

TCMT

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

B173732976

FACILITY: KENT FOUNDRY CO.		SRN / ID: B1737
LOCATION: 1413 CALLAGHAN ST., GREENVILLE		DISTRICT: Grand Rapids
CITY: GREENVILLE		COUNTY: MONTCALM
CONTACT: Steve Ziny , General Manager		ACTIVITY DATE: 01/14/2016
STAFF: Eric Grinstern	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced Inspection		
RESOLVED COMPLAINTS:		

Unannounced inspection of Kent Foundry.

**FACILITY DESCRIPTION**

Kent Foundry is an iron foundry that produces parts primarily for the machine tool, valve and fitting market. The facility is an electric induction melting operation that utilizes phenolic urethane sand molds and cores as well as oil cores. The facility's normal operations are 5 days a week, during which they operate two 10-hour shifts. The facility only melts and pours during one of the daily shifts. The facility is currently pouring around 26 tons per day.

Required safety equipment for inspecting the facility includes hard toed boots, safety glasses and hearing protection.

**REGULATORY ANALYSIS**

The facility is a synthetic minor source that operates under Opt-Out Permit No. 704-91B. The facility is subject to Subpart ZZZZZ, the Iron and Steel Foundry Area Source NESHAP. The facility is considered a small area source under the NESHAP.

**COMPLIANCE EVALUATION**

Prior to entering the facility a survey of the parameter was performed. No visible emissions were noted. No odors were noted prior to entering the facility.

At the facility staff consisting of Kaitlyn DeVries and Eric Grinstern (EG) met with Steve Ziny, General Manager.

**PROCESS A**

Process A includes two electric induction furnaces, inoculation, pouring and cooling, core making, core oven and oil sand operation. The furnaces have fume collection rings that duct to baghouse control. Additionally, the sand heater associated with mold/core making is vented to baghouse control. While not listed in the permit, the small mold dump area is controlled by the baghouse (Baghouse No.1) that controls emissions from Process A. Pouring and cooling as well as inoculation are not captured or controlled.

**Process/Operational Restrictions**

Requires the facility to implement and maintain a malfunction abatement plan for Process A. This requirement was added with the permit modification in 2013. The facility does not have a MAP for Process A.

**Emission/Material Limits/Recordkeeping**

Process A has limits that restrict PM to 0.01 pounds/1,000 lb. exhaust gas, PM 10 to 3.86 pounds per hour and 15.20 tons per year. VOC emissions are limited to 17.7 pounds per hour and 69.8 tons per year.

Compliance with the emission limits is partially demonstrated through proper operation of the control equipment. Observation of Baghouse No. 1 at the time of inspection showed no visible emissions. The facility

black lights the baghouse on a regular basis (at least every other month). Proper operation is also demonstrated through the requirement for the operation of a broken bag detector system. The leak detector is installed and operating, however the facility has found greater benefit in conducting black light inspections. The leak detector is an older style that does not have a read-out, just an alarm. The facility stated that they test the alarm on a regular basis.

The facility provided records to demonstrate compliance with the PM10 and VOC emissions limits as well as the following material usage limits.

**PM 10 Limit 3.86 pounds per hour**

- Records for the past 12 months showed a high of 3.14 pounds per hour

**PM10 Limit 15.20 tpy**

- Review of records showed a 12-month rolling high of 10.18 tons

**VOC limit 17.7 pounds per hour**

- Records for the past 12 months showed a high of 13.11 pounds per hour

**VOC limit 69.8 tons per 12 tpy**

- Review of records showed a 12-month rolling high of 40.08 tons

**Sand for molding operations 7.0 tons per hour**

- Review of records through 2015 showed a peak usage of 6.39 tons per hour.

**Sand for molding operations 55,200 tpy**

- Records for 2015 show usage at 30,190 tons

**Binder Part A, 75 pounds per hour**

- Review of records through 2015 showed a peak usage of 69.78 pounds per hour.

**Binder Part A, 300 tpy**

- Records for 2015 show usage at 164.1 tons

**Binder Part B, 50 pounds per hour**

- Review of records through 2015 showed a peak usage of 44.51 pounds per hour.

**Binder Part B, 200 tpy**

- Records for 2015 show usage at 104.1 tons

**Binder catalyst, 2.3 pounds per hour**

- Review of 2015 records showed a peak usage of 2.25 pounds per hour.

**Binder catalyst, 8.7 tpy**

- Records for 2015 show usage at 5.34 tons

The total metal charge rate to the induction furnaces is limited to 10,000 tons per year. This throughput limit acts to restrict the facility's potential to emit below the permitted emission limits. The charge limit was increased from

6,000 tpy with the issuance of 704-91B in 2013. The highest recorded usage in 2015 was 5,720 tpy.

#### **Stack/Vent Restrictions**

Visual observation of the stack associated with Baghouse No. 1 showed that it appeared to meet the height requirement of 60 feet and maximum diameter of 35 inches.

#### **Inspection Observations**

During the inspection staff observed considerable emissions resulting primarily from ductile inoculation. Mr. Ziny stated that the facility is evaluating the possibility of capturing and controlling emissions from inoculation. Observation of the melt furnaces showed good capture from the fume collections rings that were recently rebuilt.

The facility uses a phenolic no-bake binder system for casting molds, while cores are made from phenolic no-bake as well as core oil. Additionally, the facility uses some small shell cores that they purchase. The facility has one oven for curing the oil cores. Both types of cores are surface coated with a graphite/zircon, alcohol based coating. The coating is allowed to dry and evaporate off the isopropyl alcohol. Casting molds are also coated with one of two alcohol based coatings. A majority of the molds are flared-off once they are coated.

The facility charges pig iron, scrap steel and internal runaround. Inspection showed that the scrap steel consisted of 100% stampings. Therefore, there is no concern about mercury switches within the charge.

#### **PROCESS B**

Process B includes the Wheelabrator table blaster, sand reclamation system and associated elevator, hoppers and silos. Process B emissions are controlled by Baghouse No. 2.

#### **Emission/Material Limits/Recordkeeping**

Process B has limits that restrict particulate matter emissions to 0.01 pound per 1,000 pounds of exhaust gases, PM10 to 0.57 pounds per hour and 2.25 tons per year. PM 2.5 to 1.3 tpy.

Compliance with the emission limits is demonstrated through proper operation of the control equipment. Observation of Baghouse No. 2 at the time of inspection showed no visible emissions. The facility black lights the baghouse on a regular basis (at least every other month). Proper operation is also demonstrated through the requirement for the operation of a broken bag detector system. The leak detector is installed and operating, however the facility has found greater benefit in conducting black light inspections. The leak detector is an older style that does not have a read-out, just an alarm. The facility stated that they test the alarm on a regular basis.

The facility is required to maintain PM10 and PM2.5 emission records on a monthly and 12-month rolling basis.

PM10 limit 0.57 pounds per hour

- Records for 2015 showed a high of 0.12 pounds per hour

PM10 limit 2.25 tpy

- Records for 2015 showed a high of 0.44 tons per 12-month rolling time period

PM2.5 limit 1.3 tpy

- Records for 2015 showed a high of 0.23 tpy pounds per hour

#### **Stack/Vent Restrictions**

Visual observation of the stack associated with Baghouse No. 2 showed that it appeared to meet the height requirement of 60 feet and maximum diameter of 35 inches.

## **Inspection Observations**

The small molds are poured on the conveyor system after which they are taken to a controlled dump room and then to the blast unit. The larger floor poured molds are taken directly to the blast unit. The blast unit serves as the primary means of shakeout.

The unit is on a timer that prevents the door from being opened for five minutes after its operation to allow for the emissions to be evacuated from the chamber.

The facility's sand flow is as follows: Sand from the blast is fed to a silo from which it's fed to the sand reclaim system that removes metallics and fine sand. After the reclaim unit the sand is fed to another silo. The facility combines the reclaim sand with new sand through the sand mixer which heats the sand and adds binder prior to pouring it into molds. All of the silos are controlled by bin vent filters.

## **PROCESS C**

Process C consists of the cast finishing operations (primarily grinders and chop saws).

### **Emission/Material Limits/Recordkeeping**

Process C has limits that restrict particulate matter emissions to 0.01 pound per 1,000 pounds of exhaust gases, 0.28 pounds per hour and 1.21 tons per year.

Compliance with the emission limits is demonstrated through proper operation of the control equipment. Observation of Baghouse No. 3 at the time of inspection showed no visible emissions. The facility black lights the baghouse on a regular basis (at least every other month). Proper operation is also demonstrated through the requirement for the operation of a broken bag detector system. The leak detector is installed and operating, however the facility has found greater benefit in conducting black light inspections. The leak detector is an older style that does not have a read-out, just an alarm. The facility stated that they test the alarm on a regular basis.

The facility is required to maintain records of pounds per hour and tpy PM emissions.

PM limit 0.28 pounds per hour

- Records for 2015 showed a high of 0.0026 pounds per hour

PM limit 1.21 tpy

- Records for 2015 showed a high of 0.0078 tons per 12-month rolling time period

### **Stack/Vent Restrictions**

Visual observation of the stack associated with Baghouse No. 3 showed that it appeared to meet the height requirement of 50 feet and maximum diameter of 24 inches.

## **ALL PROCESSES**

### **Facility-wide requirements**

### **Emission/Material Limits/Recordkeeping**

Each of the three baghouse stacks has a visible emission limit of 5%. Compliance with the emission limit is demonstrated through proper operation of the baghouses. The permit does not require VE observations. No VE was observed during the inspection.

The facility has a single HAP limit of 9 tons and total HAP limit of 22 tons.

The facility is required to maintain HAP emission records.

HAP limit 9 tpy of individual HAP

- Facility records list a peak individual HAP at 0.0005 tpy

HAP limit 22 tpy aggregate HAP

- Facility records list peak aggregate HAPs at 0.0861 tpy

**Subpart ZZZZ – Area Source Iron and Steel Foundry NESHAP**

Kent Foundry is subject to Subpart 5Z. The facility is considered a “small” area source under the standard because the metal throughput is less than 20,000 tons on an annual basis. The facility is current with all notification, certification, plan and recordkeeping requirements within the standard. Compliance requirements are summarized in the checklist below.

**IRON AND STEEL FOUNDRIES AREA SOURCES  
40 CFR PART 63 SUBPART ZZZZ**

**Notification and Reporting Requirements**

Requirement	Citation 40 CFR	Notification Submitted		Comments
		Yes	No	
Initial Notification (Existing - May 1, 2008) (New – May 1, 2008 or no later than 120 days after startup)	63.10890(b)(small) or 63.10900(b)(large) and Subpart A 63.9	X		
Notification of Size Classification (Existing-January 2, 2009) (New - No later than 120 days after startup)	63.10890(g) (small) or 63.10899(d)(large)	X		Facility is a small area source
Notification of Compliance – Metallic Scrap Management / Binder Formulation (Existing-February 1, 2009) (New – February 1, 2008 or no later than 30 days after startup)	63.10890(c)(1)and(3) (small) or 63.10900(b)(large) and Subpart A 63.9	X		
Notification of Compliance – Mercury Requirements (Existing - February 3, 2010) (New – February 1, 2008 or no later than 30 days after startup)	63.10890(c)(2)(small) or 63.10900(b)(large) and Subpart A 63.9	X		
Semiannual Certification Reports (July 30/January 30)	63.10890(f)(small) or 63.10899(c)(large)	X		

**Size Classification Requirements – Small and Large Foundries**

Requirement	Citation	Facility Compliance		Comments
		Yes	No	

Existing and New Sources				
Maintain records of metal melt production Small – annual records Large – monthly records	63.10890(e)(7) (small) or 63.10899(6)(large)	X		Existing small foundry → Melts ≤ 20,000 ton/yr Existing large foundry → Melts ≥ 20,000 tons/yr New small foundry → Melting capacity ≤ 10,000 ton/yr New large foundry → Melting capacity ≥ 10,000 ton/yr

### Binder Management Requirements – Small and Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
<b>Existing and New Sources</b>				
No methanol in catalyst for a furfuryl alcohol warm box mold/core line (Existing - January 2, 2009) (New – January 2, 2008, or upon startup)	63.10886	X		The facility does not have a warm box mold or core line.
Copies of MSDS or product data sheets for binders and coatings	63.10890(e)(5) (small) or 63.10899(4)(large)	X		
Records of annual quantity and composition of binders and coatings used that contain HAPs	63.10890(e)(6) (small) or 63.10899(5)(large)	X		

### Metallic Management Practice Requirements – Large and Small Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Comply with one of the following options for incoming scrap:  1. Prepare and operate according to written material specifications that scrap does not contain post-consumer auto body scrap, engine blocks, oil filters, oily turnings, lead components, chlorinated plastics, or free organics.  2. Prepare and operate according to written material specifications that scrap has been depleted to the extent practicable.  Certain scrap can be subject to one option and other scrap subject to the other option if scrap remains segregated until charge make-up. (Existing-January 2, 2009) (New – January 2, 2008, or upon startup)	63.10885(a)	X		X Option 1 ? Option 2
Records of material specifications and	63.10890(e)(small) or			

records demonstrating compliance with material specifications.	63.10899(a)(1) (large)	X		
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**Mercury Management Practice Requirements – Large and Small Foundries**

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Comply with one of the following options for each scrap provider, contract or shipment:  1. Site-Specific Plan 2. EPA Approved Program 3. Specialty Alloy 4. Non-motor Vehicle Scrap  (Existing- January 4, 2010) (New – January 2, 2008, or upon startup)	63.10885(b)			? Option 1 ? Option 2 ? Option 3 X Option 4

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

The facility does not have a malfunction abatement plan for Process A. A violation notice will be issued for not having a MAP.

NAME 

DATE 3/28/16

SUPERVISOR PARB