

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

P120874314

FACILITY: State Heat Treating Company		SRN / ID: P1208
LOCATION: 520 32nd Street SE, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Nathan Leask , Plant Manager		ACTIVITY DATE: 10/18/2024
STAFF: April Lazzaro	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced, self-initiated inspection in response to a complaint.		
RESOLVED COMPLAINTS: C-25-00086, C-25-00135, C-25-00188		

Air Quality Division staff, April Lazzaro received a complaint regarding smoke and odors occurring at the facility.

I arrived in the area at 12:05 PM and observed smoke being emitted from the rooftop ‘doghouse’ ventilation system. Due to the position of the sun, visible emissions readings could not be taken, however the smoke being generated was excessive. The smoke continued to be emitted and as a result, an inspection was conducted. Upon arrival at the facility, I met with Nathan Leask, Plant Manager.

AQD had communicated with Mr. Leask the week before when following a separate complaint on Friday October 11, 2024, AQD staff Eric Grinstern also observed an unreasonable amount of smoke being emitted from stacks in the same process area.

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 (PTI) No. 62-22 converts 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.

During this inspection, only the P63 line was inspected. The EU-P63 as described in PTI No. 62-22 is a “U”-shaped metal heat treating line consisting of one hardening furnace with oil quench, one spray parts washer, and one draw furnace. This EU can use ammonia for metal nitriding and has a maximum total natural gas capacity of 11.3 MMBtu/hr.

COMPLIANCE EVALUATION

At the time of the inspection, the inside of the plant in the area of EU-P63 was filled with smoke, and based on the amount of smoke in the plant, it was not a surprise that it was exiting out the doghouse ventilation into the ambient air. I learned that after the last complaint, Mr. Leask had conducted maintenance on the washer as it had not been operating properly and three washer spray nozzles were repaired.

I learned that State Heat Treat will run “junk” parts through the line to conduct a purge cycle on the unit. The junk parts are large and very porous as they have been hardened and tempered many times during various purge cycles. The purge cycle is conducted because the furnace can’t be empty in order to maintain the temperature

efficiently, and also to purge out any left-over ammonia that might be in the furnace from a previous cycle. While the line is in a "U" shape, it is a batch cycle. In this line, a rack of parts will go into the carbon nitriding furnace where hardening occurs. After hardening, the rack gets lowered into a quench oil tank, and from there goes into the washer. Following the washer, it goes into the tempering furnace, and if all the oils haven't been removed it will cause excess smoke as was observed during the inspection. It would appear that since the junk parts are porous, they are unable to be fully washed of oils prior to going into the tempering furnace, and the result is extreme smoke. This is not an activity that was reviewed for during the permitting process. As such, this is a violation of Rule 201 for operating the process in an unpermitted manner. A Violation Notice will be sent.

Mr. Leask indicated he is working on a root cause analysis to make possible changes to the purge cycle to see if they can either: increase the wash cycle or eliminate the oil quench during a purge cycle all together. Since the parts are not usable, they don't need to go into the quench. The change would require reprogramming, and staff training and allows for errors when actual cycles process.

During the conversation, I informed Mr. Leask that it was up to State Heat Treating to come up with an acceptable solution, but they cannot continue to operate this way. The smoky interior of the facility is also a concern for employee safety and exposure concerns.

Following a review of the facility permit and images and video of the smoke being emitted from the facility, it was determined that the amount of smoke observed occurred for longer than 6-minutes greater than 27% opacity. This is a violation of PTI No. 62-22, General Condition 11 and Rule 301 for discharging a visible emission of density greater than 20% opacity. A Violation Notice will be issued.

CONCLUSION

At the time of the inspection, State Heat Treating Company was in non-compliance with the permit and AQD Rules 201 and 301. In addition, the AQD will request the implementation of a Malfunction Abatement Plan pursuant to Rule 911. This plan must also include a Preventative Maintenance Program for the facility processes.



Image 1(Smoke observed) : Smoke observed being emitted to the ambient air. Please view one turn clockwise.



Image 2(Smoke observed) : Smoke observed inside the facility, prior to being emitted to the ambient air.

NAME April Lazzaro

DATE 10/30/2024

SUPERVISOR HH