: Requires the permittee to determine VOC content and density of any coating as applied and as received using federal Reference Test Method 24. With prior approval, this condition allows CMF to use manufacturers VOC data in lieu of doing a Method 24 analysis on every coating. AQD granted CMF this approval under the condition that the facility perform one Method 24 analysis on a currently used coating each year, utilizing a different coating each year. An approval letter to use manufacturers VOC data was sent to CMF on February 25, 2020.

CMF provided me with a Method 24 analysis performed the day after my previous inspection on 1/25/2023. The analysis was performed on coating B18 and B06JA which showed VOC contents of 5.14 lb/gallon and 3.6 lb/gallon, respectively. I verified that the manufacturer's stated VOC content is higher than the Method 24 value in both cases. Curtis will need to perform another Method 24 analysis in calendar year 2024.

Section VI – SC 1,2,3,4: Specifies monitoring and recordkeeping requirements for EUDIPSPIN. CMF must keep records of the RTO combustion chamber temperature, the chemical composition of all coatings/solvents used, the hours of operation of each coating line, and the volume of each coating used. This information shall be used to calculate the VOC and Dibasic ester emissions on a four-week and a 13-four-week rolling time period.

These records are maintained. CMF maintains multiple electronic databases that store and keep track of this information. Stephanie sent me digital versions of these spreadsheets.

Section VIII – SC 1: Specifies stack parameters. The stacks at CMF appeared to be discharged unobstructed vertically upwards. I did not verify stack parameters during this inspection.

EUECOAT

EUECOAT is an electrodeposition coating line (Line No. 42) used to coat miscellaneous metal parts. This line consists of an electrodeposition tank, a five-stage water rinsing process, and a cure oven.

Section I – SC 1,2: VOC emissions from EUECOAT are limited to 800lb/four-weeks and 4.7 tons per year. CMF is in compliance with this emission limit based on the records I reviewed. VOC emissions were reported highest at 0.97 tons during the eleventh 13-four week rolling time period in 2023. The highest reported 4-week period VOC emissions was 273.09 lbs during the first 4-week period in 2023. I went through the raw calculation data, multiplied the stated usage by the stated VOC content, and summed these values together. The number I got matches with the reported VOC emissions for that time period. Per the PTI, VOC emissions are estimated to be 3.3% of the VOCs in the products used.

Section VI – SC 1,2,3: Specifies monitoring and recordkeeping requirements for EUECOAT. CMF must maintain records of the chemical composition of each coating/solvent used and the amount of each coating/solvent used. These records must be used to calculate VOC emissions on both a four-week and 13-four-week rolling time period.

These records are maintained. CMF maintains multiple electronic databases that store and keep track of this information.

Section VIII – SC 1: Specifies stack parameters. The stacks at CMF appeared to be discharged unobstructed vertically upwards. I did not verify stack parameters during this inspection.

FGDIPSPINS

FGDIPSPINS consists of two miscellaneous metal parts dip-spin coating lines (Line 27 & Line 29) controlled by a shared regenerative thermal oxidizer (RTO2).

Section I – SC 1: VOC emissions from FGDIPSPINS are limited to 18 tons per year. CMF is in compliance with this emission limit based on the records I reviewed. VOC emissions were reported highest during the eleventh 13-four week rolling period in 2022 at 14.7 tons. The calculations are accurate based on the records I reviewed. I went through the raw calculation data, multiplied the stated usage by the stated VOC content, and summed these values together. The number I got matches with the reported VOC emissions for that time period. I collected material datasheets for two coatings that have relatively high use - B06JA and Solvent 150 - and verified that the material datasheet VOC content matches with what is used in the emissions calculations.

VOC capture and destruction efficiency of RTO2 was tested in May 2014. This test showed a Destruction efficiency of 98.1% and a capture efficiency of 99.5%. One of the three test runs was omitted from the capture efficiency average per USEPA document GD-35 because it showed 118% capture efficiency. Anything above 105% capture efficiency is omitted from the results per this EPA guidance document.

In the facility's calculations, Curtis used a destruction efficiency of 98.1% and a capture efficiency of 84.2% (lowest capture efficiency test result). This results in an overall control efficiency of 82.6%. The facility's VOC calculation approach conservatively overestimates emissions when compared to the 2014 stack test. AQD will accept this destruction efficiency value for purposes of evaluating compliance during this inspection.

Section III – SC 1: States that the facility shall dispose waste coating, reducers, additives, and solvents in a manner that minimizes the introduction of air contaminants to the outer air. I observed that coatings were stored in sealed containers. Matt stated that this waste is disposed of in closed 55-gallon drums and taken away by Republic Services. CMF does not consider any reclaimed or disposed material in their emission calculations.

Section III – SC 2: Requires CMF to handle all VOC/HAP containing materials in a manner to reduce fugitive emissions. I observed that VOC/HAP containing materials were stored in an organized manner in containers equipped with tight fitting lids.

Section IV – SC 1: States that CMF shall not operate FGDIPSPINS unless the regenerative thermal oxidizer (RTO) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining a minimum temperature of 1400°F and a minimum VOC control efficiency of 81%. The RTO was operating during my inspection. According to the digital readout and the continuous monitor, RTO temperature was 1595°F during this inspection. The minimum control efficiency is met, but is only 1.6% above the minimum allowable control efficiency.

VOC control efficiency of this RTO was tested in May 2014. The stack test report states that the RTO operates at a temperature of 1500°F. Based on the results of this test, the VOC control efficiency is greater than 81%.

I reviewed the RTO2 temperature circular charts from August 2023 through November 2023. Based on the circular charts I reviewed, RTO2 is consistently operated at around 1600°F. According to Matt and another production staff, the RTO has an interlock system that will shut down the dip spin conveyor belts if the RTO temperature falls below 1400°F. The curing ovens will still operate in this scenario.

Section IV – SC 2: Requires CMF to install, calibrate, maintain, and operate a temperature monitoring device in the combustion chamber of the RTO and record the temperature on a continuous basis. This RTO is equipped with a combustion chamber thermocouple that reports to a central database. This thermocouple is calibrated by the manufacturer. Matt stated that CMF does not do any calibration on their own. Instead, according to the maintenance technician, the thermocouples are replaced every year during the annual PM inspection.

Section V – SC 1: Requires the permittee to determine VOC content and density of any coating as applied and as received using federal Reference Test Method 24. With prior approval, this condition allows CMF to use manufacturers VOC data in lieu of doing a Method 24 analysis on every coating. AQD granted CMF this approval under the condition that the facility perform one Method 24 analysis on a currently used coating each year, utilizing a different coating each year.

CMF provided me with a Method 24 analysis performed the day after my previous inspection on 1/25/2023. The analysis was performed on coating B18 and B06JA which showed VOC contents of 5.14 lb/gallon and 3.6 lb/gallon, respectively. I verified that the manufacturer's stated VOC content is higher than the Method 24 value in both cases. The facility used the manufacturer's stated VOC content in the calculations provided during this inspection. I asked the facility to make sure they are using the Method 24 data for these calculations going forward, which is required by the facility's PTI.

Section VI – SC 1,2,3,4,5: Specifies monitoring and recordkeeping requirements for FGDIPSPINS. CMF must maintain records of the chemical composition of each coating/solvent used, the amount of each coating/solvent used, and records of the RTO combustion chamber temperature on a continuous basis. These records must be used to calculate VOC emissions on both a monthly and 12-month rolling time period.

These records are maintained. CMF maintains multiple electronic databases that store and keep track of this information. RTO combustion chamber temperature records are kept on a continuous basis on a chart recorder. Additionally, an operator manually records the RTO temperature on the digital readout once per shift.

Section VIII – SC 1: Specifies stack parameters. The stacks at CMF appeared to be discharged unobstructed vertically upwards. I did not verify stack parameters during this inspection.

FGDIPSPINS2

FGDIPSPINS2 consists of three dip-spin lines (Line 18, Line 19, and Line 20) for coating miscellaneous metal parts.

Section I – SC 1,2: Establishes emission limits for FGDIPSPINS2. VOC emissions are limited to 10 tons/year/line and 2000 lbs/month/line. CMF is in compliance with these emission limits based on the records I reviewed. Emission limits in this flexible group is based on 12-month rolling periods rather than 13-four week rolling periods. I went through the raw calculation data, multiplied the stated usage by the stated VOC content, and summed these values together. The number I got matches with the reported VOC emissions for that time period. I collected material datasheets for two coatings that have relatively high use - B06JA and Solvent 150 - and verified that the material datasheet VOC content matches with what is used in the emissions calculations.

For EUDIPSPIN18, VOC emissions were reported highest during the 12-month period ending in March 2023 at 0.24 tons.

For EUDIPSPIN19, VOC emissions were reported highest during the 12-month period ending in February 2023 at 0.35 tons.

For EUDIPSPIN20, VOC emissions were reported highest during the 12-month period ending in September 2023 at 0.68 tons. The highest monthly emissions occurred in September 2023 at 0.68 tons.

Section III – SC 1: States that the facility shall dispose waste coating, reducers, additives, and solvents in a manner that minimizes the introduction of air contaminants to the outer air. I observed that coatings were stored in sealed containers. Matt stated that this waste is disposed of in closed 55-gallon drums and taken away by Republic Services. CMF does not take into account any reclaimed or disposed material in their emission calculations.

Section III – SC 2: Requires CMF to dispose of spent filters in a manner which minimizes the introduction of air contaminants to the outer air. There are no dry filters associated with dip spin operations. This permit condition likely should not have been included in this flexible group.

Section III – SC 3: Requires CMF to handle all VOC/HAP containing materials in a manner to reduce fugitive emissions. I observed that VOC/HAP containing materials were stored in an organized manner in containers equipped with tight fitting lids.

Section V – SC 1: Requires the permittee to determine VOC content and density of any coating as applied and as received using federal Reference Test Method 24. With prior approval, this condition allows CMF to use manufacturers VOC data in lieu of doing a Method 24 analysis on every coating. AQD granted CMF this approval under the condition that the facility perform one Method 24 analysis on a currently used coating each year, utilizing a different coating each year. An approval letter to use manufacturers VOC data was sent to CMF on February 25, 2020.

CMF provided me with a Method 24 analysis performed the day after my previous inspection on 1/25/2023. The analysis was performed on coating B18 and B06JA which showed VOC contents of

5.14 lb/gallon and 3.6 lb/gallon, respectively. I verified that the manufacturer's stated VOC content is higher than the Method 24 value in both cases. The facility used the manufacturer's stated VOC content in the calculations provided during this inspection. I asked the facility to make sure they are using the Method 24 data for these calculations going forward, which is required by the facility's PTI.

Section VI – SC 1,2,3: Specifies monitoring and recordkeeping requirements for FGDIPSPINS2. CMF must maintain records of the chemical composition of each coating/solvent used and the amount of each coating/solvent used. These records must be used to calculate VOC emissions on both a monthly and 12-month rolling time period.

These records are maintained. CMF maintains multiple electronic databases that store and keep track of this information.

Section VII – Requires CMF to notify the AQD within 30 days after completing any installation, construction, reconstruction, relocation, or modification authorized by this permit to install. CMF submitted this notice to the AQD stating that the start of trial operation was April 16, 2018.

Section VIII – SC 1: Specifies stack parameters. The stacks at CMF appeared to be discharged unobstructed vertically upwards. I did not verify stack parameters during this inspection.

FGRULE621

FGRULE621 consists of all metal parts coating lines source-wide, including metal parts coating lines covered by other permits, which are exempted by Rule 336.1621(10)(b). EUDIPSPIN 18, EUDIPSPIN19, and EUDIPSPIN20 are included in this permit. Emission limits in this flexible group is based on 12-month rolling periods rather than 13-four week rolling periods.

Section I – SC 1: Establishes a 30 tons per year VOC emission rate for FGRULE621. All coating lines that operate as exempt from Rule 621 must have combined emissions less than 30 tons per year to remain exempt. CMF is in compliance with these emission limits based on the records I reviewed. The highest annual emission was for the 12-month rolling period ending in January 2023 at 13.07 tons. I went through the raw calculation data, multiplied the stated usage by the stated VOC content, and summed these values together. The number I got matches with the reported VOC emissions for that time period. I collected material datasheets for two coatings that have relatively high use - B06JA and Solvent 150 - and verified that the material datasheet VOC content matches with what is used in the emissions calculations.

Section III – SC 1: States that the facility shall dispose waste coating, reducers, additives, and solvents in a manner that minimizes the introduction of air contaminants to the outer air. I observed that coatings were stored in sealed containers. This waste is disposed of in closed 55-gallon drums and taken away by Republic Services. CMF does not consider any reclaimed or disposed material in their emission calculations.

Section III – SC 2: Requires CMF to handle all VOC/HAP containing materials in a manner to reduce fugitive emissions. I observed that VOC/HAP containing materials were stored in an organized manner in containers equipped with tight fitting lids.

Section V – SC 1: Requires the permittee to determine VOC content and density of any coating as applied and as received using federal Reference Test Method 24. With prior approval, this condition allows CMF to use manufacturers VOC data in lieu of doing a Method 24 analysis on every coating. AQD granted CMF this approval under the condition that the facility perform one Method 24 analysis on a currently used coating each year, utilizing a different coating each year. An approval letter to use manufacturers VOC data was sent to CMF on February 25, 2020.

CMF provided me with a Method 24 analysis performed the day after my previous inspection on 1/25/2023. The analysis was performed on coating B18 and B06JA which showed VOC contents of 5.14 lb/gallon and 3.6 lb/gallon, respectively. I verified that the manufacturer's stated VOC content is higher than the Method 24 value in both cases. The facility used the manufacturer's stated VOC content in the calculations provided during this inspection. I asked the facility to make sure they are using the Method 24 data for these calculations going forward, which is required by the facility's PTI.

Section VI – SC 1,2,3: Specifies monitoring and recordkeeping requirements for FGRULE621. CMF must maintain records of the chemical composition of each coating/solvent used and the amount of each coating/solvent used. These records must be used to calculate VOC emissions on both a monthly and 12-month rolling time period. These records are maintained. CMF maintains multiple electronic databases that store and keep track of this information.

Section VIII – SC 1: Specifies stack parameters. The stacks at CMF appeared to be discharged unobstructed vertically upwards. I did not verify stack parameters during this inspection.

FGFACILITY

Section I – SC 1,2,3: Establishes facility-wide synthetic minor source emission limits. VOC emissions are limited to 89.9 tons per year. HAP emissions are limited to 9 tons per year for each individual HAP and 22.4 tons per year for total HAPs. CMF is in compliance with these emission limits based on the records I reviewed.

VOC emissions were reported highest during the eleventh 13-four week rolling period in 2023 at 41.56 tons.

Aggregate HAP emissions were reported highest during the eleventh 13-four week rolling period in 2023 at 6.3 tons.

Section II – SC 1,2,3,4,5,6,7: Specifies material limits for FGFACILITY. Usage of a particular coating is limited based on the coating group that it belongs to. There are seven coating groups in this section that are grouped by VOC content. Groups 1-5 apply to lines 18, 19, & 20. Groups 6 & 7 apply to EU-Ecoat.

Group 1 coatings with 5 to 9 lb/gallon VOC are limited to 1,096 gallons/year. The highest reported usage was during the 12-month period ending in October 2023 at 563.8 gallons.

Group 2 coatings with 3 to 5 lb/gallon VOC are limited to 1,324 gallons per year. The highest

reported usage was during the 12-month period ending in October 2023 at 565.8 gallons. Group 2 coatings also include the usage of Group 1 coatings.

Group 3 coatings with 1 to 3 lb/gallon VOC are limited to 17,150 gallons per year. The highest reported usage was during the 12-month period ending in January 2023 at 10,410 gallons. Group 3 coatings also include the usage of Group 1 & 2 coatings.

Group 4 coatings with 0.1 to 1 lb/gallon VOC are limited to 18,320 gallons per year. The highest reported usage was during the 12-month period ending in January 2023 at 11,710 gallons. Group 4 coatings also include the usage of Group 1, 2, & 3 coatings.

Group 5 coatings with less than 0.1 lb/gallon VOC are limited to 21,784 gallons per year. The highest reported usage was during the 12-month period ending in January 2023 at 13,741 gallons. Group 5 coatings also include the usage of Group 1, 2, 3, & 4 coatings.

Ecoat Group 1 coatings with less than 2 lb/gallon VOC are limited to 82,782 gallons per year. The highest reported usage was during the 12-month period ending in September 2023 at 15,644 gallons.

Ecoat Group 2 coatings with 2 to 8 lb/gallon VOC are limited to 14,911 gallons per year. The highest reported usage was during the 12-month period ending in October 2023 at 6,129 gallons.

Section V – SC 1: Requires CMF to determine the HAP content of any material as applied and as received using manufacturer's formulation data. CMF uses manufacturers formulation data when calculating the HAP emissions from coatings.

Section VI – SC 1,2,3: Specifies monitoring and recordkeeping requirements for FGFACILITY. CMF must maintain records of the amount of VOC and/or HAP containing material used or reclaimed at the facility. This information must be used to calculate the facility-wide VOC and HAP emissions on a monthly and 12-month rolling time period. CMF must also maintain data showing that they are in compliance with the material limits in Section II of this flexible group.

I verified that these records are maintained. CMF maintains multiple electronic databases that store and keep track of this information.

Bake Oven

Excess coating on the dip spin baskets is cleaned by blasting them on a table blaster using a metallic grit. The baskets go through an electric batch oven before blasting. According to Matt, the oven only serves to loosen coating, not to burn off excess coatings. The oven is operated at 450 °F.

After working through the Rule 290 calculations with the facility during a previous inspection, Curtis Metal Finishing decided to route the exhaust for this oven to RTO1. This was a decision made by the facility after my on-site inspection. AQD did not direct Curtis Metal Finishing to route this oven to RTO1. I have not verified that this oven is connected to RTO1 since that part of the ducting is located on the roof.

During my previous inspection I informed Matt that I thought the oven could be considered a “burn-off oven” by AQD. The facility did not believe that this oven meets the definition of a burn off oven because of the low relative temperature it is operated at. The AQD general permit for burn off ovens states that “A natural gas-fired burnoff oven is a highly specialized oven that operates at 600 to 800 °F.” The facility also stated that they would not need the sandblaster if the oven was burning off excess coatings.

The facility submitted a Rule 290 demonstration for this oven during a previous inspection. In this demonstration, Curtis Metal Finishing performed a mass balance study where they put 14 total baskets through this oven, weighing each basket before and after baking. Two different types of baskets were used. They determined an average weight reduction from baking of 1.5 lbs/basket and a maximum weight reduction of 4.8 lbs/basket. Curtis Metal Finishing stated that the coatings used in this study were selected based on high relative use.

Using the maximum weight reduction of 4.8 lbs VOC/basket, the Rule 290 (2)(a)(i) limit of 500 lbs/month of controlled non-carcinogenic VOC's, and the destruction efficiency of RTO 1 (98.8%), the facility determined that the maximum number of baskets that can be run through the oven is 8,681/month when based on VOC emission alone; however, the facility is further limited by the amount of toxic air contaminants emitted.

The facility provided me with a list of all coatings used at the facility and the toxic air contaminants they contain. Based on my review of this list, the coating with the highest amount of material subject to the 10 lb/month limit in Rule 290 (2)(a)(ii)(B) is DORRL B70 at 4.1%. The density of DORRL B70 is 9 lb/gallon and the VOC content is 4.5 lb/gallon. If this worst-case coating was applied to a basket, only the 50% volatile portion can be assumed to evaporate in the oven. This means that the total amount of material under the screening level in Rule 290 (2)(a)(ii)(B) is 8.2% in the worst-case coating.

The calculations show that the carcinogenic toxic air contaminants will be below the Rule 290 (2)(a)(ii)(B) limit of 10 lb/month if less than 2,117 baskets are run through the oven per month. This number can be found by dividing the 10lb/month limit by the total amount of Rule 290(2)(a)(ii)(B) subject compounds emitted per basket:

$$(10\text{lb/month}) / [(4.8\text{lb/basket}) * (0.082) * (0.012 \text{ control efficiency})] = 2,117 \text{ baskets.}$$

The article titled "*Temperature Limits for E-Coated Parts | Products Finishing (pfonline.com)*" states that "Typical electrocoats can support continuous high temperature exposures in the range of 430–450°F without any significant film degradation...." "As the temperature increases to 475–525°F, the organic resins and components start smoking heavily and the remaining film loses chemical resistance. As temperature increases above 550°F, the film starts burning slowly, loses thickness rapidly, and loses all physical and corrosion properties."

Although this article refers to e-coat rather than dipspin coatings, it further demonstrates that this oven should not cause any burning of coatings. For this reason, I did not evaluate particulate matter (PM) emissions from this oven.

The facility submitted a Rule 290 demonstration showing the number of baskets run through the oven each month. The month with the highest amount of baskets baked was June 2023 at 695 baskets.

Based on the results of this study, my inspection, and my review of the data, this bake oven is exempt from Rule 201 requirements pursuant to Rule 290. If AQD receives odor, opacity, or fallout complaints regarding this bake oven or from Curtis Metal Finishing in general, then AQD may require this oven to be permitted.

Compliance Determination

Based on my findings during my inspection and record review, Curtis Metal Finishing is operating in compliance with all applicable requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Permit to Install No. 383-00J.

Complaint No. C-24-00214 will be resolved as a result of this inspection. More information is needed before additional investigations will be conducted.

NAME Adam Bogner

DATE 1/23/2024

SUPERVISOR K. Kelly