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

M408936606

FACILITY: HUSITE ENGINEERING CO		**SRN / ID:** M4089
LOCATION: 272 MINNESOTA, TROY		**DISTRICT:** Southeast Michigan
CITY: TROY		**COUNTY:** OAKLAND
CONTACT: Larry Huston , Owner		**ACTIVITY DATE:** 08/11/2016
STAFF: Rebecca Loftus	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT:		
RESOLVED COMPLAINTS:		

On August 11, 2016, I, Rebecca Loftus, Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted an inspection of Husite Engineering Company, State Registration Number (SRN): M4089, located at 364 Minnesota, in Troy, 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 of 1994, PA 451, as amended, and Permit to Install (PTI) No. 540-95.

I arrived at the facility at 9:00am and met with Mr. Larry Huston and Ms. Bridget Hudson.

Contacts

Larry Huston, Owner, 248-588-0337, larryhusite@gmail.com
Bridget Hudson, Office Manager, 248-588-0337 (Contact for Records)

Facility Overview

Husite Engineering Company is a nonferrous foundry that manufactures kirksite castings for the automotive, aerospace, and defense industries (mainly automotive). Kirksite is an alloy comprised primarily of zinc, which also contains aluminum (3.5-4.5%), copper (2.5-3.5%), and magnesium (0.02-0.10%). Kirksite is primarily used for sheet metal forming tooling and plastic injection molds for prototype and short run production applications. This process is permitted under PTI No. 540-95.

At this facility Husite has the following areas: Office Space, Computer/Design Room, Pattern Shop, and Foundry Operations. Upon arrival, Mr. Huston and Ms. Hudson, escorted me through the facility and explained the following:

Customers send design specifications to Husite and the information is sent to one of the CNC machines to make patterns out of foam. These CNC machines appear to be exempt from obtaining an air permit pursuant to Rule 285(l)(vi)(B). The patterns are then placed in steel boxes and prepped by hand brushing the foam with a water-based sealant (see attached MSDS). Husite began using these machines and the sealant in 2012; previously, the patterns were designed by hand.

After the patterns are complete, the molding process begins. In the molding process, Husite mixes silica sand with Uniset part 1, Uniset part 2, and Uniset accelerator (see attached MSDSs and emissions information below) to make an air set mold. The molds are then ready for the molten Kirksite.

Husite continues to only melt ingots or scrap metal/castings from their customers. The recycled scrap is wiped down to remove any lubricants; no solvents are used to clean it. Then ingots/scraps can be placed into the pots of one of four natural gas fired furnaces at a

temperature of approximately 805-815°F. The kirksite is skimmed off the top and poured into the sand molds. Once cooled the casting is removed from the sand mold, cleaned, and shipped to their customers.

PTI No. 540-95

PTI No. 540-95 was issued to Husite for the Kirksite Die Foundry which includes four natural gas furnaces; two rated at 2 MMbtu/hr and two rated at 1 MMBtu/hr. PTI No. 540-95 has five special conditions (#13-17). During the inspection, I did not observe any visible emissions from the melting and pouring operations (condition #13) and the four stacks appear to be approximately 31 feet above ground and are unobstructed (condition #16). Husite Engineering appears to be properly collecting and disposing of the sand and other contaminates, minimizing the introduction of these contaminants into the outdoor air (condition #15).

Special condition #14 states the applicant shall not operate more than 2000 hours per year and a written log of these hours shall be kept on file for 2 years. Special condition #17 requires Husite Engineering to record and keep on file the amount of Kirksite melted. Ms. Hudson provided the following production data: From 2015 through July 2016 Furnace #1 operated 10 hours and Furnace #4 operated 40 hours; Furnaces #2 and #3 did not operate. From 2015 through July 2016, Husite poured 210, 698 lbs (~105 tons) of Kirksite.

Binder Emissions

Upon returning to the office, I spoke with Francis Lim, AQD Senior Environmental Engineer, as he is familiar with the no bake binder process/emissions. Based on our discussions, I was able to estimate the emissions from the binder using emission factors from the American Foundry Society (see attached document) and the 2015 usage information provided by Ms. Hudson (see attached email).

In 2015, Husite used 8,100 lbs of Uniset part 1, 6,500 lbs of Uniset part 2, and 315 lbs of the Uniset Accelerator. Based on this usage, estimated emissions from this process for 2015 were approximately 4621 lbs of noncarcinogenic air contaminates and 33.92 lbs Total HAPs (see attached calculations). Based on the calculated emissions, the no bake binder process appears to be exempt from obtaining an air permit pursuant to Rule 290.

Federal Regulations

Based on the Kirksite records, Husite Engineering is not currently subject to 40 CFR, Part 63, Subpart ZZZZZZ, the Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries. Pursuant to Subpart 6Z(4)(i), a foundry in operation before February 9, 2009, must determine if it is subject to the rule based on the facilities annual metal melt production for calendar year 2010. If Husite Engineering melts more 600 tons in 2010 or if Husite Engineering increases production after calendar year 2010 and production exceeds 600 tons per year, they will need to submit written notification of applicability to the EPA within 30 days after the end of the calendar year and comply with 6Z within two years after the date of notification (Subpart 6Z(4)(iii)).

Conclusions

Based on the information gathered during the inspection and review of the company's records, Husite Engineering appears to be in compliance with Michigan's Air Pollution Control Rules, the Federal Clean Air Act Part 55, and PTI No. 540-95.

NAME Rebecca Jeffries DATE 9/26/16 SUPERVISOR Joyce Zhang