U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Red Arrow Mill - Removal Polrep
Initial Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region VIII

Subject: **POLREP #1**
Initial POLREP for the Red Arrow Mill Time-Critical Removal Action
Red Arrow Mill
A8B2
Mancos, CO
Latitude: 37.3450987 Longitude: -108.3052290

To: Eugene Lee, EPA Headquarters
David Ostrander, EPA Region 8
Laura Williams, US EPA Region 8

From: Craig Myers, OSC
Date: 6/19/2014
Reporting Period:

1. Introduction

1.1 Background

Site Number:	A8B2	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	3/31/2014
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:		**Operable Unit:**	
Mobilization Date:	6/9/2014	**Start Date:**	6/10/2014
Demob Date:		**Completion Date:**	
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	Colorado DRMS performed the work.
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

Time-Critical Removal Action

1.1.2 Site Description

The CERCLIS ID for the site is CON000803094. This time-critical removal action involves the cleanup, treatment and disposal of mercury-contaminated soil and the cleanup of a building contaminated with mercury.

1.1.2.1 Location

1000 West Grand Ave, Mancos, CO, 81328.

The facility is located on the edge of the Town of Mancos, Colorado, but is legally in unincorporated Mesa County.

1.1.2.2 Description of Threat

Threats include off-site migration of arsenic and mercury laced mill tailings and the threat of release posed by abandoned bulk containers.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The preliminary removal assessment and removal site inspection for this action was performed by Walter Environmental under contract with the Colorado Department of Reclamation, Mining and Safety (DRMS). Detailed results of this activity are available in the administrative record for the site in the report entitled, "Evaluation Summary Report Red Arrow Mine, Mancos, CO" dated August 1, 2013 – hereafter referred to as the Walters Report.

The Walters Report identified numerous small piles of apparent mill tailings with varying levels of arsenic, one pile contaminated with mercury, and an amalgamation building with ubiquitous mercury contamination

inside. It also identified two arsenic laced waste piles that had been moved off of the facility onto neighboring land unassociated with the milling operation. In addition, the Walters Report identified a mercury laden tailings pile on the permitted mine site.

The Federal On-Scene Coordinator (OSC) performed the initial site visit on September 12, 2013. At the time of the OSC's first site visit in September, airborne mercury levels in the building exceeded the instrument's measurement capability of 50,000 nanograms/cubic meter (ng/m^3) – more than twice the level where respiratory protection would be required of anyone entering the building and 17 times the Agency for Toxic Substances and Disease Registry (ATSDR) recommended level for unrestricted industrial use of 3,000 – 4,000 ng/m^3, or 3–4 micrograms per cubic meter (µg/m^3), according to the *ATSDR Chemical Specific Health Consultation – Mercury, 2012* (ATSDR Consultation).

In late September 2013, DRMS conducted an emergency stabilization action utilizing state emergency funds available to DRMS to consolidate all known tailings on the mill site under a weatherproof cover for the winter – the sole exception is the aforementioned pile on the permitted mine site. Unknown liquids identified in the Walters Report were bulked into new containers as well. Further details of this action are presented in section B(1) of this memorandum and are documented in an Initial/Final Pollution Report (POLREP) in the site file. The OSC mobilized the **Superfund Technical Assessment and Response Team (**START) to conduct sampling of the waste material outside of the mill buildings only during this event.

On December 10, 2013, the OSC re-mobilized START to conduct additional sampling and air monitoring to further delineate the nature and extent of contamination both inside and outside the mill building. Details and results of both START efforts are available in the START Removal Evaluation report in the site file but are also summarized below.

The site evaluation confirmed high levels of mercury within the mercury process building. As the report points out, the levels measured in December were likely lower than average due to the extreme cold, but were still extremely elevated at 3–4 times the previously noted ATSDR recommended values for unrestricted use of an industrial structure. The START report also identified several items and process wastes within the building that are heavily contaminated with arsenic and/or mercury.

Additional assessment of the mill tailings and other waste on the mill site was performed as part of this effort as well. Nearly across the board, the waste on site contains leachable forms of arsenic, with a subset of the waste additionally containing leachable forms of mercury, as evidenced by mercury and arsenic detections in the Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP) tests (START Removal Evaluation Report, Tables 1 and 2). In short, these test results show that the material will cause an ongoing release to the environment if not properly managed at an appropriate facility. As noted in B(1) below, a large amount of waste/tailings have been placed into a temporary impoundment on site designed to be protective over the winter while a more permanent solution could be developed and other legal issues surrounding the permitted mine and unpermitted mill could run their course.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

ERRS crews spent the time from June 10th through June 17th cleaning the larger equipment with mercury vaccuum units and HgX decon solution. Once free of visible mercury, all equipment was bagged and removed to be screened with a Lumex according to the 2013 EPA/ATSDR guidance. Anything with a reading greater than 50,000 ng/m3 was disposed, with the exception of the amalgamation unit and an ore concentrator, which had been identified by the mining company as high dollar assets (>$35,000 in value). Extra effort was made to clean items to get them below 50,000 ng/m3 if the items appeared to be made of non-pourous materials. Initial mercury concentrations in the building exceeded 100,000 ng/m3 daily during this time.

Simultaneously, as crews cleaned and removed equipment, they also vaccuumed the floor in areas where free mercury was located. To date, crews have recovered approximately 240 lbs of liquid mercury waste in various containers and via vaccuuming.

After the bulk of the equipment was removed, crews began scraping the floor and cleaning all tailings dust that had become impacted on the floor and in crevices, as this dust appeared to be a significant source of mercury.

The concentration at the start of work on June 17th was approximately 18,000 ng/m3. That day, crews started mopping the floors with HgX solution, and began a more thorough cleaning effort of the floor and walls. Crews sealed the floor with a garage floor epoxy sealer, and painted the walls and wooden loft structure with multiple coats of a latex based primer. This brought the levels down, but did not achieve the stated goal in the ATSDR guidance of 3-4,000 ng/m3.

Crews resealed the floor, making extra effort to positively seal all edges and cracks, ultimately removed all wood and metal - including the heater - that was not part of the structure of the building, and then painted every remaining wall and ceiling surface with a latex primer to seal vapors into the materials. As of the morning of June 23rd, the building remained around 7,000 ng/m3 or twice the cleanup goal.

Using the Lumex, crews located small deposits of fine material in the large bay doors and under the man-door threshold. These areas were meticulously cleaned with HgX soap while removing the fine particles, but it did not bring the levels down when the building was heated for two hours on the afternoon of the 23rd.

The OSC made the decision to utilize the hot weather forecast over the next month to heat and vent the

building until crews return to the site to dispose of the packaged hazardous and mill wastes. To that end, the OSC had crews install a fan in the former furnace exhaust to vent the building at a low flow rate to continuously remove mercury vapors as they are released from the building materials in an attempt to reach the targeted cleanup goal.

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

Enforcement options are still being considered by EPA. Please see the Enforcement Addendum to the Action Memorandum for more details.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*
Liquid D009 Waste			TBD		Bethlehem Apparatus
D009 Water Treatment Media			TBD		Evoqua Water Technologies
D009 Contaminated Debris			TBD		TBD
Waste Oil			TBD		TBD
D009 Contaminated Soil			TBD		TBD
Flammable Aerosols			TBD		TBD
D001 Flammable Liquids			TBD		TBD
D002 Caustics			TBD		TBD
D002 Acids			TBD		TBD

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities
Transport and dispose of all waste. Targeted re-mobilization date is July 17th, 2014. In the interim, if EPA has crews in the area on other work, they will check the Mercury levels inside the building.

2.2.2 Issues

None.

2.3 Logistics Section

Not applicable to this action.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

Not applicable to this action.

2.5.2 Liaison Officer

Not applicable to this action.

2.5.3 Information Officer

Not applicable to this action.

3. Participating Entities

3.1 Unified Command

Not applicable to this action.

3.2 Cooperating Agencies

Colorado Department of Reclamation and Mining Safety
U.S. Environmental Protection Agency

4. Personnel On Site

1 OSC
2 USCG Strike Team
1 START
1 ERRS RM
4 ERRS Staff

5. Definition of Terms

No information available at this time.

6. Additional sources of information

6.1 Internet location of additional information/report

www.epaosc.org/redarrowmill

6.2 Reporting Schedule

The next POLREP will be filed upon shipment of wastes generated during the building decon and abandoned container activities.

7. Situational Reference Materials

additional information is available at www.epaosc.org/redarrowmill.