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

N384258862

FACILITY: BECKER METAL WORKS		**SRN / ID:** N3842
LOCATION: 800 FRED MOORE HWY, SAINT CLAIR		**DISTRICT:** Warren
CITY: SAINT CLAIR		**COUNTY:** SAINT CLAIR
CONTACT: Jeremy Bul , President		**ACTIVITY DATE:** 07/09/2021
STAFF: Rem Pinga	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: On-site Inspection		
RESOLVED COMPLAINTS:		

On July 9, 2021, I conducted a scheduled on-site inspection of Becker Metal Works, Inc. (BMWI), located at 800 Fred Moore Highway in St. Clair, Michigan. The purpose of this inspection was to determine the facility's compliance with the federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended; the conditions of Permit to Install (PTI) No. 361-93A and PTI No. 300-04; and to investigate on a recent odor/visible emissions complaint. During the pre-inspection meeting, I met with Mr. Jeremy Bul, President and facility contact. Mr. Bul accompanied me during the walk-through inspection. I also met with Brad Flum, plant manager.

To comply with the COVID-19 Emergency AQD Field Inspection Guidance Update (June 2020), the inspection was announced and scheduled. I set up the inspection via telephone call to Mr. Bul. At the site, no one was wearing mask and I did not get a temperature check. I entered the facility wearing a face mask, safety glasses, hard hat, and safety shoes. Prior to entering the facility, I spent almost one hour conducting odor/visible emissions investigation to follow-up on the complaint that was assigned to me earlier. Please see Activity Report No. N384258860 for the resolution of the complaint C-21-00758.

BMWI is an investment casting foundry facility with customers coming from the orthopedic and general industry. The facility generally casts ferrous metals and some non-ferrous such external hinge components for knee braces, lumber chain components, and machine tool components. The facility casts steel, aluminum, and brass, but does not use lead in any casting processes. The company still operates one shift, usually from 6:00 am to 4:30 pm, Monday through Friday. The annual melt production of non-ferrous metals appears to be below thresholds to be subject to applicable requirements in 40 CFR Part 63 Subpart ZZZZZZ: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries per §63.11544(a)(4).

However, the facility is subject to 40 CFR Part 63 Subpart ZZZZZ, National Emissions Standards for Hazardous Air Pollutants for Iron and Steel Foundry Area Sources. In 2008, Becker Metal sent initial notification of applicability and notification of compliance status per 40 CFR Part 63 Subpart ZZZZZ. Submitted records showed that the facility melted about 24 tons of metal from January 2020 through December 2020 which is less than 20,000 tons per year and appears to be classified as small foundry per §63.10880(f). The facility has updated and currently, meets the submittal requirements for "Semiannual Compliance Report". The facility does not melt motor vehicle scrap; does not accept mercury containing materials; and does not use binder ingredient that contains methanol, as reported in the semiannual reports and per Mr. Bul.

Investment casting is a foundry operation producing casting from ceramic molds formed by initially using wax to form the molds. At BMWI, I observed that wax is injected into 2-piece aluminum die to produce the pattern for the mold production. Mold release agent/material is used to remove the hardened wax from the die. The mold release material appears to be exempt from permit to install requirements per AQD Rule R 336.1290(2)(a)(iii), where up to 1000 pounds of mold release can be emitted per month. Multiple wax pieces are attached to a metal rod and shaped into a tree without using adhesive and then immersing the tree pattern into a ceramic slurry tank composed of aqueous citric emulsion and binding material. The binder is composed of colloidal silica. The ceramic material dries up to form the outer shell of the wax mold. During the walk-through inspection, I observed 3 large and 2 small slurry tanks at the shell room with dust collector particulate control system exhausted indoor and 5 wax machines at the wax room.

After a desired shell thickness is achieved, the entire mold goes to an autoclave to steam wax out of the mold for reclaim by an outside supplier. PTI No. 300-04 was issued for this process. Per PTI No. 300-04, Special Condition EUAUTOCLAVE (1.2), the facility keeps records of the chemical composition of wax melt (KC 4207B and Like Nu Sprue Wax) and the weight % of each component. During inspection, I checked the boiler utilized for steam generation that is used in melting wax. In my previous inspection, Mr. Bul mentioned that the boiler was built in 1982 and was rated at 669,600 BTU/hr., thus exempt from permit to install (PTI) requirements per AQD Rule R 336.1282(2)(b)(i). Since the rated heat input is less than 10 MMBTU/hr., the boiler in not subject to 40 CFR Part 60 Subpart Dc and 40 CFR Part 63 Subpart JJJJJJ due to natural gas fuel usage. During my earlier telephone conversation with Mr. Bul, he mentioned that the steam stack collapsed, and the steam was temporarily exhausted along the side of the building near the boiler while the stack was being rebuilt. This may have resulted in a residential complaint to USEPA and forwarded to EGLE AQD. During walk-through inspection, I verified that the exhaust stack was re-installed, and I observed steam coming out from the stack for a few seconds around 0905 hours when I was conducting complaint investigation. Mr. Bul also pointed to me the circular hole on the side of the building when the temporary boiler exhaust stack was installed during the repair process.

The mold goes to a burnout oven for baking and to remove residual wax. PTI No. 361 -93A was issued for 4 burnout ovens with afterburner control at 1800ºF and a temperature chart recorder for monitoring requirement. During inspection, ovens 2 & 3 were not running. Per PTI No. 361-93A, Special Condition 16, the afterburner temperatures were at 139ºF and 148ºF respectively while idling and in the process of shutting down. Per Mr. Bul, ovens 1 & 4 has not been used for at least 1.5 years.

During walk-through inspection, I observed the same 2 electric induction furnaces, 160 lb. and 270 lb. rated capacities, utilized for melting metals and exempt from permit to install requirements per AQD Administrative Rule R 336.1282(2)(a)(iv). Per Mr. Bul, sweating, distilling, and fluxing don't occur at this facility. Molten metal from the melting process is poured in the ceramic mold for casting. After cooling, the ceramic material is removed chemically using Potassium Hydroxide, plus mechanical removal in the knockout area controlled by a dust collector that is exhausted indoors. The casted metal is then processed into finished material using cutting, grinding, and other metallic finishing equipment. I conducted walk-through in the saw room and observed a band saw and abrasive saw. I observed the same 2 sandblast, 1 shot blast, 1 wheelabrator, belt sander, and some grinding equipment that are exempt from permit to install requirements per AQD Rule R 336.1285(2)(vi)

(B). All the blasting/grinding equipment were ducted to a fabric filter system that is exhausted indoors. I observed a total of 3 filter system units.

I observed the 3 closed acid dip tanks on site. The tanks exhaust to the general in-plant environment and appear to be exempt from obtaining a Permit to Install per AQD Rule R 336.1285(2)(r)(iii).

I observed the cold cleaner on site with closed lid and safety instructions posted and located at the maintenance area. The same tank observed from previous inspection, has a dimension of 20"x30"x11.5" and used mineral spirits for cleaning parts. The cold cleaner appears to be exempt from obtaining a Permit to Install per AQD Rule R 336.1281(2)(h).

Per Mr. Bul, the facility maintains one natural gas-fired emergency generator that is located on the building roof. For this inspection, I did not check the unit for safety reasons. From previous inspection, the engine was built on 01/04/2000. Per Mr. Bul, the engine has a maximum heat input of 30 kilowatts per hour. The engine appears to be subject to 40 CFR Part 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Since EGLE-AQD has not accepted delegated authority to enforce this subpart, I elected not to conduct a full compliance evaluation with the subpart. I did request for maintenance records and a photo shot of the unresettable hour meter.

Overall, I did not find any noncompliance issues during inspection.

NAME _____ DATE 07/13/2021 SUPERVISOR _____