

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

N263135680

FACILITY: Barron Industries, Inc.		SRN / ID: N2631
LOCATION: 215 Plexus Dr, OXFORD		DISTRICT: Southeast Michigan
CITY: OXFORD		COUNTY: OAKLAND
CONTACT: GREGORY BARRON, VICE PRESIDENT		ACTIVITY DATE: 07/15/2016
STAFF: Rem Pinga	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: Minor
SUBJECT: Unannounced Level 2 Target Inspection		
RESOLVED COMPLAINTS:		

On July 15, 2016, I conducted an unannounced level 2 target inspection at Barron Industries, Inc., formerly known as Barron Cast, Inc., located at 215 Plexus Drive, Oxford, Michigan. The purpose of the inspection was to determine the facility's compliance with the requirements of the Federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), the Administrative Rules, and the facility's Permit to Install Nos. 136-90A and 994-90. During the pre-inspection meeting, I initially showed my credential (ID Badge), stated the purpose of my visit, and gave a copy of the pamphlet "Environmental Inspections: Rights and Responsibilities" to Mr. Tom Hinkley, Facility Maintenance Supervisor and facility contact person. Mr. Klosterman, the former facility contact person, was no longer connected with the company. During the pre-inspection meeting, I also talked to Mr. Gregory Barron, VP-Engineering. Mr. Hinkley accompanied me during the facility walk through.

Barron Industries is an investment casting foundry facility. Investment casting is a foundry operation producing casting from ceramic molds formed by initially using wax to form the ceramic molds. Wax is injected into an aluminum die to produce the pattern for the mold production. The wax pattern is shaped into a tree by attaching several patterns using hot melt glue and then immersing the tree pattern into a ceramic slurry tank composed of aqueous emulsion, aluminum oxide, and binding material. The emulsion is composed of water, surfactant, and orange terpene. The binder is composed of water, fused silica called Zircon Sand, and polymer material called Citric Etch. The ceramic material dries up to form the outer shell of the wax mold. After a desired shell thickness is achieved, the entire mold is baked in a burnout oven to melt the wax for reclaim and form the ceramic mold. The ceramic mold is heated to 800 to 2000 degrees F depending on the alloy to be casted. The metal to be casted is melted in 2 aluminum electric resistance furnaces (900 lb. and 2400 lb.) and 3 steel furnaces (200 lb., 500 lb., and 750 lb.) powered by 2 electric induction power supplies. The melting process is constrained by the 2 power supplies. The facility melts aluminum ingots and does not melt reclaimed materials. Molten metal from the melting process is poured in the ceramic mold for casting. After cooling, the ceramic material is vibrated and blasted off the metal part and discarded. The casted metal is then processed into finished material using cutting, grinding, and other metallic finishing equipment.

The facility operates under Permit to Install Nos. 994-90 and 136-90. PTI No. 994-90 was issued for metal processing equipment such as grinding, blasting, and belting processes. During inspection, I observed 1 shotblast, 2 tumbleblast, grinder, and 5 finishing stations that are ducted to a Torit fabric baghouse collection system located outside the building for particulate control. Per PTI No. 994-90 special condition no. 15, I did not observe any visible emissions outside the building and at the baghouse particulate control systems. Per PTI No. 994-90 special condition no. 16, the 2 baghouses appeared to be operating properly. I observed 3 sandblast equipment in the same room but individually ducted to each dust collection system that is exhausted indoor.

PTI No. 136-90A was issued for 2 wax reclaim ovens. The burnout oven has an automated control system to ensure that the afterburner control operates at the desired temperature during the wax melting process. Per PTI No. 136-90A special condition FG-OVENS(IV)(1), the emissions from the 2 ovens are controlled individually by an afterburner control system. During the inspection, I observed the afterburner temperatures of the 2 wax ovens at 1603°F and 1610°F respectively and in compliance with PTI No. 136-90A special condition FG-OVENS(III)(1). Per PTI No. 136-90A special condition FG-OVENS(IV)(2), the ovens appeared to be properly maintained as I did not observe any visible emissions from the exhaust stacks of the burnoff ovens. In the melting area, the 900 lb. aluminum melting furnace was not in use. The pre-heat ovens were operating above 1800°F.

In the wax room, the facility operates 6 wax injection machines, the tree building processes for the wax mold, and the ceramic dip processes. These processes are controlled by a torit particulate control system located outside the room. The tree wax is washed in an etch equipment containing a citrus etch slurry to remove excess sand. This process is controlled by an internally vented dust collector. I observed a new line being installed that comprise of 4 sand drums (various sand sizes), an automated conveyor system to simulate an automated ceramic mold production process that included a drying oven and a particulate control system that is exhausted indoors.

The finishing processes for the casted aluminum metals go through 3 deburring stations, a belt sander with a water scrubber system exhausted indoor. The facility also operates 14 CNC machines, machine shop equipment, 3 hard presses, 1 large press, 1 electric oven, and torch cutting equipment for all casted metal finishing processes. I did not observe visible emissions while at the facility.

During inspection, I found out that the facility operates a Caterpillar diesel fired emergency generator since 1998. The engine is rated at 300-400 kW 60 Hz 1800 rpm. At 400 kW, the conversion is about 536 brake horsepower (BHP). Since the engine was built in 1998, it is subject to 40 CFR Part 63 Subpart ZZZZ only as an existing stationary reciprocating internal combustion engine >500 HP located in an area source for Hazardous Air Pollutant (HAP) and

constructed before June 12, 2006. The engine is exempt from notification requirements as an area source. A photocopy of the hours of operation since installation showed 473 hours and dividing by 17 years since 1998, the 27.82 hours/year average operation is below 50 hours and meets the 40 CFR Part 63 Subpart ZZZZ limits of operating as an emergency generator. I have requested information on whether the hours of operation were obtained from a non-resettable hour meter and recordkeeping on oil/filter changes, inspections on the air cleaner, hoses, and belts.

The facility is also subject to 40 CFR Part 63 Subpart ZZZZZ - The National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources. During inspection, I found out that the facility failed to submit the Semi-annual Compliance Report per 40 CFR Part 63 Subpart ZZZZZ (§63.10880 - §63.10906) for FY 2014 and FY 2015. The first Semi-annual Compliance Report for FY 2016 is not due until end of July 2016. I informed Mr. Barron about it during the pre-inspection meeting. During records review, we found out that the oversight occurred after the former facility contact left the company and did not endorse this requirement to his successor. I informed Mr. Barron that this may be a non-compliance issue per the above regulation.

A few days after the July 15, 2016 inspection, the facility has submitted all the deficient semi-annual compliance reports including the FY 2016 First Semi-annual Compliance Report. However, I have to send the company a Violation Notice for the non-compliance issue that occurred on a Federal Standard.

In addition, I have requested clarification from the company on a requirement that the company reported in the Semi-annual Compliance Report on whether external scrap metal is being melted at the facility or not. During inspection, I did not notice any scrap being melted in the induction furnaces at the melting area.

On 7/29/2016, I received an email response from Mr. Barron that the hours of operation photo copy came from a non-resettable meter and that the facility does not melt scrap.

NAME K. P. H. DATE 8/3/2016 SUPERVISOR CJE

