

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection

B173758762

<b>FACILITY:</b> KENT FOUNDRY CO.		<b>SRN / ID:</b> B1737
<b>LOCATION:</b> 1413 CALLAGHAN ST., GREENVILLE		<b>DISTRICT:</b> Grand Rapids
<b>CITY:</b> GREENVILLE		<b>COUNTY:</b> MONTCALM
<b>CONTACT:</b> Jim Perski , Estimating Manager		<b>ACTIVITY DATE:</b> 06/23/2021
<b>STAFF:</b> Eric Grinstern	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> SM OPT OUT
<b>SUBJECT:</b> Unannounced compliance inspection		
<b>RESOLVED COMPLAINTS:</b>		

## FACILITY DESCRIPTION

Kent Foundry is a grey and ductile iron foundry that produces castings 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 along with oil cores and purchased shell cores. Mold shakeout and finishing are primarily conducted in a Wheelabrator table blast unit. Recovered sand is processed in a thermal recovery unit for reuse. The facility's finishing operations include a chop saw and grinders.

## REGULATORY ANALYSIS

The facility is a synthetic minor source that operates under Opt-Out Permit No. 704-91C. 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 or odors were noted prior to entering the facility.

At the facility, staff consisting of Mike Cox (MC) and Eric Grinstern (EG) met with Anthony Price, Plant Manager. Staff also held a post inspection meeting with Wendell Kauffman, President.

Proper COVID 19 protocols were followed during the inspection.

Below is a compliance evaluation based on Permit No. 704-91C.

### EUPROCESSA (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, a 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.

### Emission/Material Limits/Recordkeeping

Process A has limits that restrict emissions of PM, PM10, VOC and VE. PM emissions are limited to 0.01 pounds/1,000 lb. exhaust gas, PM10 emissions are limited 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. VE is limited to 5% opacity, based on a 6-minute average.

Compliance with the PM/PM10 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, however, the furnaces were not operating. The facility is required to equip the baghouse with a broken bag detector system. The leak detector was not operational at the time of the inspection. Observation of the baghouse pressure drop gauge showed that it was pegged out. The facility cleared the pressure drop lines, which returned the pressure drop reading to 0.6". Compliance with the PM/PM10 emission limits is also based upon compliance with material

throughput limits. The throughput limits act to restrict the facility's potential to emit below the permitted emission limits. The facility is required to maintain records of material throughput for the furnace charge rate, sand usage rate, binder compound usage rates (resin part A, resin part B, and catalyst), release agents usage rate, and mold coating material usage rate for EUPROCESSA in pounds per hour or tons per hour on a calendar day hourly average basis. Compliance with the PM10 emission limits is demonstrated through the requirement that the facility maintain monthly and 12-month rolling time period emission records for Process A.

Compliance with the VOC limits is based upon an OCMA emission factor for mold making (2.53 lb/VOC per ton of sand). The facility is required to maintain VOC emission calculations.

The facility provided records, as requested, to demonstrate compliance with the PM10 and VOC emissions limits as well as the material usage limits. Hourly material usage records, based on a calendar day average, were requested for the previous 30 days (the facility provided records for March 2019 until current). Monthly and 12-month rolling average emission records were requested for the past 12 months. Additionally, the facility provided emission records on a pound per hour basis (not required by the permit) which were evaluated for compliance.

Pollutant/Material	Limit	Reported Emission/Usage (highest)
PM10	15.20 tpy	3.23 tpy
PM10	3.86 pph	1.70 pph
VOC	69.8 tpy	30.63 tpy
VOC	17.7 pph	14.54 pph
Metal Charge	10,000 tpy	5,548 tpy
Sand (Molding)	55,200 tpy	24,832 tpy
Sand (Molding)	7.0 tons/hr	4.96 tons/hr
Binder Resin - Part A	300 tpy	141.96 tpy
Binder Resin - Part A	75 pph	53.74 pph
Binder Resin - Part B	200 tpy	95.26 tpy
Binder Resin - Part B	50 pph	37.52 pph
Binder Catalyst	8.7 tpy	3.37 tpy
Binder Catalyst	2.3 pph	1.24 pph

#### Process/Operational Restrictions

Requires the facility to implement and maintain a malfunction abatement plan for Process A. The facility previously supplied a MAP for Process A.

#### Design/Equipment Parameter

The facility is required to have the furnace fume collection rings, exhaust hoods, and fabric filter collector installed, maintained and operated in a satisfactory manner. The collection equipment was observed to be installed. Observation of the furnace fume rings showed that they were in good condition and free of any charge material. Mr. Price stated that they have an outside company clean the furnace duct system each year during the July shutdown. Since the required broken bag detection system was not operational at the time of the inspection, proper operation of the fabric filter collector could not be verified.

#### 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.

### EUPROCESSB (PROCESS B)

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

#### Emission/Recordkeeping

Process D has limits that restrict emissions of PM, PM10, PM2.5 and VE. PM emissions are limited to 0.01 pounds/1,000 lb. exhaust gas, PM10 emissions are limited to 1.40 tons per year, and PM2.5 emissions are limited to 0.40 tpy. VE is limited to 5% opacity, based on a 6-minute average.

Compliance with the PM/PM10/PM2.5 emission limits is partially demonstrated through proper operation of the control equipment. Observation of Baghouse No. 2 at the time of inspection showed no visible emissions. The facility is required to equip the baghouse with a broken bag detector system. The leak detector was not operational/non-readable at the time of the inspection. Observation of the baghouse pressure drop gauge showed a reading of 0.0 and did not appear to be operational. Compliance with the PM10 and PM2.5 emission limits is demonstrated through the requirement that the facility maintain monthly and 12-month rolling time period emission records for Process B.

The facility provided records, as requested, to demonstrate compliance with the PM10 and PM2.5 emissions limits. Monthly and 12-month rolling average emission records were requested for the past 12 months. Additionally, the facility provided emission records on a pound per hour basis (not required by the permit) which were evaluated for compliance.

Pollutant/Material	Limit	Reported Emission/Usage (highest)
PM10	0.75 tpy	0.1659 tpy
PM10	0.19 pph	0.15 pph
PM2.5	0.40 tpy	0.22 tpy

#### Design/Equipment Parameter

The facility is required to have the mechanical collector and fabric filter collector installed, maintained and operated in a satisfactory manner. Additionally, the fabric filter collector is required to have a bag leak detection system installed and operated in a satisfactory manner. Since the required broken bag detection system was not operational at the time of the inspection and the pressure drop gauge was not functioning, proper operation of the fabric filter collector could not be verified.

#### 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.

### EUPROCESSC (PROCESS C)

Process C includes a Wheelabrator table blaster, sand shakeout and reclamation system and associated elevator, hoppers and silos. Process C emissions are controlled by Baghouse No. 3.

#### Emission/Recordkeeping

Process C has limits that restrict emissions of PM and VE. PM emissions are limited to 0.01 pounds/1,000 lb. exhaust gas, 0.28 pounds per hour and 1.21 tons per year. VE is limited to 5% opacity, based on a 6-minute average.

Compliance with the PM emission limits is partially demonstrated through proper operation of the control equipment. Observation of Baghouse No. 3 at the time of inspection showed no visible emissions. The facility is required to equip the baghouse with a broken bag detector system. The leak

detector was not readable at the time of the inspection. Observation of the baghouse pressure drop gauge showed a reading of 3.4". Compliance with the PM emission limits is demonstrated through the requirement that the facility maintain monthly and 12-month rolling time period emission records for Process C.

The facility provided records, as requested, to demonstrate compliance with the PM emissions limits. Monthly and 12-month rolling average emission records were requested for the past 12 months. Additionally, the facility provided emission records on a pound per hour basis (not required by the permit) which were evaluated for compliance.

Pollutant/Material	Limit	Reported Emission/Usage (highest)
PM	1.21 tpy	0.2286 tpy
PM	0.28 pph	0.1004 pph

#### Design/Equipment Parameter

The facility is required to have the mechanical collector and fabric filter collector installed, maintained and operated in a satisfactory manner. Additionally, the fabric filter collector is required to have a bag leak detection system installed and operated in a satisfactory manner. The bag leak detection system was not readable at the time of the inspection. The pressure drop gauge reading was 3.4" at the time of the inspection. Since the bag leak detection system was not readable, proper operation of the fabric filter collector could not be verified.

#### 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.

#### EUPROCESSD (PROCESS D)

Process D consists of a thermal sand reclaim system and associated sand storage and handling equipment, including: vibratory screen/magnetic separator, bucket elevator, (2) 200 ton sand silos and (1) 100 ton sand silo.

#### Emission/Recordkeeping

Process D has limits that restrict emissions of PM, PM10, PM2.5 and VE. PM emissions are limited to 0.01 pounds/1,000 lb. exhaust gas, PM10 emissions are limited to 1.40 tons per year, PM2.5 emissions are limited to 0.40 tpy. VE is limited to 5% opacity, based on a 6-minute average.

Compliance with the PM/PM10/PM2.5 emission limits is partially demonstrated through proper operation of the control equipment. Observation of Baghouse No. 4 at the time of inspection showed no visible emissions. The facility is required to equip the baghouse with a broken bag detector system. The leak detector was operating at the time of the inspection and had a reading of 56. Observation of the baghouse pressure drop gauge showed a reading of 3.8" Compliance with the PM10 and PM2.5 emission limits is demonstrated through the requirement that the facility maintain monthly and 12-month rolling time period emission records for Process D.

The facility provided records, as requested, to demonstrate compliance with the PM10 and PM2.5 emissions limits. Monthly and 12-month rolling average emission records were requested for the past 12 months.

Pollutant/Material	Limit	Reported Emission/Usage (highest)
PM10	1.40 tpy	0.821 tpy
PM2.5	0.40 tpy	0.000298 tpy

#### Process/Operational Restrictions

The facility is required to maintain minimum temperature of 1240 degrees F for the exhaust gases from the hood of the thermal sand reclamation system. At the time of the inspection, the observed temperature was 1259 degrees F, with temperature fluctuations down to 1244 degrees F. The facility is required to maintain a temperature monitoring device that records the temperature at least once every 15 minutes. The facility is recording the temperature every 5 minutes. The facility was requested and supplied records randomly selected by EG, for the past 6 months. The records showed compliance with the minimum temperature except for the month of June 2021. In response to the observed low temperature readings, staff request all available records for June 2021 (6/1-6/19). Review of the records showed there to be at least one temperature reading each day that was below the minimum temperature. The low temperatures were generally a single reading with the previous and successive readings being compliant. The lowest temperature observed was 10 degrees below the minimum temperature of 1240 degrees F.

The facility is required to implement and maintain a malfunction abatement plan for Process D. The facility previously supplied a MAP for Process D.

#### **Design/Equipment Parameter**

The facility is required to have the mechanical collector and fabric filter collector installed, maintained and operated in a satisfactory manner. Additionally, the fabric filter collector is required to have a bag leak detection system installed and operated in a satisfactory manner. The bag leak detector and pressure drop gauge were operational at the time of the inspection. The facility is required to maintain a temperature monitoring device that records the temperature at least once every 15 minutes. The facility provided requested records that showed temperature readings to be recorded every 5 minutes.

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

Visual observation of the stack associated with the thermal reclaim system (natural gas exhaust) showed that it appeared to meet the height requirement of 50 feet and maximum diameter of 42 inches.

#### **Inspection Observations**

During the inspection, staff observed sand fallout from a leak in the top of the mechanical reclaim sand silo. The facility stated that they were aware of the problem and were actively working to repair the leak. The facility showed staff the part fabricated to repair the leak and stated that the needed flange would arrive the following day.

#### **FGFACILITY**

All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.

#### **Emission/Recordkeeping**

FGFACILITY has opt out limits for individual and Aggregate HAPs on a source-wide basis. The individual HAP limit is 9.0 tpy and the aggregate HAP limit is 22 tpy. The facility records document the highest individual HAP as methanol, with 0.82 tons emitted (12-month ending in May 2021). the Aggregate HAP total for the same time period was documented at 2.88 tons.

#### **Subpart ZZZZZ – 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.

The facility operates under an scrap specification plan that was previously submitted. Inspection of the facility's charge material showed pig iron and 1010 busheling. The facility does not use any post-consumer automotive scrap. The facility tracks metal thruput. In 2020 the facility had a metal

throughput of 4,737 tons. The facility tracks the use of HAP containing materials, for which the facility provided records. The facility does not have an warm box mold or core lines, therefore the "no methanol in catalyst" restriction is not applicable.

### **CONCLUSION**

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 exceptions:

**EUPROCESSA:** Failure to maintain and operate a broken bag detection system, as required by PTI No. 704-91C, EUPROCESSA, Condition IV. 2.

**EUPROCESSB:** Failure to maintain and operate a broken bag detection system, as required by PTI No. 704-91C, EUPROCESSB, Condition IV. 2.

**EUPROCESSC:** Failure to maintain and operate a broken bag detection system, as required by PTI No. 704-91C, EUPROCESSC, Condition IV. 2.

**EUPROCESSD:** Failure to maintain a minimum temperature of 1240 degrees F for the exhaust gases from the hood of the Thermfire system, as required by PTI No. 704-91C, EUPROCESSD, Condition III. 1.

A Violation Notice will be issued for the above listed violations.

NAME Eric Grinstern

DATE 7/26/2021

SUPERVISOR HH