

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

N532434352

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| FACILITY: BERNIER CAST METAL INC | | SRN / ID: N5324 |
| LOCATION: 2626 HESS ST, SAGINAW | | DISTRICT: Saginaw Bay |
| CITY: SAGINAW | | COUNTY: SAGINAW |
| CONTACT: Joshua Bernier , | | ACTIVITY DATE: 04/26/2016 |
| STAFF: Gina McCann | COMPLIANCE STATUS: Non Compliance | SOURCE CLASS: MINOR |
| SUBJECT: Compliance inspection of PTI 378-94A and MACT ZZZZZ. | | |
| RESOLVED COMPLAINTS: | | |

On April 26, 2016, I meet with Mr. Joshua Bernier and Ms. Noelle Dickerson, of Bernier Cast Metal, to determine compliance with existing permit 378-94A and evaluate other sources at the facility. The facility is a small specialty metal foundry. Operations at the facility include mold making, metal melting and cast and part finishing. Bernier makes custom parts for various customers. Parts are typically made in lots of one to a few hundred out of aluminum and iron alloys. Mr. Bernier provided a walk through tour of the facility followed by records review with him and Ms. Dickerson.

EUSANDSTORAGE-compliant

Bernier has two separate mold making operations. One operation uses a dry sand method. This method consists of mixing the dry sand with a resin, catalyst and activator. The mold is then formed and allowed to air set (cure). After curing, the mold is prepped and sent to the metal pouring area. Once set, the mold is removed from the parts and the spent mold is stored on-site. Spent sand was last shipped off-site on October 30, 2104. The pile is growing and disposal issues should be addressed. The Office of Waste Management and Radiological Protection have been notified. The dry sand used in the process is shipped to the site on a monthly basis and blown into the storage silo with an appropriate capture system.

The other mold making process uses a green sand method. This method uses a mixture of bentonite clay and water to create the mold. After the mold is used, it is cooled, re-ground or "fluffed" and wetted for re-use. The materials are shipped to the site in small 10- 15 ton loads on an as needed basis. The mold making areas do not have direct ventilation.

EUSANDBLAST-compliant

In 2006, Bernier installed shot blasting equipment. This equipment is used to provide a specific finish to the cast parts. The parts are loaded on a tray and slid into a closable cabinet. The equipment operates automatically as a closed unit. The air is circulated through the equipment to provide the blasting action.

FGFURNACES-compliant

Bernier currently operates four melting furnaces. Two 1,000 pound induction furnaces used for ferrous metals and two natural gas fired tilter furnaces used for aluminum (600 lb and 400 lb). Bernier purchases metal in billet or pig form. Aluminum is purchased pre-alloyed for each job, but ferrous melts are alloyed on-site as needed. Alloying metals are purchased in various grades in billet form. The metal is melted in the various furnaces and the necessary alloy additions are made during the melt. The metal is degassed with a mixture of argon/nitrogen gas. The melted metals are skimmed of impurities prior to pouring using the appropriate flux. The metals are poured into the molds and allowed to cool. The furnaces vent into the general in-plant environment.

After the metal has cooled, both the green sand and the dry sand molds are manually removed, typically with a sledge hammer. The green sand molds are piled to await refurbishing and the dry sand molds are hauled to the storage area for disposal. After the mold is removed, the parts are cleaned through various operations. Excess material is removed and final surface treatment is completed using saws, grinders and sand/shot blasting. Some welding is used to fill small porous areas from the casting process. These operations are all vented into the general in-plant environment and are exempt from R201. After the final inspection, the parts are sent to shipping for packaging and shipment.

Conditions II.1. limits the flux usage to 40 pounds per calendar month. Ms. Dickerson provided usage records for April 2015 through March 2016. October 2015 recorded the highest usage at 18 pounds for the month. Condition II.2. limits the flux usage to 480 pounds per 12-month rolling time period as determined at the end of each calendar month. The facility did not have a rolling usage, but is adjusting. Usage records from April 2015 through March 2016 recorded 84 pounds.

Condition V.3. requires the permittee to monitor and record, the resin, catalyst, and activator usage rates on a monthly basis. See attached table.

FGMACTZZZZZ-non-compliant

Condition III.1. requires the facility to implement and maintain an approved plan to address the pollution prevention management practices for metallic scrap and mercury switches. The facility does not maintain a plan and has been notified of this on the last two inspections, 2008 and 2011. A document developed by the American Foundry Society to assist foundries in developing a scrap management plan was attached in an email sent on April 27, 2016. File review shows that Bernier has not remained current with Iron and Steel Foundry Area Source NESHAP (NESHAP ZZZZZ) semi-annual compliance reports. This administrative error will also be identified in the notice of violation.

NAME Gina L. McClann DATE 4/28/2016 SUPERVISOR C. Hare