

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

N574752358

FACILITY: PIONEER METAL FINISHING INDUSTRIAL HWY		SRN / ID: N5747
LOCATION: 24600 INDUSTRIAL HWY, WARREN		DISTRICT: Southeast Michigan
CITY: WARREN		COUNTY: MACOMB
CONTACT: Justin Engel , EHS Coordinator		ACTIVITY DATE: 01/31/2020
STAFF: Kaitlyn Leffert	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY2020 Scheduled Inspection. VN sent to facility on March 17th for not maintaining records of RTO temperature monitor calibration and for not calibrating the RTO temperature monitor in over a year.		
RESOLVED COMPLAINTS:		

On January 31, 2020, 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 coats a variety of small metal parts, primarily for use in the 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 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.

I arrived at the facility at approximately 10:00 am on January 31st. I met with Justin Engel, Environmental Health, and Safety Coordinator, Pioneer Metal. Justin and I first went over the required records and then conducted a walk-through of the facility.

Recordkeeping

The permit requires Pioneer Metal to maintain a current listing of the chemical composition of each coating and solvent. The facility keeps multiple binders on-site with Safety Data Sheets (SDSs) for every chemical used the facility. Attached is copy of the Table of Contents for these binders, which lists the manufacturer and product name for each coating or solvent used at 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, Pioneer Metal is required to 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 this report.

Emission calculations indicate that the facility is in compliance with the permitted VOC emission limit of 35.31 tpy, calculated on a 12-month rolling time period. Total monthly VOC emissions in January 2020 were 2,354 pounds, or 1.18 tons. The rolling 12-month total emissions at the end of January 2020 were 15.0 tpy. Looking back at the previous three years of records, the highest rolling 12-month total was recorded at the end of July 2019, with 16.7 tpy of VOC emissions.

In addition to the overall VOC limit on the coating lines, the facility is permitted to emit 18,000 lb/yr of Ethylbenzene and 560 lb/yr of Formaldehyde. The provided records indicate that rolling 12-month emissions of ethyl benzene were 2,861 pounds at the end of January 2020. Over the previous three-year period, the highest annual emissions were recorded at the end of July 2019, with 3,362 lb. Formaldehyde emissions over the previous 12-month period at the end of January 2020 were 4.78 lb. Over the previous three-year period, the highest annual emissions were recorded at the end of February 2017, with 5.57 lbs. Pioneer Metal therefore appears to be in compliance with the annual ethylbenzene and formaldehyde emission limits.

Daily records of Xylene emissions indicate that the emissions were typically around 40-60 pounds per day in January 2020. Pioneer Metal also appears to be in compliance with the daily xylene emission limit of 385 lb/day.

The facility has a HAP Opt-out permit and therefore individual HAP emissions are limited to 9.0 tpy and aggregate HAPs are limited to 22.5 tpy. Aggregate HAP emissions for the rolling 12-month time period ending in January 2020 were 10.10 tpy. Over the previous three period, the highest 12-month rolling aggregate HAP emissions were at the end of July 2019, with 11.50 tpy. In January 2020, the HAP with the highest 12-month rolling total emissions was Xylene, with 5.63 tpy. The second highest HAP emissions were of MIBK, with 2.22 tpy. Based on the provided records, Pioneer Metal appears to be in compliance with the facility-wide HAP emission limits.

RTO Temperature Records

The facility is required to maintain records of the temperature of the RTO combustion zone on a continuous basis. These records were provided on the day of the inspection. The minimum RTO temperature, based on the most recently stack test is 1,462°F. Based on the provided records, the RTO is regularly maintained around 1,475°F to 1,510°F. There were occasional drops in the RTO temperature, which occurred during downtime or weekends. The drops in RTO temperature that occurred during downtime and weekends were also reported in the deviation report submitted by the facility in a report submitted on January 23, 2020.

The permit also requires the facility to calibrate the RTO temperature monitor annually and to maintain records of the date and results of that calibration. During my inspection, the facility was unable to provide any records of the dates or results of the temperature monitor calibration. A tag on the RTO temperature monitor indicated that the calibration last took place over a year ago. This is a violation of PTI No. 2-03M and a violation notice was sent to the company on March 17th, 2020.

Pressure Differential

The permit requires Pioneer Metal to maintain weekly records of the pressure differential between the permanent total enclosure (PTE) and the outside area for each COE spray booth. The pressure differential is to be maintained at a minimum of 0.007 inches of water. I was provided copies of the weekly pressure differential monitoring records for the period of July through December 2019 (attached). The records indicate that the pressures ranged from 0.1059 to 0.2911 inches of water for the primer booth of COE 2 (Line 4); from 0.01006 to 0.02084 inches of water for the topcoat booth of COE 2 (Line 4); and from 0.01024 to 0.02732 inches of water for the Sprimag Booth/Oven (COE 3, Line 5). Based on these pressure ranges, the facility is operating at pressure differentials above 0.007 inches of water and appears to be in compliance with this requirement.

The facility is also required to monitor the differential pressure between the chamber and surrounding environment during the operation of each tumble spray unit. The differential pressure for these units is to be maintained at a minimum of 25 Pascal (Pa). The provided records indicate that the pressure for both of the operating tumble spray units is maintained around 39-40 Pa. Therefore, the facility appears to be in compliance with the minimum pressure differential requirement for the tumble spray units.

Phosphate Lines

Pioneer Metal operates phosphate pre-treatment lines (EU-PARTSWASHLINE1 and EU PARTSWASHLINE2), which is a multi-stage preparation line with cleaning, pickling, and phosphate treatment stages. The phosphate lines are controlled by a packed bed wet scrubber. The facility is required to maintain records of each material used in the lines, monthly records of the amount of raw materials used in the phosphate lines, and the operating temperature of each heated tank, as recorded once per 8-hour shift. The facility provided all required records for the lines. Attached to this report is a copy of the daily temperature record log for the phosphate lines.

Based on the provided records, the raw materials used in the phosphate lines were PARCO Lubrite 5 and hydrochloric acid. The amount of PARCO Lubrite 5 used in the tanks ranged from 95 to 245 gallons per calendar month from the period of January 2018 through January 2020. Quantity of hydrochloric acid used ranged from 445 to 1,093 gallons per calendar month during the same period. Rolling 12-month emissions calculations for these phosphate lines determine there to be 0.72 tpy emissions as of January 2020.

Appendix B

Pioneer Metal is also required to submit deviation reports, similar to what is required of major or ROP sources. The facility has been submitting the required semiannual and annual certifications. The most recent report was submitted January 23, 2020 for the period of July through December 2019. The report noted that deviations from the minimum RTO temperature did occur, but they happened during break times, shift changes, or other periods when production was not taking place.

Facility Walk-Through

Mr. Engel walked me through the facility and explained the operation of the coating equipment located on site. Based on my facility walk-through, it became clear that some of the permitted coating lines are no longer located and operating at the facility. Of the three permitted COE lines, the facility currently only operates two on-site. COE1 was previously moved down to Mexico and has since been moved back to Michigan, where it is operating at Pioneer Metal's Stephens Road facility (SRN: N6388). This COE booth was incorporated into the permit for the Stephens Road facility. The two remaining COE lines are COE2 (also known as Line 4) and COE3, which is the Sprimag COE booth/oven (also known as Line 5). In addition to the removal of a COE line, the facility only operates two of the four permitted tumble spray units. A summary of the coating equipment that remains on site is provided in the table below. Emissions from all equipment listed in the table below is controlled by the RTO.

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.

In addition to the coating equipment, I also observed the phosphate treatment lines and associated wet scrubber. These lines are called EU-PARTSWASHLINE1 and 2 in the permit, although Mr. Engel pointed out that parts washer is not an accurate term since they are treating the parts to prepare for coating, not washing them. The phosphate lines consist of multiple cleaning, rinsing, and pretreatment vats. Emissions from the phosphate treatment are collected and sent to a wet scrubber. During my inspection, I observed the wet scrubber and noted that it was equipped with a water flow monitor and an alarm system with lights that flash if the water flow monitor malfunctions.

I observed that the RTO was operating during my inspection and noted that the temperature monitor read a chamber temperature around 1,500°F. Mr. Engel explained that the RTO is equipped with an interlock system so it will shut down if the temperature drops below a certain level.

VOC Capture Efficiency Test

The facility is required to verify capture efficiency of VOCs from the three large dip spin lines (EU-Line1-Model24, EU-Line7-Model25, EU-Line13-Model26), the COE lines, and the small dip spin line (EU-Line6-Model10). On December 12th, 2019, the facility verified VOC capture efficiency using the smoke test tube method on the three large dip spin lines, COE2, the stand-alone batch oven, and the small dip-spin line (EU-Line6-Model10). In addition, differential pressure measurements were taken on COE2, COE3, and the small dip spin line. The capture efficiency test indicates that the RTO is adequately capturing all emissions from the coating lines and batch oven.

Conclusion

As a result of my inspection, Pioneer Metal was found to be in violation of PTI No. 2-03M Condition VI.5, which requires them to calibrate the RTO temperature monitor at least once per year and to maintain records of this

calibration. The facility was not able to provide the records and a label on the temperature monitor indicated that the calibration last took place many years ago. The company was sent a violation notice for violating this condition.

NAME Kaitlyn Logant

DATE 3/24/2020

SUPERVISOR Subanthonnykallenka