

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

N095046363

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|--|-----------------------------------|------------------------------|
| FACILITY: MICHIGAN METAL COATINGS  |                                   | SRN / ID: N0950              |
| LOCATION: 2015 DOVE STREET, PORT HURON   |                                   | DISTRICT: Southeast Michigan |
| CITY: PORT HURON   |                                   | COUNTY: SAINT CLAIR          |
| CONTACT: James Hammond ,   |                                   | ACTIVITY DATE: 08/20/2018    |
| STAFF: Kerry Kelly   | COMPLIANCE STATUS: Non Compliance | SOURCE CLASS: SM OPT OUT     |
| SUBJECT: Evaluate Michigan Metal Coatings' compliance with PTI 116-06B, PTI 139-06, and State and Federal air quality rules and regulations. |                                   |                              |
| RESOLVED COMPLAINTS:   |                                   |                              |

On August 20, 2018, I (Kerry Kelly, MDEQ-Air Quality Division) and Joyce Zhu, DEQ, conducted an inspection at Michigan Metal Coatings (MMC) located at 2015 Dove, Port Huron, Michigan. The purpose of the inspection was to evaluate the facility's compliance with requirements of Article II, Air Pollution Control, Part 55 of Act 451 of 1994 and with the requirements of Permits to Install (PTI) No. 139-06 and 116-06A.

Michigan Metal Coating is located in eastern St. Clair county Michigan and is immediately surrounded by commercial/industrial properties. The closest residential properties are approximately 0.20 miles away. There is a baseball field approximately 0.25 miles west-southwest of Michigan Metal Coatings. Approximately 63 employees work at Michigan Metal Coatings and the hours of operation are 24 hours per day Monday through Friday, and occasional Saturday.

Joyce and I arrived at the facility at approximately 10:50 AM and met with Mr. James Hammond, Quality Assurance Manager. We introduced ourselves to Mr. Hammond and stated the purpose of the inspection.

**PROCESSES AND EQUIPMENT OVERVIEW**

Michigan Metal Coatings uses dip-spin machines to coat metal parts including nuts, bolts, and fasteners. Parts are washed in an alkaline solution, shot peened, and heat treated prior to coating to remove oils, scale, and surface rust. I observed 12 shot blating machines during the inspection. The emissions from the shot blasting machines are directed to baghouses that vent to the general in-plant environment. I did not see dust in the areas where the shot blasting takes place. The shot blasting and alkaline washer equipment is exempt from permit to install requirements pursuant to Rule 285(2)(l)(vi) and Rule 285(2)(iv) respectively.

The volume of waste water generated from processes at the plant is reduced using a natural gas-fired waste water evaporator (EUWASTEEVAP). EUWASTEEVAP is permitted in PTI 116-06B.

According to Mr. Hammond, one of four different basecoats is applied to all part orders. Some customers choose to have a top coat applied over the basecoat. About 30 top coats are available. Coatings are used as received. To adjust viscosity, water is added to the coatings.

There are five coating lines at MMC; three base coat lines (Lines 1, 2, and 5) and two top coat lines (Lines 3 and 4). Lines 1, 2, 3, and 4 each have two dip coat booths and one cure oven. Line 5 has four dip coat booths and two ovens. Line 1 was recently replaced with Line 1A, which is permitted in PTI 116-06B. Line 4 has not yet been replaced by Line 4A according to Mr. Hammond. All coating lines combined (FGCOATERS) are permitted in PTI 116-06B.

A burn-off oven (EUBURNOFF), is used to clean dirty coating baskets. EUBURNOFF is permitted in PTI 139-06. According to Mr. Hammond, some baskets need to be cleaned between each run, such as Torquer CA-H Green, others are cleaned less frequently. Coating usage records indicate about 70 gallons of Torquer CA-H Green is used monthly.

**PTI 139-06**

I observed, during the inspection, that EUBURNOFF is a 560,000 Btu/hour, natural gas-fired, Steelman Model 555BA-C oven with an afterburner control used for removing coatings from dip spin baskets.

PTI 139-06 limits the fuel used in EUBURNOFF to natural gas only and the material processed in EUBURNOFF to cured paints, oil or grease on metal parts, racks and/or hangers.

MMC is prohibited from using EUBURNOFF for the following purposes in Special Condition (SC) VI. 1 and 2:



- The thermal destruction or removal of rubber, plastics, uncured paints, or any other materials containing sulfur or halogens (chlorine, fluorine, bromine, etc.) such as plastisol, polyvinyl chloride (PVC), or Teflon.
- The loading of any transformer cores, which may be contaminated with PCB-containing dielectric fluid, wire or parts coated with lead or rubber, or any waste materials such as paint sludge or waste powder coatings into EU-BURNOFF

According to Mr. Hammond, only dip spin baskets with cured coating are put into EUBURNOFF. A list of coatings used in the dip spin machines was provided by Mr. Hammond (Attachment 1). Mr. Hammond also provided SDSs for frequently used coating (Attachment 2). I observed during the inspection that the burner on EUBURNOFF is natural gas-fired.

The operation of EU-BURNOFF is prohibited unless:

- A secondary chamber or afterburner is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the secondary chamber or afterburner includes maintaining a minimum temperature of 1400°F and a minimum retention time of 0.5 seconds
- An automatic temperature control system for the primary chamber and secondary chamber or afterburner is installed, maintained, and operated in a satisfactory manner
- An interlock system that shuts down the primary chamber burner when the secondary chamber or afterburner is not operating properly, is installed, maintained and operated in a satisfactory manner

Installation, calibration, maintenance and operation, in a satisfactory manner, of a device to continuously monitor the temperature in the burnoff oven secondary chamber or afterburner and recording the temperature at least once every 15 minutes is also required.

During the inspection I observed a device on EU-BURNOFF used to monitor the temperature of the primary burner and afterburner and a device recording the afterburner temperature. I noted during the inspection that the primary burner temperature was 755 degrees Fahrenheit and the afterburner temperature was 1390 degrees Fahrenheit. Mr. Hammond gave me copies of the afterburner temperature recordings, as requested, for the weeks of July 26, 2018, August 2, 2018, and August 9, 2018 (Attachment 3). These records indicate the afterburner temperature was below the minimum temperature at all times the primary burner was running. The highest recorded afterburner temperature occurred once and was between 1385 degrees Fahrenheit and 1400 degrees Fahrenheit. I informed Mr. Hammond that the minimum temperature of the afterburner while EU-BURNOFF is operating is 1400 degrees. Mr. Hammond sent an email on September 24, 2018 informing me that MMC's maintenance personnel fixed the afterburner temperature and sent the chart recording for the week of September 17, 2018 (Attachment 4). Failure to maintain a minimum afterburner temperature of 1400 degrees Fahrenheit while EU-BURNOFF is operating is a violation of SC IV.1. A notice of violation will not be sent for failure to maintain an afterburner temperature at or above 1400 degrees because it appears the company has already addressed the violation.

Mr. Hammond gave me records of the temperature monitor calibration for FG-BURNOFF conducted August 2017 and August 2018 (Attachment 5). These records indicate the temperature controller is calibrated annually and is in tolerance.

MMC was found to be in violation of the requirement to have an interlock system that shuts down the primary burner if the afterburner temperature goes below the required minimum temperature during the July 13, 2017 AQD full compliance inspection at MMC. Mr. Hammond gave me a copy of the invoice indicating "EPA Controls for After Burner System" were installed (Attachment 6). Though it appears the interlock system was installed, the afterburner temperature recordings show the system was not shutting down when the afterburner temperature dropped below 1400 degrees Fahrenheit. It is unclear whether the interlock failed or if the afterburner temperature to trigger the interlock system was set too low. It appears there is not enough information at this time to resolve the violation regarding the interlock system.

I inspected the stack for EU-BURNOFF and noticed the stack height appeared to be more than one and one half time the building height and that there was a rain cap on the top of the stack. I did not see any visible emissions from the EU-BURNOFF stack during the inspection. EU-BURNOFF SC VIII. 1 requires exhaust gases from EU-BURNOFF be discharged unobstructed vertically upwards to the ambient air from a stack with an exit point not less than one and one half times. The rain cap prevents the exhaust gases from exiting the stack vertically and unobstructed. This is a violation of EU-BURNOFF SC VIII. 1.

**PTI 116-06B**



PTI 116-06B was issued to Michigan Metal Coatings February 12, 2018. Equipment/processes included in the permit are a waste evaporator (EUWASTEEVAP) and five dip-spin coating lines (FGCOATERS). A facility-wide limit on hazardous air pollutants (HAP) is also included in the permit (FGFACILITY).

#### EUWASTEEVAP

EUWASTEEVAP is a natural gas-fired evaporator used to reduce the volume of waste water from processes at the plant.

VOC emissions from EUWASTEEVAP are limited to 5.0 tons per year in Special Condition (SC) I.1. Compliance with this emission limit is demonstrated by recording and calculating the following:

- Gallons of each rinse water used.
- An emission factor of 0.8 lbs VOC per gallon of water processed, or another emission factor as approved by the AQD District Supervisor.
- VOC mass emission calculations determining the monthly emission rate in tons per calendar month.
- VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

Mr. Hammond provided records of the gallons of rinse water used and the VOC emissions from EUWASTEEVAP between January 2017 and March 2018 (Attachment 7). These records indicate MMC did not keep records of rinse water used or VOC emissions between March and July 2018. This is a violation of EUWASTEEVAP SC VI. 2. MMC is using an emission factor of 0.8 lb VOC/ gallon of treated waste water. The highest 12-month rolling VOC emissions during the reporting period were 1.66 tons reported in July 2017. The reported emissions are within permit limits.

EUWASTEEVAP SC VIII. 1 requires exhaust gases from EUWASTEEVAP be discharged unobstructed vertically upwards to the ambient air from a stack with an exit point not less than 45 feet above ground and 10 inches in diameter. I inspected the stack for EUWASTEEVAP and noted the exit point appeared to be 45 feet above the ground and that there was a rain cap on the top. I did not see any visible emissions from the EUWASTEEVAP stack during the inspection. The rain cap prevents the exhaust gases from exiting the stack vertically and unobstructed. This is a violation of EUWASTEEVAP SC VIII. 1.

#### FGCOATERS

FGCOATERS consists of five dip-spin lines (EUCOATER1, EUCOATER1A, EUCOATER2, EUCOATER3, EUCOATER4, EUCOATER 4A, EUCOATER5). Base coats are applied on EUCOATER1A, EUCOATER2, and EUCOATER5 and the emissions from these lines are controlled by a regenerative thermal oxidizer (RTO). EUCOATER3 and EUCOATER4 are used to apply top coats and the emissions from these lines are uncontrolled. As stated previously, EUCOATER1 was replaced with EUCOATER1A and EUCOATER5 has not yet been installed.

VOC emissions from FGCOATERS is limited to 50.0 tons per year based on a 12- month rolling time period and a daily volume weighted average of 3.50 lb/gal coating minus water and as applied. Compliance with these emission limits is demonstrated through SC VI. 3. SC VI.3. requires records of the following:

- Gallons (with water) of each coating used and, if applicable, reclaimed
- Percentage of VOC emissions being captured and destructed by the RTO
- VOC content (minus water and with water) of each coating as applied
- VOC emission calculations determining the volume-weighted average VOC content of the coatings as applied on a daily basis for each individual emission unit
- VOC mass emission calculations determining the monthly emission rate in tons per calendar month for FGCOATERS
- VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month for FGCOATERS

MMC is also required to maintain a current listing from the manufacturer of the chemical composition of each coating, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. MMC is required to determine the VOC content, water content and density of any coating, as applied and as received, using federal Reference Test Method 24 in SC V.1. Upon prior written approval by the AQD District Supervisor, MMC may determine the VOC content from manufacturer's formulation data. This information will be used to validate the VOC content of the coatings being used.



Mr. Hammond gave me safety data sheets (SDS) for four base coats and four top coats (Attachment 2), Air Quality Data Sheets for three base coats and two top coats (Attachment 8), and a list of coatings and VOC content of the coatings used at MMC (Attachment 1). The SDS sheets for the base coatings did not have any useful information about the water content, VOC content, or other physical characteristics of the coatings. The VOC content used to calculate emissions is comparable to the data provided in the Air Quality Data Sheets.

Records of the VOC emission calculations determining the volume-weighted average VOC content of the coatings as applied on a daily basis for each individual emission unit were provided by Mr. Hammond (Attachment 9). These records indicate the highest volume-weighted average of VOC contents of the coatings as applied on a daily basis for any individual coating line was 3.21 lbs/gal minus water reported on September 22, 2017 for EUCOATER4. The 2018 records indicate MMC is calculating forty percent of VOC emissions as captured with 95 percent control for each of the coating lines, including EUCOATER3 and EUCOATER4. The emissions from EUCOATER3 and EUCOATER4 are not controlled, therefore, MMC should be assuming 100 percent of the VOCs from EUCOATER3 and EUCOATER4 are emitted. The highest reported daily coating VOC content, assuming 40 percent control, in 2018 was reported as 1.49 lb/gal on March 9, 2017. Assuming 100 percent of VOCs are emitted for EUCOATER4, the calculated daily VOC content would be 2.4 lbs/ gal, which is still less than the permit limit. I will notify Mr. Hammond that VOC pounds per gallon calculations for EUCOATER3 and EUCOATER4 should be 100 percent uncontrolled.

Records of the gallons of coatings, percentage of VOC emissions being captured and destructed by the RTO, VOC emission calculations determining the volume-weighted average VOC content of the coatings as applied on a daily basis for each individual emission unit, and VOC mass emission calculations determining the monthly and 12-month rolling emission rate in tons per calendar month for FGCOATERS between January 2017 and July 2018 (Attachment 7). These records indicate MMC did not keep records of coating used or VOC emissions for June 2018. Mr. Hammond stated that the person who fills in the coating usage data, which is used to calculate VOC emissions, has been out on medical leave and that a back-up data entry person is being trained to fill in. A violation notice will be issued to MMC for failure to keep records of the monthly and 12-month rolling VOC emissions by the end of the following month. The highest 12-month rolling VOC emissions from the data provided for FGCOATERS was 23.66 tons reported in May 2018. The reported emissions are less than the permit limits.

PTI 100-14 requires all waste coatings be stored in closed container, disposed of in an acceptable manner, and the handling of all VOC and / or HAP containing materials, including coatings, reducers, solvents and thinners, be done in a manner to minimize the generation of fugitive emissions. During the inspection I observed that all waste materials were stored in closed containers and VOC and HAP containing materials were handled in a manner to minimize emissions.

MMC is prohibited from operating the RTO unless a malfunction abatement plan (MAP) as described in Rule 911 (2) is implemented and maintained and from operating EUCOATER1A, EUCOATER2, and EUCOATER5 unless the RTO is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the RTO includes a minimum VOC destruction efficiency of 95 percent (by weight), maintaining a minimum temperature of 1,500 degrees Fahrenheit or the adjusted minimum temperature based on the most recent acceptable stack test which achieved a minimum overall destruction efficiency of 95 percent, and a minimum retention time of 0.5 seconds.

Compliance with the RTO destruction efficiency was verified during a stack test conducted on September 8, 2016. Attached is a copy of the stack test report summary page (Attachment 10). A copy of the entire stack test report is on file at the DEQ Southeast Michigan District Office. The summary page indicates the average destruction efficiency of the RTO was 96.05 percent and the capture efficiency was 87.3 percent. The destruction efficiency is within permit limits.

An approvable MAP was submitted by MMC on November 2015. The MAP requires daily, monthly, quarterly, semi-annual, and annual maintenance. Mr. Hammond provided the RTO maintenance records I requested (Attachment 11). Based on these records, it appears MMC is maintaining the RTO according to the schedule and procedures in the MAP.

Compliance with the 1500 degree Fahrenheit minimum temperature limit for the RTO is demonstrated through recordkeeping in FGCOATERS SC VI4 which requires keeping records of the RTO temperature while EUCOATER1A, EUCOATER2, and EUCOATER5 are operating. Mr. Hammond provided temperature readings recorded once an hour for August 2017 through August 2018. The temperature readings during the reported period indicate the 10 second readings of RTO temperatures were greater than 1500 degrees Fahrenheit while



EUCOATER1A, EUCOATER2, and EUCOATER5 were operating. I inspected the RTO temperature monitor during the inspection and noted the temperature was 1520 degrees Fahrenheit in and 1547 Fahrenheit out and the pressure drop was approximately two inches water column. The minute average temperature was 1514 degrees Fahrenheit and the hourly average was 1515 degrees Fahrenheit. The RTO temperature monitor is calibrated annually. Mr. Hammond gave me records of the temperature monitor calibration for the RTO conducted August 2017 and August 2018 (Attachment 11). These records indicate the temperature controller is in tolerance.

I inspected the stack for the RTO and the dimensions appear to be in compliance with the permit requirements, but the dimensions were not measured. There were no visible emissions from the RTO stack during the inspection.

#### FGFACILITY

This flexible group encompasses all process equipment at the stationary source including equipment covered by other permits, grandfathered equipment and exempt equipment. All equipment and processes at MMC are included in FG-FACILITY.

FG-FACILITY contains the following emission limits:

- Each individual HAP is limited to 8.9 tpy per 12-month rolling time period as determined at the end of each calendar month for FGFACILITY
- Aggregate HAP emissions are limited to 22.4 tpy per 12-month rolling time period as determined at the end of each calendar month for FGFACILITY

Compliance with the HAP and VOC emission limits is demonstrated by recordkeeping requirements set forth in SC VI.2. Records of the 12-month rolling facility-wide HAP emissions for January 2017 through July 2018 were provided by Mr. Hammond (Attachment 13). These records indicate the highest individual 12-month rolling HAP emissions were 2 tons per year of Methanol and the highest aggregate HAP emissions were 11.61 tons. The reported HAP emissions are less than the permit limits.

The HAP content used to calculate emissions is comparable to the data provided in the Air Quality Data Sheets.

#### OTHER EQUIPMENT NOT PERMITTED

During the inspection I observed approximately 10 mixers used for mixing coatings. Emissions from this process are included in the FGCOATERS emissions. These emission units appear to be exempt from the requirement to obtain a permit to install per R 336.1287(2)(k).

#### MAERS

MMC reported 6288.43 lbs (3.14 tons) of VOC emissions for 2017. These emissions are much less than the highest 12-month rolling emissions reported during the inspection (23.66 tons in June 2018). The VOC records provided during the inspection (Attachment 7) however do indicate the 12-month rolling VOCs in December 2017 were 6.71 tons which is comparable to the 2017 MAERS report.

#### CONCLUSION

Based on information collected and belief formed after reasonable inquiry during this inspection, Michigan Metal Coatings appears to be in violation of EU-BURNOFF SC VIII. 1, EUWASTEEVAP SC VI.2. and VIII. 1, and FGCOATERS VI.3.

NAME

K. Kelley

DATE

10/11/18

SUPERVISOR

Joyce SC

