

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

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| 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: 06/15/2021 |
| STAFF: Rem Pinga | COMPLIANCE STATUS: Compliance | SOURCE CLASS: SM OPT OUT |
| SUBJECT: On-site Inspection | | |
| RESOLVED COMPLAINTS: | | |

On June 15, 2021, I conducted a scheduled on-site 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 Stephen Parker Jr., Quality Supervisor. Mr. Davidson accompanied me throughout 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 filled the EGLE Covid-19 Safety Questionnaire online prior to leaving home office. Since I informed the company that I am fully vaccinated, Mueller Brass did not check my temperature, but I entered the facility wearing face mask, safety glasses, hard hat, and safety shoes. My facility contacts were also wearing face mask during the inspection process. Following the AQD guidance, all recordkeeping information were obtained through email instead of obtaining printed copies during inspection.

PTI No. 180-00E remains the enforceable opt-out PTI for the facility. It 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; and the FGFUGITIVES flexible group for Baghouse System D, to control fugitive emissions from the casting area. PTI No. 180-00D was also a recent revision, issued January 10, 2019, to PTI No. 180-00C for 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, FGBILLETHEATERS, and FGFACILITY, which contains applicable requirements to opt the facility out from being subject to the Clean Air Act of 1990, Title V, Renewable Operating Permit program.

As mentioned above, PTI No. 180-00E is now Mueller Brass' latest revised synthetic minor permit to install. It contained applicable requirements 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, 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, Mr. Davidson mentioned that 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. At the Port Huron facility, the company forges about 80% brass and 20% aluminum materials into products.

During the pre-inspection meeting, I discussed with Mr. Davidson and Mr. Parker that the current AQD Covid-19 inspection protocol still requires that inspection records be sent electronically to avoid direct manual contact of the records. Any additional records that I am requesting, needs to be sent electronically per this Covid-19 AQD protocol for inspection. I received electronic records on June 17, 18, & 22, 2021.

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 operates 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 calls this as the "no lead product".

The brass alloys at this facility are produced from raw materials (10%), recycled 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 on-site technical laboratory.

After the pre-inspection meeting, Mr. Davidson, Mr. Parker, and I walked outside towards the Baghouse Systems E, C, and B which are located northeast from the casting building. While outside of the baghouses, I conducted visible emission (VE) observations at the stacks and fugitive emission observations around the baghouse systems. I did not observe any VEs at the stacks. I also did not observe fugitive emissions anywhere around Baghouse Systems C and E. While in the area, Mr. Davidson informed and showed me that Baghouse System B is not completely installed. I verified that the bags are not installed, and the ducts are not hooked up. The 2 stacks are capped from the inside.

EUCHIPDRYER consists of natural gas fired chip dryer with nominal capacity of 8,000 lb./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 main caster building. During walk-through inspection, I observed the process equipment and control equipment installed but not operating. The chip dryer emissions control stack, the completed baghouse system, dry lime injection system, thermal oxidizer, and control panel room are all located outside and close to the Baghouse System D. According to Mr. Davidson, the company conducted an engineering study on the process but has not officially conducted an initial start-up.

FGSYSTEMB is a batch melting process consisting of Casters 1, 2, & 5. The emission units in FGSYSTEMB include EUMELTFURNACE1, EUMELTFURNACE2, EUHOLDFURNACE1, EUHOLDFURNACE2. As mentioned above, the Baghouse System B is being refurbished to control the emissions from FGSYSTEMB, but it is not completed. 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, and three electrical induction melting furnaces - EUMELTFURNACE3W, EUMELTFURNACE3S, and EUMELTFURNACE3N. Molten metals from the melting furnaces goes into the 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. Per PTI No. 180-00E, FGSYSTEMC (VIII.1 & 2), 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 (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 – 8.1; 2 – 8.2; 3 – 7.0; 4 – 8.4; 5 – 7.2; 6 – 7.2; 7 – 8.6; 8 – 8.6 inches water gauge. The pressure drop readings appeared to be in compliance with PTI No. 180-00E, FGSYSTEMC (IV.3). 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 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 in December 2019, July 14, 2020, and last July 8, 2021. The company submitted video showing the enclosures of melting furnaces have a negative pressure. After 2 consecutive tests demonstrating that the direction of air flow at each hood is flowing into the exhaust ductwork, subsequent testing shall be completed once per calendar year for the next 3 years. Per PTI No. 180-00E, FGSYSTEM C (VI.2), the facility took daily non-certified visible emission 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 – 0.5; North Monitor – 0.1. Per PTI No. 180-00E, FGSYSTEMC (IV.4 & VI.3), Mueller Brass installed a bag leak detection system for Baghouse System C, an electronic monitor, and alarm system. Per PTI No. 180-00E FGSYSTEMC (VI.4) and the submitted recordkeeping, the facility recorded the amount of metal melted daily and monthly. Per PTI No. 180-00E FGSYSTEMC (VI.5 & 6), the facility kept 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 is 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 subsequent and current PTI No. 180-00E. However, a new Baghouse System E replaced the old Baghouse System B for emissions control. Baghouse System E is 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 is 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 – 4.8; 2 – 4.8; 3 – 5.5; 4 – 4.8. inches water gauge. The pressure drop readings appeared to be in compliance with PTI No. 180-00E, FGSYSTEME (IV.3). Per PTI No. 180-00E, FGSYSTEME (IV.1), the 2 melting furnaces, controlled by Baghouse System E, have 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 that was submitted on October 28, 2019, 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 in December 2019, July 14, 2020, and last July 8, 2021. As discussed earlier, the company submitted video showing the enclosures of melting furnaces have a negative pressure. After 2 consecutive tests demonstrating that the direction of air flow at each hood is flowing into the exhaust ductwork, subsequent testing shall be completed once per calendar year for the next 3 years. Per PTI No. 180-00E, FGSYSTEME (VI.2), the facility took daily non-certified visible emission 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 4.7. Per PTI No. 180-00E, FGSYSTEME (IV.4 & VI.3), Mueller Brass installed a bag leak detection system for Baghouse System E, an electronic monitor, and 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. 180-00E FGSYSTEME (VI.5 & 6), the facility kept records of hours of operation, visible emissions observations, control equipment inspections, maintenance, etc.

FGBILLETHEATERS refers to the flexible group that is located in the casting building and follows the melting furnaces in the casting process. 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 and coils of various shapes and sizes. The only applicable requirements in this flexible group are stack heights and diameter requirements for each of the Billet Heaters. During the walk-through inspection, I did not verify these parameters.

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

The flexible group, FGFUGITIVES, was also added in the revised PTI No. 180-00E. It includes the 150,000 ACFM Baghouse System D. Baghouse System D was previously installed in 2012 as a PTI exempt equipment, to control 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 D is equipped with 2 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 – 5.3; 2 – 5.7 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 that was submitted on October 28, 2019, 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 emission readings from Baghouse System D. Per PTI No. 180-00E, FGFUGITIVES (IV.3 & VI.3), Mueller Brass installed a bag leak detection system for Baghouse System D, an electronic monitor, and alarm system.

In the forging building, Building No. 72, adjacent to the casting building, the facility operates 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: 3 forging presses, 2 heat treat lines, and 1 Aluminum heat sink. Presses are normally

exempt from PTI requirements per MDEQ-AQD Administrative Rule (AQD Rule) R 336.1285(2)(l)(i). The heat treat processes appears to be PTI exempt per AQD Rule R 336.1282(2)(a)(i).

The Forging/Warehouse building, Building No. 62, is located south from the main facility operations across from the railroad line. During walk-through inspection, I observed that the building is still used mainly for warehousing, shipping, and receiving. A portion of the building is used for additional forging and heat treating processes. Similar to the previous inspection, I observed 5 presses, 2 heat treat lines, containing annealing furnaces and pit furnaces, and 3 saws, in the forging area. The heat treat processes also appear to be exempt from PTI requirements per AQD Rule R 336.1282(2)(a)(i).

PTI No. 180-00E also includes the flexible group, FGFACILITY CONDITIONS, that contained synthetic minor applicable requirements. The PTI No. 180-00E facility wide emission limits are 9.0 tons per year (tpy) for individual HAP, and 22.0 tpy for aggregate HAPs, based on monthly 12-month rolling total emission rates. Per PTI No. 180-00E, FGFACILITY CONDITIONS (I.1 & 2), the facility is reporting Lead as the only HAP emission. Submitted records showed that the highest Lead monthly 12-month rolling total emission rates from June 2020 through May 2021, was emitted in May 2021, at 15 lb. Due to the very small emission amount, the converted tpy Lead monthly 12-month rolling total emission rates from June 2020 through May 2021, for both single and aggregate HAPs, were about 0.01 tpy each month, and less than the 9.0 tpy and 22.0 tpy permit limits respectively. 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 highest PM10 monthly 12-month rolling total emission rate from June 2020 through May 2021, was reported for May 2021 at 11.2 tpy and less than the permit limit of 50 tpy. Per PTI No. 180-00E FGFACILITY CONDITIONS (III.1), the facility submitted records to show compliance with the BMPP and PM/MAP. Per PTI No. 180-00E, FGFACILITY CONDITIONS (VI), the facility kept records of fuel combusted, PM/MAP activities, monthly and 12-month rolling total single and aggregate HAP/s emission rates, and monthly and 12-month rolling total emission rates for PM10.

On August 12, 2019, EGLE-AQD finalized Consent Order (CO) AQD No. 2019-17 with Mueller Brass Company to address and resolve 3 Violation Notices sent to the company dated April 17, 2019, May 15, 2018, and June 29, 2018. The 3 VNs were for noncompliance issues related to improper operation of Baghouse Systems B & C which resulted to noncompliance of the MAP and AQD Administrative Rule 910; noncompliance of stack requirements for Baghouse System C; and noncompliance of AQD Rule 901 for causing particulate matter fallout into a complainant's property resulting from a baghouse fire. Per CO AQD No. 2019-17, Provision 9.A.1, the facility has

revised PTI No. 180-00D to the current PTI No. 180-00E. Per the above compliance determinations, Mueller Brass appears to be in compliance with the applicable requirements in PTI No. 180-00E, FGSYSTEMB, FGSYSTEMC, FGSYSTEME, and FGFACILITY (III.1, 2, & 5). Per CO AQD No. 2019-17, Provision 9.B.1, the AQD Warren District office has not received any fallout complaints. AQD staff conducted follow-up visible emission observations (VEs) and verified no VEs from the baghouse system stacks and fugitive VEs from inside the facility grounds. Similarly, I did not verify any VEs during the most recent on-site walk-through inspection. Per CO AQD No. 2019-17, Provision 9.A.2, I did not verify any malfunctioning control equipment during the walk-through inspection and the facility has complied with the most current PM/MAP requirements during review of submitted records. Thus, the facility appears to be in compliance with AQD Administrative Rule 910. Per CO AQD No. 2019-17, Provision 9.C.1, the facility has submitted a revised PM/MAP (implementing Revision 11) and continue to work with AQD staff to improve the PM/MAP to better address any potential emission issues. Per CO AQD No. 2019-17, Provision 9.D.1, stack testing was conducted on 08/27-30/2020 that included Baghouse System D. The submitted results showed compliance with applicable emission limits as discussed above. Per CO AQD No. 2019-17, Provision 9.E.1, I did not observe open doors near the melting area. The area behind the melting furnaces where the staff and vehicle access doors (closed) were located, showed much improved visibility and I did not observe VEs when I was in the area during the walk-through inspection.

Overall, I did not find any non-compliance issues during inspection.

NAME

DATE 09/29/2021

SUPERVISOR

