

U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Chemetco Superfund Site Removal Action - Removal Polrep  
Initial Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region V

**Subject:** **POLREP #1**  
**Initial**  
**Chemetco Superfund Site Removal Action**  
**B5HB**  
**Hartford, IL**  
**Latitude: 38.7969510 Longitude: -90.0998470**

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**From:** Kevin Turner, OSC  
**Date:** 12/17/2013  
**Reporting Period:** 10/4/2013 - 12/19/2013

## 1. Introduction

### 1.1 Background

<b>Site Number:</b>	B5HB	<b>Contract Number:</b>	
<b>D.O. Number:</b>		<b>Action Memo Date:</b>	6/14/2013
<b>Response Authority:</b>	CERCLA	<b>Response Type:</b>	Time-Critical
<b>Response Lead:</b>	EPA	<b>Incident Category:</b>	Removal Action
<b>NPL Status:</b>	NPL	<b>Operable Unit:</b>	
<b>Mobilization Date:</b>	10/4/2013	<b>Start Date:</b>	10/4/2013
<b>Demob Date:</b>		<b>Completion Date:</b>	
<b>CERCLIS ID:</b>	ILD 048843809	<b>RCRIS ID:</b>	
<b>ERNS No.:</b>		<b>State Notification:</b>	
<b>FPN#:</b>		<b>Reimbursable Account #:</b>	

#### 1.1.1 Incident Category

Time Critical Removal Action – Copper smelting slag and residual products remain from the former operations at the Chemetco Superfund Site. This facility was a secondary copper smelting and recycling operation that left remnant metal bearing materials in the environment.

Heavy metals (lead, cadmium, copper, tin and zinc) are found throughout the Site, including groundwater, adjacent wetlands, and sediments of Long Lake from past waste handling practices. On current information, contamination extends approximately two miles downstream of the Chemetco facility, in Long Lake, and potentially beyond. Long Lake is a tributary of the Mississippi River. The releases of these contaminants may have been attributed to Chemetco.

#### 1.1.2 Site Description

The Chemetco facility is located south of Hartford, Illinois, in Madison County within an agricultural area with a few residents nearby. Chemetco smelting and recycling operations were conducted on a 41-acre parcel of land surrounded by a chain link fence, which restricts access to the property. Chemetco owns an additional 230 acres of land surrounding the facility. The Chemetco facility is located in the former floodplain of the Mississippi River in an area referred to as the American Bottoms. The Mississippi River levee system in the area prevents the site from being flooded by the Mississippi River.

The Chemetco Metals Corporation was established on June 9, 1969, and was merged into a Delaware corporation of the same name on March 23, 1970. Smelting operations began at the facility in 1970. In March 1972, the company began production of copper in cathode form and in the next year changed its name to Chemetco. The Chemetco plant was an interim status Resource Conservation and Recovery Act (RCRA) facility, containing several

RCRA Hazardous Waste Management Units, including a 900,000 ton slag pile and a 35,000 ton scrubber sludge bunker containing Zinc Oxide, both of which test hazardous for lead and cadmium. Four other Hazardous Waste Management Units are known to still exist at the Site, the zinc oxide (dirt) pits, the acid pits, the cooling canals, and the north and east perimeter canals. During its operation, Chemetco had a long history of criminal and civil environmental noncompliance at its facility, and lengthy dealings with both the State and federal environmental agencies. In 1999, the United States obtained criminal convictions of Chemetco and six of its managers for charges related to causing the unpermitted discharge of untreated zinc oxide slurry waste ("zinc oxide release") from its facility into adjacent Long Lake. The company was sentenced to pay a penalty of \$3,327,500 and implement a State approved zinc oxide release closure plan for Long Lake.

After the criminal action, on October 16, 2001, the United States and State of Illinois filed a consolidated civil Complaint against Chemetco to address the Clean Water Act (CWA) violations, the zinc oxide release, and RCRA waste handling noncompliance at the Site. In this Complaint, the United States sought RCRA corrective action to address releases from the Site, compliance with applicable CWA storm water and Section 404 requirements, and civil penalties. Illinois sought to recover response costs under the State's Superfund law at 415 ILCS 511 (2002) that it incurred in responding to the unpermitted Long Lake zinc oxide release, among other claims for injunctive relief and penalties.

Chemetco filed a petition for Chapter 7 bankruptcy in 2001. The court appointed bankruptcy Trustee for the Site has been liquidating the assets of the estate. Between 2002 and 2008, the Trustee engaged in negotiations with slag re-processors to sell on-Site materials for metals reclamation or scrap, with limited success. In 2008, the Trustee negotiated the terms of an Interim Order filed in the District Court and signed by the State of Illinois to govern work plans related to the demolition of the smelter and to allow the sale of accumulated scrap assets on the Site. The Illinois EPA (IEPA) was the lead oversight agency for work at the Chemetco Site under the Interim Order. In 2010 the site was listed on the NPL. In July, 2013 a Consent Decree was lodged with the bankruptcy court in E. St. Louis. The Consent Decree with the Chemetco Estate Trustee, Paradigm, State of Illinois and U.S. EPA replaces the Interim Order, with EPA in the lead for all actions at the Site.

#### **1.1.2.1 Location**

The Chemetco facility is located south of Hartford, Illinois, in Madison County within an agricultural area with a few residents nearby. Chemetco operations were conducted on an approximately 41-acre parcel of land surrounded by a chain link fence, which restricts access to the property. Chemetco owns an additional 230 acres of land surrounding the facility. The Chemetco facility is located in the former floodplain of the Mississippi River in an area referred to as the American Bottoms. The Mississippi River levee system in the area prevents the site from being flooded by the Mississippi River. The site is in the Southeast 14 Section 16, Township 4 North, Range 9 West of the Third Principal Meridian, in Madison County. The facility address is 3754 Chemetco Lane, Hartford, Illinois 62048.

#### **1.1.2.2 Description of Threat**

The time-critical removal response actions will be conducted by the bankruptcy Trustee and Paradigm Minerals, in accordance with Section 104(a)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9604(a)(1) and Section 300.415 of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP, 40CFR 300.415), to abate or eliminate the immediate threat posed to public health and/or the environment by the presence of the hazardous substances on the Site. The uncontrolled conditions of the hazardous substances present at the Site require that this action be classified as a time-critical removal action.

This action of preventing storm water migration from the Site will be implemented so long as metal bearing materials or processing of slag take place on the Site. Throughout the Removal Action, Region 5 anticipates that potentially responsible parties will conduct investigations and/or other remedial actions required by EPA.

As shown through IEPA's PA/SI sampling, heavy metals have been detected in storm water and soil throughout the Site at concentrations that may pose a potential risk to human health or the environment under some exposure conditions. The slag pile poses an exposure risk to human populations of heavy metals and acts as a continuing potential source of contaminant release to the environment. There are no caps or liners on the slag pile, sludge bunker, or parking area to help prevent the contaminants from being spread off-Site via surface water migration pathways.

The response actions are necessary in order to mitigate threats to public health, welfare, or the environment posed by the presence of slag and scrubber sludge contaminated with lead, cadmium, copper, and zinc compounds at the Site. EPA has documented the release of heavy metals at concentrations which necessitate this removal action.

#### **1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results**

In 2002 and 2008, IEPA performed Preliminary Assessments/Expanded Site Inspections (PA/SI), and in 2008 the Site was scored for inclusion on the National Priorities List (NPL). EPA listed the Site in March 2010; it scored based on the surface water pathway overland flow migration mechanism for three contaminant sources (slag piles, zinc oxide scrubber sludge bunker, and truck parking lot).

The Site conditions include the existence of elevated levels of lead, copper and zinc within the slag products found on and outside of the facility. The Chemetco facility produced anode copper, cathode copper and crude lead-tin solder and zinc oxide. The facility utilized four furnaces to melt scrap metal and other wastes and then extract copper and other saleable byproducts. A by-product resulting from this process was an iron/silicate slag. The facility generated three other primary solid waste streams, which are zinc oxide, bag-house dust, and spent refractory brick. Waste slag at the Chemetco facility was generated from both water-cooled and air-cooled processes. The water-cooled slag was crushed, dried and screened for correct particle size and then sold as a material to use as roofing shingle backing and grit. The air-cooled slag was stored on-site in large slag piles, which remain at the site today. The slag piles are located mainly on the eastern portion of the facility property and cover approximately thirteen acres. It is estimated that over 837,000 metric tons of slag products remain. This slag contains elevated levels of lead and copper and fails Toxic Characteristic Leaching Procedure (TCLP) hazardous waste tests for lead and cadmium.

Although Chemetco had the capabilities for producing copper cathodes from copper oxide ores or precipitates, its major function was secondary processing of copper-bearing scrap and manufacturing residues. Much of the raw material consisted of electrical devices or equipment or cable, but a certain percentage was composed of such

items as skimmings, slag, turnings, grindings and other residues from foundries and factories, auto parts and building components. A premix consisting of the copper-bearing raw material and other ingredients was smelted in one of the furnaces in the first step of the process, producing black copper (containing small amounts of lead, tin and zinc). The black copper was further refined in the same type furnace utilizing blown oxygen, producing copper along with zinc oxide and a refining slag that was rich in lead and tin and contained some nickel.

#### Slag/Scrubber Sludge

Approximately 450,000 cubic yards of slag material have been stockpiled on the northeast corner of the facility property, covering approximately 13 acres. Approximately 62,000 cubic yards of zinc oxide (scrubber sludge) has been located on the facility property, including a 2.5 acre concrete bunker at the north end of the facility. In May 1998, EPA collected 20 slag samples and four scrubber sludge samples. All slag samples failed the lead TCLP regulatory limit of 5 mg/L (range 12-80 mg/L), and two failed the cadmium TCLP regulatory limit of 1 mg/L (1.1 and 1.3 mg/L). All four scrubber sludge samples failed TCLP for lead (9-213 mg/L) and cadmium (8-24 mg/L). In 2002 and 2008, IEP A data showed elevated levels of total lead and total cadmium. Total lead ranged from 7,800 to 27,900 mg/kg in the slag pile and 29,400 to 152,000 mg/kg in scrubber sludge. Total cadmium ranged from 793 to 3660 mg/kg in scrubber sludge. One sludge sample from the Estate of Chemetco showed lead to be at 102,698 mg/kg and cadmium to be at 5,350 mg/kg. The former truck parking lot located just south of the main facility property is composed of slag material and possibly spent refractory brick. The parking lot was built in 1980 and occupies approximately 8 acres of land just north of Long Lake.

#### Surface Water

The data support that Site contaminants have or have the potential to migrate off Site via a surface water pathway. Three surface water samples collected from the wetland area south of the facility contained a mean lead concentration of 9,194 µg/L lead and 291 µg/L cadmium. One of the surface water samples which were collected from the east agricultural field runoff area near to the slag pile contained 4,350 µg/L lead and 20 µg/L cadmium. The final surface water sample was collected from a storm water and non-contact cooling water pond on the Site. This storm water pond contained 9,040 µg/L lead and 405 µg/L cadmium.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

The time-critical removal response actions will be conducted by the bankruptcy Trustee and Paradigm Minerals, in accordance with Section 104(a)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9604(a)(1) and Section 300.415 of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP, 40CFR 300.415, to abate or eliminate the immediate threat posed to public health and/or the environment by the presence of the hazardous substances on the Site.

#### 2.1.2 Response Actions to Date

Following all final approvals of the CD, the Estate of Chemetco and Paradigm Minerals mobilized a contractor (Precision Crushing) to the site at the end of September 2013. In working with the OSC, the contractor began some minor site clean-up (house keeping); scrap metal recycling, skull removals and sales and mobilizing heavy equipment.

On November 14, 2013, U.S. EPA mobilized START contractors to perform oversight of approved site activities previously initiated by the Estate of Chemetco that include renting and leasing of dozers, tracked excavators, cranes, articulated dump trucks and magnetized metal handling equipment used for:

- On-going demolition work of facility plant production equipment and buildings previously used for copper smelting and product processing. Please note that the current demolition work with resultant scrap metal recycling is a necessary step to help finance the needs of the Estate for future site work that will enhance the removal and recovery of metals commodities contained in the slag.
- The location, excavation, loading and recovery of "skulls" containing higher copper or other metal content. This recovery is another important step to aid in the financing for future work performed by the Estate. Please note that a hand-held X-ray fluorescence (XRF) instrument is used to determine the skulls copper or other metal concentrations.
- Loading the skulls into containers for shipment to over-seas businesses that will recover and refine the copper.
- Relocating slag materials to create a work area to be used for future work.
- Relocating slag materials to construct a haul road from the slag pile to the work area.

On December 6, 2013, the Estate contractors initiated the construction of a loading dock adjacent to the Tank House that will be used as part of a UMBM container loading operation. It was completed on December 13, 2013.

On December 9, 2013, the Estate contractors started the assembly of the series of material conveyor circuits in the Tank House to be used as a part of forthcoming material bagging (Super-sack) operations.

On December 14, 2013, the Estate submitted to the agency the following documents:

1. CHEMETCO Health and Safety Form;
2. Site Safety Briefing Form;
3. Estate Safety Briefing – Winter;
4. CHEMETCO Site Emergency Evacuation Plan;
5. IEPA Seal Order Handout;

6. MSDS – Copper Slag.

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

U.S DOJ, U.S. EPA, State of Illinois, the Estate of CHEMETCO and Paradigm Minerals negotiated a Consent Decree to govern the removal activities.

**2.1.4 Progress Metrics**

<b>Waste or Product Stream</b>	<b>Medium</b>	<b>Quantity</b>	<b>Manifest #</b>	<b>Treatment</b>	<b>Disposal/Recycle/Intermodal Loading</b>	<b>Final Reclamation Destination</b>
Copper Spills	Recyclable Copper	88.81 tons	NA	Recycle	Interco Trading Co. Madison, Illinois	Aurubis Lunen, Germany
Cupro	Recyclable Copper/Tin	43.66 tons	NA	Recycle	Interco Trading Co. Madison, Illinois	Aurubis Lunen, Germany
Copper Pot Slag (MBM)	Recyclable Copper	43.37 tons	NA	Recycle	Interco Trading Co. Madison, Illinois	Aurubis Lunen, Germany
Copper Reverts	Recyclable Copper	350.91 tons	NA	Recycle	Interco Trading Co. Madison, Illinois	Aurubis Lunen, Germany
High-grade Copper (processed)	Recyclable Copper	21.27 tons	NA	Recycle	Interco Trading Co. Madison, Illinois	Aurubis Lunen, Germany
Non-crushable (magnetic Fe)	Recyclable Steel			Recycle	Not yet determined	NA
Non-crushable (non-magnetic)	Recyclable Steel			Recycle	Not yet determined	NA
Scrap Steel	Recyclable Steel	543.27 tons	NA	Recycle	Grossman Iron & Steel, St. Louis, MO	
White-goods, computers, office equipment, etc.	Recyclable Steel	3.32 tons	NA	Recycle	Component Level Recycling, Sauget, IL	
Hydraulic oil spill materials	Sorbent pads, PPE	2 drums		Land Disposal	Heritage Enviro. Services	
Refractory brick	Broken refractory				Pending at this time	
North Polishing Pond Sludge	Recyclable Copper and Tin	600 tons		Recycle	Pending at this time	
Zinc Oxide Sludge	Zinc Recycle	35,000 tons		Recycle	Pending at this time	

**2.2 Planning Section**

U.S. EPA Emergency Response and Removals Branch will perform oversight to the recovery of metals bearing materials and the forthcoming UMBM metals processing reclamation & removal actions to take place in early 2014.

**2.2.1 Anticipated Activities**

1. Oversee the site maintenance and enhancements to site security and access controls to the entire facility. Security cameras and recorders will be utilized. Additional security lights will be added and a

guard service will be contracted for off-hours and weekend security needs.

2. Participate in weekly meetings with the Estate, Estate employees, Estate contractors and Estate Trustee.
3. Review the Health and Safety Plan (HASP) assembled by the Estate related to all employees and its contractors.
4. Plant Demolition – Conduct oversight of the ongoing demolition and resultant scrap metal recovery work.
5. Perimeter Air Monitoring Program – Review and approve the approach to be used by the Estate to monitor fugitive dusts from materials handling and crushing operations.
6. Oversee the implementation and approach to process crush, screen, bag, load, containerize, and trans-ship unprocessed metal bearing materials (UMBM, cupro, copper bearing) at the Site, which should include, at a minimum:
  - a. Installing and grading slag product materials (hill) for access roads that will be used for UMBM materials recovery;
  - b. Excavating/loading and delivery of cuprous bearing materials delivered to the crushing circuit;
  - c. Product crushing circuit will include a jaw crusher, magnetic conveyor separator, screening tables along with several material conveyors. Generous water-spray and misting for dust suppression will be included in critical areas of jaw crushing and UMBM size screening;
  - d. Operation and Maintenance of the UMBM bagging systems;
  - e. Transporting the loaded cargo containers to an Agency approved intermodal loading facility with ultimate destination to reclamation facility(s) in accordance with EPA's Off-Site Rule (40 CFR § 300.440) and the project Consent Decree (CD);
  - f. Control access to the contaminated areas to prevent further migration of contamination, by fencing, traffic restrictions or other applicable means; The Estate will either subcontract a street sweeping service or rent equipment to maintain clean roadway surfaces inside and near the facility main gate.

#### **2.2.1.1 Planned Response Activities**

- Take all necessary steps to implement source control of the slag and scrubber sludge. Source control may include surface water and storm water control measures to control off-site migration of zinc oxides and other metals.
- Prepare for the forthcoming Paradigm process work by which metals will be separated and concentrated to enhance the metals commodity value.
- Backfill any subgrade excavated areas with clean fill to effectuate storm water control and grade the Site as necessary.

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#### **2.2.1.2 Next Steps**

- Await court approval of the amended Asset Purchasing and Processing Agreement (APPA).

#### **2.2.2 Issues**

None at this time. However, inclement weather may create weather delays to the project schedule. Also, the Estate financing challenges could create possible delays in the future related to the forthcoming Paradigm materials processing approach.

### **2.3 Logistics Section**

No information available at this time.

### **2.4 Finance Section**

No information available at this time.

### **2.5 Other Command Staff**

#### **2.5.1 Safety Officer**

Safety Meetings and briefings are held before the beginning a new work assignment.

#### **2.5.2 Liaison Officer**

#### **2.5.3 Information Officer**

### **3. Participating Entities**

#### **3.1 Unified Command**

US EPA is directing all work in the removal effort.

#### **3.2 Cooperating Agencies**

U.S. Department of Justice and Illinois Environmental Protection Agency.

### **4. Personnel On Site**

US EPA -- 1

START -- 1

Estate Employees - 5

Estate Contractors -- 6 to 14 depending on site work activities

### **5. Definition of Terms**

APPA -- Asset Purchase and Processing Agreement

ATSDR -- Agency for Toxic Substances and Disease Registry

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act  
CD – Consent Decree  
CFR – Code of Federal Regulations  
Chemetco – Chemetco Superfund Site , (“the Estate,” “Trustee for the Estate of bankruptcy Trustee” or, “Trustee”), previously d.b.a. Chemetco Metals Corporation  
Cupro – Copper containing (aka cupriferous, cupronickel)  
CWA – Clean Water Act, 33 U.S.C. §§ 1251-1387  
HASP – Health & Safety Plan  
IDPH - Illinois Department of Public Health  
IEPA – Illinois Environmental Protection Agency  
ILCS – Illinois Compiled Statues  
NCP – National Oil and Hazardous Substance Pollution Contingency Plan  
NPL – National Priorities List  
PA/SI – Preliminary Assessment / Site Inspection  
Paradigm – Paradigm Minerals & Environmental Services  
PMES – Paradigm Minerals & Environmental Services  
PRP – Private Responsible Parties  
RCRA – Resource Conservation and Recovery Act  
Skulls – Slag with copper bearing commodity value  
START – Superfund Technical Assessment & Response Team  
Super-sack – 1 to 2-ton polypropylene woven bags used to store and handle bulk processed materials  
TCLP – Toxicity Characteristic Leaching Procedure  
UMBM – Unprocessed Metal Bearing Materials  
XRF – X-ray fluorescence

#### **6. Additional sources of information**

No information available at this time.

#### **7. Situational Reference Materials**

No information available at this time.