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

| A023373264 | | |
|--|-------------------------------|---------------------------|
| FACILITY: BAY CAST INC | | SRN / ID: A0233 |
| LOCATION: 400 WEBSTER, BAY CITY | | DISTRICT: Bay City |
| CITY: BAY CITY | | COUNTY: BAY |
| CONTACT: Max Holman, President -General Manager | | ACTIVITY DATE: 07/22/2024 |
| STAFF: Eric Grinstern | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MINOR |
| SUBJECT: Unannounced compliance inspection - Statewide Foundry Initiative. | | |
| RESOLVED COMPLAINTS: | | |

On-site inspection of Bay Cast. The facility was targeted for inspection in FY 24 under the statewide initiative evaluating secondary metal processing facilities that have not recently been inspected, are sources of complaints, and/or are located in an Environmental Justice (EJ) area. Bay Cast was last inspected by EGLE/AQD in May 2024, from which a determination was made that the facility appeared to be in compliance with applicable air pollution rules. Six (6) odor complaints were filed against the facility in 2023. In 2024, two (2) fallout and one odor complaint have been received so far this year. The facility is considered to be located in an EJ area due to the residences within a one-mile radius being above the 75th percentile as a lowincome population.

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

Inspections were conducted on July 22, 2024, during the daytime hours and on the night of July 23, 2024, and early morning of July 24, 2024

FACILITY DESCRIPTION

Bay Cast (Webster Street Location) is located in Bay County, in the southcentral portion Bay City. The facility is a jobbing foundry that manufactures castings for various industries. The facility operates one (1) 18-ton electric arc furnace and six (6) electric induction melting furnaces and pours phenolic ester molds. The foundry produces steel castings (mild, alloyed, tool and stainless steel). The facility can pour castings up to around 70,000 pounds in size. The facility melts and pours during the overnight hours during the off-peak electric period.

COMPLIANCE EVALUATION

On July 22, 2024, at approximately 11:00, AQD staff consisting of Eric Grinstern (EG) and Adam Shaffer (AS), met with Max Holman, President and General Manager. Mr. Holman accompanied AQD staff on an inspection of the facility.

The facility currently operates under three (3) Permits to Install (PTI). PTI No.1083-89A, PTI No. 1084-89, and PTI No. 1085-89. PTI No. 1083-89A was issued in 2008 and covers the operation of seven (7) electric induction furnaces (only 6 were installed). PTI No. 1084-89 was issued un 1990 and covers the operation of an 18-ton electric arc furnace. PTI No. 1085-89 covers sand blending and mixing equipment associated with mold making. The facility is subject to Subpart ZZZZZ, Area Source Iron and Steel Foundries NESHAP. The facility is classified as a small area source.

Below is a summary of the processes and operations at the facility.

MOLD AND CORE MAKING

The facility has one (1) sand tank located on the roof, which stores new sand. The sand silo has baghouse control via a small baghouse that is located in the plant and is vented internally.

The facility has one (1) 1,000 lb./minute sand mixer and one (1) 250/300 lb./minute sand mixer. A cope and drag casting flask system is used for molds. The facility has a phenolic ester binder system for both molds and cores. The facility uses polystyrene and wood patterns. The facility does not practice lost foam pouring, instead they pull the foam pattern out before pouring. Wood patterns are coated with a water-based graphite coating. All molds are coated with a water-based zircon wash. All spent mold and core sand is sent to the landfill.

PTI No. 1085-89 covers sand blending and mixing equipment associated with mold making. The permit addresses a linocure operation, which is no longer at the facility. The permit restricts particulate emissions to 0.1 pounds per 1,000 pounds of exhaust gases. Compliance testing has not been requested to date to verify compliance with the emission limit. Visible emissions are limited to 20% opacity. No VE was observed from the baghouse associated with the sand tank, that vents internally, however the baghouse and process was not operating during the inspection. The permit also requires the installation and proper operation of a baghouse. The baghouse was observed to be installed during the inspection. Additionally, AQD Staff (AS) requested a Malfunction Abatement Plan, per Rule 911, for the baghouses as part of the inspection conducted in May 2024. The facility is required to dispose of collected air contaminants in a manner to minimize the introduction of air contaminants to the outer air. Staff did not observe anything that contradicted this requirement. During the inspection, staff observed the area around the baghouse to be clean.

MELTING

The facility melts steel in six (6) electric induction furnaces and one (1) electric arc furnace. The capacity of the induction furnaces are as follows: two (2) 10,000 pound, four (4) 6,500 pound. The facility was also permitted for a 3,500-pound capacity furnace which is not installed at the facility. The arc furnace has a capacity of 18-tons. Mr. Holman stated that the arc furnace was installed in the 1960's. The arc furnace has an acidic refractory lining, which results in the production of less slag. The induction furnaces do not have capture or control and are vented to the general in-plant environment. The arc furnace has capture at the furnace lid and a scavenger hood in the roof over the furnace. The lid capture system ducts to the large of two baghouses located on the east side of the facility. The scavenger hood vents to the smaller of the two baghouses on the east side of the facility and is adjacent to the lid capture system baghouse. The facility melts mild/medium carbon steel in the arc furnace and high carbon steel in the induction furnaces. Furnace charge consists of 1010 stamping/plate, plate and structural, and internal runaround. Observation of the charge material showed it to be free of oil and liquids. Some of the plate and

structural scrap used in the arc furnace contained minor amounts of paint. The facility conducts melting during the overnight hours during off-peak electrical periods. The facility starts charging the arc furnace around 10:00 pm. The facility taps the furnace 1-2 times per night.

PTI No. 1083-89A covers the operation of seven (7) electric induction furnaces (only 6 were installed). The permit restricts melt to 70 tons of very clean scrap in the furnaces per day. Melt records requested and supplied as part of the May 2024 inspection determined that the highest actual melt rate was about 40 tons per day. The permit also contains conditions requiring compliance with the Area Source Iron and Steel Foundry NESHAP, Subpart ZZZZZ. AQD records show that the facility has submitted the required NESHAP notifications and certifications. The facility stated that they operate in accordance with the scrap management requirements of the NESHAP. Additionally, AQD staff evaluated compliance with the scrap management plan requirements during the May 2024.

PTI No. 1084-89 covers the operation of an 18-ton electric arc furnace. The permit restricts particulate emissions to 0.01 pounds per 1,000 pounds of exhaust gases. Compliance testing has not been requested to date to verify compliance with the emission limit. Visible emissions are limited to 0% opacity. No VE was observed from the baghouses associated with the arc furnaces, as observed during the nighttime inspection. The permit also requires the installation and proper operation of the baghouses. The baghouses were installed and operating during the inspection. Additionally, AQD Staff (AS) requested a Malfunction Abatement Plan, per Rule 911, for the baghouses as part of the inspection conducted in May 2024. The facility is required to equip and maintain each baghouse with a magnehelic or equivalent. During the inspection, magnehelic gauges were observed. The facility is required to dispose of collected air contaminants in a manner to minimize the introduction of air contaminants to the outer air. Staff did not observe anything that contradicted this requirement. During the inspection, staff observed the area around the baghouses to be clean and observed the employees utilizing the area under the large arc baghouse for a break area. The stacks for each of the baghouses is required to be not less than 34 feet tall. Measurements were not made, however, the stacks appeared to meet the height requirements.

POURING, COOLING & SHAKEOUT

The facility conducts pouring on the facility floor and in a pouring pit. Pouring of steel from the arc furnace is conducted via a bottom pour ladle that is transferred on an overhead crane system. Emissions from pouring are not captured or controlled and are vented to the in-plant environment. Poured molds remain on the plant floor for cooling. Emissions from cooling are not captured or controlled and are vented to the in-plant environment. Shakeout/knockout is conducted manually on the plant floor. Emissions from shakeout/knockout are not captured or controlled and are vented to the in-plant environment.

FINISHING

Castings are transferred to the company's Center Street Facility for finishing.

Subpart ZZZZZ – Area Source Iron and Steel Foundry NESHAP

The facility is subject to Subpart ZZZZZ and is classified as a small area source since they melt less than 20,000 tons per year.

AQD has previously documented that the facility has submitted the required NESHAP notifications (Initial Notification, Notification of Size Classification, Notification of Metallic Scrap Management and Binder Formulation, and Notification of Compliance with Mercury Requirements). AQD records show that the facility has submitted all required semi-annual certification reports. The facility stated that they operate under a required scrap management plan.

July 23-24, 2024 - Night-time Inspection

AQD staff (AS and EG) arrived at Bay Cast at approximately 23:30 on July 23, 2024, to observe the facility's operation while the arc furnace was operating. Upon arrival staff met with Max Holman and Mike Walker, Maintenance Manager. Staff observed the arc furnace during the melting, blow down and tapping processes. During melting, the furnace hood system showed very good capture efficiency. A considerable amount of visible emissions are generated during blow down and tapping that is not captured by the arc furnace lid capture system. The emissions collect in the building structure that houses the arc furnace. Staff did not observe arc furnace emissions escaping via any building vents. Staff observed signage posted requiring building doors to remain closed. Staff observed what appeared to be a strong draft resulting from air being pulled into the arc furnace capture systems that vents to the baghouses. Within approximately 10-15 minutes after tapping, a majority of the emissions that accumulated in the building structure had been captured by the roof scavenger hood that vents to baghouse control.

Staff observed mold pouring conducted in molds located in a floor pit. Pouring was conducted with a bottom pour ladle. Mold pouring does not have capture or control and vents into the general in-plant environment. Compared to the size of the molds and the amount of metal being poured, minimal visible emissions were generated during pouring.

Staff observed both of the baghouses used to control emissions from the arc furnace. No visible emissions were observed from the baghouse stacks. While outside the facility around the baghouses, no odors associated with the operation of the arc furnace were noted.

Upon departing the facility, AQD staff conducted an odor survey downwind of the facility and around the perimeter from the public roadway. Staff observed a slight, fleeting odor while within 50 yards of the facility near the intersection of Webster and 25th Streets. The odor had the characteristics of sand binder.

CONCLUSION

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

NAME <u>*ric grinstern*</u> DATE 08/26/2024 SUPERVISOR <u>Jung</u> Man