

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

N759971557

FACILITY: DEPOR INDUSTRIES		SRN / ID: N7599
LOCATION: 1902 NORTHWOOD, TROY		DISTRICT: Warren
CITY: TROY		COUNTY: OAKLAND
CONTACT: Ted Howard , Plant Manager		ACTIVITY DATE: 03/28/2024
STAFF: Owen Pierce	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 24 Inspection Report		
RESOLVED COMPLAINTS:		

On March 28, 2024, I (Owen Pierce EGLE - Air Quality Division) performed a scheduled targeted inspection of Depor Industries located at 1902 Northwood, Troy, Michigan. The purpose of the inspection was to determine the facility's compliance with the Federal Clean Air Act; and Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451 and the conditions of Permit to Install (PTI) No.489-99F. Upon arrival, I met with Ted Howard, Plant Manager, Paul Zotter, Lab Supervisor, Keith Berndt, Maintenance Manager, Anthony Peters, Chemical Engineer, and Dennis Brady, Quality and HES Manager, and conducted a pre-inspection meeting where we introduced ourselves, presented our credentials, and stated the purpose of the inspection.

During the pre-inspection meeting, Ted explained the facility's processes and equipment. Depor Industries coats small metal parts, including fasteners and brackets mainly for the automotive industry. This facility uses a dip-spin coating process and is permitted to operate eight dip-spin coating lines (EU-DipCoating-01 through 08), two sulfuric acid and zinc phosphate pre-treatment acid cleaning lines (EU-AcidCleaning-01 and 02), and one burn-off oven (EU-BURNOFF) that was recently added to the permit and began its operation in January 2023.

This facility is a synthetic minor source for hazardous air pollutants (HAPs) and has a PTI (PTI No. 489-99F) that contains ROP opt-out permit conditions. The facility typically operates 24 hours a day for 5 days a week and has approximately 50 employees. Depor Industries is a wholly owned subsidiary of Magni Group, Inc., a global coatings supplier, who supplies the coatings used at this facility.

According to Ted, there have been no recent process or equipment changes and there are no cold cleaners or emergency generators at the facility. Non permitted equipment at the facility includes one boiler and one sand blaster. Following the pre-inspection meeting, Ted and Depor Staff lead me on a tour of the facility.

Facility Walk-through Observations

During the facility walk-through, I observed eight dip-spin coating lines with seven of the eight lines running sequentially on one side of the warehouse and one paint line located on the opposite side of the warehouse. Each paint line contained a paint booth and cure oven. According to Ted, various coatings are used in the dip-spin lines, depending on client specifications. During the dip-spin coating process, the metal parts are automatically loaded in a mesh basket, submerged in a coating solution, and spun to remove the excess coating. The temperature and viscosity of the coating, immersion time and spin velocity are controlled. Spin direction is determined by the type of machine. Five dip-spin lines spin on their vertical axis, two lines are dip-spin-tilting lines (WMV), and one line spins on its horizontal axis (Reinhardt).

Ted explained that dip-spin coating has a very high transfer efficiency – more than 90% transfer efficiency. Coated parts go through a flash-off zone, then are cured in an oven. In the curing zone, multiple trays holding the parts go through the layers inside the oven. The baskets used in the coating process are transferred to the burn-off oven to remove coating buildup via thermal destruction.

In the paint mixing room, I observed the paint buckets used for transferring paint from the storage containers to the mixing room as having lids on them, minimizing fugitive emissions. It was explained that waste from cleaning the paint tanks is collected as hazardous waste in 55-gallon drums and shipped off site. Hazardous waste from plant operations is processed by US Ecology.

Emissions from the dip-spin coating process are controlled by a regenerative thermal oxidizer (RTO). Operation of the RTO allows the facility to use non-compliance coatings and opt-out of the ROP program. After being lead to the RTO, I observed the RTO temperature as being 1550°F. Ted explained that a new digital recorder was installed on the RTO on March 15, 2024.

During the walk-through, I observed two sulfuric acid and zinc phosphate pre-treatment acid cleaning lines. Each line has the following: rinsing tanks, descaling tanks (sulfuric acid-5% concentration), conditioning tanks and drying area. The zinc phosphate prevents rust and also allows the coating to adhere better.

Blast-Cleaning Equipment

During the facility walk-through, I observed one fully enclosed blast-cleaning unit used to clean coating baskets. The blast-cleaning unit appears to be exempt from the requirement in R336.1201 to obtain a permit to install per R336.1281(2)(d).

Boiler

I observed one natural gas fired Kewanee boiler during the walk-through. The boiler has a max heat input of 5.23 MMBTU and is exempt from Rule 336.1201 (Permit-to-Install) pursuant to rules 336.1282(2)(b)(i) (< 50 MMBTU per hour heat input, natural gas only), and is not subject to New Source Performance Standards (NSPS) Subpart Dc (< 10 MMBTU per hour heat input, natural gas only).

PTI No. 489-99F Compliance Evaluation

The facility was issued PTI No. 489-99F for eight dip spin coating lines, controlled by a RTO, and two sulfuric acid and zinc phosphate pre-treatment acid cleaning lines, and a burn-off oven, controlled by an afterburner. Recordkeeping requirements were provided during the inspection. Depor Industries is required to maintain records of monthly gallons of material used, VOC content and VOC mass emissions of materials used, temperature data records of the combustion chamber of the RTO, and temperature data records and thermocouple calibration records of the burn-off oven. Depor Industries is also required to maintain records of facility-wide HAPs emissions. The facility provided all of the required records from May 2023 through February 2024.

EU-BURNOFF

Special Condition (SC) II.1, states that the permittee shall burn only natural gas in EU-BURNOFF. According to Ted, the burn-off oven uses only natural gas for fuel, and the nameplate on the burn-off oven, as observed during the inspection, confirmed the use of natural gas.

I was shown the metal baskets that are loaded in the burn-off oven in order to remove the layers of cured paint and coatings that have been built up from the dip-spin process. Ted explained that only the metal baskets are loaded into the burn-off oven as required in EU-BURNOFF SC II.2, and that no transformer cores are loaded into the oven as required by EU-BURNOFF SC III.2. According to the SDS for the paints used in the dip-spin process, no sulfur or halogens are found as ingredients in the coatings as required in EU-BURNOFF SC III.1.

At the burn-off oven, I observed the afterburner operating at a temperature of 1447°F which is in compliance with the 1400°F minimum temperature as required in EU-BURNOFF SC IV.1. The burn-off oven is equipped with an automatic temperature control system for the primary and secondary chambers as required by EU-BURNOFF SC IV.2 and contains an interlock system as shown in the oven manual, as required by EU-BURNOFF SC IV.3.

SC VI.2 states that the permittee shall calibrate the thermocouples associated with the primary and secondary chambers at least once per year. Calibration records for the burn-off oven were provided and according to those records, the thermocouples were tested and found to be in range.

SC VI.3 states that the permittee shall keep, in a satisfactory manner, temperature data records for the burn-off oven secondary chamber/afterburner. Ted explained that a new digital temperature recorder for the burn-off oven was installed on August 23, 2023. Keith Berndt, Maintenance Manager, provided me with the paper chart records from May 2023 through August 2023, and the excel file records (from the new temperature recorder) from August 2023 through February 2024. After reviewing the temperature data charts and excel file records, all temperature records indicate that the afterburner is in compliance with the 1400°F minimum temperature as required in SC IV.1.

A temperature record violation was discovered during the last inspection for failure to maintain records in a satisfactory manner, due to a single paper chart being used for recording temperatures for the burn-off oven for multiple weeks from December 2022 to March 2023. Additionally, during the previous inspection the burn-off oven was observed operating within a temperature range of 1350°F-1370°F, below the minimum temperature of 1400°F, and according to maintenance staff at the facility, this had been a common occurrence.

In the VN response dated May 11, 2023, the facility explained that as of March 23, 2023, a new paper chart temperature recorder was installed and the facility began ensuring that the paper chart would be replaced daily. In addition, the facility reported that during a service call on March 22, 2023, a faulty temperature controller was discovered and replaced. The facility further explained that moving forward, to ensure better compliance, they ordered a digital temperature recorder (installed on August 23, 2023) which will replace the paper chart temperature recorder, and control panel changes were made to allow a warning signal to sound in the event that the afterburner temperature falls below 1400°F. Based on the information obtained during this inspection, and an analysis of the requested temperature records, the violations cited in April 2023 will be resolved.

SC VI.4 explains that the permittee shall keep in a satisfactory manner, records of the date, duration, and description of any malfunction of the control equipment, and any maintenance performed for EU-BURNOFF. According to Ted and Keith, there were no malfunctions nor maintenance performed on the burn-off oven since the last inspection other than a new digital temperature recorder for the burn-off oven being installed on August 23, 2023.

SC VI.5 states that the permittee shall maintain a current listing from the manufacturer of the chemical composition of each material (cured coatings) processed in EUBURNOFF, including the weight percent of each component. SDS sheets were provided during the inspection and were reviewed at the facility.

SCVI.6 requires that the permittee maintain current information from the manufacturer that EU-BURNOFF is equipped with a secondary chamber or afterburner, an automatic temperature control system for the primary chamber and secondary chamber or afterburner, and an interlock system that shuts down the primary chamber burner when the secondary chamber or afterburner is not operating properly. The burn-off oven manual, as observed during the inspection, maintains all the current information from the manufacturer.

FGACIDCLEANINGLNS

According to the SDS provided for the acid cleaning tanks, only sulfuric acid is used in the acid cleaning tanks as required by FGACIDCLEANINGLNS SC II.1. The stacks for each line were observed as being unobstructed as required in FGACIDCLEANINGLNS SC VIII. Waste from the pre-treatment cleaning process was observed as being stored in closed containers as required in FGACIDCLEANINGLNS SC III.2, and according to Ted, the sulfuric acid used in the process gets reclaimed, as required in FGACIDCLEANINGLNS SC III.1, and the acid cleaning tanks are emptied and cleaned on an annual basis. The sludge removed from the tanks are collected and disposed of as hazardous waste.

FGDIPCOATINGLNS

SC I.1 sets the VOC emission limit at 40 tons per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. In order to comply with this emission limit, SC VI.3 states that the permittee shall keep records on a monthly basis of the gallons of each material used, the VOC

content of each material as applied, VOC emissions calculations per month, and 12-month rolling VOC emissions calculations as determined at the end of each month.

The highest 12-month rolling VOC emissions calculated from May 2023 through February 2024 were 17.25 tpy as recorded at the end of February 2024.

I spot checked the calculations to make sure that they are being calculated correctly. Results from the 2014 VOC Capture Efficiency test indicate that the average total VOC Destruction Efficiency was reported as 99.6% and the average total VOC Capture Efficiency was reported as 89.2%. This equates to an overall control efficiency (OCE) of 88.8%. Depor utilizes the calculated OCE of 88.8% when calculating VOC emissions.

SC I.2 sets the Ethyl Benzene emission limit at 0.9 tons per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. In order to comply with this emission limit, SC VI.4 states that the permittee shall keep records on a monthly basis of the gallons of each ethyl benzene material used, the ethyl benzene content (with water) in pounds per gallon of each material used, monthly ethyl benzene emissions calculations in tons per month, and 12-month rolling ethyl benzene emissions calculations as determined at the end of each month in tons. The highest 12-month rolling ethyl benzene emissions calculated from May 2023 through February 2024 were 0.0257 tpy as recorded at the end of February 2024.

SC I.3 sets the Dimethyl Glutarate + Dimethyl Adipate + Dimethyl Succinate (collectively known as Dibasic Ester) emission limit at 3.2 tons per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. In order to comply with this emission limit, SC VI.4 states that the permittee shall keep records on a monthly basis of the gallons of each dibasic ester material used, the dibasic ester content (with water) in pounds per gallon of each material used, monthly dibasic ester emissions calculations in tons per month, and 12-month rolling dibasic ester emissions calculations as determined at the end of each month in tons. The highest 12-month rolling dibasic ester emissions calculated from May 2023 through February 2024 were 0.68 tpy as recorded at the end of October 2023.

During the inspection, I observed paints and solvents as being stored in closed containers in a storage room, minimizing fugitive emissions as required by SC III.3.

The facility provided a malfunction abatement plan (MAP), as required by SC III.4, that details a complete preventative maintenance program including the following: identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions to be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement. Based on my observations made during the inspection, Depor seems to be following the MAP.

As stated in SC IV.1, satisfactory operation of the RTO includes an air collection system operation of 85.0% (by weight) and achieving a minimum destruction efficiency of 95.0%. As previously stated, OCE of the air collection system and RTO is 88.8% (99.6% destruction efficiency and 89.2% capture efficiency – based on a 2014 capture efficiency test).

SC V.1 states that the permittee shall determine the VOC content, water content, and density of any material as applied and received, using federal Reference Test Method 24. Depor uses formulation data in calculating emissions. Random sampling and Method 24 VOC analysis is conducted to verify and compare formulation data. Magni (coating manufacturer) used to report VOC content based on Method 24 analysis in the SDS. Depor uses the VOC content reported in the SDS when calculating VOC emissions, which is higher than the EPA Method 24 VOC analysis.

SC V.2 states that upon request of the AQD District Supervisor, the permittee shall verify the capture efficiency of the air collection system by testing at owner's expense, and the permittee must complete testing of the capture efficiency of the air collection system once every five years, thereafter. The testing requirement may be waived if the most recent approved capture efficiency test results remain valid and representative, and an acceptable demonstration is made to and approved by the AQD District Supervisor. The most recent capture efficiency test was conducted in July 2014. In a 2018 email exchange between AQD staff and the facility, repeat capture efficiency testing was waived by the AQD,

and, the facility was informed that they may postpone capture efficiency testing until the next five year cycle.

SC V.3 states that the permittee shall verify the and destruction efficiency of the RTO, by testing at the owners expense. The permittee must complete testing of the RTO once every five years, thereafter. The testing requirement may be waived if the most recent approved stack test results remain valid and representative, and an acceptable demonstration is made to and approved by the AQD District Supervisor. The most recent destruction efficiency test was conducted in February 2013. In a 2018 email exchange between AQD staff and the facility, repeat stack testing was waived by the AQD, and, the facility was informed that they may postpone stack testing until the next five year cycle.

SC VI.5 states that the permittee shall install, calibrate, maintain, operate, and record, in a satisfactory manner, the temperature in the combustion chamber of the RTO. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. Ted explained that the facility was able to access all of the data from the digital recorder that was in place prior to the new digital recorder being installed on March 15, 2024, however, they had to use an older computer that supported the older software needed to download the data from the former digital recorder. According to Ted, the older software can only export 11 days at a time and since the temperature was recorded every 30 seconds, the task of providing the AQD with 10 months of data was proving to be very difficult. With this in mind and after discussion with senior staff, I modified my request of data from May 2023 through February 2024 to two weeks of data from 2023 (May 14-20 and September 17-23).

Keith Berndt, Maintenance Manager, provided me with the excel file records from May 14-20 and September 17-23 of 2023. The temperature data records show that the RTO temperatures were above 1501°F, the minimum combustion zone temperature of 1501°F as determined by the most recent stack test which occurred in February 2013, during operation for those periods of time.

FGFACILITY

SC I.1 sets the Individual HAP emission limit at less than 9.0 tpy and SC I.2 sets the Aggregate HAPs emission limit at less than 22.5 tpy, both based on a 12-month rolling time period as determined at the end of each calendar month. In order to comply with these emission limits, SC VI.2 states that the permittee shall keep records on a monthly basis of the gallons of each HAP material used, the HAP content, in pound per gallon or pounds per pound, of each HAP containing material used, Individual and Aggregate HAP emissions calculations per month, and 12-month rolling Individual and Aggregate HAP emissions calculations as determined at the end of each month. The highest 12-month rolling Individual HAP emissions calculated from May 2023 through February 2024 were n-Butyl Alcohol at 0.577 tpy as recorded at the end of February 2024. The highest 12-month rolling Aggregate HAP emissions calculated from May 2023 through February 2024 were 1.442 tpy as recorded at the end of February 2024.

I spot checked the calculations to make sure that they are being calculated correctly. Results from the 2014 VOC Capture Efficiency test indicate that the average total VOC Destruction Efficiency was reported as 99.6% and the average total VOC Capture Efficiency was reported as 89.2%. This equates to an overall control efficiency (OCE) of 88.8%. Depor utilizes the calculated OCE of 88.8% when calculating HAPs emissions.

SC I.3 sets the naphthalene emission limit at 2.5 tpy and SC I.4 sets the formaldehyde emission limit at 0.1 tpy, both based on a 12-month rolling time period as determined at the end of each calendar month. In order to comply with these emission limits, SC VI.3 states that the permittee shall keep records on a monthly basis of the gallons of each naphthalene and formaldehyde material used, the naphthalene and formaldehyde content, in pound per gallon of each material used, naphthalene and formaldehyde emissions calculations per month, and 12-month rolling naphthalene and formaldehyde emissions calculations as determined at the end of each month. The highest 12-month rolling naphthalene emissions calculated from May 2023 through February 2024 were 0.367 tpy as recorded at the end of May 2023. The highest 12-month rolling formaldehyde emissions calculated from May 2023 through February 2024 were .032 tpy as recorded at the end of December 2023.

Conclusion

Based on the information obtained during the inspection, and an analysis of the requested records, Depor Industries is in compliance with the conditions and requirements of PTI No.489-99F.

NAME Owen Pierce DATE 4/30/2024 SUPERVISOR K. Kelly