

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Michigan Smelter - Removal Polrep
Final Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: POLREP #7
Final
Michigan Smelter
B5XF
Houghton, MI
Latitude: 47.1223147 Longitude: -88.6065189

To:
From: Elizabeth Nightingale, OSC
Date: 10/30/2013
Reporting Period: 10/21/13-10/28/13

1. Introduction

1.1 Background

Site Number:	B5XF	Contract Number:	
D.O. Number:		Action Memo Date:	8/5/2013
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	9/9/2013	Start Date:	9/10/2013
Demob Date:	10/28/2013	Completion Date:	10/28/2013
CERCLIS ID:	MIN000510458	RCRIS ID:	
ERNS No.:		State Notification:	Yes
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category

Time Critical Removal Action

1.1.2 Site Description

Please see initial POLREP.

1.1.2.1 Location

Please see initial POLREP.

1.1.2.2 Description of Threat

Please see initial POLREP.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Please see initial POLREP.

2. Current Activities

2.1 Operations Section

Narrative:

Week's Activities Overview

Over the week beginning the October 21st, 2013 the following activities were completed:

- Completed work to install the protective cover over 1.5 acre area of metal contaminated soil
- Completed transportation of waste from smelting operations (Bevill waste) offsite for disposal
- Completed installation of advisory signage around perimeter of smelter ruins area
- Completed site restoration
- Decontaminated and demobilized equipment
- Completed removal action
- Dust control measures were not needed this week due to wet conditions.

Specific activities completed each day are described in further detail below.

Activities on 10/21/13

- Continued installation of the 1.5 acre clean fill cover. Completed placement of clean fill and initiated spreading of topsoil over sand layer.

Activities on 10/22/13

- Continued installation of the 1.5 acre clean fill cover. Continued spreading topsoil over sand layer.
- Installed additional fence posts for two additional perimeter signs.

Activities on 10/23/13

- Continued installation of the 1.5 acre clean fill cover. Continued spreading topsoil over sand layer.
- Initiated seeding and strawing of excavated areas.
- Initiated installation of gate to block access to trespassing via road to site.
- Began decontaminating equipment.

Activities on 10/24/13

- Continued installation of the 1.5 acre clean fill cover. Continued spreading topsoil over sand layer, and initiated seeding and strawing this area.
- Continued installation of gate to block access to trespassing via road to site
- Continued seeding and strawing of excavated areas.
- Continued decontaminating and initiated demobilization of some equipment.
- Initiated tree installation to replace trees lost at mercury knob.
- Completed installation of 2 additional advisory signs around the perimeter of the ruins and 1 in front of the smoke tunnel.

Activities on 10/25/13

- Completed installation of the 1.5 acre clean fill cover.
- Completed grading, seeding and strawing disturbed areas of the site.
- Continued installation of gate to block access to trespassing via road to site.
- Continued tree installation to replace trees lost at mercury knob.
- Continued decontaminating and demobilization of some equipment.

Activities on 10/26/13

- Continued decontaminating and demobilization of some equipment.
- Completed installation of gate to block access to trespassing via road to site.
- Completed tree installation to replace trees lost at mercury knob.

Activities on 10/28/13

- Completed decontaminating and demobilization of some equipment.

Update by geographic area:

Below is an update on the status of action for each of the focus areas on site.

I. Areas with contaminated soil

A number of areas on site were identified where surficial soils exceeded state residential direct contact criteria (RDCC) and site specific action levels (SSALs) for lead (400 ppm and 5,184 ppm, respectively), arsenic (7.6 ppm and 389 ppm, respectively), and copper (20,000 ppm and 93,900 ppm, respectively). SSALs development methodology is available upon request and is included in site administrative record. The status of our work to address each of these areas is summarized below.

a) **Battery debris pile.** Battery pile adjacent to Coles Creek that was approximately 800 square feet in size. Lead had been detected at a concentration of 157,000 ppm in a surface soil sample collected from this area, and leachable lead was 950 ppm.

(1) Status: Excavation of pile complete. Approximately 520 tons of waste was generated from this pile. Reached native sand at base of excavation that tested below RDCC for lead, copper and arsenic. The excavation hole area has been backfilled with clean sand, covered with topsoil, graded and seeded. This waste has been treated with a 6% concentration of Enviroblend®. Enviroblend® is a white powder comprised of magnesium oxide and calcium phosphates used to stabilize waste materials. Approximately 41 tons of Enviroblend® was required to stabilize the lead contaminated soil based on bench-scale laboratory testing. Samples of treated waste verified that leachable lead had been reduced to undetectable levels. Therefore this waste was non-hazardous. Waste has been shipped offsite for disposal.

b) **Mercury knob waste pile.** A pile of smelter waste that was approximately 900 square feet, and 4-5 feet high. Arsenic was detected at a concentration of 2,430 ppm in a surface soil sample collected from the mound. Copper exceeded 100,000 ppm. Lead levels were also found to exceed SSALs.

(1) Status: Excavation of pile complete. Reached native sand at base of excavation that tested below RDCC for lead and copper, and below the SSAL for arsenic. The excavation area has been backfilled with clean sand, covered with topsoil, graded and seeded. Waste is part of the Bevill exempt waste stream. Waste has been shipped offsite for disposal.

c) Hillside Waste Piles:

(1) **Easternmost hillside waste pile:** Smelter waste pile that was approximately 64 square feet in size.

Arsenic was detected in surface soil at concentrations up to 4,970 ppm.

(a) Status: Excavation of pile complete. Native sand was reached at base of excavation that tested below RDCC for lead and copper, and below the SSAL for arsenic. The excavation area has been backfilled with clean sand, graded and seeded. Waste is part of the Bevill exempt waste stream. Waste has been shipped off site for disposal.

(2) **Hillside waste pile area #1:** Small area in smelter ruins on Terrace 4, where prior XRF screening indicated that lead levels exceeded site specific criteria.

(a) Status: This area is completely within smelter ruins and cannot safely and practically be accessed for cleanup, so is included in the area posted with signage regarding the presence of contamination.

(3) **Hillside waste pile area #2:** Small area in smelter ruins next to smoke tunnel on Terrace 4, where prior XRF screening indicated that arsenic levels exceeded site specific criteria.

(a) Status: This area is completely within smelter ruins and cannot safely and practically be accessed for cleanup, so is included in the area posted with signage regarding the presence of contamination.

(4) **Hillside waste pile area #3:** Smelter waste pile on Terrace 3 that was approximately 4,275 square feet in size. Arsenic was found to exceed RDCC and SSALs and detected in surface soil at a concentration of 2,820 ppm during XRF screening.

(a) Status: Excavation of pile complete. Native sand was reached at base of excavation that tested below RDCC for lead and copper, and below the SSAL for arsenic. Backfilling, covering with topsoil, grading and seeding of the excavation area has been completed. Waste is part of the Bevill exempt waste stream. Waste has been shipped off site for disposal.

(5) **Hillside waste pile area #4:** Smelter waste pile on Terrace 3 that was approximately 600 square feet. Arsenic was found to exceed RDCC and SSALs in surface soil.

(a) Status: Excavation of pile complete. Native sand was reached at base of excavation that tested below RDCC for lead and copper, and below the SSAL for arsenic. Backfilling, covering with topsoil, grading and seeding of the excavation area has been completed. Waste is part of the Bevill exempt waste stream. Waste has been shipped off site for disposal.

(6) **Hillside waste pile area #5:** Smelter waste pile on Terrace 3 that was approximately 1,225 square feet. Arsenic was found to exceed RDCC and SSALs and detected in surface soil at a concentration of 6,037 ppm during XRF screening.

(a) Status: Excavation of pile complete. Native sand was reached at base of excavation that tested below RDCC for lead and copper, and below the SSALs for arsenic. Backfilling and grading of the excavation area has been completed. Waste is part of the Bevill exempt waste stream. Waste has been shipped off site for disposal.

(7) **Hillside waste pile area #6:** A small area at the base of the foundation of the former smelter chimney on Terrace 2 that was shown to exceed arsenic SSALs during XRF screening in 2010. EPA was unable to detect any exceedences of SSALs during rescreening. Therefore, no excavation is being done in this area.

d) **1.5 acre open area:** This open area near the property entrance was found to have levels of total arsenic and lead in surface soils that exceed the SSALs in a number of discrete areas within a 1.5 acre area, and exceed the RDCCs throughout the area. In surface soil samples from within that area, total lead of up to 31,600 parts per million (ppm) was detected, as well as total arsenic of up to 4,130 ppm. Leachable lead was detected at 16 milligrams per liter (mg/L). To address direct contact threats in this area, an approximately 12-inch thick clean fill cover will be installed across the area over metal-contaminated soil.

(1) Status: Work to install the cover has been completed.

e) **Smelter Ruins:** Smelter ruins make up an approximately 2.5 acre area of the site. A number of places within this area have been found to exceed RDCCs for lead and/or arsenic. Several areas (Hillside waste piles #1 and #2) exceed both RDCCs and SSALs. This area is completely within smelter ruins and cannot safely and practically be accessed for cleanup. Therefore, the entire perimeter of the ruins will be included in the area posted with signage regarding the presence of contamination.

(1) Status: Signage was acquired, signage posting locations were established, installation of signage has been completed. 18 signs have been installed. A gate that blocks the access road was also installed to help prevent trespassing.

2. Asbestos Containing Materials

Several areas of known or suspect asbestos containing materials (ACM) have been identified on site.

a) **Rear asbestos pile:** Samples from an approximately 20 square foot area of old siding were found to

contain up to 10% chrysotile. This material was located along Coles Creek about 30 feet upstream from the battery pile.

(1) Status: This area has been excavated, and the material has been removed and shipped off site for disposal.

b) **Second suspected rear asbestos pile:** An additional debris pile of suspected asbestos containing materials, possible transite siding, were identified approximately 10 feet north of the haul road, east of the battery debris pile.

(1) Status: The crew excavated the suspect building debris and underlying soil and transferred the waste to the staging area. Material was subsequently shipped offsite for disposal.

c) **Transite piles:** Another area with gray fibrous material on the soil surface in smelter ruins was found to contain up to 50% chrysotile. Chrysotile is the most common form of asbestos.

(1) Status: The crew excavated the suspect building debris and underlying soil and transferred the waste to the staging area. Material was subsequently shipped offsite for disposal.

d) **Asphaltic roofing material:** Asphaltic roofing material has been found throughout the site. This material was sampled from 3 locations on site and found to be Category I non-friable ACM.

(1) Status: The crew has made several passes through the site and has collected visible asphaltic roofing material. This material was staged, and has now been shipped off site for disposal.

e) **Roofing material on metal shed debris:** A crushed metal building with roofing was discovered west of the battery pile area. A composite sample of the was collected and submitted for analysis to determine if it contains asbestos.

(1) Status: Lab analysis results indicate that this roofing material does not contain asbestos. Therefore, this material will not be removed.

Waste Disposal:

Stockpiled contaminated soil and asbestos containing materials were transported to K&W Landfill in Ontonagon County, Michigan. K&W Landfill is a licensed and CERCLA-approved landfill.

Soil Monitoring:

Throughout the site, after excavation of predesignated waste piles, remaining soil was screened with the XRF to determine the amount of lead, copper, and arsenic remaining in the soil, if any. If levels of metals in remaining soil had exceeded the site specific direct contact criteria, soil would have been demarcated before backfilling, but all screening of excavation pits indicated levels below site specific criteria.

Air Monitoring and Sampling:

Every day that excavation and loading of contaminated soils was ongoing air monitoring was conducted to ensure public and worker safety, unless weather conditions prohibit this. This work (and therefore air monitoring and sampling) began on 9/16/13. During the week of 10/21/13 air monitors were not deployed due to consistent rain and saturated soil conditions. Perimeter air monitoring data collected over the course of the project are posted here: vipr.ert.org.

Integrated air sampling for personnel exposure characterization was performed by ERRS for inorganic contaminants and asbestos in the breathing zone. Results showed no detections of lead or arsenic.

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

A general notice letter was issued to the Copper Range Company on November 5, 2012. A response was received from indicating that they were unsure about their liability and do not have the financial resources to conduct the removal action at the site. Investigation is ongoing.

2.1.4 Progress Metrics

Waste Stream	Medium	Quantity (Tons)	Manifest #	Disposal
Bevill Amandment Exempted Soil	Solid	41.91	313701	x
Bevill Amandment Exempted Soil	Solid	41.01	313702	x
Bevill Amandment Exempted Soil	Solid	40.65	313702	x
Bevill Amandment Exempted Soil	Solid	47.05	313704	x
Bevill Amandment Exempted Soil	Solid	47.03	313705	x
Bevill Amandment Exempted Soil	Solid	46.47	313706	x
Bevill Amandment Exempted Soil	Solid	48.84	313707	x
Bevill Amandment Exempted Soil	Solid	42.04	313708	x

Soil					
Bevill Amandment Exempted	Solid		46.33	313709	x
Soil					
Bevill Amandment Exempted	Solid		48.03	313710	x
Soil					
Bevill Amandment Exempted	Solid		46.88	313711	x
Soil					
Bevill Amandment Exempted	Solid		44.58	313712	x
Soil					
Bevill Amandment Exempted	Solid		35.79	313713	x
Soil					
Bevill Amandment Exempted	Solid		41.62	313740	x
Soil					
Bevill Amandment Exempted	Solid		42.55	313715	x
Soil					
Bevill Amandment Exempted	Solid		44.1	313716	x
Soil					
Bevill Amandment Exempted	Solid	39.42		313717	x
Soil					
Bevill Amandment Exempted	Solid	37.68		313718	x
Soil					
Bevill Amandment Exempted	Solid		39.11	313719	x
Soil					
Bevill Amandment Exempted	Solid		41.1	313720	x
Soil					
Bevill Amandment Exempted	Solid		31.05	313721	x
Soil					
Bevill Amandment Exempted	Solid		38.18	313722	x
Soil					
Bevill Amandment Exempted	Solid		42.2	313723	x
Soil					
Bevill Amandment Exempted	Solid		43.29	313724	x
Soil					
Bevill Amandment Exempted	Solid		47.97	313725	x
Soil					
Bevill Amandment Exempted	Solid		50.62	313726	x
Soil					
Bevill Amandment Exempted	Solid		59.09	313727	x
Soil					
Bevill Amandment Exempted	Solid		55.78	313728	x
Soil					
Bevill Amandment Exempted	Solid		46.52	313729	x
Soil					
Bevill Amandment Exempted	Solid		43.75	313730	x
Soil					
Bevill Amandment Exempted	Solid		45.85	313731	x
Soil					
Asbestos Containing Material	Solid		52.53	313751	x
Stabilized lead soil/debris	Solid		41.25	313732	x
Stabilized lead soil/debris	Solid		42.25	313733	x
Stabilized lead soil/debris	Solid		41.91	313734	x
Stabilized lead soil/debris	Solid		51.38	313735	x
Stabilized lead soil/debris	Solid		50.09	313736	x
Stabilized lead soil/debris	Solid		48.98	313737	x
Stabilized lead soil/debris	Solid		51.38	313738	x
Stabilized lead soil/debris	Solid		49.13	313739	x
Stabilized lead soil/debris	Solid		48.52	313740	x
Stabilized lead soil/debris	Solid		47.13	313741	x
Stabilized lead soil/debris	Solid		47.99	313742	x
Bevill Amandment Exempted	Solid		43.67	313743	x
Soil					

R5 Priorities Summary		
This is an Integrated River Assessment. The numbers should overlap.	Miles of river systems cleaned and/or restored	0
	Cubic yards of contaminated sediments removed and/or capped	624
	Gallons of oil/water recovered	0
	Acres of soil/sediment cleaned up in floodplains and riverbanks	1
Stand Alone Assessment	Acres Protected	37
	Number of contaminated residential yards cleaned up	1
	Human Health Exposures Avoided	20

	Number of workers on site	8
Contaminant(s) of Concern		
Contaminant(s) of Concern	Lead, copper, arsenic and asbestos	

2.2 Planning Section

2.2.1 Anticipated Activities

Planned response actions have been completed.

2.2.1.1 Planned Response Activities

Removal action has been completed.

2.2.1.2 Next Steps

Removal action has been completed.

2.2.2 Issues

None.

2.3 Logistics Section

ERRS managed site logistics.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

OSC served in this roll.

2.5.2 Liaison Officer

OSC served in this roll.

2.5.3 Information Officer

OSC served in this roll.

3. Participating Entities

3.1 Unified Command

n/a

3.2 Cooperating Agencies

MDEQ

MDNR

4. Personnel On Site

10/21/13:

EPA: 1

START: 1

ERRS: 5

MDEQ: 0

10/22/13:

EPA: 1

START: 1

ERRS: 5

MDEQ: 0

10/23/13:

EPA: 1

START: 1

ERRS: 5

MDEQ: 0

10/24/13:

EPA: 1

START: 1

ERRS: 5

MDEQ: 0

10/25/13:

EPA: 0

START: 1

ERRS: 5

MDEQ: 0

10/26/13:

EPA: 0
START: 1
ERRS: 4
MDEQ: 0

10/28/13:
EPA: 0
START: 0
ERRS: 2
MDEQ: 0

5. Definition of Terms

ATSDR	Agency for Toxic Substances and Disease Registry
BZ	Breathing Zone
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
DNR	Department of Natural Resources
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ERRS	Emergency and Rapid Response Service
MDEQ	Michigan Department of Environmental Quality
NG/M ³	nanograms per cubic meter
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NRC	National Response Center
OSC	On Scene Coordinator
PPE	Personal Protective Equipment
PPM	Parts per million
RCRIS	Resource Conservation and Recovery Act Information System
RP	Responsible Party
RRT	Regional Response Team
START	Superfund Technical Assessment and Response Team
US FWS	United States Fish and Wildlife Service
USCG	United States Coast Guard

6. Additional sources of information

6.1 Internet location of additional information/report

epaosc.org/michigansmelter

vip.ert.org -- R05 Michigan Smelter Deployment

6.2 Reporting Schedule

POLREPs were issued weekly during the removal action.

7. Situational Reference Materials

n/a