



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

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Madison-Kipp Corporation, Madison, Wisconsin

FROM: Erin DuMontelle, Environmental Engineer
AECAB (MI/WI)

THRU: Sarah Marshall, Section Supervisor
AECAB (MI/WI)

TO: File

BASIC INFORMATION

Facility Name: Madison-Kipp Corporation – Atwood facility

Facility Location: 201 Waubesa Street, Madison, WI 53704

Date of Inspection: April 18, 2023

EPA Inspector(s):

1. Erin DuMontelle, Environmental Engineer
2. Brittany Cobb, Environmental Engineer

Other Attendees:

1. Scott McNeil, Manufacturing Support Manager
2. Tim Kaderabek, President and CEO
3. Jay Sandvick, Automation Controls and Maintenance Manager

Contact Email Address: Scott McNeil - smcneil@madison-kipp.com

Purpose of Inspection: To determine the facility's compliance with the Clean Air Act and their current air permit.

Facility Type: Aluminum Diecasting

Regulations Central to Inspection: Wisconsin State Implementation Plan and 40 C.F.R. Part 63 Subpart RRR – National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production

Facility Name: Madison-Kipp Corporation
Facility Location: 201 Waubesa Avenue, Madison, WI 53704
Date of Inspection: April 18, 2023

Arrival Time: 12:45 PM CST
Departure Time: 3:15 PM CST

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

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

The following information was obtained verbally from Jay Sandvick, Scott McNeil, and Tim Kaderabek unless otherwise noted.

Company Ownership:

Pine Bridge Capital acquired ownership of the facility in 2020.

Process Description:

Madison-Kipp Corporation (Madison-Kipp or facility) operates a high-pressure aluminum die-casting process. The facility processes between 63,000 and 110,000 lbs of aluminum per day. The primary raw material is secondary clean aluminum that is brought onsite as sows and put into lots with a mixture of ingots or shavings of copper, ferrosilicon, and silicon to create the desired A-380 alloy. The facility adds between 200 and 400 lbs of copper per lot, depending on the chemistry of the aluminum. These lots are melted in one of two large natural gas furnaces; the melt furnaces operate at approximately 1325°F. Only one furnace runs at a time; the first furnace has a capacity of 100,000 lbs and the second 90,000 lbs. The molten material is poured from a spout in the furnace into ceramic holders. The holders weigh up to 4,200 lbs and are moved by forklift. The holders are brought to a station and flux is added to remove hydrogen and dirty material. The holders are then ferried to smaller holding furnaces. There are 14 natural gas fired holding furnaces onsite.

The holding furnaces keep the metal at temperature before the high-pressure casting process. The mold for the casting is coated with a die lube so that the part does not stick to the mold. Diecasts can range from one inch to over four feet in length. A robotic arm ladles the molten material from the holding furnace to the entry point of the diecast. A rod pushes the molten metal into the diecast. The material is forced into the diecast under high pressure to fill each intricate part. The diecast is then opened, and the solid cast piece can be removed. The cast is quenched in water and allowed to cool for a couple seconds before it is placed on a conveyor where it is inspected by a facility worker. The piece is then either placed in an area to be taken to finishing or rejected and placed in a barrel labeled for remelt. The facility will remelt clean casts that have deficiencies as well as trimmed scraps from the process. The facility will not remelt scrap that has been placed on the floor or shavings from the ground; the “dirty” aluminum is collected and shipped offsite.

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Pieces that are deemed acceptable are moved to finishing. Processes in finishing include trimming, manual grinding, heat treating, and shotblasting to help de-burr the pieces. There is a heat treat furnace to relieve the stress and relax the structure of the cast during the cooling process. For shotblasting, the facility has two spinner hangers that are attached to a shared baghouse. This baghouse has the pressure drop recorded manually during each shift. There was also a new, larger shotblast system that was installed between January 2023 and March 2023. It contains a dust collection system that dumps the larger particles into barrels while finer material is vented to atmosphere. The barrels are checked each shift and the facility is tracking the fill rate to determine the routine needed for maintenance. The pressure drop recorded on a PLC and can shut the system off the pressure is out of range for manufacturer specifications. Records of pressure drop are maintained for 12 hours after the measurement was taken.

There is a small weld shop and a parts washer that use off-the-shelf solvents at the facility.

Staff Interview:

There are three permitted facilities under the parent company, a site in Richmond, WI, a site in Sun Prairie, WI and two sites that make up the Madison permit under the name Madison-Kipp Corps. The inspection took place at the 201 Waubesa Avenue address which is the location for the Atwood Facility under the Madison-Kipp permit. The other facility is called the Fair Oaks Facility (FOF) on 166 South Fair Oaks Avenue which is 0.25 miles northeast.

The Atwood facility operates from Sunday at 11:00AM to Friday 11:00PM. There are approximately 100 employees and 490 employees company wide. There are 3 shifts at the facility. The facility has always been an aluminum facility since it was started over 100 years ago.

The facility added the additional shotblast machine and has plans to add the same model to the Fair Oaks Facility. There is also a CNC machine onsite, but it is being moved to Sun Prairie. Since the raw material is clean, the facility also no longer uses chlorine.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

EPA toured the melting furnaces and the diecasting equipment. The diecasting area had limited visibility due to a haze in the air. Exhaust in the diecasting process area is vented above to the atmosphere out of the seven central stacks. Large totes of release agent were observed, and it was noted that the agent is diluted before further use.

Photos: were not taken during the inspection.

CLOSING CONFERENCE

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

Requested documents:

- A process flow diagram that shows each step of the process and the vents for emissions and where they vent (i.e., indoors or to atmosphere)
- A copy of the facility's MPAP
- Stack drawings for S19 B1, C1, D1, E1, B2, C2, D2, F2 that show each of their heights
- Previous two stack tests for S19 B1, C1, D1, E1, B2, C2, D2, F2 that were completed
- Manufacturer's operating and maintenance related instructions for the shotblast dust control, including the required pressure drop range, for both shotblast systems.
- Preventative Maintenance or Work Orders that have been completed on the emissions control devices from January 1, 2019 – May 18, 2023
- SDS for Shotblast material
- SDS for the Die lube used as a release agent
- SDS for flux used as Degasser station that is used for cleaning the melt furnaces
- Manufacturer spec sheets for aluminum "sows" brought onsite between January 1, 2022 – December 31, 2022*
- Manufacturer spec sheets for copper brought onsite between January 1, 2022 – December 31, 2022
- Manufacturer spec sheets for silicon brought onsite between January 1, 2022 – December 31, 2022
- Manufacturer spec sheets for ferrosilicon brought onsite between January 1, 2022 – December 31, 2022
- Records of daily temperature for the melt furnace from January 1, 2022 – December 31, 2022.
- Records of the number or tons of sows (raw aluminum) brought on-site from January 1, 2020 – May 16, 2023
- Records of the amount of copper brought onsite from January 1, 2020 – May 18, 2023
- Records of "dirty" aluminum quantities collected and shipped off-site from January 1, 2020 – May 18, 2023
- Records showing the "daily throughput", "the most recent emission factor" and the "daily actual emission rate for each stack" from January 1, 2020 – May 18, 2023
- Confirmation that the 2000 KW Caterpillar model 3516B electric generator is either detached from the process or has been completely removed from the site and the date that these changes were implemented.

*This was updated on May 26, 2023 to "Manufacturer spec sheets for aluminum "sows" brought onsite between January 1, 2022 – December 31, 2022 – requesting one week of documents for each month concluding in 12 weeks of documentation".

Concerns: The diecasting building had a haze that limited the visibility and vented to atmosphere above the diecasting machines.

DIGITAL SIGNATURES

Report Author:   Digitally signed by ERIN DUMONTELLE
Date: 2023.05.26 14:22:29 -05'00'

Section Supervisor:   Digitally signed by SARAH MARSHALL
Date: 2023.05.30 09:29:45 -05'00'