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

DATE: NOV 19 2018

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Recycling Services of Indiana, Bedford, Indiana

FROM: Gina Harrison, Environmental Scientist
AECAB (MN/OH)

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

TO: File

BASIC INFORMATION

Facility Name: Recycling Services of Indiana (RSI)

Facility Location: 4635 Peerless Road, Bedford, IN 47421

Date of Inspection: September 18, 2018

EPA Inspectors:
1. Gina Harrison, Environmental Scientist
2. Sarah Clark, Environmental Engineer

Other Attendees:
1. Susan Raisor, Air Compliance Inspector, IDEM Southeast Regional Office
2. Robert (Bob) Meadows, Operations Manager, RSI
3. Glenn Hoskins, Lead Maintenance Supervisor, RSI

Contact Email Address: Rmeadows@rsionline.org

Purpose of Inspection: CAA inspection of emission units subject to NESHAP RRR and Title V

Facility Type: Secondary aluminum recycling and smelting facility

Arrival Time: 8:32 AM EDT
Departure Time: 11:35 AM EDT

Inspection Type:

☒ Unannounced Inspection

☐ Announced Inspection

OPENING CONFERENCE

☒ Credentials Presented

☒ CBI warning to facility provided

The following information was obtained verbally from Mr. Meadows unless otherwise noted.

Company Ownership: RSI was purchased (and named RSI) in 2010 with ownership divided between Mr. Gary Wayde and Mr. Paul Boening. Mr. Meadows informed us that Mr. Boening is leaving, so Mr. Wayde will soon assume full ownership.

Process Description:
RSI is an aluminum recycling and smelting facility located in a residential neighborhood in Bedford, Indiana. RSI receives, sorts, melts, refines, alloys, and casts aluminum scrap and dross to make aluminum sows for customers, including GM auto, Ryobi, and scrap brokers.

Typically, the facility receives a few truckloads of aluminum material per day; materials received mainly include "380"-cast aluminum scrap (i.e., off-specification castings of transmissions and engine blocks from the manufacturer, and turnings/borings) and dross. RSI uses two 20,000 lb capacity furnaces to melt, alloy, refine, and cast sows, which are formed by pouring metal from furnaces to fill troughs. Production occurs 24 hours per day, 7 days per week in three shifts, and each production cycle, or heat, lasts around one hour. The tap to tap time, including charging, is approximately 40-50 minutes, and each furnace operates separately at a rate of 20,000 lbs/hour.

Material is brought into the facility by truck and immediately sorted in two storage bays located near the entrance to the facility. Front-end loaders take aluminum scrap from the sorted areas within the bays to one of two furnaces. After the scrap is loaded into the furnace, the front-end loaders add flux into the charge bucket and then charge the flux into the furnace. The flux contains salt, pot ash, and cryolite, which removes magnesium from the aluminum. RSI may add silicon and/or copper to the melt to meet customer specifications. When the heat is finished, the furnace is tilted in order to pour melted aluminum into troughs directly from the furnace. Skim from the top of the freshly poured sows is returned directly to the furnace. Dross, the undesirable portion of the melt, is skimmed from the top layer of the molten aluminum during pouring and is collected in a bucket. The dross is then moved to another area near the back of the building to cool for 2-3 days. When it is sufficiently cooled, the dross is moved to the jaw crushers to be reprocessed to reclaim the residual aluminum. Jaw crushers, along with an eddy current system, break down and separate the residual aluminum from impurities within the dross. The aluminum-containing dross is fed back into the furnaces in varying volumes while the remaining high-impurity dross is sent to a landfill.

Staff Interview: According to Mr. Meadows, the facility has been operating as an aluminum recycling and processing operation since the 1970s and was a stone mill in the early 1900s. RSI currently employs 34 people. The facility does not currently operate a hammermill, but management is looking to possibly procure one. The hammermill would replace the facility's existing jaw crushers. The facility has recently replaced outdoor building siding with fiberglass reinforced plastic to protect the building against corrosion.

RSI does not perform scrap pretreatment. Scrap management procedures include visual inspection for moisture, iron, and zinc content. RSI personnel screens material and rejects anything with visible high free iron or zinc content. The material processed in each furnace is generally the same. The "380" aluminum scrap comes from die casting materials and molds, and typically contains around 1.1% iron and has a high silicon content.

In accordance with its permit and the results of a May 2017 stack test, the facility adds lime to the baghouse at a rate of 30 lbs/hour, at minimum. The May 2017 stack test was performed with old hoods that have since been redesigned. All air compliance services are performed by August Mack.

At the time of our inspection, Furnace A was being relined, so the facility was currently only using Furnace B. The two baghouses associated with both furnaces are Donaldson/Torit units, and contains 484 bags in each compartment. RSI replaces the bags as needed and has replaced five bags over the last two years. The jaw crusher was not currently running.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:

Inspectors entered the smelting shop and observed the scrap selection area, including the eddy current system. Furnace B was running, and inspectors observed high opacity smoke, generated from the furnace, that appeared to escape the hood and emit to the atmosphere through large holes in the wall near the furnace. Mr. Meadows explained that sometimes the baghouse will shut down if it gets too hot. Inspectors observed a charge into Furnace B with which a lot of high opacity smoke escaped the hood, and Mr. Meadows described the charge as containing borings. The borings were provided by a customer that typically provides borings, and the facility frequently experiences problems with opacity when it runs this material, which is about once every six months. Mr. Meadows stated that the facility experiences similar issues with smoke from the furnaces when they process plastic-containing parts from auto scrap, which he estimates are processed quarterly. When asked whether RSI uses a scale to weigh materials before they are added to the furnace, Mr. Meadow stated that there is a small scale used for weighing copper, but there is no scale for weighing metal or flux.

Inspectors then observed the dross cooling areas. At the time, dross was stored at the south end of the facility, within a partially enclosed shed, and piled along the west side of the facility. Inspectors noted a strong ammonia smell emanating from the outdoor dross piles. Mr. Meadows

explained this smell occurs when the dross reacts with rainwater, and it had rained the night before. Mr. Meadows showed inspectors an aluminum/sand separator system at the south end of the property. He stated that it was intended to separate sand from casting molds, but that it was not currently running.

Mr. Meadows indicated that there may be a problem with the baghouse intake ductwork, and the inspectors followed him to the baghouse control room. Upon entry, inspectors observed a "NESHAP Alarm" flashing red on the control interface. During this alarm event inspectors recorded differential pressure at 3" water for baghouse 1 and 2.6" water for baghouse 2, and temperatures of 201 F for baghouse 1 and 257 F for baghouse 2. Three-hour temperature averages were 130.9 F for baghouse 1, and 133.8 F for baghouse 2, and the inlet temperature to the baghouse system was 134.4 F. Lime feed rate was 37 lbs/hour, and opacity was recorded as 14.3 and 18.5, respectively, as a 15-minute average.

Mr. Meadows called Glenn Hoskins into the control room, and Mr. Hoskins explained that the lime feed rate listed on the control panel is divided between the two baghouses because the lime goes through the spark arrester first. Mr. Hoskins also explained that there may be a problem with the damper position in the inlet. The Furnace A damper setting on the control interface shows 102% open, and the Furnace B damper setting shows 0%. However, when Mr. Hoskins clicked the unit on the PID, it showed that both dampers are open and drawing air from both Furnace hoods. As inspectors walked back through the furnace area to the office, inspectors asked whether RSI had any furnace labels. Mr. Meadows stated that they did not. Inspectors ended the tour at 11:13 AM.

Inspectors reviewed the most recent 2nd quarter 2018 preventative maintenance checklists for rotary furnaces and the baghouse.

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

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

During the opening conference, we reviewed preventative maintenance lists for the rotary furnaces and the furnace baghouse.

CLOSING CONFERENCE

We asked Mr. Meadows to define what conditions were used for the most recent stack test. He stated that when the test was run, only one furnace operated at a time, and only one damper was open at a time. We asked Mr. Meadows how RSI tracks metal input. He said that the throughput can be calculated based on material specifications, percent recovery associated with each material, and RSI's output. Regarding the flux used per load, Mr. Meadows stated that the amount of flux used is based on the material processed. We reviewed photos and Mr. Meadows claimed the photos as Confidential Business Information.

SIGNATURES

Report Author: _____ Date: 11/20/18

Section Chief: _____ Date: 11/20/18

Facility Name: Recycling Services of Indiana
Facility Location: 4635 Peerless Road, Bedford, Indiana
Date of Inspection: September 18, 2018

APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Media Log

Facility Name: Recycling Services of Indiana
Facility Location: 4635 Peerless Road, Bedford, Indiana
Date of Inspection: September 18, 2018

APPENDIX A: DIGITAL MEDIA LOG

1. **Inspector Name:** Sarah Clark	2. **Date of Inspection:** September 18, 2018
3. **Company/Facility Name:** Recycling Services of Indiana	4. **Street Address, City, State:** 4635 Peerless Road, Bedford, Indiana
5. **Number of Images:** 23	6. **Archival Record Location:** CD-R labeled as "Recycling Services of Indiana, 4635 Peerless Rd, Bedford, IN, Inspection Photos 9-18-2018"

Media No.	File Name	Date and Time (EDT)	Latitude and Longitude	Description of Image
1	P9180022.JPG	9/18/2018 10:07	38.921389, -86.520833	Furnace B operating
2	P9180023.MOV	9/18/2018 10:07	N/A	Furnace B operating
3	P9180024.JPG	9/18/2018 10:11	38.921389, -86.520833	Furnace B operating, door opening
4	P9180025.JPG	9/18/2018 10:11	38.921389, -86.520833	Furnace B operating, door open
5	P9180026.MOV	9/18/2018 10:12	N/A	Furnace B operating, door open
6	P9180027.MOV	9/18/2018 10:13	N/A	Furnace B charging borings
7	P9180028.JPG	9/18/2018 10:13	38.921389, -86.520833	Furnace B charging borings
8	P9180029.JPG	9/18/2018 10:13	38.921389, -86.520833	Furnace B charging borings
9	P9180030.MOV	9/18/2018 10:14	N/A	Furnace B charging borings
10	P9180031.JPG	9/18/2018 10:15	38.921389, -86.520833	Furnace B charging borings
11	P9180032.JPG	9/18/2018 10:15	38.921389, -86.520833	Furnace B charging borings
12	P9180033.JPG	9/18/2018 10:15	38.921389, -86.520833	Furnace B post charge
13	P9180034.JPG	9/18/2018 10:22	38.921389, -86.520833	Dross cooling area at south end of facility, view from the north

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14	P9180035.JPG	9/18/2018 10:23	38.921389, -86.520833	Furnace A and B ductwork
15	P9180036.JPG	9/18/2018 9:25*	38.920705, -86.519008	Furnace B operating, view from outside, east side
16	P9180037.JPG	9/18/2018 9:26*	38.920715, -86.518998	Furnace B operating, view from outside, east side
17	P9180038.MOV	9/18/2018 9:27*	N/A	Furnace B operating, view from outside, east side
18	P9180039.JPG	9/18/2018 9:34*	38.920145, -86.519872	Dross cooling area at south end of facility, view from the south
19	P9180040.JPG	9/18/2018 9:34*	38.92013, -86.51986	Dross piles at west side of facility
20	P9180041.JPG	9/18/2018 9:37*	38.92014, -86.520132	Furnace baghouses
21	P9180042.JPG	9/18/2018 9:37*	38.92014, -86.520132	Furnace baghouses
22	P9180043.JPG	9/18/2018 10:06*	38.920278, -86.520278	Furnace A and B ductwork
23	P9180044.MOV	9/18/2018 10:06*	N/A	Furnace B operating

*Camera Error: wrong time zone (CDT instead of EDT)