

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

N574757349

FACILITY: PIONEER METAL FINISHING INDUSTRIAL HWY		SRN / ID: N5747
LOCATION: 24600 INDUSTRIAL HWY, WARREN		DISTRICT: Warren
CITY: WARREN		COUNTY: MACOMB
CONTACT: Justin Engel , EHS Coordinator		ACTIVITY DATE: 03/02/2021
STAFF: Kaitlyn Leffert	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY2021 Scheduled Inspection		
RESOLVED COMPLAINTS:		

On March 2, 2021, I, Kaitlyn Leffert, Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) staff, conducted a scheduled inspection of Pioneer Metal Industries, located at 24600 Industrial Highway, Warren, Michigan. The facility is identified by the Source Registration Number (SRN) of N5747. The purpose of this inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); AQD administrative rules; and Permit to Install (PTI) Number 2-03M.

Pioneer Metal Finishing applies coatings to metal parts, primarily for use in automotive industry. The facility is permitted to operate two chain on edge (COE) spray booths equipped with natural gas fired curing ovens, one Sprimag COE booth, three dip spin machines equipped with in-line curing ovens, one dip spin machine where parts are routed to the batch oven, four tumble spray units, a natural gas fired batch oven, and two multi-stage heated phosphate treatment lines. The facility is required to maintain a permanent total enclosure (PTE) on the COE coating booths. VOC emissions from the coating lines are routed to a Regenerative Thermal Oxidizer (RTO) for emission control. Emissions from the phosphate lines are controlled by a wet bed scrubber.

Prior to the on-site inspection, I emailed Justin Engel, EHS Coordinator, Pioneer Metal, on February 19th to schedule the inspection and request copies of the records that are required by the permit. While inspections are not typically scheduled in advance, this is current department policy due to ongoing concerns related to COVID-19.

Previous Violations

Last year, on January 31, 2020, I inspected Pioneer Metal and found that the RTO temperature monitor had not been calibrated in over a year, which constituted a violation of PTI No. 2-03M, Special Condition (S.C.) VI.5. By the time the violation notice was processed and received by the facility, the facility had shut down to outside visitors due to COVID-19. As a result, it was not possible to bring in a contractor to calibrate the temperature monitor. It was determined that the calibration would be completed once stay at home orders were lifted and it was determined to be safe for outside visitors to come on-site. On July 21, 2020, I received notification from Pioneer Metal that the temperature monitor had been calibrated on June 26, 2020 and that the violation had therefore been corrected. The facility also updated their maintenance plans to ensure that thermocouple calibration occurs on an annual schedule going forward.

During my most recent inspection, I was provided a copy of the calibration result, which again showed that the calibration occurred on June 26, 2020 and that the calibration found the

temperature monitor to be operating within the accepted range. Mr. Engel also informed me that the facility plans to continue to conduct the thermocouple calibration annually in June.

Facility Inspection

I arrived at Pioneer Metal on March 2nd, 2021 at approximately 1:00 pm and was greeted by Mr. Engel. Mr. Engel and I first went over the required recordkeeping. He also emailed copies of the requested records for my review following the in-person portion of the inspection. Review of the required recordkeeping is further discussed later in this report.

Following an overview of the records, Mr. Engel led me on a tour of the facility. As noted in the previous inspection, some of the permitted equipment is no longer operating on-site. Specifically, one of the COE lines has been removed and two of the tumble spray units are no longer operating but are still located on-site. A summary of the permitted equipment that is currently operating on site and that vents to RTO is provided in the table below.

Emission Unit ID	Description
EU-Line1-Model24	Dip spin machine equipped with one basket and one coating vat. The basket is loaded with parts, submerged in the tank, and then raised to spin off excess coating. The parts are dropped on a conveyor and sent through a curing oven.
EU-Line4-COE2	Chain on Edge (COE) coating booth with in-line natural gas fired curing oven. Parts are loaded on the conveyor and move through a primer coating booth, through the curing oven, then to the topcoat booth, and back through the same curing oven.
EU-Line5-COE3	Sprimag COE booth equipped with an electric oven. Parts are loaded on the conveyor and again move through stages of primer, curing oven, topcoat, and then through the curing oven again.
EU-Line6-Model10	Dip spin machine used for small batches. This line is manually loaded, and parts are cured in EU-BatchOven. This dip spin machine is only used for testing new products and not for regular production.
EU-Line7-Model25	Dip spin machine that is equipped with two baskets and one vat. One basket is used for loading or unloading, while the other is dipped in the coating vat. Teflon coating is used on this line. After parts are dipped, they are dropped onto a conveyor and sent through the associated curing oven.

EU-Line13-Model26	Dip spin machine equipped with two baskets and two coating vats that can operate side-by-side. Parts are loaded into the baskets, dipped in the vat of coating material, and then dropped onto a conveyor that moves them through the curing oven.
EU-Line9-Tumble2	Tumble spray unit where parts are manually loaded into the drum, which is then closed and mechanically spun while coating is applied.
EU-Line10-Tumble3	Tumble spray unit where parts are manually loaded into the drum, which is then closed and mechanically spun while coating is applied.
EU-BatchOven	Natural-gas fired batch oven that cures products coming from EU-Line6-Model10.

The two chain on edge (COE) coating lines were operating during my inspection. The Model 24 and Model 25 dip spin lines were both also operating on the day of my inspection. The Model 26 dip spin line was not operating during my inspection. The Model 26 dip spin line contains two dip spin booths (Booth #1 and Booth #2). Booth #1 continues to operate, but Booth #2 is not currently operable and requires repair to be able to operate. The Model 10 dip spin unit was not operating during my inspection. Mr. Engel noted that they rarely use this unit anymore and that they are considering removing it from the facility.

During my inspection, I checked for signs that air was flowing into coating line enclosures in order to verify that emissions were being adequately captured and directed to the RTO. I did note that one of the enclosures in one of the COE lines was open to the general plant environment. I pointed this out and was told that the doors were open to change out the lines and that it will be closed as soon as the line change is done. It appeared that the coating process had paused while the line change was being conducted.

Pioneer Metal also has a batch oven, which is used to cure metal parts on an as needed basis. This oven is primarily used to cure the parts that are coated in the Model 10 dip spin unit. Mr. Engel mentioned that they are also considering removing this unit, since it is not often used.

I observed the RTO control and the associated temperature monitor. During my inspection, I noted that the temperature of the RTO was 1,549°F. Satisfactory operation of the RTO includes maintaining the combustion zone temperature of the RTO above the temperature observed during the most recent acceptable stack test (FG-LINES S.C. IV.3). The minimum allowed RTO temperature based on the most recent acceptable stack test is 1,462°F and the RTO appears to have been operating in compliance on the day of my inspection.

In addition to the coating lines and associated controls, I also observed the phosphate treatment lines, which is used to treat parts prior to them going through the coating lines. The permit specifies that adequate operation of the phosphate lines includes control of emissions from these

lines with a wet scrubber, installation of water flow gauge, and temperature monitor for the heated tanks in the phosphate treatment process. I observed the wet scrubber and noted that it was equipped with a water flow gauge. The temperature of the tanks in the phosphate line is monitored and recorded on a log every shift.

Mr. Engel pointed out the facility had installed a new boiler for heating the phosphate lines. The boiler was replacing the previous one that had been used. The boiler is a Hurst gas-fired steam boiler. The boilerplate lists the capacity range of 1.3 to 6.3 MMBTU/hr. This new boiler appears to be exempt from the requirement to obtain a PTI according to Rule 282(2)(b)(i).

Records Review

Following the in-person portion of the inspection, I reviewed the provided records. In order to ensure adequate operation of the regenerative thermal oxidizer (RTO) control, Pioneer Metal is required to maintain records of the RTO combustion zone temperature on a continuous basis (which is defined as at least once every 15 minutes). I was provided temperature records for the month of January 2021. The minimum allowed RTO temperature based on the most recent stack test is 1,462°F. The RTO temperature appeared to typically range from around 1,480°F to 1,525°F, with some values above and below that range. The records noted that there were periods where the temperature dropped below the minimum required temperature and the RTO appeared to be turned off. These periods corresponded to holidays or weekends in January where the facility was not operating. In addition to the continuous monitoring and recordkeeping of the RTO temperature, the facility also provides deviation reports on a semi-annual basis, which summarize periods where the RTO temperature is below the minimum required temperature. These reports are further discussed later in this report, under the heading *Appendix B Deviation Reports*.

Pioneer Metal is also required to maintain monthly records of the amount of each material used in the phosphate lines. The facility provided these records, which indicate that hydrochloric acid and PARCO Lubrite 5 are the raw materials used in the phosphate treatment lines. These are the same compounds identified during the FY2020 inspection.

VOC Emissions Capture: Differential Pressure Monitoring and Smoke Tests

To ensure adequate capture of VOC emissions for control by the RTO, PTI 2-03M requires that negative pressure be maintained between the permanent total enclosure (PTE) and the adjacent area for the COE lines, to ensure that air flows into the PTE through all draft openings (S.C. IV.5). The permit further requires that the negative pressure be maintained at a value of at least -0.007 inches of water (S.C. III.4) for the COE lines. Compliance with these requirements is demonstrated through weekly differential pressure monitoring, as required by S.C. VI.9. In addition, the tumble spray units are required to be operated at a negative pressure and weekly differential pressure monitoring is also required for these units (S.C. IV.8 and S.C. VI.10). The facility conducts weekly differential pressure monitoring using a handheld monitor. During the inspection, I reviewed records of the weekly differential pressure monitoring and noted that the pressure differential at COE 2 and COE 3 was being maintained below negative 0.007 inches of water and that the tumble spray units were also being maintained at a negative differential pressure.

Enclosures associated with the Model 24, Model 10, Model 25, and Model 26 dip spin lines, as well as the batch oven and ovens associated with COE 2 and COE 3 are also required to be maintained at a pressure lower than the adjacent areas (S.C. IV. 7). Compliance with this requirement is demonstrated through a semi-annual smoke test (S.C. V.2). The most recent smoke test was conducted on December 21, 2020. The test results indicated that the all dip spin lines, COE lines and associated ovens, and the batch oven were operating at negative pressure. The previous smoke tests before that were conducted on June 18, 2020 and on December 12, 2019, which both also indicated compliance with emissions capture requirements. The next smoke test is planned for June 2021. Based on the records of weekly pressure differential monitoring and the most recent smoke tube test results, negative pressure appears to be adequately maintained at each respective enclosure on the emission units across the facility.

Emissions Records

Pioneer Metal is required to maintain records of monthly and 12-month rolling total VOC emissions, daily records of xylene emissions, and records of monthly and 12-month rolling total emissions of ethylbenzene from the coating lines. In addition, the permit requires that the facility maintain facility-wide monthly and 12-month rolling total records of HAP emissions. The facility provided all required emission records in an excel spreadsheet. A summary table of the monthly and 12-month rolling emission totals is attached to the physical copy of this report.

Pioneer Metal is required to maintain records of monthly and 12-month rolling VOC emissions in order to demonstrate compliance with the 12-month rolling VOC emission limit of 35.31 tons per year (tpy) from the coating lines (FGLINES, S.C. I.1, VI.6). The provided emissions records indicate that 12-month rolling VOC emissions were 8.4 tpy at the end of February 2021. The highest 12-month rolling emissions over the previous two calendar years were recorded at the end of January 2020, at 15.0 tpy. The provided emissions calculations are consistent with the records submitted during the inspection last year and appear to demonstrate continued compliance with the permitted VOC emission limit.

In addition to the VOC emission limit, the permit also sets emission limits for ethylbenzene of 18,000 pounds/year and for formaldehyde of 560 lbs/year, as determined on a 12-month rolling time period (FGLINES, S.C. I.3 and I.4). At the end of February 2021, emissions of ethylbenzene and formaldehyde were 1,597 lb/year and 4.19 lb/year, respectively. The highest emissions of ethylbenzene and formaldehyde over the compliance period were again in January 2020 at 2,861 lb/year and 4.78 lb/year. The permit also sets a daily emission limit for xylene of 384 lb/day (FGLINES, S.C. I.2). Daily xylene emissions ranged from around 20 to 60 pounds/day in January 2021. These emission daily emissions are consistent with daily xylene emissions records collected during the inspection last year. Based on the provided records, the highest recorded daily xylene emissions were 62.44 pounds on January 10, 2020. The emission records indicate that the facility is operating in compliance with the permitted ethylbenzene, formaldehyde, and xylene emission limits.

I was also provided copies of hazardous air pollutant (HAP) emissions calculations in order to demonstrate compliance with the facility-wide HAP opt-out limits of 9.0 tpy for each individual HAP and 22.5 tpy aggregate HAPs (FG-FACILITY, S.C. I.1 and I.2). At the end of February 2021, aggregate HAP emissions were 5.89 tpy. The HAP with the highest 12-month rolling emissions was xylene, at 3.15 tpy. The highest HAP emissions over 2020 and 2021 so far were recorded at

the end of January 2020, with 9.38 tpy total HAPs and 5.36 tons of xylene emissions. The provided records appear to demonstrate compliance with the permitted aggregate HAP and individual emission limits.

Appendix B Deviation Reports

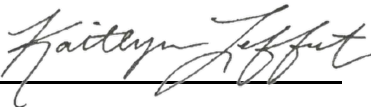
Pioneer Metal is required to submit deviation reports, which document any deviations such as drops in RTO temperature at the facility. Pioneer Metal has been submitting the required semiannual and annual certifications in timely manner. The most recent report was submitted January 22, 2021, which included the semi-annual certification for the period of July through December 2020, as well as the annual certification for calendar year 2020. Throughout 2020, a total of one hundred and ninety two (192) 15-minute periods were identified where the RTO temperature was below the minimum allowed temperature of 1,462°F. It was identified that these periods corresponded to weekends, break times or shift changes, where coating operations had stopped. PTI No. 2-03M requires that the coating lines not be operated when the RTO temperature drops below (FG-LINES S.C. IV.3). The information provided by the facility indicates that these drops in RTO temperature correspond to periods where the coating lines were not operating. In the most recent annual certification, the facility stated that the temperature setpoint of the RTO was increased in an attempt to decrease the number of deviations going forward. A closer review of these the RTO temperature records may be required if these deviations continue or increase.

Consent Order

Pioneer Metal is also operating under Consent Order No. 22-2010. This consent order requires that the facility continue to operate compliance with all conditions for PTI No. 2-03M for a period of five years. Non-compliance with permit conditions could result in additional stipulated penalties or fines. The five-year period for the consent order would have ended on July 31, 2020. The compliance evaluation conducted during this inspection indicated that the facility is currently operating in compliance. Since the five-year period is over and the facility is currently operating in compliance, the facility may request termination of the consent order.

Conclusion

Based on my on-site inspection and review of the required records, Pioneer Metal – Industrial Highway appears to be operating in compliance with all conditions of Permit to Install (PTI) No. 2-03M, as well as all applicable air quality rules and regulations.

NAME 

DATE 08/06/2021

SUPERVISOR 