

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

A061465266

<b>FACILITY:</b> Melling Engineered Aluminum Castings	<b>SRN / ID:</b> A0614
<b>LOCATION:</b> 1146 N RAYMOND RD, BATTLE CREEK	<b>DISTRICT:</b> Kalamazoo
<b>CITY:</b> BATTLE CREEK	<b>COUNTY:</b> CALHOUN
<b>CONTACT:</b> Brian Shaughnessy , General Manager	<b>ACTIVITY DATE:</b> 10/26/2022
<b>STAFF:</b> Amanda Cross	<b>COMPLIANCE STATUS:</b> Compliance
<b>SUBJECT:</b>	<b>SOURCE CLASS:</b>
<b>RESOLVED COMPLAINTS:</b>	

On October 26, 2022, Air Quality Division's (AQD) Amanda Cross (staff), arrived at AC Foundry dba Melling Engineered Aluminum Castings located at 1146 N. Raymond Road, Battle Creek, Calhoun County, Michigan to conduct an unannounced air quality inspection. The purpose of the inspection was to determine the facility's compliance with permit to install (PTI) 180-06A and 72-19 and all other applicable state and federal air regulations.

Melling Engineered Aluminum Castings is an aluminum foundry and casting facility that has been in operation since 1962 at this location. The facility primarily manufactures castings for the automotive and marine engine OEM and aftermarket sectors. The facility consists of multiple buildings surrounded by Raymond Road, Culbertson Street, Hayes Blvd., and McGrath Place. There are approximately 15 private residences located within a 350-foot radius east and southeast of the facility. The office is located south of McGrath Place at the southern end of the parking lot.

Staff arrived on site and spoke to an office manager who directed me to Mr. Rick Edwards, Quality and Safety Manager and Mr. Mike Coons, Maintenance Engineer for a facility tour and to answer any questions. Mr. Brian Shaughnessy is the general manager of the facility. The facility employs approximately 130 people and operates Monday to Friday 7am - 3:30pm and 3:30pm - 12am. The facility operates occasional weekend shifts. The permanent mold and sand foundry processes are operated under PTI 180-06A, with a third natural-gas fired furnace operated under PTI 72-19.

Staff first entered the core room. There are five shell core machines in this area, one is a double core machine. One of the machines vents outside and the rest are vented internally. The facility receives sand deliveries, about once per week, in super sacs. These are stored in the maintenance building until needed. The sand is then dumped into the hoppers, located above the mold machines, and introduced to the machines. Mr. Edwards approximated that about 50% of the molds are made on site and 50% are purchased from other vendors. The SDS for the resin was requested and was received in an email on October 27, 2022. According to the SDS, the facility uses four different types of sand, all with the resins included within the mixture. The SDS do not identify any HAPs or VOC in the sand mixture. The facility has no VOC or HAP tracking requirements in any of the permits.

The facility has two mold machines in this building. The mold machines shape the sand molds with the part they are manufacturing. Cores, if needed, are placed manually and then aluminum from one of the six electric resistance furnaces, each with a bath capacity of 2,000 lbs, is manually poured into the molds. Fluxing is done in the furnaces. The sand molds then go down a cooling and shakeout line. The sprues are removed with a hammer and the pieces are sent, via conveyor line, to the finishing area. There are no permit conditions associated with the electric resistance furnaces or mold lines, as contained in PTI 180-06A.

The facility only melts internal scrap, clean charge, and aluminum ingots in the furnaces. The aluminum alloys melted are 356, 319, and 357. As required by the PTIs, the facility can only melt clean charge, customer returns, or internal scrap, as defined by 40 CFR Part 63, Subpart RRR, which they are complying with. There are also no sweat furnaces, thermal chip dryers, or scrap dryers/delaquering kilns/decoating kilns at the facility, as defined by 40 CFR Part 63, Subpart RRR.

The facility uses a SFP-10 X KB mold release spray to help remove the part from the sand. This SDS was provided via email. Both ingredients are listed as proprietary, but the VOC content is listed as 2.11%. As previously noted, the facility does not have any VOC limits.

The finishing area in this building has saws and grinders, to smooth down the raw parts. These machines are internally vented and exempt from permitting under Rule 336.1285(2)(I)(vi)(B) for equipment for carving, cutting... surface grinding, sanding, shot blasting...metals...that has emissions that are released only into the general in-plant environment. The facility also has a small, portable, parts washer which is exempt under Rule 336.1281(2)(k). They had a larger, permanent, parts washer but it has since been removed from the facility.

Next, we walked to the permanent mold building. This building has 3 natural gas fired aluminum melting furnaces with a bath capacity of 3,000 lbs and a melting capacity of 600 lbs per hour. These are a continuous process with scrap being added to the bath and melted. Manual dipping occurs out of these furnaces to pour into molds. Degassing is done inside the furnaces, along with fluxing. The degassing is done with nitrogen, which is piped directly into the furnaces. All the furnaces were operational during the inspection. The furnaces all have stacks that vent outside. We walked outside, away from the facility to view the stacks, as there was no roof access. The stacks do not appear to have rain caps on them, and the emissions vent vertically unobstructed upward.

There is a finishing area in this building as well that has a two shot blast machines and internal dust collectors associated with that operation. Visolite inspections are done on the dust collector bags about 2 times per year. This process is exempt from permitting under Rule 336.1285(2)(I)(vi)(B). Once the parts are finished, they are sent off-site to be heat treated at a facility in Goshen, Indiana.

The facility also has a diesel fired emergency generator that is sized to provide hold power to the electric resistance furnaces in the event of a power outage. The generator is an Onan model. It was not running at the time of the inspection, and according to the information screen, the engine had 864 starts and the hours meter read 412.1 hours. Based on information previously provided to the department, the engine has a rated heat input capacity of <10 MMBtu/hour and is exempt from air permitting under Rule 336.1285(2)(g). Based on the manufacture year, 2000, the engine is subject to the RICE MACT, 40 CFR Part 63, Subpart ZZZZ for an Emergency Compression Engine that is existing >500 HP at an area source of HAPs, constructed before 6/12/2006.

EGLE hasn't taken delegation of the area source RICE MACT and therefore a determination of compliance will not be made in this report. The MACT requires that the facility do the following:

1. Change oil and filter every 500 hours of operation or annually, whichever comes first (you may use an oil analysis program to extend the oil change requirement)
2. Inspect air cleaner for CI engines or spark plugs for SI engines every 1,000 hours of operation or annually, whichever comes first, and replace as necessary
3. Inspect hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary
4. Operate and maintain the engine per the manufacturer's instructions or your own maintenance plan
5. Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine
6. Equip the engine with a non-resettable hour meter if one is not already installed
7. Keep records of engine maintenance
8. Keep records of the hours of operation recorded through the non-resettable hour meter, including how many hours are spent for emergency operation and what classified the operation as emergency

The facility provided some maintenance records for the generator via email.

Requirements from the applicable PTIs are listed below:

PTI 180-06A

FG-GC3000-1&2

The facility submitted records, via email, showing how much flux is used, daily, per furnace. It is recommended that the facility track flux usage for the individual furnaces as well as furnace 9 and 10 together, as the limit for flux is written as a combined 20 lbs per day limit. Records are kept, for each furnace, and show the date the flux was added, time, shift, and amount.

Based on the records provided, the highest amount of flux used in a day was on 6/27/22 with 12 pounds. According to the records, all flux was used in furnace 9 and no flux was used in furnace 10 that day. Most days, about 3 pounds of flux is used, per furnace. Based on the records provided, the facility appears to be in compliance with the flux limit.

The facility also provided the SDS, via email, of the flux used at the facility. The flux is a Cover 131 MNL with ingredients including potassium chloride, quartz, sodium hexafluorosilicate, sodium carbonate, and other components below reportable levels.

The permit requires the facility to track the monthly tonnage of aluminum melted. There are no limits on amount of aluminum melted, but tracking is required. According to records provided, the highest amount of aluminum melted was in September 2022 with 166 tons and the second highest amount was in May 2022 with 161.7 tons.

#### PTI 72-19

The permittee provided records of flux used, per day, per furnace, as discussed above. According to records, the most amount of flux used in Furnace 11, is 9 pounds on 5/26/22 and 9/1/22. The typical amount of flux used is about 3 pounds per day, with some days having 6 pounds of flux used. Monthly tons of aluminum melted are being tracked and records are discussed above.

The facility appears to be in compliance with all the requirements contained in PTI 180-06A and 72-19. However, in Rule 336.1950, the AQD has taken delegation of the provisions of 40 CFR Part 63, Subpart ZZZZZZ (6Z), adopted by reference. Subpart 6Z are the National Emission Standards for Hazardous Air Pollutants (NESHAP); Area Source Standards for Aluminum, Copper, and other Nonferrous Foundries. The AQD is requesting the facility make a determination if they are subject to the rules and requirements found in 40 CFR Part 63 Subpart ZZZZZZ.

NAME Annelle Cross

DATE 11/2/22

SUPERVISOR R. 11/3/22