



Clean Air Act Compliance Inspection Report

United States Environmental Protection Agency
Region 10 – Seattle, WA

Clean Air Act Full Compliance Evaluation Inspection Report

Ace Galvanizing, Inc.
Seattle, Washington

Inspection Date: November 19, 2021

ELIZABETH WALTERS

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Elly Walters
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A handwritten signature in black ink, appearing to read "B Whyte", is written over the printed name and title.

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Table of Contents

Contents

1. Basic Facility and Inspection Information	3
2. Compliance History	4
3. Inspection Elements/Order	4
4. Facility Walk-Through.....	5
5. Closing Conference.....	8

Attachments

Attachment 1	EPA Region 10 Digital Image Log
Attachment 2.....	Notice of Construction #2807
Attachment 3.....	Notice of Construction #5146
Attachment 4.....	Advance Notification of Inspection 11/16/21
Attachment 5.....	Facility Map
Attachment 6.....	Kettle Operation Procedure for Air Quality Compliance

1. Basic Facility and Inspection Information

Facility: Ace Galvanizing, Inc.
429 S 96th St
Seattle, WA 98108

Mailing Address: Same

AFS/FRS Number: 110000489481

SIC: 3479 (Metal Coating and Allied Services)

NAICS: 332812 (Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers)

Permit Number: N/A

Facility Contacts: Erik Jacobs
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Date of Inspection: November 19, 2021

Ace Galvanizing, Inc.

Inspection Start/End Times: 8:45 AM – 12:30 PM

Inspection Notice: Advance notice was provided to the facility via email by EPA on November 16, 2021, for this inspection (Attachment 4).

This was a multi-media Clean Air Act (CAA) and Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313 compliance inspection by the Environmental Protection Agency (EPA). This report only covers the CAA inspection. The purpose was to identify potential compliance concerns with CAA regulations, specifically to gather information in order to determine if facility is subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Secondary Nonferrous Metals Processing Area Sources, subpart TTTTTT.

The facility receives steel or iron material from other businesses and galvanizes the received material. Galvanizing is the process of applying a protective zinc coating to steel or iron in order to prevent rusting. The facility is a minor source for hazardous air pollutants (HAP).

The facility submitted two Notice of Constructions (NOC) to the Puget Sound Air Pollution Control Agency. NOC #2807 was approved on September 30, 1986, for the addition of retractable fume hoods over two zinc galvanizing kettles (Attachment 2). NOC #5146 was approved on October 29, 1993, for the modification of the existing large galvanizing kettle enclosure, addition of an enclosure to the small galvanizing kettle, and replace the existing baghouse with a 20,000-cfm pulse-jet baghouse (Attachment 3). According to the facility, the small galvanizing kettle was deconstructed several years ago and the facility only operates the large galvanizing kettle currently.

Disclaimer

This report is a summary of observations and information gathered from the facility at the time of the inspection and from records review. The information provided does not constitute a final decision on compliance with CAA regulations or applicable permits, nor is it meant to be a comprehensive summary of all activities and processes conducted at the facility.

2. Compliance History

A review of EPA's Enforcement and Compliance History Online database¹ shows that at the time of the inspection, the facility was reported as having no CAA violations in the last three years. ECHO shows no formal or informal enforcement actions in the last five years.

3. Inspection Elements/Order

a. Pre-Inspection Observations

Inspectors went directly to the facility. No observations were made prior to the scheduled inspection.

¹ See <https://echo.epa.gov/>

b. Entry and Opening Conference with facility representatives

Inspectors Elly Walters and Brendan Whyte from EPA Region 10 arrived at about 8:45 AM on November 19, 2021. The inspectors were met by Erik Jacobs, Environmental Health & Safety Manager, and Kent Harwood, Quality Manager, and were escorted to a conference room. Inspectors Walters and Whyte presented their credentials to Mr. Jacobs and Mr. Harwood. The opening conference began at 9:00 AM. Inspector Walters explained the purpose of the inspection and an overview of the inspection process. Inspector Walters explained that this was a multi-media inspection to determine compliance with CAA and EPCRA Section 313; and identified herself as the lead for both inspections.

The EPA inspectors then reviewed the scope of the inspections with Mr. Jacobs and Mr. Harwood and identified areas that they would like to observe during the walkthrough. The purpose was to identify potential compliance concerns with CAA regulations, specifically to gather information in order to determine if the facility is subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Secondary Nonferrous Metals Processing Area Sources, subpart TTTTTT. Additionally, EPA was also inspecting this facility for compliance with Toxics Release Inventory (TRI) requirements (this report does not cover the TRI compliance inspection). Inspector Walters also informed Mr. Jacobs and Mr. Harwood that Inspector Whyte would be taking photographs during the inspection and to please inform the inspectors if any information gathered from the inspection is Confidential Business Information (CBI). The inspectors and facility representatives reviewed documents and process flow diagrams of the facility's processes for a majority of the opening conference.

4. Facility Walk-Through

The inspection team was escorted by facility representatives Mr. Jacobs and Mr. Harwood during the facility walkthrough.

The inspection included a thorough walkthrough of the facility, interviewing operators and taking photographs.

The walkthrough began at 9:45 AM. A digital photo log is Attachment 1 to this report. A Map of the facility is Attachment 5.

Maintenance Shop

Racks, hooks, and chains (to lift and dip materials into pretreatment tanks or the galvanizing kettle) are constructed in the maintenance shop. Inspectors observed several welding tables and were informed that welding was not used for production. Inspectors also observed facility staff grinding and filing large pieces of metal material, and Mr. Harwood explained that the material were galvanized material and that the facility was cleaning and removing drips from them. Inspectors also noted a small blasting booth with a collection system and were informed that the blaster used glass media. Mr. Jacobs explained that the fines collected are put into a satellite collection bin. Inspectors noted fines under the blasting equipment (photo PB190086).

Waste Accumulation Area

The inspection team and facility representatives walked from the maintenance shop to the waste accumulation area, located in the adjacent building. Dried sludges, from the pretreatment tanks in the wet processing area, and scrapped spray-paint cans are stored in the waste accumulation area. Sludges are sent to a landfill and the facility removes leftover paint from spray cans, scraps and crushes the metal, and then sends the metal to Seattle Irons & Metals. On the way to the storage yard from the waste accumulation area, inspectors noted visible emissions from the wet processing area (video PB190090). Mr. Harwood explained to the EPA inspectors that the visible emissions were water vapor and were not unusual during colder weather like the day of this inspection.

Storage Yard

Steel and iron materials arrives by truck and is stored in an area on the south side of the facility. The facility receives materials from other businesses, for the purposes of galvanizing them, and stages the received materials outside. Some galvanized material was also stored outside in the storage yard. The group walked through the storage yard to large crates where dross blocks, kettle skimmings and ferrous sulfate were stored. The dross blocks and kettle skimmings are produced as byproducts of galvanizing and are sold by the facility as saleable commodities. The ferrous sulfate is produced in the acid recovery room and also sold as a saleable commodity (see description below).

Tank Farm and Acid Recovery Room

The group walked from the storage yard to the production building, which is where the galvanizing kettle and wet processing area is located. The inspectors again observed visible emissions from the wet processing area (video PB190095). The inspectors were escorted through the wet processing area to the tank farm. Inspectors noted the three large caustic and acid rinse hold tanks, one storm water tank, and one 93% sulfuric acid tank. The group entered a side room containing a gas boiler. Signage indicated that the gas boiler was installed in 2019.

The inspectors were then escorted into the acid recovery room, which contains an acid recovery system. Mr. Jacobs explained that the sulfuric acid solution, from the pretreatment tank in the wet processing area, is cycled through the acid recovery system. The solution is filtered and chilled in the acid recovery system, and ferrous sulfate is precipitated and centrifuged into super sacks. Mr. Jacobs stated that this allows the facility to recover the sulfuric acid for the pretreatment tank and the ferrous sulfate is sold as a saleable commodity. There is also an additional holding tank for waste sludge.

Wet Processing Area

The group walked back to the wet processing area from the acid recovery room. After the facility receives and inspects materials for suitability for the galvanizing process, the materials are first treated prior to galvanizing. The materials are dipped into various tanks and rinses in the wet processing area. The material is first soaked in a bath of 10% caustic soda at a temperature of 180° F to remove any oils, grease or organic contaminants. The material is then rinsed in a water tank to prevent carry-over of caustic solution to the acid tank. The material is pickled in a 10% to 12% solution of sulfuric acid at 145° F to remove rust, mill scale and oxidation. The material is

rinsed in a second water tank to remove acid residue. Lastly, the material is submerged in a solution of zinc ammonium chloride (“preflux”) at 165° F. The preflux solution leaves a crystalline coating on the material that promotes the formation of iron-zinc alloy layers and prevents oxidation of the material prior to galvanizing.

Inspectors Walters and Whyte observed an operator dip material in various pretreatment tanks. The material is lifted and dipped into tanks using a crane system. Inspectors observed visible emissions from the caustic and sulfuric acid tanks (videos PB190113, PB190114, and PB190116).

Galvanizing Kettle

The galvanizing kettle is next to the wet processing area and in the north end of the production building. After pretreatment, the material is first dried prior to galvanizing. Drips and skimmings are cleaned off of the material and put into bins that are later disposed of as hazardous waste. The facility currently operates one galvanizing kettle, and Mr. Harwood explained that the second smaller kettle was no longer in use for several years. The galvanizing kettle contains molten zinc at a temperature of 830° F. The galvanizing kettle is partially enclosed with plastic curtains at the top of the enclosure and all sides of the enclosure are regularly lifted open. Materials are lifted and conveyed into the enclosure through the south end of the enclosure, and then fully submerged into the galvanizing kettle. The galvanizing kettle is a source of zinc dust and fumes, and the facility captures the emissions with a collection hood at the top of the enclosure. The emissions are routed to a pulse-jet fabric filter baghouse.

Inspectors Walters and Whyte observed the galvanizing process several times. The sides of the enclosure have glass windows through which they were able to safely observe the process. The sides of the enclosure are opened for operators to skim the top of the molten zinc as the material is submerged. Operators must skim the top of the molten zinc in order to prevent inclusion of ash or grit in the zinc coating. The inspectors noted visible emissions as the material was submerged into the galvanizing kettle (video PB190121). Inspectors Walters and Whyte observed visible emissions leak from the enclosure as the side door was opened for operators skimmed the molten zinc. The doors are then closed once the material is fully submerged. Inspectors also noted openings with plastic curtains at the very top of the enclosure, from which visible emissions also leaked through from the enclosure (movies PB190122, PB190123, and PB190124). As the material is lifted from the kettle, the side doors are opened again for operators to catch drips from the galvanized material (videos PB190117, PB190118 and PB190126).

The group then walked outside to the pulse-jet fabric filter baghouse. Inspectors Walters and Whyte stood at a distance to observe the stack while operators actively galvanized more material. The inspectors did not observe visible emissions from the stack. The group then walked up to the baghouse and Inspector Walters observed that the pressure drop across the baghouse was displayed at approximately 5 inches of water column (in. w.c.) (photo PB190131). The inspectors walked around to the bottom of the baghouse and Inspector Walters noted that it appeared the fines collection hopper was missing. Mr. Harwood explained that they may have been empty and would quickly put them back under the baghouse (photos PB190132 and PB190133). Inspector Walters asked Mr. Harwood if anyone on-site was certified in Method 9 and Mr. Harwood answered that there was not. Mr. Harwood further explained that if smoke is

observed from the stack, maintenance is called to check it out and will follow the facility's Operation and Maintenance (O&M) Plan to correct issues (Attachment 6). Mr. Harwood also stated that operators check pressure drops daily in its O&M logs as required by the NOC. The facility has not conducted source tests on the baghouse.

Lastly, the inspectors were escorted to an area where the raw materials for the galvanizing kettle are stored. The facility uses zinc slabs, weighing at 2,405 pounds each, as its source of zinc for the galvanizing kettle (photo PB190134). The walkthrough ended at 12:00 PM.

5. Closing Conference

At 12:10 PM, the group returned to the facility conference room to discuss the inspection. The inspectors summarized the parts of the facility they had visited during the inspection and their observations related to CAA and TRI. This report only covers observations related to CAA. Inspector Walters led the closing conference. The following were identified as potential compliance concerns during the closing conference:

1. During the walkthrough, Inspectors Walters and Whyte observed visible emissions from several pretreatment tanks in the wet processing area. They asked facility representatives what was being emitted from the pretreatment tanks, and facility representatives explained that the emissions were water evaporating from the solutions. Inspector Walters did express a concern that the emissions contained sulfuric or hydrochloric acid aerosols.
2. Inspector Walters and Whyte observed visible emissions from the opened enclosure when operators were skimming or collecting drips and leaking from the plastic curtains at the very top of the kettle enclosure. She expressed a concern that some emissions were bypassing the capture system (i.e., collection hood).
3. Inspector Walters was happy to see clear instructions posted on the baghouse's mannehelic gauge, as this allows operators to quickly identify issues during their daily pressure drop reading.
4. Inspectors Walters and Whyte noted that the fines collection hopper was missing from the bottom of the baghouse. Mr. Harwood stated that they were working on moving the hopper back.

Inspector Walters explained that the inspection would not be complete until all records were reviewed and observations and notes compared to CAA regulations. The EPA inspectors departed the facility at about 12:30 PM.