

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

P120871584

FACILITY: State Heat Treating Company	SRN / ID: P1208
LOCATION: 520 32nd Street SE, GRAND RAPIDS	DISTRICT: Grand Rapids
CITY: GRAND RAPIDS	COUNTY: KENT
CONTACT: Joel Borders , Plant Manager	ACTIVITY DATE: 04/10/2024
STAFF: April Lazzaro	COMPLIANCE STATUS: Non Compliance
SUBJECT: Unannounced, scheduled inspection.	SOURCE CLASS: MINOR
RESOLVED COMPLAINTS:	

Staff, April Lazzaro arrived at the facility to conduct an unannounced, scheduled inspection. Upon arrival in the area, an odor assessment in the area of the complainants was conducted. No odors were observed in that area. Upon arrival at the facility, no odors or visible emissions were identified from the adjacent areas. During the inspection, Joel Borders, Plant Manager provided information related to process operations.

FACILITY DESCRIPTION

State Heat Treat is a heat treating facility that services a variety of steel and aluminum parts. Parts for a variety of industries are treated, including automotive, military, medical, furniture and more. The facility dates to 1946 at this location and is owned by G.A. Richards. This facility is considered a separate entity from the G.A. Richards group and currently operates two shifts five days a week. Following a 2021 compliance inspection, the facility obtained two permits. Permit to Install No. 62-22 covers two metal heat treat lines with oil quenching and ammonia nitriding operations identified as EU-P63 and EU-P64. General Permit to Install No. 109-21 includes one Jackson Oven Supply company burn off oven with afterburner.

In the manufacturing areas a mild metal odor was observed throughout the facility. There was also a smoky haze in the air at various times.

COMPLIANCE EVALUATION

During the inspection, the 2021 equipment inventory list that was provided to the AQD was used as a guide. Mr. Borders stated that there has been no new equipment installed since the last inspection. It is noted that the hardening furnace identified as P62 suffered an explosion following maintenance and repair activities and is inoperable. The hardening furnace identified as P5 is currently down for rebricking and other repairs.

General PTI No. 109-21

The Jackson Oven Supply company burn-off oven is used to remove powder coat from paint racks. These racks are brought in from a different company owned by G.A. Richards and is used about two times per week. It is labeled as BO-1. It was not operating during the inspection and the digital display was observed. The set point for the afterburner was 1,500° F, and I was told that the main chamber burner will not fire until the afterburner setpoint was reached. The permit requires that the facility keep temperature data records for the burnoff oven secondary chamber or afterburner. State Heat Treat was not familiar with the requirements of the permit and are not keeping records of the afterburner temperatures, as such a Violation Notice will be issued.

PTI No. 62-22

There are two metal heat treat lines with oil quenching and ammonia nitriding operations included in PTI No. 62-22. The units did not appear to have been modified since the last inspection. The recordkeeping requirements were discussed with Mr. Borders, who was

unaware of the requirements. We visited the maintenance department where we accessed the oil logging books. The oil is monitored, tested and inspected monthly by an outside company. While immediate records pursuant to the permit were not immediately available, the data and records that were observed appeared to contain the necessary information to quickly assemble them.

The permit limits emissions of Volatile Organic Compounds (VOCs) to 1.8 tons per year on a 12-month rolling time period as determined at the end of each calendar month.

Mr. Borders compiled the emissions information based on the usage tracking as indicated above. This information was received after our agreed upon date, however the records provided indicated compliance with the limit. Reported 12-month rolling total VOC emissions are 0.51 tons.

Net Quench Oil use is limited to 500 gallons per year. The records provided indicate compliance with that usage limit.

Mr. Borders indicated that maintenance and upkeep of the equipment is conducted on a routine basis.

Additional Equipment

State Heat Treat leases a 1,000 gallon anhydrous ammonia tank. Anhydrous ammonia is used in the carbonitriding processes that take place at the facility. The date of tank construction per the name plate is December 31, 1956, and as such the tank is considered grandfathered, and as such is not required to have a Permit to Install.

An internally vented tumbler is used to apply Metguard 30 which is a rustproofing agent. No changes to this process were observed.

The facility operates 2 aluminum draw furnaces and 2 quench pits identified as Alum-13-Alum-16. These furnaces and the quench pits are located below floor level. Aluminum is placed in baskets which are lowered into the furnace which consists of a retort shell. The aluminum is annealed for 10 hours at temperatures reaching 980°F. After that, it is quenched in a separate pit that contains water only. This process is internally vented and has been identified by the company as exempt from permitting pursuant to Rule 282(2)(a)(i), ammonia is not used in this process.

There are a variety of batch and draw furnaces throughout the facility. These furnaces are used for carburizing, nitriding, annealing etc. The batch furnaces are configured in a three stage process. 1- harden, 2- wash, 3-temper. Various cycles can be utilized, and a mixture of endothermic gasses and ammonia are used.

According to the equipment inventory list provided by the facility, most furnaces were installed prior to 1985 under the earlier version of the AQD Rule 282 exemption that did not exclude the use of ammonia or oil quench for gas fired furnaces that are used for heat treating metals.

The company has two endothermic gas generators for use in the furnaces. One is currently used as a back-up unit. These endothermic gas generators were identified as exempt from permitting pursuant to Rule 285(2)(I)(iv). The gasses generated consist of typical/generic mix used in heat treating processes, including N, CO, CO₂, H and CH₄.

The facility operates an internally vented blast tumbler that utilizes a grit media to polish materials. This is controlled by an internally vented Torit dust collector. This process was identified as is exempt from permitting per Rule 285(2)(vi)(B).

An unheated externally vented Spiral Washer named SW-1 was observed. This washer was identified as exempt per Rule 285(2)(l)(iii).

A multi-tank oil reclamation system is used at the facility to reclaim quench oil. The unit is heated and is internally vented.

CONCLUSION

State Heat Treating Company was in non-compliance at the time of the inspection. A Violation Notice will be issued.

NAME April Lazzaro

DATE 04/23/2024

SUPERVISOR Eric Grinstern for HH