

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Bonanza Mine and Mill - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region X

Subject: POLREP #6
Bonanza Mine and Mill

Sutherlin, OR
Latitude: 43.3899870 Longitude: -123.1845630

To: Brooks Stanfield, EPA Region 10

From: Earl Liverman & Richard Franklin, On-Scene Coordinators

Date: 11/14/2014

Reporting Period: 10/12/14 - 11/9/14

1. Introduction

1.1 Background

Site Number:	10NE	Contract Number:	START 14-06-0006
D.O. Number:	ERRS 0013/030309.0013	Action Memo Date:	6/4/2014
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	8/4/2014	Start Date:	8/4/2014
Demob Date:	11/22/2014	Completion Date:	11/22/2014
CERCLIS ID:	ORN001001174	RCRIS ID:	
ERNS No.:		State Notification:	6/4/14
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category

Abandoned historical mercury mine and mill.

1.1.2 Site Description

1.1.2.1 Location

The Bonanza Mine and Mill Site is located 6 miles east of Sutherlin, Douglas County, Oregon.

1.1.2.2 Description of Threat

Elevated concentrations of mercury, arsenic, and other metals from historical mercury mining operations. For additional information and details, please see PolReps 1 through 5.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Data regarding the nature and extent of the contaminants of concern found at the Site include elevated levels of mercury, arsenic, and other metals in soils, mill tailings, road surfaces, and other media. For additional information and details please refer to PolReps 1 through 5.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

2.1.2.a Removal actions were undertaken by the Oregon Department of Environmental Quality (ODEQ) in 2000 and 2014. For additional information and details please see PolReps 1 through 5.

2.1.2.b. The following removal actions have been undertaken by EPA as part of this ongoing removal action for the first phase of the current reporting period: **October 12 - 25, 2014.**

The primary activities during this period included the following tasks:

- Accept delivery of nearly 5 acres of 40-mil-low-density polyethylene (LDPE) geomembrane liner and 200-mil geonet liner to cover repository.
- Receive results from an off-site geotechnical laboratory regarding shear tests for the liner material and recalculate acceptable soil cap thickness for the repository.

- Survey the site boundary to assist with the placement of two manufactured homes and identify potential borrow sources of clean fill to cover the on-site repository.
- Utilize a borrow source of up to 20,000 cubic yards of clean fill adjacent to the EPA command post to cover the on-site repository.
- Excavate utility trenches leading to Residence 1 and Residence 6 homesites.
- Perform additional screening with the Lumex mercury vapor analyzer at Residence 1, Residence 6, and the mill site to continue to assess ambient mercury vapors on site.
- Deploy both the geomembrane liner and 200-mil geonet liner on the repository.
- Begin to place the soil cap on the repository.
- Demolish and reconstruct the pumphouse south of Area 4.
- Coordinate the inspection and purchase of the replacement manufactured home at the Residence 6 homesite.
- Continue to search for a suitable replacement manufactured home at the Residence 1 homesite.

From October 13 to 16, the START subcontract surveyor, Centerline Concepts, performed a survey of the site boundary. The purpose of the survey was to assist with potential placement locations for the two manufactured homes and identify potential on-site borrow sources for the repository soil cap.

On October 13, the START PM and ERRS RM used the Lumex mercury vapor instrument to screen ambient mercury vapors at Residence 1, Residence 2, Residence 6, and the mill site; all locations were less than 100 ng/m³ which was markedly less than the NIOSH REL of 50,000 ng/m³ and the ATSDR level for normal occupancy of 1,000 ng/m³.

Rain showers and wet site conditions resulted in intermittent delays during the operation period. The final deployment of the DataRam particulate monitors occurred on October 13 because the repository was fully covered with clean soil and the airborne threat of arsenic and mercury particulates was mitigated. In addition, the DataRams cannot be deployed during rain showers.

ERRS continued to add subgrade and wearing course material to Residence 1 and Residence 6 to prepare for the replacement manufactured homes. The haul road leading from Area 2 to the mill site was reinforced to accommodate haul trucks carrying borrow source material to the top of the repository.

On October 15, EPA received results from an off-site geotechnical laboratory regarding sheer tests for the liner material. A START engineer then assessed a proposal to potentially decrease the soil cap thickness of the repository from 24 inches to 12 inches based on the availability of on-site borrow material. Although the revised repository specifications allowed for the shallow soil cap, the eventual soil cap thickness did not change from the original design.

On October 16, the first section of geomembrane liner was placed on the repository. By the end of the day, approximately 75% of this liner was deployed including fusion of the seams using a propriety heat gun. The following day, the geonet liner was deployed on top of the geomembrane (it rained overnight, and the remaining section of geomembrane liner could not be deployed because the seams needed to be dry in order to be fused). ERRS began to excavate soil from the borrow source on October 18 to place in the upper anchor trenches to secure the liners and by mid-day October 19, both liners had been completely deployed. ERRS continued to place borrow material on the repository for the next three weeks until it was completely covered with 24 inches of soil.

The pumphouse located south of Area 4 was in disrepair and infested with rodents. EPA directed ERRS to demolish the pumphouse and replace it with a new weather-resistant pumphouse, which occurred on October 17.

The local power company and communications provider visited the site on October 17 to assess reconnection of services for Residence 1 and Residence 6. The power company confirmed that the current power poles were sufficient, and the transformers did not need to be moved or replaced. However, an additional service pole would still need to be from the power pole by an ERRS subcontractor during a future reporting period to connect Residence 6 to the power pole. On October 23, a representative from the communications provider arrived on site to install phone line from Area 2 to Residence 6.

On October 25, the ERRS RM completed the purchase of a 2 bedroom, 2 bathroom replacement manufactured home for the Residence 6 homesite. It was delivered to the site during the following reporting period. The search for the final replacement manufactured home continued.

2.1.2.c. The following removal actions have been undertaken by EPA as part of this ongoing removal action for the second phase of the current reporting period: **October 27 - November 9, 2014.**

The primary activities during this period included the following tasks:

- Completion of the repository soil cover.
- Installation of the upper repository run-on control ditch, the repository side perimeter ditches, and other armored drainage channels on the site.
- Construction of the repository toe drain and toe surface drainage channel.
- Placement of a manufactured home at Residence 6.
- Installation of the shared septic system drain field, and placement of septic tanks at Residence 6 and Residence 1.
- Grading, reclamation, and surface restoration of disturbed areas.
- Maintenance of the site roadways during construction activities.

Rain showers and wet site conditions resulted in intermittent delays during operation period. Task scheduling was assessed daily based on current conditions and weather forecasts in consideration of site safety, and to avoid damage to the site from working in unsuitable conditions. ERRS hauled cover soil from the on-site borrow source west of the command post, and placed the soil on the repository. The soil was transported to the repository using two articulated haul trucks, dumped onto the previously placed cover

soil, and pushed over the geomembrane/geonet liner system with a low-ground pressure dozer in an approximately 30 to 36-inch lift. Cover soil was placed on the liner system starting from the bottom of the repository slope in approximately 50-foot wide section, and then placed progressively upward over the liner until covering to the top of the slope. As each section was completed, the fill operation was shifted to the adjacent sections to the northwest, again placing cover soil starting from the bottom of the slope and working upward. The sections of cover soil were compacted using a smooth-drum roller compactor, in a single, full-thickness lift.

On November 1, 2014, tension and three seam separations were noted in the geonet liner sections in northeastern portion of the repository. No damage or stretched areas of the underlying geomembrane material was observed during inspection of the separated seams. Separated seams were covered with non-woven geotextile to prevent direct contact of cover soil and geomembrane, and to prevent sediment migration into the geonet. Cracks were noted in the surface of the compacted cover soil in the northeastern portion of the repository. The cracks were oriented in a North-South direction, 45-degrees from the up-down slope direction. The cracks were more prevalent in the upper two thirds of the slope, but also occurred near the lower portion of the slope. ERRS elected to fill in the toe drain trench with soil as a preventative measure to buttress slope soils. The toe trench was covered over with borrow soil, and compacted using the roller compactor.

Additional work on the repository cover soil was postponed for several days due to rainy weather and unfavorable soil conditions. The repository soil cover was completed on November 5, 2015. Due to project time and budget constraints, and limited availability of suitable import top soil, the 6-inch top soil was omitted and additional borrow soil was included to serve as the final surface cover. During a later work phase, prior to placing slash, seed, and straw, and a fertilizer soil amendment will be added to improve vegetation growing conditions. A START subcontract surveyor, Centerline Concepts, conducted a repository surface topographical survey on November 7, 2014. The surveyor also located and marked the soil-backfilled repository toe drain trench.

The upper repository run-on control ditch and the southern side drainage channel, were constructed by shaping the drainage features in the fill soil, and armoring the bottom and sides with 4 to 8-inch rock. The northeastern 30-foot segment of the run-on control ditch will be completed later, to allow for construction equipment access during slash placement.

A replacement manufactured home for Residence 6 was transported to the site on October 31, 2014. The home was moved to its final location by the moving contractor using a remote controlled tractor. Positioning the unit into the Residence 6 driveway required ERRS to add road material at the intersection to allow trailer clearance. On November 3, 2014 an ERRS subcontractor installed the vapor barrier, support blocks, and hurricane straps. Additional installation tasks for Residence 6 manufactured home were conducted between November 3 through November 9, 2014. ERRS installed front and rear steps, roof gutters and downspouts, and made roof repairs. The electrical subcontractor installed a power service pole and meter at Residences 1 and 6. START conducted a mercury air monitoring survey in each room of the Residence 6 manufactured home using the Lumex mercury vapor analyzer. No elevated mercury readings were seen. Remaining tasks for Residence 6 include power, telephone, and water utility connections, and installation of the trailer skirting. A replacement manufactured home for Residence 1 was identified by EPA. The purchase closing is expected to occur on November 12, and transportation to the Site on November 20, 2014.

ERRS' septic system subcontractor, Randy Arts Excavating, prepared and installed the drain field and leach lines northeast of Bonanza Mine Road, south of Area 4. The excavation and backfilling was done during times of dry weather during the operational period, and was completed on November 8, 2014. A septic tank was installed at Residence 6 on November 6, 2014, and at Residence 1 on November 8, 2014. Each tank was filled with water the day of installation.

After removing the soil needed for the repository cover, ERRS began reclaiming the soil borrow source west of the command post. Slopes were blended to the surrounding topography, and the drainage swale toward the northeast was reestablished. The excavator operator dispersed slash over the bare slopes. On November 7, 2014 and a hand crew placed seed and straw in this area and around the periphery of the command post.

Other work accomplished during this operation period included maintain the roadways by removing mud and placing rock as required to accommodate construction traffic and to reduce sediment run off. Bare areas, including the Former Mill Site, road shoulders, and banks were seeded and covered with straw.

On November 10, 2014 the repository was track-walked and back-bladed with a LGP bulldozer to remove surficial erosion rills and texture the surface. A 16:16:1 fertilizer pellet blend was applied to the soil surface, and a turf grass seed mix was broadcast over the repository. The slash that was preserved and stockpiled from the initial repository area preparation was distributed over the repository surface using the mini-excavator.

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

EPA has initiated a PRP search for this Site.

2.1.4 Progress Metrics (as of 11/10/14)

Waste Stream	Medium	Quantity	Manifest #	Treatment	Disposal
Commingled mercury waste	Soil and other debris removed using hand tools	(2) 55-gallon drums	-	Macro-encapsulation	RCRA Subtitle C Facility (TBD)
Commingled mercury waste	Soil and other debris removed using Hg	(1) 5-gallon pail	-	Retirement (sulfide treatment)	TBD

	recovery vacuum				
Mercury soil waste	Soil and other debris	(2) 55-gallon drums	007851712 FLE		Bethlehem Apparatus Co.
Mercury wood debris	Soil, wood, and other debris	(2) 55-gallon drums	007851711 FLE		Clean Harbors Grassy Mountain

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

2.2.1.2 Next Steps

The following removal activities are expected to occur during the next reporting period (11/11/14 – 12/6/14): Complete the repository soil cover seeding, straw, and slash placement. Install the southern portion of the repository toe drain trench. Install the septic effluent lines between residences and drain field. Complete the purchase of Residence 1 mobile home and transport and place at the home site. Connect water, power, phone, and septic drain utilities to Residence 1 and 6 mobile homes. Final grading and finishing of site roadways. Complete drainage channels in Area 1. Continue to communicate Site activities with representative from the state, the property owner, and the general public. Complete a draft of the Maintenance, Monitoring, and Repair document.

2.2.2.1 Issues

2.3 Logistics Section

2.3 Logistics Section

2.5.1 Safety Officer

Heavy rains have added additional hazards to the removal work, including wet road and soil surfaces and increased risk of vehicle and equipment accidents, and added risk of trench collapse. Construction crew has discussed hazards during daily safety meetings, and have rescheduled some site activities to occur during more favorable conditions.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

Daily safety meetings are held. During each meeting, key personnel review the day's planned activities and any pertinent safety-related issues are highlighted. Personnel are also encouraged to present any particular concern or issues and any recommendation for improvement of project work and/or safety.

During the reporting period, site personnel were in Level D PPE based on the results of previous air monitoring and/or sampling.

2.5.2 Liaison Officer

Outreach activities are being addressed by key project personnel on an as needed basis.

2.5.3 Information Officer

See 2.5.2. Additionally, a Community Involvement Coordinator (CIC) has been assigned to the project and is available to also assist with outreach activities on an as needed basis.

3. Participating Entities

3.1 Unified Command

While UC is not established, ODEQ is integrated into the project organization, as appropriate.

3.2 Cooperating Agencies

N/A

4. Personnel On Site

EPA – 1
START – 1
ERRS – 11

5. Definition of Terms

N/A

6. Additional sources of information

6.1 Internet location of additional information/report

www.epaosc.org/BonanzaMineandMill

6.2 Reporting Schedule

POLREPs will be prepared about every two to four weeks.

7. Situational Reference Materials

No information available at this time.