B2159
MANILA

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

B215964126

FACILITY: ARCO ALLOYS CORP		**SRN / ID:** B2159
LOCATION: 1891 TROMBLY, DETROIT		**DISTRICT:** Detroit
CITY: DETROIT		**COUNTY:** WAYNE
CONTACT: Edward McGuire , Operations Manager		**ACTIVITY DATE:** 08/15/2022
STAFF: Gerald Krawiec	**COMPLIANCE STATUS:** ~~Unknown~~ Compliance	**SOURCE CLASS:** MINOR
SUBJECT: AQD/EPA Joint Inspection		
RESOLVED COMPLAINTS:		

AQD/EPA joint inspection conducted on August 15, 2022

I joined EPA staff, Emma Leeds, Environmental Engineer, and Tess Russel, Environmental Engineer at 2:20pm for an unannounced inspection at ARCO ALLOYS located at 1891 Trombly Street in Detroit. The purpose of the inspection was to determine compliance with the Clean Air Act regulations 40 CFR Part 63, Subpart TTTTTT: Secondary Nonferrous Metals Processing Industry.

Edward McGuire, Operations Manager, who runs the business daily and has been AQD's contact was not in the building, but available via cell phone. Mr. McGuire's assistant, Adam Lenchner would be able to answer some question and give a tour of the facility.

Mr. McGuire was joined in a conference call, during the Opening Conference, EPA staff presented their credentials, provided a CBI warning to the facility, stated the authority and purpose of the inspection. Regulations central to the inspection are 40 CFR Part 63, Subpart TTTTTT. EPA staff had several questions regarding the operations, there was some difficulty with the phone connection. It was decided to conduct the plant tour and call Mr. McGuire after the tour for the Closing Conference.

Although Adam has been at the facility for about one year. He has adequate knowledge of the operations. The tour began in the shipping and receiving area. Zinc alloy ingot bricks were staged for shipment at the loading dock. The ingot bricks are color coded to represent the percent zinc alloy. Additionally, within the shipping and receiving area, the pure zinc and aluminum that is used during production of zinc alloy ingots is staged on pallets.

Following the shipping and receiving area the Wheelabrador baghouse and formerly used afterburner were observed. According to Adam the afterburner has not been used in over 30 years, and it is not operable. Arco Alloys has no plan to remove the afterburner because it is too costly. This equipment will be left in place indefinitely. The Wheelabrador baghouse that services Sweat furnace No. 1, 2 and Big Pot #1 is located in the same vicinity. The pressure drop is monitored, and the baghouse receives maintenance on a as need basis. The facility does not keep any records of maintenance activities for the Wheelabrador baghouse.

We next went to the sweat furnace/melting pot room. During this inspection Sweat Furnace No. 1 was on low fire keeping the refractory warm and Sweat Furnace No. 2 was in operation. The Big Pot #1 was not in use.

Following the sweat furnace/melting pot room. The reverberatory furnace room was observed. Reverberatory Furnaces No. 1 and 2 are both vented to the general in-plant environment. During the inspection, a "pour" had recently finished. The recently poured zinc sows were staged in the vicinity of the reverberatory furnaces. Additionally, the temperature monitors for each reverberatory furnace were observed.

During the plant tour, EPA staff asked several questions, took notes, and took several photos of the process equipment, and the incoming raw materials.

During the Closing Conference call, EPA requested several documents. Once again, the phone connection was not clear. Mr. McGuire could not understand many of the questions. It was also difficult to understand his answers. It was decided to close the call for today and EPA will follow-up at a later date.

While in the parking lot, before leaving the site, EPA staff and I discussed the company. EGLE/AQD has not conducted an evaluation of 40 CFR Part 63, Subpart TTTTTT because AQD does not have the delegated authority for this regulation. I shared parts of an April 2013, AQD inspection, where the inspector alerted the company that they may be subject to those regulation.

On September 28, 2022, I received an email request from Emma to send her the 2013 inspection report that I shared with them at the site. I responded, stating that I would be back in the office soon and would send the inspection report. On September 30, 2022, I scanned and emailed the report as she requested.

AQD Inspection on July 21, 2022.

AQD staff conducted an On-site Inspection for FY 2022 of ARCO ALLOYS Corporation, located at 1891 Trombly Street in the City of Detroit. The purpose of the inspection was to determine the facility's compliance with applicable state and federal air pollution rules and regulations. Operations Manager, Edward McGuire, and his assist Adam Lenchner accompanied AQD staff during this inspection.

FACILITY BACKGROUND

Arco Alloys Corporation (Arco Alloys) is located at 1891 Trombly, Detroit, Michigan. Industrial and commercial businesses border the facility on all boundaries. Immediately adjacent to the west is a railroad corridor. The nearest residential properties are located approximately 0.3 miles to the southeast.

Located on a 4.5-acre parcel, Arco Alloy has been in business since 1938 and produces zinc alloys for use in the die-casting and foundry industry. The company is housed in 150,00 square foot building, however only about 20% is used for the zinc process. The remaining 80% is vacant space without electricity. Over the years there has been multiple Wayne County Permits issued for various pieces of equipment. However, many WCPTIs have been voided and much of the equipment is inoperable but has not been removed. There is distinctive 125-foot-tall brick stack on the property. This stack has not been in use for over 20 years.

This facility was last inspected April 29, 2013, and found in compliance with PTI 49-12, Wayne County Installation Permits C-5284. C-8963, and C-9564, and federal and state regulations.

COMPLAINT HISTORY

On 11/16/2021, at 10:30pm PEAS 25363 was received alleging, a large plume emanating from the roof of a nearby business (ARCO Alloy Corp) 1891 Trombly St., Detroit 48211. Plume has strong odor similar to chlorine. Caller has observed this phenomenon monthly beginning approximately

a year ago. Caller has reported incident to Detroit Fire Department (DFD) in the past and DFD did not respond to the scene. This occurred several months ago. This complaint was investigated on 11/18/2021 and the plant has no record of operational problems and DFD did not contact the plant. The complaint was on resolved 11/24/2021.

OPERATING SCHEDULE

The facility currently has 13 employees and operates 24 hours a day 5 days a week.

PROCESS OVERVIEW

Raw materials are mine-pure zinc (99.99%), clean high purity zinc scrap, and high purity aluminum scrap. Arco Alloy operates the following equipment during production.

- 2 Reverberatory furnaces (Reverb 1 & 2)
- 2 Sweat furnaces (Sweat 1 & 2)
- 1 Melting pot furnace (Big Pot 1)
- 1 Baghouse (Wheelabrador)

Reverberatory Furnaces

Pure zinc is melted in one of the two reverberatory furnaces at 850 degrees Fahrenheit (°F). During the melting process, aluminum, copper, and magnesium are dissolved into the molten zinc bath to create a zinc alloy. The amount of aluminum, copper, and magnesium dissolved into the molten zinc depends upon the type of alloy the company intends to produce. The typical alloy produced by the company has the following chemical composition by weight percentage: 96% zinc, 4% aluminum, 0.03% magnesium, and 0.1% copper. The facility can produce zinc alloys with copper concentrations as high as 2% by weight. Reverberatory Furnace No 1 has a pouring capacity of approximately 50,000 pounds, while Reverberatory Furnace No 2 has a pouring capacity of approximately 97,000 pounds of Zinc Die Cast Alloy. A 14,000-to-15,000-pound molten heel is left inside each reverberatory furnace during the pour which helps facilitate the next charge. Once the material is melted in either furnace, the alloy batch is mixed. If the composition of the alloy meets desired specifications, the alloy is pumped using a stainless-steel pump into a suitable product form, either 20-pound ingots or 1,340-pound sows. The reverberatory furnaces are vented to the general in-plant environment.

Sweat Furnaces and Melting Pot Furnace

Arco Alloy purchases dross from die casters and foundries and recovers the zinc in the dross in its sweat furnaces and melting pots. Scrap zinc is also processed in both types of furnaces, depending on the size of material (larger pieces are processed in the sweat furnaces). The sweat furnaces and melting pot furnaces are used to separate zinc from other metals in the dross based on differences in melting points. Zinc has a lower melting point than other constituents within the dross. The temperature of the sweat furnaces or melting pots is set at 850 °F. At 850 °F, zinc "sweats" out of the dross. The floor of the sweat furnaces is sloped allowing the molten zinc to flow into a holding kettle at the downslope side of the furnace. The molten material in the kettle is chemically analyzed and either converted directly into ingot bricks or sent to the reverberatory furnaces for further processing. A smaller piece of dross which cannot be processed in the sweat ovens is melted in the melting pot furnaces. When enough molten material has accumulated in the melting pot furnace, the material is chemically analyzed and either converted directly into ingot bricks or sent to the reverberatory ovens for further processing. The part of the dross which does not melt at 850 degrees Fahrenheit accumulates along the walls of the sweat furnaces or floats on top of the molten material in the melting pot furnaces. This material is skimmed off the top of the molten pot or scraped off the sides of the sweat furnaces and shipped to "Pan American Zinc" in Miami, Florida. Flux is added to the dross to convert the waste product into an ash. The flux used by the company is ZEP-35 smokeless zinc flux.

Baghouse

The facility operates one baghouse. Sweat furnaces No. 1 and 2, and the melting furnace Big Pot 1 are controlled by a dust collector manufactured by Wheelabrador.

INSPECTION NARRATIVE

During the opening meeting the facility operations and PTI 49-12, C-5284, C-8963, and C-9564 conditions were discussed. Ed provided a brief overview of facility operations. A description of facility operations is described above in "Process Overview". Ed stated that there has not been any performance testing conducted on permitted equipment at the facility. I inquired about the use of boilers, emergency generators, or fire pumps at the facility. Ed also stated that the facility does not have any of those pieces of equipment. Additionally, I inquired if Arco Alloys produces zinc of zinc oxide from zinc sulfide ore concentrates. Ed answered that Arco Alloys does not process zinc sulfide ore concentrates.

Following the opening meeting, Ed provided a tour of the facility. The tour began in the shipping and receiving area. Zinc alloy ingot bricks were staged for shipment at the loading dock. The ingot bricks are color coded to represent the percent zinc alloy. Additionally, within the shipping and receiving area, the pure zinc and aluminum that is used during production of zinc alloy ingots is staged on pallets.

Following the shipping and receiving area the Wheelabrador baghouse and formerly used afterburner were observed. According to Ed the afterburner has not been used in over 30 years, and it is not operable. Arco Alloys has no plan to remove the afterburner because it is too costly. This equipment will be left in place indefinitely. During the inspection it was clear the after burner had not been used. The Wheelabrador baghouse that services Sweat furnace No. 1, 2 and Big Pot #1 is located in the same vicinity. According to Ed pressure drop is monitored and the baghouse receives maintenance on a as need basis. The facility does not keep any records of maintenance activities for the Wheelabrador baghouse.

The reverberatory furnace room was observed. Reverberatory Furnaces No. 1 and 2 are both vented to the general in-plant environment. During the inspection, a "pour" had recently finished. The recently poured zinc sows were staged in the vicinity of the reverberatory furnaces. Although not in use at the time of inspection there is a conveyor system that can be used for the production of the ingot bars. Additionally, the temperature monitors for each reverberatory furnace were observed.

Following observation of the reverberatory furnaces, the sweat furnace/melting pot room was observed. During this inspection Sweat Furnace No. 1 was on low fire keeping the refractory warm and Sweat Furnace No. 2 was in operation. The Big Pot #1 was also in use.

APPLICABLE RULES/PERMIT CONDITIONS

Special conditions (SC) for each permit are listed as appropriate. For brevity, permit conditions and the language of federal and state rules have been paraphrased.

Wayne County Installation Permit 5284 – Melting Pots and Sweat Furnace No. 3

SC 1. **IN COMPLIANCE.** **No scrap additions or fluxing shall be done while the fabric filter collector units (baghouse) are being by-passed. The facility stated that the baghouses are never by-passed. If maintenance is conducted on the baghouses, the melting pots and sweat furnaces are not in use.**

Wayne County Installation Permit C-8963: Reverberatory Furnace No. 1

Installation permit C-8963 is for reverberatory furnace No. 1, but also contains conditions for a rotary furnace (C-5283, not in use), No. 3 sweat furnace, and four melting pots (C-5284).

SC 18. IN COMPLIANCE. Particulate emissions from the four melting pots and a sweat furnace controlled by a fabric filter dust collector (C-5284) shall not exceed 0.44 pounds per hour nor 1.92 tons per year (tpy) nor 0.006 pounds per 1,000 pounds exhaust. Using production records provided, and assuming a baghouse control efficiency of 99%, the calculated particulate emissions during the most recent 12-month period, from Melting Pot No. 1 is 0.12 tpy .

SC 19. IN COMPLIANCE. There shall be no visible emissions from the melting pots and a sweat furnace controlled by a baghouse. Visible emissions were not observed during the inspection.

SC 20. NOT APPLICABLE. Particulate emissions from the reverberatory furnace shall not exceed 0.21 pounds per hour nor 0.92 tpy. Reverberatory furnace No. 1 is vented to the general in -plant environment; therefore, this condition is not applicable.

SC 21. IN COMPLIACE. There shall be no visible emissions from the reverberatory furnace. Visible emissions were not observed during the inspection. The reverberatory furnace vents to the general in-plant environment.

SC 22. IN COMPLIANCE. Shall only charge the reverberatory furnace with clean dry zinc die cast remelt solids, aluminum punching's, zinc slabs or blocks and molten zinc alloy. The reverberatory furnace is only charged with pure zinc.

SC 23. IN COMPLIANCE. Production of zinc die cast from the reverberatory furnace shall not exceed 80,000 pounds per day, nor 9,600 tpy. Based on the weekly production records provided, and assuming 5-day work week, the maximum daily production for Reverberatory Furnace No. 1 during the most recent 12-month period, was equal to 49,960 pounds per day. The facility produced 5,492 tons during the most recent 12-month period.

SC 24. IN COMPLIANCE. The temperature of the alloy bath shall not exceed 1,100 °F. The alloy bath temperature is continuously monitored. The temperature of the molten material is maintained at 875 °F

Wayne County Installation Permit C-9564: Pulse Jet Baghouse for Sweat Furnaces No. 1 and No. 2

SC 16. IN COMPLIANCE. The particulate emissions shall be controlled by a baghouse dust collector and shall not exceed 0.005 grain per dry standard cubic foot, 0.55 pound per hour nor 1.65 tons per year. These limits are based on AP-42 emission factors for reverberatory sweating of residual scrap with 99% control efficiency (baghouse). The facility is in compliance with the emission limits by default assuming satisfactory performance of the baghouse.

SC 17. IN COMPLIANCE. There shall be no visible emissions from the baghouse dust collector. Visible emissions were not observed during the inspection.

SC 18. IN COMPLIANCE. Shall not operate the sweat furnaces unless the baghouse dust collector is installed and operating properly. The baghouse dust collector is installed and operating. No visible emissions were observed.

SC 20. IN COMPLIANCE. The sweat furnace chamber temperature shall not exceed 1300 °F. The facility continuously monitors the chamber temperature of the sweat furnaces to ensure the temperature does not exceed 1300 °F.

SC 21. IN COMPLIANCE. The process weight rate shall not exceed 3,000 pounds per hour for sweat furnace No. 1 and 1,000 pounds per hour for sweat furnace No. 2. The above limits represent the maximum rated melt capacity of each furnace. Material processed is less than the listed limits.

SC. 23. IN COMPLIANCE. Shall not operate the sweat furnaces for more than 6,000 hours per year (250 days of continuous operation). While the facility does not keep records of hours of operation for each sweat furnace, the facility only operates 5 days a week. Mr. McGuire stated that the sweat furnaces are not operated on a daily basis. Based on this information, AQD believes that the sweat furnaces are operated less than the 6,000 hour per year.

Permit to Install No. 49-12

EUZINCREVERB2 : 97,000-pound zinc reverberatory furnace (Reverberatory Furnace No. 2) with pouring capacity of 83,000 pounds.

SC I. 1 and SC V. NOT APPLICABLE. Test protocol emission rate shall not exceed 0.1 tph. Testing has not been requested to verify the PM emission rate from EUZINCREVERB2.

SC II 1. IN COMPLIANCE. Shall only burn only natural gas in the burner portion of EUZINCREVERB2. The facility only burns natural gas in Reverberatory Furnace No. 2.

SC II 2. IN COMPLIANCE. Shall not use any flux material in EUZINCREVERB2. The facility does not use flux material in the reverberatory furnaces.

SC IX. NOT APPLICABLE. Shall comply with all provisions of 40 CFR Part 63 Subparts A and GGGGGG. The facility is not subject to Subpart GGGGGG as they do not meet the definition of a primary zinc production facility (§63.11167), i.e. Arco Alloy does not produce zinc or zinc oxide from zinc sulfide ore concentrates.

COMPLIANCE DETERMINATION:

At this time, this facility appears to be in compliance with PTI 49-12, Wayne County Installation Permits C-5284. C-8963, and C-9564, and federal and state regulations.

NOTE:

Evaluation of 40 CFR Part 63, Subpart TTTTTT was not conducted during the inspection as AQD is not the delegated authority for this regulation.

NAME BJ Kloosterman DATE 6/5/24 SUPERVISOR JK