

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

N736564426

FACILITY: Ultimate Casting & Machine, LLC		SRN / ID: N7365
LOCATION: 3977 M-30, WEST BRANCH		DISTRICT: Bay City
CITY: WEST BRANCH		COUNTY: OGEMAW
CONTACT: Stan Albert , Supervisor		ACTIVITY DATE: 08/31/2022
STAFF: Nathanael Gentle	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: FY2022 Scheduled Onsite Inspection		
RESOLVED COMPLAINTS:		

On August 31, 2022, AQD staff conducted a scheduled onsite inspection at Ultimate Casting & Machine, SRN N7365. Staff arrived onsite at 12:20 PM and departed at 1:25 PM. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment Great Lakes and Energy, Air Quality Division (AQD) Administrative Rules; and to evaluate compliance with the facilities Permit to Install (PTI) No. 115-04. EGLE staff were assisted onsite by Mr. Stan Albert. At the time of inspection, the facility was found to be in compliance.

Facility Description and History

Ultimate Casting & Machine is located in Ogemaw County at 3977 M-30 West Branch, MI 48661. The facility specializes in the casting and fabrication of metal components for a variety of industries. The facility consists of two buildings. One building consists of mold making, casting, and metal finishing activities conducted at the facility. The other building consists of an office space and a machine shop. One Permit to Install (PTI) is associated with the facility, PTI 115-04. PTI 115-04 was issued on June 22, 2004. At the time the PTI was issued, the facility was operated under the name Associate Patterns and Castings.

Ultimate Casting & Machine is a minor source for all air pollutants. No recent complaints are on file for the facility. The facility was last inspected in December 2014. At the time of the 2014 inspection, the facility was found to be in compliance.

Compliance Evaluation

EUMOLDMAKING

EUMOLDMAKING consists of the mold making procedures carried out at the facility. Olivine sand molds are used at the facility. The sand, as well as Petro Bond and Process 150 oil, are added into a sand muller. The components are mixed to create the mixture that will be used for molds. The mixed sand is loaded into an overhead hopper to be used throughout the workday. Facility staff dispense the sand from the hopper into molds and pack it down to create the molds into which molten metal will be poured. PTI 115-04 describes the mold making process as a cold box process. A cold box process uses resin molds that require utilization of a gas to cure the resin. The process used at Ultimate Casting & Machine would be more accurately described as a green sand process.

Cores are made onsite to be placed within the molds. Cores are made by mixing sand with a two-part resin produced by Alpha Resins. The two-part resins used include Alphathane and Polythane. Staff report the mixtures consists of approximately 1 lb of sand for every 1/8 oz of resin. Cores are made in small batches. Staff mix sand and the two resin parts by hand in a wheelbarrow located in the core making room. Any emissions produced by the resins are released into the general in-plant environment. Cores can only be used once. Used core material is disposed of by the facility.

EUFURNACE

EUFURNACE is a crucible furnace. The unit is propane gas-fired with two burners and 1 million Btu/hr total heat. The furnace is capable of 100 pounds per batch melt rate. Staff report the facility utilizes one burner at a time on the furnace; this is done to allow burners a chance to cool while still maintaining production. Emissions from the process include material melting, pouring and cooling. All emissions are vented to the in-plant environment.

Staff report using clean charges only. These include ingots as well as pieces from previous pours generated within the facility, S.C. 1.1. By using clean charges, the facility avoids the requirements of 40 CFR Part 63 Subpart RRR. Flux material is not used in the process, S.C. 1.2. The facility utilizes argon gas to remove impurities from the molten material. Argon gas is blown into the bottom of the molten material causing impurities to float up to the surface. Staff then skim the impurities off the surface before pouring material into molds.

Time was taken during the inspection to review whether onsite activities are subject to NESHAP requirements. The facility melts nonferrous materials only. Aluminum is the primary material melted. The facility also melts copper. Jobs that require the melting of ferrous material are farmed out to other facilities. Because the facility does not melt ferrous materials, it does not appear to be subject to the requirements of 40 CFR Part 63 Subpart ZZZZZ. If the operations change in the future and melting ferrous materials becomes part of onsite processes, the requirements of 40 CFR Part 63 Subpart ZZZZZ would become applicable to the facility.

As a facility that melts aluminum and copper, applicability to 40 CFR Part 63 Subpart ZZZZZZ was assessed. Foundries that melt 600 tons per year or greater of nonferrous material are subject to the rule. Staff report the facility melts less than 1 ton of material per week. The most the facility will melt annually is 50 to 55 tons per year, well below 600 tons per year. Due to the limited amount of material melted at the facility, Ultimate Casting and Machine does not appear to be subject to 40 CFR Part 63 Subpart ZZZZZZ at this time.

EUSHAKEOUT

EUSHAKEOUT encompasses the removal of metal castings from the molds. At the time of permit application, castings were removed while the material was still warm, generating smoke. A hood was installed with a fire-resistant curtain and was connected to a pangborn dust collector to address visible emissions from the process. Since the permit was issued in 2004, changes were made in the facility's process for handling castings. The facility now allows molds and castings to cool prior to opening them. Doing so results in no visible emissions.

EUFINISHING

EUFINISHING is the final stage in the process. Castings are shaped and smoothed before being sent to the customer. Equipment used in the process includes, saws, grinders, and a shot blaster. The shot blaster is equipped with a dust collector. Particulate emissions from the saws and grinders are vented into the in-plant environment.

FGFACILITY

FGFACILITY includes a facility wide emission limit for PM and PM-10 emissions. A limit of 0.10 lb/1000 lb exhaust gases on a dry basis is in place. Testing is required at the request of the department. At this time, testing has not been requested.

Additional Equipment

In addition to the foundry operations conducted onsite, a machine shop is operated at the facility. Equipment observed in the machine shop included mills. Staff report the mills are used to fabricate both ferrous and non-ferrous metal components. Particulate emissions from the mills are vented into the in-plant environment. The machining equipment appears to meet the exemption criteria of R 285(2)(1)(vi).

Summary

Ultimate Casting & Machine specializes in the casting and fabrication of metal components for a variety of industries. Located in West Branch, MI, the facility is a minor source for all air pollutants. One Permit to Install (PTI) is associated with the facility, PTI 115-04. A review of subjectivity to federal regulations was conducted. The facility does not appear to be subject to 40 CFR Part 63 Subpart ZZZZZ or 40 CFR Part 63 Subpart ZZZZZZ, due to size and materials used. At the time of inspection, Ultimate Casting and Machine appeared to be operating in compliance.

NAME

DATE 9/19/2022

SUPERVISOR

