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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Subject: **POLREP #5**
Progress
Michigan Smelter
B5XF
Houghton, MI
Latitude: 47.1223147 Longitude: -88.6065189

To:
From: Elizabeth Nightingale, OSC
Date: 10/16/2013
Reporting Period: 10/7/13-10/11/13

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:		**Completion Date:**	
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 7th, 2013 work focused primarily on the following activities:

- Completed backfilling, grading and seeding of all waste pile areas except hillside waste pile area #5
- Initiated work to install the protective cover over 1.5 acre area of metal contaminated soil
- Treated lead contaminated soil from the battery pile area with a 6% concentration of waste stabilizer Enviroblend® 90/10 to reduce leachable lead, per lab tests, and sampled treated waste to assess results

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). 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 675 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 phostphates used to stabilize waste materials. The mixture is homogenized using heavy equipment. The Enviroblend® will stabilize the contaminated soil, reducing its capacity to leach lead and rendering it non-hazardous. Approximately 41 tons of Enviroblend® was required to stabilize the lead contaminated soil based on bench-scale laboratory testing. Treated waste has been sampled to verify that leachable lead has been reduced.

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 has been staged 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 has been staged 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 will be 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 will be 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 has been staged 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 has been staged 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. and grading of the excavation area is ongoing. Waste has been staged 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 6-inch thick clean fill cover will be installed across the area over metal-contaminated soil.

(1) Status: Clearing of the area has been completed. Work to install the cover is ongoing.

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 has been designed and ordered, and signage locations have been established, but it has not yet been installed.

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 staged for disposal. Material is covered in plastic.

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 is covered in plastic.

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: This material has not yet been removed.

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 has been staged for disposal. Material is covered in plastic.

e) ***Roofing material on metal shed debris***: A sample of this was collected and submitted for analysis to determine if it contains asbestos.

(1) Status: This material has not yet been removed pending receipt of analytical results.

Soil Monitoring:
Throughout the site, after excavation of predesignated waste piles, remaining soil will be 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 exceed the site specific direct contact criteria, soil will be demarcated before backfilling.

Air Monitoring and Sampling:
Every day that excavation and loading of contaminated soils is ongoing air monitoring is being conducted to ensure public and worker safety. This work (and therefore air monitoring and sampling) began on 9/16/13.

Perimeter Air Monitoring:
Datarams (DR4) are deployed daily along three of the perimeter boundaries where off-site receptors are most at risk to exposure from fugitive emissions. The smelter facilities were built into the northwest facing hillside, therefore monitors have been placed along the north, east, and west site boundaries. Real-time particulate data is transmitted back to the site command post where it will be monitored continuously.

A website has been established to view the current and past perimeter air monitoring data for the site. To view the data go to the web address: viper.ert.org. You have to create a login on your first visit to the site. Once

you have logged in, go to the R05 Michigan Smelter Deployment to view site data.

The perimeter action level for particulate has been set at 500 micrograms per cubic meter (µg/m3). Should a DR4 unit detect sustained particulate concentrations greater than 500 µg/m3, the source of emmisions will be investigated, and administrative and/or engineering controls will be initiated to reduce the particulate emissions.

During the week of October 7, 2013, no exceedances of the perimeter action level were recorded.

Exclusion Zone Air Monitoring and Sampling:

Air Monitoring:
Two personal DR (PDR) particulate air monitors are deployed daily in the exclusion zone during active excavation and capping activities. The particulate monitors data-log instantaneous and time weighted average (TWA) particulate concentrations during operations.

The concentrations of contaminants identified in the removal assessment analytical results were used to establish a site-specific action level of 95 µg/m3 for total particulates for the exclusion zone. The crew will implement appropriate engineering control measures if an exceedance of the established action level is sustained for more than 60 seconds. Action level exceedances will be managed by setting the monitor to alarm at the established action level to notify on-site personnel.

During the week of October 7, 2013, exceedances of 95 ug/m3 occurred on October 8 and October 9 in the exclusion zone, during the mixing of enviroblend with lead contaminated soil. Engineering controls were utilized to mitigate dust.

Air Sampling:
Integrated air sampling for personnel exposure characterization is being performed by ERRS for inorganic contaminants and asbestos in the breathing zone. ERRS collects samples from personnel with the greatest potential for exposure within the exclusion zone for each job classification over for a full shift (minimum of seven hours) over the first three days of intrusive activities. If the exposure assessment reveals employee exposures to be below the action level, further exposure determination will be discontinued. If there is a change of equipment, process, control, or a new task has been initiated that may potentially result in an employee being exposed at or above the action level, additional air monitoring will be conducted. Should the sample results indicate exposures over the OSHA permissible exposure limits and site-specific action levels, engineering controls will be adjusted and an additional three days of air sampling will be conducted.

Results that have been received back to date show no detections of lead or arsenic.

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

Activities on 10/7/13
- Continued backfilling excavations of hillside waste areas #3, #4 and #5
- Initiated topsoil installation and grading of hillside waste areas #3, and #4
- Initiated installation of the 1.5 acre clean fill cover
- Dust control was not needed due to rainy weather
- Walked smelter ruins perimeter to select locations to install contamination advisory signage

- Particulate air monitors deployed in the vicinity of the work measured particulate concentrations ranging from 0.0 µg/m3 to 7.18 µg/m3. Exceedances of Site action levels were not recorded. Particulate air monitors along the Site perimeter did not record any exceedances of Site action levels.

Activities on 10/8/13
- Received Enviroblend® at the site, and began onsite treatment of lead contaminated waste from the battery pile
- Continued installation of the 1.5 acre clean fill cover
- Completed topsoil installation and grading of hillside waste areas #3 and #4
- Implemented dust control measures

- Particulate air monitors deployed in the vicinity of the work measured particulate concentrations ranging from 0.02 µg/m^3 to 311.22 µg/m^3. Maximum readings in the exclusion zone exceeded the action level of 95 µg/m^3. Exceedances were not sustained and were related to the fine dust created by application of the Enviroblend® product. Particulate air monitors along the Site perimeter did not record any exceedances of Site action levels. Lead contaminated soil treatment was conducted in Level C personal protective equipment.

Activities on 10/9/13
- Completed onsite Enviroblend® treatment of stockpiled lead contaminated waste from the battery pile. The crew collected three waste characterization samples from the treated/stabilized lead contaminated soil. The analytical results will provide confirmation that the leachability of lead from the soil has been reduced below hazardous criteria.
- Continued installation of the 1.5 acre clean fill cover
- Installed road gravel at the Site entrance to establish stable construction access for haul trucks
- Implemented dust control measures

- Particulate air monitors deployed in the vicinity of the work measured particulate concentrations ranging

from 0.0 µg/m^3 to 403.34 µg/m^3. Maximum readings in the exclusion zone exceeded the action level of 95 µg/m^3. Although dust concentrations were greater than 250 µg/m^3, concentrations along the Site perimeter did not record any exceedances of Site action levels. Exceedances were not sustained and were related to the fine dust created by application of the Enviroblend® product. Lead contaminated soil treatment was conducted in Level C personal protective equipment.

Activities on 10/10/13
- Continued installation of the 1.5 acre clean fill cover
- Seeded the former battery pile area, the mercury knob area, and all Hillside waste areas that were excavated except #5
- Continued backfilling and grading excavation of hillside waste area #5, and installed topsoil
- Implemented dust control measures

- Particulate air monitors deployed in the vicinity of the work measured particulate concentrations ranging from 0.0 µg/m3 to 18.33 µg/m3. Particulate air monitors along the Site perimeter did not record any exceedances of Site action levels.

Activities on 10/11/13

EPA, ERRS, and START demobilized from the Site for a break from operations over the Columbus Day weekend.

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***	***Manifest #***	***Treatment***	***Disposal***

2.2 Planning Section

2.2.1 Anticipated Activities

The following activities have been planned for this removal action:

1. Developing and implementing a site-specific Health and Safety Plan, including an Air Monitoring Plan, and a site Emergency Contingency Plan;
2. Developing and implementing a site Work Plan that includes a Site Security Plan;
3. Removing the mercury knob waste pile, hillside waste piles, and the battery debris pile;
4. Posting boundaries of terraces that contain contamination, and which cannot safely and practically be accessed for cleanup, with signage regarding the presence of contamination;
5. Delineating subsurface contamination and installing an approximately 6-inch thick cover over metal-contaminated soil within an approximately 1.5-acre area;
6. Removing piles of asbestos-containing materials for off-site disposal;
7. Consolidating and packaging all materials containing hazardous substances, pollutants and contaminants for transportation and off-site disposal;
8. Backfilling and restoring excavated and disturbed areas;
9. Transporting and disposing of all characterized or identified hazardous substances, pollutants, wastes, or contaminants that pose a substantial threat of release at a Resource Conservation and Recovery Act/CERCLA-approved disposal facility in accordance with EPA's Off-site Rule (40 C.F.R. § 300.440); and
10. Addressing releases from other contaminated media in accordance with applicable, appropriate, and relevant requirements to the extent practicable.

The response action proposed will mitigate the threats at the site by properly identifying, consolidating, and packaging hazardous materials, pollutants, and contaminants on-site. The consolidated materials will be removed and ultimately disposed of off-site. Additional site activities may include security, perimeter air monitoring, and decontamination on the site, as needed to complete the removal action. This response action will be conducted in accordance with Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1) and Section 300.415 of the NCP, 40 C.F.R. § 300.415, to abate or eliminate the immediate threat posed to public health and/or the environment by the presence of the hazardous substances. Direct contact threats with hazardous substances are expected to be minimized at the site once the removal action is completed.

2.2.1.1 Planned Response Activities

2.2.1.2 Next Steps

Next week, primary tasks planned are installation of 1.5 acre cover, loading out waste, site restoration and installation of signage.

2.2.2 Issues
None.

2.3 Logistics Section
ERRS is managing site logistics.

2.4 Finance Section
No information available at this time.

2.5 Other Command Staff
2.5.1 Safety Officer
OSC is serving in this roll.

2.5.2 Liaison Officer
OSC is serving in this roll.

2.5.3 Information Officer
OSC is serving in this roll.

3. Participating Entities
3.1 Unified Command
n/a

3.2 Cooperating Agencies
MDEQ
MDNR

4. Personnel On Site
10/7/13:
EPA: 1
START: 1
ERRS: 5
MDEQ: 0

10/8/13:
EPA: 1
START: 1
ERRS: 5
MDEQ: 1

10/9/13:
EPA: 1
START: 1
ERRS: 5
MDEQ: 0

10/10/13:
EPA: 1
START: 1
ERRS: 5
MDEQ: 0

10/11/13:
EPA: 0
START: 0
ERRS: 0
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

viper.ert.org -- R05 Michigan Smelter Deployment

6.2 Reporting Schedule

POLREPs will be issued weekly during the removal action.

7. Situational Reference Materials

n/a