

RCRA Inspection Report

1) Inspector and Author of Report

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U.S. Environmental Protection Agency, Region 4
Enforcement and Compliance Assurance Division
Chemical Safety and Land Enforcement Branch
RCRA Enforcement Section
61 Forsyth Street, S.W.
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2) Facility Information

Heraeus Precious Metals North
America, LLC (Heraeus)
1975 Knoxville Highway
Wartburg, Tennessee 37887

EPA ID#: TND000646 612
NAICS #: 331492 - Secondary smelting,
refining, and alloying of nonferrous metal
(except copper and aluminum)

3) Responsible Officials

Andrew Morgan
Environmental, Health & Safety (EH&S)
Manager
(423) 346-1065
andrew.morgan@heraeus.com

4) Inspection Participants

Andrew Morgan, Heraeus

Gerald Webster, TDEC
Alan Newman, USEPA

5) Date of Inspection

November 28, 2023, 9:30 am-2:30 pm

6) Applicable Regulations¹

Resource Conservation and Recovery Act (RCRA) Sections 3002 (42 U.S. Code – Annotated U.S.C.A. 6925 and 6927), and 40 Code of Federal Regulation (C.F.R.) Parts 260 - 270, 273, 278, & 279; [State Code (see below)].

Tennessee Hazardous Waste Management Act of 1977, Tennessee Code Annotated (Tenn. Code Ann.) § 68-212-101 et seq., and Chapter 0400-12-01 of the Rules and Regulations of the State of Tennessee (Tenn. Comp. R. & Regs.).

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.12(1)(i) [40 C.F.R. § 273.9], a small quantity handler of universal waste (SQHUW) is a universal waste handler who accumulates less than 5,000 kilograms total of universal waste (batteries, pesticides, mercury-containing equipment, lamps, or aerosol cans, calculated collectively) at any time.

¹ As the State's authorized hazardous waste program operates in lieu of the federal RCRA program, the citations of those authorized provisions will be to the authorized State program. However, for ease of reference, the federal citations will follow in brackets.

7) Purpose of Inspection

The purpose of this inspection was to conduct an unannounced compliance evaluation inspection to determine Heraeus compliance with the applicable requirements of RCRA and the corresponding Tennessee regulations. This was an EPA lead inspection.

8) Facility Description

Heraeus is a German-based precious metal recovery facility located in Wartburg, Tennessee. Operations began in 2004. Heraeus primarily recovers Platinum, Palladium, Rhodium, Silver, Gold, Rhenium, Osmium, and Iridium. Heraeus operates multiple incineration ovens powered by natural gas in different configurations which are raked to ensure even burning. Cooling fumes are piped to the baghouse and the ash is milled to a fine powder. Samples are taken and a laboratory in Germany conducts the assay.

Heraeus does not mix lots of material received from customers. Customer material is evaluated to determine which process path will recover the maximum amount of metal. Upon evaluation, the material travels either the low-yield side (1-2% recoverable material) or to the high-yield side (>10-12% recoverable material) of the facility. The materials (low-yield or high-yield) are managed similarly in one or a series of the following furnace types: a seven-tray furnace, a chamber furnace, an electric furnace, and a rotary furnace.

After low-yield material has finished its furnace processing, the ash is removed and allowed to cool in a cooling chamber. The cooled ash material is fed through a ball mill to pulverize the ash into a powder state. Large particles are screened out and reprocessed. After the ball mill, the material is blended and sampled for analysis. An assay is determined, and the material is purchased from the customer. High-yield material is placed directly into a predetermined furnace type and poured into ingots.

The facility employs 82 workers and operates 24 hours a day, 5 days a week. The current operations include 70,000 ft² under roof. Heraeus is constructing an additional 42,000 ft². The new furnace of the facility which will be powered by electricity is scheduled to go online in March/April 2024. The facility is contained within a chain-link fence. Access into and out of the facility is through metal detectors.

On 4/3/2023, Heraeus notified as a very small quantity generator of D001, D018, D035, F003, and F005 hazardous waste, primarily for generation of aerosol can waste, and as an exporter of hazardous waste. Heraeus is a small quantity handler of universal waste and a used oil generator.

9) Previous Inspection History

TDEC has conducted two RCRA CEIs at the subject facility between 2019 and 2022 and found no violations during those inspections. TDEC last inspected this facility on October 13, 2022.

10) Opening Conference

On November 28, 2023, EPA inspector Alan Newman, accompanied by TDEC inspector Gerald Webster, arrived at Heraeus at approximately 9:30 am. Andrew Morgan, EH&S Manager, immediately received the inspectors. Andrew Morgan was present for the opening conference. The inspectors introduced themselves, showed their credentials to Andrew Morgan and explained the purpose of the visit.

The inspectors described the anticipated use of equipment (digital camera) during the inspection and provided a request for records. The EPA inspector explained that the Small Business Regulatory Enforcement Fairness Act's classification of a "small business" is generally set by the Small Business Administration using the business' SIC/NAICS code and annual receipts or number of employees. A copy of the EPA's information sheet for small businesses can be found at <https://www.epa.gov/sites/production/files/2017-06/documents/smallbusinessinfo.pdf>. The EPA inspector also discussed the company's ability, pursuant to 40 C.F.R. § 2.203, to assert a business confidentiality claim for information submitted to EPA. The company did not assert a business confidentiality claim.

Andrew Morgan provided an overview of the facility's history and current operations during the opening conference. The inspection participants also discussed health and safety protocols and required personal protective equipment before Facility representative led the inspectors on a tour of the Facility operations.

11) Inspection Observations

Production Areas:

The inspection team began the process walk-through at the shipping and receiving area. Sample materials are received and profiled prior to receiving a shipment of material. Upon arrival, loads are weighed and tracked through the process via a barcode system. Outgoing shipments of material for further processing are sent to a few designated locations. There was no hazardous waste being stored in this area on the day of the inspection. Heraeus' representative stated that in the Low-yield area any ash or residue that is generated in this area is collected and placed back into the process. There was no hazardous waste generated or stored in this area.

Heraeus representatives stated that the process waste generated in the roast/incineration area is collected and sent back through the process. The inspection team noted one 55-gallon black waste collection container in this area (Photograph 1). The collection container was accumulating aerosol can residues. Typically, when Heraeus generates a spent aerosol can, it is punctured draining the liquid portion into a collection container which is managed as hazardous waste and the punctured cans are accumulated as scrap metal. This container was labeled "Hazardous Waste Aerosol Collection". The container was affixed with a puncture device that was open on the day of the inspection. The inspection team recommends that this container be closed when not adding or removing waste and that the indication of the hazard be added as part of the container labeling.

The inspection team did not note any hazardous waste being stored in the high-yield area on the day of the inspection. Typically, the primary waste generated in this area are refractory bricks which are collected and shipped to a sister facility to recover precious metals.

Heraeus utilizes an air scrubber to accumulate fugitive particulates at the facility. These particulates are profiled for precious metal content and either reprocessed on site or sent off site to a sister facility for metal reclamation. Similarly, Heraeus removes particulates from the generated wastewater through a series of filters prior to utilizing a filter press. Collected material is reprocessed. There was no hazardous waste noted in the wastewater treatment area on the day of the inspection.

Maintenance Department:

The inspection team toured the maintenance area which was in an adjacent building. Heraeus stores aerosol can waste and universal waste batteries in this building. The facility has been converted to LED lights in 2022 so that no universal waste lamps are generated. The aerosol can residues were stored in a 55-gallon container. This container was labeled with a hazardous waste label (Photograph 2) and affixed with a can puncturing device which was open on the day of the inspection. The inspection team recommends that this container be closed when not adding or removing waste and that the indication of the hazard be labeled on the exterior of the container. Heraeus representatives pointed out cardboard boxes that are used to store and accumulate universal waste lamps (Photograph 3). There were no lamps on site on the day of the inspection. The inspection team noted three spent batteries on top of a 5-gallon plastic pail. The Heraeus representative stated that batteries in this area were spent. None of the batteries were marked as universal waste nor did they have an accumulation start date marked on the exterior of the batteries (Photograph 3). The Heraeus representative was unable to determine how long these batteries had been stored in this area.

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.12(2)(e)1 [40 C.F.R. § 273.14(a)], a SQHUW must label or mark each Universal Waste battery or container or tank in which the batteries are contained clearly with one of the following phrases: “Universal Waste - Battery(ies),” or “Waste Battery(ies),” or “Used Battery(ies).”

Pursuant to Tenn. Comp. R. & Regs. 0400-12-01-.12(2)(f)3 [40 C.F.R. § 273.15(a) and (c)], a SQHUW may accumulate universal waste no longer than one year and must to be able to demonstrate the length of time that the universal waste has accumulated from the date that it became a waste or was received.

12) Records Review

The inspection team reviewed incoming and outgoing manifests since 2022 and hazardous waste determination records. Some incoming hazardous waste manifests terminate at Heraeus for precious metal recycling. Some imported metal for recycling arriving on hazardous waste manifests were noted to be missing the ocean-voyage transporter signature. Heraeus has been working with the ocean-voyage shipper to ensure they sign the manifests that accompany the

shipment. After a review of the facility's paperwork, this facility was found in compliance as a very small quantity generator of hazardous waste.

13) Closing Conference

The inspectors conducted the exit meeting at 2:00 pm with Andrew Morgan and Uve Kupta. During this meeting, the inspectors stated their preliminary conclusions of the inspection.

14) List of Attachments

Attachment 1 – Photo Log: 3 Photos taken on: November 28, 2023

Photos taken by: Alan Newman

Photos taken with: Panasonic Lumix

EPA Property Tag: S75870

15) Signed

ALAN NEWMAN Digitally signed by ALAN NEWMAN
Date: 2024.02.05 10:28:28 -05'00'

Alan Newman
Environmental Engineer

16) Concurrence

ARACELI CHAVEZ Digitally signed by ARACELI CHAVEZ
Date: 2024.02.05 11:27:07 -05'00'

Araceli B. Chavez
RCRA Enforcement Section

Appendix 1

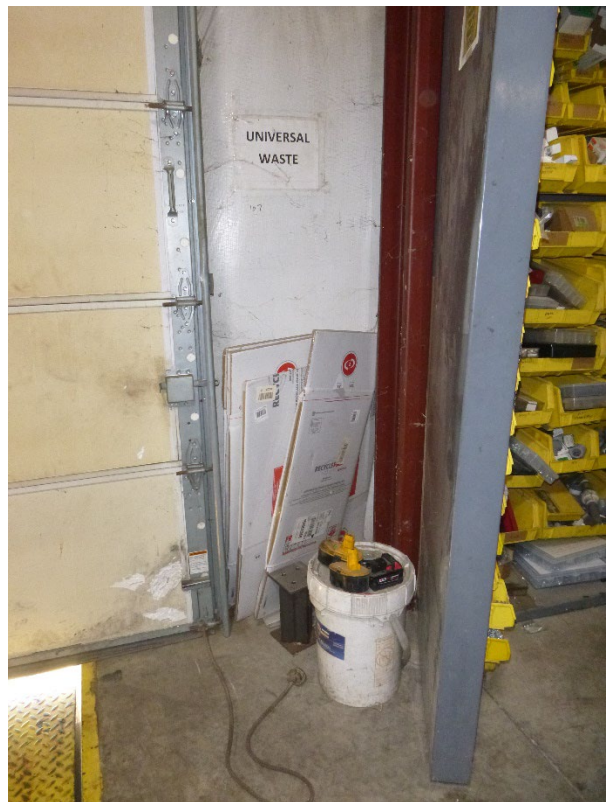
Photograph Log:

3 Photos taken November 28, 2023

Photos taken by Alan Newman



Photograph 1: Aerosol SAA Container with puncture device.



Photograph 3: Universal Waste Batteries.



Photograph 2: Aerosol SAA Container with puncture device.