

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

N384251252

FACILITY: BECKER METAL WORKS		SRN / ID: N3842
LOCATION: 800 FRED MOORE HWY, SAINT CLAIR		DISTRICT: Southeast Michigan
CITY: SAINT CLAIR		COUNTY: SAINT CLAIR
CONTACT: Jeremy Bul, President		ACTIVITY DATE: 12/13/2019
STAFF: Rem Pinga	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced Level 2 Target Inspection		
RESOLVED COMPLAINTS:		

On December 13, 2019, I conducted an unannounced level 2 Target inspection of Becker Metal Works, Inc. (Becker Metal), 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.

During the pre-inspection meeting, I met with Mr. Jeremy Bul, President and facility contact. Mr. Bul accompanied me during the walk-through inspection. Mr. Robert Hazuka was no longer with the company.

Becker Metal is an investment casting foundry facility with customers from the orthopedic and general industry. Per Mr. Bul, the facility generally casts ferrous metals and some non-ferrous. The facility casts steel, aluminum, and brass, but does use lead in any casting processes. The company typically 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 ZZZZZ: 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. Records showed that the facility melted about 69 tons of metal from October 2018 through September of 2019 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". Per Mr. Bul, the facility does not melt motor vehicle scrap; does not accept mercury containing materials; and does not use binder ingredient that contains methanol.

Investment casting is a foundry operation producing casting from ceramic molds formed by initially using wax to form the molds. At this facility, wax is injected into 2-piece aluminum die to produce the pattern for the mold production. Mold release 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 inspection, I observed 3 slurry tanks at the shell room with dust collector particulate control system 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 observed a boiler for steam generation utilized in melting wax. Per Mr. Bul, the boiler was built in 1982 and rated at 669,600 BTU/hr., thus exempt from permit to install requirements per AQD Rule R 336.1282(2)(b)(i). Since the rated heat input is less than 10 MMBTU/hr., the boiler is not subject to 40 CFR Part 60 Subpart Dc and 40 CFR Part 63 Subpart JJJJJJ due to natural gas fuel usage.

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. During inspection, I observed 2 ovens running. Per PTI No. 361-93A, Special Condition 15, I did not observe any visible emissions inside and outside the facility. Per PTI No. 361-93A, Special Condition 16, the afterburner temperatures were at 2158°F and 1837°F respectively and in compliance with the 1800°F permit limit.

In this facility, the metals to be casted are melted in 2 electric induction furnaces, 160 lb. and 270 lb. rated capacities 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 observed a saw room with a band saw and an abrasive saw. I observed 2 sandblast, 1 shot blast, 1 wheelabrator, a belt sander, and grinding equipment that are exempt from permit to install requirements per AQD Rule R 336.1285(2)(vi) (B). I observed 3 closed acid dip tanks on site. The tanks open 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 a cold cleaner on site with closed lid and safety instructions posted and located at the maintenance area. The tank 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).

The facility operates one natural gas-fired emergency generator that is located on the building roof. I did not check the unit for safety reasons. According to the attached photo, 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. EGLE-AQD has not accepted delegated authority to enforce this subpart, so full compliance with the subpart was not evaluated. The yearly maintenance tune-up was done in February 2019 per the attached table. A submitted photo also shows the unresettable hour meter at 747.4 hours.

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

NAME Kim J.

DATE 3/13/2020

SUPERVISOR Joyle B.