

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

N532464008

FACILITY: BERNIER CAST METAL INC		SRN / ID: N5324
LOCATION: 2626 HESS ST, SAGINAW		DISTRICT: Bay City
CITY: SAGINAW		COUNTY: SAGINAW
CONTACT: Joshua Bernier ,		ACTIVITY DATE: 07/20/2022
STAFF: Eric Grinstern	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced compliance inspection - Foundry EJ Initiative		
RESOLVED COMPLAINTS:		

Unannounced on-site inspection of Bernier Cast Metals. The facility was targeted for inspection in FY 22 under the statewide initiative evaluating secondary metal processing facilities located in Environmental Justice (EJ) areas. The facility is located in an EJ area using EPA EJSCREEN, based on the population within a one-mile radius of the facility having a Demographic Index, Population of Color and Low-Income Population at or above the 75th percentile on a state-wide basis. An on-site inspection was conducted since it had been >5 years since the last inspection.

Prior to entering the facility, a survey of the area near the facility was made from the public roadway. No odors or visible emissions were observed to be resulting from Bernier Cast Metals.

FACILITY DESCRIPTION

The facility manufactures steel, grey and ductile iron castings, as well as nonferrous castings. Nonferrous castings are primarily aluminum with a small amount of copper-based castings. The facility has been in operation since the 1940's, operating at this location since the early 1980's.

The facility currently has 9 employees and operates 5 days (M-F), from 08:00 – 16:30.

COMPLIANCE EVALUATION

At the facility, AQD staff, Eric Grinstern (EG) and Gina McCann (GM) met with Josh Bernier, President and Pete Dwan, Operations Manager. Mr. Bernier and Mr. Dwan accompanied staff on an inspection of the facility. Below is a summary of the processes and operations at the facility.

The facility holds one air use permit for their operations. PTI No. 378-94A addresses the following emission units:

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group
EUSANDSTORAGE	Sand storage silo with vent filter	07/2009	NA
EUSANDBLAST		09/2008	NA

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group
	Sandblasting equipment used on finished parts, with enclosure and control system		
EUFURNACE1	600 lb. natural gas fired aluminum tilter furnace (1 charge per 2 hours)	1985	FGFURNACES
EUFURNACE2	400 lb. natural gas fired aluminum tilter furnace (1 charge per 1.5 hours)	1985	FGFURNACES
EUFURNACE3	A 250 KW induction melting furnace that powers one 600 lb. box furnace (1 charge per 1.5 hours) and one 1,000 lb. box furnace (1 charge per 1.5 hrs.). Furnace used to melt aluminum, copper, bronze, iron, steel, and zinc.	02/2001	FGFURNACES FGMACTZZZZZ
EUFURNACE4	A 250 KW induction melting furnace that powers one 1,000 lb. box furnace and one lift swing crucible furnace. Furnace used to melt aluminum, copper, bronze, iron, steel, and zinc.	03/1996	FGFURNACES FGMACTZZZZZ

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.

The facility is subject to Subpart ZZZZZ, area source iron and steel foundry NESHAP. The facility is a small area source. AQD records show that the facility is up to date with submitting the semi-annual certifications and is utilizing CEDRI to submit certifications.

MOLD AND CORE MAKING

The facility has a pattern shop that is primarily used to make pour boxes since they have an outside source make approximately 99% of the patterns. The facility has one sand tower for new sand that is ducted to a baghouse. In 378-94A, sand storage (EUSANDSTORAGE) is required to have a vent filter. The venting to the baghouse satisfies this requirement. The facility stated that they received new sand about once a month. The facility stated that they have a preventative maintenance plan for the baghouse. The facility uses green sand molds and phenolic urethane no-bake molds and cores. The facility uses a zircon mold coating that is not ignited. Only a small amount of green sand molds are used. The facility has one very small portable muller that is used to mix green sand (bentonite clay and sand) The facility has two squeeze units for green sand mold making. The facility has one 300-500 pound per hour mixer for phenolic urethane no-bake. Observation of the sand mixer showed it

to have a capture system that has a duct that vents uncontrolled through a side window equipped with a powered fan. The facility utilizes a compaction table to make no-bake molds. Small molds are handled on a conveyor, while large molds are placed on the floor.

MELTING

The facility has three (3) electric induction furnaces for ferrous melting. The furnaces are all on one power panel and have the following holding capacities: 1,000-pound, 600-pound, and 350-pound. The 1000-pound and 600-pound furnaces appear to be associated with EUFURNACES3. The 350-pound capacity furnace is exempt from permitting under Rule 282(2)(a)(vi). The facility previously had another 1,000-pound capacity furnace (EUFURNACE4) that has been removed. The facility produces ductile iron in a pour ladle. The facility stated that they have always produced ductile iron, in addition to grey iron. Ferrous charge consists of pig iron, scrap punching, ingot, and internal runaround. The scrap observed during the inspections was clean material that did not contain oils, etc.

For non-ferrous melting, the facility has one 125-pound capacity induction melter used for aluminum and two gas-fired furnaces, one has a 600-pound capacity (EUFURNACE1), while the other has a 400-pound capacity (EUFURNACE2). Non-ferrous charge consists of ingots. The facility stated that they cast a very small volume of copper-based alloys.

The ferrous and non-ferrous melting furnaces have no specific capture or control. All of the furnaces are either permitted or exempt from permitting under Rule 282(2)(a)(vi).

The furnaces covered by PTI No.378-94A are combined in flexible group FGFURNACES. Flux usage for FGFURNACES is limited to 40 pounds per month and 480 pounds per year. The facility provided flux usage records for 2021 (attached). The records show the facility used a monthly high of 4 pounds and only used 10 pounds of flux in 2021. Additionally, the permit requires the facility to maintain records of the resin, catalyst, and activator usage rates on a monthly basis. The facility provided the requested binder usage records for 2021 (attached).

POURING, COOLING & SHAKEOUT

Pouring is manually performed with the molds being poured and cooled on the floor. Shakeout is performed manually on the floor within the plant. There is no capture or control for pouring, cooling and shakeout, with emissions venting to the general in-plant atmosphere.

FINISHING

The facility has one shot blast unit and is in the process of installing a second shot blast unit. The existing and new shot blast units have baghouse control that vent to the general in-plant atmosphere. The shot blast units are exempt from permitting under Rule 285(2)(vi)(B). The facility also has angle grinders, cut-off units, snag grinders, belt sanders, and similar finishing processes. These processes vent to the

general in-plant atmosphere and are exempt from permitting under Rule 285(2)(vi) (B). The facility has a sand blasting operation (EUSANDBLAST) that is addressed in PTI No. 378-94A. The permit requires EUSANDBLAST to be equipped with an enclosure and control system. During the inspection the facility explained that the fan associated with the sand blast booth was damaged and unusable. In response to the fan damage, the facility explained that they conducted sand blasting outside uncontrolled. Additionally, the facility stated that they will discontinue use of the sand blaster when the new shot blast unit is installed.

Subpart ZZZZZ – Area Source Iron and Steel Foundry NESHAP

The facility is subject to Subpart ZZZZZ and is classified as a small area source.

The facility has been submitted the required notifications and semi-annual reports and is utilizing CEDRI.

The facility provided records documenting monthly and annual metal throughput, as well as records of usage for sand binders and coatings containing HAPs (attached), as required by the NESHAP.

The facility has scrap purchase specifications (attached) and only purchases 1010 punching.

CONCLUSION

Based on the information and observations during this inspection, the facility appears to be in compliance at this time with applicable air quality rules and regulations, with the exception of the following:

EUSANDBLAST - Operation of the sand blast unit without an enclosure and control system, as required by Special Condition III.1.

Sand Mixer – Sand mixer with emissions vented uncontrolled to the outside atmosphere, without a permit to install (Rule 201).

A Violation Notice will be issued for the above listed violations.

NAME *Eric Quintana* DATE 08/12/2022 SUPERVISOR *Chris Stone*