



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

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
AZZ Galvanizing – Rockford, Rockford, Illinois

FROM: Patrick Miller, Environmental Engineer
AECAB (MN/OH)

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

TO: File

BASIC INFORMATION

Facility Name: AZZ Galvanizing- Rockford (AZZ)

Facility Location: 1925 Kishwaukee Street, Rockford, IL 61104

Date of Inspection: June 1, 2023

EPA Inspector(s):

1. Patrick Miller

Other Attendees:

1. Jorge Arroyave, EHS Specialist/Quality Manager
2. Michael McKinnon, Technical Director

Contact Email Address: jorgearroyave@azz.com

Purpose of Inspection: Determine compliance with the Clean Air Act, provisions of Lifetime Operating Permit issued by Illinois Environmental Protection Agency (EPA), and to determine lead emissions from operations at facility

Facility Type: Galvanizing steel parts

Regulations Central to Inspection: Lifetime Operating Permit No. 75120102 issued September 15, 2022 by Illinois EPA

Arrival Time: 9:00 AM

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Date of Inspection: June 1, 2023

Departure Time: 11:00 AM

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 Mr. Arroyave and Mr. McKinnon unless otherwise noted.

Company Ownership: AZZ Galvanizing – Rockford purchased the facility from Rogers Brothers five years ago.

Process Description:

AZZ galvanizes smaller steel parts, including bolts and washers. Prior to galvanizing, steel parts go through a pickling process. The pickling process includes two sulfuric acid tanks, which are heated to 140-150°F, one hydrochloric acid tank, which is not heated, one rinse tank, and a pre-flux tank, which prevents oxidation prior to galvanizing. Depending on the customer order, parts may go through each tank or only some of the tanks in the pickling process. The acid in the tanks is replaced every six months. Both sulfuric acid tanks are controlled by one wet scrubber with side draft hoods, and the pre-flux tank is controlled by a separate wet scrubber with side draft hoods. The scrubbers were installed 7-8 years ago. The water from the wet scrubbers is recycled back into the sulfuric acid tanks. Daily and weekly checks are performed on the scrubbers. Preventative maintenance is performed on the scrubbers.

There are three galvanizing kettles each controlled by a baghouse with side draft hoods. Daily and weekly checks are performed on the baghouses. Parts are placed in baskets and preheated prior to galvanizing. The baskets are lowered into the bath of molten zinc in the kettles. The amount of time the parts are in the molten zinc is dependent on the desired final thickness of zinc. After the parts are removed from the molten zinc, they are placed in a spinner. The spinner rotates at a high speed to remove excess zinc from the parts. The excess molten zinc hits the inside surface of the spinner cover, solidifies, and is collected. After spinning, the parts are water quenched. The quality checks are made to determine the final thickness of zinc coating. Parts are stored in a warehouse and shipped out via truck.

When the parts are in the kettles, impurities rise to the top of the molten zinc. These impurities, called skims, are periodically removed and later processed in the molten zinc recovery (MZR). The MZR burns the skims to recover free zinc. The MZR is controlled by a baghouse. The

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recovered zinc is cast into large blocks that are eventually added back to the molten baths in the kettles.

Staff Interview: EPA asked about possible sources of lead at the facility. Mr. McKinnon indicated that lead is present in the zinc received for the kettles. In the past, the facility used zinc with a higher permissible lead content than today. Currently the facility tests any waste from the galvanizing process and baghouse dust for lead and has not had any issues with high lead levels. EPA requested SDS sheets or other documentation that provided the lead content of the zinc used at the facility and emission calculations, including all emission factors used to quantify emissions, including lead.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

Galvanizing was not taking place at the time of the tour. The wet scrubbers for the sulfuric acid tanks and the pre-flux tank were operating. The pre-flux tank scrubber had a differential pressure of 2" of water. The differential pressure gauge for the sulfuric acid tank wet scrubber was blocked from view and could not be easily accessed. Water flow rate gauges could not be located for either wet scrubber. Differential pressure gauges for the baghouses controlling emissions from the kettles could not be located during the inspection. Even though galvanizing was not taking place at the time of the inspection, there was suspended particulate matter by Kettles #1 and #2. Mr. McKinnon and Mr. Arroyave indicated that the daily checks on the control equipment were performed by maintenance personnel who knew where the differential pressure gauges were. EPA requested daily differential pressure and visible emission checks for each baghouse and differential pressure and water flow rate checks for each wet scrubber.

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

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

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

Requested documents:

- Emission calculations per emission source for the past two years through June 1, 2023 (1/1/2021- 6/1/2023), including lead and any hazardous air pollutants;
- If not included in the emission calculations above, provide all emission factors used and how they were developed (AP-42, site specific stack testings, etc.) for each emission source;
- Any performance stack test results conducted on the baghouses or wet scrubbers since installation;
- All daily checks for differential pressure and visible emissions performed on the baghouses from 1/1/2023 – 5/31/23;

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- All daily checks for differential pressure and water flow rate performed on the wet scrubber from 1/1/2023 – 5/31/23;
- SDS sheets for the zinc, sulfuric acid, and hydrochloric acid;
- Documentation of lead content in zinc if not already provided in other documents;
- Copy of the most recent baghouse dust and waste lead content testing results;

Concerns: EPA raised concerns about not finding the differential pressure gauges for the baghouses and not being able to access the differential pressure gauge for the sulfuric acid wet scrubber.

DIGITAL SIGNATURES

Report Author: **PATRICK MILLER**  Digitally signed by
PATRICK MILLER
Date: 2023.07.28
15:25:02 -05'00'

Section Supervisor: **DAVID SUTLIN**  Digitally signed by DAVID
SUTLIN
Date: 2023.07.28
15:32:26 -05'00'

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APPENDICES AND ATTACHMENTS

- 1.* Appendix A – Digital Image Log

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APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Patrick Miller	2. Archival Record Location: Region 5 Enforcement and Compliance Assurance Electronic Record Center
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Image Number	File Name	Date and Time (incl. Time zone and DST)	Description of Image
1	P6010149.JPG	6/1/2023 10:19 AM	Pickling Process Room – scrubber hoods in background
2	P6010150.JPG	6/1/2023 10:23 AM	Kettle #3 Area
3	P6010151.JPG	6/1/2023 10:23 AM	Kettle #3 Area
4	P6010152.JPG	6/1/2023 10:28 AM	Kettle #1 Area
5	P6010153.JPG	6/1/2023 10:29 AM	Kettle #2 Area
6	P6010154.JPG	6/1/2023 10:30 AM	MZR Unit with Hood