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

N796864007

FACILITY: OMEGA CASTINGS		**SRN / ID:** N7968
LOCATION: 301 FRITZ KEIPER BLVD, BATTLE CREEK		**DISTRICT:** Kalamazoo
CITY: BATTLE CREEK		**COUNTY:** CALHOUN
CONTACT: Brett Cutshall , Vice President		**ACTIVITY DATE:** 07/28/2022
STAFF: Eric Grinstern	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Unannounced compliance inspection - Foundry EJ Initiative		
RESOLVED COMPLAINTS:		

Unannounced on-site inspection of Omega Castings Inc. 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, Linguistically Isolated, 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 Omega Castings.

FACILITY DESCRIPTION

The facility manufactures stainless steel castings and has been in operation since 1975. The facility specializes in the manufacturing of cast link conveyor belt systems for heat treat furnaces.

The facility currently has 12 employees and operates 5 days (M-F), from 07:00 – 15:30.

COMPLIANCE EVALUATION

At the facility, AQD staff consisting of Eric Grinstern (EG) met with Brett Cutshall, President, and Ryan Cropsey, Production Manager. Mr. Cutshall and Mr. Cropsey 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. 294-08C addresses the following emission units:

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EU-001 (Shell Core)	Shell Core machine for resin sand molding, with a maximum molding rate of 150 lbs./hr.	FG-ZZZZZ

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EU-002 (No Bake Molding)	No Bake Molding – Palmer Screw Type Inline Mixer using phenolic urethane binders. Maximum rating of 1,000 lbs. sand /hour, but is bottlenecked to 500 lbs sand/hr due to current melting/pouring capacity and operational space.	FG-ZZZZZ
EU-003 (Shell Molding)	Shell sand mold machine with approximately 600 lbs/hr molding capacity.	FG-ZZZZZ
EU-004 (Sand Silo)	Sand Storage - Sand Silo with approximately 40,000 pound sand capacity - Dust during filling controlled by Cyclone collector CFM: 800 CFM.	FG-ZZZZZ
EU-005 (Metal melting)	Electric induction furnace. Emissions are to the general plant environment. Approximately 1500 lbs/hr metal capacity.	FG-ZZZZZ
EU-006 (Metal Pouring)	Pour line with approximately 1500 lbs/hour metal capacity.	FG-ZZZZZ
EU-007 (Casting Cooling)	Cooling tunnel with approximately 1500 lbs/hour metal capacity.	FG-ZZZZZ
EU-008 (Shakeout)	Shakeout station. The cooled molds are simply broken out on the floor, the casting is removed, and the sand is shoveled off the floor for proper disposal.	FG-ZZZZZ
EU-009 (Cutoff)	Two cut off saws. 375 lbs/hr maximum throughput each with particulate controlled by a cyclone and fabric filter dust collector DC-01 (CFM: 4000 CFM with discharge inside the plant).	FG-ZZZZZ
EU-010 (Grinders)	Two finishing grinders - maximum total 600 pounds of metal throughput per hour. It is controlled by a dust collector with discharged inside the plant.	FG-ZZZZZ
EU-011	Viking Tumble blast - and associated dust collector (rated at 1200 CFM with discharge inside the plant).	FG-ZZZZZ
EU-013 (Stick Welding)	Stick welding and filling (SMAW) 2-lb Welding rods used per hour max.	FG-ZZZZZ

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
	Fume extractor CFM: 835 – Exhaust to GV-02 (28 inch diameter vertical stack at 18,000 CFM) to the outside.	
EU-014 (Wire Welding)	Pin welding mig (GMAW) and conveyor assembly area. Fume extractor CFM: 835 exhausting to GV-02 (28 inch diameter vertical stack at 18,000 CFM) to the outside.	FG-ZZZZZ

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 336.1291.

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. The facility is also submitting certifications via CEDRI.

MOLD AND CORE MAKING

The facility has one sand silo (EU-004) for new sand. The emission unit summary table of PTI 294-08C states that the silo is controlled by a cyclone. During the inspection the silo was observed to be ducted to a Torit cartridge collector, which provides much better control than a cyclone.

The facility uses phenolic urethane no-bake molds and cores, as well as shell molds and cores. The facility stated that a majority of their castings are poured in shell molds.

The facility has one sand mixer (EU-002) for the phenolic urethane no-bake system. The permit lists the mixer as having a rated capacity of 1,000 lbs. of sand / hour. Based on the size of the mixer, it appears to be a Model M200 Palmer, which has a capacity of 12,000 pounds of sand / hour. The rate could be less depending on the sand grate orifices. It is possible that the permit intended to list the rated capacity at 10,000 lbs. / hour. In a post inspection phone call, the facility stated that the mixer is operated at 250 lbs./minute and has a capacity of 300 lbs./minute. Regardless, of the capacity, the permit limits the amount of sand processed. Any emissions from the mixer vent to the in-plant air. The PTI limits the amount of phenolic urethane binder sand processed to 300,000 pounds per month. The facility provided binder sand

usage records for July 2017 thru July 25, 2022. The highest monthly pounds of sand used in a month was 32,820 pounds for the reviewed time period (records attached).

Shell molds and cores are produced on one mold machine (EU-003) and one core machine (EU-001). Emissions from shell mold and core making vent to the in-plant air.

MELTING

The facility has two (2) electric induction furnaces (EU-005). Each furnace has a maximum holding capacity of 1,600 pounds. The pour line has a capacity of 1,500 pounds per hour. The furnaces are on the same panel and only one can be operated at a time. The furnaces do not have capture or control and vent to the in-plant air, with general roof vents located above the furnaces. Furnace charge consists primarily of customer scrap, 330 and 600 plate scrap. Observation of the scrap during the inspection showed it to be clean and free of lubricants and contaminants. The facility provided melt records showing that they had a throughput of 576,769 pounds (288 tons) of metal for the 12-month time period ending in July 2022 (records attached).

POURING, COOLING & SHAKEOUT

Pouring (EU-006) is manually performed with molds being poured on the floor and conveyor. Larger molds (phenolic no-bake) are poured on the floor and shell molds are poured on the conveyor. Emissions from floor poured molds vent to the general in-plant air. Pouring on the conveyor occurs under a hood that vents to the outside through as stack in the roof. The stack turns and discharges toward the ground. During the inspection, observation of the stack showed intermittent emissions which coincided with mold pouring. Method 9 readings could not be taken due to the background (sky) having the same blue/gray color of the opacity. The observed opacity was approximately 20%, but due to the intermittent nature would be less than 20% on a 6-minute average. Future evaluation of emissions from pouring is warranted. The attached photo shows the pouring stack as well as the cooling tunnel.

Floor poured molds are cooled in the plant with emission venting to the in-plant air. Conveyorized molds are conveyed through an enclosed tunnel that is located outside the plant. Emissions from the cooling tunnel (EU-007) are exhausted through six stacks equipped with powered fans. Observation of the cooling stacks showed only a brief period of visible emissions from the second stack from the building.

Shakeout (EU-010) is performed manually on the floor within the plant, with emissions venting to the general in-plant atmosphere.

FINISHING

The facility has one tumble blast unit (EU-011) from which emissions are controlled by a Torit cartridge collector that vents internally. The facility also has cut-off saws (EU-009), and grinders (EU-010), with emissions being controlled by a Torit cartridge dust collector that vents internally. Additionally, the facility has stick welding (EU-013) and wire welding (EU-014) that vent emissions to the outside atmosphere.

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 submitting the required notifications and semi-annual reports.

The facility provided records documenting monthly and annual metal throughput (attached). The facility is also maintaining records of usage for sand binders and coatings containing HAPs. Records for phenolic urethane binder sand are attached.

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.

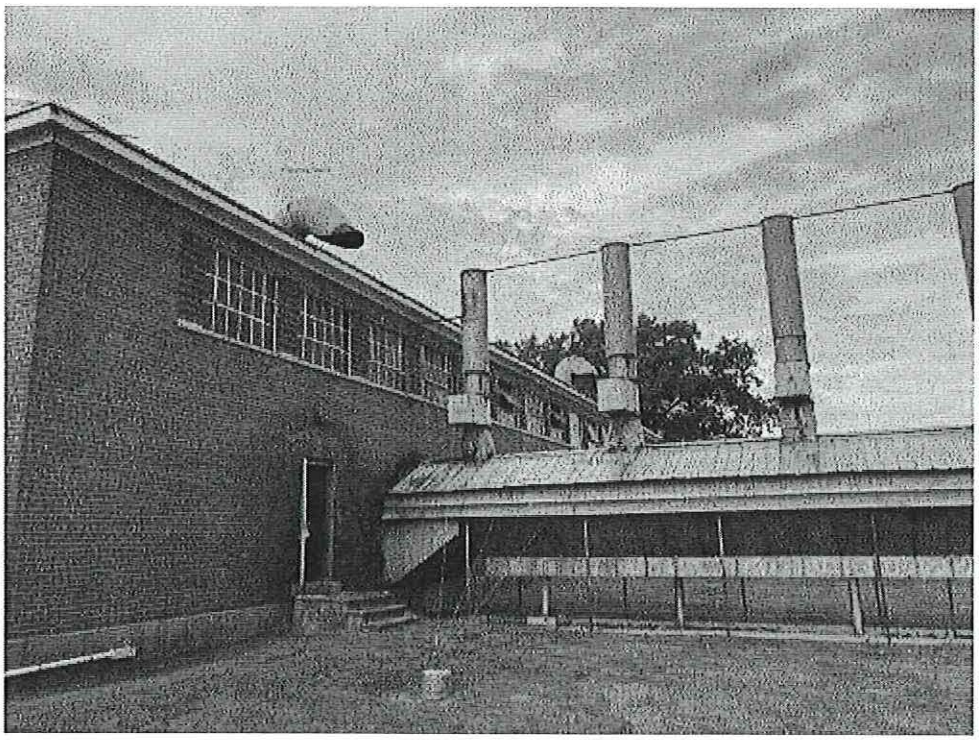

Image 1(Omega Castings) : Pouring Stack and Cooling Tunnel

NAME Eric Grinstern DATE 08/12/2022 SUPERVISOR RIL 9/15/22