



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
RESOURCE CONSERVATION AND RECOVERY ACT**

GENERAL INFORMATION

Facility Name: US Magnesium, LLC

RCRA ID: UTD000690867

Facility Location:

12819 North Skull Valley Road, Rowley, UT
84029, Lat./Long.: 40.913756, -112.734511

Facility Contact:

Jeffrey Mensinger, Environmental Manager,
(801) 433-4086

Mailing Address: 238 N 2200 W, Salt Lake City,
UT 84116-2921

RCRAInfo Notification Status:
Large Quantity Generator

Dates of Inspection: May 24, 2022 and
May 25, 2022

Arrival Time: 9:00 a.m. on 5/24/2022

Departure Time: 2:00 p.m. on 5/25/2022

Lead Inspector & Report Author: Annette Maxwell, U.S. EPA RCRA Inspector

Inspection Attendees:

1. Rob Hartman, Environmental Manager (since retired), US Magnesium (USM)
2. Roger Francom, Senior Environmental Coordinator, USM

Type and Purpose of Inspection: Compliance Schedule Evaluation (CSE) and LQG Compliance Evaluation Inspection (CEI)

Facility Type: Primary Magnesium, Biennial Report NAICS: 33141 - Nonferrous Metal (Except Aluminum) Smelting and Refining

Applicable Regulations: Inspection Authority of RCRA §3007; Consent Decree, Case No. 2:01CV0040B, including projects underway pursuant to Section VI (RCRA Work Requirements) and Paragraph 12 re: compliance with applicable regulations including R315-260 to R315-273 of the Utah Administrative Code (UAC) and R315-15 of the UAC

Inspection Type: Announced Inspection

Disclaimer

This report is a summary of observations and information gathered from the facility at the time of the inspection. The information provided does not constitute a final decision on compliance with RCRA regulations, nor is it meant to be a comprehensive summary of all activities and processes conducted at the facility.

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OPENING CONFERENCE

Upon arrival at the facility, an opening conference was conducted with Mr. Hartman and Mr. Francom. I presented my federal inspector credentials, explained the purpose of the inspection, and provided a reminder to clearly indicate confidential business information. I was not denied access to the facility and was allowed to inspect all areas that I selected for inspection.

The following information was obtained verbally during the inspection from the above-listed facility personnel unless otherwise noted.

DESCRIPTION OF INSPECTION

Regulatory Status

According to the RCRAInfo database, US Magnesium is a large quantity generator (LQG) of hazardous waste. During the inspection, Mr. Hartman and Mr. Francom confirmed this generator status.

Facility and Process Description

US Magnesium (USM or Facility) is a production facility for high purity magnesium. The basic processes used to generate magnesium are:

- Transfer of water from Great Salt Lake through large solar ponds for evaporation and concentration of brine containing magnesium chloride, then
- Transfer of the brine to a circular holding pond (the star pond)
- Through desulfation (source of waste gypsum, slurried and piped to gypsum stack) and
- Deboronation (boron removal; this operation is a source of acidic waste sent to waste pond) processes
- Through spray dryers to produce powdered magnesium chloride
- Through a melt-reactor
- Through carbon anode electrolytic cells to separate magnesium and chlorine, and
- Molten magnesium is then transferred to a foundry and casting house for production of magnesium ingots

The facility has also produced for sale secondary products including liquid chlorine, hydrochloric acid, ferric and ferrous chloride, magnesium chloride, calcium chloride, and lithium carbonate. A limited amount of sodium chloride and brine are also sold for offsite use. At the time of the inspection, production of some secondary products was limited or temporarily halted due to reduced magnesium production rates and other factors.

The facility includes shallow solar evaporation ponds designed to evaporate water from Great Salt Lake, deep brine holding ponds (referred to as the star pond) designed to limit evaporation, a hydrochloric acid plant, a chlorine plant, a boron removal plant, a ferric/ferrous chloride plant, three spray dryers (a fourth was largely constructed but not completed at the time of the site visit), a melt reactor, four electrolytic buildings, a foundry and casting house, multiple maintenance shops, a laboratory, a sanitary lagoon, a solid waste landfill, dredged salt pile storage, smut (metal oxides) pile storage, a gypsum stack, a large evaporation waste pond divided into two sections and connected via an overflow pipe, ditches used for

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inflow of water from the Great Salt Lake and inflow/outflow of Great Salt Lake and fresh spring and rain water, and a historic (inactive) barium sulfate disposal area. Hill Brothers Chemical Co., a separate business entity, is located immediately south of the ferric/ferrous chloride plant on property leased from USM.

The introduction of petroleum coke and chlorine in the melt reactor and the use of carbon anodes in the electrolytic process are sources of chlorinated hydrocarbons including hexachlorobenzene, dioxins & furans, and polychlorinated biphenyls.

Recent changes to the facility included removal from service of open, unlined earthen ditches previously used to route waste to the evaporation waste pond; waste is now transported to the waste ponds via HDPE piping systems pursuant to RCRA Administrative Order Docket No. RCRA-08-2016-0004.

Additional information regarding US Magnesium's magnesium manufacturing process is available in the document Tripp, Thomas G. (2009) "Production of magnesium from Great Salt Lake, Utah USA," *Natural Resources and Environmental Issues*: Vol. 15, Article 10., available at: <https://digitalcommons.usu.edu/nrei/vol15/iss1/10> and in the NIOSH Health Hazard Evaluation Report, HETA #2004-0169-2982, U.S. Magnesium Rowley, Utah, dated October 2005.

Containerized hazardous waste is primarily stored in a gated, secured 90-day storage area located near the southwestern-most portion of the facility. Based on the facility-submitted 2019 and 2021 Biennial Reports, hazardous wastes recently generated at the facility include but are not limited to:

- Anode dust (D004, D007, D032)
- Waste carbon tetrachloride solution (D002, D019, D032, D033)
- Waste flammable liquids (gasoline/diesel) D001
- Process equipment clean out rinse water (D002, D007)
- Waste corrosive liquid - lab waste (D002, D005, D007, D009, D011)
- Spent phosphoric acid (D002, D007)
- Waste sodium hydroxide solution (D002)
- Waste flammable compressed gas paint waste (D001)
- Waste solids from process equipment cleanout (D007, D019, D022, D039)
- Waste corrosive liquids (off-spec water treatment chemical, D002)

Based on previously submitted analytical documentation and previously provided explanations, anode dust generated at Electrolytic Cell Buildings 1, 2 and 3 contain PCBs but do not appear to be RCRA hazardous wastes due to a previously made change in collection from the use of drag chains to the use of a wet collection system.

At the time of the inspection, Electrolytic Cell Building 4 was still utilizing a drag chain collection system, and through this process chromium and arsenic are entrained into the anode dust, requiring that it be managed as RCRA hazardous waste. During the inspection, the facility personnel stated that anode dust is disposed by incineration due to the presence of PCBs.

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The facility's hazardous waste generation rate at the time of the inspection was greater than 1,000 kg/month, placing the facility in Large Quantity Generator status. Hazardous wastes routinely generated at the facility include anode dust from Electrolytic Cell Building 4; anode dust from Buildings 1, 2, and 3 were TSCA-regulated PCB-containing waste but were not RCRA hazardous waste. Other routinely generated hazardous wastes include laboratory waste and carbon tetrachloride (CCl₄) waste, although at the time of the inspection CCl₄ waste was not being generated due to treatment of chlorine, which is used to make magnesium but is also normally generated at quantities sufficient to sell the gas, to meet customer specifications being temporarily halted pending an increase in overall facility magnesium production rates.

A Class IIIb industrial solid waste landfill permit application was submitted to the Utah Department of Environmental Quality on December 16, 2021, in compliance with Consent Decree paragraph 22 and Appendix 14 (Project Compliance Schedule). The facility representatives stated they had received a letter of completeness of the application from UDEQ, and that they were continuing to work with UDEQ to complete the application process. Recent activity included UDEQ acceptance of a closure/post-closure cost estimate. Work was underway to select the form of financial assurance as well as preparation of a traffic impact study. The facility representatives further stated that UDEQ inspector Brian Wolf had visited the facility for a brief landfill inspection on May 17, 2022.

An SPCC plan is maintained for both the plant area and for the solar pond area of the facility.

An onsite sewage treatment system includes an aerobic digester. Following treatment, the wastewater is discharged to the sanitary lagoon or the waste ponds.

At the time of the inspection, the emergency off-gas system was offline due to damage to a fan.

A Consent Decree (CD), Case No. 2:01CV0040, United States of America v. Magnesium Corporation of America, et al., was entered and became effective on 6/30/2021. The status of certain projects performed pursuant to this CD was evaluated during the inspection and is discussed below.

As referenced above, a RCRA 3008(h) Administrative Order, Docket No. RCRA-08-2016-0004, dated 8/3/2016, was issued to institute certain projects including closure and capping of earthen waste ditches. A five-year compliance monitoring period following project completion was ongoing at the time of the inspection.

A February 2014 RCRA 7003 Administrative Order on Consent, Docket No. RCRA-08-2014-0001, was issued in response to large spills of acidic liquid waste caused by breaches in the Current Waste Pond berm onto land managed by the Bureau of Land Management (BLM). The 2014 AOC required the company to: 1) construct a fence with signage on affected BLM land to prevent public access, 2) stop further discharges onto BLM land, and 3) address residual soil contamination on BLM property.

The Facility holds a groundwater discharge permit, Permit No. UGW450012, issued by the Utah Department of Environmental Quality under the Utah Administrative Code Rule 317-6. Activities to be performed pursuant to this permit and pursuant to the CERCLA Response Action of the Consent Decree, include installation of a hydraulic barrier wall encompassing the downgradient areas of the facility.

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This Facility was added to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, aka Superfund) National Priorities List on November 4, 2009. Activities performed under CERCLA include work performed pursuant to an Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study, Docket No. CERCLA008-2011-0013. The US Magnesium Superfund website is <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0802704>.

TOUR INFORMATION

Mr. Hartman and Mr. Francom accompanied me during the Facility tour.

All photographs collected during the inspection and referenced below are included in Attachment 1 – Photograph Log.

Areas of the Facility included in the site tour were:

- Ferric/ferrous chloride filtration building
- Ferrous chloride pond
- Star pond
- HCl plant
- Chlorine plant
- 90-day central accumulation area (CAA) near chlorine plant
- Calcium chloride production area
- Used oil pad
- Mobile maintenance shop
- Paint booth
- Quality Control lab satellite accumulation area (SAA)
- Waste Yard 90-day CAA
- CRB area
- West and east packed tower areas
- High energy scrubber area
- Run-down tank
- Courtyard area located between Electrolytic Cell Buildings 2 and 3
- Sand blast booth
- Main shop

The following narrative of this section includes areas listed above in which conditions of interest or potential deficiencies were noted. The information included below was obtained by my observation or by explanation provided by the accompanying facility personnel (Mr. Hartman and Mr. Francom) unless otherwise noted.

In the Ferric/Ferrous Chloride Plant filtration building area I observed that a roll-off bin for collection of filtration solids was empty. See photo 1. The facility personnel stated that filter cake is non-hazardous when generated, and that no hazardous waste is generated in the ferric/ferrous chloride plant area of the

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facility because wash water is reused for pre-coating and is not shipped for disposal. At the time of the inspection the plant was down for maintenance of the ferrous pit. I observed water in the secondary containment in Ferric/Ferrous Chloride Plant area, and the facility personnel stated that this water was not waste and that it was going to be reused but had accumulated because the sump pump was down. During normal operations the water is pumped into the ferrous/ferric storage ponds. Due to the ability of ferrous and ferric chloride to corrode carbon steel, such material may be D002 hazardous waste when disposed of or if released, for example due to leaks from the secondary containment.

I observed the HCl plant from the driveway but did not approach or enter the area. The plant was not in operation at the time of the inspection, and the facility personnel stated that it hadn't been in operation for approximately one year.

At the Chlorine Plant I observed a concrete central accumulation area (CAA) designated for 90-day storage of 55-gallon poly drums containing carbon tetrachloride-bearing hazardous waste generated in this area. Mr. Francom stated that typically approximately 6-8 drums were generated at a time, and that stabilization by neutralizing the chlorine is conducted in this CAA. However, at the time of the inspection, the reboilers weren't operating so this waste was not being generated.

At the used oil storage pad I observed that a barely visible Used Oil label on the storage tank had been painted over, see photos 2 and 3. Pursuant to R315-15-2.3(c)(1), used oil containers must be marked with the words "Used Oil". Mr. Francom stated that he would re-label the tank. Similarly, outside of the auto/mobile maintenance shop I observed a tank used for storage of used oil. The tank was not labeled with the words "Used Oil" (see photo 5). On June 29, 2022, I received by email from Mr. Hartman photographs showing that both tanks had been properly labeled. See Attachment 2 – Facility Correspondence.

Inside the auto/mobile maintenance shop I observed three parts washers. See photos 6, 7, and 8. The facility personnel stated that Safety Kleen comes out every two to three months to maintain the parts washers.

Inside the Quality Control Lab, I observed two 55-gallon blue poly SAA drums labeled with the words "Hazardous Waste". However, the containers were not labeled with an indication of the hazards. See photos 9-12. Pursuant to R315-262-15(a)(5)(i) and (ii), respectively, SAA containers must be marked with the words "Hazardous Waste" and an indication of the hazards. One of the two drums was marked with a "container full date" of 5/23/2022, and the second was marked with a "collection start date" of 5/23/2022, indicating that one had become full and was awaiting transfer to a central accumulation area and the other had been added to replace it in the SAA.

Also in the Quality Control Lab, I observed bench-top waste collection containers, which Mr. Francom stated are moved to the SAA at the end of each shift. See photo 13. SAAs may be used for accumulation of hazardous waste if they are located at or near the point of generation and are under the control of the operator. Pursuant to R315-262-15(a)(6), hazardous waste must be transferred from an SAA to a central accumulation area (CAA) or transported for disposal to an authorized offsite disposal facility and therefore cannot be transferred from one SAA to another SAA. Guidance issued by the Utah Department of Environmental Quality titled Satellite Accumulation Area (SAA) Guidance Document, dated July

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2021, document number DSHW-2021-010963, indicates that in-process waste initially managed at collection points that meet the “integral to the process” condition before transfer to an SAA is not considered to be SAA-to-SAA transferred. However, the guidance clarifies that, “[t]o be considered “in-process” the container must be emptied into an SAA or CAA at the end of the work shift by the operator. If the [hazardous waste] container is not emptied at the end of the work shift, it is an SAA and is subject to the SAA requirements.” Because the observed collection containers were being transferred to the SAA by the operator by the end of each shift, this appears to meet the conditions described in the UDEQ guidance.

At the Waste Yard (see photos 14-20), which is the main 90-day central accumulation area, I observed 11 55-gallon drums, and that the yard was fenced, gated and locked, included a concrete pad for waste storage and a storage shed and a Conex for storage of absorbent and other spill equipment and supplies, and had signage marked with the Environmental Department phone number. The drums observed included:

- Two drums of ferrous chloride-containing liquid hazardous waste; these containers were marked with the words “Hazardous Waste”, DOT shipping information, the accumulation start date, and the EPA waste code D002, and an indication of the hazards of the contents (corrosive);
- Three drums containing ferrous chloride sludge with liquids on top; similarly to the ferrous chloride liquid waste drums, these drums were labeled appropriately;
- Three drums marked “pending characterization” that were water treatment chemicals and were not believed to be hazardous but were awaiting analysis for metals, semi-volatiles, volatiles, flash point, and pH;
- One drum containing used sulfuric acid awaiting reuse;
- One drum containing spent solvent hazardous waste, marked with the words “Hazardous Waste”, the accumulation start date, and an indication of the hazards (ignitable); and
- One open-top drum used to store non-hazardous trash.

In the area of the plant related to the Reuse Project, facility engineer Brad Drayton participated in the portion of the inspection in which I observed the status of work being performed to implement the project. Areas viewed related to this project (see photos 29-33) included:

- Head tank (WWC water to be pumped to Electrolytic buildings 1 and 2 quench tanks)
- Chlorine reduction burner area
- 20,000-gallon CRB water collection tank
- Wash water column area
- West and east packed towers area
- High Energy Scrubber area
- Run down tank

Following the inspection on August 29, 2022, I received by email from Mr. Mensinger the Reuse Project Completion Report. A summary of work performed stated: *On March 29, 2022 all work was begun on this project. A new head tank was installed to pump Chlorine Plant Water Wash Column (WWC) water and a field routed 3” CPVC pipeline was installed on the existing pipe rack to tie-in to the Electrolytics buildings 1 and 2 quench tanks. New piping was installed to route High Energy Scrubber (HES) liquor into the piping system for routing to the east and west packed towers that pump to the Main Reactor Acid Recirculation Tank. For the Chlorine Reduction Burner (CRB) water and CRB Seal Leg water, a*

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20,000 gallon tank and pump was installed for storage and reuse of those streams to the CRB absorber. All work on this project was mechanically complete as of May 27, 2022.

The finished work may be further verified by the EPA during a future compliance schedule evaluation inspection.

In the portion of the facility related to the Courtyard Capping Project located in between Electrolytic Cell Buildings 2 and 3, sometimes referred to as the Pentapure courtyard, I observed that, as reported in the March 22, 2022, Ducon Scrubber and Sump Plan Completion Report, piping had been installed to reconfigure the Ducon Scrubber as a pass-through unit. See photo 33. As documented in the report, the sump had been excavated and the area backfilled. The large steel lid was still present, and Mr. Hartman stated that due to its size, it would have to be cut down to be removed from the courtyard area. Also in this courtyard, I observed a large area of stained soil, and Mr. Hartman stated that he did not know what the source of the spill was, but that they would sample it and perform a hazardous waste determination. On June 17, 2022, I received by email from Mr. Hartman analytical results indicating that the contaminated soil did not exceed toxicity characteristic regulatory levels of UAC R315-261-24.

In the main shop I observed an aerosol cans SAA, see photo 36. This container was not marked with an indication of the hazards as required by UAC R315-262-15(a)(5)(ii).

Additional information:

During a stop at the conference room during the inspection, with the permission from the facility representatives, I collected photographs of diagrams in the conference room showing a high-level view of the facility's magnesium production process. See photos 21-28.

Record Review:

Central Accumulation Area Inspection Records: during the inspection, I reviewed central accumulation area inspection logs, and no concerns were identified at that time.

Hazardous Waste Manifests: during the inspection, I reviewed manifests for 2021 and 2022, and no concerns were identified at that time.

Contingency Plan:

During the inspection, I viewed the Emergency Response Plan (ERP) table of contents and requested a full copy in order to review it for the contingency plan requirements of UAC R315-262. On June 7, 2022, Mr. Hartman emailed me a copy of the ERP, revision date 02/2021. The ERP appeared to contain all content required by UAC R315-262-261. However, the plan did not include a Quick Reference Guide as required by UAC R315-262-262(b), including the associated hazard of each hazardous waste, the estimated maximum amount of each hazardous waste that may be present at the site, and a map showing where hazardous wastes are generated, accumulated and treated and routes for accessing these wastes.

Training Records: On July 22, 2022, Mr. Hartman emailed me the training records. No concerns were identified for this documentation at the time of review.

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CLOSING CONFERENCE

During the closing conference, I discussed documentation that had been reviewed, initial findings, and requested additional documentation. The findings discussed included concerns regarding labeling of used oil tanks and satellite accumulation containers. I also stated that I would provide a follow-up email indicating the requested documentation.

Post-Inspection Documentation Received

Following the inspection, on 5/27/22, I sent the following by email as a follow-up to the closing conference:

To follow up on Wednesday's closing conference, this is the list of information/documentation requested:

- Photographs showing that labels have been added to the two used oil tanks;
- An update on the stained soil located in the pentapure courtyard;
- A copy of the Emergency Response Plan, which I'll compare to the contingency plan content requirements of 40 CFR 262 Subpart M, [Section 262.261](#);
- Documentation for personnel training per 40 CFR [262.17\(a\)\(7\)\(iv\)](#);
- Hazardous waste determination documentation (required for hazardous and non-hazardous solid wastes per 40 CFR [262.11\(f\)](#)) for the lithium carbonate filter cake; and
- An update on the status of the emergency offgas system.

Regarding the "indication of the hazards" labeling requirement for hazardous waste containers in both satellite accumulation areas and in 90-day central accumulation areas, the wording can be found in [40 CFR](#) at 40 CFR [262.15\(a\)\(5\)\(i\)](#) for SAAs and at 40 CFR [262.17\(a\)\(5\)\(i\)\(B\)](#) for large quantity generators (it's the same in both cites): *An indication of the hazards of the contents (examples include, but are not limited to, the applicable hazardous waste characteristic(s) (i.e., ignitable, corrosive, reactive, toxic); hazard communication consistent with the Department of Transportation requirements at 49 CFR part 172 subpart E (labeling) or subpart F (placarding); a hazard statement or pictogram consistent with the Occupational Safety and Health Administration Hazard Communication Standard at 29 CFR 1910.1200; or a chemical hazard label consistent with the National Fire Protection Association code 704).*

Additional discussion on the indication of the hazards labeling requirement can be found at <https://www.federalregister.gov/d/2016-27429/p-407>.

For Quick Reference Guides (40 CFR [262.262\(b\)](#)), a frequently asked questions (FAQ) memo is available here:

<https://rcrapublic.epa.gov/rcraonline/details.xhtml?jsessionid=6F30A1AA3F73312F465F96D1FDD2CC99?rcra=14943>.

In regard to DOT training for individuals who sign hazardous waste manifests, an explanation can be found here: <https://rcrapublic.epa.gov/rcraonline/details.xhtml?rcra=14687>.

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On June 7, 17, and 29 and July 22, Mr. Hartman provided by email the following (Attachment 2 – Facility Correspondence):

- 6/7/22: hazardous waste determination information for wastes generated in the lithium carbonate plant, including filter cake, digester tank dregs, and wastewater; the following explanation of analytical results:
 - 20H0665-01 Li De-mag Filtercake 20200811-01: This is the filtercake we observed in the bunker (“dozer trap”) outside the east side of the building.
 - 20H0665-02 Li Digester Tank 20200811-02: This is the undigested tank dregs from the digester tanks – mostly gravel introduced during material handling of smut to feed the digesters.
 - 20H0665-03 West Vault Waste Water 20200811-03: This is filter press wash water, steam blowdown and building area washdown from the lithium carbonate plant.
- 6/7/22: a copy of the Emergency Response Plan
- 6/7/22: a revised consent decree project schedule
- 6/17/22: an explanation about sample collection of the stained soil in the Building 2/3 courtyard, a photograph of the sample, and analytical results
- 6/29/22: photographs of the two used oil tanks properly labeled with the words “Used Oil”
- 6/29/22: an update on the status of the emergency offgas system, stating: “Update on EOG repairs/maintenance: I talked to Troy Sullivan, Reactor and Maintenance Manager, yesterday and he provided a status update: the Zurn fan has been thoroughly checked and is ready to return to service, but replacement of the damaged chevrons and packing (the essential components of the scrubber) is still in progress. When the scrubber repairs are complete, the system will be re-started but Troy cautions there may still be debris in the upstream ducting and the scrubber will need to be down for re-inspection and potential maintenance shortly after restart.”
- 7/22/22: training records [not included in Attachment 2]

Inspection Follow-up

Water held in the ferric/ferrous chloride plant secondary containment described on page 6 of this report may be D002 hazardous waste if leaked or disposed. The status of this material will be included in future inspections in order to determine whether the material has been or will be reused and is therefore not a waste.

The contents of the contingency plan, specifically, the Quick Reference Guide, will be reviewed during the next inspection if the facility is confirmed to be in an SQG or LQG status.

Satellite accumulation containers must be marked with an indication of the hazards of the contents pursuant to R315-262-15(a)(5)(ii). SAA containers will be reviewed for this marking during the next inspection if the facility is confirmed to be in an SQG or LQG status.

As outlined in Paragraph 21 of the Consent Decree, the facility implemented an emergency off-gas system (EOG) redesign in the Melt/Reactor building. For an estimated minimum of three to four months, including at the time of the inspection, this system was offline while awaiting repairs. During the inspection Mr. Hartman stated that the system had been offline since March, and following the

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inspection, on June 29, 2022, Mr. Hartman indicated by email that the system had not yet been returned to service.

SIGNATURES

ANNETTE MAXWELL Digitally signed by ANNETTE MAXWELL
Date: 2023.04.13 13:25:43 -06'00'

Annette Maxwell, Lead RCRA Inspector

Pearson, Janice Digitally signed by Pearson, Janice
Date: 2023.04.14 10:39:22 -06'00'

Janice A. Pearson, Manager
RCRA & OPA Enforcement Branch
Enforcement and Compliance Assurance Division

ATTACHMENT LIST

Attachment 1 – Photograph Log

Attachment 2 – Facility Correspondence



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Facility Contact:

Jeffrey Mensinger, Environmental
Manager, (801) 433-4086

Mailing Address: 238 N 2200 W, Salt Lake City,
UT 84116-2921

RCRA Info Notification Status:

Small Quantity Generator (SQG)

Dates of Inspection:

June 26, 2024

Arrival Time: 7:55 a.m.

Departure Time: 2:45 p.m.

June 27, 2024

Arrival Time: 8:45 a.m.

Departure Time: 3:40 p.m.

Lead Inspector & Report Author: Annette Maxwell, U.S. EPA RCRA Inspector

Inspection Attendees:

1. Tabetha Lynch, U.S. EPA (June 26 only)
2. Judith Moran, UDEQ DWMRC
3. Kelsey Robinson, UDEQ DERR (June 26 only)
4. Jeffrey Mensinger, Environmental Manager, US Magnesium (USM)

Additionally, the following staff were present for limited portions of the inspection:

1. Luke Thompson, Sr. Process Engineer

Additional personnel were briefly present during the inspection, but their names were not recorded.

Type and Purpose of Inspection: Compliance Schedule Evaluation (CSE) & Compliance Evaluation Inspection (CEI)

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BACKGROUND INFORMATION

Regulatory Status

According to the RCRAInfo database, US Magnesium is a small quantity generator (SQG) of hazardous waste.

Facility and Process Description

At the time of the inspection, the US Magnesium's (USM) magnesium metal manufacturing operations were in a shutdown status. The facility was actively manufacturing lithium carbonate.

An overview of the basic process the facility has used to generate magnesium is:

1. Transfer of water from the Great Salt Lake through large solar ponds for evaporation and concentration of brine containing magnesium chloride
2. Transfer of the brine to a circular holding pond (the star pond)
3. Through de-sulfation (source of waste gypsum, slurried and piped to gypsum stack)
4. Through de-boronation (boron removal using organics; this operation is a source of acidic waste sent to waste pond)
5. Through spray dryers to produce powdered magnesium chloride
6. Through a melt-reactor
7. Through carbon anode electrolytic cells to separate magnesium and chlorine, and
8. Molten magnesium is then transferred to a foundry and casting house for production of magnesium and magnesium alloy ingots

The facility has also previously produced for sale secondary products including liquid chlorine, hydrochloric acid, ferric chloride, magnesium chloride, and calcium chloride. A limited amount of sodium chloride and brine have also been sold for offsite use. At the time of the inspection, production of secondary products was limited or temporarily halted due to a temporary halt in magnesium production and other factors.

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The facility includes, but is not limited to, shallow solar evaporation ponds designed to evaporate water from Great Salt Lake, deep brine holding ponds arranged in a circular formation (referred to as the star pond), a hydrochloric acid plant, a chlorine plant, a boron removal plant, a ferrous chloride plant, three spray dryers (a fourth was largely constructed but not completed), a melt-reactor building, four electrolytic cell buildings, a foundry and casting house, maintenance shops, storage buildings, two laboratories, a sanitary lagoon, a solid waste landfill, dredged salt pile storage, magnesium metal production smut (metal oxides) pile storage (being mined for lithium content at the time of the inspection), lithium carbonate production smut pile storage, a gypsum stack, a large evaporation waste pond divided into two sections (Old Waste Pond and Current Waste Pond) and connected via an overflow pipe, and a historic (inactive) barium sulfate disposal area.

The introduction of petroleum coke and chlorine in the melt reactor and the use of carbon anodes in the electrolytic process are sources of chlorinated hydrocarbons including hexachlorobenzene, dioxins & furans and polychlorinated biphenyls during magnesium metal production.

When the chlorine plant is operational, a reboiler has previously been a source of carbon tetrachloride hazardous waste generation. Changes previously made to this system may eliminate future generation of this hazardous waste when magnesium manufacturing resumes.

Recent changes to the facility included removal from service of open, unlined earthen ditches previously used to route waste to the evaporation waste pond; waste is now transported to the waste pond via HDPE piping systems pursuant to RCRA Administrative Order Docket No. RCRA-08-2016-0004.

Additional information regarding US Magnesium's magnesium manufacturing process is available in the document Tripp, Thomas G. (2009) "Production of magnesium from Great Salt Lake, Utah USA," *Natural Resources and Environmental Issues*: Vol. 15 , Article 10., available at: <https://digitalcommons.usu.edu/nrei/vol15/iss1/10> and in the NIOSH Health Hazard Evaluation Report, HETA #2004-0169-2982, U.S. Magnesium Rowley, Utah, dated October 2005.

Containerized hazardous waste is primarily stored in a gated, secured central accumulation area located near the southwestern-most portion of the facility. Based on the facility-submitted 2019 and 2021 Biennial Reports, hazardous wastes recently generated at the facility include but are not limited to:

- Anode dust (D004, D007, D032)
- Waste carbon tetrachloride solution (D002, D019, D032, D033)
- Waste flammable liquids (gasoline/diesel, D001)
- Process equipment clean out rinse water (D002, D007)
- Waste corrosive liquid - lab waste (D002, D005, D007, D009, D011)
- Spent phosphoric acid (D002, D007)
- Waste sodium hydroxide solution (D002)
- Waste flammable compressed gas paint waste (D001)
- Waste solids from process equipment cleanout (D007, D019, D022, D039)

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- Waste corrosive liquids (off-spec water treatment chemical, D002)

For the 2023 Biennial Report, only the following hazardous wastes were reported:

- Discarded chemical solvents (D002, D030, D032, D033)
- Discarded chemical acids (D001, D030, D032)
- Discarded aerosol cans (D001)

Based upon review of the RCRAInfo e-Manifest database, shipments of hazardous waste (corrosive liquid) and PCB-containing solids were most recently shipped in August 2023.

A Class IIIb industrial solid waste landfill permit application was submitted to the Utah Department of Environmental Quality on December 16, 2021, in compliance with Consent Decree paragraph 22 and Appendix 14 (Project Compliance Schedule).

An SPCC plan is maintained for both the plant area and for the solar pond area of the facility.

An onsite sewage treatment system includes an aerobic digester. Following treatment, the wastewater is discharged to the sanitary lagoon.

A Consent Decree (CD), Case No. 2:01CV0040, United States of America v. Magnesium Corporation of America, et al., was entered and became effective on 6/30/2021. The status of certain projects performed pursuant to this CD was evaluated during the inspection and is discussed below.

A RCRA § 3008(h) Administrative Order, Docket No. RCRA-08-2016-0004, dated 8/3/2016 (RCRA AOC), was issued to implement certain projects including closure and capping of open-air earthen waste ditches as described above. Installation of a waste piping system and capping of the ditches had been completed, and a five-year compliance monitoring period was ongoing at the time of the inspection. The status of certain projects performed pursuant to the RCRA AOC was evaluated during the inspection and is discussed below.

A February 2014 RCRA § 7003 Administrative Order on Consent, Docket No. RCRA-08-2014-0001 (RCRA § 7003 AOC), was issued in response to large spills of acidic liquid waste caused by breaches in the Current Waste Pond berm onto land managed by the Bureau of Land Management (BLM). The 2014 AOC required the company to: 1) construct a fence with signage on affected BLM land to prevent public access, 2) stop further discharges onto BLM land, and 3) address residual soil contamination on BLM property. The status of certain projects performed pursuant to the RCRA § 7003 AOC was evaluated during the inspection and is discussed below.

The Facility holds a groundwater discharge permit, Permit No. UGW450012, issued by the Utah Department of Environmental Quality under the Utah Administrative Code Rule 317-6. Activities to be performed pursuant to this permit and pursuant to the CERCLA Response Action of the Consent Decree, include installation of a hydraulic barrier wall encompassing the waste ponds and other areas.

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Once the hydraulic barrier wall construction is complete, the interior berm separating the two waste pond sections, which include the Current Waste Pond (CWP) and Old Waste Pond (OWP) as indicated on Attachment 1 – Site Maps, will be breached to create one, continuous waste pond, which will constitute the new Retrofitted Waste Pond (RWP).

USM was added to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, aka Superfund) National Priorities List on November 4, 2009. Activities performed under CERCLA include work performed pursuant to an Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study, Docket No. CERCLA-08-2011-0013 (CERCLA RI/FS AOC). The US Magnesium Superfund website is <https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0802704>.

Hill Brothers Chemical Co., a separate business entity, is located immediately south of the ferrous chloride plant on property leased from USM. A second separate business entity, Envirotech, operates at the site for collection of calcium carbonate.

OPENING CONFERENCE

Upon arrival at the facility, an opening conference was conducted with Mr. Mensinger. I presented my inspector credentials and explained the purpose of the inspection, and provided a reminder to indicate confidential business information, if shared. We were not denied access to the facility and were allowed to inspect all areas selected for inspection.

The following information was obtained verbally during the inspection from Mr. Mensinger:

The wastewater in the CWP has recently been measured at pH 8-9.

Regarding smut generated from the lithium carbonate production process, TCLP analysis has indicated the material is nonhazardous. A copy of analytical results provided during the inspection are included in Attachment 2 – Analytical Results. This newly generated smut may be reprocessed to extract additional lithium, but if it is determined that it will not be reprocessed, it will be disposed of in the onsite landfill. An overview of the lithium carbonate production process is: apply acid to the older magnesium production process smut to form chlorides, then remove impurities. A newly installed absorption plant, referred to as IBAT in reference to the contractor, International Battery Metals, removes additional impurities. Wastewater from the initial lithium carbonate processing operation as well as the IBAT process are routed to the waste ponds. At the time of the inspection, the new IBAT system was considered to be in a testing mode and not yet fully operational.

The number of employees at the time of the inspection was approximately 75. Hours of operation are primarily 6:00 a.m. to 6:00 p.m. Monday through Friday, though some operations include weekends.

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Magnesium production was not occurring at the time of the inspection but may resume in 2026. Most hazardous wastes currently generated are from the laboratory.

Spent sand blast waste had not recently been generated, at least within the two years preceding the inspection.

Spent lead acid batteries are generated in the auto shop, and when new batteries are purchased, the old ones are taken back for core charges.

Maintenance shop wastes include, but are not limited to, spray paint-related waste, crankcase oil, and hydraulic oil.

The RWP slurry wall has been installed on the south side of the facility from the western edge to a point east of the star pond.

For the ditch caps installed under the RCRA AOC, no ditch cap repairs have been needed, but USM has occasionally re-graded and replaced signs at times.

Off-gassing of acid digesters associated with the lithium carbonate production process has been improved by lowering the acid line inputs to a lower height, resulting in reduced acid gas generation.

In regard to the Electrolytic Cell Building 4 conversion to wet anode dust removal under the Consent Decree, Building 4 is now tied into the Building 3 wet management system, but is still using a chain to drag the anode dust to Building 3.

For the courtyard between Electrolytic Cell Buildings 2 and 3, five drainage channels were cut and backfilled with gravel to drain rainwater away from the substation.

At the time of the inspection, the emergency off-gas (EOG) system was not accessible for viewing because metal in the area including walkways was showing signs of fatigue and had been roped off for safety. The EOG system had been cleaned out and was ready to be rebuilt, with packing material and other supplies onsite and awaiting preparations to restart magnesium production.

Mr. Mensinger said that before magnesium production can resume, equipment associated with the Reuse System project will need to be replaced, the EOG maintenance will need to be completed, and the filtration system will need to be constructed, and that each of these has been added to a list of things that must be done prior to magnesium production operations resuming.

TOUR INFORMATION

Mr. Mensinger accompanied us during the Facility tour.

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All photographs collected during the inspection and referenced below are included in Attachment 3 – Photograph Log.

Areas of the Facility included in the site tour were:

- RWP hydraulic barrier (slurry) wall installation/construction areas
- Ditch cap and related wastewater piping system areas
- BLM land area north/northwest of the CWP
- Magnesium process smut piles
- Lithium carbonate process smut piles
- Wastewater piping system outfall to the CWP
- Onsite landfill
- Sanitary lagoon
- Boneyards
- Stores yard
- Lithium carbonate plant including IBAT area
- Hazardous waste central accumulation area
- Courtyard between Electrolytic Cell Buildings 2 and 3
- Electrolytic Cell Building 3
- Boron Plant
- HCl Plant
- Chlorine Plant
- Reuse Project Areas
- Spent liquor tank
- Area beneath and near the melt/reactor building
- Casting house/foundry
- Warehouse
- Main laboratory
- Lithium carbonate laboratory
- Used oil collection area

The following narrative of this section includes areas listed above in which conditions of interest or potential deficiencies were noted. The information included below was obtained by my observation or by explanation provided by Mr. Mensinger unless otherwise noted.

Along the southern portion of the RWP hydraulic barrier wall project area, I observed the section of the hydraulic barrier wall located south of the plant and the southern portion of the RWP project for which the slurry wall installation had been completed. See photo 1. This location is marked on Attachment 1, Site Maps. East of this point and north along the eastern side of the RWP project area, I observed that supersacks containing construction material were staged along the project area. See photos 2-8.

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At the OWP section of the RWP project area, I observed that most of the OWP was dry (photos 5-7 and 10-14), which was a different condition than seen in previous inspections. Mr. Mensinger said the pond had held water as recently as the week prior, and that seagulls had been in the pond. Additional photos of the RWP area, specifically the CWP, show the ponded water in these areas has mostly dried, see photos 33-37.

On the north side of the RWP project area, I observed a trench that had been cut into the soil, photo 16. It was not clear why this area had been excavated or how long ago.

At the area of prior spills from the CWP onto BLM land north of the facility, I observed that the area was mostly dry, and that signs placed along fencing under the RCRA § 7003 AOC were still in place.

At the magnesium process smut storage area, I observed a sign that said, "cell salt only." As we approached the lithium carbonate process area, I observed a screener used for particle reduction for the lithium carbonate process.

In the plant area at the south end of the central ditch (southwest of the #4 Spray Dryer), I observed that a sign installed under the RCRA AOC to protect the integrity of the ditch caps was in place, photos 18-19. On the north end of the central ditch, however, a sign was damaged and in need of replacement, see photo 22.

Near the gypsum stack, I observed gray waste-like material piled that I had not observed during previous inspections. These new piles are visible in photo 26 in the background near the rise in height of the gypsum stack, photo 27 similarly positioned and on the left in the photo, and at closer proximity in the background of photo 32.

At the eastern portion of the main ditch northeast of the sanitary lagoon, a wastewater piping system manhole cover was in a highly degraded state and had been marked for safety using a safety cone. See photo 32. Mr. Mensinger said that he would check with Brad Drayton (USM engineer) to see if a replacement had been ordered. The next day, on June 27, Mr. Mensinger confirmed that the lid would be replaced with an HDPE cover.

At the landfill, I observed that the top was graded and that material from the gypsum pile was used for cover. However, along the sides of the landfill, particularly near the eastern portion of the landfill, uncovered waste was present. Photos of the landfill are included in photos 30, 31, and 33-39. The uncovered waste is visible in photos 30, 31, and 34-37. Seagulls flying in the vicinity of the landfill are shown in photos 33, 34 and 39.

Along the ditch caps installed under the RCRA AOC, certain locations appeared to have had ponding as indicated by stained coloring and settling of particles. The central ditch appeared overall to be in good condition with no apparent sign of vehicle traffic or mechanical damage to the cap. I did observe some evidence of prior ponding, including areas where it appeared ponding may have exceeded the 30

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square feet, or approximately 5.5' x 5.5', or 6' diameter, maximum allowable ponding area or 1" depth established in the Soil Cap Monitoring and Maintenance Plan, page 3-3. See photo 40.

A wastewater piping system manhole located along the central ditch cap and east of the northern bound of the sanitary lagoon was missing its cover, see photos 41 and 42. The next day, on June 27, Mr. Mensinger said that the cover had been removed for a cleanout and had been moved during that project, and that it would be put back into place.

At the sanitary lagoon, I observed that the unit was full of vegetation. See photos 43-46.

At the southern end of the west ditch cap, I observed a dark sludge-like material in a settling basin. Mr. Mensinger explained that wastewater from the lithium carbonate process is piped to this basin for settling before liquids enter the wastewater discharge piping system. He said that one of the three sets of analytical data provided included samples from this basin (Attachment 2 – Analytical Results, ref. West Vault Waste Water).

Along the west ditch I observed areas where the cap appeared to be potentially damaged and in need of repair. These areas included:

- An apparent low spot, at approximately lat/long 40.917419, -112.736719, that had the appearance of prior ponding larger in size than the allowable 30 square-feet maximum, photo 49.
- Tire tracks that may exceed the allowable 2" and an erosion gulley at approximately lat/long 40.917716, -112.736702, photo 50.
- Apparent erosion at approximately lat/long 40.917953, -112.736715, photo 51.
- Appearance of prior ponding larger in size than 30-square feet at approximately lat/long 40.918451, -112.736734, photo 52.
- Appearance of prior ponding larger in size than 30-square feet at approximately lat/long 40.918466, -112.736716, photo 53.
- Appearance of prior ponding larger in size than 30-square feet at approximately lat/long 40.919444, -112.736722, photo 54.
- Appearance of drainage from the area west of the ditch cap onto the ditch cap at approximately lat/long 40.920041, -112.736730, photos 54 and 55.
- Appearance of prior ponding larger in size than 30-square feet at approximately lat/long 40.920613, -112.736608, photo 59.

Additionally, at the north end of the west ditch, intersecting with the main ditch, tire tracks were visible on the cap, including in the immediate vicinity of signage placed under the AOC to protect the cap integrity. See photos 56-58. The tracks in this area did not appear to potentially exceed the 2" maximum depth requiring corrective action, but the presence of tracks indicates that this area should be the subject of regular inspections due to the potential for damage to the ditch cap.

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West of the plant, I observed the accumulation of newly generated smut from the lithium carbonate production process. See photos 60-70. Accumulations of this smut were in areas both inside and outside of the “operating Facility boundary” deferral area designated in the Consent Decree on Appendix 1, Map 1 of the CD, included as an attachment to this report in Attachment 1 – Site Maps. All areas of the US Magnesium Superfund Site that are located outside of the operating Facility boundary designated by the CD are defined to comprise the Facility Closing Area. The Facility Closing Area has not been deferred to RCRA authorities and the CD and is to be addressed in accordance with the CERCLA, 42 U.S.C. § 9601, et seq., and in accordance with the terms of the CERCLA RI/FS AOC.

West of the lithium carbonate production building, I observed three acid digestion pits arranged north-to-south, the largest of which was the southernmost and was divided into two separate sections equipped with an overflow connection between them. Mr. Mensinger said that each of the pits was made from acid brick and lined with 60-mil HDPE. An additional ponded area south of the digestion pits was described by Mr. Mensinger as a temporary setup to hold material while cleanouts were being done. No photographs were collected in this area due to CBI concerns.

At the IBAT area, nine of the columns were currently in operation. Mr. Mensinger said that wastes from this system are primarily column changeouts and brine, and that no hazardous wastes are generated by this system.

At the central accumulation area (CAA), four 30-gallon drums had been set outside of the gated CAA area. The drums were marked Nalco Water Stabilization. See photos 71-75. Before the end of the inspection, Mr. Mensinger provided me a copy of the SDS sheet for this material (see Attachment 4 – Nalco SDS). The SDS sheet states in section 13 Disposal Considerations that “if this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261 since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.”

Inside the gated CAA, I observed the following containers:

- 24 blue poly drums marked “oil/water”. Mr. Mensinger said that a transformer had gone out, and it was pumped out with water. He said it was a newer transformer and that the oil did not contain PCBs. See photo 77.
- A 55-gallon drum marked hazardous waste paint, flammable, and with an accumulation start date of 4/26/2024, photo 78.
- A 55-gallon drum marked “Satellite Accumulation” and “Paint Waste”. I discussed with Mr. Mensinger that because this container was not at or near the point of generation and under the control of the operator, it could not be considered a satellite accumulation area.
- Four drums on a pallet that were labeled universal waste aerosol cans.
- One blue poly drum marked “hazardous waste,” “lab waste,” an accumulation start date of 4-20-2024, and a corrosive placard.

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At the courtyard located between Electrolytic Cell Buildings 2 and 3, I observed that the cap, which I viewed only from the south end, that had been installed under the Consent Decree appeared to be in good condition, photo 86.

Near the chlorine reduction burner, I observed that a pump and other equipment installed as part of the Reuse System project under the Consent Decree had been removed from the area. See photo 87.

At the nearby 20,000-gallon tank installed under the Reuse System project, an additional pump had been removed, photo 88.

At the chlorine plant, I observed a 55-gallon drum of chlorine compressor fluid. Mr. Mensinger said he would check on this container to determine if it was useful material.

Near the melt/reactor building, I observed an open-top drum holding a sludge and positioned under a vertical pipe. Nearby, a knockdown pot held some liquid. Various other pots/open-top drums containing sludge or liquid were also present in the vicinity of and under the melt/reactor building. Mr. Mensinger said he would ask staff to check on each of these to determine appropriate disposal.

Also under the melt/reactor building, a poly IBC tote labeled to contain hydraulic fluid was open and did not have a bung.

Inside the foundry building, I observed approximately 14 55-gallon metal drums with unknown contents. One of the drums was marked "Lab" and another drum was placarded "flammable solid" and "dangerous when wet". The drums were rusted and in poor condition, and some were stored on pallets that were degrading and had the potential to become unstable. See photos 89 and 90.

Also in the foundry building, I observed two drums labeled anhydrous magnesium chloride powder. The top of the drums held a significant amount of dirty grease-like material and were rusted. Based on a review of publicly available SDS sheets following the inspection, it appears that, when disposed of, anhydrous magnesium chloride powder may be D003 hazardous waste.

In Electrolytic Cell Building 3, I observed that at least two cells were in the process of being rebuilt, though the work appeared to be temporarily halted.

At the Utilities building, I confirmed that a new door had been installed to provide access to the electrolytic cell service restroom without personnel having to pass through the lunchroom. This door was added pursuant to the Worker Health Order, Appendix 10 to the CD.

In the laboratory, I observed a 55-gallon blue poly satellite accumulation drum marked "hazardous waste" and closed but was not marked with an indication of the hazards. Mr. Mensinger marked the container "toxic" and "corrosive" while we observed.

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At the used oil storage pad (photos 91-101), I observed the following:

- Two gray metal 55-gallon drums marked oil & water.
- One red metal 55-gallon drum marked used oil.
- Two blue poly 55-gallon drums marked oil absorbent.
- Three blue poly 55-gallon drum marked oil rags.
- Two grey metal 55-gallon drums marked used oil.
- One red metal 55-gallon drum marked used oil.
- One white metal 55-gallon drum marked oil & water.
- One white metal 55-gallon drum marked used oil.
- Six blue poly 55-gallon drums marked used oil.
- Three poly IBC totes that were not marked.
- Three black metal 55-gallon drums marked used coolant and marked waste ethylene glycol.
- Two blue poly 55-gallon drums marked waste ethylene glycol.
- One green metal 55-gallon drum marked used oil that was rusted on top to the extent that a hole had formed.
- Two blue poly 55-gallon drums marked oily pigs & rags.
- Approximately four 55-gallon drums, at least two of which were marked used oil, that had been damaged. A contractor working in the area said they had accidentally damaged the containers and were actively conducting a cleanup. They said some used oil had already been transferred to the poly IBC totes, and that they would continue transferring the rest, then label the totes "used oil".
- The stationary used oil tank marked "used oil".

Nearby, approximately 200 feet north of the mobile maintenance garage in the boneyard, I observed eight blue poly 55-gallon drums and four black metal 55-gallon drums, all labeled "Amberlite Resin". All four of the metal drums were in a very rusted condition, and three of them were severely degraded to the extent that their structural integrity was compromised, with large holes having formed in the drum sides. See photos 102-104. Based on a review of publicly available information following the inspection, this material is used for water treatment, and may be a hazardous waste when disposed of.

In the stores yard located north of the eastern end of the stores building, I observed a collection of 14 poly IBC totes, and while some did not have markings that I was able to view, all visible markings said, "Used Transformer Oil". Some were dated February 2024. See photo 105. Mr. Mensinger said he believed none contained PCBs.

To the north of the totes in the stores yard, I observed four rusting drums marked Victawet 12. Mr. Mensinger said he thought the material may still be usable.

Also in the stores yard, nine blue poly drums were stored together but only one was labeled. That label indicated the contents of that container was sulfuric acid. Mr. Mensinger said he thought they were all sulfuric acid, and that they were used for treating cooling tower water.

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Further north in the stores yard approximately 350 feet north of the eastern end of the stores building near lat/long 40.918119, -112.735686, a collection of metal drums had handwritten yellow markings, for example EP00419. The containers had varying levels of rust, and two had oil on top of the containers, see photos 107 and 108.

At the laboratory in the lithium carbonate plant, I observed small in-process containers used for hazardous waste collection that are taken to the main laboratory by the end of the shift for placement into the SAA container. I told Mr. Mensinger that the SAA container at the separate building is not at or near the point of generation and under the control of the operator, so cannot receive this hazardous waste. He said that he would have an SAA added to the lithium carbonate plant laboratory.

RECORD REVIEW

Following the site tour, we returned to the office and reviewed records, including manifests, parts cleaner solvent receipts, and the emergency response plan.

Following the inspection, I reviewed the provided analytical results for the lithium carbonate production process for the three samples (included in Attachment 2 – Analytical Results): 1) Li De-mag Filtercake, 2) Li Digester Tank, and 3) West Vault Waste Water. These results had previously been provided to the EPA by email from Rob Hartman of USM on June 7, 2022, with the following additional explanation:

20H0665-01 Li De-mag Filtercake 20200811-01 - This is the filtercake we observed in the bunker ("dozer trap") outside the east side of the building.

20H0665-02 Li Digester Tank 20200811-02 - This is the undigested tank dregs from the digester tanks – mostly gravel introduced during material handling of smut to feed the digesters.

20H0665-03 West Vault Waste Water 20200811-03 - This is filter press wash water, steam blowdown and building area washdown from the lithium carbonate plant.

Based on my review of the analytical results, all samples were collected on August 11, 2020. Analyses included TCLP metals and semi-volatile compounds. Of the metals detected, none were above the TCLP hazardous waste limits. No semi-volatiles were detected in any of the three samples.

CLOSING CONFERENCE

During the closing conference, I stated that follow-up would be requested for the following:

- The sludges and liquids in drums and pots near and under the melt/reactor building.
- The collection of approximately 14 drums in the foundry building.
- The broken and missing manhole covers for the wastewater piping system.

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- The used oil IBC totes after completion of transfer from the damaged containers and after marking with the words “used oil”.
- Ditch cap inspection records and photographs.
- The four degraded metal amberlite containers in the boneyard.
- The two metal drums in the stores yard that had oil pooled on top.
- The lithium carbonate lab hazardous waste (e.g. new SAA).
- Example personnel training records, selected for the following personnel: Chad Pederson, Gary Dalton, and Ben Tripp.
- Additional information about the source of hazardous waste marked with codes D030 (2,4-Dinitrotoluene), D032 (Hexachlorobenzene), and D033 (Hexachlorobutadiene) on hazardous waste manifest 015644812FLE.

Inspection Follow-up

Additional information needed to determine the facility’s compliance status may be requested in correspondence with the facility as appropriate.

SIGNATURES

ANNETTE MAXWELL

Digitally signed by ANNETTE MAXWELL
Date: 2024.08.20 13:41:17 -06'00'

Annette Maxwell, RCRA Inspector

Susarla, Sridhar

Digitally signed by Susarla, Sridhar
Date: 2024.08.20 14:41:46 -06'00'

Sri Susarla, Manager

RCRA and OPA Enforcement Branch

Enforcement and Compliance Assurance Division

ATTACHMENT LIST

Attachment 1 – Site Maps

Attachment 2 – Analytical Results

Attachment 3 – Photograph Log

Attachment 4 – Nalco SDS