

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



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region VIII

Subject: POLREP #3
Final
Emancipation Mine

Salina, CO
Latitude: 40.0507090 Longitude: -105.3710030

To:

From: OSC Joni Sandoval,
OSC Paul Peronard,
OSC Martin McComb

Date: 5/2/2015

Reporting Period: 2/1/15-4/30/15

1. Introduction

1.1 Background

Site Number:	A8E6	Contract Number:	
D.O. Number:		Action Memo Date:	10/28/2014
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	00
Mobilization Date:	11/3/2014	Start Date:	11/3/2014
Demob Date:		Completion Date:	
CERCLIS ID:	CON000801923	RCRIS ID:	
ERNS No.:		State Notification:	Yes
FPN#:	N/A	Reimbursable Account #:	

Note: This Site was confusingly named in EPA's Superfund Enterprise Management System for the Emancipation Mine which is nearby but not located directly where the work is being performed. Once the name was entered into the database, it could not be changed.

1.1.1 Incident Category

Abandoned Mining Materials (Mill Tailings)

1.1.2 Site Description

The Site is a residential property along Fourmile Creek in the Front Range of the Rocky Mountains. The property contains, at best estimate, 30,000-40,000 cubic yards of re-processed mill tailings that were deposited in the floodplain sometime prior to 1950.

In September 2013, an extreme flash flood changed the course of the creek. The creek is now undercutting the tailings deposit resulting in erosion and the mass slumping of soil, contaminated with heavy metals, into the creek.

1.1.2.1 Location

The Site is located along Fourmile Creek immediately downstream of Salina, Colorado. It is approximately seven miles west of Boulder, Colorado, along Fourmile Canyon Drive. The latitude is 40.050869, and the longitude is -105.370810. The Site is at an elevation of roughly 6,500 feet.

1.1.2.2 Description of Threat

The mill tailings contain elevated levels of arsenic and other heavy metals which are harmful to human health and aquatic ecosystems. Several downstream residential properties obtain water directly from the creek or from shallow fluvial wells. There is also a community water diversion downstream of the Site.

Continued erosion of the mill tailings, resulting in the release of hazardous materials into the creek, threatens residential water supplies and adversely impacts Fourmile Creek's aquatic ecosystem. Due to a severe wildfire that occurred in the area in 2010, Fourmile Creek is now especially prone to flash flooding. This flash flooding could result in a mass failure of mill tailings into the creek.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The tailings deposit was initially estimated to be 30,000 - 40,000 cubic yards in size and contains elevated levels of heavy metals, most notably arsenic. The average concentration of arsenic is approximately 200 mg/kg with some locations exceeding 2,000 mg/kg (EPA's screening level for

arsenic is 50 mg/kg). This contaminated material readily and regularly migrates from the deposit into Fourmile Creek.

The following criteria exist for the initiation of a removal action in accordance with 40 CFR 300.415(b)(2) of the National Contingency Plan:

- Actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants;
- Actual or potential contamination of drinking water supplies or sensitive ecosystems;
- High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;
- The lack of availability of other appropriate federal or state response mechanisms to respond to the release.

Work must be performed to stabilize the mill tailings before the upcoming spring snowmelt to prevent additional erosion of the tailings into Fourmile Creek.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

EPA's Response Unit assessed various options to address the continued erosion of the tailings into Fourmile Creek including:

1. Stabilizing the tailings in place.
2. Removing and disposing of a portion of the tailings and reconfiguring the remaining material so that it could be stabilized on Site
3. Completely removing and disposing of the the tailings to the extent practical.

Due to the proximity of the tailings to the creek, the lack of available space along this stretch of the water body and the likelihood of future flood events, EPA determined that the best course of action was to remove the tailings from the Site to the extent practical.

2.1.2 Response Actions to Date

Updated actions as of 4/30/15

EPA's Emergency and Rapid Response Services (ERRS) contractor, mobilized to the Site, has performed the following activities:

- Crew finished excavation of final lift of rocky/tailings layer and completed final T&D of all tailings.
- Crew worked with Boulder County Engineers for the construction of the new stream channel including habitat pools, boulder clusters, and riffle drop structures.
- Crew armored slope against the road with rock.
- Crew finished backfilling excavated areas with clean fill.
- Western ramp providing Site access was removed, while eastern ramp was only partially removed to provide access to the newly installed fire hydrant, per the property owner and Four Mile Fire Dept.
- Re-vegetation was completed including composting, hydroseeding, and tree planting.

EPA's Superfund Technical Assessment & Response Team (START) contractor provided Site documentation services. START also provided sampling and monitoring support.

EPA met with the newly formed Four Mile Canyon Watershed Coalition group to present on Site progress.

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

Unknown at this time.

2.1.4 Progress Metrics

Emancipation Mine Site - Transportation and Disposal Tracking

ER - Environmental Restoration - Trucking

IW - Iron Woman - Sub Trucking

WC - Waste Connections - Landfill

Waste Connections & Iron Woman Trucking								
<u>Date</u>	<u>ER Loads</u>	<u>ER CY Transport</u>	<u>IW Loads</u>	<u>IW CY Transport</u>	<u>IW Price/CY</u>	<u>IW Total</u>	<u>WCA Price/CY</u>	<u>WCA Total</u>
11/21/14	0	0	15	150	\$31.00	\$4,650.00	\$11.50	\$1,725.00
11/24/14	0	0	30	300	\$31.00	\$9,300.00	\$11.50	\$3,450.00
11/25/14	0	0	34	340	\$31.00	\$10,540.00	\$11.50	\$3,910.00
11/26/14	0	0	45	450	\$31.00	\$13,950.00	\$11.50	\$5,175.00
12/1/14	6	80	23	230	\$31.00	\$7,130.00	\$11.50	\$3,565.00
12/2/14	15	194	33	330	\$31.00	\$10,230.00	\$11.50	\$6,026.00
12/3/14	14	188	32	320	\$31.00	\$9,920.00	\$11.50	\$5,842.00
12/4/14	15	194	32	320	\$31.00	\$9,920.00	\$11.50	\$5,911.00
12/5/14	16	208	37	370	\$31.00	\$11,470.00	\$11.50	\$6,647.00
12/8/14	14	188	32	320	\$31.00	\$9,920.00	\$11.50	\$5,842.00
12/9/14	20	280	15	150	\$31.00	\$4,650.00	\$11.50	\$4,945.00
12/10/14	23	322	13	130	\$31.00	\$4,030.00	\$11.50	\$5,198.00
12/11/14	22	308	10	100	\$31.00	\$3,100.00	\$11.50	\$4,692.00
12/12/14	16	224	11	110	\$31.00	\$3,410.00	\$11.50	\$3,841.00
12/15/14	16	224	12	120	\$31.00	\$3,720.00	\$11.50	\$3,956.00
12/16/14	17	238	18	180	\$31.00	\$5,580.00	\$11.50	\$4,807.00
12/17/14	23	306	17	170	\$31.00	\$5,270.00	\$11.50	\$5,474.00

12/18/14	24	320	16	160	\$31.00	\$4,960.00	\$11.50	\$5,520.00
12/19/14	18	240	16	160	\$31.00	\$4,960.00	\$11.50	\$4,600.00
12/29/14	11	142	4	40	\$31.00	\$1,240.00	\$11.50	\$2,093.00
1/2/15	25	338	7	70	\$31.00	\$2,170.00	\$11.50	\$4,692.00
1/5/15	26	352	9	90	\$31.00	\$2,790.00	\$11.50	\$5,083.00
1/6/15	28	376	10	100	\$31.00	\$3,100.00	\$11.50	\$5,474.00
1/7/15	20	268	9	90	\$31.00	\$2,790.00	\$11.50	\$4,117.00
1/8/15	22	292	11	110	\$31.00	\$3,410.00	\$11.50	\$4,623.00
1/9/15	19	254	9	90	\$31.00	\$2,790.00	\$11.50	\$3,956.00
1/12/15	19	250	7	70	\$31.00	\$2,170.00	\$11.50	\$3,680.00
1/13/15	20	276	16	160	\$31.00	\$4,960.00	\$11.50	\$5,014.00
1/14/15	23	322	16	160	\$31.00	\$4,960.00	\$11.50	\$5,543.00
1/15/15	23	322	16	160	\$31.00	\$4,960.00	\$11.50	\$5,543.00
1/16/15	23	322	16	160	\$31.00	\$4,960.00	\$11.50	\$5,543.00
1/19/15	24	336	15	150	\$31.00	\$4,650.00	\$11.50	\$5,589.00
1/20/15	24	336	16	160	\$31.00	\$4,960.00	\$11.50	\$5,704.00
1/21/15	18	252	13	130	\$31.00	\$4,030.00	\$11.50	\$4,393.00
1/22/15	21	294	16	160	\$31.00	\$4,960.00	\$11.50	\$5,221.00
1/23/15	22	308	15	150	\$31.00	\$4,650.00	\$11.50	\$5,267.00
1/26/15	21	294	17	170	\$31.00	\$5,270.00	\$11.50	\$5,336.00
1/27/15	19	266	14	140	\$31.00	\$4,340.00	\$11.50	\$4,669.00
1/28/15	23	322	17	170	\$31.00	\$5,270.00	\$11.50	\$5,658.00
1/29/15	21	294	17	170	\$31.00	\$5,270.00	\$11.50	\$5,336.00
1/30/15	22	308	16	160	\$31.00	\$4,960.00	\$11.50	\$5,382.00
2/2/15	20	280	0	0	\$31.00	\$0.00	\$11.50	\$3,220.00
2/3/15	23	322	0	0	\$31.00	\$0.00	\$11.50	\$3,703.00
2/5/15	21	294	0	0	\$31.00	\$0.00	\$11.50	\$3,381.00
2/6/15	20	280	0	0	\$31.00	\$0.00	\$11.50	\$3,220.00
2/7/15	17	238	0	0	\$31.00	\$0.00	\$11.50	\$2,737.00
2/9/15	24	336	0	0	\$31.00	\$0.00	\$11.50	\$3,864.00
2/10/15	23	322	0	0	\$31.00	\$0.00	\$11.50	\$3,703.00
2/11/15	20	280	0	0	\$31.00	\$0.00	\$11.50	\$3,220.00
2/12/15	23	322	0	0	\$31.00	\$0.00	\$11.50	\$3,703.00
2/13/15	20	280	0	0	\$31.00	\$0.00	\$11.50	\$3,220.00
2/17/15	17	238	0	0	\$31.00	\$0.00	\$11.50	\$2,737.00
2/18/15	30	420	0	0	\$31.00	\$0.00	\$11.50	\$4,830.00
2/19/15	30	420	0	0	\$31.00	\$0.00	\$11.50	\$4,830.00
2/20/15	27	378	0	0	\$31.00	\$0.00	\$11.50	\$4,347.00
2/24/15	23	322	0	0	\$31.00	\$0.00	\$11.50	\$3,703.00
2/25/15	22	308	0	0	\$31.00	\$0.00	\$11.50	\$3,542.00
2/28/15	18	252	0	0	\$31.00	\$0.00	\$11.50	\$2,898.00
3/2/15	24	336	0	0	\$31.00	\$0.00	\$11.50	\$3,864.00
3/3/15	12	168	0	0	\$31.00	\$0.00	\$11.50	\$1,932.00
3/4/15	18	252	0	0	\$31.00	\$0.00	\$11.50	\$2,898.00
3/5/15	24	336	0	0	\$31.00	\$0.00	\$11.50	\$3,864.00
3/6/15	24	336	0	0	\$31.00	\$0.00	\$11.50	\$3,864.00
3/7/15	15	210	0	0	\$31.00	\$0.00	\$11.50	\$2,415.00
3/9/15	24	336	0	0	\$31.00	\$0.00	\$11.50	\$3,864.00
3/10/15	24	336	0	0	\$31.00	\$0.00	\$11.50	\$3,864.00
3/11/15	29	406	0	0	\$31.00	\$0.00	\$11.50	\$4,669.00
3/12/15	20	280	0	0	\$31.00	\$0.00	\$11.50	\$3,220.00
3/13/15	17	238	0	0	\$31.00	\$0.00	\$11.50	\$2,737.00

Totals:	1342	18564	727	7270	Iron W Total:	\$224,215.00	WCA Total:	\$297,654.32
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Total Loads	2,069
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Total CY Shipped	25,834
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2.2 Planning Section

2.2.1 Anticipated Activities

N/A

2.2.1.1 Planned Response Activities

Provide services to water and monitor the vegetation planted on Site during the restoration phase over the summer.

2.2.1.2 Next Steps

N/A

2.2.2 Issues

N/A

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

Not applicable.

3. Participating Entities

3.1 Unified Command

Not applicable.

3.2 Cooperating Agencies

EPA is cooperating with Boulder County's Flood Recovery Team and its Department of Transportation. EPA has also been in contact with several state of Colorado agencies including the Department of Public Health and Environment and the State Historical Preservation Office.

4. Personnel On Site

EPA Personnel through 04/20/15:

1 On-Scene Coordinator

ERRS Personnel:

1 Response Manager

1 Foreman

2 Equipment Operators

3 Field Technicians

4 Truck Drivers

START Personnel:

1 Sampling and Monitoring Technician

5. Definition of Terms

EPA: Environmental Protection Agency

ERRS: Emergency and Rapid Response Services (Contractor)

OSC: On-Scene Coordinator

START: Superfund Technical Assistance and Response Team (Contractor)

6. Additional sources of information

6.1 Internet location of additional information/report

www.epaosc.org/Emancipation

6.2 Reporting Schedule

This is the final site polrep.

7. Situational Reference Materials

Not applicable.