

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

A626249571

FACILITY: MUELLER BRASS CO.		SRN / ID: A6262
LOCATION: 2199 LAPEER AVE, PORT HURON		DISTRICT: Southeast Michigan
CITY: PORT HURON		COUNTY: SAINT CLAIR
CONTACT: James Davidson , VP Manufacturing		ACTIVITY DATE: 07/16/2019
STAFF: Rem Pinga	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced Level 2 Target Inspection		
RESOLVED COMPLAINTS:		

On July 16, 2019, AQD Permit Engineer Janelle Trowhill and I conducted an unannounced level 2 target 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. 180-00D. During the pre-inspection meeting, Ms. Trowhill and I stated the purpose of our visit to Jim Davidson, VP Manufacturing, and Tim McFarlane, Facilities Manager. Both Mr. Davidson and Mr. McFarlane accompanied us during the walk-through inspection. For this year, the focus of the inspection was compliance with the new PTI No. 180-00D.

PTI No. 180-00D was issued last January 10, 2019 as a revision to PTI No. 180-00C for 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.

On August 12, 2019, EGLE-AQD finalized Consent Order 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 related 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.

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, Mr. Davidson discussed the facility updates conducted after PTI No. 180-00D was issued on January 10, 2019. He sent me an email on April 9, 2019 with an attached revised PM/MAP (another revision was sent 08/02/2019) and a summary of updates to address the emission issues at the Mueller Brass Port Huron facility. The updates included a notice of Baghouse System E start-up of operations, dated March 3, 2019; completion of Baghouse System C and E stack extensions; upgraded hoods and ductwork systems, installation of new spark quencher for Baghouse System C; enclosed capture hood for Caster 3 holder; bag leak detection, temperature, pressure constant monitoring installed and operational; dedicated operator assigned to monitor baghouses; employees training; and real time alerts on all emission systems. On 7/31/2019, Mr. McFarlane emailed me the additional recordkeeping I requested during inspection.

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. Primarily, the company supplied brass to the Original Equipment Manufacturer (OEM) fittings industry. The company also supplied 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.

The walk-through inspection started at the brass rod manufacturing building. At the casting area, AQD staff observed the facility operating one batch and one continuous casting processes.

FGSYSTEMC was a horseshoe shaped vertical batch casting process capable of manufacturing alloys that had tighter specifications such as the “no lead product”. FGSYSTEMC consisted 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 were conveyed into a holding furnace (EUHOLDFURNACE3) which fed Caster No. 3. FGSYSTEMC was capable of casting 5 billets/logs per heat. Air pollutant emissions from FGSYSTEMC were controlled by Baghouse System C. Baghouse System C remained the same 120,000 ACFM eight compartment baghouse system but the air emissions are now discharged in 2 stacks (per PTI No. 180-00D FGSYSTEMC (VIII.1 & 2)), recently

modified through PTI No. 180-00D instead of the side ports. Per PTI No. 180-00D FGSYSTEMC (VI.1), Baghouse System C was 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 – 4.10; 2 – 4.04; 3 – 5.54; 4 – 5.60; 5 – 4.50; 6 – 4.40; 7 – 4.00; 8 – 5.3 inches water gauge. The pressure drop readings appeared to be in compliance with PTI No. 180-00D FGSYSTEMC (IV.3). Per PTI No. 180-00D FGSYSTEMC (IV.1), I observed a Baghouse System C installed with the melting furnaces having enclosures instead of the large overhead capture hoods that I observed from the last inspection. Per PTI No. 180-00D 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 and the test report is due 60 days from the last day of testing. Per PTI No. 180-00D FGSYSTEMC (V.2), facility conducted a smoke test and showed me the video showing the enclosures of melting furnaces have a negative pressure. During inspection, facility staff also demonstrated to AQD staff the negative pressure in one of the melting furnaces. AQD staff also observed no visible emissions as we walk across the walkway near the melting furnaces for the demonstration. Per PTI No. 180-00D FGSYSTEMC (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 inspection, the opacity monitor showed the following reading: South Monitor – 0.1; North Monitor – 0.00. Per PTI No. 180-00D FGSYSTEMC (IV.4 & VI.3), Mr. Davidson informed me that the facility installed a bag leak detection system for Baghouse System C. Per PTI No. 180-00D FGSYSTEMC (VI.4) and submitted recordkeeping, the facility recorded the amount of metal melted daily and monthly. Per PTI No. 180-00D FGSYSTEMC (VI.5 & 6), the facility kept records of hours of operation, visible emissions observations, control equipment inspections, maintenance, etc.

FGSYSTEME operated as a continuous horizontal casting system from a 33-ton electric induction “coreless” melting furnace (EUCHIPFURNACE2) and a 33-ton electric induction “channel” melting furnace (EUCHANFURNACE1). Molten metals from the melting furnaces were poured into a holding furnace (EUCASTFURNACE3) which fed 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. However, Baghouse System B was replaced by a new Baghouse System E for particulate control. 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. 180-00D 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 – 5.40; 2 – 5.30; 3 – 5.40; 4 – 5.80 inches water gauge. The pressure drop readings appeared to be in compliance with PTI No. 180-00D FGSYSTEME (IV.3). Per PTI No. 180-

00D 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. 180-00D 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 and the test report is due 60 days from the last day of testing. Per PTI No. 180-00D FGSYSTEME (V.2), facility conducted a smoke test and showed me the video showing the enclosures of melting furnaces have a negative pressure. During inspection, facility staff also demonstrated to AQD staff the negative pressure in one of the melting furnaces in FGSYSTEMC. AQD staff also observed no visible emissions as we walk across the walkway near the melting furnaces for the smoke capture demonstration in FGSYSTEMC. Per PTI No. 180-00D 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 inspection, the opacity monitor showed a reading of 0.30. Per PTI No. 180-00D FGSYSTEME (IV.4 & VI.3), Mr. Davidson informed me that a bag leak detection system was installed for Baghouse System E. Per PTI No. 180-00D FGSYSTEME (VI.4), the facility recorded the amount of metal melted daily and monthly. Per PTI No. 180-00D FGSYSTEME (VI.5 & 6), the facility kept records of hours of operation, visible emissions observations, control equipment inspections, maintenance, etc.

PTI No. 180-00D contained new flexible group, FGSYSTEMB. Per Mr. Davidson, the emission units for this flexible group are not yet installed as the company has not yet decided whether to refurbish the old Baghouse System B or install a new Baghouse System B to control the emissions from FGSYSTEMB.

PTI No. 180-00D contained a flexible group, FGBILLETHEATERS, also located in the casting building. This flexible group came from PTI No. 180-00C. From the casting process, the brass billets go to the extrusion process. The billets are reheated 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. I did not verify these applicable requirements 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.

The other 2 buildings on-site were forging buildings (Building Nos. 72 & 62). As discussed earlier, the facility forged mainly brass and some aluminum. The forging processes consisted of some large presses and smaller presses.

In the forging building adjacent to the casting building, Building No. 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. 180-00D as a carryover from PTI No. 180-00C. During inspection, the sludge dryer was operating. Per PTI No. 180-00D EUSLUDGEDRYER (I.2), I did not observe any visible emissions. The wet scrubber did not have a pressure drop monitoring device but I observed the water flow rate at 1.5 gallons per minute (gpm). In the forging area of the building, AQD staff also observed the following processes: Core Press; 2 - "Near-Net" Presses; 2 - 2000 Pound; 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 south of the other facility operations and was separated by a railroad line. Approximately 3/4 of the plant is used for warehousing and shipping and receiving, while the remaining 1/4 was used for forging and heat treating. In the forging area of the building, the following processes were observed: Automated LASCO Press; 2 - "Near-Net" Presses; 2 - heat treat lines that contain annealing furnaces and pit furnaces; and 2 - Aluminum extrusion processes.

Finishing operations primarily involve straightening the rod, cutting to size and chamfering the ends. Emissions are vented to the general in-plant environment. These processes appeared to be exempt from PTI requirements per AQD Rule R 336.1285(2)(l). 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).

AQD records in file showed that the facility conducted stack testing on Casting System A, Casting System C, the Sludge Dryer, and the Chip Dryer in January 2011 but not System B. The test results showed compliance with the following emission limits: Sludge Dryer - 1.0 lb PM10/hr, Chip Dryer - 2.4 lb PM10/hr & 2.0 lb HCL/hr, System A - 1.0 lb PM10/hr, and System C - 1.0 lb PM10/hr as required by PTI No. 180-00B at that time.

The Chip Dryer was completely uninstalled in 2015 and removed from PTI No. 180-00B in the revised PTI No. 180-00C that was issued on June 10, 2016. AQD staff previously verified the removal of the Chip Dryer. During walk-through inspection, I verified that Baghouse System E now occupies the space where Baghouse System A was located.

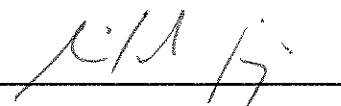
Per PTI No. 180-00D special condition FGFACILITY(I), the facility submitted emissions records to show compliance with the applicable pollutants. The PTI No. 180-00D facility wide emission limits are 9 TPY individual HAPs, and 22 TPY of aggregate HAPs, based on monthly 12-month rolling totals. The facility is reporting Lead as the only HAP. As of July 2019, Mueller Brass reported the monthly 12-month rolling total emissions of both single and aggregate HAP/s at 0.02 ton Lead (HAP). The facility is using the average between System A and System C test results to estimate the Lead emission factors for the previous FGSYSTEMB, now

FGSYSTEME. I am deferring emission limits compliance determination until the 08/27/2019 stack testing results are submitted. Per PTI No. 180-00D special condition FGFACILITY(III), the facility submitted the most recent version of PM/MAP (revision 7) that included BMPP last 08/02/2019. I am currently conducting a review process on the PM/MAP and has 90 days from date of submittal to complete the review process. Per PTI No. 180-00D special condition FGFACILITY(VI), the facility kept records on fuel combusted, PM/MAP activities, monthly and 12-month rolling total single and aggregate HAP/s emissions.

During the 08/27/2019 stack testing, I was at the facility to observe the testing. While at the casting area, I observed some Caster 3 and Caster 4 pouring molten material into the holding furnaces. I observed a cloud of fugitive emissions not captured by either Baghouse System C or E during the pouring process. However, the fugitive smoke appeared to be captured by Baghouse System D, installed in 2012 as PTI exempt baghouse per AQD Rule R 336.1285(2)(f) to capture building fugitive emissions. During the 7/16/2019 inspection, I observed that the canopy hoods above the melting furnaces were replaced by total enclosures for each furnace which created better capture for the melting furnaces. However, the modification in the particulate capture has resulted in less or no capture of emissions during the pouring process. I voiced my concern with Mueller Industries Corporate Environmental Director, Chuck Blanton, and Mr. Davidson. Since Baghouse System D now capture a portion of process emissions, it needs to be permitted. During the September 12, 2019 meeting between AQD permit section, AQD district, Mueller Brass consultants, Mr. Blanton, and Mr. Davidson, it was determined that a new flexible group should be created, FGFUGITIVES, that would include Baghouse System D during the modification process of PTI No. 180-00D to PTI No. 180-00E.

Pending stack test results, I found Mueller Brass Port Huron facility in compliance during inspection.

NAME



DATE

9/27/2019

SUPERVISOR

