UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

SUBJECT:	CLEAN AIR ACT INSPECTION REPORT Grede, LLC – Iron Mountain, Kingsford, Michigan
FROM:	Dakota Prentice, Environmental Engineer AECAB (IL/IN)
THRU:	Nathan Frank, Section Supervisor AECAB (IL/IN)
TO:	File

BASIC INFORMATION

Facility Name: Grede, LLC – Iron Mountain (Grede, LLC)

Facility Location: 801 South Carpenter Avenue, Kingsford, Michigan

Date of Inspection: June 27, 2023

EPA Inspector(s):
1. Dakota Prentice, Environmental Engineer
2. Laura Neudorf, Environmental Engineer

Other Attendees:
1. Lauren Luce, Environmental Quality Analyst – Michigan Department of Environment, Great Lakes, and Energy (EGLE)
2. Adam Grunenwald, EHS Manager – Grede, LLC
3. Liz Gutierrez, General Manager – Grede, LLC
4. Mark Trulock, Operations Manager – Grede, LLC
5. Tom White, EHS Lead – Grede, LLC
6. Cody Wolsker, Automation Manager – Grede, LLC

Contact Email Address: Adam Grunenwald – adam.grununwald@grede.com

Purpose of Inspection: to determine compliance with the Michigan state implementation plan and the Clean Air Act

Facility Type: Gray Iron Foundry

Regulations Central to Inspection: Conditions of a Renewable Operating Permit issued by EGLE with an effective date of October 8, 2020, and the National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries at 40 C.F.R. Part 63, Subpart EEEEE (NESHAP EEEEE)

Arrival Time: 10:00AM CDT
Departure Time: 11:30AM CDT

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.
☒ Provided CBI warning to facility

The following information was obtained verbally from Grede, LLC personnel unless otherwise noted.

Company Ownership: In December 2019, Gamut Capital Management acquired the facility from American Axle & Manufacturing Holdings, Inc. as a part of a larger acquisition.

Process Description:
Gray iron production begins at a cupola furnace. Raw material including shredded autos, coke, limestone, ferro-silica, and iron scrap generated internally are fed into the top of the furnace. The cupola generates a continuous stream of molten iron, which is sent to a holding furnace. From the holding furnace, molten iron is transferred to ladles, which are then moved to one of seven mold centers where the molten iron is poured into molds to form castings of various shapes and sizes. The molds are allowed to cool and then taken to a shaker unit to remove sand from the iron casting. The casting then moves through a series of finishing steps to remove risers, sandblast exterior surfaces, and manually remove imperfections at grinders prior to shipping the final casting product. Multiple baghouses are used throughout the facility to control particulate matter emissions generated during gray iron casting production. Module, a separate foundry operation, operates on on-site and has one mold center controlled with a baghouse.

Casting molds are produced at a press using sand, clay, and water. Cores, which are placed at interior portions of the mold, are produced in one of three processes: isocure, shell core, or a 3D printer. These processes use a sand and resin mixture to create cores. The isocure process uses the resin dimethylethylamine (DMEA) and is controlled by a wet scrubber. The 3D printer uses

a furan resin. Cores are baked in one of three ovens controlled by a baghouse before they are sent to the press.

Staff Interview: The facility has approximately 230 employees. The foundry (sand mold and casting production) currently operates from 6:00AM – 4:30PM Monday through Thursday. The facility is currently operating at 30 to 45 percent capacity, with maximum production most recently occurring in 2017 and 2018. The facility uses a bag leak detection system (BLDS) at three baghouses; however, the BLDS data is used internally, not for environment compliance. Method 9 is performed every six months, and visual emission checks are performed daily. Facility representatives were not aware of a current or historic quality improvement plan in place.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:
EPA walked the production process from the cupola to grinding. During the tour, EPA observed uncaptured emissions while molten iron was transferred from the holding furnace to a ladle.

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

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

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

Requested documents:

- Operations and Maintenance Plan(s)
- Compliance Assurance Monitoring Plan
- Most recent performance test at each emission unit
- The preceding six months of visible emission readings
- Most recent Method 9 (opacity) readings
- Most recent permit issued by EGLE and the associated permit application

DIGITAL SIGNATURES

Report Author: DAKOTA PRENTICE Digitally signed by DAKOTA PRENTICE Date: 2023.07.11 10:10:47 -05'00'

Section Supervisor: Frank, Nathan Digitally signed by Frank, Nathan Date: 2023.07.11 16:42:05 -05'00'

APPENDICES AND ATTACHMENTS

Appendix A: Digital Image Log
Appendix B: Digital Video Log

APPENDIX A: DIGITAL IMAGE LOG

1. **Inspector Name:** L. Neudorf	2. **Archival Record Location:** EPA Region 5 Electronic Records Center

Image Number	File Name	Date and Time (CDT)	Description of Image
1	IMG_0515.JPG	2023:06:27 11:01:41	Cupola System Monitoring Screen
2	IMG_0516.JPG	2023:06:27 11:04:28	Pouring into Ladle
3	IMG_0517.JPG	2023:06:27 11:04:40	Pouring into ladle
4	IMG_0519.JPG	2023:06:27 11:05:35	Cupola
5	IMG_0520.JPG	2023:06:27 11:05:41	Cupola
6	IMG_0521.JPG	2023:06:27 11:08:30	Pouring Line
7	IMG_0522.JPG	2023:06:27 11:08:48	Pouring Line
8	IMG_0523.JPG	2023:06:27 11:16:09	Manual Grinding Operations
9	IMG_0524.JPG	2023:06:27 11:17:12	Scrubber System Monitoring Screen
10	IMG_0525.JPG	2023:06:27 11:17:25	Scrubber System Monitoring Screen

APPENDIX B: DIGITAL VIDEO LOG

1. **Inspector Name:** L. Neudorf	2. **Archival Record Location:** EPA Region 5 Electronic Records Center

Video Number	File Name	Date	Description of Video
1	MDG_0518 – Trim Grede.MOV	2023:06:27	Transfer of molten iron from the holding furnace to a ladle