

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

B701344498

FACILITY: Huron Casting, Inc (Blue Diamond Steel Casting)		SRN / ID: B7013
LOCATION: 7050 HARTLEY ST. & 125 STURM RD, PIGEON		DISTRICT: Saginaw Bay
CITY: PIGEON		COUNTY: HURON
CONTACT: Daryl Mendrick ,		ACTIVITY DATE: 05/22/2018
STAFF: Gina McCann	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Inspection of MI-ROP-B7013-2018		
RESOLVED COMPLAINTS:		

I (glm) performed a scheduled inspection of Huron Casting Inc. and Blue Diamond Steel Casting LLC. I was accompanied by Mr. Matthew Karl, MDEQ-AQD, on May 22, 2018 and Ms. Meg Sheehan, MDEQ-AQD, on May 23, 2018. During the inspection we toured the Blue Diamond Steel Casting LLC (BDSC) portion of the stationary source on May 22, 2018 and we toured the Huron Casting Inc. (HCI) portion on May 23, 2018.

Findings of Violation

- The monthly average for lb/ton of CO emissions exceed the source-wide limit.
- Hours of operation, based on a 12-month rolling time period, exceed the allowed 7,000 hours.
- Binder usage for FG-MOLDLINE and FG-BDSV02 are not tracked. EU-FINISHING was in operation while the baghouse was shutoff, which was a violation of the ROP's operational parameters.
- The facility is not tracking all HAPs emissions from the facility.

Source and Regulatory Discussion

Huron Casting Inc is one stationary source consisting of two steel foundries, Blue Diamond Steel Casting LLC (BD), located at 125 Sturm Road, Pigeon, Michigan and Huron Casting Inc (HC), located adjacent at 7050 Hartley Street, Pigeon, Michigan. In 2008, the facility obtained PTI No. 129-08 for the installation of a second steel foundry, Blue Diamond Steel Casting LLC (BD), on a contiguous property at 125 Sturm Road, Pigeon, Michigan. With the installation of the BD portion of the facility under PTI No. 129-08, the company created a major source of emissions under the PSD regulations due to potential emissions of carbon monoxide (CO) greater than 100 tons per year (tpy).

In 2016, the facility entered Administrative Consent Order (ACO) 4-2017. The ACO is effective for six years and will expire, upon request, in 2022. Per the ACO the facility was issued a Prevention of Significant Deterioration, PSD, permit #115-16, which was rolled into their Renewable Operating Permit (ROP) MI-ROP-B7013-2018. The ROP includes all applicable and enforceable state and federal regulations.

Process Description

The facility melts metals in one of several electric induction furnaces to produce a steel casting. When the melting process is complete the molten metal is tapped (by tilting and pouring through a spout on each furnace) and poured into a ladle. From the ladle, the metal is poured into molds and the castings are allowed to cool.

The molds consist of two parts, the outer molds and inner cores, both of which are made of sand and chemical binders. The sand is a source of particulate emissions and the binder is a source of volatile organic compound (VOC) emissions. The amounts of both sand and binder used in the process are directly related to the amount of metal melted and poured. Emissions occur in the moldmaking and coremaking processes and later when the molds and cores are removed from the cooled castings.

When the castings have cooled, the sand molds and cores are removed from the castings by physical processes including pulling, prying, shotblast, and shakeout. The sand is reclaimed through destruction of the binder material in high temperature natural gas fired calciners.

Additional metal particulate emissions are generated in the casting cleaning and finishing processes which include cutting with saws or torches and grinding.

Source-Wide Conditions

Title V permit, MI-ROP-B7013-2018 requires the facility to meet source-wide emission limits as listed in the emission limits table. Below is a comparison of the emission limits to the 12-month rolling time period as determined at the end of May 2018.

Pollutant	Limit	May 2018
PM10	59.6 tpy	47.688 tpy
PM2.5	11.9 tpy	10.159 tpy
VOC	50 lb/ton binder	12.57 lb/ton binder
VOC	98.0 tpy	12.57 tpy
Individual HAPs	8.9 tpy	7.01 tpy (hydrogen cyanide)
Aggregate HAPs	22.4 tpy	16.64 tpy
CO	4.8 lb/ton melt (monthly average)	5.1
CO	345.6 tpy	171.18 tpy

Special Condition II.5, under material limits, restricts the facility from processing more than 3,870 tons of binder per year based on a 12-month rolling time period calculated at the end of each calendar month. This is a combined total of Huron Castings, Inc. and Blue Diamond, source-wide, material limit. The source-wide total binder used for the 12-month rolling time period ending May 2018 was 1,548.92 tons.

Special Condition II.2, under material limits, restricts Huron Castings Inc. from melting more than 72,000 tons per year of steel based on a 12-month rolling time period, as determined as the end of each calendar month. The total tons of steel melted at Huron Castings for the 12-month rolling time period ending May 2018 was 40,817.40 tons.

Special Condition II.3, under material limits, restricts Blue Diamond Steel Casting from melting more than 72,000 tons per year of steel based on a 12-month rolling time period, as determined as the end of each calendar month. The total tons of steel melted at Blue Diamond Steel Casting for the 12-month rolling time period ending May 2018 was 24,116.18 tons.

The source-wide total steel melted for the 12-month rolling time period ending May 2018 was 64,933.98 tons. Special condition II.1., under material limits, restricts the tons of steel melted for the entire source to less than 144,000 tons based on a 12-month rolling time period as determined at the end of each calendar month.

Special Condition II.4, under material limits, restricts natural gas usage to less than 1,026 MMcf per year based on a 12-month rolling time period, as determined as the end of each calendar month. The total natural gas usage for the 12-month rolling time period ending May 2018 was 263.901 MMcf.

Process and operational restrictions for the source are restricted for each emission unit that is subject to an emission limit to no more than 7,000 hours per year based on a 12-month rolling time period as determined at the end of each calendar month. The facility tracks hours of operation for their dust collectors and then subtracts off time for employee breaks, e.g. lunch. For the 12-month rolling time periods ending May and April 2018, the facility reported 7,1098 and 7,0991 hours, respectively. The facility is not in compliance with this requirement.

Review of the Hazardous Air Pollutants (HAPs) emissions provided 12-month rolling time periods near the facility's 22.4 tpy source-wide limit and individual limit of 8.9 tpy. December 2017 reported 21.1 tpy of aggregate HAPs. with hydrogen cyanide at 8.5 tpy. The facility is required to track all HAPs from the source and maintain a 12-month rolling record of emissions. The facility is not tracking all HAPs for the facility.

The foundry MACT ZZZZZ references Method 29 to measure metal HAPs, however, total metal HAPs as defined by standard are a subset of the Method 29 metals. The subset is: Antimony (Sb), Arsenic (As), Beryllium (Be), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Lead (Pb), Manganese (Mn), Mercury (Hg) and Nickel (Ni). The most common VOHAPs emitted from shell and no bake sand systems are phenol, benzene, cresols, toluene, acrolein, formaldehyde, acetaldehyde, xylenes, cumene, hexane, naphthalene and hydrogen cyanide.

The facility maintains the emission factors they are currently using for some of the individual constituents is higher than the source emits. The facility is currently setting up testing to demonstrate their source emission factors for CO, PM10, PM2.5, Benzene, Toluene and Hydrogen Cyanide for flexible groups FG-BDSV01 and FG-BDSV05.

Huron Castings, Inc.

HCI was founded in 1976. It has the capability to produce shell molded steel castings in a weight range from 3-500 lbs. Operations began at the Huron Casting Inc facility over 40 years ago. Over time, the facility has been modified and new equipment has been added. Operations at the facility include raw materials handling, sand mixing, mold and core production, melting, casting, finishing, welding, grinding, testing, packaging, and shipping. All melting furnaces at the facility are electric induction furnaces.

EU-01

Test bar saw, A-line east pouring line, Mag drum, Snag grinders #1 and 2, and Wheelabrator #1 controlled by Baghouse #1 (20,000 dry standard cubic feet per minute (dscfm) Wheelabrator #205, shaker type).

EU-01 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits are demonstrated through monitoring to demonstrate proper operation of the baghouse. The ROP restricts visible emissions to below 5 percent opacity. A Method 9 reading was not done on the baghouse, however no visible emissions were noted during the inspection.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 2.9 "W.C. (Baghouse (BH) #774). I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-02

Vibramill, A-line Shake-out sand elevator and conveyor, A-line shot leg, Wheelabrator #2 and #3 controlled by Baghouse #2 (20,000 dscfm Becker & Hiester # 349, reverse air jet type).

After the parts are forged from A-line (EU-01) and cooled, the sand casting is removed via this unit. This emission unit consists of a vibramill, for shaking and breaking the sand apart, and associated conveyor and elevator which transfers the spent sand via a shot leg to a calciner to be reclaimed.

EU-02 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits are demonstrated through monitoring to demonstrate proper operation of the baghouse. The ROP restricts visible emissions to below 5 percent opacity. A Method 9 reading was not done on the baghouse, however no visible emissions were noted during the inspection.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 4.5 "W.C. (BH #788). I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-TORCHES1-18

Cutting torches #1-18. These are mainly used to cut risers, spurs, etc. from the finished piece. It provides a rough finish to the part.

EU-1-18 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits are demonstrated through meeting the VE limit. No visible emissions were noted during the inspection.

EU-05

Vibramill shot air wash, B-line east end pouring line.

EU-05 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits are demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 4.2 "W.C. (BH #791). I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-06

Sand coating/handling and reclaim operations controlled by baghouse #787 (20,000dscfm reverse air type).

EU-06 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations, monitoring of the temperature in the calcining furnace and analyzing spent sand for loss of resin.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 4.2 "W.C. (BH #791). I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

Special condition III.2 of MI-ROP-B7013-2018 requires the calcining furnace to maintain a minimum temperature of 1200F while in operation. At the time of the inspection the calciner was not operating.

The facility is required to independently verify, during the month of May, by analysis the phenol content of each of the binders which were used in the previous month of April and that the loss of binder is not more than one percent in spent mold/core sand. I received the loss on ignition (LOI) test for April 2018 and the % weight loss was approximately 4% for the four samples Huron Castings sent in. The facility starts with 4.5% resin in their sand molds, which can be verified through binder usage and sand coating usages. Subtracting the LOI results from the initial percentage of resin in the sand provides the loss of less than one percent in spent mold/core sand.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-07

Sand coating/handling and reclaim operations, Vibramill. Emission controlled by BH #484 and #1001 (total air flow 20,000 dscfm reverse air type).

EU-07 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations, monitoring of the temperature in the calcining furnace and analyzing spent sand for loss of resin.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 2.6 "W.C. for BH #484 (east) and 1.8 "W.C. for BH #1001, which services the west. I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

Special condition III.2 of MI-ROP-B7013-2018 requires the calcining furnace to maintain a minimum temperature of 1200F while in operation. At the time of the inspection the calciner was operating at 1468F. The facility affectionately labeled this temperature, readout as the DEQ temp.

Likewise, to EU-06, the facility is required to independently verify, during the month of May, by analysis the phenol content of each of the binders which were used in the previous month of April and that the loss of binder is not more than one percent in spent mold/core sand. I received the loss on ignition (LOI) test for April 2018 and the % weight loss was approximately 4% for the four samples Huron Castings sent in. The facility starts with 4.5% resin in their sand molds, which can be verified through binder usage and sand coating usages. Subtracting the LOI results from the initial percentage of resin in the sand provides the loss of less than one percent in spent mold/core sand.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-08

Cur-off saws #1-9, grinders #1-13, 7 to 12 handgrinders and 7 welders. Particulate emissions are controlled by BH #616 (40,000 dscfm, reverse air type) and exhausts to the in-plant environment.

EU-08 has limitations that restrict PM, PM10 and PM2.5 emissions. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 2.8 "W.C. (BH #616). I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-09

Shot blast equipment. Emissions controlled by BH #618 (25,000 dscfm reverse air type).

EU-09 has limitations that restrict PM, PM10 and PM2.5 emissions. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 3.4 "W.C. (BH #618). I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-10A

Sand leg and mag drum, shot legs, vibratory mold dumper/conveyor, used for shakeout activities. Particulate emissions are controlled by BH #864 (32,000 dscfm dust collector) and BH #776 (24,000 dscfm dust collector). Both collectors are reverse air type. EU-10A has limitations that restrict PM, PM10 and PM2.5 emissions. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 5.8 "W.C. (BH #776) and 6.6 "W.C. for BH #864. I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

FG-POUR

This flexible group consists of the following emission units:

EU-POURINGA:

Three (3) electric induction furnaces, Pouring line A and ancillary equipment controlled by Baghouse #790 (30,000 dscfm reverse air type) exhausts to the in-plant environment.

EU-POURINGB:

Three electric induction furnaces, Pouring line B and ancillary equipment controlled by Baghouse #554 (42,000 dscfm pulse jet type and Baghouse #553 (32,000 dscfm pulse jet type) exhausts to the in-plant environment.

Emissions are controlled by three (3) separate baghouses and all exhausted to the in-plant environment.

FG-POUR has limitations that restrict PM, PM10 and PM2.5 emissions. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The pressure drop across the baghouse is required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C.

Emissions from PouringLine A are controlled by BH #790. At the time of the inspection the pressure differential was 4.2 "W.C. I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

Emissions from PouringLine B are controlled by baghouses #554 and #553. At the time of the inspection the pressure differential was 4.2 "W.C. for BH #553 (south side) and 2.0 "W.C. for BH #554 (north side). I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

FG-MOLDLINE

Molding machines # 1-26 and cutting torches #19-22. No control. A-line west end pouring line A-line cooling room; BH #789 (32,000 dscfm). West end pouring line B, B-line cooling room; BH #792 (47,000 dscfm). All equipment exhausts through SV-03. Baghouses are shaker type.

This flexible group consists of EU-MOLDLINE-A, EU-MOLDLINE-B, EU-MOLDLINE-C, EU-TORCHES19-22, EU-03A and EU-03B.

Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations and limitations on amount of binder used.

The pressure drop across the baghouses are required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the pressure differential was 4.2 "W.C. (BH #789) and 3.5 "W.C. for BH #792. I reviewed records for March 2017, July 2017 and November 2017. Pressure differentials were within the appropriate range for the records reviewed.

Binder usage is restricted to not more than 1,480 tons per year based on a 12-month rolling time period, as determined at the end of each calendar month. The facility is not currently tracking the binder usage for this flexible group.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

Blue Diamond Steel Casting LLC
May 22, 2018

Mr. Daryl Mendrick, Plant Manager for BDSC and Mr. Tom Voss, Plant Manager for HCI accompanied Mr. Karl and I throughout the inspection. We were given a synopsis of the plant's capabilities and overview of the layout of the facility.

Blue Diamond Steel Castings

The Blue Diamond portion of the facility has a shell mold line that uses three 8-ton capacity electric induction furnaces for a design melting capacity of approximately 200 tons per day. It also has a no-bake line which uses two 8-ton capacity electric induction furnaces and one electric arc ladle reheat station plus a vacuum degassing unit for a design melting capacity of approximately 200 tons per day. Operations at the facility include raw materials handling, sand mixing, mold and core production, melting, casting, finishing, welding, grinding, testing, packaging, and shipping. All of the melting and heat treat furnaces at the facility are electrically heated. There are no fuel combustion emissions from electric furnaces.

Source-Wide Conditions

For regulatory purposes, the two foundries are one stationary source. Operations at the facility includes raw materials handling, sand mixing, mold and core production, melting, casting, finishing, welding, grinding, testing, packaging, and shipping. All the melting furnaces at the facility are electric induction furnaces.

Title V permit, MI-ROP-B7013-2018 requires the facility to meet source-wide emission limits as listed in the emission limits table. The source-wide emission limits are for the entire facility and the emissions from Huron Castings, Inc. and Blue Diamond Steel Castings should be combined to determine compliance with these limits.

Source-wide conditions were discussed at the beginning of this report.

EU-NBFURNACE

The no-bake furnace line consists of (3) three electric induction furnaces: two 8-ton capacity melt furnaces, one electric arc ladle reheat station, and a vacuum degassing unit for an expected melting capacity of 200 tons per day. The furnaces are controlled by an 80,000 cfm baghouse (BH #22) with the exhaust re-circulated to an area behind the furnace hoods.

The furnace started operating on July 20, 2011. Testing to demonstrate compliance with Subpart ZZZZZ was conducted on December 2, 2011. The test results demonstrated compliance with Subpart ZZZZZ. However, based upon the poor capture efficiency documented during the testing staff did not consider the test to be provide a valid compliance determination for Subpart ZZZZZ. The Division requested the facility install better capture and control to re-test for MACT ZZZZZ compliance. The facility installed a hood system, on a swivel arm, that is placed over the furnace at all times the furnace is in operation, with the exception of tilting and pouring. The hood is too low to be above the furnace during this activity.

Mr. Karl and I viewed the no-bake furnace operation. The furnace had just poured into a ladle and was sitting idle, as a holding furnace, while the ladle was pouring molds. As the furnace sat idle, the hood sat off to the side and was not in place over the furnace. The emission unit is required to achieve no less than 90 percent collection efficiency. The approved test plan proposed operating with the hood over the furnace during charging. It seems that the capture efficiency could be improved upon. Charging of the furnace is only a small portion of the operational time and does not likely equate to 90 percent of the time in operation.

The no-bake furnace has PM, PM10 and PM2.5 emission limits. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The pressure drop across the baghouses are required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the differential pressure on BH#22 was 2.4 "W.C.

The baghouse is required to be equipped with a bag leak detection system. At the time of the inspection, the meter read 5.7 picoamps (pA). The compliance operating range for the baghouse leak detection system is 0-5 pA. This was established during the stack test in July 2017. The inlet side read 3.0 "W.C (DC 1106). The furnace was not charging at the time of the monitoring recordings were observed. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

The facility is required to track monthly records of tons of steel melted for EU-NBFURNACE per special condition VI.2. For the month of May 2018, the no-bake furnace melted 309 tons of steel.

The facility is also required to conduct an initial and annual inspection and verification that negative pressure in the duct from the hood to the baghouse conforms with the ACGIH minimum requirements. At the time of the inspection, I could not confirm compliance for this requirement.

EU-NBMOLD

The mold making process that blends the sand and binder, prepares and cures the molds, and sets the mold out on the casting lines. This emission unit is not controlled.

The facility is required to track the monthly and yearly binder usage rate and shall not process more than 1,500 tons of binder per year in EU-NBMOLD based on a 12-month rolling time period calculated at the end of each calendar month. For the 12-month rolling time period ending May 2018 the binder usage was 9.53 tons.

EU-SHELLFURNACE

The shell furnace line consists of three 8-ton capacity electric induction furnaces for an expected melting capacity of 200 tons per day. The furnaces are controlled by a 50,000 cfm baghouse (BH-06) with the exhaust re-circulated back into the furnace hoods.

The pressure drop across the baghouses are required to be monitored and recorded on a daily basis. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is

between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the differential pressure on BH#06 was 3.1 "W.C.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. The system is equipped with a visual alarm. A green light means the system is operating properly and a red light indicates that the alarm has been triggered. At the time of the inspection, there was no light. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

EU-NBTORCHES

No-bake cutting torches with the exhaust emitted into the cutting area.

The permit does not have emission limits or monitoring associated with this unit. The compliance check in not discharging directly into ambient air. At the time of the inspection the facility was in compliance with this requirement.

EU-SHELLTORCHES

Shell cutting torches with the exhaust emitted into the cutting area.

The permit does not have emission limits or monitoring associated with this unit. The compliance check in not discharging directly into ambient air. At the time of the inspection the facility was in compliance with this requirement.

EU-FINISHING

The finishing process consists of grinders, shot blast, cut-off saws, wheelabrators, and welders. The process is controlled by a 30,000 cfm baghouse (BH-10) with the exhaust re-circulated back into the finishing area.

During the inspection Mr. Karl and I observed one or more components of the emission unit operating while the baghouse was not operating. The unit had been turned off since May 19th, 2018. This is a violation of special condition III.1. and a notice was sent to the facility.

FG-BDSV01

This flexible group consists of EU-NBPOURAND COOL, the no-bake pouring and cooling room consists of a pouring hood and enclosed cooling room which is controlled by a 40,000 cfm baghouse (BH-02) and EU-SHELLCOOL. The shell cooling room encloses cast molds on a conveyor and is controlled by a 40,000 cfm baghouse (BH-07). Emissions are exhausted through stack SV-01.

FG-BDSV01 has PM, PM10 and PM2.5 emission limits. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The pressure drop across the baghouses are required to be installed and operating properly. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the differential pressure on BH#02 was 3.4 "W.C. and 3.2 "W.C. on BH#7.

Electricians were on site during the inspection addressing issues cause by the recent fire and were working to get EU-SHELLCOOL operational.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

FG-BDSV02

Emission units exhausted through stack SV-02. EU-SHELLCALCINER: The calciner is used to destroy the binder material in the mold facing and core sand from the shell line by heating it to 1,200F (minimum) before the sand is returned to the shell sand system for recycling. The calciner is controlled by a 15,000 cfm baghouse (BH-09). EU-SHELLMOLD is the mold making process that blends the sand and binder, prepares and cures the molds, and sets the mold out on the casting lines. The emissions from this

process are captured with a hood, with a flow rate of 71,000 cfm. This flexible group includes 25-30 core machines which emit to the in-plant environment.

FG-BDSV02 has PM, PM10 and PM2.5 emission limits. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The facility is required to track the monthly and yearly binder usage rate and shall not process more than 840 tons of binder per year in EU-SHELLMOLD portion of FG-BDSV02, based on a 12-month rolling time period calculated at the end of each calendar month. The facility is not tracking the binder usage.

The pressure drop across the baghouses are required to be installed and operating properly. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the differential pressure on BH-09 was 3.6 "W.C.

The EU-SHELLCALCINER portion of FG-BDSV02 shall not operate unless a minimum temperature of 1,200F is maintained. During the inspection I viewed records for the time period 4/21/2018 through 5/22/2018. Temperatures were above 1300F for this time period. The setpoint for the temperature is 1250F.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

FG-BDSV03

The calciner (EU-NBCALCINER) is used to destroy the binder material in the mold facing and core sand from the no-bake line by heating it to 1,200F (minimum) before the sand is returned to the no-bake sand system for recycling. The calciner is controlled by a 6,500 cfm baghouse (BH-03). EU-NBSAND is include in this flexible group and includes the no-bake sand system, vibramill, sand cooler, shakeout, cooling conveyor, sand tanks, and elevators. The sand system is controlled by a 40,000 cfm baghouse (BH-04). Emission units are exhausted through stack SV-03.

FG-BDSV03 has PM, PM10 and PM2.5 emission limits. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The facility is required to track the monthly and yearly binder usage rate and shall not process more than 1,550 tons of binder per year in FG-BDSV03, based on a 12-month rolling time period calculated at the end of each calendar month. For the 12-month rolling time period ending May 2108 the facility used 24.98 tpy.

The pressure drop across the baghouses are required to be installed and operating properly. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection the differential pressure on BH-09 was 3.6 "W.C.

The EU-NBCALCINER portion of FG-BDSV03 shall not operate unless a minimum temperature of 1,200F is maintained. During the inspection the equipment was not operating. I viewed records for the April 2017, August 2017, October 2017 and October 2018. The calciner did not operate for April or August 2017. During October 2017 and October 2018 the facility did not operate the equipment for the entire month, however during the periods of operation the calciner maintained a temperature above 1350F.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

FG-BDSV04

The shell sand system includes the mechanical reclaim, dumper, shakeout conveyor, shot sand screen, vibramill, bucket elevators, and sand tanks. The sand system (EU-SHELLSAND) is controlled by a 35,000 cfm baghouse (BH-08). EU-SHELLPOUR includes the pourline, shot separator, and shot cooler. All

activities are controlled by a 50,000 cfm baghouse (BH-05). Emission units are exhausted through stack SV-04.

FG-BDSV04 has PM, PM10 and PM2.5 emission limits. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The facility is required to track the monthly and yearly binder usage rate and shall not process more than 840 tons of binder per year in FG-BDSV04, based on a 12-month rolling time period calculated at the end of each calendar month. For the 12-month rolling time period ending May 2108 the facility used 10.36 tpy.

The pressure drop across the baghouses are required to be installed and operating properly. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection this unit was not in operation due to the recent fire.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

FG-BDSV05

This flexible group contains the pourline, shot separator, and shot cooler (EU-SHELL2POUR). All activities are controlled by a 50,000 cfm baghouse (BH-18). The shell cooling room 9EU-SHELL2COOL) encloses cast molds on a conveyor and is controlled by baghouses BH-19A and BH-19B, each 30,000 cfm. The shell sand system (EU-SHELL2SAND) includes the mechanical reclaim, dumper, shakeout conveyor, shot sand screen, vibramill, bucket elevators, torch stations, and sand tanks. The sand system is controlled by a 40,000 cfm baghouse (BH-17) All emission units exhaust through stack SV-05.

FG-BDSV05 has PM, PM10 and PM2.5 emission limits. Compliance with the emission limits are demonstrated through monitoring of proper baghouse operations.

The facility is required to track the monthly and yearly binder usage rate and shall not process more than 840 tons of binder per year in FG-BDSV05, based on a 12-month rolling time period calculated at the end of each calendar month. For the 12-month rolling time period ending May 2108 the facility used 10.36 tpy.

The pressure drop across the baghouses are required to be installed and operating properly. According to the facility's Malfunction and Abatement Plan (MAP), an acceptable pressure drop reading is between 1 inches of water column (" W.C.) and 9 "W.C. At the time of the inspection this BH-17 was at 1.7 "W.C., BH-18 was 2.8 "W.C., BH-19A was 3.2 "W.C. and BH-19B was 3.0 "W.C.

The facility is required to have a bag leak detection system on this equipment and shall operate it appropriately. EPA, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance requires specific calibration procedures. I could not confirm these procedures were being followed.

FG-Rule 290

This flexible group covers any emission unit that emits air contaminants and is exempt from the requirements of Rule 201, pursuant to Rules 278, 278a and 290. The facility has a heat treat furnace that utilizes this exemption. The HAP emissions from this unit shall be included in the source-wide HAPs recordkeeping. They currently are only tracked separately.

The facility maintains records for this group and emissions were below R290 thresholds.

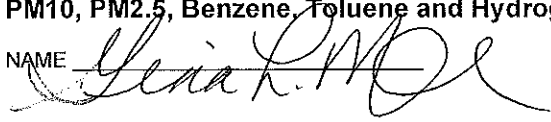
Conclusion

The facility will be cited for the following violations.

Source-wide, monthly average for lb/ton of CO emissions exceeded the limit. Hours of operation, based on a 12-month rolling time period, exceed the allowed 7,000 hours. FG-MOLDLINE and FG-BDSV02 are not currently tracking binder usage per the recordkeeping and monitoring conditions listed in the ROP. Lastly, EU-FINISHING was in operation while the baghouse was shutoff, which was a violation of the ROP's operational parameters.

HAPs emissions records for the 12-month rolling time periods were near the facility's 22.4 tpy source-wide limit. The facility is not tracking all applicable HAPs for the source. The facility maintains the emission factors they are currently using for some of the individual constituents is higher than the source actually emits. The facility is currently setting up testing to demonstrate their source emission factors for CO, PM10, PM2.5, Benzene, Toluene and Hydrogen Cyanide for flexible groups FG-BDSV01 and FG-BDSV05.

NAME



DATE

7/27/18

SUPERVISOR

