



Industrial User Facility Inspection Report U.S. EPA, Region 8

Name of industry and location:

US Mint
300 West Colfax
Denver, CO 80204

Control Authority / NPDES Permit No.

Metro Water Recovery
NPDES Permit No. CO-0026638 and CO-0048959

IU – NPDES ID

COPIU0089

Date of visit:

April 17, 2024

Approximate Time of visit:

1300 – 1600

Name(s) / Affiliation / email of inspector(s):U.S. EPA:

Al Garcia, garcia.al@epa.gov
Stephanie Passarelli, passarelli.stephanie@epa.gov
Althea Wilson, wilson.althea@epa.gov

Metro Water Recovery:

Tony Langowski, tlangowski@metrowaterrecovery.com
Amy Zimmerman, azimmerman@metrowaterrecovery.com

General Facility Information:Representatives at Inspection:

- Lance Starck – Environmental Safety and Health Division; lance.starck@usmint.treas.gov
- Eric Fowler – Safety and Occupational Specialist
- Mark San Filippo – Environmental Protection Specialist
- Phillip Skinner – Deputy Superintendent

Type of Business Operations:

- Manufacturing of coin dies and production of coins, including quarters, dimes, nickels, pennies, numismatic products including annual uncirculated coin sets and commemorative coins.

Facility Information:

- Seven days/week.
- Two 12-hour shifts

Inspection Description:

Al Garcia, Stephanie Passarelli, and Althea Wilson from the U.S. Environmental Protection Agency (EPA) and Tony Langowski, and Amy Zimmerman from Metro Water Recovery (MWR) conducted a significant industrial user (SIU) inspection of the United States Mint facility (facility) located at 300 West Colfax Denver, CO 80204. The SIU inspection was conducted as part of the EPA Pretreatment Audit of MWR's Publicly Owned Treatment Works (POTW) and EPA-approved Pretreatment Program. The inspection of the facility provides current

conditions of the facility's unit operations and consisted of an evaluation of the wastestreams generated from the unit operations, management of these wastestreams, including potential for spills and slug discharges. The facility discharges to the sewer collection system leading to MWR's Hite POTW.

Upon arriving at the facility on April 17, 2024 at approximately 1:00 p.m., the EPA presented credentials to the facility representatives and explained the purpose of the inspection. During the opening interview, the facility representatives provided an overview of the operations and processes at the facility, wastestreams generated and management/discharge of these wastestreams. The opening interview was followed by a facility tour to visually inspect the unit operations. The EPA conducted a closing conference to discuss observations, potential findings and recommendations identified during the inspection.

Process Description:

The facility located at 300 West Colfax, Denver, CO 80204 manufactures coin dies and produces quarters, dimes, nickels, pennies, numismatic products including annual uncirculated coin sets and commemorative coins.

Chemical and Raw Materials Storage –

The U.S. Mint has a storage warehouse in Commerce City, CO in which the majority of the raw materials and bulk chemicals are received and stored. The raw materials/chemicals are transported, as needed, and staged for use in the U.S. Mint facility located at 300 West Colfax. The following is a general overview of raw materials/chemicals stored, handled, and used at the facility; these materials/chemicals are either staged on the process floor or stored in the chemical supply areas:

- Cupro-Nickel coils – 10,000 lbs, 2,500 – 3,000 lbs.
- Copper plated Zn penny blanks – 8,000-lb totes
- Citric acid – 55-gallon drums
- Carboshield lubricant– 55-gallon barrels
- Lubricant used after the annealing process
- Coin Wash Detergent – 55-gallon barrels
- Hydrogen peroxide – 3% solution

Die Manufacturing Shop –

The machine shop in the die manufacturing shop uses various steel alloys as raw material. The raw material is fed into one of six CNC machines and grinders to manufacture 3 ½-inch blanks. The blanks are micro-polished, and sandpaper tape applied. The blanks are sent to the hubbing process to create hubs (dies) using a master die. The image from the master die is transferred to the hubs and the hubs are sent to a three-operation lathe to create the various hub types (dual, single, chess piece). These die pieces are heat treated in two furnaces that uses nitrogen gas as fuel. The heat-treated parts are quenched in an oil bath and sent to a temper oven and an ultrasonic bath for washing. A laser QR code is applied onto the part and the part is sent to a final grinding/polishing station. The dies are used for the circulating coin production and typically last for about ½ million strikes before they are scrapped.

Coin Production –

The raw material totes used for pennies or nickels, dimes and quarters are staged in the five parallel coin production lines and are uncoiled and flattened using mechanical processes. The flattened raw material is sent through a 250-ton press to create the blanks used for the produced coin. The presses are water cooled using non-contact cooling water and use hydraulic oil contained in about 120-gallon sumps. The spent hydraulic oil

is continually filtered and recycled. According to information gathered during the audit, the hydraulic oil is rarely replaced because of the filtering procedures.

The produced coin blanks are sent to a hopper and go through an annealing furnace to a temperature of approximately 1325 to 1600°F. The blanks are sent to a skip tank where they are cooled under water to not be exposed to atmospheric oxygen. The skip tanks on the five process lines range in capacity from 950 gallons to 3,000 gallons and the wastewater from these tanks are drained about every two weeks. The coins are sent to the skip basket where they are washed with carboshield detergent. Three production lines have washers that can handle 2,200 to 2,700 lbs using 450 gallons and two lines have large washers capable of washing 4,000 lbs and using 750 gallons. The wastewater from the washing process discharge wastewater about three to four times per production day.

The washed coin blanks are sent to a steam dryer and after the drying process are sent to the upset mill where the raised edges are applied. The upset mill uses hydraulic oil in its bearings and lubricant during the milling process. The scrap metal from the milling process is collected and shipped offsite to a vendor for recycling. The milled coin blanks are put into a hopper leading to the stamping process. The dies manufactured in the die shop are used in the stamping presses. The facility has 56 stamping presses that create the finished coins. The stamping presses use oil contained in 60-gallon sumps that are filtered to maintain/extend its shelf life. The used oil is collected in satellite containers and transported to the 1,000-gallon used oil tank. The used oil tank is hauled off-site approximately two to three times per year. A Spalek process may be used to burnish/polish coins as needed. The coins are put into a hopper and put into a transfer basket and into a spinning drum and are shot with metal BBs.

The coins are collected in bulk bag counting stations in 2,500-lb bags, depending on the denomination. The bags are stored in the warehouse and then shipped.

Waste Treatment –

The wastewater generated from the coin production processes (quench, wash, spalek, wash racks, pressure washers) are plumbed to the waste treatment system, located on the lower level of the facility. The wastewater is collected in three holding tanks, a primary holding tank with a capacity of 1,000-gallons and two backup tanks located below grade and that are 400 and 500 gallons. The treatment chemicals (lime and ferric sulfate) are added to the primary treatment tank to adjust pH. The wastewater is sent to the clarifier where polymer is added, and solids settle to the bottom and are collected. The collected solids are sent to the filter presses. The solids are filtered out and collected in 20 cubic yard containers. The collected solids are shipped offsite as non-hazardous waste about eight times per year.

The effluent from the clarifier is sent through monitoring point 001 which contains a v-notch weir. The facility has an automatic sampler to gather compliance samples, based on flow-proportional intervals.

EPA Classification of the Industrial User

MWR has characterized the facility as subject to the Pretreatment Standards for Existing Sources (PSES) found in 40 C.F.R. Part 468; Copper Forming Point Source Subpart A-§468.14 (f) Annealing with Water, (h) Alkaline Cleaning Rinse, (j) Alkaline Cleaning Bath, (o) Tumbling or Burnishing, and (q) Miscellaneous Waste Streams at 40 CFR 468.14 and subject to the Pretreatment Standards found in MWR's local limits and general/specific wastewater discharge prohibitions.

Based on observations and information received during the inspection, the EPA agrees with MWR's characterization of the SIU.

Summary of Findings

US Mint
NPDES ID# COPIU0089
April 18, 2024

Pretreatment Inspection Findings	Follow up Action Items
1. None identified	No corrective action items identified

Report Review and Signature		
Drafter Name	Address/Phone Number	Date
Al Garcia	U.S. EPA Region 8 1595 Wynkoop Street 8WD-CWW Denver, Colorado 80202 303-312-6382	05/13/24
Reviewer Names	Address/Phone Number	Date
Stephanie Passarelli	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NP Denver, Colorado 80202 303-312-6803	05/14/24
Signature/Name	Address/Phone Number	Date
Michael Boeglin	U.S. EPA Region 8 1595 Wynkoop Street 8WD-CWW Denver, Colorado 80202 303-312-6250	05/16/2024