U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
North Star Mill Tailings - Iron Springs Mining District - Removal Polrep
Final Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region VIII

Subject: **POLREP #3**
Completion of Removal Activities - Final Removal POLREP
North Star Mill Tailings - Iron Springs Mining District
08QM01
Ophir, CO
Latitude: 37.8585850 Longitude: -107.8157580

To:
From: Steven Merritt, On-Scene Coordinator
Date: 10/1/2009
Reporting Period: 8/31/2009 - 10/1/2009

1. Introduction

1.1 Background

Site Number:	08QM	**Contract Number:**	68-W-07-052
D.O. Number:	036	**Action Memo Date:**	8/13/2009
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	01
Mobilization Date:	8/17/2009	**Start Date:**	8/19/2009
Demob Date:	10/1/2009	**Completion Date:**	10/1/2009
CERCLIS ID:	CO0001916360	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category
Inactive Production Facility - Mining Ore Processing Mill

1.1.2 Site Description
See Previous POLREP.

1.1.2.1 Location
See Previous POLREP.

1.1.2.2 Description of Threat
See Previous POLREP.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results
See Previous POLREP.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative
During this reporting period, EPA completed the removal action, which included excavating contaminated soils throughout the site, constructing and capping the repository, constructing drainage features, and setting conditions for the re-vegetation of disturbed areas of the property. Upon the completion of the Removal Action at the site, EPA demobilized all equipment and personnel from the site.

2.1.2 Response Actions to Date
On August 31-September 2, 2009, ERRS continued excavating the stockpiled ore and crushed rock found on the north and west sides of the former mill foundation. Excavated material was hauled to the repository and compacted using the dozer at a rate of approximately 200 cubic yards per day. START continued monitoring for airborne particulate matter and analyzing soils for elevated metals concentrations using the XRF instrument.

On September 3, 2009, ERRS demobilized crew from the site for the Labor Day weekend. There was no work performed at the site from September 4-7, 2009 due to lodging costs and unavailability during the

Labor Day weekend. On September 8, 2009, ERRS re-mobilized crew to the site. Construction signage was placed along the Ophir Pass Road in preparation for the development of the Chapman Gulch Borrow Site the following day.

On September 9, 2009, ERRS continued excavating contaminated materials from the east and south sides of the the former mill. ERRS sub-contractor arrived on the site with an excavator and a screening plant, which were hauled up Ophir Pass to the Chapman Gulch Borrow Site. ERRS sub-contractor began developing the borrow site and screening material while ERRS began excavating a second bench at the toe of the repository footprint to create additional capacity. Clean soil was stockpiled for later use as cover on the repository. ERRS also began excavating an area of contaminated tailings at the top of the repository where eroded material had washed down the slope south of the former mill. The haul truck was used on site to move the excavated tailings into the newly created bench at the southern end of the repository near the property boundary.

On September 10-11, 2009, ERRS continued limited excavation and stockpiling of contaminated soils from the slope south of the former mill foundation and the area near the solar array. Meanwhile the haul truck and the ERRS sub-contractor were used to excavate, screen and haul clean fill material from the Chapman Gulch Borrow Site to various locations on the North Star Mill Claim to reclaim and re-grade areas previously excavated. Due to significant precipitation in the area the pace of hauling was slowed and fewer circuits were completed, bringing the total quantity of clean fill material hauled to 300 cubic yards. The START Engineer made a visit to the site to survey progress on the construction of the repository and suggested that at least one cross-slope channel should be constructed on the cap to reduce soil loss due to the slope lengths.

On September 12-13, 2009, operations at the Chapman Gulch Borrow Site were suspended to accommodate weekend traffic along Ophir Pass Road. ERRS shifted focus to loading and hauling the stockpiled contaminated material excavated during the previous two days to the repository. These materials quickly filled the second excavated bench and the remaining material was spread around and compacted elsewhere inside the repository footprint by the dozer. By the end of the day on September 13, 2009, the repository was nearly full following compaction and only a small area of contaminated material remained on the slope south of the former mill to be excavated. There was additional precipitation throughout the weekend that slowed site progress, but also enhanced the compaction of the repository.

On September 13-14, 2009, ERRS sub-contractor resumed work at the Chapman Gulch Borrow Site to provide the additional loads of clean fill and rock necessary to complete the repository. ERRS hauled a total of four loads of rock to line the drainage channels and eight more loads of clean fill, bringing the total quantity of clean fill material taken from Chapman Gulch to approximately 650 cubic yards of the 1,000 authorized by the USFS. ERRS excavated the remaining contaminated material at the site, including the area of the former tramway anchor, and completed a scrape of contaminated materials from all the site roads, stockpiling this material for later inclusion in the repository. ERRS sub-contractor returned the Chapman Gulch Borrow Site to a more natural appearance and left it for use by the USFS next year before demobilizing all their equipment.

On September 15-17, 2009, ERRS completed hauling, compaction, and grading of the final loads of contaminated material into the constructed repository. START provided a survey of the slopes and dimensions of the repository and ensured that they were within the specifications prescribed by the START engineer. ERRS then began constructing the cap atop the repository by placing and compacting lifts of the fill material from Chapman Gulch beneath the stockpiled materials from the two excavated benches. START then collected samples of all exposed site soils for agronomic analyses to aid in the re-vegetation effort and help ERRS plan for any soil amendments necessary. Since the excavation of contaminated material was complete, START demobilized from the site. ERRS also demobilized the haul truck from the site to reduce costs.

On September 18-19, 2009, ERRS further compacted the cap, completed a cross-slope channel on the repository, and constructed the channels around the repository, lining them with the rock screened and imported from the Chapman Gulch Borrow Site using manual laborers, the skid-steer loader and the excavator.

There was no work performed at the site on September 20, 2009. As forecast, it rained periodically at the site throughout the day. However, rains did not impact the newly constructed repository cap or damage any of the channels around the repository.

On September 21, 2009, ERRS concentrated on preparing piles of slash and felled trees for chipping. ERRS also graded slopes to enable soil amendments and seeding. Some of the larger diameter felled trees were placed across the slopes to prevent soil loss and provide a beneficial growth environment for re-vegetated species. ERRS ordered and delivered erosion prevention matting, the wood chipper, and some of the seed needed for the re-vegetation effort. ERRS also demobilized the dozer to reduce costs.

On September 22-25, 2009, ERRS began spreading erosion prevention matting, sowing seed, fertilizing soil, and chipping slash into mulch to be spread thinly over the top of the erosion matting. The START agronomic analytical results came back and revealed that the pH of site soils proved to be very acidic. ERRS immediately acquired and spread a substantial amount of lime intended to amend the soils and increase the pH, thereby enabling the growth of the native grasses and forbs to be used for re-vegetation. Over these three days of re-vegetating the site, ERRS laid 60 rolls of erosion prevention matting, spread 125 pounds of seed, 240 pounds of fertilizer, and 3,000 pounds of lime, and created and spread over 100 cubic yards of aspen mulch throughout the 1.5 acres of disturbed site.

On September 26, 2009, ERRS completed all re-vegetation work at the site. ERRS then laid more logs atop the erosion prevention matting, cleaned up all construction related debris and material at the site, and conducted a final inspection of the site with EPA. ERRS also repaired a culvert on Ophir Pass Road that had been crushed by the haul truck during Borrow Site Operations. Upon completion of this repair, ERRS moved all equipment to the staging area, decontaminated it, and prepared it for demobilization before demobilizing all personnel.

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

No change since last POLREP.

2.1.4 Progress Metrics

During this reporting period, the removal action made significant progress toward mitigating the hazards associated with the Site. Values in the table below provide an estimate of the volumes associated with different piles at the site that have been consolidated and capped as part of the final remedy. The table also shows the amount of material that has been moved into the repository. Since the repository has been constructed atop a large portion of the Lower Mill Tailings Pile, over half of the material from that location is already inside the repository footprint.

Wastestream Location	***Contaminants***	***Quantity***	***Amount Hauled***	***Amount in Repository***	***Percent Complete***
Lower Mill Tailings Pile	*Lead and Arsenic*	*2,500 cu. yd.*	*1,000 cu. yd.*	*2,500 cu. yd.*	*100%*
Upper Mill Tailings Pile	*Lead and Arsenic*	*500 cu. yd.*	*500 cu. yd.*	*500 cu. yd.*	*100%*
Tailings in Mill	*Lead and Arsenic*	*500 cu. yd.*	*500 cu. yd.*	*500 cu. yd.*	*100%*
Mill Stockpiles	*Lead and Arsenic*	*1,000 cu. yd.*	*1000 cu. yd.*	*1000 cu. yd.*	*100%*

2.2 Planning Section

2.2.1 Anticipated Activities for Next Reporting Period

EPA expects to publish one more POLREP in the spring of 2010 to outline the progress made toward the desired post-removal site control and re-vegetation goals for the site. The next reporting period will contain a summary of any activities conducted from the end of the Removal Action on September 28, 2009 through the achievement of these goals, including the addition of further soil amendments, invasive weed control, or any necessary improvements to site drainage or vegetative cover. At this time any additional work at the site is not expected to be significant.

2.2.1.1 Planned Response Activities

As of this POLREP, the Removal Action is completed and there are no more planned response actions. However, the complete scope of the Removal Action and the current status of each element are summarized below for the benefit of the reader:

- *Clearing and Grubbing:* Routes for new access to waste piles will be cleared of trees and grubbed by removing undergrowth and duff. The repository footprint and associated features will also need to be cleared of trees and vegetation to facilitate construction. (COMPLETED AUGUST 21, 2009)
- *Excavate, Load, and Haul Waste:* Site waste will be removed and loaded by conventional excavation equipment and transported to the on-site repository. Excavation depth will generally be to natural grade or approximately one foot below grade. (COMPLETED SEPTEMBER 16, 2009)
- *Waste Treatment (if needed):* If waste treatment is needed it will be done onsite with either a phosphate or pozzolanic based agent. At this time, no treatment is planned. (NOT REQUIRED)
- *Place and Compact Waste in Repository:* Waste will be placed and compacted in the repository. Repository construction will involve preparing engineering designs, site preparations, grading, waste placement and consolidation, capping and installing appropriate drainage controls for run-on and run-off. The selected repository location will avoid groundwater and surface water and minimize ecological disturbance. Cap design detail will be consistent with typical mine waste capping standards consisting of a multi-layer soil cover with vegetative cap. (COMPLETED SEPTEMBER 19, 2009)
- *Re-grade/Cover/Re-vegetate Disturbed Areas:* All disturbed areas within the construction boundaries will be re-graded and re-vegetated after construction is completed. Re-vegetation prescriptions may include amount and types of organic matter, fertilizer, seeding, mulching, erosion control blankets, and soil cover. Generally, cover soil will be placed to

replace soils in excavation areas such that appropriate grades are created to facilitate drainage and prevent erosion. (IN PROGRESS - COMPLETION EXPECTED SUMMER 2010)

2.2.1.2 Next Steps

Monitor the progress of re-vegetation at the site and ensure that post-removal site control actions are consistent with the desired long-term remedy of the hazards present at the site before the Removal Action.

2.2.2 Issues

The soil pH at the site in the area beneath excavated tailings was found to be very acidic by agronomics laboratory analysis. In an effort to neutralize the acidic soil condition, over 2000 pounds of hydrated dolomitic lime was applied throughout the impacted areas at the site and mixed into the surface soils. Given the variability of the pH in the site soils and the limited utility of long-term pH adjustment using lime, not all seed may germinate and grow to maturity during the 2010 growing season. EPA will be closely monitoring the site to ensure conditions are favorable for long-term re-vegetation and is prepared to continue amending site soils until such conditions are found to be sustainable.

2.3 Logistics Section

There are currently no resource needs associated with the Site.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

No change since last POLREP.

2.6 Liaison Officer

No change since last POLREP.

2.7 Information Officer

The Administrative Record for the site will be available from Town Manager Jason Wells beginning on October 20, 2009, when EPA will provide a final update to the Town of Ophir General Assembly. The official EPA Public Notice about the removal action will be run in the Telluride Daily Planet on October 19, 2009.

3. Participating Entities

3.1 Unified Command

Not applicable.

3.2 Cooperating Agencies

U.S. Forest Service - Linda Lanham
Town of Ophir - Jason Wells
Colorado Department of Public Health and Environment - Mark Rudolph
Colorado Division of Reclamation, Mining and Safety - Camille Price
Colorado State Historic Preservation Office - Amy Pallante
San Miguel County Weed Control - Sheila Grother
The Trust for Land Restoration - Patrick Willits

4. Personnel On Site

Steven Merritt - EPA On-Scene Coordinator
Tim Bosco - START Scientist
Jason Hilgers - START Engineer
Chuck Jackson - ERRS Removal Manager
Rafa Aguero - ERRS Foreman
Miguel Lachere - ERRS Cost Accountant
Gilbert Mattson - ERRS Excavator Operator
Eric Lipscomb - ERRS Dozer Operator
James Holcomb - ERRS Dump Truck Operator
Joe Cordova - ERRS Truck Driver/Laborer
Brent McFayden - ERRS Laborer
Benjamin Lozano - ERRS Laborer

5. Definition of Terms

ERRS - Emergency and Rapid Response Services - EPA's Construction Contractor
START - Superfund Technical Assessment and Response Team - EPA's Technical Contractor
NPL - Superfund National Priorities List
ATSDR - Agency for Toxic Substances and Disease Registry

CDPHE - Colorado Department of Public Health and Environment
USFS - U.S. Forest Service
SHPO - Colorado State Historical Preservation Office

6. Additional sources of information

6.1 Internet location of additional information/report

For additional information please refer to http://www.epaosc.net/NorthStarMill.

6.2 Reporting Schedule

The last POLREP for this site will be submitted in Summer 2010, detailing the conclusion of post-removal site control activity and re-vegetation. This POLREP will include all ERRS trailing costs for the site and publish the completed START report for all site activities.

7. Situational Reference Materials

ATSDR Lead ToxFAQs
ATSDR Arsenic ToxFAQs