

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

N120228763

FACILITY: TEMP-RITE STEEL TREATING INC		SRN / ID: N1202
LOCATION: 42386 EXECUTIVE DR, HARRISON TWP		DISTRICT: Southeast Michigan
CITY: HARRISON TWP		COUNTY: MACOMB
CONTACT: Paul DeCook, Vice President		ACTIVITY DATE: 01/09/2015
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Targeted inspection of a Minor Source		
RESOLVED COMPLAINTS:		

On January 9, 2015 I conducted an unannounced, scheduled level 2 inspection of Temp-Rite Steel Treating (Temp-Rite) located at 42386 Executive Drive in Harrison Township, Michigan. The purpose of the inspection was to determine the facility's compliance with the federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and Permit to Install (PTI) No. 50-10A.

I arrived on site around 2:45 pm and met with Mr. Paul DeCook, Vice President, and Ms. Debbie DeCook, Office Manager. Ms. DeCook provided records associated with PTI No. 50-10A. Mr. DeCook provided a tour of the facility and explained equipment and operations.

Temp-Rite heat treats steel and aluminum for the automotive and military industries. They have about 20 employees and operate 6:00 am until 8:00 pm Monday through Friday. PTI No. 50-10A permits three oil quench tanks and four electric furnaces at the facility.

#### Site Walkthrough

Four electric "Homocarb" heat-treat furnaces are located on either side of the 2700 cubic foot oil quench tank. A rack connects the quench tank and the furnaces. Steel travels in a basket along the rack from the furnace into the quench tank. The furnace operates at 1600 °F. The quench oil temperature ranges from 160 to 180 °F.

The facility also has a 1700 gallon quench oil tank, a 900 gallon quench oil tank, three electric vacuum furnaces at temperatures between 1000 and 2000 °F, and three natural gas box furnaces at temperatures between 1000 and 1600 °F. Steel and aluminum parts are placed into furnaces based on product specifications. Aluminum parts are quenched in water only. To use the smaller 900 gallon oil quench tank, parts must be carried over manually, so it is used infrequently and requires little replacement oil. Lastly, six tempering furnaces temper the steel and aluminum parts at temperatures between 300 and 1000 °F.

The three quench oil tanks and four Homocarb furnaces are permitted via PTI No. 50-10A. The other furnaces appear to be exempt from permitting requirements via R 282(a)(i).

Metals are heat treated to improve their strength and surface hardness. During heat treating, molecules are altered to strengthen the surface of the material. Quenching means to rapidly cool; metals are quenched after heat treating so molecules maintain their altered state. Afterwards, metals are heated in a tempering furnace to remove some brittleness caused by heat treating.

After quenching and before tempering, parts are placed onto a metal grate into which excess oil drains for several hours. At the beginning of each month, this oil is reclaimed and added back into the oil quench tanks. According to records, 16 to 19 gallons of oil are reclaimed a month in this manner. This grate was added to the facility around 2012.

A natural-gas fired open tank of boiling water is used to wash steel parts after tempering. Natural gas-fired boilers appear to be exempt from National Emissions Standards for Hazardous Air Pollutants Subpart 6J: Industrial, Commercial, and Institutional Boilers Area Sources.

A molten salt bath is also used to treat steel. It emits uncontrolled to ambient air. The salt MSDS shows that 60-80% of the solution is barium chloride. According to AQD Toxicologist Doreen Lehner, barium chloride has an ITSL over 2 ug/m<sup>3</sup>. It appears that this compound is allowed to emit less than 1000 pounds a month per Rule 290(ii)(A). The last year of purchase records provided by Ms. DeCook show that approximately 130 lbs of salt

were emitted each month. Because this is well below 1000 lbs of particulate emissions a month, the unit appears to be exempt from permitting requirements via R 290(a)(ii)(A).

#### Recordkeeping

Ms. DeCook provided all required quench oil tank records from January of 2013 through December of 2014 per PTI No. 50-10A Special Condition (SC) VI.1 & 2. On average, 3.5 to 4.5 gallons are emitted from the tanks monthly. This is below permit limits for either EUOILQUENCH1, which is permitted to emit and then replenish 10 gallons/month, and FGOILQUENCH, which is permitted to emit and replenish 12.5 gallons/month.

Appendix A of PTI No. 50-10A specifies a format for recordkeeping. Column A is the amount of oil added to the tanks monthly to replenish lost oil. About 30 gallons are added a month according to records. Oil reclaimed through the metal grates described previously is recorded at the beginning of each month in column B. For disposal in column C, according to Ms. DeCook, oil is rarely disposed; maybe every 4 or 5 years when enough metal gunk and sediment builds in the quench tanks that they must be completely scraped and re-cleaned. In these cases, the sediment is noted as disposed oil. The last time this occurred was in February of 2013. Column D accounts for spills. When minor spills occur, the facility cleans up the oil with Absorb-All, an absorbant material similar to cat litter.

#### Compliance

As a result of this inspection, it appears that Temp-Rite is in compliance with the federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and PTI No. 50-10A.

NAME



DATE

3/11/15

SUPERVISOR

CJE