REMEDY SELECTION DOCUMENT

AMERICAN ZINC

STATE SUPERFUND SITE

DUMAS, MOORE COUNTY, TEXAS

January 31, 2008

Clerical Corrections Made October 30, 2008

PREPARED BY: OTU EKPO-OTU, PROJECT MANAGER
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
ENVIRONMENTAL CLEANUP SECTION
REMEDIATION DIVISION

TABLE OF CONTENTS

AMERICAN ZINC PROPOSED STATE SUPERFUND SITE
DUMAS, MOORE COUNTY, TEXAS

REMEDY SELECTION DOCUMENT

I. PURPOSE

This Remedy Selection Document (RSD) presents the selected Remedial Action (also known as the remedy) for the Site, which is designed to address the contamination at the Site that presents an unacceptable risk to human health and the environment.

II. PROPOSED REMEDIAL ACTION

The October 11, 2007 Proposed Remedial Action Document (PRAD) , presented a brief discussion of all the remedial alternatives the TCEQ evaluated and the specific remedy the TCEQ proposed to address the chemicals of concern (COCs) at the Site. A public meeting was held on December 13, 2007, at 7 p.m. in the Commissioners Chambers, 124 West 6th Street, Dumas, Moore County, Texas. The purpose of the public meeting was to present the PRAD and to solicit public comment about the proposed remedy. After consideration of the comments received during the public meeting and the public comment period, the TCEQ has selected the remedy described in this RSD.

III. REMEDIAL ACTION LEVELS AND OBJECTIVES

Remedial Action Objectives describe the remedy goals, which must be achieved to make a site protective of human health and the environment. Action levels describe the maximum numeric concentrations of COCs, which if allowed to remain on-site, will not pose an unacceptable risk or adverse health effects. For the American Zinc Site, the action levels were selected based on the Tier 1 protective concentration levels (PCLs) for the total soil combined pathway, as established in the Texas Risk Reduction Program Rules (TRRP), 30 Texas Administrative Code (TAC) Section 350.75. The objectives and action levels are presented in the following table, specific to the COCs found at the Site:

MEDIA: SURFACE SOIL

COC NAME	ACTION LEVEL (Critical PCL) for Source Property	ACTION LEVEL (Critical PCL) for Non-source property	REMEDIAL ACTION OBJECTIVES
Zinc	250,000 parts per million (ppm) for source property, which is below action level.	9,900 parts per million (ppm) for non-source property.	Protective of soil ingestion, inhalation and dermal contact.

Arsenic	200 ppm for source property.	24 ppm for non-source property.	Protective of soil ingestion, inhalation and dermal contact.
Cadmium	850 ppm for source property.	52 ppm for non-source property.	Protective of soil ingestion, inhalation and dermal contact.
Lead	1,600 ppm for source property.	500 ppm for non-source property.	Protective of soil ingestion, inhalation and dermal contact.

Because the Remedial Investigation revealed no COCs in groundwater which present an unacceptable risk to human health or the environment, no remedial action objectives for groundwater are required at the Site.

IV. THE SELECTED REMEDIAL ACTION

In accordance with 30 TAC, Section 335.348(l) and the requirements of the Texas Solid Waste Disposal Act, Section 361.193, the TCEQ selects Remedial Action for a site by determining which remedial alternative is "the lowest cost alternative which is technologically feasible and reliable, effectively mitigates and minimizes damage to the environment, and provides adequate protection of the public health and safety and the environment." For the American Zinc Site, the TCEQ selects consolidation, capping and institutional controls for the source Property and institutional controls, soil treatment or other appropriate methods for the affected surface soil on the non-source property. This remedy will be conducted in accordance with TRRP.

A. Source Property

Under the selected remedy on the source property, affected surface soil with metal concentrations above commercial and industrial PCLs will be excavated and consolidated on the southeastern portion of the source property area. The consolidated area will be capped with approximately 12 inches of soil borrowed from the western one third portion of the source property area, where the soil metal concentrations are below PCLs. The capped soil area will then be graded and vegetated to prevent soil erosion.

The use of a soil cap is an effective remedy for limiting access and exposure to soil containing COCs above PCLs for the following reasons: (1) Vertical migration of the soil containing COCs to groundwater has not been documented; and (2) Metals also have not been demonstrated to leach through the thick, clay soil column and subsequently into the groundwater, which is more than 250 feet below the ground surface.

Institutional controls (ICs), such as a restrictive covenant or a deed notice, will be placed on the consolidated area of the source property to notify the public and property owner(s) that the soil cap should not be disturbed and that the source property should only be used for commercial and industrial purposes.

B. Non-source Property

Under the selected remedy on the non-source property, there are several remedial options, depending upon each landowner's preference.

1. Institutional Controls

The first remedial option includes placing ICs, such as a restrictive covenant or a deed notice, on the non-source property areas with affected surface soil, containing metal concentrations above residential protective concentration levels (PCLs). The use of ICs on the affected soil on the non-source property is an effective remedy for limiting access and exposure to surface soil containing COCs above PCLs because ICs serve to notify the public and property owner(s) that the affected surface soil should not be disturbed and the affected property should only be used commercial and industrial purposes, which is the current land use.

2. Deep Tilling and Treating Affected Surface Soil

If a land owner does not agree to place ICs on his or her property, other remedial options to address the affected surface soil are available. The second remedial option includes deep tilling and treating the affected non-source property soil with a soil amendment to the total depth of impacted soil in order to reduce and stabilize the metals. After treatment, the treated area will be sampled to confirm that the metals in soil are below their respective PCLs and are protective of human health and the environment. The use of deep tilling and soil treatment of the affected soil on the non-source property is an effective remedy because the soil treatment and deep tilling results in binding the metals to the soil reducing its solubility, and limiting its availability to humans and the environment.

3. Other Appropriate Methods

If the landowner does not agree to either the first remedial option, to place ICs on his or her property, or the second remedial option, deep tilling and treating the affected property, other appropriate remedial options are still available. Similarly, if the landowner agreed to the second option, but the second option is ultimately unsuccessful and after tilling and treating the affected soil, sampling confirms that the affected soil still contains metals above their respective PCLs, other appropriate remedial options are still available

The appropriate methods under the third remedial option to address affected surface soil will be property-specific and may include excavation of affected surface soil. Excavation of soil on the non-source property will include excavating the affected surface soil and transporting it to the source property, where the soil will be deposited into the consolidation area on the southeastern portion of the source property. As described above under the selected remedy of the source property, the consolidated area will be capped with approximately 12 inches of soil borrowed from the western one third portion of the source property area, where metal concentrations in the soil are below PCLs. The capped soil area will then be graded and vegetated to prevent soil erosion. The excavated area will be backfilled with soil that have not been affected by the operations at the site and the surface of the backfilled area will be

contoured and seeded to match the surrounding land.

The use of other appropriate methods on the affected soil on the non-source property is an effective remedy because it prevents exposure of affected soils to humans and the environment.