

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

A626254260

FACILITY: MUELLER BRASS CO.		SRN / ID: A6262
LOCATION: 2199 LAPEER AVE, PORT HURON		DISTRICT: Warren
CITY: PORT HURON		COUNTY: SAINT CLAIR
CONTACT: James Davidson , VP Manufacturing		ACTIVITY DATE: 07/15/2020
STAFF: Rem Pinga	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Level 2 Scheduled Inspection		
RESOLVED COMPLAINTS:		

On July 15, 2020, I conducted a level 2 scheduled inspection at Mueller Brass Company located at 2199 Lapeer Avenue, Port Huron, Michigan 48060. The purpose of the inspection was to determine the facility's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), the administrative rules, and the facility's Permit to Install (PTI) No. 180-00E. During the pre-inspection meeting, I met with Jim Davidson, VP Manufacturing, and Tim McFarlane, Facilities Manager. Mr. Davidson and Mr. McFarlane accompanied me during the walk-through inspection.

To comply with the COVID-19 Emergency AQD Field Inspection Guidance Update (June 2020), the inspection was announced and scheduled. I adhered to the facility's COVID-19 safety protocols such as temperature check and completing a checklist/questionnaire of health/contact information. I entered the facility wearing face mask, face shield, safety glasses, hard hat, and safety shoes. Mr. McFarlane supplied me with an industrial N95 mask that is required to be worn inside the melting area. Following AQD guidance, all recordkeeping information were obtained through email instead of obtaining printed copies during inspection.

PTI No. 180-00E was issued last December 19, 2019 as a revision to PTI No. 180-00D, to add a chip dryer emission unit, EUCHIPDRYER, that included a cyclone separator, thermal oxidizer, and dry lime injection baghouse system as emissions control. The new permit also contained the flexible group, FGFUGITIVES, to include Baghouse System D as fugitive emissions control for the casting area. PTI No. 180-00D was also a recent revision, issued January 10, 2019, to PTI No. 180-00C that included an existing EUSLUDGEDRYER; a new FGSYSTEMB to be controlled by a Baghouse System B, FGSYSTEME with a new Baghouse System E to control emissions previously controlled by the old Baghouse System B; FGSYSTEMC with a modified Baghouse System C (installation of 2 new stacks instead of side vent ports to exhaust emissions) to control emissions from FGSYSTEMC; existing FGBILLETHEATERS; and FGFACILITY CONDITIONS.

PTI No. 180-00E was also issued as a synthetic minor permit and contained applicable requirements, in FGFACILITY CONDITIONS, to opt the facility out of the Clean Air Act of 1990, Title V, Renewable Operating Permit (ROP) requirements. This stationary source is not considered a major source of

Hazardous Air Pollutant (HAP) emissions because the company has agreed to accept facility-wide single HAP and combined/aggregate HAPs emission restrictions, supported by monthly 12-month rolling total/s recordkeeping requirements, to demonstrate continued compliance as a HAP synthetic minor facility. Under PTI No. 180-00E, FGFACILITY CONDITIONS, the facility is restricted to a potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112 to 9.00 tons per year and a potential to emit of all HAPs combined (aggregate HAPs) to 22.0 tons per year.

Mueller Brass Company is a primary brass manufacturing facility. At this facility, Mueller Brass manufactures the 3600 Brass alloy which is about 61% Copper, 36.5% Zinc, and 2.5% Lead. Lead is added to assist with machining properties. Due to more stringent regulations in the Lead content for drinking water, the facility has reduced the Lead content in Brass to as low as 0.025% in some alloys. In this facility, the company also forges about 80% brass and 20% aluminum materials into products.

During the pre-inspection meeting, I discussed with Mr. Davidson and Mr. McFarlane the additional records I am requesting to be sent electronically per Covid-19 AQD protocol for inspection. Mr. Davidson had printed copies of daily maintenance log sheets and some other records, but I mentioned that the new AQD Covid-19 inspection protocol required that records be sent electronically to avoid direct contact of the records.

There are three main buildings at the facility which include the following: brass rod manufacturing (casting building), forging/technical laboratory building, and a forging warehouse that also includes some forging activities. In general, Mueller Brass operated three – 8 hour shifts daily. Mueller Brass supplies brass to the Original Equipment Manufacturer (OEM) fittings industry. The company also supplies brass to potable sources that require a 0.25% lead content in the alloy. The facility called this as the “no lead product”.

The brass alloys at this facility are produced from raw materials (10%), production scrap (20%), and externally purchased salvaged brass metals and chips (70%). Raw materials can come from brass ingots and/or combination of Copper (Cu), Zinc (Zn), and additives such as Lead (Pb), etc. Larger scraps (turnings and solids) are unloaded and weighed by the box-full before transfer to the Casting Shop. This facility receives anywhere from 60-65% of their materials as scrap from their customers and buys the remaining incoming raw materials from the open market. The raw materials are tested in their onsite technical laboratory.

After the pre-inspection meeting, Mr. Davidson and I walked outside the office building towards the Baghouse Systems E, C, and B which are located northeast from the casting building. While walking outside towards the baghouses, I conducted visible emissions (VE) observations at the stacks and around the baghouse systems. I did not observe any VEs at the stacks and fugitive emissions

anywhere around Baghouse Systems C and E. At the same site, Mr. Davidson discussed and showed me the partial rehabilitation of Baghouse System B that included installation of the new spark arrestor, rebuilding of the 5 compartments, and the installation of slide gates. However, no bags have been installed at the time of the walk-through inspection.

EUCHIPDRYER consists of natural gas fired chip dryer with nominal capacity of 8,000 lbs/hr of metal chips using indirect natural gas heaters rated at 4 MMBTU/hr. Emissions from the drying process are controlled by a smoke hood, cyclone separator, thermal oxidizer, dry lime injection, and a baghouse system. PTI No. 180-00E was issued due to the facility's application to install this emission unit. This emission unit is located near the melting area in the southside of the property. During walk-through inspection, I observed the equipment being installed. Mr. Davidson showed me the installed stack and the partially completed baghouse system, dry lime injection system, thermal oxidizer, and control panel room that is located beside Baghouse System D.

FGSYSTEMB is a batch melting process consisting of Casters 1, 2, & 5. The emission units in FGSYSTEMB include EUMELTFURNACE1, EUMELTFURNACE2, EUHOLDFURNACE1, EUHOLDFURNACE2. Baghouse System B is being refurbished to control the emissions from FGSYSTEMB. During walk-through inspection, I observed the furnaces at the site but not completely installed.

FGSYSTEMC is a horseshoe shaped vertical batch casting process capable of manufacturing alloys that include tighter specifications, such as the "no lead product". FGSYSTEMC consists of a holding furnace, EUHOLDFURNACE3 (1969), and three electrical induction melting furnaces - EUMELTFURNACE3W (1997), EUMELTFURNACE3S (1969), and EUMELTFURNACE3N (1969). Molten metals from the melting furnaces goes into a holding furnace (EUHOLDFURNACE3) which feeds Caster No. 3. FGSYSTEMC is capable of casting 5 billets/logs per heat. Air pollutant emissions from FGSYSTEMC are controlled by Baghouse System C. Baghouse System C is a 120,000 ACFM eight compartment baghouse system with the air emissions discharged in 2 stacks per PTI No. 180-00E FGSYSTEMC (VIII.1 & 2). Per PTI No. 180-00E FGSYSTEMC (VI.1), Baghouse System C is equipped with 8 electronic differential pressure gauges and the facility records the pressure drop reading manually once a day in a daily baghouse check sheet. During walk-through inspection, I took the following pressure drop readings: compartment 1 – 5.5; 2 – 5.7; 3 – 5.8; 4 – 7.6; 5 – 5.4; 6 – 5.8; 7 – 7.7; 8 – 7.6 inches water gauge. The pressure drop readings appeared to be in compliance with PTI No. 180-00E FGSYSTEMC (IV.3) pressure drop range of 2.0 - 12.0 inches W.G. These pressure drops are also within range of the baghouse pressure drops during the most recent stack test. Per PTI No. 180-00E FGSYSTEMC (IV.1), I observed the Baghouse System C melting furnaces with full enclosures instead of the large overhead capture hoods. Per PTI No. 180-00E FGSYSTEMC (I.1-5 & V.1), the facility conducted stack testing on 08/27-29/2019 to

determine compliance with the different applicable emission limits. The test report was submitted on October 28, 2019 and showed the following results: PM – 0.70 lb./hr.; PM10/PM2.5 – 0.99 lb./hr.; and Lead – 0.0007 lb./hr. and in compliance with the applicable permit limits of PM/PM10/PM2.5 – 1.0 lb./hr. and Lead – 0.035 lb./hr. respectively. Per PTI No. 180-00E FGSYSTEMC (V.2), the facility conducted a smoke test last July 14, 2020. The company submitted video showing the enclosures of melting furnaces have a negative pressure. Per PTI No. 180-00E FGSYSTEM C (VI.2), the facility took daily non-certified visible emissions readings from the Baghouse System C and also installed a continuous opacity monitor voluntarily. During the walk-through inspection, the opacity monitor showed the following reading: South Monitor – 0.0; North Monitor – 0.5. Per PTI No. 180-00E FGSYSTEMC (IV.4 & VI.3), Mr. Davidson showed me the bag leak detection system for Baghouse System C, the electronic monitor, and the alarm system. Per PTI No. 180-00E FGSYSTEMC (VI.4) and submitted recordkeeping, the facility recorded the amount of metal melted daily and monthly. Per PTI No. 180-00E FGSYSTEMC (VI.5 & 6), the facility keeps records of hours of operation, visible emissions observations, control equipment inspections, maintenance, etc.

FGSYSTEME is a continuous horizontal casting system consisting of a 33-ton electric induction “coreless” melting furnace (EUCHIPFURNACE2) and a 33-ton electric induction “channel” melting furnace (EUCHANFURNACE1). The molten metals from the melting furnaces are poured into a holding furnace (EUCASTFURNACE3) which feeds Caster No. 4. Per Mr. Davidson, EUCHIPFURNACE2 was capable of melting recycled chips because it had a secondary burner system to help control smoke. FGSYSTEMB, in PTI No. 180-00C, became FGSYSTEME, in PTI No. 180-00D and in the current PTI No. 180-00E. However, Baghouse System B was replaced by a new Baghouse System E for emissions control. The new Baghouse System E was installed as a 75,000 ACFM negative pressure 4 compartment baghouse system with a single 75 feet exhaust stack; equipped with a differential pressure gauge per compartment; has a spark quencher; and a quad cone cyclone (mechanical pre-cleaner) prior to the baghouse. Per PTI No. 180-00E FGSYSTEME (VI.1), Baghouse System E was equipped with 4 electronic differential pressure gauges and the facility records the pressure drop reading manually once a day in a daily baghouse check sheet.

During walk-through inspection, I took the following pressure drop readings: compartment 1 – 3.7; 2 – 3.8; 3 – 3.7; 4 – 3.7 inches water gauge. The pressure drop readings appeared to be in compliance with PTI No. 180-00E FGSYSTEME (IV.3) pressure drop range of 2.0 - 12.0 inches W.G. These pressure drops are also within range of the baghouse pressure drops during the most recent stack test. . Per PTI No. 180-00E FGSYSTEME (IV.1), I observed a Baghouse System E installed with the 2 melting furnaces having enclosures instead of the large overhead capture hoods that I observed from the last inspection. Per PTI No. 180-00E FGSYSTEME (I.1-5 & V.1), the facility conducted stack testing on 08/27-29/2019 to determine compliance with the different applicable emission limits. The test report was submitted October 28, 2019 and showed the following results: PM –

0.31 lb./hr.; PM10/PM2.5 – 0.79 lb./hr.; and Lead – 0.0003 lb./hr. and in compliance with applicable permit limits of PM/PM10/PM2.5 – 1.0 lb./hr. and Lead – 0.035 lb./hr. respectively. Per PTI No. 180-00E FGSYSTEMC (V.2), the facility conducted a smoke test last July 14, 2020. The company submitted video showing the enclosures of melting furnaces have a negative pressure. Per PTI No. 180-00E FGSYSTEME (VI.2), the facility took daily non-certified visible emissions readings from the Baghouse System E and also installed a continuous opacity monitor voluntarily. During walk-through inspection, the opacity monitor showed a reading of 1.7. Per PTI No. 180-00E FGSYSTEME (IV.4 & VI.3), Mr. Davidson showed me the bag leak detection system that was installed for Baghouse System E, the electronic monitor, and the alarm system. Per PTI No. 180-00E FGSYSTEME (VI.4), the facility recorded the amount of metal melted daily and monthly. I obtained copies of the recordkeeping. Per PTI No. 180-00D FGSYSTEME (VI.5 & 6), the facility keeps records of hours of operation, visible emissions observations, control equipment inspections, maintenance, etc.

FGBILLETHEATERS refers to the flexible group that is also located in the casting building. From the casting process, the brass billets go to the extrusion process.

The billets are re-heated by three horizontal natural gas reheating furnaces (EUBILLETHEATER1, 2, & 3) to about 1350°F to make the billets malleable for extrusion into rods/coil shapes and sizes. The only applicable requirements in this flexible group are stack height and diameter requirements for each of the Billet Heaters which I did not verify during inspection.

From the extrusion process, the rods/coils went through 2 sulfuric acid pickling lines (one line for rods and another line for coils). The emissions from the pickling and extrusion processes were uncontrolled. The pickling process appeared to be exempt from PTI requirements per AQD Rule R 336.1285(2)(r). After pickling, the rods/coils were cut into customers specifications, straightened, and bundled for shipment. Emissions from these finishing operations that involve straightening the rod, cutting to size and chamfering the ends, were vented to the general in-plant environment. These processes appeared to be exempt from PTI requirements per AQD Rule R 336.1285(2)(l).

FGFUGITIVES was also added in PTI No. 180-00E to permit the 150,000 ACFM Baghouse System D, previously installed in 2012 as an exempt equipment, for control of fugitive emissions from the melting area for Casters 1, 2, 3, 4, & 5. Per PTI No. 180-00E FGFUGITIVES (IV.2 & VI.1), Baghouse System E was equipped with 2 electronic differential pressure gauges. The facility also records the pressure drop reading manually once a day in a daily baghouse check sheet.

During walk-through inspection, I took the following pressure drop readings: compartment 1 – 3.9; 2 – 4.3 inches water gauge. Per PTI No. 180-00E FGFUGITIVES (I.1-3 & V.1), the facility conducted stack testing on 08/27-29/2019 to determine compliance with the different applicable emission limits. The test report was submitted October 28, 2019 and showed the following results: PM – 0.21 lb./hr.; PM10/PM2.5 – 1.57 lb./hr.; and in compliance with applicable permit

limit of PM/PM10/PM2.5 – 2.0 lb./hr. The facility also tested for Lead emissions and showed 0.0010 lb./hr. results. Per PTI No. 180-00E FGFUGITIVES (VI.2), the facility took daily non-certified visible emissions readings from the Baghouse System D. Per PTI No. 180-00E FGFUGITIVES (IV.3 & VI.3), Mr. Davidson showed me the bag leak detection system that was installed for Baghouse System D, the electronic monitor, and the alarm system.

In the forging building adjacent to the casting building, Building 72, the facility operated an on-site wastewater treatment system that included a sludge dryer, EUSLUDGEDRYER, with a wet scrubber emission control system. This emission unit was also included in Permit to Install No. 180-00E as a carryover from PTI No. 180-00D. During walk-through inspection, the sludge dryer was not operating. Per PTI No. 180-00E EUSLUDGEDRYER (I.2), I did not observe any visible emissions inside and outside the building. Per PTI No. 180-00E EUSLUDGEDRYER (IV.1), the emission unit was equipped with a wet scrubber that is turned on when the dryer is operating. Per PTI No. 180-00E EUSLUDGEDRYER (IV.2), I observed the emission unit equipped with a water flow rate indicator. Per PTI No. 180-00E EUSLUDGEDRYER (VI.1), the facility keeps record of the water flow rate when the dryer is operating. In the forging area of the building, AQD staff also observed the following processes: 8 forging and 6 aluminum and brass trim presses. Presses are normally exempt from permit to install requirements per MDEQ-AQD Administrative Rule (AQD Rule) R 336.1285(2)(l)(i).

The Forging/Warehouse building, Building No. 62, was located a distant southeast from the main facility operations. The site is within the facility property but separated by a railroad line. During walk-through inspection, I observed that the building was mostly used for warehousing, shipping, and receiving. A portion of the building was used for forging and heat treating. In the forging area, I observed 5 presses, 2 heat treat lines that contain annealing furnaces and pit furnaces, and 3 saws. The furnaces for heat treating that does not involve ammonia, molten materials, oil-coated parts, or oil quenching, are exempt from permit to install requirements per AQD Rule R 336.1282(2)(a)(i).

PTI No. 180-00E also included the flexible group, FGFACILITY CONDITIONS, that contained synthetic minor applicable requirements. The facility submitted emissions records to show compliance with the applicable pollutants. The PTI No. 180-00E facility wide emission limits are 9.0 tons per year (TPY) individual HAP, and 22.0 TPY of aggregate HAPs, based on monthly 12-month rolling totals. Per PTI No. 180-00E FGFACILITY CONDITIONS (I.1 & 2), the facility is reporting Lead as the only HAP emission. As of FY 2020, the facility reported the highest Lead monthly 12-month rolling total emission rate in January 2020 for both single and aggregate HAPs at 19 lb. or 0.01 TPY. The facility is using the Lead emission factors from the August 2019 stack test results for the emission calculations. Per PTI No. 180-00E FGFACILITY CONDITIONS (I.3), the facility reported the highest PM10 monthly 12-month rolling total emission rate for both January and February 2020 at 11.4 TPY respectively and less than the permit limit of 50 TPY. Per PTI No. 180-00E

