

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

A626026607

FACILITY: ALGONAC CAST PRODUCTS INC	SRN / ID: A6260
LOCATION: 9300 STONE ROAD, ALGONAC	DISTRICT: Southeast Michigan
CITY: ALGONAC	COUNTY: SAINT CLAIR
CONTACT: Pam Wrightner, Charlie Wick	ACTIVITY DATE: 08/27/2014
STAFF: Rebecca Loftus	COMPLIANCE STATUS: Compliance
SUBJECT:	SOURCE CLASS: MINOR
RESOLVED COMPLAINTS:	

On August 27, 2014, I, Rebecca Loftus, Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted an inspection of Algonac Cast Products, SRN: A6260, located at 9300 Stone Road, Algonac, Michigan. The purpose of the inspection was to determine the facility's compliance with the requirements the Federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, Michigan's Air Pollution Control Rules, of Consent Order CO# 23-2000, and Permit to Install (PTI) No. 171-13.

I arrived on-site at 10:35am and met with Mr. Charlie Wick and Ms. Pam Wrightner.

Facility Overview

Algonac Cast started operations in 1943 and casts miscellaneous metal parts for the marine industry. The castings are made of brass, bronze, or aluminum certified ingots; no outside sourced scrap metal is used in the plant, only in-house scraps. The facility has two electric crucible furnaces, two cooling towers, a wood shop, a sand core room, a cleaning room, and a machining area. The holding pot furnace is no longer used; the shell remains in the building but the melting pot has been removed.

Currently, the company operates the plant Monday through Thursday from 7:00am to 4:30pm, with approximately 5 employees. On average, metal is poured two days a week.

In 2012, as a result of a violation notice, Algonac applied for a permit to install for an electric induction furnace that uses flux. On February 28, 2014, the AQD issued PTI No. 171-13 to Algonac Cast.

At the time of my inspection, no equipment was operating. My previous contact is no longer with the company so I provided Mr. Wick and Ms. Wrightner, with a copy of the Environmental Inspections Brochure, the permit application, PTI No. 171-13, and the recording keeping we had established for the flux usage.

PTI No. 171-13, Furnaces and Casting Operations

In 1991, Algonac Cast installed two electric crucible furnaces, replacing their two natural gas fired crucible furnaces which were originally installed in 1943. The electric crucible furnaces have capacities of 300 lbs and each melting station has exhaust systems that leads to separate stacks on the roof.

In each furnace, ingots and in-house scraps are melted at temperatures ranging from 2100°F to 2200°F. When red brass is melted a small amount of flux (see MSDS in file) is added. The molten material is directly poured from the furnace into small ladle pots where the molten metal is poured into the molds. The molds are made in house using a product called "Green" sand (see MSDS in file) and a water based clay binder.

The first furnace appears to be exempt from obtaining a Permit to Install (PTI) pursuant to Rule 282(a)(iv); however because the fluxing material contains calcium fluoride, the second furnace does not meet the requirements of the exemption (see exemption text below).

Rule 282(a)(iv):

Rule 282. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

(a) Any of the following processes or process equipment which are electrically heated or which fire sweet gas fuel or no. 1 or no. 2 fuel oil at a maximum total heat input rate of not more than 10,000,000 Btu per hour:

(iv) Crucible furnaces, pot furnaces, or induction melting and holding furnaces that have a capacity of 1,000 pounds or less each, in which sweating or distilling is not conducted and in which fluxing is not conducted utilizing free chlorine, chloride or fluoride derivatives, or ammonium compounds.

Algonac Cast applied for a permit in 2013 and the second furnace is now permitted under PTI No. 171-13. The permit has record keeping requirements for the amount of flux used per batch and the amount and type of materials melted.

During my inspection, Ms. Wrightner provided me with copies of the daily metal poured sheets and on September 3, 2014, she provided the flux usage records via email (see attached records). Based on these records, for 2013, Algonac Cast consumed a total of 72,685 lbs. (~36.34 Tons) of metal in their furnaces and used approximately 399 ounces of flux. From January through July 2014, Algonac Cast poured a total of 75,011 lbs. (~37.5 Tons) of metal in their furnaces and used approximately 188 ounces of flux.

Other Equipment

The building also has the following equipment:

- Wood Pattern Shop: band saws, table saws, joiners and planers.
- Sand Core Room: hot core machines and sand.
- Cleaning Room: band saws, smag grinders, hand grindings, buffers, polishers, shot blasters and sand blasters.
- Machine Shop: drills, mills and lathes.
- Two CNC machines

There are respective baghouses used to control the particulate emissions from these processes; the various dust collection and control systems are all ducted to exhaust inside the plant. The various equipment appears to be exempt from obtaining a PTI pursuant to Rule 285(l)(vi)(B) and Rule 285(l)(vi)(C).

CO #23-2000 and Chrome NESHAP (40 CFR, Part 63, Subpart N)

CO #23-2000 was issued to Algonac Cast in 2000, due to noncompliance with the Chrome NESHAP. The area where the chrome and plating lines used to be located is now a storage room.

At this time Algonac Cast is no longer subject to 40 CFR, Part 63, Subpart N.

Federal Regulations - Foundries

Algonac Cast uses certified ingots (clean charge) and scraps generated within the plant in its melting/casting operations. Based on the Certificates of Analysis, some of the ingots do contain Cr, Ni, Pb, Mn (see data sheets in file for specific percentages). However, based on consumption/production, at this time, Algonac Cast is not subject to the 40 CFR, Part 63, Subpart ZZZZZZ, the National Emission Standard for Hazardous Air Pollutants for Aluminum, Copper, and Other Nonferrous Foundries Area Sources (see attached flow diagram).

Also, based on current operations, Algonac Cast is not subject to 40 CFR, Part 63, Subpart RRR, the National Emission Standard for Hazardous Air Pollutants for Secondary Aluminum Production (see attached flow diagram).

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For 2013, Algonac Cast reported a throughput of 36.34 tons of material throughput and particulate matter (PM) emissions of 735.45 lbs. There is not currently an emission factor for the fluoride flux so last year I worked with the facility to estimate emissions. We used the emission factors for chloride at foundries as a surrogate. Based on the throughput of 399 ounces (~25 lbs), we calculated emissions from the flux to be 6.65 lbs of PM.

The throughputs are consistent with the record keeping provided during my inspection.

Conclusions

Based on information gathered during the inspection, Algonac Cast appears to be in compliance with the Federal Clean Air Act, Michigan's Air Pollution Control Rules, and the conditions of PTI No. 171-13.

Since the source is in compliance and no longer has the chrome plating line, Algonac Cast may request to void Consent Order CO# 23-2000.

NAME Rebecca J. [Signature]

DATE 9/30/14

SUPERVISOR CJE