



REGION 5

CHICAGO, IL 60604

MEMORANDUM

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Metal Technologies Auburn, LLC

FROM: Valeria Apolinario, Environmental Engineer
AECAB (MN/OH)

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

TO: File

BASIC INFORMATION

Facility Name: Metal Technologies Auburn, LLC

Facility Location: 1537 West Auburn Drive, Auburn, Indiana 46706

Date of Inspection: February 20, 2024

EPA Inspectors:

1. Valeria Apolinario, Environmental Engineer
2. Matthew Walters, Environmental Engineer

Other Attendees:

1. John E. Alexander, IDEM Air Compliance Inspector
2. Brent R. Charlton, Vice President, EHS
3. Dave Bent, Director of Casting Operations – Michigan
4. Charles Griffetts, Maintenance Manager
5. Dan Plant, Corporate Environmental Manager (closing conference only)
6. Ryan Palmer, Corporate Environmental Sustainability Manager (closing conference only)

Contact Email Address: dplant@metal-technologies.com

Purpose of Inspection: to determine compliance with the Facility's Title V Permit and the National Emission Standards for Iron and Steel Foundries (NESHAP Subpart 5E).

Facility Name: Metal Technologies Auburn, LLC
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Date of Inspection: February 20, 2024

Facility Type: Gray and Ductile Iron Foundry

Regulations Central to Inspection: the Facility's Title V Permit and NESHAP Subpart 5E, specifically:

Condition D.4.4(a) provides that the normal range for the pressure drop of baghouse DC-7 is 1.5 to 8 inches of water column.

Condition D.5.7 provides that the permittee shall record the fan amperage of baghouse DC-20 used in conjunction with the ductile iron conversion process at least once per day when the process is in operation. The normal range for the fan amperage at baghouse DC-20 is between 40 to 60 amps unless a different upper-bound or lower-bound value for the range is determined during the latest stack test.

Condition D.7.3(a) provides that the thermal chip dryer is to be operated with a VOC capture efficiency of 100%.

Condition D.7.8(a) provides that the permittee shall record the duct pressure of the thermal oxidizer used in conjunction with the thermal dryer at least once per day when the thermal chip dryer is in operation. The normal range is a duct pressure between 0.1 and 0.8 inches of water column unless a different upper-bound or lower-bound value for the range is determined during the latest stack test.

Condition D.7.9(a) states that the permittee shall operate the thermal oxidizer at or above the 3-hour rolling average temperature of 1,330 °F.

40 C.F.R. §63.7700(a) provides that the Facility must comply with the scrap certification requirements in 40 C.F.R. §63.7700(b) or prepare and implement a plan for the selection and inspection of scrap according to 40 C.F.R. §63.7700(c).

40 C.F.R. §63.7740(c)(1) provides that for each baghouse, regardless of type, that is applied to meet any PM or total metal HAP emissions limit, the Facility must monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual. 40 C.F.R. §63.7741(b) provides that the Facility is to install, operate, and maintain a bag leak detection system for each negative or positive pressure baghouse equipped with a stack that is applied to meet any particulate or total metal HAP emissions limitation. The Title V Permit provides that NESHAP Subpart 5E applies at emissions units controlled by baghouses DC-2 and DC-8.

Arrival Time: 1:00 PM

Departure Time: 3:30 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 Facility staff unless otherwise noted.

Process Description:

There are three main processes at the Facility. One process is known as the thermal chip drying process in the Title V Permit. Scrap turnings, borings, and chips are washed and then fed into a rotary dryer where the materials are dried. After, these materials are treated similar to other scrap steel at the Facility and are loaded into the melting furnaces. These materials are also supplied as scrap to other Facility sites. A thermal oxidizer controls VOC emissions from the rotary dryer.

The second main process at the Facility is the manufacturing of gray and ductile iron. Suppliers certify that the scrap steel meets raw material standards (e.g., free of mercury switches, lead components, and free organic liquids). The Facility also inspects scrap steel loads as they come in. This scrap steel is batch fed into the 3 electric induction style furnaces. The molten iron is channeled into the ajax holding furnace prior to transferring to a tram to pour into the molding lines. There are four molding lines. Once the iron is molded into the desired shape, it goes through a cooling line where the casting hardens, a shakeout line where sand is shaken from the casting, and a shot blaster where the casting is smoothed with a mixture of shot grit or steel. Smoke hoods over the electric induction furnaces and collection points on the ajax holding furnace route particulate generated from the processes to baghouses known as DC-2 and DC-8. Between the holding furnace and the tram to the molding line is the ductile iron conversion process where gray iron is converted to ductile iron. The Title V Permit describes that in this ductile iron conversion process, magnesium and other elements are added to molten iron to product ductile iron. Side draft fume and exhaust hoods are associated with the ductile iron conversion process.

Lastly is the Core-Making process, which is the phenolic urethane cold box process in the Title V Permit. Foundry sand is blown into a core mold. A diisocyanate binder is added to the mold and the mixture is cured with an amine gas. The amine gas is ejected into a scrubber system and is recovered from the process to be sent back to the manufacturer. The cured core is ejected from the mold and dunked into a clay slurry. The clay slurry is dried onto the core in a drying oven. This sand core is used at the Facility to make hollow parts.

Staff Interview:

- The Facility operates 24 hours per day, for 5-6 days per week.
- There are 262 hourly and 43 salary employees at the Auburn Facility.

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- Currently there are two Core-Making machines at the Facility. Emissions from both are routed to the same scrubber system. The newer Core-Making machine was permitted in 2024 and was in operation at the time of the inspection.
- The amine scrubber pH is monitored daily and is typically operated at a pH of 4.
- There are BLDSs on DC-2 and DC-8. These systems are tested monthly by introducing material to the stack and there are quarterly black light inspections at the baghouses. BLDS alarms typically only ring during maintenance. The Corporate Environmental Manager set the alarm setpoints. A dust collector preventative maintenance checklist is completed each week. Pressure drop is monitored continuously and electronically logged.
- The thermal oxidizer is inspected annually by a third-party. The calibration of the thermocouple is verified each month. Temperature and duct pressure of the thermal oxidizer are monitored and trended continuously.
- Fan amperage is monitored for the baghouse DC-20 associated with the Ductile Iron Conversion Process. If the fan amperage were to go outside of the setpoint range, an environmental alarm would appear on the operator's monitoring screen.
- The shakeout operation for Line 4 was modified in 2021.

TOUR INFORMATION

EPA Toured the Facility: Yes

Data Collected and Observations:

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

The tour began at the Thermal Chip Drying Process. EPA utilized the FLIR camera and noted fugitive VOCs from the dryer. EPA observed a small opening between the burners and the rotary dryer where VOCs were escaping from (Image 4). EPA viewed the thermal oxidizer monitoring screen and recorded an oxidizer temperature of 1345 °F with a setpoint at 1340 °F. The oxidizer fan air pressure was 0.42 inches of water column with a setpoint at 0.40 inches of water column.

EPA then walked through the gray iron and ductile iron conversion process. EPA observed fugitive particulate emissions from the ajax holding furnace and ductile conversion process and noted the pick-up points to the baghouses. The emissions were not observed leaving the building. EPA observed two electric induction furnaces and the pick-up points to the baghouses.

EPA walked through the Core-Making processes. Only the new process was operating. EPA recorded the amine scrubber pH as 3.4 at the time of inspection. EPA used the FLIR camera on the scrubber stack and did not note emissions. EPA used the FLIR camera on the entrance to the drying oven after the clay slurry was applied onto the sand core and visualized emissions escaping from the entrance to the drying oven. EPA clarified with Facility staff that the dryer vents to the atmosphere and exited the Facility. EPA visualized VOC emissions at the dryer stack using the FLIR camera.

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EPA reentered the Facility and finished its tour at the maintenance room where baghouse data is monitored. EPA noted the following parametric data at the time of inspection:

- DC- 7 pressure drop: 4.8 inches of water column
- DC-8 pressure drop: 6.2 inches of water column
- DC-20 (Ductile Iron Conversion Process) Fan Amperage: 42.3 Amperes
- DC-2 pressure drops (multi-compartment):
 - #1 – 4.0 inches of water column
 - #2 – 3.4 inches of water column
 - #3 – 3.5 inches of water column
 - #4 – 3.6 inches of water column
 - #5 – 4.0 inches of water column

CLOSING CONFERENCE

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

Requested documents:

- Scrap handling written certification, as required by 40 C.F.R. §63.7700(b), or written plan as required by 40 C.F.R. §63.7700(c);
- Operations and Maintenance plan, as required by 40 C.F.R. §63.7710(b);
- Most recent stack/performance tests for:
 - Baghouse DC-2;
 - Baghouse DC-8;
 - Baghouse DC-20; and
 - Thermal Oxidizer for the thermal chip dryer;
- The past six-months of the following parametric data:
 - Pressure drop of the DC-2 baghouse;
 - Pressure drop of the DC-8 baghouse;
 - Fan amperage of the DC-20 baghouse;
 - Thermal Oxidizer duct pressure; and
 - Thermal Oxidizer temperature on a 3-hour rolling average;
- Any reports or analyses conducted for the new automated shakeout line regarding its contribution to the overall reconstruction of the facility;
- Any capture efficiency studies from 2010 to present;
- SDS for core resin and clay coating for both core making processes; and
- Update on corrective actions taken at the chip dryer to address fugitive VOC emissions identified during the inspection

Concerns: EPA noted to the Facility that there appeared to be fugitive VOCs escaping the rotary dryer at the thermal chip drying process. EPA also expressed concern that there were VOC emissions coming from the drying oven at the Core-Making process. On March 8, 2024, the Facility stated that VOC emissions visualized at the thermal chip drying process were determined to be from natural gas

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combustion from burners that indirectly heat the shell of the rotary dryer, not from the chip dryer itself. However, the Facility was working with vendors to seal the opening identified on inspection.

DIGITAL SIGNATURES

Report Author: **VALERIA**
APOLINARIO



Digitally signed by VALERIA
APOLINARIO
Date: 2024.04.17 15:36:25 -05'00'

Section Supervisor: **BRIAN DICKENS**



Digitally signed by BRIAN
DICKENS
Date: 2024.04.17 16:05:10 -05'00'

APPENDICES

1. Appendix A: Digital Image Log and Digital Video Log

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APPENDIX A: DIGITAL IMAGE LOG AND DIGITAL VIDEO LOG

Inspector Name: Matthew Walters and Valeria Apolinario **Archival Record Location:** *R5 Electronic Record Center/Enf_MetalTechnologies_IN_24/ Enf_MetalTechnologies_IN_24_InspRep/Photos and Videos*

Image Number	File Name	Date and Time (EST)	Description of Image
1	IMG_0522.JPG	2/20/2024 13:14	Thermal Chip Drying Process Thermal Oxidizer
2	IMG_0523.JPG	2/20/2024 13:14	Separator after Thermal Oxidizer and Stack
3	IMG_0524.JPG	2/20/2024 13:17	Cyclone Prior to Thermal Oxidizer
4	IMG_0525.JPG	2/20/2024 13:20	Opening between Burners and Rotary Dryer
5	IMG_0526.JPG	2/20/2024 13:26	Thermal Oxidizer Control Screen
6	IMG_0527.JPG	2/20/2024 13:30	Ajax Holding Furnace
7	IMG_0528.JPG	2/20/2024 13:33	Induction Furnace/Melter #2
8	IMG_0529.JPG	2/20/2024 13:33	Induction Furnace/Melter #3
9	FLIR0085.mp4	2/20/2024 13:24	Fugitive VOCs seen at Rotary Dryer
10	FLIR0086.mp4	2/20/2024 13:54	Scrubber Stack/Core Process Dryer Entrance
11	FLIR0087.mp4	2/20/2024 13:58	Core Process Dryer Stack
12	FLIR0088.mp4	2/20/2024 13:59	Fugitive VOCs seen from Core Process Dryer Stack