U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Henson Creek Mines - Ute Ulay Mine - Removal Polrep

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**Region VIII**

**Subject:** **POLREP #4**
**Progress**
**Henson Creek Mines - Ute Ulay Mine**
**08LJ-OU1**
**Lake City, CO**
**Latitude: 38.0196390 Longitude: -107.3770100**

**To:**
**From:** Steven Way, OSC
Joyel Dhieux, OSC
**Date:** 7/31/2013
**Reporting Period:** July 14, 2013 - July 26, 2013

## 1. Introduction

### 1.1 Background

| | | | |
|---|---|---|---|
| **Site Number:** | 08LJ-OU1 | **Contract Number:** | |
| **D.O. Number:** | | **Action Memo Date:** | 4/15/2013 |
| **Response Authority:** | CERCLA | **Response Type:** | Time-Critical |
| **Response Lead:** | EPA | **Incident Category:** | Removal Action |
| **NPL Status:** | Non NPL | **Operable Unit:** | |
| **Mobilization Date:** | 5/21/2013 | **Start Date:** | 5/23/2013 |
| **Demob Date:** | 7/26/2013 | **Completion Date:** | |
| **CERCLIS ID:** | | **RCRIS ID:** | |
| **ERNS No.:** | | **State Notification:** | February 2013 |
| **FPN#:** | | **Reimbursable Account #:** | |

#### 1.1.1 Incident Category

CERCLA Time-Critical Removal Action

#### 1.1.2 Site Description

The Ute Ulay Mine and Mill Site is an inactive gold, silver, lead and zinc mining and milling operation located near Lake City, Colorado. The Site includes a flotation mill with mixed tailing and waste rock piles, several open portals and a shaft. The mill tailing and waste rock piles are situated adjacent to Henson Creek. The tailing and waste rock piles are located on both privately-owned and Bureau of Land Management (BLM) lands at the Site.

##### 1.1.2.1 Location

The Ute Ulay Mine and Mill is located 4 miles west of the Lake City, Hinsdale County, Colorado.

##### 1.1.2.2 Description of Threat

The Site is located in an area that is subject to heavy snow with a pronounced spring snowmelt. In addition, the Site is within an avalanche hazard area. In 2011, an avalanche occurred east of the Ute Ulay Mine and Mill Site. The avalanche filled the channel, blocked the river and backed Henson Creek up to approximately 30 feet deep, submerging a section of the waste dump adjacent to the large mill tailing impoundment. A release of tailing materials occurred when Henson Creek broke through the avalanche debris. Routine run-off events cause releases to the environment of tailings and waste rock containing hazardous substances.

Sensitive ecosystem impacts may occur in the event of a large mass of waste release into Henson Creek, which is a tributary to Lake Fork of the Gunnison. Lake Fork River is considered a Cold Water Aquatic Life Class 1 by the state of Colorado. Sampling and analyses conducted by CDPHE in 2000 and 2011 indicate the presence of several known contaminants of concern, especially arsenic and lead. In addition, cadmium, copper, manganese, silver, zinc and mercury have been detected in concentrations exceeding the MacDonald PEC for freshwater aquatic ecosystems guideline related to sediment contaminants. All of the materials contaminated with hazardous substances have been left unsecured in tailing and/or waste rock piles.

#### 1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Based on investigation and geotechnical analysis, the EPA, DRMS and CDPHE determined that the most significant hazard at the Site is the potential for a failure of the mine waste rock dump slope and mill tailing impoundments into Henson Creek. The stability analysis demonstrates that slope failure is likely under extreme loading events such as an earthquake or rapid drawdown of contained water and that these slopes are only marginally stable in their existing conditions. The factors of safety were calculated for several cross sections on the mine waste dump and were found to be below 1.4 and as low as 0.86 for the primary waste rock slope. Generally, slope stability should be above a factor of safety of 1.5.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

This action involves the following key elements: (1) re-grading of tailing and waste rock piles to achieve an acceptable slope stability and reduce the potential for catastrophic failure into Henson Creek; (2) re-grading to promote positive drainage, minimize water run-on, and prevent erosion into Henson Creek; (3) as determined appropriate, amending the mill tailings with a cement mixture to stabilize wet tailings; and (4) securing the top, accessible areas of waste with earthen cover material, as necessary to reduce human exposure. BLM-managed land and private land on-Site will provide the area necessary to allow re-grading of waste on private land to achieve stable slope conditions. Design drawings are being developed and will show the proposed grading plan to achieve acceptable slope stability. In addition, both unamended and cement amended waste blends were analyzed for material strengths, and it was determined that some portion of the waste would be amended with cement to increase the stability of the resulting repository.

#### 2.1.2 Response Actions to Date

Response Actions through June 2, 2013, are detailed in POLREP 1.

From June 3-18, 2013, the ERRS crew completed excavation of approximately 80 - 90 percent of the tailings in the eastern repository area. (An additional tailings pond remains to be excavated in front of the mill.) The tailings were mixed with a one-to-one ratio of waste rock and amended with cement at three percent. The amended mixed materials were placed and compacted into the footprint of the haul road along the northern edge of the entire tailings impoundment. The tailings impoundment along the southern edge of the Site, directly adjacent to the stream, was excavated to bedrock. Drain rock was placed on the bedrock, followed by the cement-amended mixed materials. The underdrain was provided an outlet at a natural low point in the bedrock surface. Approximately 13,750 cubic yards of the amended and unamended mixed waste rock and tailings were placed from June 3-18, 2013.

Removal operations continued from June 18 through July 2 with a break for the July 4th holiday. Site operations were shut-down from July 2 at 12:00 to July 9. The eastern repository area was completed by June 24, and excavation of the upper tailings impoundment (western end of the Site) was started. Waste rock and tailings were stockpiled and blended. The middle section of the Site slope was filled with the blended waste.

Tailings were removed from the upper impoundment to a depth of approximately 30 feet below the top of the berm before encountering bedrock. Tailings were removed to bedrock over an area 65 feet wide by 180 feet long. During the excavation, an area in the outer berm of waste nearest the creek was analyzed using the XRF analyzer, and lead was found to range above 5 percent or 50,000 mg/kg. In addition, an area at the ground surface near the creek embankment was found to contain lead as high as 10,000 mg/kg.

Amended waste (i.e., 3 percent cement with waste rock and tailings) back fill was started in the impoundment area on June 28. It was determined that no change would be made to the original cement amendment rate of 3 percent. The higher lead containing material was placed in the cement amended waste fill to ensure that it was removed from the surface. A portion of the tailings in the upper impoundment was left in place in an area to the north of the excavation area and between that area and the mill building. It was determined these would be adequately contained with the amended waste, a 55 ft wide x 180 ft long and approximately 30 ft deep constructed fill. In addition, an amended waste cover will be placed over the tailings left in place.

Waste rock removal and regrading along Henson Creek was started in the mid-section of the Site. Waste was removed from the flood plain area near the eastern repository to the approximate bank-full water level. Riprap boulders (36 to 48 inch rock) were placed where the creek narrowed and the waste embankment may be vulnerable to flooding. This will provide an area to direct surface water run-off towards the creek. Generally, a tiered bedrock ledge exists under the waste rock along the creek channel, and the bedrock outcrops are elevated approximately 5 to 10 feet above the water level. Waste rock removal along the creek embankment was completed.

The ERRS crew completed installation of the riprap along the creek; amendment and grading of the repository slopes and access roads. Mid-slope breaks were created on the 2.5:1 slopes, one as a drainage bench and the other as the access road to the mill. Cement was added to the road. EPA conducted a walk-thru the Site with Hinsdale County Commissioner Stan Whinnery, CDPHE, and BLM on July 25, 2013. The ERRS crew began demobilization on July 25, 2013. As of July 25, 2013, approximately 33,800 cubic yards of waste had been placed in the reconstructed impoundments and graded into the slopes. Approximately 30,600 cubic yards of waste had been removed and blended for placement. The site was surveyed on July 30, 2013, and as-built plans will be prepared.

#### 2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

#### 2.1.4 Progress Metrics

| | | | | | |
|---|---|---|---|---|---|

| *Waste Stream* | *Medium* | *Quantity* | *Manifest #* | *Treatment* | *Disposal* |
|---|---|---|---|---|---|
| Tailings | solids | 14800 cy | na | amended | onsite |
| Waste Rock | solids | 15800 cy | na | amended | onsite |
| | | | | | |

**2.2 Planning Section**

**2.2.1 Anticipated Activities**

**2.2.1.1 Planned Response Activities**

Preparations for the BLM/DRMS work are being developed.

**2.3 Logistics Section**

No information available at this time.

**2.4 Finance Section**

No information available at this time.

**2.5 Other Command Staff**

No information available at this time.

**3. Participating Entities**

No information available at this time.

**4. Personnel On Site**

9 - 10 ERRS contractors
1 EPA-OSC either Way or Dhieux
1 USBOR (periodically)

All personnel demobilized July 26, 2013.

**5. Definition of Terms**

No information available at this time.

**6. Additional sources of information**

**6.1 Internet location of additional information/report**

Hinsdale County Website - Ute Ulay Mine

**6.2 Reporting Schedule**

**7. Situational Reference Materials**

No information available at this time.