REGION 5
CHICAGO, IL 60604

MEMORANDUM

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Consolidated Precision Products Corp, Bloomington, MN

FROM: Jacob Herbers, Environmental Engineer
AECAB (MI/WI)

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

TO: File

BASIC INFORMATION

Facility Name: Consolidated Precision Products (CPP)

Facility Location: 8701 Harriet Ave, Bloomington, MN 55420

Date of Inspection: August 30, 2024

EPA Inspectors:
1. Jacob Herbers, Environmental Engineer
2. Emma Leeds, Environmental Engineer

Other Attendees:
1. Jenae Carlson, Air Inspector, Minnesota Pollution Control Agency (MPCA)
2. Bryan Cummings, EHS Manager, CPP
3. Dylan Festler, EHS Specialist, CPP
4. Jason Haugen, Maintenance Supervisor, CPP

Contact Email Addresses: bryan.cummings@cppcorp.com and jason.haugen@cppcorp.com.

Purpose of Inspection: To evaluate compliance with the CAA and the facility's air permit.

Facility Type: Aluminum (Al) and Magnesium (Mg) casting foundry.

Regulations Central to Inspection: The Facility's operating permit, and the National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZZZ: Area Source Standard for Aluminum, Copper, and Other Nonferrous Foundries.

Arrival Time: 10:10 CDT
Departure Time: 13:15 CDT

Inspection Type:
☒ Unannounced Inspection

OPENING CONFERENCE

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☒ Provided Small Business Resource Information Sheet
☒ Provided CBI warning to facility

The following information was obtained verbally from Bryan Cummings, Dylan Festler, and Jason Haugen, unless otherwise noted.

Process Description:

CPP's nonferrous foundry in Bloomington (the Facility) produces Al and Mg metal parts for military and commercial aviation products.

The Facility mixes silica sand and binder to create molds and cores for the casting process. The three mold making machines have exhaust ducts present.

Metal is melted in casting furnaces, which are found in two different parts of the Facility based on the metal being melted. There are five Al furnaces and eight Mg furnaces. The furnaces have covers on top which are closed when material is not being added or mixed (Images 4, 6, 24, 26). Exhaust vents in the ceiling above both furnace areas vent to atmosphere (Images 8, 25).

Eight large pots (Thermtronics) are used for mixing molten Al, and are mostly covered by lids (Images 11-12). An exhaust duct above them routes to a dust collector.

Molten metal is taken from the furnaces or mixers, and manually poured into the molds to form metal castings. Movable exhaust ducts can hover over the pouring stations, with the goal of capturing the most smoke (Image 2).

The metal castings are then put on one of two shakeout beds (Image 13) to dislodge mold sand, and then may be processed, heat treated, welded, and/or finished with saws, sandblasters (Image 18), a Wheelabrator shot blaster (Image 3), and other machines.

The shakeout beds exhaust to dust collectors outside. Some of the saws have exhaust ducts leading to a wet dust collector (Images 14-15). The welding stations have exhaust ducts leading to a dust collector (Image 16). The sandblasting area exhausts through open ducts to atmosphere (Images 22-23). The Wheelabrator is controlled by a baghouse (Images 19-20).

The Facility reuses their own scrap metal, and does not take in external scrap. Castings are also cleaned in various tanks, including cold water, hot water, rinse water, sodium hydroxide, deoxidizer, sulfuric acid, hydrofluoric acid, and nitric acid tanks. Exhaust ducts from the tanks lead to a baghouse.

There is a fluidizing bed behind the Al furnaces, which exhausts to a cyclone separator (Images 27, 29). The Facility also has general exhaust fans, a makeup air unit (Images 9-10), and a gas heater (Image 7).

Staff Interview:

The Facility opened in 1955 and operates close to 24/7. There are 550 employees. Facility staff stated that no major changes have been made recently.

The Facility just produces Al and Mg alloys, which don't include lead, but may include nickel and/or beryllium. The Facility doesn't pull air from directly above the Mg furnaces because they don't want to oxidize the Mg (Image 4).

The Facility monitors the pH of its water tanks, and facility staff were not aware of any stack testing that has ever been performed at the Facility. Facility staff stated that the building draws a lot of negative pressure.

Facility staff stated that dust on the ground behind the building was probably from the sandblasting area. Facility staff stated that the dust siloes are typically refilled once per day by trucks (Videos 33, 36; Image 34), and that 70% of sand is reused, the rest goes to the dust collectors (Image 28).

EPA asked if anyone observes or records the pressure drop readings for the baghouses. Facility personnel said that someone in the maintenance department should be taking the readings, but they weren't sure who does it or how often it's done.

TOUR INFORMATION

EPA Toured the Facility: Yes

Data Collected and Observations:

EPA inspectors first toured the melting, casting, and finishing areas inside (Images 1-18, 24-27).

EPA inspectors observed emissions from Mg furnaces escaping capture, visible fumes near the ceiling of the Mg furnace area (Image 8), and open doors adjacent to the Mg furnaces (Image 5).

EPA inspectors also observed an open door next to the sandblasting area, and an open bay door near the molding machines (Image 1). EPA inspectors observed dust escaping the shakeout hood (Image 13), and saw piles of dust all around the fluidizing bed (Image 27).

Outside the building, EPA inspectors toured the baghouses, cyclone separators, dust barges, and silos (Images 19-23, 28-32, 34-35, 37-40; Videos 33, 36). EPA inspectors observed that sand and dust from the Facility was on the ground outside in thick layers, sometimes mixing with rainwater to form a thick mud (Images 21, 23, 35). EPA inspectors observed that silica sand was being emitted from the silo loading process (Videos 33, 36; Images 34-35).

Photos and Videos: were taken during the inspection and are listed in Appendix A.

Field Measurements: were not taken during this inspection.

Concerns: EPA inspectors expressed concern about airborne emissions escaping capture hoods inside the Facility and the building envelope, and about silica sand escaping the silo behind the building.

CLOSING CONFERENCE

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

Requested documents:

- Manufacturer manuals for the baghouses / filters / dust collectors or others record containing baghouse differential pressure setpoints
- All pressure drop data for air emission controls since 2020
- Annual metal throughput data since 2020, separated for Al and Mg
- Facility blueprints
- Process Flow Diagrams (PFDs)
- All previous stack test reports
- Notice of Compliance Status (NOCS) for NESHAP ZZZZZZ
- All semiannual deviation reports submitted since 2020
- All annual emission reports and supporting calculations since 2020
- Documentation of how frequently the silica sand silos are refilled

DIGITAL SIGNATURES

Report Author: Herbers, Jacob Digitally signed by Herbers, Jacob Date: 2024.10.22 13:05:03 -05'00'

Section Supervisor: SARAH MARSHALL Digitally signed by SARAH MARSHALL Date: 2024.10.23 08:00:52 -05'00'

APPENDIX A: DIGITAL IMAGE AND VIDEO LOG

Inspector Name: Jacob Herbers **Archival Record Location:** EPA Electronic Files

#	File Name	Time (CDT)	Description
1	IMG_0638.JPG	10:45	Open bay door near molding machines
2	IMG_0639.JPG	10:54	Movable hood in 'E-bay' for pouring
3	IMG_0640.JPG	10:58	Mg shot blaster and dust collector for cold box
4	IMG_0641.JPG	11:03	Mg furnaces 1, 2, and 3
5	IMG_0642.JPG	11:05	Open door at NE corner of Mg pouring area
6	IMG_0643.JPG	11:07	Mg furnace #6 open
7	IMG_0644.JPG	11:11	Gas furnace suspended from ceiling before the Mg pouring room
8	IMG_0645.JPG	11:19	Exhaust vent on ceiling of Mg furnace room
9	IMG_0646.JPG	11:25	Air makeup units in Al stirring room
10	IMG_0647.JPG	11:26	Air makeup units in Al stirring room
11	IMG_0648.JPG	11:28	Thermtronic with no mixer in it
12	IMG_0649.JPG	11:31	Thermtronic #3 with mixer dipped in it
13	IMG_0650.JPG	11:34	Shakeout with two vents, dust escaping capture
14	IMG_0651.JPG	11:38	Dust collector for saws grinding parts after shaker
15	IMG_0652.JPG	11:41	Vents over saws going to wet dust collector
16	IMG_0653.JPG	11:46	Dust collector for welding booths
17	IMG_0654.JPG	11:53	Tank with vent behind it
18	IMG_0655.JPG	11:57	Al Oxide blasting area next to open bay door
19	IMG_0656.JPG	12:11	Wheelabrator baghouse and dust barge #6
20	IMG_0657.JPG	12:12	Wheelabrator baghouse and dust barge #6
21	IMG_0658.JPG	12:14	Dust / mud on the ground next to dust barge #6
22	IMG_0659.JPG	12:15	Ducts and open vents coming out of sandblasting area
23	IMG_0660.JPG	12:18	Ducts and open vents with dust on ground
24	IMG_0661.JPG	12:21	Top of Al furnace
25	IMG_0662.JPG	12:22	Opening in ceiling with fan in Al furnace room
26	IMG_0663.JPG	12:24	Back of Al furnace
27	IMG_0664.JPG	12:26	Fluidizing bed vent to cyclone separator
28	IMG_0665.JPG	12:29	Garbage sand collector
29	IMG_0666.JPG	12:29	Cyclone separators
30	IMG_0667.JPG	12:30	Two dust collectors
31	IMG_0668.JPG	12:32	Two more dust collectors & opening in wall across from cold box
32	IMG_0669.JPG	12:36	Mg dust collector
33	MVI_0670.MP4	12:37	VIDEO of silica sand silo being filled, with visible emissions
34	IMG_0671.JPG	12:38	silica sand silo being filled, with visible emissions from top & bottom
35	IMG_0672.JPG	12:39	Bottoms of sand silos, dust on ground
36	MVI_0673.MP4	12:40	VIDEO of visible emissions from top of reclaim sand Zircore building
37	IMG_0674.JPG	12:41	Reclaim sand Zircore building
38	IMG_0675.JPG	12:43	Carbon black dust collector
39	IMG_0676.JPG	12:44	Another carbon black dust collector
40	IMG_0677.JPG	12:45	Beryllium dust collector