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

A017125469

FACILITY: HASTINGS MANUFACTURING COMPANY		**SRN / ID:** A0171
LOCATION: 325 NORTH HANOVER STREET, HASTINGS		**DISTRICT:** Grand Rapids
CITY: HASTINGS		**COUNTY:** BARRY
CONTACT: Peter Mohlin , Environmental Manager		**ACTIVITY DATE:** 06/10/2014
STAFF: Eric Grinstern	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Unannounced Inspection		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

The facility manufactures piston rings. All processes associated with the making of piston rings are performed onsite, from the casting/forming process though finishing and chrome plating to packaging and shipping. The facility has a dedicated foundry operation housed in a separate building where grey and ductile iron castings are poured and subsequently processed into rings. The facility has been at the currently location for almost a hundred years and is located within the City of Hastings.

REGULATORY OVERVIEW

The facility holds the following active air use permits:

PTI Nos. 936-93	**Metco Plasma System (Moly)**
747-91	**B&K Single Ring Turn & Bore/ Milling Machine – VOID**
396-91	**Foundry – sand silos, knock-out, shakeout, cooling conveyor**
649-90	**Abrasive belt sander with Metco wet collector**
222-90A	**Milling and Machining**
277-86	**Chrome Plating**
267-81	**Turntable pouring system**
810-79A	**Ajax furnace, shakeout conveyor, cooling conveyor**
71-74	**Oil filter paper pleating, curing oven - VOID**

A request to void PTI No. 747-91 and 71-74 will be processed. The equipment covered under PTI No. 747 -91 is controlled by a different baghouse system and is also exempt from permitting. The equipment under PTI No. 71-74 has been removed from the facility.

In addition to the permits to install, the facility is currently using Rule 290 exemption for the two 2-ton electric induction furnaces used in the foundry.

The facility is subject to NESHAPs Subpart ZZZZZ as a small area source foundry and Subpart N, chrome electroplating.

COMPLIANCE EVALUATION

Prior to entering the facility a survey of the perimeter was made. No abnormal odors or opacity were noted.

At the facility staff met with Peter Mohlin, EHS Engineer, Michael Tomko, VP of Operations, and George Ebeling III, Director of Manufacturing Engineering. Mr. Mohlin is the facility's primary compliance contact.

Below is an evaluation of the facility's compliance with applicable air quality rules, regulations and permits. For the purpose of evaluating compliance, the facility will be divided into three parts, foundry, finishing, and miscellaneous.

FOUNDRY

The facility has a dedicated foundry that produces both grey and ductile iron piston ring sleeves that are subsequently cut and finished to make piston rings. The facility generally operates the foundry during nighttime off peak electric rate hours. At the time of the inspection all foundry operations had ceased for the day.

Mold Making

The facility operates two shell mold machines, one large carousel unit and one small unit. The large carousel unit accounts for approximately 90% of mold production. The large unit was installed in 1957 and has never had control. Emissions are vented via 30 foot stack. The mold making operations are listed in PTI No. 810-79A. The permit essential requires adherence to Rule 331, 20% opacity, in regards to the mold making operations. All spent shell sand is hauled by RRC Inc.

Melting

The foundry alternates melting between two 2-ton Inductotherm electric induction furnaces. The furnaces have rim vent capture systems that duct uncontrolled via a stack through the roof. Approximately 30% of the iron is inoculated to produce ductile iron. Ductile inoculation is performed in a tundish ladle without capture or control. EG was unable to locate any documentation regarding permitting for the production of ductile iron at the facility. Upon request to determine when the facility started conducting ductile inoculation, the facility determined through the metallurgist, Warren Williamson, that the facility started conducting ductile inoculation prior to the permitting "grandfathered" date of August 15, 1967. EG spoke with Mr. Williamson on June 26, 2014. Mr. Williamson stated that they spoke with an employee that started in 1968, who confirmed that ductile inoculation was an established practice when they started working at Hastings Manufacturing. Additionally, several permits were issued addressing the foundry operations in the 1970-80's, for some reason ductile inoculation was overlooked. Staff considers ductile inoculation as currently performed as "grandfathered" from needing a PTI. Charge material consists of pig iron, punchings/stampings and internal runaround. The facility switched their supplier of punchings/stampings to assure they are getting washed material. The facility historically operated an electric arc furnace and then was permitted to operate a 2.5 ton Ajax electric induction furnace under PTI No. 810-79A. The facility subsequently removed both of those melting units and installed the current Inductotherm units. The file contains correspondence in 1998 regarding the use of Rule 290 to exempt the furnaces from the requirement to obtain a permit to install. The facility maintains records of particulate emissions as well as lead and manganese emissions to document compliance with Rule 290.

Pouring/Cooling /Shakeout

Molds are manually poured on an indexing turn table that vents emissions uncontrolled via a 62.5 foot stack. Pouring operations were originally permitted in PTI No. 810-79A, and subsequently addressed in PTI No. 267-81to account for process modifications. PTI No. 267-81 only requires compliance with the general 20% opacity limit. Poured molds are conveyed though a cooling tunnel that is controlled by the foundry baghouse. Cooling was also addressed in PTI No. 810-79A, and then subsequently addressed in PTI No. 396-91 to account for the installation of a new baghouse that was large enough to control cooling emissions. There is a stack associated with cooling that appears to have been the exhaust stack prior to the process being controlled by the baghouse. Mr. Mohlin determined that the stack draws in air from the outside to aid in cast cooling. From cooling the molds are processed through a shakeout conveyor and then through a blast cleaning unit, both of which are ducted to the foundry Torit cartridge collector. After the blast cleaning unit the sprues are removed on a small breaker machine. The piston sleeves continue on to the main plant for cutting and finishing.

Subpart ZZZZZ – Area Source Iron and Steel Foundry NESHAP

The facility is subject to Subpart 5Z as a small area source. The facility has submitted all required notifications and continues to submit the required semiannual certification reports. The facility is also in compliance with the requirements to have written scrap specifications that have been conveyed to their suppliers, maintain records of the amount of metal melted, and records of HAP containing binders and coatings usage.

FINISHING

After the sleeves are cast in the foundry, they are processed through equipment that splits, polishes, grinds and machines the piston rings. A number of these processes are unvented and/or are exempt from permitting requirements.

Of these processes, the following are covered under permits to install.

PTI No. 222-90A addresses the collection of metal chips from cast iron machining. These processes are controlled by a new collection system installed in 2012, which is called the "Invincible Collector". The Invincible Collector consists of a cyclone, baghouse, and HEPA filtration unit. Within

PTI No. 222-90A the only special condition more restrictive than the general conditions is an opacity limit of 5%. No emissions were observed from the outlet of the collection system.

PTI No. 649-90 addresses the operation of an abrasive belt sanding processing consisting of two units which are each controlled by a Metco wet collector. The permit special conditions limit opacity to 10%. No emissions were observed when staff was on the roof of the facility.

PTI No. 936-93 addresses the operation of a Metco plasma spray unit. The units coat the outside edge of the rings via a plasma spray system with molybdenum power. The units are controlled by the "Moly Collector". The moly collector consists of a cartridge filter unit followed by a HEPA filter. The permit limits emission to 0% opacity. No emissions were observed during the inspection. PTI No. 936-93 appears to address only one plasma spray unit, while there are two installed. The second unit is exempt from permitting under Rule 285(i), which exempts plasma coating equipment from the requirement to obtain a permit to install.

PTI No. 277-86 addresses the operation of a chrome plating operation which is also subject to the Chrome NEHAP, Subpart N. The plating operation consists of caustic tanks and chrome tanks, each of which has emissions controlled by a separate scrubber. Observation of the pressure drop across each stage of the scrubber showed the following readings: 1) 0.6 inches, 2) 2.3 inches,

3) 0.5 inches. The overall pressure drop was 3.8 inches, which is with the range established during testing 3.3"-6.0". Staff received a copy of the most recent compliance status report and operation and maintenance records. No abnormal issues or compliance concerns were noted.

MISCELLANEOUS

In 2012 the facility replaced the existing larger boiler with two 6.2 mmBtu/hour boilers. These units are exempt from the need to obtain a permit to install under Rule 282(b).

Conclusion

Based on the information and observations made during this inspection, the facility appears to be in compliance all applicable air quality rules and regulations.

NAME  DATE 6/24/14 SUPERVISOR