

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

A431567489

FACILITY: CANNON MUSKEGON CORP		SRN / ID: A4315
LOCATION: 2875 LINCOLN ST, MUSKEGON		DISTRICT: Grand Rapids
CITY: MUSKEGON		COUNTY: MUSKEGON
CONTACT: Holly Hartel , EHS Specialist		ACTIVITY DATE: 05/11/2023
STAFF: Eric Grinstern	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: On-site compliance inspection		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

Cannon Muskegon produces super alloys (primarily cobalt, nickel, and stainless steel) for the investment casting industry. The metals are specialty/high quality super alloys for use primarily in the medical and aerospace industry. All metal produced is in the form of bars. The facility operates (2) 10-ton electric induction furnaces, (1) AOD vessel, (1) continuous caster, (5) vacuum melting furnaces, and various finishing operations.

REGULATORY ANALYSIS

The facility has previously supplied documentation that they qualify as a minor source. The facility was evaluated and determined that they are not subject to the area source Iron and Steel Foundry NESHAP, Subpart ZZZZZ, since they do not meet the EPA definition of a foundry. The facility does not meet the definition of "foundry" because they do not pour metal into molds to produce a final or near final shape product for introduction into commerce.

The facility could be considered a "steel plant" and if the AOD was modified or reconstructed after August 17, 1983, the AOD would be subject to the requirements of Subpart Aaa. Staff previously brought this issue up with the facility, at which time the facility stated that the AOD has not had any modifications. During this inspection the facility stated that the AOD had not been modified. Therefore, it appears that the AOD is not subject to Subpart Aaa at this time.

The facility has removed a quench tank that was used for cast bar. The facility is now air cooling the bar stock. The facility wanted to know if a permit is needed to install hooding to exhaust the heat generated from the bar stock to the outside atmosphere. EG stated that a permit to install is not needed if only heat is being emitted.

The facility has emission units that are covered under four permits to install (PTI):

No. 767-80 – AOD System

No. 374-89B – (2) electric induction furnaces

No. 335-90A – Cut-off saws, shotblast, etc.

No. 851-93- In-line blast cleaning

COMPLIANCE EVALUATION

At the facility staff met with Holly Hartel, EHS Specialist, Doug Snoeyink, EH&S Manager and Andy Winsemius, Operation Manager, Cannon Muskegon Corp.

Review of facility compliance based on Permits to Install:

PTI No. 767-80 – (1) five-ton AOD system w/baghouse

Permit covers the AOD vessel and associated equipment for introducing oxygen, argon, and nitrogen to molten metal for refining.

The emission unit has a particulate emission limit of 0.33 lb./1,000 lb. of exhaust gas. Testing was performed in 2000 that showed compliance with the limit. Testing has not been requested since 2000. Compliance is also determined by proper operation of the baghouse. PTE 767-80 requires the baghouse to be equipped with a pressure drop device, and PTI No. 374-89B (same baghouse) requires the pressure drop to be recorded daily. During the inspection the pressure drop was at 4.72 inches and no visible emissions were observed from the baghouse stack. The facility stated that the baghouse is equipped with an alarm that will sound if the pressure drop increases, which will result in increased bag cleaning. The facility provided records of the most recent 60 days of pressure drop readings. The readings ranged from 2.66 inches to 6.18 inches. The facility is also required to conduct monthly preventative maintenance inspections of the capture and control system. The facility provided requested preventative maintenance records for the previous 6-months documenting compliance.

The permit also limits opacity to less than or equal to 20%. Observation of the stack of the baghouse the controls AOD emissions showed no VE. The permit does not require the facility to conduct VE readings.

The facility has improved capture since the permit was originally issued. The AOD has capture via a roof hood and a retractable hood with a side vent. The facility has also replaced the baghouse under PTI No. 374-89B, which occurred in 2012.

Emissions from the AOD process, two electric induction furnaces and slag station are controlled by the same baghouse. The system is designed to provide capture for two out of the three processes at any single time. Inspection of the roof showed that there are roof vents above the AOD. The facility stated that the vents automatically close when the AOD station is in use. Observation of the roof area around the vents showed discoloration from emissions. The facility stated that they were aware of the emissions and that the discoloration had been there for many years and stated that it is not a recent or on-going issue.

Miscellaneous:

Adjacent to the AOD process is a ladle heater station that vents combustion emissions to the outside atmosphere uncontrolled.

Observation of the continuous casting tapping process showed some fugitive emissions venting uncontrolled through a roof vent.

PTI No. 374-89B – (2) 10-ton electric induction furnaces

The (2) 10 ton holding capacity furnaces are identified as Furnace #9 and Furnace #10 (FGFURNACES).

Emissions from the induction furnaces are captured by two side-draft hoods and a swinging hood that captures emissions during charging. Captured emissions are ducted to the same baghouse that controls emissions from the AOD. The baghouse was replaced in 2012 through a permit modification. The facility installed a larger baghouse to allow for increased capture. The original baghouse had a capacity of 40,000 cfm, while the new baghouse has a capacity of 66,000 cfm. While the permit does not specify a minimum cfm capacity of the new baghouse, the permit evaluation was based on a 70,000-cfm baghouse. Based on the permit evaluation notes and discussion with the Permit Section, the decrease in baghouse cfm does not appear that it would impact compliance with the permit limits.

FGFURNACES has emission limits for particulate matter. PM is limited to 0.023 lb./10000 lbs. of exhaust gases and 7.2 pounds per hour. Compliance with the emission limits is based on proper operation of the baghouse. The facility is required to monitor and record the baghouse pressure drop once per day. The facility provided requested pressure drop records for the most recent 60-day time period. For the records reviewed, the pressure drop range from 2.66 inches to 6.18 inches. To assure proper operation of the baghouse, the facility is required to conduct monthly inspections of the equipment important to the performance of the capture and control system, as well as maintain records of inspections and repairs. The facility provided requested records of the work log for the most recent 6-month period. The facility has daily, weekly and quarterly worklogs for preventative maintenance of the baghouse.

The electric induction furnaces have a combined metal throughput limit of 18,200 tons per year, based on a 12-month rolling time period. The permit requires the facility to keep monthly, and annual tonnage records of metal melted for Furnace # 9 and Furnace #10. The facility provided requested usage records for the most recent 12-month period. For the 12-month period ending in April 2023, metal throughput was 8,859 tons. All records reviewed showed compliance with the 18,200 tons per year limit.

During the inspection the baghouse pressure drop was 4.72 inches. Observation of the stack showed no visible emissions.

The stack is required to have a minimum height of 40 feet and a maximum diameter of 58 inches. Actual measurements of the stack were not taken, however, visual observation of the stack showed that it appears to be in compliance with the required dimensions.

PTI No. 335-90A – Cut-off saws, wheelabrator shotblast, pipe cleaning station operation

Emissions are controlled by the same dust collector that controls the in-line blast cleaning operation (PTI No. 851-92).

Emissions from the process are limited to 1.6 pounds per hour, 7.8 tons per year and 0.05 pounds per 1,000 pounds of exhaust gases. Visible emissions are limited to 5%.

Compliance is based on the requirement to control emissions with a properly operating baghouse and performance testing upon request. Performance testing has not been requested. The facility has a baghouse installed and operating. No visible emissions were observed from the baghouse.

The permit requires that the baghouse exhaust have a stack with maximum diameter of 18 inches and an exit point at least 18.5 feet above the ground level. Actual measurement of the stack was not taken, however visual observation of the stack showed that it appeared to meet the minimum height.

PTI No. 851-93 –In-line blast cleaning operation.

Blast cleaning unit that cleans bar stock from the continuous casting process.

The permit limits visible emissions to 20% and restricts particulate emissions to 0.10 pounds per 1,000 pounds of exhaust gases. Compliance is based on the requirement to control emissions with a properly operating baghouse and performance testing upon request. Performance testing has not been requested. The facility has a baghouse installed and operating. The baghouse is equipped with a pressure drop gauge. The pressure drop at the time of the inspection was 2.1 inches. No visible emissions were observed from the baghouse.

The permit requires that the baghouse exhaust have a stack with an exit point at least 21 feet above the ground level. Actual measurement of the stack was not taken, however visual observation of the stack showed that it appeared to meet the minimum height.

Vacuum Melting Furnaces

The facility has five vacuum melting furnaces with the following capacities.

15,000 lb. vacuum furnace (V7)

15,000 lb. vacuum furnace (V4)

8,000 lb. vacuum furnace (V3)

4,000 lb. vacuum furnace (V6)

500 lb. vacuum furnace (V5)

The facility previously designated the vacuum furnaces as exempt from Rule 201 permitting under Rule 290. The facility provided emission records, which based on the facilities emission factor and emission composition assumptions, demonstrate exemption under Rule 290.

Miscellaneous

The facility has various blast cleaning/finishing operations that vent to baghouse control. These processes are exempt from permitting under Rule 285(2)(I)(vi)(B) and (C).

Conclusion

Based on the information and observations made during this inspection, the facility appears to be in compliance with applicable air quality rules and regulations.

NAME Eric Grinstern

DATE 07/12/2023

SUPERVISOR 