

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

N221373743

<b>FACILITY:</b> CENTURY SUN METAL TREATING		<b>SRN / ID:</b> N2213
<b>LOCATION:</b> 2411 W AERO PARK CT, TRAVERSE CITY		<b>DISTRICT:</b> Cadillac
<b>CITY:</b> TRAVERSE CITY		<b>COUNTY:</b> GRAND TRAVERSE
<b>CONTACT:</b>		<b>ACTIVITY DATE:</b> 07/31/2024
<b>STAFF:</b> Caryn Owens	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MINOR
<b>SUBJECT:</b> On-Site Inspection & Records Review		
<b>RESOLVED COMPLAINTS:</b>		

On Wednesday, July 31, 2024, Caryn Owens and Tammie Puite of the Department of Environment, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted an on-site field inspection of Century Sun Metal Treating (SRN: N2213) located at 2411 West Aero Park Court in Traverse City, Grand Traverse County, Michigan. More specifically, the entrance of the site is located on the north side of Aero Park Court, approximately 1/10 mile west of the Aero Park Drive and Aero Park Court intersection. The site is located approximately ¼ mile South of Parson's Road.

The field inspection and records review were to determine compliance with permit to install (PTI) 248-97, 580-89A, 581-89, and 284-00. The site is considered a minor source of criteria air pollutants and an area source of hazardous air pollutants (HAPs).

### Evaluation Summary

The activities covered during this field inspection and records review appear to be in compliance with PTIs 248-97, 580-89A, 581-89, and 284-00. No further actions are necessary at this time. Specific permit conditions that were reviewed are discussed below.

### On-site Inspection:

During the field inspection, the weather Conditions were mostly sunny, about 77 degrees Fahrenheit, and winds about 0-5 miles per hour from the west. Activities onsite were different ways to heat treat metal for hardening for industry. They use the following different processes based on their client needs: induction hardening; atmosphere department; salt hardening; cryogenic treating; vacuum department; ion nitrate furnaces; boxed furnaces, straightening department; and a blast department.

The first area AQD went through during the inspection was the induction hardening area, which uses an electric coil then quenched in water. There are no emissions from this process at the facility. The next area was the atmosphere department. Here the facility has four natural gas internal quench furnaces that drop into quench oil and then into draws while they cool. This process is covered under PTIs 248-97 and 284-00. During the inspection the quench oil was around 143 degrees Fahrenheit, where they need the quench oil to stay below 180 degrees Fahrenheit for flashing purposes. The furnaces are maintained between 1400 to 1700 degrees Fahrenheit, and the draws operate around 600 degrees Fahrenheit. The parts stay in the furnaces for 4 to 12 hours, and then are lowered into the quench oil for 15-30 minutes, after the parts exit the furnace, they go through a flame screen, then dried for 15 to 30 minutes, and then they are moved to an enclosed wash station. AQD went to the straightening department next which is used to straighten parts if they bent or distorted in any way during the hardening process.

AQD then went to the salt hardening area in the southeastern portion of the building, also called air line salt bath furnaces. The molten salt baths operate between 1150 to 2250 degrees Fahrenheit, and then go into the salt draws that are between 900-1150 degrees Fahrenheit. The salt baths vent to a pulse jet baghouse. This process is covered under PTI 580-98A. The fallout from the baghouse is collected properly in a hopper and disposed of every one to two weeks. The bags in the baghouse are replaced every one to two years. The baghouse appeared to be well maintained and there were no visible emissions from the exhaust stack. The differential pressure gauge was at 4.5 inches water column. Additionally, the facility also has 4 super-sized salt baths (also called deep baths) in the north-northeast corner on the building that vent to another baghouse. The baghouse differential pressure gauge read 5 inches of water column during the inspection, and baghouse appeared to be well maintained and there were no visible emissions from the exhaust stack.

AQD then observed the vacuum department which has 7 vacuum furnaces that pull out the oxygen, heat it with a heating element made from graphite, then quench it with natural gas. Propylene glycol is used to cool the furnaces. Then AQD went to observe the ion nitrate furnaces, which is a vacuum process, where they wrap wire around the part and use nitrogen gas which creates a plasma on the outside of the part. AQD observed the seven boxed furnaces which were described as "giant toasters" that are used for stress relieving after the vacuum hardening processes. No process air

leaves the boxed furnace area. These processes are not permitted based on the de minimis emissions, if any, from these processes.

We went to the blast department where parts are sandblasted and cleaned. They have a large rotating table blaster that is serviced quarterly. There is a dust collector on the roof for the blast department, and the filters are changed approximately two times per year. The blast process is covered under PTI 581-98. AQD observed no visible emissions from the dust collector, and the area appeared to be well kept and clean. They also have a lab for quality assurance of parts, and the lab has one vent hood. The lab is not permitted, and AQD did not observe any areas of concern during the inspection.

### Records Reviewed

**PTIs 248-97 and 284-00:** Natural gas fired heat treating furnaces with integral oil quench used for carburizing, carbonitriding, and direct hardening. Equipment is made by surface combustion and the model is Allcase Super 36.

- **Emission Limits:** Visible emissions are limited to 20 percent opacity. Ther furnaces were in operation during the inspection and no visible emissions were observed from the exhaust stacks during the inspection.
- **Material Limits:** No more than 1,000 gallons of quench oil per year shall be used based on a 12-month rolling average. Based on the records reviewed, that the oil throughput is 687 gallons per year.
- **Operational Restrictions, Design/Equipment Parameters, Testing/Sampling** requirements, **Reporting** requirements, or **Other requirements** were not applicable for this process.
- **Monitoring/Recordkeeping:** The facility records the amount of metal treated and the quench oil usage rates on a monthly and annual basis.
- **Stack/Vent Restrictions:** Based on visible observations during the field inspection, the stacks for this process appeared to be at least 30 feet above ground surface and within the requirements of the permit.

**PTI 580-98A:** This PTI includes two dust collectors associated with the liquid salt bath furnaces. The dust collectors capture the dust from the furnaces and prevent it from entering the outside air. It should be noted that in 2018 both baghouses were replaced with SPJ-RT Series dust collectors to increase the efficiency of the baghouses and move them next to the building instead of on top of the building to make it easier for maintenance activities. The facility claims the replacement of the baghouses meet exemption Rule 336.1285(2)(d), which exempts the replacement of existing control equipment with more efficient control equipment.

- **Emission Limits:** The air line salt bath furnaces and deep line salt furnaces are limited to 3.8 lb per hour and 16.7 tons per year. Based on the records reviewed from July 1, 2023 through June 30, 2024, the emissions reported were 0.13 pounds per hour and 0.59 tons per year for both furnaces together. Additionally, the visible emissions were limited to 20 percent opacity. As previously stated, during the inspection, the baghouses appeared to be well maintained and there were no visible emissions from the exhaust stacks. The emissions are compliant with permitted limits.
- **Material Limits:** No material limits are applicable for the salt bath furnaces.
- **Process/Operational Restrictions:** Based on visible operations and the conditions of the baghouses, the dust control collectors appeared to be operating properly during the inspection.
- **Design/Equipment Parameters:** Devices to measure differential pressure across the baghouses were installed and appeared to be operating properly for both the air line salt bath furnaces and the deep line salt bath furnaces during the inspection. The differential pressure of the southeast baghouse was at 4.5 inches water column, and or the north-northeast baghouse was at 5 inches of water column.
- **Testing/Sampling:** Performance testing for particulate matter is only required upon request by AQD staff. The baghouses appeared to be well maintained and operating properly, therefore stack testing has not been requested at this time.
- **Monitoring/Recordkeeping:** The facility records the amount of each type of salt used for the salt bath furnaces on a monthly basis. The records submitted were in a format acceptable to the AQD.
- **Reporting:** No Reporting requirements are applicable for the salt bath furnaces.
- **Stack/Vent Restrictions:** Based on visible observations during the field inspection, the stacks for this process appeared to be at least 31 feet above ground surface and within the requirements of the permit.
- **Other Requirements:** No Other Requirements are applicable for the salt bath furnaces.

**PTI 581-89:** This PTI includes a dust collector with filter tubes and a blower to collect dust from sand blasting activities at the facility.

- **Emission Limits:** The sand blast activities are limited to 0.10 pounds per 1,000 pounds of particulate matter, and no visible emissions from the baghouse at the facility. Compliance is demonstrated through visible emissions from the baghouse. During the inspection, the baghouse appeared to be working properly, and no visible emissions were observed. Additionally, AQD has not received complaints regarding fallout or visible emissions from this facility since 2009.
- No **Material Limits, Design/Equipment Parameters, Monitoring/ Recordkeeping, Reporting, Stack/Vent Restrictions, or Other Requirements** are applicable for the sand blast activities.
- **Process/Operational Restrictions:** Based on visible operations, the dust control collector appeared to be operating properly during the inspection.
- **Testing/Sampling:** Performance testing for particulate matter is only required upon request by AQD staff. The baghouse appeared to be operating properly and there has been no recent complaints regarding the facility, therefore stack testing has not been requested at this time.

NAME \_\_\_\_\_

DATE \_\_\_\_\_

SUPERVISOR \_\_\_\_\_