

U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Pennsylvania Mine - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region VIII

**Subject:** POLREP #2  
Progress Report  
Pennsylvania Mine  
  
Montezuma, CO  
Latitude: 39.5810980 Longitude: -105.8672337

**To:**  
**From:** Paul Peronard, OSC  
Martin McComb, OSC  
**Date:** 8/18/2013  
**Reporting Period:** August 4 - 18, 2013

## 1. Introduction

### 1.1 Background

<b>Site Number:</b>	08WQ	<b>Contract Number:</b>	various
<b>D.O. Number:</b>	various	<b>Action Memo Date:</b>	6/19/2013
<b>Response Authority:</b>	CERCLA	<b>Response Type:</b>	Time-Critical
<b>Response Lead:</b>	EPA	<b>Incident Category:</b>	Removal Action
<b>NPL Status:</b>	Non NPL	<b>Operable Unit:</b>	n/a
<b>Mobilization Date:</b>	7/18/2013	<b>Start Date:</b>	7/18/2013
<b>Demob Date:</b>	10/5/2013	<b>Completion Date:</b>	10/1/2016
<b>CERCLIS ID:</b>	08WQ	<b>RCRIS ID:</b>	n/a
<b>ERNS No.:</b>	n/a	<b>State Notification:</b>	Yes
<b>FPN#:</b>	n/a	<b>Reimbursable Account #:</b>	n/a

#### 1.1.1 Incident Category

Mining and Mineral Processing / Smelting.

#### 1.1.2 Site Description

##### 1.1.2.1 Location

The Pennsylvania Mine is located in Summit County, Colorado, roughly 8 miles east of the Keystone Ski Resort in the Front Range of the Rocky Mountains. The mine is approximately one-quarter mile south of Peru Creek on the northwest slope of Decatur Mountain and on the south side of the east-west trending Argentine Valley. It is roughly 3.5 miles upstream of the confluence of Peru Creek with the Snake River. The Snake River flows into Dillon Reservoir approximately 9 miles downstream of its confluence with Peru Creek. Dillon reservoir is a major municipal water supply for the Denver metropolitan area.

The mine is located in alpine terrain characterized by steep-sided glaciated valleys and unvegetated, rocky upland ridges and peaks. Elevations range from 10,900 feet at the lowest level of the mine workings, to 11,130 feet at the level F adit and 11,450 feet at the level C adit. The mine is at timberline and weather conditions are characterized by short summers and long, snowy winters. The average snowfall at the nearby Keystone Ski Resort is approximately 230 inches.

The historic workings of the Pennsylvania Mine are found on both public and private land. Public land at the Site is managed by the United States Forest Service (USFS) and is part of the White River National Forest. There are several mining claims and other unimproved private property at and near the Site. The nearest private residence is located approximately two miles west of the Pennsylvania Mine Site.

In 2010, EPA delineated and prioritized the waste piles located near the level C and F adits based on the concentration of heavy metals in the soil. Approximately 9,200 ft<sup>3</sup> or 2% of the waste at Level F and 124,000 ft<sup>3</sup> or 48% of the waste near Level C are located on property owned by the USFS. Highly contaminated sediments can also be found both in Peru Creek and in several washes that drain the Site into the creek.

The area is a popular year-round recreational destination. Recreational activities include off-highway driving, camping, hiking, biking, running, cross-country skiing and back-country skiing.

##### 1.1.2.2 Description of Threat

Extensive sampling and monitoring data have been collected at the Pennsylvania Mine since the 1980s. These data show that the mine is one of the largest, if not the largest, anthropogenic source of dissolved heavy metals in the Snake River watershed. Exceedances of Colorado's water quality standards in the vicinity range from 20 to 50-fold for cadmium, manganese, lead, and zinc, 120-fold for iron and 300-fold for aluminum.

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

The Pennsylvania Mine was initially developed in 1879. It produced gold, silver, lead, copper and zinc and had its biggest production year in 1893 when it shipped 7,000 tons of ore. The mine was developed on six levels, known as A, B, C, D, E and F with F being the lowest level. Adits were constructed at levels C and F. The mine continued regular operations until 1908 and was then worked intermittently until the mid-1940s when it was abandoned.

Since the mine was abandoned, metals-laden effluent has flowed from the level F adit, down a steep channel and directly into nearby Peru Creek. In addition to this acid mine drainage, significant waste and tailing deposits remain on the surface near both the level C and level F adits. These deposits are often eroded into the creek during large runoff events.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

EPA's removal action addresses issues above and below ground and will be carried out in partnership with the Colorado Department of Reclamation and Mining Safety (DRMS) under EPA's time-critical removal authorities as defined in the 40 CFR 300.

Due to the complexity of the project and the typically short summer construction season, Site work will be sequenced over several years of construction, hence the estimated completion date of October 2016. The following major activities will take place on Site during the 2013 construction season:

- improving Peru Creek Road up to the mine (EPA)
- managing drainage at the portal (EPA)
- consolidating mine waste (EPA)
- underground rehabilitation and investigation (DRMS)

#### 2.1.2 Response Actions to Date

##### Road Improvement

- ERRS has improved Peru Creek Road.

##### Monitoring

- START developed documents to support the collection of pH and XRF measurements. EPA's Environmental Response Team deployed a Viper monitoring network to collect pH measurements in the settling zone. The locations associated with this monitoring effort are described in the attached site sketch.
- START assessed the quality of the soil in the drainage below the waste piles using XRF technology. EPA's OSC determined that the levels of contamination do not warrant the disturbance to the vegetation that will be caused by their removal. Topsoil will be applied to the area and the drainage will be re-vegetated.

##### Site Preparation

- ERRS prepared the area around the level F portal for underground activities by diverting the portal's effluent around the waste pile, preparing a pad for the underground team and a staging area for water treatment, and creating a water treatment pit and three settling ponds. These Site preparation activities are described in the following table and the attached Site sketch. A 20' conex box to support water treatment was delivered to the Site on August 16.

<u>Activity</u>	<u>Task ID</u>	<u>Task</u>
	Pad	Created level pad to support underground activities.
	Portal	Diverted effluent from the level F portal into a settling pond.
	Muck	Collected muck in a shallow pit which drains towards the waste pile.
Site Preparation	Treatment	Created segmented pond to precipitate metals using sodium hydroxide, polymers and flocculant.
	Staging	Created a pad and access to support treatment of mine effluent.
	Diversion	Diverted water from the settling pit around the waste pile.
	Settling	Channeled water through three settling ponds.

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

See the Enforcement Addendum found in the Action Memorandum.

#### 2.1.4 Progress Metrics

To date, approximately 3.0 of 3.8 miles (or ~80%) of Peru Creek Road have been improved. This work has utilized 80 tons of 2" rock and 2400 tons of road base.

## **2.2 Planning Section**

### **2.2.1 Anticipated Activities**

#### **2.2.1.1 Planned Response Activities**

DRMS will begin clearing debris underground on August 19. ERRS will manage the muck and effluent that DRMS generates while underground.

A powerplant trailer and a Cat D5 LGP bulldozer configured with LGP for high altitude operation will arrive on-Site on August 20. The dozer will be used to move the conex box into its final position next at the portal and begin consolidation of the waste piles outside the level F portal.

ERRS will finish improving Peru Creek Road up to where it crosses Peru Creek just below the mine.

START will continue developing a site-specific XRF calibration curve.

#### **2.2.1.2 Next Steps**

Once the road has been improved up to the crossing with Peru Creek just below the mine, ERRS will exchange their current excavator for a larger one. This larger excavator will begin consolidating the waste piles outside the level F portal.

### **2.2.2 Issues**

The OSC plans to remove a ore loading structure that is resting on the main waste pile outside the level F portal. The USFS informed the OSC of an existing MOU that they had developed with the State Historical Preservation Officer (SHPO) and offered to provide their assistance.

## **2.3 Logistics Section**

Not Applicable.

## **2.4 Finance Section**

No information available at this time.

## **2.5 Other Command Staff**

### **2.5.1 Safety Officer**

Not Applicable.

### **2.5.2 Liaison Officer**

Not Applicable.

### **2.5.3 Information Officer**

OSC McComb gave an interview to the Summit Daily News on August 16, 2013.

## **3. Participating Entities**

### **3.1 Unified Command**

Not Applicable.

### **3.2 Cooperating Agencies**

Colorado Department of Reclamation and Mining Safety  
Colorado Department of Public Health and Environment  
Summit County  
United States Forest Service

## **4. Personnel On Site**

2 OSCs (rotating on-Site coverage during this operating period)  
7 ERRS Contractors  
2 START Contractors (on-Site for 1-day during this operating period)  
1 SERAS Contractor (on-Site for 1-day during this operating period)

## **5. Definition of Terms**

DRMS: Colorado Department of Reclamation and Mining Safety  
ERRS: Emergency and Rapid Response Services (EPA Contract)  
ERT: Environmental Response Team (EPA Division)  
SERAS: Scientific, Engineering, Response and Analytical Services (EPA Contract)  
SHPO: State Historical Preservation Officer  
START: Superfund Technical Assistance and Response Team (EPA Contract)

## **6. Additional sources of information**

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

[http://www.epaosc.org/site/site\\_profile.aspx?site\\_id=8722](http://www.epaosc.org/site/site_profile.aspx?site_id=8722)

## **6.2 Reporting Schedule**

The next PolRep will be distributed the week of Aug 26, 2013.

## **7. Situational Reference Materials**

Not Applicable.