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

N/3/9/1983		
FACILITY: ATMOSPHERE HEAT TREATING INC.		SRN / ID: N7379
LOCATION: 30760 CENTURY DR., WIXOM		DISTRICT: Warren
CITY: WIXOM		COUNTY: OAKLAND
CONTACT: Kyle Stansik , Safety and Quality Administrator		ACTIVITY DATE: 05/22/2024
STAFF: Owen Pierce	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: FY 24 Inspection Report		
RESOLVED COMPLAINTS:		

On May 22, 2024, I (Owen Pierce EGLE - Air Quality Division) performed a scheduled targeted inspection of Atmosphere Heat Treating Inc. located at 30760 Century Drive, Wixom, Michigan. Jillian Cellini (EGLE-AQD) joined me on the inspection. 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. 174-04A. Upon arrival, Jillian and I met with Kyle Stansik, Safety and Quality Administrator, Aaron Thompson, Maintenance Manager, and Tyler Smith, Lead Maintenance Safety Coordinator, 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, Aaron explained the facility's processes and equipment. Atmosphere Heat Treating (AHT), Inc. is a metal heat treating company that conducts heat treating processes of miscellaneous metal parts, for customers in the automotive and other industries. AHT, is permitted to operate three continuous belt furnaces - each utilizing a molten salt quench - and one tempering furnace. Heat treating is a process to harden metal by subjecting the metal to a two stage heat application processes. The first phase is called austeritizing (hardening) process. In this process, the metal is subjected to high temperatures, such as 1500°F, to alter the properties, then cooled rapidly through a cooling medium (salt quench) known as the quenching process. After the first heating stage, the metal is usually cleaned and then subjected to a lower heating temperature known as the tempering process.

The facility has approximately 28 employees and normally operates 3 shifts a day for 24 hours a day, seven days a week, depending on their work demand. Currently they are off work on Sunday's. According to Aaron, there have been no recent process or equipment changes. Non-permitted equipment includes tools used for cutting, grinding, bending metal, etc and three endothermic gas generators. According to Aaron, there are no boilers, generators, or cold cleaners at the facility. Following the pre-inspection meeting, Aaron, Tyler and Kyle lead us on an inspection of the facility.

Facility Walk-through Observations

During the facility walk-through, I observed three hardening furnaces (EUHARDENING1, EUHARDENING2, and EUHARDENING3) operating, and Aaron explained that all three furnaces run from approximately 1550° F - 1650° F. I observed that the tempering furnace was installed and operational, and according to Aaron, the tempering furnace operates at a temperature between 300° F - 1000° F.

The quench tanks were observed as being located in the ground and fully covered as part of the continuous belt line connected to each hardening furnace. The quench tanks operate at a temperature between 550⁰F - 740⁰F. According to Kyle, each molten salt quench tank has a capacity of 235,750 lbs of salt. The facility performs maintenance once per year where salt that has hardened onto the tanks is removed. Parts coming out of the belt line from quenching were emptied into a series of three wash tanks and then either dried for packaging or conveyed to the tempering furnace and subjected to a secondary lower temperature heat treating process. The facility has two units, with covers, to boil off water to reclaim salt from the salt water waste that is generated from the wash tanks.

Endothermic Gas Generators

The facility has three atmospheric endothermic gas generators. Two operate at any one time and provide enough gas for the three heat treat lines. The gas generators provide endothermic gas used on the interior of the heat treat furnace to produce parts. The gas is approximately 40% hydrogen, 40% nitrogen, and 20% carbon monoxide. Each endothermic gas generator has a max heat input capacity of approximately 3,000,000 BTU/hr. The units have nickel catalyst tubes and operate at a max temperature of 1950⁰F. Atmosphere generators used in connection with metal heat treating are exempt from obtaining a permit-to install per R336.1285(2)(I)(iv).

Tools used for Cutting, Grinding, etc

The tools used for cutting, grinding, etc, that were observed during the walk-through, are exempt from the requirement to obtain a permit to install per R336.1285(2)(I)(vi)(B) because they have emissions that are released only into the general in-plant environment.

During the facility walk-through, there were no boilers, generators, or cold cleaners observed at the facility.

PTI No. 174-04A Compliance Evaluation

FGHEATREAT

The facility was issued PTI No. 174-04A for 3 hardening furnaces, with molten salt quenching, and 1 tempering furnace. Recordkeeping requirements were submitted to AQD staff by email from Kyle Stansik, Safety and Quality Administrator.

Special condition (SC) I.1 sets the PM emission limit at 3.0 tpy based off a 12-month rolling time period as determined at the end of each calendar month, and SC VI.1 states that the permittee shall keep the following information for FGHEATTREAT:

- Pounds of quench salt used per calendar month.
- Pounds of quench salt used per year based upon a 12-month rolling time period as determined at the end of each calendar month.
- Particulate mass emission calculations determining the monthly emission rate in tons per calendar month.
- Particulate 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.

After several discussions and meetings concerning the methodology to record the quench salt usage, the final PM emission rate records were submitted for 2018-2023. These records include the following assumptions agreed upon by facility staff and AQD staff:

- 1. Salt added to the quench tanks includes new salt added to the quench tanks.
- 2. Reclaimed salt was not included for all records from 2018-2023 since the facility reclaims their salt on-site and there are no prior records of the amount of salt reclaimed.
- 3. The amount of salt "dragged out" (drag out) of the quench tanks from parts going through the heat treating process was considered and included in the disposed portion of the mass balance equation. Drag out was estimated as ten percent of the total amount of salt added/used each year. Drag out totals for each year are then pro-rated for each month, for each furnace at the facility, based on the amount of salt added per month, per furnace.

According to the final records, PM emissions exceeded the 3.0 tpy limit for the following months: December of 2019 (3.6 tpy), January through June of 2020 (3.6 tpy each month), February through May of 2023 (4.5 tpy each month), and July through December of 2023 (4.5 tpy each month), which is a violation of SC I.1. A violation notice will be issued.

SC II.1 sets the quench salt material limit at 45,000 lb/yr based on a 12-month rolling time period as determined at the end of each calendar month. According to the records from 2018-2023, quench salt usage was under the limit for every month with the highest usage of 9,000 lbs occurring in 2023.

Conclusion

Based on the information obtained during the inspection, Atmosphere Heat Treating Inc. is in violation of PTI No. 174-04A, Special Conditions I.1. A violation notice will be issued.

NAME Ouren Furce

DATE <u>6/24/2024</u>

SUPERVISOR<u>K Helly</u>