

REPORT OF RCRA COMPLIANCE EVALUATION INSPECTION

At

NUCOR CORPORATION (NUCOR STEEL - NEBRASKA)

2911 E. Nucor Road
Norfolk, NE 68701
402-644-0354

EPA ID Number: NED087069050

On

October 22, 2024

By

U.S. ENVIRONMENTAL PROTECTION AGENCY

Region 7

Enforcement and Compliance Assurance Division

1.0 INTRODUCTION

At the request of the Enforcement and Compliance Assurance Division (ECAD), I conducted a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) at Nucor Corporation/Nucor Steel - Nebraska (Nucor Steel) located in Norfolk, Nebraska, on October 22, 2024. The CEI was conducted under the authority of Section 3007(a) of RCRA, as amended. During the inspection, I collected the information and data necessary to determine compliance with the applicable regulatory and statutory requirements. This inspection report and attachments represent the results of the CEI.

2.0 PARTICIPANTS

Nucor Steel:

- Shane Weidner, Environmental Manager (3 years with the company)
- April Vandenburg, Environmental Supervisor (6 years with company)
- Amanda Tomes, Environmental Engineer (1.5 years with company)
- Alexis Livingston, Environmental Engineer (2 years with company)
- Josh Jacot, Environmental Operator (10 years with company)

EPA:

- Mark Holcomb, Civil Investigator/Inspector (SEE) - Lead Inspector

Nebraska Department of Environment and Energy (NDEE)

- Mark Henning, Environmental Specialist II-Waste Compliance

3.0 INSPECTION PROCEDURES

On October 22, 2024, Mr. Henning and I arrived unannounced at the facility's main security gate at about 0900 hours. Initially, we conducted a limited visual reconnaissance of the facility searching for areas of concern observable from the adjacent public roadways and parking lots. We identified no environmental issues or concerns during this preliminary examination. We entered the facility through the main entrance security gate. At the security desk, I introduced myself and asked for the Environmental Manager. We were introduced to Mr. Weidner, and he escorted us to a conference room in the main office building. There we met Ms. Vandenburg, Ms. Tomes, and Ms. Livingston. Mr. Weidner told us that the items of personal protective equipment required for our visual inspection at this facility were protective boots, eye protection, gloves, safety jacket, helmet, and hearing protection in some areas.

At the opening conference, I presented my EPA ID and credentials. I next explained the purpose and procedures of the inspection. I then presented Mr. Weidner with a copy of RCRA Section 3007(a), which provides inspection authority. I explained my need to collect accurate information and presented them with a copy of Title 18 U.S. Code, Sections 1001 and 1002. They were made aware of their confidentiality rights, and I informed them that a Confidentiality Notice would be provided at the end of the inspection to make a confidentiality claim if they so desired. Mr. Weidner, Ms. Vandenburg, Ms. Tomes, and Ms. Livingston acted as the official facility representatives during the opening conference, visual inspection, and during the exit conference phase.

The CEI consisted of a discussion of facility operations, waste generation, and waste management; a visual inspection of active waste generation and management areas; and a review of waste management records and documents.

Mr. Henning and I conducted a visual inspection of the following areas:

- 422 Shop
- Trash Dumpsters near Rally Point B
- NN1 Pond
- Supply
- Used Oil Building
- Ladle Metallurgical Furnace (LMF) Lab
- Baghouse 1
- Baghouse Shop
- Air Compressor Room
- Rail Loadout 1
- Spark Arrestor

See Attachment #1 for the aerial/map views and facility diagrams. Document photocopies and photographs were collected as inspection documentation (see Attachments #1-18 and Photos 1-17). The photo log is included as Attachment #2. Information collected during the inspection was documented on an Entry/Exit checklist and a hazardous waste compliance checklist. I reviewed documents including the following: safety data sheets (SDS), manifests, invoices, three-year eManifest report, 2023 biennial report, waste stream reports, contingency plan, invoices,

analytical reports, NPDES State water permit, staff training documents, and inspection checklists. I followed the inspection procedures detailed in the RCRA CEI Standard Operating Procedure 2321.01E unless noted otherwise. Any authorized Federal regulatory citations noted in this report are as adopted by reference in the authorized Nebraska regulations.

At the conclusion of the inspection, I summarized my findings and recommendations with Mr. Weidner, Ms. Vandenberg, Ms. Tomes, Ms. Livingston. I provided Mr. Weidner with a Receipt for Documents (see Attachment #3), a Confidentiality Notice (see Attachment #4), and a Notice of Preliminary Findings (NOPF) form (see Attachment #6), which he signed as an acknowledgment of receipt. No claim of confidential business information was made by Mr. Weidner.

I provided inspection and compliance assistance documents to Mr. Weidner, which included the following:

- *RCRA Section 3007(a) (EPA Handout)*
- *Title 18 U.S. Code, Sections 1001 and 1002 (EPA Handout)*
- *Confidentiality Notice (yellow page of the completed carbonless transfer set)*
- *Notice Regarding Proprietary/Confidential Business Information Submitted to or Collected by EPA In Connection with Inspections (EPA Handout)*
- *Receipt for Documents and Samples (yellow page of the completed carbonless transfer set)*
- *NOPF with Instructions for Responding on the back of the form (yellow page of the completed carbonless transfer set)*

4.0 FINDINGS AND OBSERVATIONS

4.1 Facility Information and Operations

Nucor Steel, also known as Nucor Steel-Nebraska, is an electric arc furnace (EAF) steel plant. Nucor Steel is part of Nucor Corporation, a publicly traded company with \$32 billion per year in sales, 32,000 employees, and 300 facilities in the United States and Canada, with their corporate headquarters in Charlotte, North Carolina. The Nucor Steel, Norfolk, Nebraska plant began operations in 1979 and produces steel bar, engineered bar, and coil products from scrap metal and alloys. Nucor Steel's largest hazardous waste stream is 36 million pounds per year of EAF dust (K061). The EAF dust is generated in the electric arc furnace, collected in the Baghouse, emptied by sealed air slides into an enclosed pneumatic conveying system, which fills a storage silo and empties directly into railcars in the Rail Loadout building. The facility is about 1,000 acres with 37 acres under roof (see Attachment #1 for a facility map). The facility operates 24 hours per day, seven days a week, with 525 employees. They produce 1.35 million tons per year. Mr. Weidner stated that there had been no significant changes, spills, or activations of their emergency plan in the previous three years.

4.2 RCRA Status

Nucor Steel had been previously inspected for RCRA compliance on April 22, 2021, by the NDEE. During the 2021 NDEE inspection, Nucor Steel was cited for:

1. *Failure to immediately amend the contingency plan when a listed emergency coordinator changed (as referenced by Title 128, Chapter 18, 006).*

According to RCRAInfo, Nucor Steel had most recently notified as a large quantity generator (LQG) on February 9, 2024. I verified the facility address and the site contact information with Mr. Weidner on the EPA RCRA Notification Acknowledgement Verification Report (see Attachment #5) with only a minor email change made. Mr. Weidner stated that he estimates they generate about 1,500 tons of hazardous waste monthly. Based on the review of recent uniform hazardous waste manifests, I determined that Nucor Steel routinely generates D001, D002, D003, D005, D008, D035, D039, K061, and U223 hazardous waste. I determined the facility generates hazardous waste at the LQG level (greater than 1000 kg or 2,200 pounds per month) and inspected the facility as an LQG. In addition, I inspected the facility as a small quantity handler of universal waste and as a generator of used oil.

4.3 Facility Waste Streams and Management

Mr. Weidner stated that the following are waste streams generated at Nucor:

EAF Dust - Nucor Steel generated 36,446,540 pounds of EAF dust and 4,209 pounds of EAF dust contaminated filter bags and personal protective equipment (PPE) in 2023 as listed in the 2023 Biennial Report. The EAF dust had been determined to be K061 hazardous waste based on product and process knowledge (see Attachment #8 for a EAF dust analytical report, A#9 for a K061 waste determination, and A#10 for an SDS). The Biennial Report stated that EAF dust is also presumed to be toxic due to elevated levels of lead and cadmium. The EAF dust is generated in the electric arc furnace and collected in the Baghouse (see Photos 9-13). The Baghouse collects the dust in hoppers, which are regularly emptied by sealed air slides. The air slides empty into an enclosed pneumatic conveying system which fills a storage silo. The silo empties directly into railcars. While being filled, the railcars are parked in a closed Rail Loadout building and function as temporary container. The railcars are made of steel, which is compatible with the K061 EAF dust, and are of a dust-tight construction. The railcars are labeled with hazardous waste labels while being filled. Once full, they are closed, secured, and shipped off site. The Uniform Hazardous Waste Manifest dated September 17, 2024 (see Attachment #7) shows the EAF dust listed as UN3077, Waste Environmental Hazardous Substance, Solid, and indicated 163,500 pounds was shipped by Nebraska Central Railroad and Union Pacific Railroad to Waelz Sustainable Products, LLC (Logansport, Indiana) for H010 processing (metals recovery including retorting, smelting, chemical, etc.). I observed a railcar loaded with EAF dust in the Rail Load Out 1 building, labeled correctly with a hazardous waste label (see Photos 15-16).

Used Oil and Used Oil Filters - Nucor Steel generates about 5,000 gallons of used oil annually from preventive maintenance of equipment and vehicles in the plant. The used oil is stored in drums and a 2,500 gallon above ground tank in the Used Oil Building, as well as in a 55-gallon

drum in the 422 Building. The used oil is pumped out by Jebro Inc. (Sioux City, Iowa) every six months and recycled (see Attachment A#12 for a Bill of Lading from Jebro). Oil filters are punctured, hot drained and depending on type, may be recycled in the EAF or trash. During the visual inspection in the Used Oil Building, I observed the 2,500 gallon above ground tank, which was about $\frac{3}{4}$ full of used oil. Mr. Josh Jacot was present to explain the used oil handling process. The tank was labeled with the words “Used Oil” and appeared to be in good condition with no obvious damage or leaks. In the 422 Shop, I observed a $\frac{1}{2}$ full 55-gallon used oil storage drum inside of a yellow overpack plastic container. A “Used Oil” label was observed on the outside of the overpack container, but the label was partially obscured and difficult to read. The drum was in good condition with no obvious damage or leaks (see Photo 1). I noted that the obscured “Used Oil” label did not meet the requirement of being “clearly marked.” Ms. Vandenburg wiped the oily label off prior to Photo 2. Post-inspection, facility personnel added a new Used Oil label and provided a photo as part of the NOPF response.

- **NOPF 1: Failure to clearly mark the used oil container in the 422 Shop with the words “Used Oil” as required in Title 128, Ch 7, 009.04A3 [40 CFR 279.22(c)(1)]**

Magnesium Percholate - Nucor Steel generates about five to eight gallons of magnesium percholate annually. The spent magnesium percholate is generated in the LMF Lab. The steel was analysed in the LMF Lab using oxygen gas which is scrubbed with magnesium percholate to remove moisture from the process. The spent magnesium percholate is flammable and determined to be a D001 characteristic hazardous waste. The waste is disposed of in an eight-gallon plastic bucket in the lab. Once full, the bucket is transferred to the Used Oil Storage Building (90-Day Central Accumulation Area - CAA) prior to transport by Heritage Environmental Services to Indianapolis, Indiana for disposal (see Attachment #A11 for the waste determination). In the LMF Lab, I observed an eight-gallon plastic container/bucket with a screw on lid. The hazardous waste satellite accumulation container (SAC) was about $\frac{1}{2}$ full of magnesium perchlorate. The lid of the container was securely closed. The container was labeled with Page 1 of the SDS, which indicated the contents and nature of the hazard (D001), and had a DOT flammable warning, but the words “Hazardous Waste” were not observed (see Photo 8).

- **NOPF 2: Failure to label the SAC in the LMF Lab with the words “Hazardous Waste” as required in Title 128, Ch 10, 004.01G**

Waste Paint and Related Materials - Nucor Steel generates a small and variable amount of waste paint from punctured aerosol cans. The 2023 Biennial Report shows they also generated 405 pounds of paint waste from unused/outdated product during 2023. The waste paint had been determined to be D001 and D008 characteristic hazardous waste. The aerosol can puncturing equipment is in the 422 Shop (see Photo 1). The spent empty aerosol cans are collected in a drum and generally recycled in the EAF. Mr. Weidner stated that that it typically takes several years to fill the waste paint drum. Once full the waste paint drum is transported by Heritage Environmental Services to Indianapolis, Indiana for disposal by H061 (fuel blending). In the 422 Shop, I observed a $\frac{1}{2}$ full 55-gallon drum of waste paint (SAC) with an aerosol can puncturing station on the top. The drum was labeled with both “Hazardous Waste” and “Flammable” labels. The drum was in good condition with no obvious damage or leaks.

Universal Waste - Nucor Steel generates a mixture of universal wastes. Mr. Weidner stated that they are still working on their fluorescent to LED relamping project, so they do generate a few spent lamps. They also generate about 50 spent lead-acid batteries from vehicle maintenance annually. The spent lead-acid batteries are managed per 40 CFR Part 266 Subpart G and exchanged with their local NAPA parts store or recycled by A-TEC Recycling (Des Moines, Iowa). The universal waste items are stored in the Supply Room and shipped by A-TEC Recycling prior to one year. Mr. Weidner provided a detailed Certificate of Recycling from A-TEC for a shipment processed on September 17, 2024, that included about 1,115 pounds of spent lamps, computer monitors, batteries, and miscellaneous electronics. (see Attachment A#14). In the Supply Room - Universal Waste Storage Area, I observed two 4-foot fiber tubes, that were closed, labeled with the words “Universal Waste Lamps,” and labeled with an accumulation start date of 8/29/2024 (less than one year). The left tube contained two 4-foot fluorescent lamps. The right tube contained one spent HD lamp. Both containers were closed and in good condition (see Photo 5). To the right of the universal waste-lamps, I observed a five-foot wide plastic container of spent batteries, including several dozen lead-acid, and Ni-Cd, and lithium. The batteries were labeled with the words “Universal Waste Batteries” and an accumulation start date of less than one year. The universal waste-batteries were in good condition with no obvious leaks.

Spent Parts Washer Solvent - Nucor Steel generates about 15,000 gallons of spent parts washer solvent per year. They operate about 28 of the 30-gallon parts washers using the Crystal Clean 142 solvent. They also operated two aqueous parts washers. The Crystal Clean 142 washer solvent was determined to be non-hazardous based on product and process knowledge. Heritage-Crystal Clean, Inc. services each unit about every 12 weeks and is onsite monthly (see Photo 12).

General Trash - Nucor Steel generates about 100 cubic-yards per month from general business and plant operations. General trash is collected in six and eight cubic-yard dumpsters located in the cafeteria Rally Point B area (see Photo 3). The trash is collected weekly by Waste Connections of NE and disposed of in the local landfill.

4.4 Other Areas Reviewed

Outside Facility Perimeter - We conducted a limited inspection of the outside perimeter of the facility and observed no hazardous waste storage tanks or containers except as noted above. The facility had a security fence surrounding the perimeter, 24/7 security, and a staffed security entry gate about a ½ mile south of the main facility. See the aerial and map views in Attachment #1.

CAA - The Baghouse 1, Used Oil Storage, and Rail Loadout functioned as CAAs (Less Than 90-Day Hazardous Waste Accumulation Area). In Baghouse 1, I observed one 3-cubic yard fiber box full of EAF dust and Rail Loadout 1, I observed one railcar of EAF dust (filter bags). Inside the CAAs, there were “No Smoking” signs, adequate spill kits, fire control equipment, and a fire sprinkler system (see Photo 7 and 9-13). The staff communicates with company radios. I also reviewed the past three years CAA Weekly Inspection checklists (see Attachment #15 for a completed checklist) with no issues noted.

Preparedness and Prevention - The facility has numerous fire extinguishers, spill kits, and eye wash stations. Mr. Weidner provided a copy of the facility's Contingency Plan. The plan appeared to be up to date, contained all the required components, and had been shared with local emergency responders (see Attachment #18).

LQG Personnel Training - Mr. Weidner stated that all staff with hazardous and universal waste handling responsibilities receive both initial and annual training. He provided documentation of their staff training including a matrix of job titles and required training (see Attachment #16 for a list of job titles and Attachment #17 for staff training certificates). I also reviewed several randomly selected employee's training records on the facility's electronic learning management system with no issues noted.

Uniform Hazardous Waste Manifests and Land Disposal Restrictions (LDR). We reviewed the e-manifest shipments, and all the paper copies of manifests and LDRs over the previous two years. No issues were noted.

5.0 SUMMARY OF FINDINGS

- **NOPF 1: Failure to clearly mark the used oil container in the 422 Shop with the words "Used Oil" as required in Title 128, Ch 7, 009.04A3 [40 CFR 279.22(c)(1)]**
- **NOPF 2: Failure to label the SAC container in the LMF Lab with the words "Hazardous Waste" as required in Title 128, Ch 10, 004.01G**

Other than the items specifically noted in this narrative, I observed no additional issues or potential findings. However, further EPA review may change or add to my findings.

MARK HOLCOMB
(Affiliate)

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Mark Holcomb
Civil Investigator, SEE

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Amber Whisnant
RCRA Section Chief, ECAD/Chemical Branch

Attachments:

- 1) Facility Aerial Map Views and Diagrams (5 pages)
- 2) Photo Log (17 photos and 19 pages)
- 3) Receipt for Documents (1 page)
- 4) Confidentiality Notice (1 page)
- 5) EPA RCRA Notification Acknowledgement/Verification Report (1 page)
- 6) NOPF (1 page)
- 7) Manifest and LDR – K061 7/24/2024 (5 pages)

- 8) Analytical Report – EAF Dust K061 (1 page)
- 9) Waste Determination – EAF Dust K061 (1 page)
- 10) SDS – EAF Dust K061 (9 pages)
- 11) Waste Determination – Magnesium Perchlorate (1 page)
- 12) Bill of Lading – Used Oil (1 page)
- 13) Wastewater Permit NPDES (2 pages)
- 14) Recycling Certification – Universal Waste (2 pages)
- 15) CAA Weekly Inspection Checklist (1 page)
- 16) Staff Jobs Education Matrix (2 pages)
- 17) Staff Training Certificates (2 pages)
- 18) Contingency/Emergency Plan (63 pages)