

DEQ-AQD

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

AUG 14 2015
SAGINAW BAY

B701330077

| | | |
|---|-----------------------------------|---------------------------|
| 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: Mike Peterson , Manager | | ACTIVITY DATE: 06/24/2015 |
| STAFF: Eric Grinstern | COMPLIANCE STATUS: Non Compliance | SOURCE CLASS: SM OPT OUT |
| SUBJECT: Unannounced Inspection | | |
| RESOLVED COMPLAINTS: | | |

BLUE DIAMOND CASTING/HURON CASTING

FACILITY DESCRIPTION

The facility, B7013, consists of two steel foundries, Blue Diamond Steel Casting (BD) and Huron Casting (HC) that are under common ownership and are located across the street from each other and considered one stationary source. The facility is located in the town of Pigeon in Huron County. The major production operations at both foundries are raw material handling, mold and core production, metal melting, pouring and cooling, and casting finishing.

REGULATORY OVERVIEW

Both foundries currently have opt-out permits (BC: 129-08C, HC: 207-02E) that cross reference each other. Both foundries are currently subject to and considered "large" area sources under the federal Iron and Steel Foundry Area Source National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63, Subpart ZZZZZ under the Clean Air Act. BD is considered a new large source since it commenced construction after September 17, 2007 and has a melting capacity greater than 10,000 tons on an annual basis. HC is considered an existing large source since it was in operation prior to September 17, 2007 and metal melt production exceeds 20,000 tons on an annual basis.

COMPLIANCE EVALUATION

At the facility, Air Quality Division (AQD) staff consisting of Sydney Bruestle (SB) and Eric Grinstern (EG) met with Mike Peterson (MP), Plant Engineer as well as other facility staff during the inspection, including Tim Voss at Blue Diamond and Tom Voss at Huron Castings.

BLUE DIAMOND

Blue Diamond is a steel foundry that utilizes both shell and no-bake mold systems. Shell is the predominant molding system utilized. Since the last inspection the facility has completed an expansion that includes the addition of emission units EU-SHELL2POUR, EU-SHELL2COOL and EU-SHELL2SAND.

EU-NBFURNACE - The no-bake furnace line was permitted to consist of two 8-ton capacity and one 4-ton capacity electric induction furnaces for an expected melting capacity of 200 tons per day. However, only one 8-ton furnace and one 4-ton furnace were ever installed. The facility stated that they never connected or operated the 4-ton furnace and have removed the unit. The furnaces are controlled by a 50,000 cfm baghouse (BH-01) with the exhaust re-circulated back into the furnace hoods.

At the time of the inspection the facility was in the process of installing a new 8-ton electric arc ladle furnace and a vacuum ladle degassing unit adjacent to the existing 8-ton electric induction furnace.

EMISSION LIMITS

EU-NBFURNACE has limitations that restrict PM and PM10 emissions. Compliance with the emission limits is demonstrated through compliance testing and monitoring to demonstrate proper operation of the baghouse. Monitoring is in the form of a bag leak detection system.

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 as described in the below excerpt from the test observation report, staff does not consider the test to be provide a valid compliance determination for Subpart ZZZZZ.

The 1st Method 5 PM run started at 10:33. The emission capture was not very good. The building becomes very smoky and hazy when the furnace is being charged, worse during the slagging. The fumes did, at least today, to stay in the building. The ducts on the wall do not seem to draw enough air to draw the fumes from the furnace to them. The furnace fumes just billow up and spread around the building, only whatever gets close enough to the duct ends is collected. At 10:40 and 11:15 the baghouse $?p = 1.6"$. The addition of scrap to the furnace ended at about 11:31. The port change occurred at 11:33, with the restart on the second port at 11:44. At 11:44 the baghouse $?p = 1.7"$. At 11:47 they were adding the additives and anti-slagging compounds, hand mixing the furnace, and removing slag. This generated a lot of fumes from the furnace. At 12:02 the slagging was done. The pour was performed at 12:10. This also generated a lot of fumes. The pouring into castings is performed under a separate fume collection system. I thought this was the end of the run so sampling ended at 12:19 with 80 dscf of sample collected. The train passed a post test leak check. The Matts cleaned the probe with lots of acetone. The filter looked clean, but then most of the emissions from the furnace are not captured by the baghouse control.

Status: Due to the poor capture efficiency during testing, staff considers compliance with the emission limits undetermined at this time.

PROCESS RESTRICTIONS/RECORDS

Limits the emission unit to 31,000 tons per year of metal. Compliance is based upon the requirement that the facility maintain monthly records of tons of steel melted. The facility provided records of metal melt production for the no-bake furnace, which demonstrated compliance with the limit. The facility's records show that 2605.4 tons of steel was melted for the previous 12-months ending in May 2015.

Status: Compliant

DESIGN/EQUIPEMENT PARAMETERS

Requires the facility to install, maintain and operate an enclosure and baghouse in accordance with the ACGIH standards or equivalent. Subpart ZZZZZ requires each capture and collection system to meet acceptable engineering standards, such as those published by the American Conference of Governmental Industrial Hygienist.

As observed during the inspection, capture consists of three flared horizontal ducts that are located approximately 10 feet behind and 40 feet above the furnaces. Based upon this set-up, one could only expect minimal capture efficiency, which is what was observed and documented during Subpart ZZZZZ compliance testing. It does not appear that the capture system meets acceptable engineering standards as required by 63.10895.

(Images 1 & 2, photos show ducts near the roof)

Status: Non-compliant

The emission unit, in accordance with Subpart ZZZZZ, requires the baghouse to be equipped with a bag leak detection system. The facility has an operational bag leak detection system.

Status: Compliant

TESTING

Testing to demonstrate compliance with Subpart ZZZZZ was conducted on December 2, 2011. However, at the time of testing emissions were not adequately captured.

Status: Non-compliant

MONITORING

Requires the facility to conduct initial and period inspections of the PM control device in accordance with Subpart ZZZZZ. During the inspection staff reviewed a sampling of the inspections and results maintained on the facility's computer system.

Status: Compliant

In accordance with Subpart ZZZZZ, the facility is required to maintain a written record for each bag leak detection system. The facility has an electronic system that tracks the leak detection system outputs. The facility stated during the inspection that they have not had any recent alarms.

Status: Compliant

INSPECTION OBSERVATIONS

Vacuum degassing unit and electric arc ladle furnace

(Image 3 – Electric Arc Ladle Furnace, Images 4 & 5 – Vacuum Degassing Unit)

During the inspection staff inquired about the permitting status of the electric arc ladle furnace and vacuum degassing unit that the facility was in the process of installing. The facility stated that the processes were being installed as exempt from the requirements to obtain a permit to install. Upon request the facility provided a written PTI exemption justification. In summary, the facility stated that the vacuum ladle degassing unit is exempt from requiring a permit to install pursuant to R336.1285 subpart (c)(iii). The facility further stated that the degassing unit is not an emission unit, and the dust generated appears to be minimal. In regards to the electric arc ladle furnace, the facility stated that it is a replacement for the 8-ton induction furnace that was not installed. The facility further stated that the ladle furnace is a warmer, and process materials are shielded by slag and argon. The facility expected emissions to be significantly below permitted levels and offered to conduct emissions testing.

Sufficient emission data has not been provided to determine if installation of the vacuum ladle degassing unit will result in emissions that do not exceed the levels described in and allowed by the permit to install.

In regards to the electric arc ladle furnace, Rule 201 does not allow for the replacing an 8-ton induction furnace with an electric arc ladle furnace for which the emissions are unknown at this time.

The installation of a vacuum degassing unit and electric arc ladle furnace prior to obtaining a permit to install is a violation of Rule 201.

EU-NBPOURANDCOOL - 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). Stack ID: SV-01

(Image 6 – No-bake pouring line)

EMISSION LIMITS

EU-NBPOURANDCOOL has limitations that restrict PM emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. Monitoring is in the form of an alarm that sounds if the pressure drop exceeds 5 inches of pressure drop.

At the time of the inspection the pressure drop was 4.0" and no VE was noted from the baghouse exhaust stack.

Status: Compliant

EU-NBCALCINER - The calciner is used to destroy the binder material in the mold and core sand from the no-bake line by heating it to 1,200⁰ F 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). Stack ID: SV-03. At the time of the inspection, the no-bake calciner was not operating.

EMISSION LIMITS

EU-NBCALCINER has limitations that restrict PM emissions and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. Monitoring of the baghouse is in the form of an alarm that sounds if the pressure drop exceeds 5 inches of pressure drop. The baghouse was operating at the time of the inspection and the pressure drop was 0.5" and no VE was noted from the baghouse exhaust stack.

Status: Compliant

MATERIAL LIMITS

Restricts the amount of sand processed to 23,576 tons per year. The facility reported that they have processed 85 tons tons of sand for the previous 12-months ending in May 2015.

Status: Compliant

PROCESS RESTRICTIONS/RECORDS

Requires the facility to monitor and record the temperature of EU-Calcliner to document compliance with the 1,200⁰ F requirement. During the inspection the facility was unable to provide records of the continuous calciner temperature to document compliance with the 1,200⁰ F requirement. The facility subsequently provided a written response that the records were missing.

Status: Non-compliant

EU-NBSAND - The no-bake sand system includes the mechanical reclaim, vibramill, sand cooler, shakeout, cooling conveyor, sand tanks, and elevators. The sand system is controlled by a 40,000 cfm baghouse (BH-04). Stack ID: SV-03

EMISSION LIMITS

EU-NBSAND has limitations that restrict PM emissions and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. Monitoring is in the form of an alarm that sounds if the pressure drop exceeds 5 inches of pressure drop. At the time of the inspection the pressure drop was 1.5" and no VE was noted from the baghouse exhaust stack.

Status: Compliant

MATERIAL LIMITS

Restricts the amount of sand processed to 155,000 tons per year. Facility records show that 6,595 tons of sand had been used for the previous 12-months ending in May 2015.

Status: Compliant

EU-NBMOLD - The mold making process that blends the sand and binder, prepares and cures the molds, and sets the molds out on the casting lines. No control. Stack ID: NA

MATERIAL LIMITS

Restricts the amount of binder processed to 1,550 tons per year. Facility records show that 65.95 tons of binder had been used for the previous 12-months ending in May 2015.

Status: Compliant

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.

(Image 7 – Shell Furnace Line)

EMISSION LIMITS

EU-SHELLFURNACE has limitations that restrict PM and PM10 emissions. Compliance with the emission limits is demonstrated through compliance testing and monitoring to demonstrate proper operation of the baghouse. Monitoring is in the form of a bag leak detection system, which is in operation.

The furnace was tested in March 2011, at which time the facility demonstrated compliance.

Status: Compliant

PROCESS RESTRICTIONS/RECORDS

Limits the emission unit to 41,000 tons per year of metal. Compliance is based upon the requirement that the facility maintain monthly records of tons of steel melted. The facility provided records of metal melt production for the shell furnaces, which showed 12,715 tons of throughput for the previous 12-months ending in May 2015.

Status: Compliant

DESIGN/EQUIPEMENT PARAMETERS

Requires the facility install, maintain and operate an enclosure and baghouse in accordance with the ACGIH standards or equivalent. Subpart ZZZZZ requires each capture and collection system to meet acceptable engineering standards, such as those published by the American Conference of Governmental Industrial Hygienist.

As observed during the inspection, capture consists of a roof hood above the furnace deck. Observation showed emissions to be adequately contained by the hood at the time of the inspection.

Status: Compliant

The emission unit, in accordance with Subpart ZZZZZ, requires the baghouse to be equipped with a bag leak detection system. The facility has an operational bag leak detection system.

Status: Compliant

TESTING

The facility had emissions tested conducted on March 15, 2011. Since the furnace startup date was July 20, 2010, the facility was required to conduct tested prior to January 16, 2011 (180 days after startup).

Status: Compliant

MONITORING

Requires the facility to conduct initial and periodic inspections of the PM control device in accordance with Subpart ZZZZZ. During the inspection staff reviewed a sampling of the inspections and results maintained on the facility's computer system.

Status: Compliant

In accordance with Subpart ZZZZZ, the facility is required to maintain a written record for each bag leak detection system. The facility has an electronic system that tracks the leak detection system outputs. The facility stated during the inspection that they have not had any recent alarms.

Status: Compliant

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 1,200⁰ F before the sand is returned to the no-bake sand system for recycling. The calciner is controlled by a 15,000 cfm baghouse (BH-09). Stack ID: SV-02

(Image 8 – Shell Calciner)

EMISSION LIMITS

EU-SHELLCALCINER limits PM emissions and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. Monitoring is in the form of an alarm that sounds if the pressure drop exceeds 5 inches of pressure drop. At the time of the inspection the pressure drop was 3.0" and no VE was noted from the baghouse exhaust stack.

Status: Compliant

MATERIAL LIMITS

Restricts the amount of sand processed to 21,000 tons per year. The facility provided records which showed 6,860 tons of throughput for the previous 12-months ending in May 2015.

Status: Compliant

PROCESS/OPERATIONAL RESTRICTIONS - DESIGN/EQUIPMENT PARAMETERS

Requires the calciner temperature to be maintained at 1200 degrees F and for the installation of a device to monitor and record the temperature. The facility has a device to monitor and record the temperature. Staff reviewed the electronic record of the temperature which showed compliance with the 1200 degree minimum at all times when the process was operating. Inspection of the control panel on the calciner showed the temperature set point to be 1500 degrees and the highest zone temperature to be 1296 degrees.

Status: Compliant

EU-SHELLMOLD - The mold making process that blends the sand and binder, prepares and cures the molds, and sets the molds out on the casting lines. The emissions from this process are captured with a hood with a flow rate of 67,500 cfm exhausted through stack SV-02. Stack ID: SV-02

MATERIAL LIMITS/RECORDS

Restricts the amount of binder usage to 840 tons per year. The facility provided records which showed 205 tons of throughput for the previous 12-months ending in May 2015.

Status: Compliant

EU-NBTORCHES - No-bake cutting torches with the exhaust re-circulated back into the cutting area.

PROCESS/OPERATIONAL RESTRICTIONS

Requires that the emissions not be discharged directly to the atmosphere. During the inspection staff did not observe any torching vented directly to the outside atmosphere.

Status: Compliant

EU-SHELLTORCHES - Shell cutting torches with the exhaust re-circulated back into the cutting area.

PROCESS/OPERATIONAL RESTRICTIONS

Requires that the emissions not be discharged directly to the atmosphere. During the inspection staff

did not observe any torching vented directly to the outside atmosphere.

Status: Compliant

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.

PROCESS/OPERATIONAL RESTRICTIONS

Requires that the emissions not be discharged directly to the atmosphere and be controlled by a baghouse that vents back into the plant.

Status: Compliant

FG-SHELLPOUR - FG-SHELLPOUR - Two shell pour lines. EU-SHELLPOUR is controlled by baghouse BH-05 with enclosure and exhausted out stack SV-04. EU-SHELL2POUR is controlled by baghouse BH-18 with enclosure and exhausted out stack SV-05. (Emission Units: EU-SHELLPOUR and EU-SHELL2POUR)

EMISSION LIMITS

FG-SHELLPOUR has limitations that restrict PM, PM10 and PM2.5 emissions and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. Monitoring is in the form of an alarm that sounds if the pressure drop exceeds 5 inches of pressure drop. The baghouses were operating at the time of the inspection and the pressure drop for BH-05 was 3.2" and the pressure drop for BH-18 was 3.4". No VE was noted from either of the baghouse exhaust stacks.

Status: Compliant

FG-SHELLCOOL - FG-SHELLCOOL - Two shell cool lines. EU-SHELLCOOL is controlled by baghouse BH-07 with enclosure and exhausted out stack SV-01. EU-SHELL2COOL is controlled by baghouse BH-19 with enclosure and exhausted out stack SV-05. (Emission Units: EU-SHELLCOOL and EU-SHELL2COOL) During the inspection it was determined that the facility has installed two baghouses to control emissions from EU-SHELL2COOL. The permit requires a 50,000 cfm baghouse, the facility installed two 25,000 cfm baghouses that exhaust through a single stack the meets the permit dimension requirements.

(Image 9 – EU-SHELL2COOL)

EMISSION LIMITS

FG-SHELLCOOL has limitations that restrict PM, PM10 and PM2.5 emissions and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. Monitoring is in the form of an alarm that sounds if the pressure drop exceeds 5 inches of pressure drop. The baghouses was operating at the time of the inspection and the pressure drops were below 5 inches for all three units. No VE was noted from either of the baghouse exhaust stacks.

Status: Compliant

FG-SHELLSAND - FG-SHELLSAND - Two shell sand lines. EU-SHELLSAND is controlled by baghouse BH-08 with enclosure and exhausted out stack SV-04. EU-SHELL2SAND is controlled by baghouse BH-17 with enclosure and exhausted out stack SV-05. (Emission Units: EU-SHELLSAND and EU-SHELL2SAND)

EMISSION LIMITS

FG-SHELLSAND has limitations that restrict PM, PM10 and PM2.5 emissions and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper

operation of the baghouse. Monitoring is in the form of an alarm that sounds if the pressure drop exceeds 5 inches of pressure drop. The baghouses were operating at the time of the inspection and the pressure drop for BH-08 was 5.0" and the pressure drop for BH-17 was 3.4". No VE was noted from either of the baghouse exhaust stacks.

Status: Compliant

MATERIAL LIMITS

Restricts the amount of sand processed to 21,000 tons per year. The facility provided records which showed 6,860 tons of throughput for the previous 12-months ending in May 2015.

Status: Compliant

FG-FACILITY - All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment. (Includes FG-BDFACILITY and FGHCIFACILITY) FG-BDFACILITY - All emission units at the Blue Diamond Steel Casting Facility.

EMISSION LIMITS

FG-FACILITY establishes opt-out emission limits for PM10, PM2.5, VOC, Individual and Aggregate HAPs.

The facility provided a spreadsheet that contained emission values for each pollutant that shows compliance with the emission limits.

MATERIAL LIMITS

Restricts the amount of metal melted in FG-BDFACILITY to 72,000 tons per year. The facility provided records showing 15,320 tons melting for the past 12 months.

Status: Compliant

PROCESS/OPERATIONAL RESTRICTIONS

Restricts hours of operation for FG-BDFACILITY to 6,000 hours per year and restricts hours of operation for FG-HCIFACILITY to 5,640 hours per year. The facility provided records showing hours of operation at 4,732, demonstrating compliance with the hours limit for FG-BDFACILITY. The records for FG-HCIFACILITY show production hours for the past 12-months to be 5,419, also in compliance.

Status: Compliant

SUBPART ZZZZZ, IRON AND STEEL FOUNDRY AREA SOURCE NESHAP.

The below checklist summarizes the BD's compliance status in regards to Subpart ZZZZZ.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

IRON AND STEEL FOUNDRIES AREA SOURCES 40 CFR PART 63 SUBPART ZZZZZ INSPECTION CHECKLIST (For MDEQ/AQD Internal Use Only)

This NESHAP applies to all existing and new area source iron and steel foundries. The affected source in this rule is each iron and steel foundry. Different standards apply to large and small foundries, which is based on annual metal production.

Since this checklist does not contain all the details of the NESHAP, the rule itself and any amendments should be referred to when performing facility inspections. Also not included are all requirements under the General Provisions.

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 | Not submitted |
| 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 | Not submitted |
| 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 | Not submitted |
| 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 | Not submitted |
| Semiannual Certification Reports (July 30/January 30) | 63.10890(f)(small) or 63.10899(c)(large) | | X | Not submitted for the follow periods: January – June 2011 January – June 2012 July – December 2014 |
| Capture and Collection System, O&M Plan, Bag leak detection system (if applicable) Notification (Existing - July 31, 2011) (New – August 30, 2008 or 60 days after the initial test, whichever is later) | 63.10900(b) and Subpart A 63.9 | X | | |
| Compliance with Emissions Limits (July 31, 2011 if only opacity testing performed/ August 30, 2011 if new PM/HAP test performed) (New – August 30, 2008 or 60 days after the initial test, whichever is later) | 63.10900(b) and Subpart A 63.9 | X | | |
| Performance Testing Notification (testing completed) (60 days after initial test) | 63.10900(b) and Subpart A 63.9 | X | | |

Size Classification Requirements – Small and Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---------------------------------|----------|---------------------|----|----------|
| | | Yes | No | |
| Existing and New Sources | | | | |

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| 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 | |
| Existing and New Sources | | | | |
| 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 | | Facility does not use a warm box system. |
| Copies of MSDS or product data sheets for binders and coatings | 63.10890(e)(5) (small) or 63.10899(4)(large) | X | | Maintained on-site |
| 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 | | Maintained on-site |

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 Facility is currently receiving scrap that is in compliance with Option 1. |
| Records of material specifications and records demonstrating compliance with material | 63.10890(e)(small) or 63.10899(a)(1) (large) | X | | |

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|-----------------|--|--|--|--|
| specifications. | | | | |
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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) | X | | ? Option 1 ? Option 2 ? Option 3 X Option 4 The facility does not receive any auto scrap. |
| EPA approved Program: Maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. | 63.10890(e)(4) (small) or 63.10899(a)(3) (large) | | | NA |
| Site-Specific Plans: Records of number of mercury switches removed, weight of mercury switches removed, vehicles processed, and percent of mercury switches removed. | 63.10890(e)(3) (small) or 63.10899(a)(2) (large) | | | NA |

Standards and Management Practice Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---|-------------|---------------------|----|---|
| | | Yes | No | |
| Existing Sources | | | | |
| Each furnace is controlled by a capture and collection system unless part of an emissions averaging group (Existing-January 2, 2011) | 63.10895(b) | | X | EU-NOBAKEFURNACE - Capture system does not meet acceptable engineering standards |
| Compliance with emission limit for melting furnaces 0.8 lbs per ton of metal charged or 0.06 lbs of total metal HAP per tons of metal charged (Existing-January 2, 2011) | 63.10895(c) | | X | EU-NOBAKEFURNACE - at the time of testing emissions were not adequately captured. |
| Existing and New Sources | | | | |
| Opacity limit for fugitive emissions from foundry operations 20 percent (one 6-minute average up to 30 percent) (Existing-January 2, | 63.10895(e) | X | | |

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|--|--|--|--|--|
| 2011) (New – January 2, 2008, or upon startup) | | | | |
|--|--|--|--|--|

Standards and Management Practice Requirements - Large Foundries (cont)

| Requirement | Citation | Facility Compliance | | Comments |
|---|-------------|---------------------|----|--|
| | | Yes | No | |
| New Sources | | | | |
| Compliance with emission limit for melting furnaces 0.1 lbs per ton of metal charged or 0.008 lbs of total metal HAP per tons of metal charged (January 2, 2008, or upon startup) | 63.10895(c) | X | | The facility tested emissions from EU-SHELLFURNACE on March 15, 2011, which showed compliance. |
| When using a wet scrubber to control emissions from a metal melting furnace: maintain the 3-hour average pressure drop and scrubber flow rate at or above the minimum level established during performance testing. | 63.10895(d) | | | NA |
| When using an electrostatic precipitator to control emissions from a metal melting furnace: maintain the voltage and secondary current at or above the level established during performance testing. | 63.10895(d) | | | NA |

Operation and Maintenance Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|--|----------------------------|---------------------|----|----------|
| | | Yes | No | |
| Existing and New Sources | | | | |
| Prepare and operate according to an O&M Plan for each control device for emissions sources subject to a PM, metal HAP, or Opacity limit. (Existing-January 2, 2011) (New – January 2, 2008, or upon startup) | 63.10896 | X | | |
| Maintain copy of O&M Plan on-site (Existing-January 2, 2011) (New – January 2, 2008, or upon startup) | 63.10896(a) 63.10899(7) | X | | |
| Maintain records demonstrating compliance with O&M Plan requirements | 63.10899(7) | X | | |

Monitoring Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---|--------------------------------|---------------------|----|--|
| | | Yes | No | |
| Existing Sources | | | | |
| Conduct initial inspection of each operating PM control device for a melting furnace no later than 60 days after the emission compliance date. | 63.10897(a) | X | | Staff reviewed electronic records of baghouse inspections. |
| Conduct subsequent periodic inspections of a PM control device for a melt melting furnace. | 63.10897(a) | X | | Staff reviewed electronic records of baghouse inspections. |
| Maintain logbook of initial and periodic inspections as well as any maintenance action on a PM control device for a metal melting furnace. | 63.10899(b)(13) | X | | Staff reviewed electronic records of baghouse inspections. |
| Existing and New Sources | | | | |
| Conduct monthly inspections of equipment important to the performance of the total capture system for metal melting furnace control equipment. Maintain records of inspections and repairs. | 63.10897(c) 63.10899(b)(10) | X | | Staff reviewed electronic records of capture system inspections. |
| If using emissions averaging, maintain monthly records of pounds of PM or total metal HAP per ton of metal from all metal melting furnaces based on a weighted average. | 63.10899(8) | | | NA |
| New Sources | | | | |
| For wet scrubbers on metal melting furnaces – use CPMS to measure and record 3-hour average pressure drop and water flow rate. | 63.10897(b) | | | NA |
| For Electrostatic precipitators on metal melting furnaces - use CPMS to measure and record hourly average voltage and secondary current. | 63.10897(c) | | | NA |
| Install, operate and maintain a bag leak detection system on baghouses used to control PM from a metal melting furnace. | 63.10897(d) | X | | |
| Site-specific monitoring plan for each bag leak detection system to be part of the O&M plan. | 63.10897(d)(2) | X | | |
| Records of each valid bag leak detection system alarm and corrective action. | 63.10897(d)(3) | X | | |

Testing Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---|-------------|---------------------|----|---|
| | | Yes | No | |
| Existing and New Sources | | | | |
| Conduct testing to demonstrate compliance with applicable PM/metal HAP and Opacity limits (Existing - July 1, 2011) (New -180 days after startup) | 63.10898 | X | X | Shell Furnaces - Facility conducted testing after the deadline of January 16, 2011. Testing was conducted on March 15, 2011. NB Furnace – Testing not conducted with acceptable capture system |
| Conduct subsequent opacity testing no less than every 6-months using Method 9 or Method 22 | 63.10898(h) | | X | Facility last tested BD and HCI on October 26, 2014 and October 27, 2014, respectively. Retesting not conducted at the time of the inspection. Should have been completed by the end of April 2015. |

HURON CASTING

Huron Casting (HC) is a steel foundry that utilizes a shell mold system. Huron Casting has two melt furnace decks, Deck A and Deck B. Deck A has four electric induction furnaces and Deck B has two 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).

EMISSION LIMITS

EU-01 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

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).

EMISSION LIMITS

EU-02 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

EU-1-18 – Cutting torches #1-18. No control.

EMISSION LIMITS

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

Status: Compliant

EU-05 – Vibramill, B-line east end pouring line controlled by Baghouse #5 (42,000 dscfm Waltz Holtz # 791, reverse air jet type).

EMISSION LIMITS

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

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

EU-06 – Sand coating/handling and reclaim operations controlled by Baghouse #6 (20,000 dscfm Carter Day # 787, reverse air jet type).

EMISSION LIMITS

EU-06 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse.

Status: Compliant (Process has not been operated recently)

EU-07 – Sand coating/handling and reclaim operations, Vibramill, and Wheelabrator #4 controlled by Baghouse #7 (20,000 dscfm Carter Day # 484 & 483, reverse air jet type).

EMISSION LIMITS

EU-07 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

Status: Compliant

MATERIAL LIMITS

Restricts the facility to a loss of one percent resin based on total weight for the resin coated sand in the mold/core making process from pouring through shakeout. The facility submitted records to the District Office demonstrating compliance

with this limit.

Status: Compliant

PROCESS/OPERATIONAL RESTRICTIONS/RECORDKEEPING

Requires a minimum temperature of 1200 degrees for the calciner and maintain continuous records. During the inspection staff reviewed electronic records of the calciner temperature and observed the temperature on the process control screen, all of which demonstrated compliance with the temperature minimum.

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

EU-08 – Cut-off saws #1-9, Grinders #1-13, 8 Hand grinders, welders #1 & #2 controlled by Baghouse #8 (26,000 dscfm Johnson-Marsh # 616, reverse air jet type).

EMISSION LIMITS

EU-08 has limitations that restrict PM emissions. Compliance with the emission limit is demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

EU-09 – Wheelabrator #5 controlled by Baghouse #9 (25,000 dscfm Wheelabrator # 618, shaker type).

EMISSION LIMITS

EU-9 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

EU-10 – Sand leg and mag drum, Shot legs, Vibratory mold dumper/conveyor controlled by Baghouse #10 (42,000 dscfm Dracco #554, reverse air jet type).

EMISSION LIMITS

EU-10 has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

EU-11 – Turbine generator. No control

Mr. Peterson previously stated that the facility does not use the turbine or test run the unit.

EU-03A – A-line west end pouring line A-line cooling room controlled by Baghouse #4A (32,000 dscfm Caborundum # 789, shaker type).

The facility had a baghouse fire that destroyed Baghouse #4A on June 9, 2015. The facility temporarily routed part of the emissions (A-line cooling room) controlled by Baghouse #4A to Baghouse #2. The facility capped off the duct from A-line west pouring and let the emissions go into the in-plant atmosphere. A Violation Notice was issued by Sydney Bruestle, Saginaw Bay D.O. on June 25, 2015 for rerouting emissions to an unpermitted baghouse and for failing to capture and control a portion of the emissions.

EU-03B – B-line material feeder, B-line cooling room controlled by Baghouse #4B (47,000 dscfm Wheelabrator # 792, shaker type).

EMISSION LIMITS

EU-03B has limitations that restrict PM and PM10 and visible emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. No visible emissions were noted during the inspection.

Status: Compliant

MONITORING/RECORDKEEPING

Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

Status: Compliant

EU-MOLDLINE-A - Molding machines #1-4. No control.

EU-MOLDLINE-B - Molding machines #5-16. No control.

EU-MOLDLINE-C - Molding machines #16-26. No control.

EMISSION LIMITS

Mold lines A, B and C each have limitations that restrict PM and PM10 emissions. Compliance with the emission limits is demonstrated through verification testing. District records indicated that testing has been completed.

Status: Compliant

FG-MOLDLINE - EUMOLDLINE-A, EUMOLDLINE-B, EUMOLDLINE-C, and EUTORCHES19-22**EMISSION LIMITS**

FG-MOLDLINE limits visible emissions to 5%. No visible emissions were noted exiting to the outside atmosphere from **FG-MOLDLINE** during the inspection.

Status: Compliant

PROCESS/OPERATIONAL LIMITS/RECORDKEEPING

Limits the flex group to 37,000 tons per year of resin coated sand on a 12-month basis. Compliance is based upon the requirement that the facility maintain monthly records of tons of resin coated sand used. The facility provided records which showed a usage of 20,102 tons for the previous 12 months.

Status: Compliant

Restricts the maximum phenol content of the resin mixtures to 1.1 percent by weight. The facility provided records which demonstrated compliance with the limit.

Status: Compliant

RECORDKEEPING/REPORTING

Requires the facility on an annual basis to independently verify the phenol content of each resin and that the loss of resin content does not exceed one percent in spent cores/molds. The facility has provided records to the District Office demonstrating compliance with the limit.

Status: Compliant

FG-POUR – EUPOURINGA and EUPOURINGB**EMISSION LIMITS**

FG-POUR limits PM emissions. Compliance with the emission limits is demonstrated through monitoring to demonstrate proper operation of the baghouse. Requires the facility to continuously monitor the pressure drop and record on a daily basis. Staff reviewed records while onsite.

(Image 10 – Pouring Line A, Image 11 – Pouring Line B, Image 12 – Roof Vents above Pouring Line B)

STACK/VENT RESTRICTIONS

Prohibits the discharge of emissions from **EUPOURINGA** and/or **EUPOURINGB** directly into the atmosphere.

Based on the permit engineer's comments below, the facility agreed to seal roof monitors and fans and operate the building at a negative pressure before the Title V permit could be voided as part of issuing an opt out permit (PTI No. 207-02). During the inspection in 2011, staff observed two stacks adjacent to **EUPOURINGA**, through which a majority of the emissions from the furnaces were exhausted to the outside atmosphere. During this inspection staff also observed two exhausts above **EUPOURINGB**, through which emissions from **EUPOURINGB** were being emitted to the outside atmosphere. Additionally, the bay door between **EUPOURINGA** and **EUPOURINGB** was completely open during the inspection in 2011 and during this inspection, making operation of the building under negative pressure difficult.

Status: Non-complaint

Excerpt from EvalForm, engineers review for 207-02E

The emissions from **FG-POUR** were not calculated and added into the facility emissions. During the original permit application review (PTI 207-02), the applicant provided emission calculations

demonstrating that they could obtain an opt-out permit for Title V. During the review of PTI 207-02 the company stated that FG-POUR was recirculating and the emissions were not emitted to the atmosphere and therefore should not be included in the calculations. During AQD visits to the facility it was noted that there were roof vents, a roof monitor and other window openings in the area. The applicant agreed to close all the openings, install an air curtain at FG-POUR and keep the building at a negative pressure. The permit conditions do state that FG-POUR shall not emit directly to the outer atmosphere. The applicant sealed roof monitors and fans and operate the building at negative pressure, per agreements made with AQD. These items were to be addressed before the Title V permit could be voided. A document was found in the district file stating that based on an inspection these items were addressed. This document is attached.

FG-POUR includes the melting furnaces that are subject to Subpart ZZZZZ. Compliance with Subpart ZZZZZ is evaluated separately below.

FG-HCIFACILITY - All process equipment source-wide including equipment covered by other permits, grandfathered equipment and exempt equipment.

EMISSION LIMITS

FG-HCIFACILITY establishes emission limits for Phenol, HAPs and PM-10.

The facility provided a spreadsheet that contained emission values for each pollutant that showed compliance with the emission limits.

Status: Compliant

PROCESS/OPERATIONAL RESTRICTIONS

Restricts the amount of metal melted in FG-HCIFACILITY to 72,000 tons per year. The facility provided records showing 51,516 tons of steel throughput for the 12-month period ending with May 2015.

Status: Compliant

Restricts hours of operation for FG-HCIFACILITY to 5,640 hours per year. The facility provided records for FG-HCIFACILITY showing production hours for the past 12-months to be 5,419.

Status: Compliant

HCIFACILITY has a limit of 513 MMCF per year of natural gas usage. The facility provided records showing a use of 265 MMCF for the previous 12-months.

Status: Compliant

SUBPART ZZZZZ, IRON AND STEEL FOUNDRY AREA SOURCE NESHAP.

The below checklist summarizes the HC's compliance status in regards to Subpart ZZZZZ.

**NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
IRON AND STEEL FOUNDRIES AREA SOURCES
40 CFR PART 63 SUBPART ZZZZZ
INSPECTION CHECKLIST
(For MDEQ/AQD Internal Use Only)**

This NESHAP applies to all existing and new area source iron and steel foundries. The affected source in this rule is each iron and steel foundry. Different standards apply to large and small foundries, which is based on annual metal production.

Since this checklist does not contain all the details of the NESHAP, the rule itself and any amendments should be referred to when performing facility inspections. Also not included are all requirements under the General Provisions.

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 | | Submitted |
| 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 | | Submitted |
| 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 | | Submitted- submitted indirectly |
| 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 | | Submitted- submitted indirectly |
| Semiannual Certification Reports (July 30/January 30) | 63.10890(f)(small) or 63.10899(c)(large) | | X | Not submitted for the follow period: July-December 2014 |
| Capture and Collection System, O&M Plan, Bag leak detection system (if applicable) Notification (Existing - July 31, 2011) (New – August 30, 2008 or 60 days after the initial test, whichever is later) | 63.10900(b) and Subpart A 63.9 | X | | |
| Compliance with Emissions Limits (July 31, 2011 if only opacity testing performed/ August 30, 2011 if new PM/HAP test performed) (New – August 30, 2008 or 60 days after the initial test, whichever is later) | 63.10900(b) and Subpart A 63.9 | X | | |
| Performance Testing Notification (testing completed) (60 days after initial test) | 63.10900(b) and Subpart A 63.9 | 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 | |
| Existing and New Sources | | | | |
| 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 | | Facility does not use a furan system. |
| Copies of MSDS or product data sheets for binders and coatings | 63.10890(e)(5) (small) or 63.10899(4)(large) | X | | Maintained on-site |
| 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 | | Maintained on-site |

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 Facility is currently receiving scrap that is in compliance with Option 1. |
| Records of material specifications and records demonstrating | 63.10890(e)(small) or 63.10899(a)(1) | X | | |

| | | | | |
|--|---------|--|--|--|
| compliance with material specifications. | (large) | | | |
|--|---------|--|--|--|

Mercury Management Practice Requirements – Large and Small Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---|--|---------------------|----|---|
| | | Yes | No | |
| <p>Comply with one of the following options for each scrap provider, contract or shipment:</p> <p>1. Site-Specific Plan 2. EPA Approved Program 3. Specialty Alloy 4. Non-motor Vehicle Scrap</p> <p>(Existing- January 4, 2010) (New – January 2, 2008, or upon startup)</p> | 63.10885(b) | X | | <p>? Option 1 ? Option 2 ? Option 3 X Option 4</p> <p>The facility does not receive any auto scrap.</p> |
| EPA approved Program: Maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. | 63.10890(e)(4) (small) or 63.10899(a)(3) (large) | | | NA |
| Site-Specific Plans: Records of number of mercury switches removed, weight of mercury switches removed, vehicles processed, and percent of mercury switches removed. | 63.10890(e)(3) (small) or 63.10899(a)(2) (large) | | | NA |

Standards and Management Practice Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---|-------------|---------------------|----|----------|
| | | Yes | No | |
| Existing Sources | | | | |
| Each furnace is controlled by a capture and collection system unless part of an emissions averaging group (Existing-January 2, 2011) | 63.10895(b) | | | NA |
| Compliance with emission limit for melting furnaces 0.8 lbs per ton of metal charged or 0.06 lbs of total metal HAP per tons of metal charged (Existing-January 2, 2011) | 63.10895(e) | | | NA |
| Existing and New Sources | | | | |
| Opacity limit for fugitive emissions from foundry operations 20 percent (one 6-minute average up to 30 percent) | 63.10895(e) | X | | |

| | | | | |
|--|--|--|--|--|
| (Existing-January 2, 2011) (New – January 2, 2008, or upon startup) | | | | |
|--|--|--|--|--|

Standards and Management Practice Requirements - Large Foundries (cont)

| Requirement | Citation | Facility Compliance | | Comments |
|---|-------------|---------------------|----|---|
| | | Yes | No | |
| New Sources | | | | |
| Compliance with emission limit for melting furnaces 0.1 lbs per ton of metal charged or 0.008 lbs of total metal HAP per tons of metal charged (January 2, 2008, or upon startup) | 63.10895(c) | | X | The facility tested emissions from EU-POURINGA and EU-POURINGB on July 28, 2011, which showed compliance. Testing not conducted with acceptable capture system. |
| When using a wet scrubber to control emissions from a metal melting furnace: maintain the 3-hour average pressure drop and scrubber flow rate at or above the minimum level established during performance testing. | 63.10895(d) | | | NA |
| When using an electrostatic precipitator to control emissions from a metal melting furnace: maintain the voltage and secondary current at or above the level established during performance testing. | 63.10895(d) | | | NA |

Operation and Maintenance Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|--|----------------------------|---------------------|----|----------|
| | | Yes | No | |
| Existing and New Sources | | | | |
| Prepare and operate according to an O&M Plan for each control device for emissions sources subject to a PM, metal HAP, or Opacity limit. (Existing-January 2, 2011) (New – January 2, 2008, or upon startup) | 63.10896 | X | | |
| Maintain copy of O&M Plan on-site (Existing-January 2, 2011) (New – January 2, 2008, or upon startup) | 63.10896(a) 63.10899(7) | X | | |
| Maintain records demonstrating compliance with O&M Plan requirements | 63.10899(7) | X | | |

Monitoring Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---|--------------------------------|---------------------|----|--|
| | | Yes | No | |
| Existing Sources | | | | |
| Conduct initial inspection of each operating PM control device for a melting furnace no later than 60 days after the emission compliance date. | 63.10897(a) | X | | Staff reviewed electronic records of baghouse inspections. |
| Conduct subsequent periodic inspections of a PM control device for a melt melting furnace. | 63.10897(a) | X | | Staff reviewed electronic records of baghouse inspections. |
| Maintain logbook of initial and periodic inspections as well as any maintenance action on a PM control device for a metal melting furnace. | 63.10899(b)(13) | X | | Staff reviewed electronic records of baghouse inspections. |
| Existing and New Sources | | | | |
| Conduct monthly inspections of equipment important to the performance of the total capture system for metal melting furnace control equipment. Maintain records of inspections and repairs. | 63.10897(e) 63.10899(b)(10) | X | | |
| If using emissions averaging, maintain monthly records of pounds of PM or total metal HAP per ton of metal from all metal melting furnaces based on a weighted average. | 63.10899(8) | | | NA |
| New Sources | | | | |
| For wet scrubbers on metal melting furnaces – use CPMS to measure and record 3-hour average pressure drop and water flow rate. | 63.10897(b) | | | NA |
| For Electrostatic precipitators on metal melting furnaces - use CPMS to measure and record hourly average voltage and secondary current. | 63.10897(c) | | | NA |
| Install, operate and maintain a bag leak detection system on baghouses used to control PM from a metal melting furnace. | 63.10897(d) | | | NA |
| Site-specific monitoring plan for each bag leak detection system to be part of the O&M plan. | 63.10897(d)(2) | | | NA |
| Records of each valid bag leak detection system alarm and corrective action. | 63.10897(d)(3) | | | NA |

Testing Requirements – Large Foundries

| Requirement | Citation | Facility Compliance | | Comments |
|---|-------------|---------------------|----|---|
| | | Yes | No | |
| Existing and New Sources | | | | |
| Conduct testing to demonstrate compliance with applicable PM/metal HAP and Opacity limits (Existing - July 1, 2011) (New -180 days after startup) | 63.10898 | | X | Facility conducted testing after the deadline of July 1, 2011. Testing was conducted on July 28, 2011. At the time of testing, emissions were not adequately captured. |
| Conduct subsequent opacity testing no less than every 6-months using Method 9 or Method 22 | 63.10898(h) | | X | Facility last tested BD and HCI on October 26, 2014 and October 27, 2014, respectively. Retesting not conducted at the time of the inspection. Should have been completed by the end of April 2015. |

FG-POUR

EUPOURINGA and EUPOURINGB include the electric induction furnaces associated with Deck A and Deck B. The furnaces are subject to PM/Metal HAP emission limits under Subpart ZZZZZ, for which the facility conducted testing on July 28, 2011 to demonstrate compliance.

During this inspection and during an inspection conducted in August 2011, staff observed capture for both melt decks. Capture for melt Deck A consists of a roof hood that has a duct on the side of the hood that goes to the baghouse. During both inspections a minimal amount of emissions from the furnaces on Deck A was observed to be captured and exhausted to baghouse control. A majority of emissions were observed exiting through two stacks in the roof located adjacent to the roof hood. The duct serving the roof hood has minimal impact in regards to capturing emissions. Observation of melt Deck B showed similar uncontrolled emissions as was observed at melt Deck A. Melt Deck B has a ventilation duct that supplies fresh air just south of the furnaces. During tapping of a furnace a large amount of smoke was observed hanging in the air without being pulled into the hood and subsequent baghouse.

Subpart ZZZZZ requires each capture and collection system to meet acceptable engineering standards, such as those published by the American Conference of Governmental Industrial Hygienist.

As observed during the inspection, it does not appear that the capture systems meet acceptable engineering standards as required by 63.10895.

Stationary Source Classification Evaluation:

During the inspections conducted in August 2011 and June 2013, EG informed the facility that based upon the two facilities (Blue Diamond and Huron Casting) being one stationary source, having emissions below the major source threshold seemed unlikely. This evaluation was based upon the permitted metal throughput as well as the type of sand binder systems in use at the facilities. In particular, carbon monoxide emissions were discussed. The current opt-out permit does not contain any emission limits for carbon monoxide. The facility stated that they previously had a Title V permit,

but were informed by their consultant that they qualified as a minor source and obtained an opt-out permit on behalf of the facility.

Below is an evaluation of carbon monoxide emissions resulting from pouring, cooling and shakeout emissions at the stationary source.

The stationary source has a permitted annual metal throughput limit of 144,000 tons of steel.

| | | |
|---------------|-----------------|----------------------|
| Blue Diamond: | EU-NBFURANCE | 31,000 tons per year |
| | EU-SHELLFURANCE | 41,000 tons per year |

| | |
|-------------------------------|----------------------|
| Huron Casting: FG-HCIFACILITY | 72,000 tons per year |
|-------------------------------|----------------------|

Summary of some available published emission factors for carbon monoxide from pouring, cooling and shakeout for shell molds:

10.8 pounds/ton – Iron/Shell Molds - CERP Study 1413-1211HT (2008)

13.23 pounds/ton average – Iron/Shell Molds CERP Study 1411-614 GP (2005)

9.38 pounds/ton average – Iron/ Shell Molds Osco Binder CERP Study 1411-115 GN (2005)

12.22 pounds/ton average – Iron/Shell Molds HA Binder CERP Study 1411-115 GN (2005)

13.75 pounds/ton –Steel/Shell Molds Esco Corp. Average all stack tests 2001, 2005 (Permit No. 26-2068 emissions summary)

Emission factor for carbon monoxide from pouring, cooling and shakeout for furan No Bake molds:

5.8 pounds/ton – Iron/No Bake Molds - CERP .Study 1413-1211HT

All but one of the emission factors are from the published results of testing conducted through the Casting Emission Reduction Program (CERP). CERP derived emission factors were used by Blue Diamond/Huron Casting Inc. to estimate VOC and HAP emissions for permitting and are used to estimate emissions for compliance.

Carbon monoxide emissions are affected by many variables, including type of metal, type of binder system, sand binder level, core usage, and mold shape. All but one of the above listed emissions factors are associated with iron, which is assumed to have higher CO emissions relative to iron due to the higher carbon content of the metal. However, for the stationary source's potential emissions for CO to be below the major source threshold of 100 tons per year, the average emission factor for both shell and no bake would need to be 1.38 pounds per ton of steel. An emission factor that low is not supported by any currently published data for the type of mold systems in use at the stationary source. Utilizing the emission factor for steel poured shell molds (Esco Corp), the potential emissions from the source would be 776 tons of CO (113,000 tons of steel x 13.75 lb. /ton). Utilizing 5.8 pounds per ton emission factor to account for emissions from no bake molds, potential emissions would be 89.9 tons (31,000 x 5.8 lb. /ton). Combined, potential emissions would be 865 tons.

Utilizing the same emission factors for actual throughput in 2014 results in the following CO emission estimates:

Huron Casting (Shell) – 63,365 tons x 13.75 = 435 tons

Blue Diamond (Shell) – 12,253 tons x 13.75 = 84 tons

Blue Diamond (NB) - 8,519 tons x 5.8 = 24 tons

Total stationary source CO emissions = 543 tons in 2014

Based upon the above evaluation, the facility is a major source for carbon monoxide emissions. Therefore, the facility is classified as a major source and subject to the provisions of the federal Title V Renewable Operating Permit Program.

CONCLUSION

Huron Casting/Blue Diamond has the potential to emit more than 100 tons of carbon monoxide and therefore is required to obtain a Prevention of Significant Deterioration (PSD) permit under 40 CFR 52.21 of the federal Clean Air Act. As a result, Huron Castings/Blue Diamond is in violation of federal PSD regulations under 40 CFR 52 by failing to obtain a PDS permit prior to commencing construction and operation of Blue Diamond Casting. In addition, since the facility is classified as a major source, it is subject to the provisions of the federal Title V Renewable Operating Permit Program and the requirements of Michigan Air Pollution Control, Part 55 of Act 451 of 1994, R336.1210. As a result of failing to obtain and maintain a Title V Renewable Operating Permit, Huron Casting/Blue Diamond Casting is in violation of Rule 210.

Below is a summary of compliance issues at Blue Diamond Steel Casting:

EU-NBFURNACE:

- Failure to install and operate a capture system that meets acceptable engineering standards, such as those published by the American Conference of Governmental Industrial Hygienist. (63.10895(b))
- Failure to conduct an acceptable initial performance test to demonstrate compliance with PM/metal HAP limits due to inadequate capture of emission from the melt furnace. (63.10898)

EU-NBCALCINER:

- Failure to maintain records as required by Condition VI.2., continuous temperature records.

Subpart ZZZZZ:

- Failure to submit Initial Notification (63.10900(b))
- Failure to submit Notification of Size (63.10899(d))
- Failure to submit NOCSR – metallic, mercury, binders (63.10900(b))
- Failure to submit semi-annual certifications for the follow time periods:
January – June 2011 January – June 2012, July – December 2014 (63.10899(c))
- Failure to conduct latest bi-annual fugitive emissions testing (63.10898)

Electric Arc Ladle Furnace:

- Failure to obtain a permit to install prior to beginning installation (Rule 201)

Vacuum Degassing Unit:

- Failure to obtain a permit to install prior to beginning installation (Rule 201)

Below is a summary of compliance issues at Huron Casting, Inc.

EUPOURINGA:

- **Failure to install and operate a capture system that meets acceptable engineering standards, such as those published by the American Conference of Governmental Industrial Hygienist. (63.10895(b))**
- **Failure to conduct an acceptable initial performance test to demonstrate compliance with PM/metal HAP limits due to inadequate capture of emission from the melt furnace. (63.10898)**
-

EUPOURINGB:

- **Failure to install and operate a capture system that meets acceptable engineering standards, such as those published by the American Conference of Governmental Industrial Hygienist. (63.10895(b))**
- **Failure to conduct an acceptable initial performance test to demonstrate compliance with PM/metal HAP limits due to inadequate capture of emission from the melt furnace. (63.10898)**

FG-POUR:

- **Discharge of emissions directly to the atmosphere in violation of permit requirement.**

Subpart ZZZZZ:

- **Failure to submit semi-annual certifications for the follow time period: July – December 2014 (63.10899(c))**
- **Failure to conduct latest bi-annual fugitive emissions testing (63.10898)**

A Violation Notice will be issued to address the above listed compliance issues

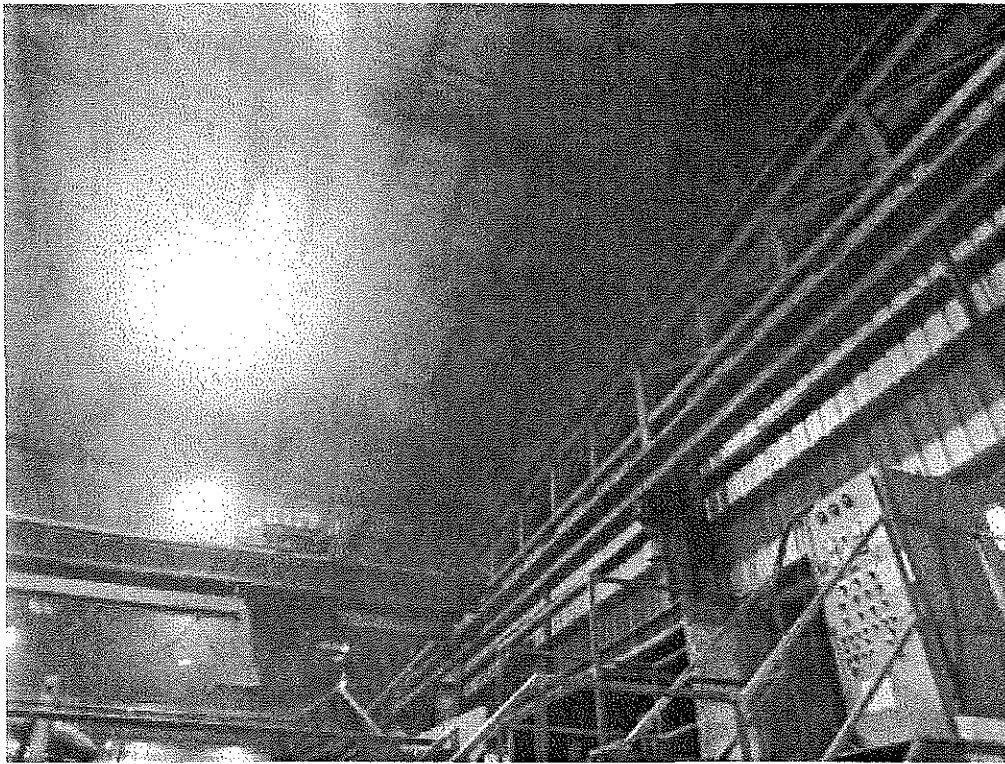


Image 1(-) : Ducts above No-Bake Furnace

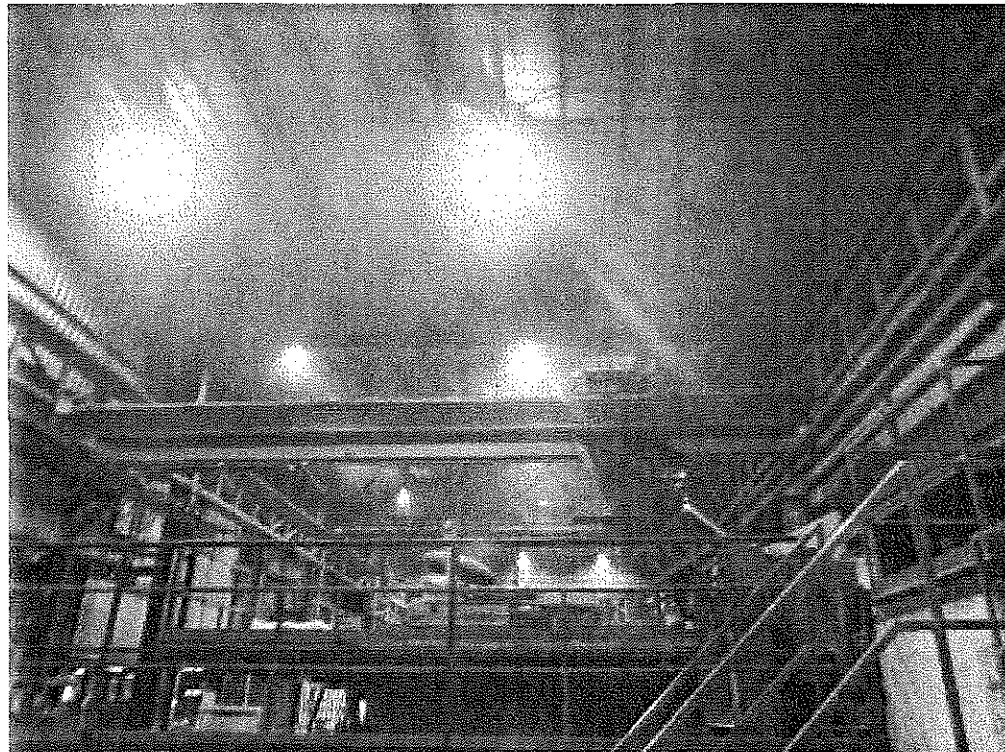


Image 2(-) : Ducts above No-Bake Furnace

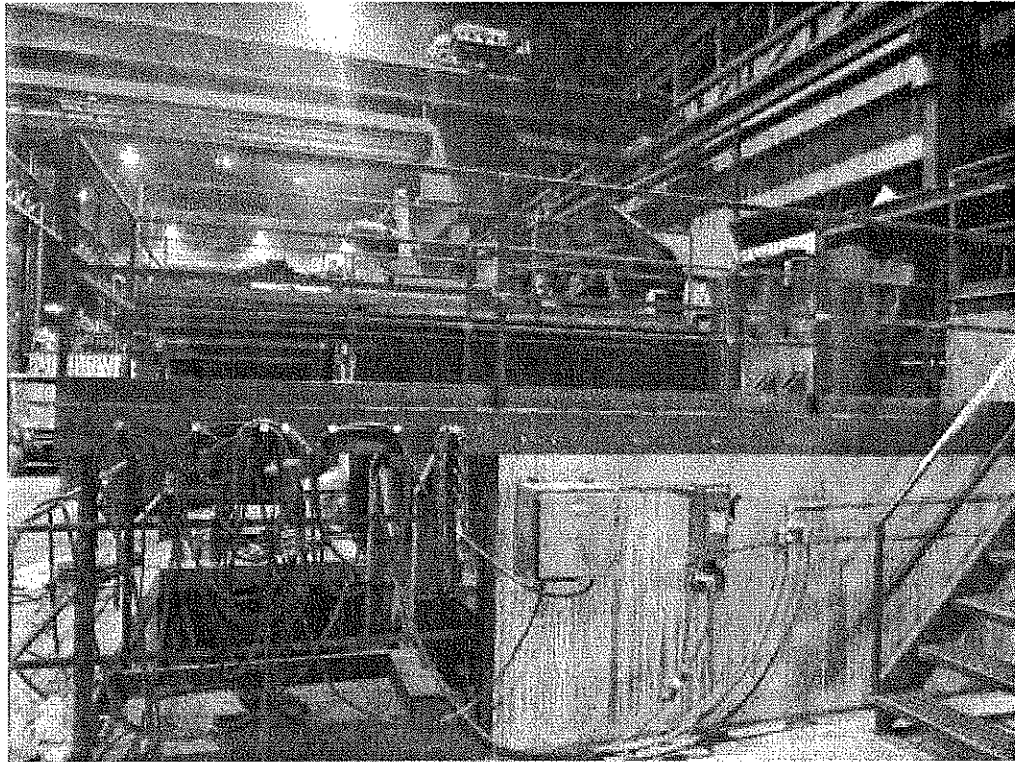


Image 3(-) : Electric Arc Ladle Furnace

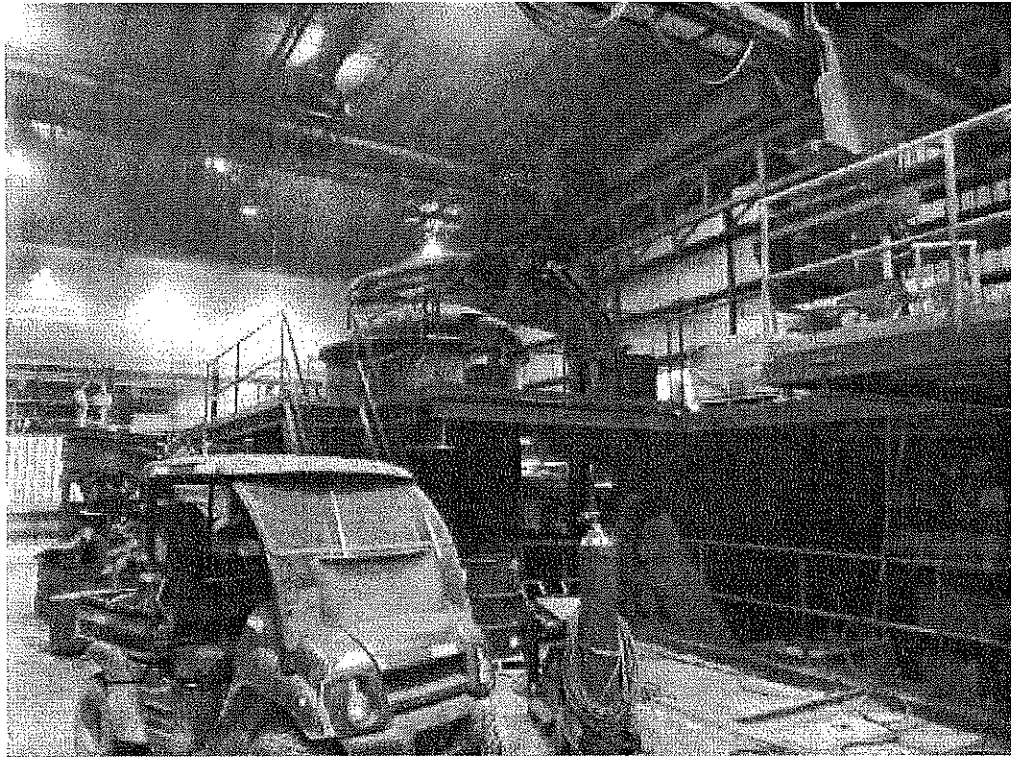


Image 4(-) : Degassing Unit

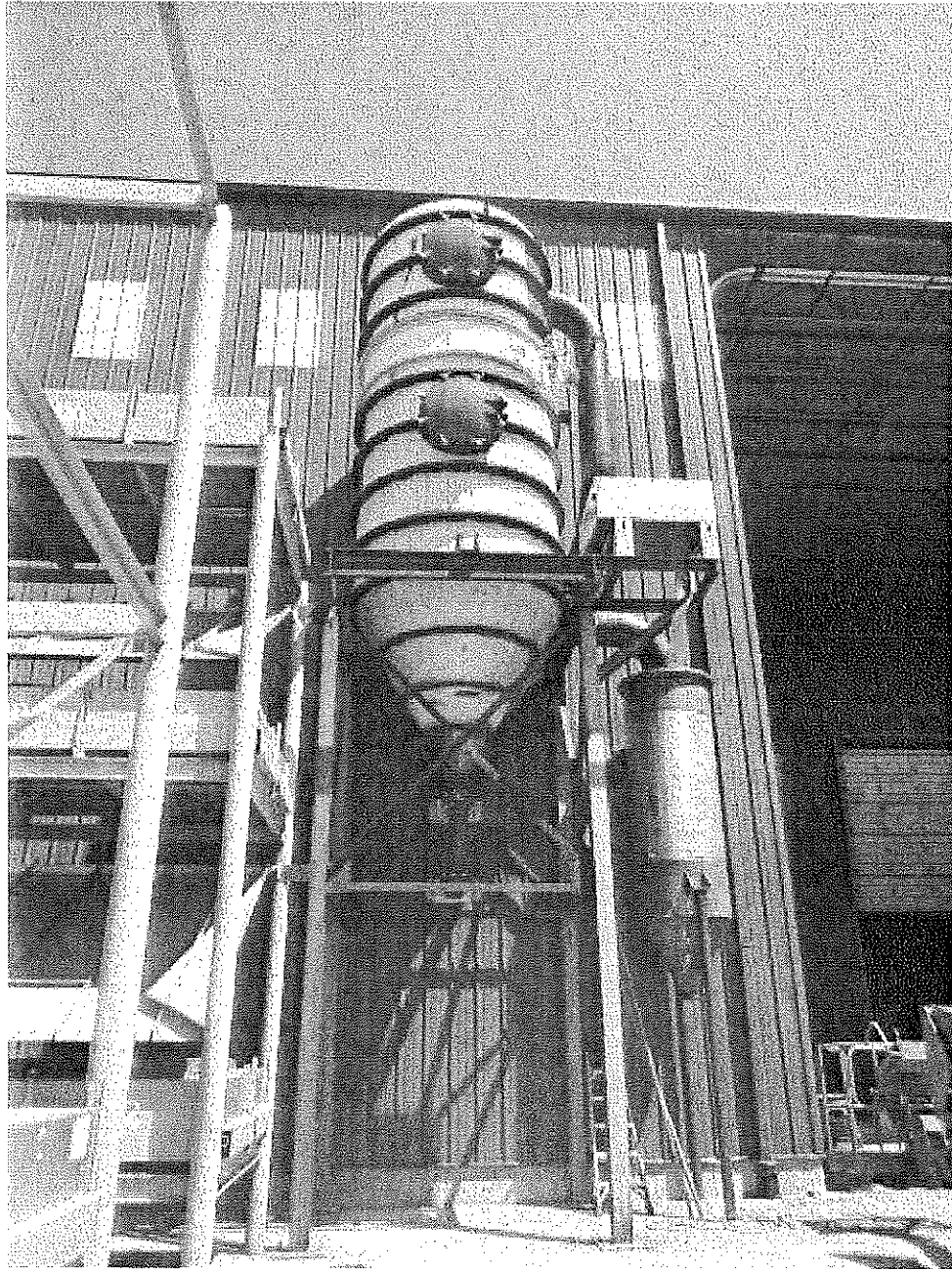


Image 5(-) : Degassing Unit

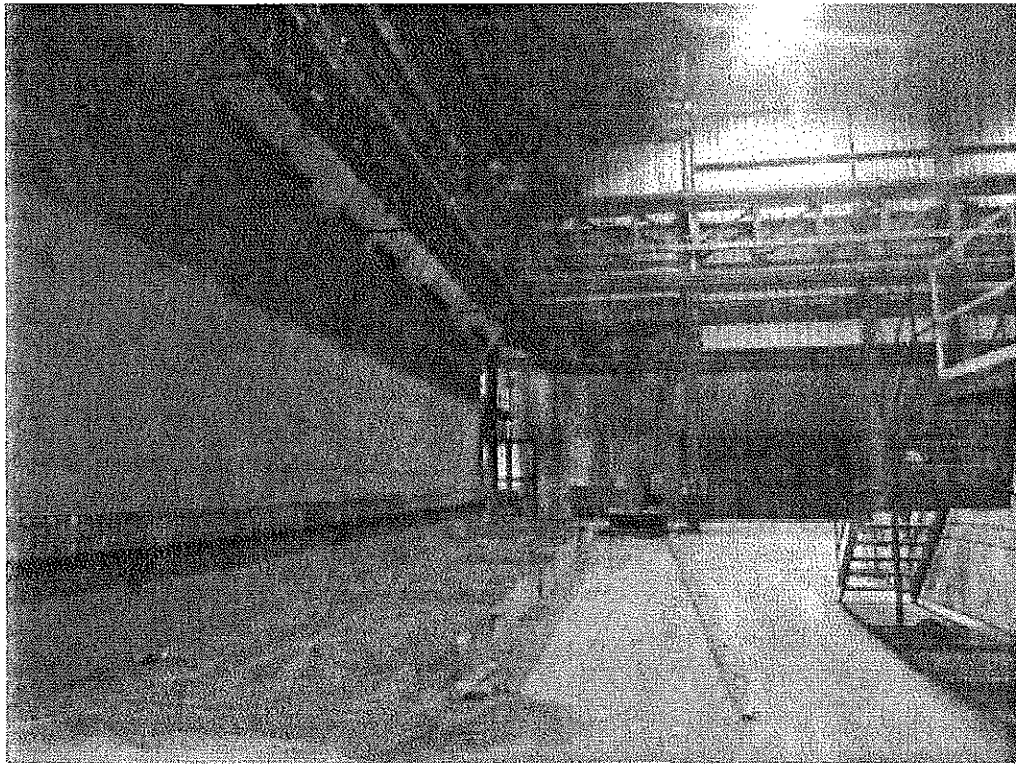


Image 6(-) : No-Bake Pouring Line

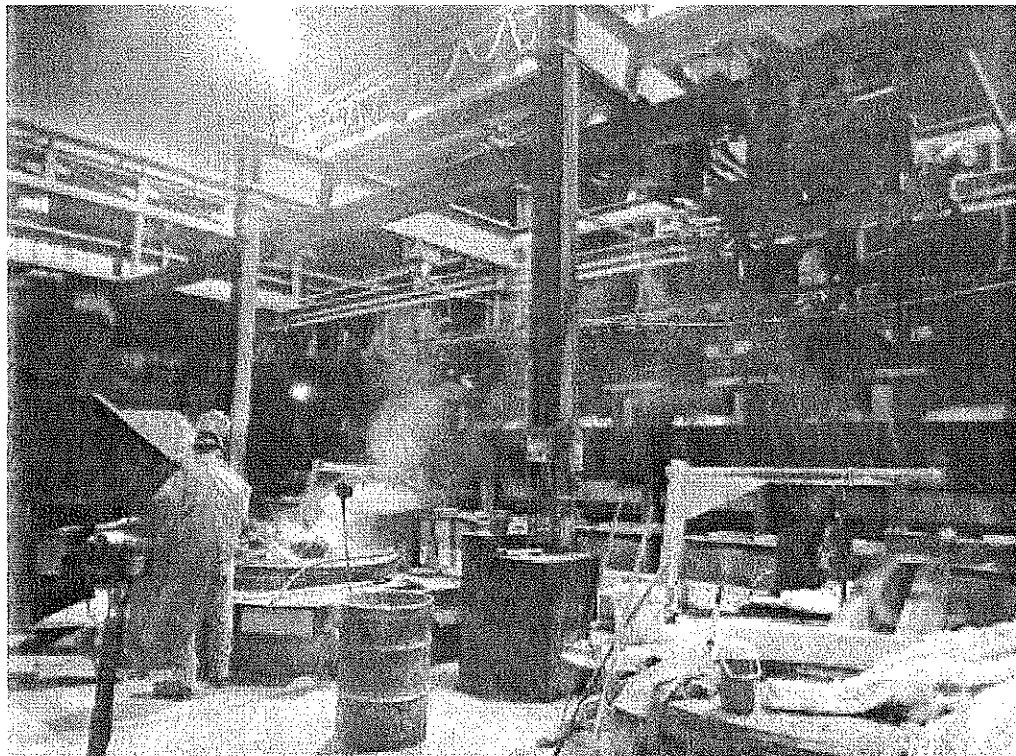


Image 7(-) : Shell Furnace Line

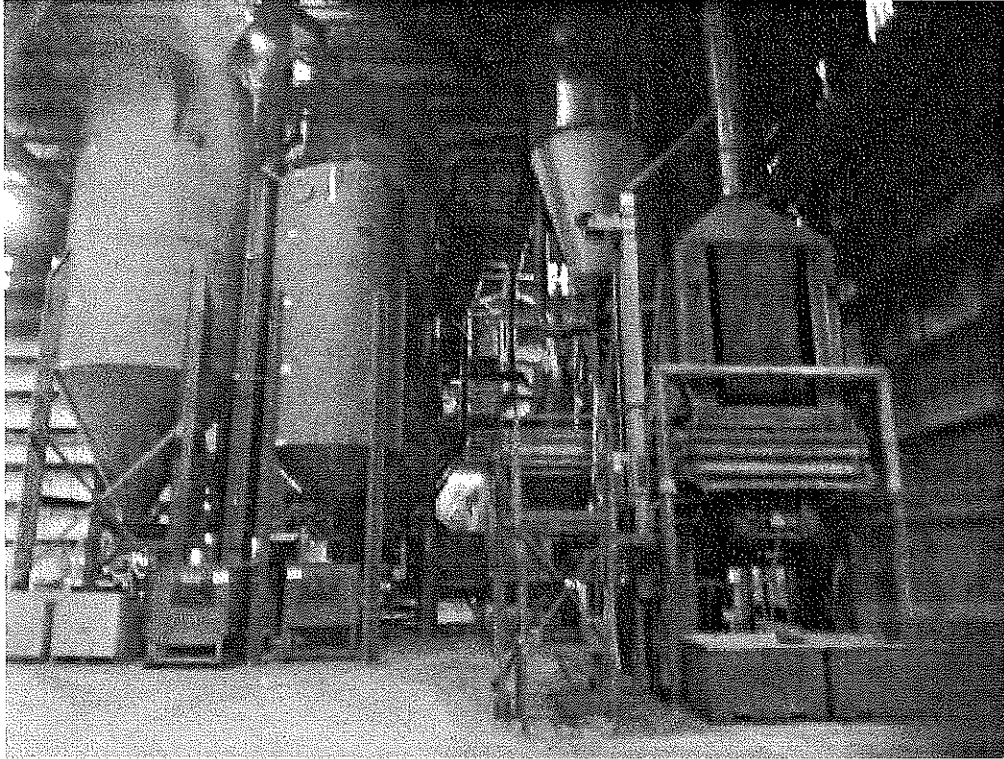


Image 8(-) : Shell Calciner

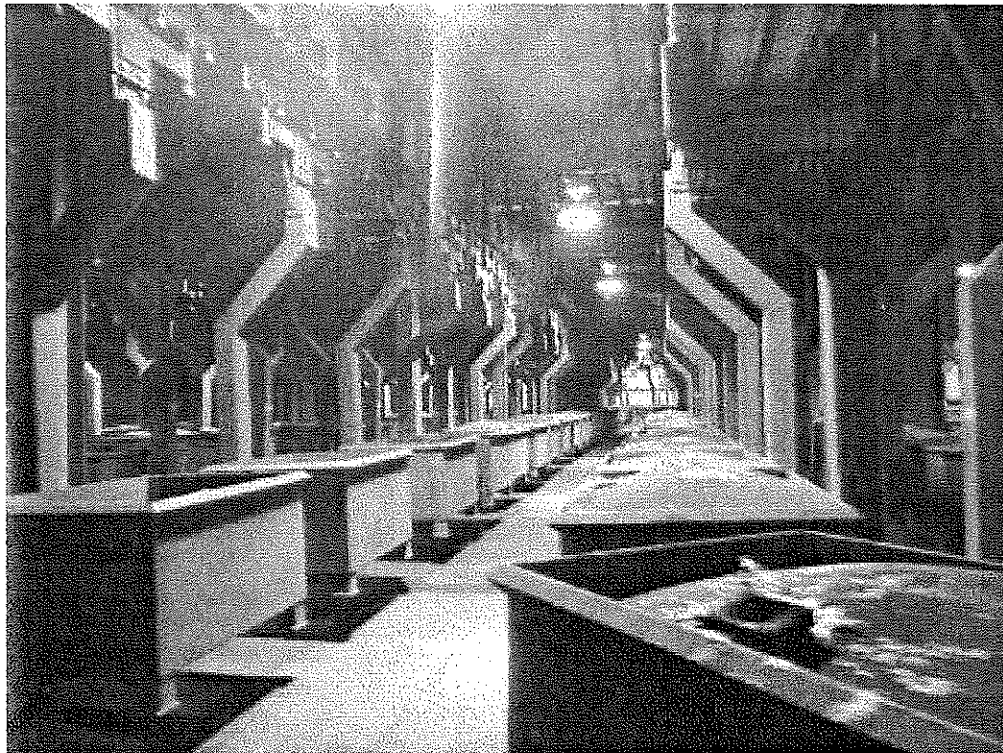


Image 9(-) : EU-SHELL2COOL

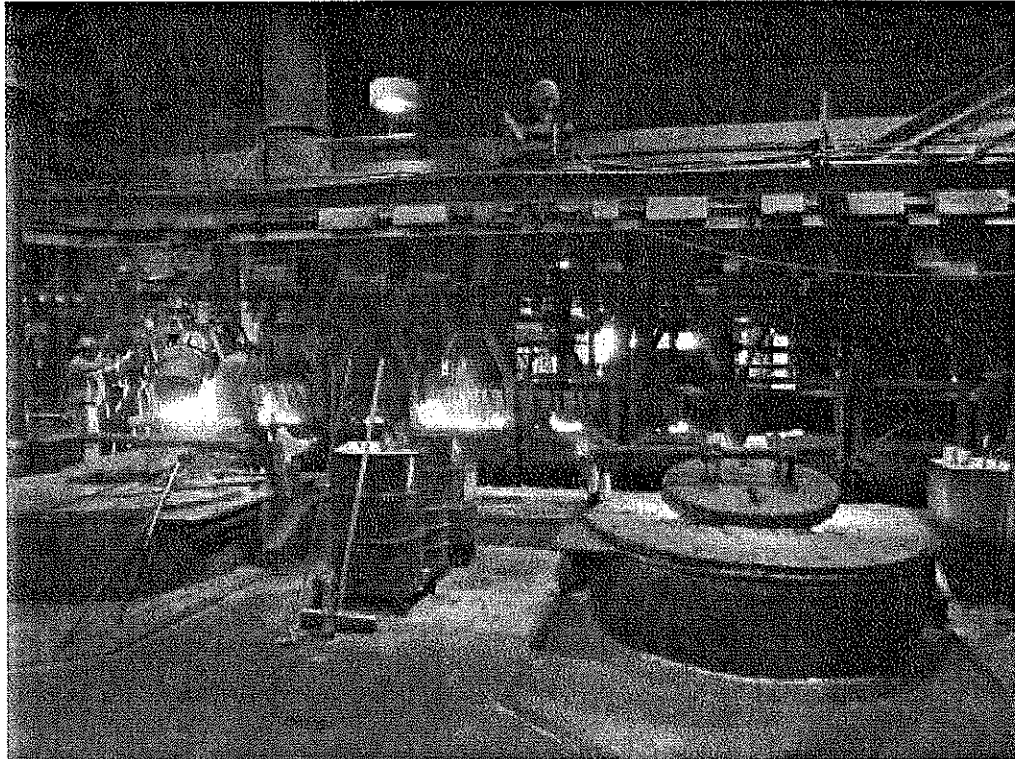


Image 10(-) : Pouring Line A



Image 11(-) : Pouring Line B



Image 12(-): Roof ducts above Pouring Line B

NAME *Paul Swedler*

DATE *8/6/15*

SUPERVISOR *Chris Hare*

