



REGION 5
CHICAGO, IL 60604

MEMORANDUM

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Neenah Foundry, Neenah, Wisconsin

FROM: Patrick Miller, Environmental Engineer
AECAB (MN/OH)

THRU: Brian Dickens, Section Supervisor
AECAB (MN/OH)

TO: File

BASIC INFORMATION

Facility Name: Neenah Foundry

Facility Location: 2121 Brooks Ave, Neenah, Wisconsin 54956

Date of Inspection: 10/3/23

EPA Inspector(s):

1. Patrick Miller, Environmental Engineer
2. Meaghan Pashen, Environmental Engineer

Other Attendees:

1. Dan Weishopf, Plant Manager
2. Jeff Tomhave, VP Operations
3. Craig LeNoble, Environmental Director
4. Andrew Sellin, Environmental Engineer
5. Clinton Ottman, Environmental Engineer
6. Quiton LeSage, Wisconsin Department of Natural Resources

Contact Email Address: craig.lenoble@groupnei.com

Purpose of Inspection: Determine compliance with VOC and metal HAP emission limits and opacity limits in NESHAP Subpart EEEEE and Operation Permit No. 471033860-P20

Facility Type: Grey and ductile iron foundry

Regulations Central to Inspection: NESHAP Subpart EEEEE: Iron and Steel Foundries (major sources)- 63.7690 Emission Limits, and Operation Permit No. 471033860-P20 Conditions for particulate matter, lead, manganese, and VOC emission limits associated with furnaces, mold lines, and shakeouts at Plants 2 and 3.

Arrival Time: 8:45 AM

Departure Time: 12:00 PM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Mr. Weishopf, Mr. Tomhave, and Mr. LeNoble unless otherwise noted.

Process Description:

Neenah Foundry produces grey and ductile iron castings. Grey iron is produced from two cupola furnaces Plant 2. Plant 3 has one cupola furnace that produces iron used for ductile iron production. Coke, limestone, silicon carbide, ferrosilicon, ferromanganese, and iron scrap are charged in the cupola furnaces with a skip car. Pig iron is also added when producing ductile iron. Magnesium is added to the iron in an inoculation ladle and placed under a hood when producing ductile iron. The cupola furnaces produce 15-30 tons of iron per hour. Only one grey iron cupola furnace in Plant 2 can operate at a time because the furnaces share two parallel baghouses each with bag leak detection systems (BLDS). Additionally, the two cupola furnaces are each controlled by an after burner. The cupola furnace in Plant 3 is controlled by an after burner and wet scrubber.

Molten iron continuously streams out of the cupola furnace into a fore hearth. Iron is transferred from the fore hearth to holding furnaces with 5-ton ladles. From the holding furnace, iron is transferred to pouring furnaces on each mold line. There are three mold lines (DISA, BMD, and KW) all of which are in Plant 2. Ductile iron casting takes place in Plant 2 as well. Different sized parts can be made on each mold line. The mold lines are controlled with baghouses. Iron is cast into the molds from the pouring furnace. The molds are allowed to cool on conveyors before going to shakeout where the cast iron part is separated from the sand. Cooling and shakeout areas are controlled by baghouses.

Staff Interview:

Cores used in the molds are made onsite. The Plant 3 core room is controlled by two acid gas scrubbers. Differential pressure, pH, and flow are monitored on the acid gas scrubbers. Differential pressure and BLDS parameters (where equipped) are monitored on baghouses throughout the facility. Pilot light indicator and temperature (~1300°F) are monitored continuously for the afterburners on each of the cupola furnaces as well.

The BLDS at Plants 2 occasionally sounds false alarms. Recent maintenance revealed that this was due to rust inside the system.

The facility used to charge coal as a raw material in the cupola furnace. The last charge of coal was in August 2022.

Stack testing was performed on August 29, 2023 that included the cupola furnaces. There is a manganese emission limit at cupola furnace at Plant 3, but not at the cupola furnaces at Plant 2. There is a 20% opacity limit at the facility. Opacity observations are taken biannually.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

EPA toured the facility. Ductile iron was not being produced at the time of the inspection and an inoculation could not be witnessed. EPA saw transferring of iron from the cupola to the fore hearth and from the holding furnace to the pouring furnace on the KW mold line. No visible emissions were seen from the building for Plant 2. EPA discussed the compliance with emission limits including particulate matter, lead and manganese. Neenah Foundry indicated that a consultant is used to calculate emissions and potential-to-emit calculations. EPA indicated that it would ask for emission calculations and the emissions factors used in those calculations among other records.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

- Copies of the most recent stack testing results completed in August 2023 on cupola baghouses for Plants 2 and 3 when they are available;
- Differential pressure and bag leak detection system records for the cupola baghouses for Plants 2 and 3 for 2022 and 2023 to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Differential pressure and water flow rate records for wet scrubbers for each cupola for 2022 and 2023 to date of inspection (Jan 1, 2023 to Oct 3, 2023);

- Visible emission records for each cupola in Plants 2 and 3 for 2022 and 2023 to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Afterburner operating temperature records on cupolas for Plants 2 and 3 for 2022 and 2023 to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Combustion residence time analyses for each afterburner on cupola furnaces for Plants 2 and 3;
- Differential pressure and bag leak detection system records for baghouses associated with each molding line for 2022 and 2023 to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Differential pressure and water flow rate records for the wet scrubbers on the molding lines for 2022 and 2023 to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Differential pressure and water flow rate records for the acid scrubbers in Plant 3 for 2022 and 2023 to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Most recent stack tests for the acid scrubbers in Plant 3;
- Monthly and annual melt rate records for each cupola from 2021 through 2023 year to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Provide raw material (including coal) charging records in tons from 2021 through 2023 year to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Provide sulfur content records for coal and coke from 2021 through 2023 year to date of inspection (Jan 1, 2023 to Oct 3, 2023);
- Emission calculations per emission source from October 2, 2023 (1/1/2021- 10/2/2023), including lead, manganese, and any hazardous air pollutants; and
 - If not included in the emission calculations above, provide all emission factors used and how they were developed (AP-42, site specific stack testings, etc.) for each emission source.
- SDS sheets for materials used in the molding lines and for making cores.

DIGITAL SIGNATURES

Report Author: **PATRICK MILLER**  Digitally signed by PATRICK MILLER
Date: 2023.12.01 12:47:19 -06'00'

Section Supervisor: **BRIAN DICKENS**  Digitally signed by BRIAN DICKENS
Date: 2023.12.01 13:07:19 -06'00'

Facility Name: Neenah Foundry
Facility Location: 2121 Brooks Ave, Neenah, Wisconsin, 54956
Date of Inspection: October 3, 2023

APPENDICES AND ATTACHMENTS

1. Appendix A – Digital Image Log

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Meaghan Pashen	2. Archival Record Location: R5 Electronic Records Center
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Image Number	File Name	Date and Time (incl. time zone and DST)	Latitude and Longitude	Description of Image
1	PA030006.JPG	2023:10:03 10:36:23		Pouring from Holding Furnace to Transfer Ladle
2	PA030007.JPG	2023:10:03 10:36:27		Pouring from Holding Furnace to Transfer Ladle
3	PA030008.JPG	2023:10:03 10:36:33		Pouring from Holding Furnace to Transfer Ladle
4	PA030009.JPG	2023:10:03 10:37:50		Pouring from Holding Furnace to Transfer Ladle
5	PA030010.JPG	2023:10:03 10:42:51		Pouring from Transfer Ladle to Pouring Furnace on KW Line
6	PA030011.JPG	2023:10:03 10:42:55		Pouring from Transfer Ladle to Pouring Furnace on KW Line
7	PA030012.JPG	2023:10:03 10:42:57		Pouring from Transfer Ladle to Pouring Furnace on KW Line
8	PA030013.JPG	2023:10:03 10:52:13		Grey Iron tapping from the cupola furnace
9	PA030014.JPG	2023:10:03 10:52:19		Grey Iron tapping from the cupola furnace
10	PA030015.JPG	2023:10:03 10:53:47		Inoculation station with hood
11	PA030016.JPG	2023:10:03 10:56:59		Scrap in charge bucket to top of cupola furnace
12	PA030017.JPG	2023:10:03 11:01:57		Cupola Furnace control screen
13	PA030018.JPG	2023:10:03 11:10:42		Cupola Furnace Baghouse and Wet Scrubber
14	PA030019.JPG	2023:10:03 11:22:46		DISA mold line