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

DATE:	See Date of Section Chief Signature Below
SUBJECT:	CLEAN AIR ACT INSPECTION REPORT Republic Steel, Canton, Ohio
FROM:	David Sutlin, Environmental Engineer AECAB (MN/OH)
THRU:	Brian Dickens, Section Chief AECAB (MN/OH)
TO:	File

BASIC INFORMATION

Facility Name: Republic Steel

Facility Location: 2633 Eighth Street NE, Canton, Ohio

Date of Inspection: September 20, 2021

EPA Inspector(s):
1. Dakota Prentice, Environmental Engineer
2. David Sutlin, Environmental Engineer

Other Attendees:
1. Mike Eberhart, Air Compliance Director – Republic Steel
2. Ed Pollock, Compliance Officer – Republic Steel
3. Jared Wansor, Environmental Manager – Air, Republic Steel
4. Sara Kingsbury, Environmental Manager – Water & Waste, Republic Steel
5. Greg Bosiljcic, Director of Environmental Waste & Water, Republic Steel
6. Wesley Beebe, USW Local 1200
7. Jessica Kuenzli, Environmental Manager – Permit Support Unit, Ohio EPA
8. Terri Dzienis, Air Pollution Control – Director, Canton City Public Health
9. Ronald Jones, APC Engineer, Canton City Public Health

Contact Email Address: Mike Eberhart - meberhart@republicsteel.com

Purpose of Inspection: to determine compliance with federally enforceable permits and identify potential lead emission sources impacting a local ambient air monitor

Facility Type: Steel Mini-Mill

Regulations Central to Inspection: Ohio State Implementation Plan

Arrival Time: 8:00AM
Departure Time: 5:30PM

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:
☒ Provided CBI warning to facility

The following information was obtained verbally from Republic Steel representatives unless otherwise noted.

Process Description:
Steel production begins with the delivery of scrap metal via railcar. An electric arc furnace (EAF) is charged with the various constituents of the steel "recipe" including the scrap metal. Emissions from the EAF are controlled by a direct shell evacuation control system that routes emissions to the #4 Meltshop Baghouse. After completion of a furnace cycle, the molten steel is tapped into a ladle and moved to either the Flexcast line or Continuous Bloom Casting Facility (CBCF); however, production and staffing levels do not currently allow both Flexcast and CBCF to be operated simultaneously.

The process units at Flexcast and CBCF are generally the same, each having a dedicated ladle metallurgical furnace (LMF) and vacuum tank degasser (VTD). After tapping from the EAF, the ladle of molten steel first moves to the LMF for the addition of certain alloys such as selenium. The LMF at Flexcast is controlled by the #4 Meltshop Baghouse, and the LMF at CBCF is controlled by the LMF Baghouse. From the LMF, the steel is taken to a vacuum tank degasser (VTD). At the VTD, the ladle is placed within an enclosure while a vacuum is applied and argon gas is bubbled through the steel to remove impurities. Additional alloys are added at the VTD, including lead. Lead can only be added to steel at the VTDs. This lead "inoculation" is performed at the end of a VTD cycle by adding lead wire to the steel via a small opening in the VTD enclosure.

Emissions from the VTDs are controlled by the steam ejector system that generates the vacuum. This steam control system results in two paths for captured material such as lead: (1) condensed steam, and those emissions that have condensed or have been absorbed in the condensate are routed to a cooling tower and then either recirculated or sent to a wastewater system for eventual disposal as a hazardous waste; and (2) the non-condensible material is vented to a steam stack at the exterior of the facility.

When the VTD process is complete, the enclosure is opened and a cover is placed on the ladle. The steel is then taken to the tundish where the ladle is tapped and the steel flows to the casting lines. The tundish at Flexcast is controlled by the Flex Baghouse. The tundish at the CBCF is controlled by a vacuum truck acting as a baghouse. Casting uses water spray chambers to aid in cooling the steel. Casting also includes torch cutting operations. Casting is an uncontrolled process. From casting, the billets move to grinding and shot blasting operations as needed and then transferred to rail yards to be sent to other Republic Steel facilities.

Staff Interview:
The facility has two EAFs, EAF #7 and EAF #9. Current production is limited to EAF #9, as EAF #7 has not operated since approximately 2015. The baghouse controlling emissions from EAF #9 and with the potential to control emissions from the location of EAF #7 is currently operating only three of five fans.

A typical lead inoculation consists of approximately 1,000 to 2,000 pounds of lead. The facility is not allowed to add heat to a ladle of leaded steel. In the event of equipment failure at casting, a ladle of leaded steel cannot be kept at optimal temperature at the LMF. This leaded steel that requires additional heat while waiting to be cast must first return to the VTD to "boil off" the lead. This ladle can then return to the LMF to be taken back up to optimal temperature. After reaching the needed temperature, the ladle of steel is then returned to the VTD for additional lead to be added.

Certain portions of the facility require respirators due to elevated lead concentrations in the air. One of these locations is casting. While elevated levels of lead have been detected around casting operations, this portion of the facility does not have any associated air pollution control equipment.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

- CBCF was not in operation during the inspection.
- Secondary capture or "scavenger" collection systems were not present in those portions of the facility associated with leaded steel production. Uncaptured emissions were observed throughout EAF #9 and VTD areas.
- Multiple steam leaks observed at the system generating vacuum and providing control for lead emissions at the Flex VTD. These leaks were observed at the exterior of the facility.

- Significant buildup of particulate matter or dust within the Meltshop, Flex, and CBCF buildings.
- Holes observed in multiple locations of Flex and CBCF building roofs.
- Fugitive dust observed at exterior slag handling near EAF bay.
- Casting operations not observed due to equipment issues. This resulted in the need to "boil off" lead in the VTD.

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 or Information:

- Scrap Management Plan
- Specifications for each steel alloy produced at the facility
- Capacity of #4 Meltshop Baghouse
- Control efficiency information from manufacturer of VTD control systems
- Frequency of tundish and ladle replacement
- Copy of most recent two performance tests at the #4 Meltshop Baghouse and the most recent performance test at all other emission units
- Results of 2019 water testing at Flexcast VTD vacuum system
- Current Parametric Monitoring Plans for the Flexcast and CBCF VTDs
- Most recent OSHA personal exposure lead monitoring data
- Annual average of pounds of dust collected per ton of steel produced, for past three years
- Refresh rate of water used in the VTD vacuum system

DIGITAL SIGNATURES

Report Author: DAVID SUTLIN Digitally signed by DAVID SUTLIN Date: 2021.10.18 09:16:38 -05'00'

Section Chief: Brian Dickens Digitally signed by Brian Dickens Date: 2021.10.18 10:30:33 -05'00'

APPENDICES AND ATTACHMENTS

Appendix A: Photo and Video Log

Facility Name: Republic Steel
Facility Location: 2633 Eighth Street NE, Canton, Ohio
Date of Inspection: September 20, 2021

APPENDIX A: DIGITAL IMAGE AND VIDEO LOG

1. **Inspector Name:** D. Prentice and D. Sutlin	2. **Archival Record Location:** Region 5 Electronic Records Center

Image or Video Number	File Name	Date and Time (incl. Time zone and DST)	Description of Image or Video
1	P9200001.JPG	2021:09:20 10:47:05	Flexcast VTD Vacuum System Steam Stack
2	P9200002.JPG	2021:09:20 11:08:18	Flexcast VTD Bay
3	P9200003.JPG	2021:09:20 11:32:44	Flexcast VTD Post-Inoculation, Enclosure Opened
4	P9200004.JPG	2021:09:20 11:32:53	Flexcast VTD Post-Inoculation, Enclosure Opened
5	P9200005.JPG	2021:09:20 11:37:40	Flexcast Ladle with Cover, Post Inoculation
6	P9200006.JPG	2021:09:20 11:37:50	Flexcast Ladle with Cover, Post Inoculation
7	P9200007.JPG	2021:09:20 11:57:38	#4 Meltshop Baghouse
8	P9200008.JPG	2021:09:20 11:58:01	#3 Meltshop Baghouse
9	P9200009.JPG	2021:09:20 12:12:31	Fugitives Exiting Louvers - Lime Dust
10	P9200010.MOV	2021:09:20 12:27	Fugitive Emissions from Slag Handling
11	P9200011.JPG	2021:09:20 14:29:42	South Adjacent Ambient Air Monitoring Station
12	P9200012.JPG	2021:09:20 14:30:14	View of Facility from Ambient Air Monitor Station, CBCF VTD Vacuum System
13	P9200013.JPG	2021:09:20 15:05:11	Holes in CBCF Roof
14	P9200014.JPG	2021:09:20 15:10:31	Holes in CBCF Roof
15	P9200015.JPG	2021:09:20 15:36:05	Cooling Tower