

M4768
manilaDEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

M476872144

FACILITY: FLAT ROCK METAL INC		SRN / ID: M4768
LOCATION: 26601 W HURON RIVER DR, FLAT ROCK		DISTRICT: Detroit
CITY: FLAT ROCK		COUNTY: WAYNE
CONTACT: Gregory Zang , Operations Manager		ACTIVITY DATE: 11/09/2023
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection of an opt-out source.		
RESOLVED COMPLAINTS:		

Introduction

On Thursday November 9, 2023, I (AQD staff Sam Liveson) conducted an announced, scheduled inspection of Flat Rock Metal Inc. (FRM), located at 26601 W Huron River Drive in Flat Rock, Michigan.

The purpose of this inspection was to determine the facility's compliance with the federal Clean Air Act; Part 55, Air Pollution Control, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; the Michigan Air Pollution Control Rules (Rules); and the conditions of Permits to Install (PTI) No. 71-98A and 59-09.

Pre-Inspection Meeting and Facility Overview

Arrival

This inspection was announced because it coincided with the stack test being conducted at the facility this week. I called Greg Zang, Vice President of Operations on November 6 to discuss whether he would have availability to accompany me on a facility inspection while the stack test was occurring.

I arrived at the facility at about 9:55 AM on November 9. Weather was 47 °F and mostly cloudy. From the parking lot, I observed three stacks with no opacity. At the facility, I met with Greg Zang, Vice President of Operations. I provided by state-issued identification and stated the purpose of my visit. We had a pre-inspection meeting prior to walking through the facility.

General Facility Overview

FRM is a steel processing facility which specializes in processing the steel used in bumpers for pickup trucks. At FRM, finished steel coils from the steel mill are made into sheets. These sheets are cured, machined, stacked, and sent to a tier 1 company for stamping. The facility has been operating for over 40 years.

The facility has four main lines where steel is cleaned, lubricated, and coated with zinc phosphate. Three of these four lines have dry and wet polishing stations, where sheets destined to be chrome bumpers are polished via grinders. The fourth line does not contain any dry polishing (also referred to as rough lines or dry grinding) or wet polishing (also referred to as finish lines).

Stack Test

On Tuesday 11/7/23, Wednesday 11/8/23, and Thursday 11/9/23, rough lines 1, 2, and 3 were tested for PM. Friday 11/10/23, nickel was planned to be tested on rough line 3. Generally two test runs occur in the morning, and one in the afternoon. On Thursday 11/9/23, the day of the inspection, run 1 on rough line 3 began at 7:45 AM, and when I arrived, the facility was in-between runs. The second run on rough line 3 began at 10:20 AM.

Voiding General Permit No. 59-09

This general permit for a volatile organic compound (VOC) coating line was issued on March 30, 2009. Per the facility's void request received June 25, 2024, PTI 59-09 allowed for the coating of metal panels at the plant, and this activity no longer occurs at FRM. All equipment dedicated to the coating of metal panels has been dismantled and removed from the facility. The facility provided a request to void PTI 59-09 to Cindy Smith, Permit Section Supervisor, and April Wendling, Detroit District Supervisor, on June 25, 2024.

Compliance Background

FRM has no outstanding violation notices. The facility received a violation notice on May 11, 2022 for not having a Permit to Install for its Rough Line 3, installed in March of 2018. The facility resolved the violation by applying for and receiving PTI No. 71-98A on May 30, 2023.

Records

Records were received December 1, 2023. On June 18, 2024, I met with the facility via MS Teams to discuss records, and from discussions, it appeared that HAP records were being calculated for each month rather than for 12-months rolling. FRM provided corrected records on June 25, 2024.

Facility Walkthrough and Compliance Status

At FRM, steel coils are first unrolled and cut to length as rectangles, and the edges are trimmed via shear lines. The resulting steel sheets are stacked and carried via forklift to one of four lines for additional treatment. All four lines contain a steam and pressure rinse. One line is complete at this point, while the other three lines continue onto a dry polishing (rough line) section, followed by a wet polishing (finishing line) section. Lines are discussed further below.

Two Cut-to-Length Lines and Several Shear Lines (R 285(2)(l)(vi)(B))

I observed the two cut-to-length (CTL) lines at the facility, which were both operating. FRM receives rolled steel coils as raw material. At the start of FRM's process, as steel coils are unrolled, two "cut-to-length" lines are used to cut these sheets perpendicular to the rolled length, so that the result is rectangular sheets several feet long and wide.

FRM also trims edges of sheets via several shear lines. I observed the thin strips of metal scrap from edge trimming collected in a container. These pieces are narrow and long (several inches in length). The edge trim and some full-size unusable sheets are sold as scrap.

From my observations and talking with the facility, CTL and shear lines do not appear to generate particulate matter emissions. No grinding occurs. No chemicals are involved. No stacks are associated with the CTL lines. The two CTL lines and shear lines appear to be exempt from obtaining a PTI via Rule 285(2)(l)(vi)(B) for equipment for cutting metals where emissions are released into the general in-plant environment.

Four Steam and Pressure Rinses (R 285(2)(r)(iv))

The first part of each of four process lines is a steam and pressure rinse. This uses hot water and pressure to cause impingement to knock particulate into the water. Particles are dragged out via a belt several feet long and wide and into a hopper. These semi-dry cakes of particulate are sold to a scrap company. Oil that was on the sheets from delivery is separated into a tote to be removed off site. No potassium hydroxide or sodium hydroxide appears to be used with this hot water rinse. The rinse appears to be exempt from obtaining a PTI per Rule 285(2)(r)(iv) for metal cleaning.

Three Dry Polishing Lines (PTI 71-98A, FGROUGHLINES)

While one of the four steam and pressure lines ends, the other three steam and pressure lines continue onto a dry polishing operation. These three dry polishing lines are permitted via PTI 71-98A FGROUGHLINES.

PTI 71-98A, FGROUGHLINES Special Conditions and Compliance Status

Below is a summary of each special condition from Flexible Group FGROUGHLINES from PTI 71-98A, and an explanation of the facility's compliance status.

SC I.1, V.1: Emission limit of 0.00008 lbs PM per 1000 lbs of exhaust gas, determined via stack testing.

PENDING. This emission limit appears to be an error. The emission limit is based upon the minimum average grain loading from stack testing on a similar control device at FRM on July 29, 1997, which provided 0.00749 grains per dry standard cubic foot. $0.00749 \text{ gr/dscf} \times 1 \text{ cf}/0.075 \text{ lb air} \times 1 \text{ lb PM}/7000 \text{ gr} \times 1000 \text{ lb air}/1000 \text{ lb air} = 0.014 \text{ pound PM}/1000 \text{ lb exhaust gas}$. 0.014 lb PM/1000 lb exhaust gas is closer to a correct emission limit based on the 1997 stack test. Inadvertently, the emission limit calculation multiplied by 0.075 lb air/cf instead of dividing, resulting in the erroneous

emission limit of 0.00008 lbs PM per 1000 lbs exhaust gas. The facility requested a supplemental permit revision to correct this error on December 19, 2023.

Below are stack test results from testing conducted November 7 through 10, 2023. Resulting values are below 0.014 pounds PM per 1000 lbs exhaust gas.

Emission Unit	Pollutant Tested	Measured Emissions
EUROUGHLINE1	Lbs PM/1000 lbs of exhaust gas	0.0062
EUROUGHLINE2	Lbs PM/1000 lbs of exhaust gas	0.0046
EUROUGHLINE3	Lbs PM/1000 lbs of exhaust gas	0.0043

SC I.2, V.1: Emission limit of 2.57 lbs PM per hour, determined via stack testing.

COMPLIANCE. Below are stack test results from testing conducted November 7 through 10, 2023.

Emission Unit	Pollutant Tested	Measured Emissions	Permitted Emission Limit
EUROUGHLINE1	PM pph	0.753	2.57
EUROUGHLINE2	PM pph	0.437	2.57
EUROUGHLINE3	PM pph	0.492	2.57

SC I.3, V.1: Emission limit of 0.95 lbs PM10 per hour, determined via stack testing.

COMPLIANCE. Below are stack test results from testing conducted November 7 through 10, 2023.

Emission Unit	Pollutant Tested	Measured Emissions	Permitted Emission Limit
EUROUGHLINE1	PM10 pph	0.544	0.95
EUROUGHLINE2	PM10 pph	0.351	0.95
EUROUGHLINE3	PM10 pph	0.385	0.95

SC I.4, V.1: Emission limit of 0.50 lbs PM2.5 per hour, determined via stack testing.

COMPLIANCE. Below are stack test results from testing conducted November 7 through 10, 2023.

Emission Unit	Pollutant Tested	Measured Emissions	Permitted Emission Limit
EUROUGHLINE1	PM2.5 pph	0.403	0.50
EUROUGHLINE2	PM2.5 pph	0.261	0.50
EUROUGHLINE3	PM2.5 pph	0.368	0.50

SC I.5, V.2: Emission limit of 0.003 lbs nickel per hour, determined via stack testing of one rough line.

COMPLIANCE. Stack testing conducted November 10, 2023 on EUROUGHLINE3 measured emissions of 0.000564 pounds nickel per hour, below the facility limit of 0.003 lbs nickel per hour.

SC I.6, VI.2, VI.4: Emission limit of 0.012 tons nickel per year; keep records of chemical composition of metal sheets and monthly & 12-month rolling nickel emissions.

COMPLIANCE. FRM provided 12-month rolling nickel emissions for June 2023 through April 2024. From reviewing records and talking with the facility, particulate emissions appear to be calculated from facility tonnage data per month, converted to hours based on 15.75 tons an hour, and converted into PM, PM10, and PM2.5 emissions using emissions factors from stack testing on a similar control device at FRM on July 29, 1997. Nickel emissions are calculated by multiplying 12-month rolling pounds of particulate emissions by the highest nickel concentration based on manufacturer provided chemical compositions, which is 0.01% nickel. The highest 12-month rolling nickel emissions were 3.80 pounds nickel (0.0019 tons) in September 2023.

SC I.7, VI.5, VI.6: Visible emissions from each emission unit of FGROUGHLINES not to exceed 5 percent opacity over a six minute average; take readings from each stack once a day; keep record of readings.

FRM provided records of daily visible emission readings for November and December 2023. Records indicate no visible emissions were observed each day.

SC III.1, VI.3: A maximum of 7 grinding heads per emission unit of FGROUGHLINES. Keep daily records of the number of grinder heads.

COMPLIANCE. In FRM's records received, FRM explained that only EUROUGHLINE1 could potentially operate more than the allotted 7 grinding heads. The facility provided a "process card" for EUROUGHLINE1 indicating that six grinding heads were used, and explained that EUROUGHLINE data was reviewed based on each master order, and there are not any orders that have more than 7 operating heads directed to run.

The facility provided daily grinding heads used for November and December 2023. The most grinding heads used on each rough line were 7.

SC III.2: Submit, implement, and maintain a malfunction abatement plan (MAP).

COMPLIANCE. FRM provided the facility MAP. It specifies the responsible individuals as the operations manager; preventative maintenance; variables to monitor (the number of polishing heads, the pressure drop across the dust collector units, and daily visible emissions readings); as well as corrective actions to take for failed monitoring variables. The pressure drop range is indicated in PTI 71-98A SC IV.2 as 5 to 15 pounds per square inch gauge. Because AQD did not notify the permittee within 90 days of submittal, the MAP is considered approved. The plan appears to be adequate.

SC IV.1, IV.2, VI.7: For each emission unit in FGROUGHLINES, install, monitor, and operate the wet dust collector and exhaust filters according to the MAP and in a satisfactory manner. Do not operate FGROUGHLINE emission units unless pressure drop gauges across each Wet Dust collector are installed, calibrated, maintained, and operated. Record pressure drop at least once per calendar day.

COMPLIANCE. Monthly, line production and a visual review of the dust collector will occur per the MAP, and cleanings are scheduled based on usage. The facility provided invoices of cleanings, which are provided by a third party. EUROUGHLINE1 wet dust collector was cleaned on 8/11/23; EUROUGHLINE2 wet dust collector was cleaned on 10/20/23, and EUROUGHLINE3 wet dust collector was cleaned on 10/26/23. FRM also provided images of the cleaning which occurred on the wet dust collector for EUROUGHLINE 2.

During the inspection, EUROUGHLINE2 and EUROUGHLINE3 were operating. Each wet dust collector has two pressure drop readings labeled low and high. Staff explained that the two readings are because each sensor has one automatic shutdown in place; the low has an automatic shutdown below 5, and the high has an automatic shutdown above 15. The two readings are redundant and typically provide similar readings. If the readings become variant, the facility calibrates them. I observed the following pressure drops.

Emission Unit	Parameter	Value	Range	Time
EUROUGHLINE1	Pressure drop (PSIG)	Not Operating	5-15	--
EUROUGHLINE2	Pressure drop (PSIG)	12.6 low, 12.6 high	5-15	11:04 AM
EUROUGHLINE3	Pressure drop (PSIG)	8.0 low, 9.6 high	5-15	11:05 AM

The facility provided daily pressure drop readings. Values are not below 5 or above 15 psig. Staff explained that they will take a picture of the pressure drop each day, and then transfer the number in the picture onto the excel spreadsheet for tracking. Staff records one of the two redundant pressure drop readings.

SC VIII.3: Requirements for the three stacks associated with the three wet dust collectors.

Prior to the stack testing this week, stacks were updated to have the dimensions in PTI 71-98A. Greg and I observed stacks from the roof. All three stacks appeared to have diameters around 30 inches, and heights similar to those in the permit. SV-WETDUSTCOLLECTOR-01 starts horizontal, but curves upwards so that it exhausts vertically unobstructed. SV-WETDUSTCOLLECTOR-02 is

cylindrical and exhausts vertically unobstructed. SV-WETDUSTCOLLECTOR-03 is square, taller than the others, and exhausts unobstructed vertically. Observing the stacks, I did not see any opacity.

Source-Wide Conditions (PTI 71-98A, FGFACILITY)

Below is a summary of each Source-Wide special condition from PTI 71-98A flexible group FGFACILITY, and an explanation of the facility's compliance status.

SC I.1, I.2, VI.1, and VI.2: HAP emission limit of less than 9 tons per year (tpy) individual HAP and less than 22.5 tpy total HAPs. Calculate HAP emissions.

COMPLIANCE. The facility provided 12-month rolling individual and aggregate HAP emissions calculations for September 2023 through April 2024. From reviewing records and talking with the facility, particulate emissions appear to be calculated from facility tonnage data per month, converted to hours based on 15.75 tons an hour, and converted into particulate emissions using emissions factors from stack testing on a similar control device at FRM on July 29, 1997. Individual HAP emissions appear to be calculated by multiplying 12-month rolling pounds of particulate emissions by the highest HAP concentration based on manufacturer provided chemical compositions. HAPs emitted are manganese, nickel, chromium (3), and phosphorus. The highest 12-month rolling individual HAP emissions are 96.78 pounds manganese (0.048 tons) in September 2023. The highest 12-month rolling aggregate HAP emissions are 308.65 pounds (0.15 tons) in September 2023.

Two Boilers (Rule 282(2)(b)(i))

The facility has two natural gas-fired boilers. These boilers are identified in the facility's annual air emissions reports as EUBOILEREAST9 and EUBOILERWEST10. EUBOILEREAST9 has a heat input of 6.51 MMBtu/hr, and an installation date of 1983. EUBOILERWEST10 has a heat input of 15.44 MMBtu/hr and an installation date of 1955 (and subsequent modification in 1981 according to the 71-98 permit file). I briefly visited these boilers. They appear to be exempt from obtaining a PTI per Rule 282(2)(b)(i) for equipment used for service water heating which burns natural gas and has a rated heat input capacity of not more than 50 MMBtu/hr. EUBOILEREAST9 does not appear to be subject to federal Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR Part 60 Subpart Dc) due to its heat input being less than 10 MMBtu/hr per 60.40c(a). EUBOILERWEST10 does not appear to be subject to 40 CFR Part 60 Subpart Dc due to its installation and modification occurring before June 9, 1989 per 60.40c(a). Both boilers appear to be gas fired boilers so that they are not subject to 40 CFR Part 63 Subpart JJJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources per 40 CFR 63.11195(e).

Water Treatment (Rule 285(2)(m))

Water treatment occurs at the facility. I observed the treatment process. Part of treatment appears to be to remove zinc phosphate from water used at the facility. Calcium products are added to create solids, which are removed via a clarifier. A sludge created from the process is disposed to landfill. No heating occurs. Water treatment appears to be exempt from obtaining a PTI per Rule 285(2)(m) for process water treatment equipment.

Sheet Blank Presses (Rule 285(2)(l)(i))

As a final part of the facility process, when required, the facility has four sheet blanking presses. I observed the presses on site. No stacks are associated with these presses. These presses appear to be exempt from obtaining a PTI per Rule 285(2)(l)(i) for stamping cold metals.

Emergency Engine (Rule 285(2)(g); 40 CFR Part 63 Subpart ZZZZ)

We visited the emergency engine on site. Greg provided a photo of the nameplate following the inspection. The engine was manufactured in February 2003. It appears to be a propane generator. The output appears to be 17 kilowatts, or 58,038 BTUs/hour. The engine appears to be exempt from obtaining a PTI per Rule 285(2)(g) for internal combustion engines with a heat input less than 10,000,000 Btu/hour. Based on its manufacture date, the engine appears to be subject to 40 CFR Part 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary

Reciprocating Internal Combustion Engines. I did not evaluate compliance with this subpart during this inspection.

Cold Cleaner (Rule 281(2)(h))

I observed the cold cleaner on site. The surface area appears to be less than 10 square feet. The lid was closed. Operating instructions were posted conspicuously. No stack is associated with the cold cleaner. Greg explained that the liquid is changed approximately every 1 to 2 months, and the previous cleaning liquid is taken off site with a manifest of disposal. I did not request the safety datasheet of the solvent, or a manifest of disposal during this inspection. The cold cleaner appears to be exempt from obtaining a PTI per Rule 281(2)(h) for cold cleaners that have an air/vapor interface of not more than 10 square feet.

Sheet Film Applicator

The facility has a protective film sheet applicator that appears to roll tape onto sheets to protect the sheets when necessary. I did not request additional information about the film sheet.

Conclusion

Based on the AQD inspection and records review, FRM appears to be in compliance with the federal Clean Air Act, Michigan NREPA, the Michigan Air Pollution Control Rules, and PTI 71-98A. PTI 59-09 will be voided per the facility request.

NAME



DATE

6/26/24

SUPERVISOR

