FIVE-YEAR REVIEW REPORT FOR DAVENPORT AND FLAGSTAFF SMELTERS SUPERFUND SITE SALT LAKE COUNTY, UTAH

Prepared by:

Utah Department of Environmental Quality
Division of Environmental Response and Remediation
CERCLA Branch

For:

United States Environmental Protection Agency
Region 8
Environmental Protection and Remediation
Superfund Remedial Program
Denver, Colorado 80202

Approved by: *Date:*

7/29/12

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EXECUTIVE SUMMARY

The Utah Department of Environmental Quality (UDEQ), Division of Environmental Response and Remediation, in cooperation with the U.S. Environmental Protection Agency, Region 8 (EPA), have conducted a discretionary five-year review of the remedial actions implemented at the Davenport and Flagstaff Smelters Superfund Site (Site) located in Salt Lake County, Utah.

The Site has been separated into three Operable Units. Operable Unit One (OU1) addressed residential properties with lead and arsenic contamination in surface and subsurface soils. The OU1 cleanup was conducted from 2004 to 2008. Operable Unit Three (OU3) addressed agricultural land proposed for future residential use near the Flagstaff Smelter. OU3 was cleaned up in 2006 by a private entity with EPA and UDEQ oversight. Operable Unit Two (OU2) covers approximately 29 acres and consists of a mixture of commercial and undeveloped land. Physical construction of the OU2 remedy was completed on November 29, 2011.

The remedy implemented on OU1 is protective of human health and the environment. The immediate threats posed by contamination associated with the Davenport and Flagstaff Smelters on residential properties have been addressed. The excavation and off-site disposal of contaminated soil and principal threat waste have effectively eliminated the majority of the risk associated with the lead and arsenic contamination. The risk associated with contaminated soil remaining after construction activities is effectively reduced by the clean fill, topsoil and landscaping placed on each property. Areas that were not cleaned up due to the steepness of the slopes remain heavily vegetated and continue to provide vegetative cover that prevents exposure.

The remedy implemented on OU3 is protective of human health and the environment. The immediate threats posed by contamination associated with OU3 have been addressed. The excavation, treatment and off-site disposal of contaminated soil have effectively reduced the risk of exposure to lead and arsenic. The contaminated soil remaining within OU3 is located on steep slopes that remain heavily vegetated, preventing exposure, and is impractical to develop.

The physical construction for the Remedial Action for OU2 was completed on November 29, 2011 and is protective of human health and the environment. The immediate threats posed by the contamination associated with OU2 have been addressed. The excavation, treatment and off-site disposal of contaminated soil have effectively reduced the risk of exposure to lead and arsenic.

Remedies for OU1 and OU2 include Institutional Controls (ICs) to ensure the protectiveness of the remedy; however, no ICs are currently in place for the Site. UDEQ, EPA Region 8, Salt Lake County Planning and Zoning and the Salt Lake Valley Health Department have pooled resources to implement the IC objectives listed in the RODs for OU1 and OU2.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Davenport and Flagstaff Smelters Superfund site		
EPA ID: UTD988075719		
Region: 8	**State:** UT	**City/County:** Salt Lake County

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** No

REVIEW STATUS
Lead agency: State **If "Other Federal Agency" was selected above, enter Agency name:** Click here to enter text.
Author name (Federal or State Project Manager): Thomas D. Daniels
Author affiliation: State Project Manager
Review period: 03/01/2011 – 05/15/2012
Date of site inspection: 07/28/2011
Type of review: Discretionary
Review number: 1
Triggering action date: NA
Due date *(five years after triggering action date)*: NA

Issues/Recommendations				
OU(s) without Issues/Recommendations Identified in the Five-Year Review:				
OU3				
Issues and Recommendations Identified in the Five-Year Review:				
OU(s): 1 and 2	**Issue Category: Institutional Controls**			
	Issue: Have not been implemented			
	Recommendation: Continue working with Salt Lake county to develop and implement the Contaminated Soils Ordinance. Prepare Environmental Covenants for properties in OU2 and get them placed by the property owners.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	State	EPA/State	April 2013
OU(s): 1	**Issue Category: Institutional Controls**			
	Issue: Removal and post-removal records and figures for OU1 are incomplete			
	Recommendation: Coordinate getting all records, reports and figures from the EPA region 8 Removal Branch in order to complete Site file.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	State	EPA/State	April 2013
Protectiveness Statement(s)				
Operable Unit: 1	*Protectiveness Determination:* Short-term Protective			
Protectiveness Statement: The remedy at OU1 is currently protective of human health and the environment				
Operable Unit: 2	*Protectiveness Determination:* Short-term Protective			
Protectiveness Statement: The remedy at OU2 is currently protective of human health and the environment				
Operable Unit: 3	*Protectiveness Determination:* Protective			
Protectiveness Statement: The remedy at OU3 is currently protective of human health and the environment				

DAVENPORT AND FLAGSTAFF SMELTERS SUPERFUND SITE DISCRETIONARY FIVE-YEAR REVIEW REPORT

I. INTRODUCTION

The Utah Department of Environmental Quality (UDEQ), Division of Environmental Response and Remediation has been tasked by the U.S Environmental Protection Agency, Region 8 (EPA) to conduct a five-year review of the remedial and removal actions implemented at the Davenport and Flagstaff Smelters Superfund Site (Site) located in Salt Lake County, Utah. This review was conducted from March 2011 to September 2011. This report documents the results of the review.

This five-year review is being prepared pursuant to the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) CERCLA Section 121c as amended, which states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is a discretionary five-year review for the Site. Region 8 decided to conduct this discretionary five-year review as a result of the completion of the Operable Unit One (OU1) removal action in September 2008. The removal action at OU1 resulted in hazardous substances, pollutants and/or contaminants remaining at the Site above levels that allow for unrestricted use and unlimited exposure, and EPA has decided to conduct a discretionary five-year review. The initiation of a remedial action for OU2 on August 22, 2011 will result in a future statutory five-year review for the Site, during 2016.

II. SITE CHRONOLOGY

Table 1 – Chronology of Site Events:

Event	Date
Flagstaff Smelter begins operation, processing lead and silver ores removed from mines located in Little Cottonwood Canyon.	Early 1870s
Davenport Smelter begins operations	1872
Both smelters cease operations	1875
Both smelters are dismantled	1879
The area located at the mouth of Little Cottonwood Canyon starts being developed for residential use.	1980
The discovery of ladle casts in Little Cottonwood Creek prompts a study of historical smelters in the Salt Lake Valley.	1991
Flagstaff Smelter Site placed on CERCLIS	April 1992
Phase I Site Assessment of Flagstaff Smelter	April 1992
Phase II Site Assessment of Flagstaff Smelter	June 1992
Davenport Smelter discovered	June 1992
Preliminary Assessment of both Smelters	August 1992
Focused Site Inspections of both Smelters	1994
Analytical Results Report for Davenport and Flagstaff Smelters	1995
Final Site Characterization Study of both Smelters	February 3, 2000
Sampling of undeveloped land	Summer of 2000
Remedial Investigation for Residential Areas (OU1)	October 2001
Focused Feasibility Study (OU1)	December 1, 2001
Record of Decision (OU1)	September 30, 2002
Clean up performed at 9767 Little Cottonwood Place (Lot 22) by property owner.	Fall 2002
Davenport and Flagstaff Smelters Site placed on the National Priorities List.	April 30, 2002
Action Memorandum for cleanup activities (OU1)	April 22, 2004
Clean up of OU1 conducted	2004 - 2008
Partial deletion of properties (OU1)	February 2004
Explanation of Significant Differences (ESD) to include undeveloped land in the ROD and create OU3	November 11, 2005
Enforcement Action Memorandum for cleanup activities (OU3)	July 2005
Construction activities at OU3	May – September 2006
Final Close Out Report (OU3)	September 7, 2006
Ecological Risk Assessment (OU2)	September 2007
Remedial Investigation Report (OU2)	June 2008
Focused Feasibility Study (OU2)	September 2008

Table 1 – Chronology of Site Events (Continued)

Event	Date
Record of Decision (OU2)	September 2009
Pre-Remedial Design Sampling (OU2)	Summer 2010
Value Engineering Study (OU2)	August 2010
Memo on Minor Modification to ROD (OU2)	January 2011
Remedial Design completed (OU2)	April 2011
Construction Start of Remedial Action (OU2)	August 22, 2011
Completion of physical construction	November 29, 2011
Explanation of Significant Differences	July 2, 2012

III. BACKGROUND

Physical Characteristics

The Site is located in a residential area at the mouth of Little Cottonwood Canyon, approximately fifteen miles southeast of Salt Lake City, Utah, within the southwest quarter of Section 12, Township 3 south, Range 1 East, Salt Lake Base and Meridian (Figure 1). The Wasatch Mountains rise abruptly to the east with peaks greater than 11,000 feet above mean sea level (amsl) less than four miles from the Site. Little Cottonwood Creek flows from these mountains and passes through the Site.

The elevations of the Site range from approximately 5,150 feet amsl near Wasatch Boulevard to 5,230 feet amsl near the eastern boundary. Within this area the Flagstaff Smelter was located on the north side of Little Cottonwood Creek and the Davenport Smelter was located on the opposite side of the creek, approximately ¼ miles south of the Flagstaff Smelter.

The Site is situated near a traditional boundary between the bedrock of the mountains and unconsolidated valley fill. The consolidated rocks of the Wasatch Mountain Range above the Site consist of Precambrian quartzite and shale, and tertiary quartz monzonite. Glacial moraines, talus and lacustrine deposits are present along the valley margin. The Site is situated within a zone of complex surface faulting associated with the Wasatch Fault.

Native soils within the Site are typically granular, ranging from fine to course sand with gravel and cobbles; however, on residential and commercial properties, a large amount of topsoil has been imported for landscaping purposes.

The primary surface water feature near the Site is Little Cottonwood Creek. Little Cottonwood Creek is a perennial stream with headwaters near the resort town of Alta located in Little Cottonwood Canyon. The Creek flows west through the length of the canyon, passes through the Site and eventually discharges into the Jordan River in the Salt Lake Valley. Little Cottonwood Creek enters the Site from the east and exits at the west end. There are two manmade ponds present at the Site and several natural springs

discharge into the Site. The springs flow to the northwest and create a wetland area within the undeveloped portion of OU2.

Ground water in the Salt Lake Valley area is in fractured bedrock and unconsolidated material underlying the valley and canyon floors. Within the Salt Lake Valley, ground water generally occurs in a shallow unconfined aquifer and deeper confined aquifers. The deeper aquifers serve as a source of drinking water for much of the Sale Lake area. Confining beds consisting of clay, silt and fine sand separate the shallow aquifer from the deeper aquifers. These confining beds pinch out near the base of the mountains resulting in a deep unconfined aquifer in the areas along the valley margin, where the Site is located. Ground water in the deep aquifer is recharged in this area from the infiltration of precipitation, and the inflow of water from the fractured bedrock. Depth to the deep aquifer in the area of the Site is unknown, but believed to be greater than 100 feet based on location and records from two municipal wells. In the lower elevations of the Site, such as along the Little Cottonwood Creek and in the wetland areas, depth to the unconfined aquifer is likely much less. Surface water springs, as discussed above, are likely associated with a shallow perched aquifer or aquifers that may exist in this area. However, no investigation has been conducted to specifically determine the nature and extent of potential perched aquifers within the Site area.

The risks posed by the Site derive from smelting activity, which occurred in the early 1870's. Wastes in the form of heavy metal contaminated soil, mill tailings and smelter wastes exist at several locations within the Site boundaries. The primary contaminants are lead and arsenic. Little visible evidence, other than slag, foundations and some debris, exists from the former smelting operations.

The Site has been divided into three Operable Units:

- Operable Unit One (OU1) – Addressed residential properties with lead and arsenic soil contamination. The OU1 cleanup was conducted from 2004 to 2008.
- Operable Unit Two (OU2) - Consists of contaminated soil within commercial and undeveloped areas. Physical construction for OU2 was completed November 29, 2011.
- Operable Unit Three (OU3) – Addressed agricultural land near the Flagstaff Smelter. OU3 was cleaned up in 2006 by a private entity with EPA and UDEQ oversight.

The Site and OU boundaries are shown on Figure 1.

Land and Resource Use

The area around the Site is generally residential with some commercial use. OU1 is mainly residential with the exception of a former private school.

OU2 consists of a mixture of commercial property and undeveloped land. The commercial portion of OU2 encompasses the La Caille restaurant, and the surrounding grounds and vineyards associated with the restaurant. The undeveloped area consists of the following: property owned by Salt Lake City as part of their watershed protection program; a parcel owned by Sandy City; and a parcel near the Little Cottonwood Creek that is part of the La Caille property. Based on conversations with Salt Lake City, the future use of the portions of OU2 owned by the city are unlikely to change from the observed present use as a watershed protection area, with occasional recreational use by trespassers. Due to the proximity to the mouth of Little Cottonwood Canyon and the Salt Lake Valley, along with the recent development of neighboring properties for residential use, it is possible that the portion of OU2 owned by La Caille will be eventually developed for residential use.

OU3 was undeveloped property that was developed into residential lots. Currently four houses have been built on OU3. Roads, gutters, storm sewers and fire hydrants were constructed for approximately 20 more homes during OU3 cleanup activities.

The current use of surface water within the Site itself is recreational with some agricultural use. However, the Metropolitan Water District of Salt Lake and Sandy Little Cottonwood Treatment Plant (located approximately 0.5 miles downstream of the Site) treats and supplies drinking water to approximately 500,000 people. Based on conversations with current property owners and the water district, the use of surface water associated with the Site is not anticipated to change.

There is no current use of ground water at the Site. Due to the limited extent and discontinuous nature of the perched aquifer, ground water at the Site is an unlikely source of drinking water. The deep aquifer that runs below the Site is not being used or anticipated to be used at the Site and is not expected to be impacted by contamination from the Site. Based on the limited extent and discontinuous nature or the perched aquifer no future use of the perched groundwater is anticipated.

History of Contamination

The Davenport and Flagstaff Smelters were both constructed around 1870 at the mouth of Little Cottonwood Canyon. Both of these smelters processed lead and silver ore removed from mines located near Alta, Utah. Ore was delivered to the smelters using wagons and possibly rail cars. The ore was stockpiled near the smelters until it was processed. Smelting technology of the era was relatively basic. The ore was first crushed to a reasonable size and was then placed, along with fuel (either wood or coal), into the smelter. As the fuel burned, the temperature of the ore was raised to the melting points of lead and silver. As the liquid metal drained into the bottom of the smelter a gate was opened and the molten metal was poured into ingots and then shipped to a more advanced smelter for further processing and refining. The waste ore and fuel, or slag, was usually stockpiled somewhere out of the way. The ore crushing process likely generated dust contaminated with lead and arsenic. In addition, the flue ash from the smelters likely

contained concentrated levels of these metals, which would have settled in the vicinity of the smelters. Both of these smelters were decommissioned and dismantled by 1879.

Subsequently, the Site was mainly used for agricultural purposes until the 1970's and 1980's when it started being developed as a restaurant and as a residential community.

Initial Response

In 1991, the discovery of ladle casts in Little Cottonwood Creek, near the Flagstaff Smelter location, prompted a study of historical smelter sites in the Salt Lake Valley. During investigations performed in 1992 by EPA and in 1994 by UDEQ, elevated concentrations of arsenic and lead were detected in soil at both smelter locations.

A Phase I Site Assessment was conducted by the EPA, Emergency Response Branch, Technical Assistance Team (TAT) in April of 1992. During this Site assessment, elevated levels of arsenic and lead were detected in surface and subsurface soil near the Flagstaff Smelter. Based on these results, the TAT performed a Phase II Site Assessment.

During the Phase II investigation, the Davenport Smelter was discovered south of the Flagstaff Smelter. The area around the Davenport Smelter was investigated as Phase III of the Little Cottonwood Creek Smelter Sites in July of 1992. The limited sampling performed during both the Phase II and Phase III assessments revealed high levels and widespread distribution of arsenic and lead contaminated soils surrounding both former smelters.

Based on the results of the 1992 sampling efforts, a Preliminary Assessment was performed in August of 1992. Focused Site Inspections were performed for the Davenport and Flagstaff Smelters in 1994. Additional sampling activities were conducted in June 1994 near the former smelters Site in order to determine the distribution of the soil contamination dispersed away from the source area via air, surface water, or ground water pathways. From these investigations, it was determined that more investigation was warranted.

A Site Characterization of the residential areas near the two smelters was performed in 1998. A total of 740 samples were collected from 32 residences near the locations of the two smelters. Surface and subsurface soil samples were collected in the general area of the former smelter locations in order to provide information regarding the source, nature, and extent of arsenic and lead contamination. Lead and arsenic contamination was found in surface and subsurface soils in the residential areas surrounding both of the smelters at concentrations well above risk-based screening levels established by EPA. As a result of the findings, the Site was placed on the Superfund National Priorities List (NPL) on April 30, 2003 and a Record of Decision (ROD) for OU1 was signed in September 2002.

The ROD established clean up levels for residential properties of 600 mg/kg for lead and 126 mg/kg for arsenic. The remedy selected in the OU1 ROD was excavation and off-

site disposal of all material above the cleanup levels with treatment for all contaminated soils that were principal threat wastes. Principal threat wastes were defined as soils that were characteristic hazardous wastes.

From 2004 to 2008 a Removal Action was conducted at OU1. The EPA Removal Program conducted cleanup activities on properties that contained soils impacted with elevated levels of lead and arsenic. Contaminated soils were removed and landscapes restored at 26 properties. A total of 33,290 cubic yards of lead and arsenic impacted soils were removed and transported to the Salt Lake Valley Solid Waste (SLVSW) Management Facility, a Resource Conservation and Recovery (RCRA) Subtitle "D" facility.

In 2006, a Removal Action was conducted at OU3. Little Cottonwood Canyon Partners LLC (LCCP) conducted cleanup activities under an agreement with EPA. As a result an Explanation of Significant Differences (ESD) was developed that determined that the OU1 ROD cleanup levels were appropriate for OU3. LCCP remediated approximately 49 acres of undeveloped property to residential cleanup levels for use as 28 private single family residential lots. A total of 77,466 tons of contaminated soil was excavated, treated and disposed of at the Allied Waste Wasatch Regional Landfill located in Tooele County, Utah. EPA and UDEQ provided oversight for OU3 cleanup activities.

Extensive sampling activities took place at OU2 during the summer of 2006. The results of the sampling activities were used to develop a Remedial Investigation (RI) Report, a Human Health Risk Assessment (HHRA), an Ecological Risk Assessment (ERA), and a Focused Feasibility Study Report (FFS). During the investigation, three residential properties within the boundaries of OU2 were found to contain lead and arsenic concentrations greater than the residential cleanup levels established for OU1. As documented in the OU2 ROD, these three properties were incorporated into the OU1 removal cleanup through an Action Memorandum and were addressed during the 2008 construction activities.

The OU2 RI evaluated metals concentrations in surface water and ground water and did not find a significant risk to human health or the environment related to metals in these media. Additionally a FFS was performed in 2008 to screen different cleanup alternatives for both the commercial and undeveloped areas of OU2 and a ROD for OU2 was signed in September 2009.

The ROD established cleanup levels of 1,000 mg/kg lead for commercial areas, 3,000 mg/kg lead for undeveloped areas and 1,000 mg/kg arsenic for both commercial and undeveloped areas. The remedy selected in the OU2 ROD was excavation, on-site treatment of principal threat waste, and off-site disposal of material above the cleanup levels. Soils with leachable levels of lead and arsenic above 5 mg/L based on the Toxicity Characterization Leaching Procedure (TCLP) were designated as principal threat waste.

A Remedial Design (RD) for OU2 was finalized in April of 2011, and remedial construction started August 22, 2011. Physical construction of the remedy was completed November 29, 2011.

Basis for Taking Action

Hazardous substances that have been released at the Site include lead and arsenic in surface and subsurface soils. HHRAs were performed using sampling results from both OU1 and OU2 RI/FFSs to characterize risks related to residential, industrial/commercial and recreational exposures to contaminants of concern in the environment.

The HHRAs concluded that there is a risk to both adults and children from lead and arsenic-contaminated soils. The most likely pathways for contaminated soils to enter the body are from eating the soil or inhaling entrained dust. Children, particularly those under the age of seven, are the most vulnerable group because of their size and the fact that their bodies are still developing. In addition, because children play outside, they are more likely to ingest contaminated soils when they put fingers and toys that have been in contact with the ground into their mouths.

In addition to the HHRA an ERA was conducted to evaluate the potential threats to ecological receptors (plants and animals) in the wooded and marshy area of OU2. the ERA concluded that terrestrial animals are at risk from exposure to contaminants of concern at the Site. The primary threat to ecological receptors is from exposure to lead.

IV. REMEDIAL ACTIONS

Remedy Selection

OU1

A ROD signed in September 2002 identified excavation and off-site disposal of leachable principal-threat waste associated with smelter activities, contaminated soil underneath non-native vegetation, and hand excavation around areas of native vegetation.

Four Remedial Action Objectives (RAOs) were established in the OU1 ROD:

- Reducing risks from exposure to lead-contaminated soil such that no child under the age of seven has more than a five percent chance of exceeding a blood lead level of ten micrograms of lead per deciliter of blood.
- Reducing risks from exposure to arsenic-contaminated soil such that no person has greater than a one in 10,000 increased risk of contracting cancer form contaminated soil.
- Remediating soils to levels that allow continued residential use.
- Preventing the occurrence and spread of windblown contamination.

The major components of the selected remedy include:

- Excavation of soils, under non-native vegetation, within OU1 exhibiting lead concentrations greater than 600 mg/kg and arsenic concentrations greater than 126 mg/kg where practicable.
- Hand excavation around areas of native vegetation, within OU1 exhibiting lead concentrations greater than 600 mg/kg lead and 126 mg/kg arsenic.
- Excavation of leachable principal threat wastes associated with smelter activities.
- Off-site treatment and landfill disposal of contaminated soil classified as hazardous waste in accordance with RCRA subtitle C.
- Off-site landfill disposal, in accordance with RCRA subtitle D, of contaminated soil not classified as hazardous waste.
- Replacement with clean backfill, six inches of topsoil, and landscaping of affected properties.
- Interior cleaning of affected homes to remove any contaminated dust.
- Implementation of institutional controls, if necessary, on properties containing residual contamination.

OU2

The ROD for OU2 was signed in September 2009. Since OU2 contains both commercial and undeveloped properties, and the risks associated with these areas are different, separate remedies were selected for each type of use.

Four RAOs were established in the ROD:

- Reducing risks from exposure to lead-contaminated soil such that no developing fetus of an adult visitor has more than a five percent chance of exceeding a blood lead level of ten micrograms per deciliter (ug/dl);
- Reducing the risks from exposure to arsenic-contaminated soil such that no person has a greater than a one in 10,000 increased risk of contracting cancer;
- Preventing the occurrence and spread of windblown contamination; and
- Addressing the bulk of the source material that is driving the risk to ecological receptors, while minimizing the damage that the undeveloped area would sustain through more extensive construction activities.

The selected remedy for addressing the commercial areas of OU2 is excavation and off-site disposal of all soils in excess of 1,000 mg/kg lead, ex-situ treatment and off-site disposal of principal threat waste, followed by the replacement of excavated soil with clean soil, and re-vegetation. The components of the selected remedy for the commercial areas include:

- Removal of existing vegetation from the contaminated areas.
- Excavation of all surface soils with lead concentrations exceeding 3,000 mg/kg to an expected maximum depth of 18 inches.
- Excavation of all principal threat waste.

- Ex-situ treatment of all principal threat waste by stabilizing leachable lead in soil.
- Transportation and disposal of all excavated soil at an appropriate landfill.
- Placement of clean topsoil and re-vegetation of excavated areas.
- Removal and reclamation of access road.
- ICs, such as environmental covenants under the State of Utah's Environmental Covenants Act, conservation easements and/or land use controls established through Salt Lake County Zoning Authorities, and/or notification services, to ensure the remedy remains protective.

The Selected Remedies for OU2 address lead and arsenic contaminated soil associated with historical smelter activities. Surface water and ground water were evaluated and have not been impacted by Site contamination. Principal threat waste, as in OU1, is defined as soils with leachable levels of lead and arsenic above 5 mg/L based on the TCLP. Stabilization of principal threat waste renders leachable lead in soil non-leachable so the soils can be disposed in a RCRA Subtitle D Landfill.

OU3

An ESD for the OU1 ROD (referred to as the "OU3 ESD" later in the text) was issued by EPA, April 2005. The ESD addressed an undeveloped portion of the Site targeted by LCCP for development of residential properties. The ESD applied the remedy components of OU1 to the potentially developed properties targeted by LCCP.

An Enforcement Action Memorandum issued in July 2005 established a new residential Operable Unit, OU3, created from mostly undeveloped land that had initially been part of OU2. Private developers (LCCP) were willing to take reasonable steps to conduct remediation and to develop a residential subdivision. However, due to the scale of the project, rather than complete the normal Bona Fide Prospective Purchaser process, an Agreement and Covenant Not to Sue between EPA and LCCP was negotiated, signed by EPA and the Department of Justice, published in the Federal Register with a 30-day public comment period, and became effective on March 22, 2006. The agreement outlines the work required under the Enforcement Action Memorandum and included a work plan.

The memorandum identified the following actions:

- Excavation of contaminated soil.
- Consolidation of contaminated soil at a staging area for treatment and disposal at an appropriate facility.
- Transportation, on-site treatment of excavated soil exceeding 5mg/L of extractable lead (to meet land disposal requirements), and disposal of characteristically hazardous soil at a suitable pre-approved RCRA subtitle C landfill or disposal of non-hazardous soil at a RCRA subtitle D landfill.
- Development and implementation of ICs for any contamination left in place.

Remedy Implementation

OU1

From 2004 through 2008, removal activities were completed on 26 properties within OU1 that were impacted with elevated levels of lead and arsenic (Figure 2). Soils were excavated and removed and landscapes restored at a total of 26 properties. A total of 33,290 cubic yards of lead and arsenic impacted soil was removed and transported to the SLVSW Management Facility, a RCRA subtitle D facility.

Before cleanup activities commenced, a design and reclamation plan was developed for each residential property and reviewed and approved by each property owner. Once the design was approved by the property owner, involvement of the property owner continued through the excavation, backfilling and reclamation phases of the removal action.

Prior to excavation, the cleanup areas were cleared of vegetation, debris and landscape elements. Elements suitable for re-use were decontaminated and set aside. Vegetation, debris and unusable landscape elements were transported to the SLVSW Management Facility. Trees were shredded using a chipper and the debris was also transported to the SLVSW Management Facility.

After clearing and grubbing, composite samples were collected from the proposed excavation areas and submitted for lead and arsenic TCLP analysis. Sample results were used to determine if stabilization of principal threat waste was necessary. Soils with TCLP results less than 3.5 mg/l were transported directly to the SLVSW Management Facility. Soils with TCLP concentrations greater than 3.5 mg/l were treated with phosphate, an amendment used to bind the leachable lead on site, rather than off-site as indicated in the ROD. The approximate ratio for treatment was two cubic yards (cy) of phosphate for every 100 cy of contaminated soil. Samples from the treated soil were submitted for TCLP analysis and the treated soil was stockpiled while awaiting analytical results. If the analytical results were less than 3.5mg/l, the soils were transported to the SLVSW Management Facility. If the analytical results exceeded 3.5 mg/l, the treatment process was repeated. None of the stockpiles required treatment more than twice.

Due to the large areas requiring cleanup each residential lot was divided into excavation zones. Excavation in each lot was completed to a depth of up to 18 inches unless Principal Threat Waste was encountered. If Principal Threat Waste was encountered the excavation continued until lead contamination fell below the Principal Threat Waste threshold so long as the excavation did not threaten the stability of slopes or integrity of building foundations. In-situ confirmation sampling was used to verify that contaminated soil was removed. This process was repeated for each zone on every property. A total of 33,290 cy of contaminated soil was transported to the SLVSW Management Facility for disposal.

A visible barrier (orange vinyl fencing) was placed in areas where contaminated material remained, (either at the property owners request due to a desire to save native vegetation or at depths greater than 18 inches). Post construction drawings for each property delineate the extent and depth of excavation that took place and demark areas where contamination remains. Slopes that were steep enough to preclude excavation are also shown on the post construction drawings.

Two types of backfill were used to bring the excavated areas back to grade, high grade topsoil with at least 2% organic material and a lower grade common fill. Topsoil was installed as the top 18 inches in garden areas and six inches in all other areas. The common fill was used as fill in all excavation below these depths.

Engineering controls to prevent off-site contamination migration were constructed on each property during construction activities. During all excavation activities, active watering of the construction area and stockpiled soil was used to prevent the migration of dust. Silt fences were installed on properties where the slope of the property was sufficient to produce run-off.

Significant additions or deviations from the design and reclamation plan were documented and signed by both the property owner and representative from EPA. Upon completion of the removal action, property owners and a representative from EPA signed a Property Completion Agreement memorializing that cleanup had been conducted and that no outstanding work remainedRemediated properties were restored as close to their original condition as possible, except where changes were approved by the property owner. All construction material and plants were guaranteed for one year following installation.

OU2

RD sampling was performed in the summer of 2010, to more accurately define the area required to be excavated. Analytical results showed that the area containing lead contamination in excess of 3,000 mg/kg lead extended to the north and west of the areas identified in the ROD.

As part of the RD, a Value Engineering (VE) Study was performed. Through the RD and VE study, it became evident that the largest factors for assuring a successful remedy were the reclamation and revegetation of the constructed areas.

One of the items proposed in the VE study was to retain gambel oak in some of the contaminated areas to encourage reclamation and re-vegetation. Further evaluation by a botanist confirmed that the best way to optimize the re-vegetation was to leave areas of mature gambel oak that would promote re-vegetation through root propagation. Leaving mature stands of gambel oak also incorporates green and sustainable remediation practices that were evaluated and noted in the VE report.

Based on the RD sampling data and inspections of OU2, stands of gambel oak that were good candidates for preservation were identified and are shown in Figure 3. This minor modification to the ROD was memorialized in a memorandum to the Post-ROD Site file dated March 22, 2011.

EPA concurred with the Final RD May 2, 2011. Construction activities commenced in August of 2011 and were completed on November 29, 2011. Construction activities consisted of excavation/removal and off-site disposal of lead and arsenic contaminated soil. Principal threat waste was treated with a phosphate compound to render it non-hazardous prior to off-site disposal and excavated soil was disposed at the SLVSW Management Facility. Confirmation samples taken from the bottom of the excavated area were used to verify that contaminated soil was removed. Excavated areas were backfilled and reclaimed with a mix of native plants.

During construction activities contaminated soil was discovered to extend deeper than was originally anticipated. The additional contamination met the description of principal threat waste designated in the ROD and was removed, treated and disposed. Contaminated soil remains at locations where removal was not feasible (Figure 4). An ESD was prepared to document the changes from the ROD and was signed by the agencies July 3, 2012.

OU3

On October 12, 2006, the EPA On-Scene Coordinator (OSC) approved the Final Closeout Report for Davenport Flagstaff Smelters Site OU3, dated September 7, 2006 and revised October 6, 2006. This report, developed by LCCP's contractor under the AOC, described the removal action performed by LCCP and documents that all response actions for OU3 were completed in accordance to the terms established in the Enforcement Action Memo and the OU3 ESD.

The removal action consisted of excavation and off-site disposal of lead and arsenic contaminated soils. Soils classified as principal threat waste were treated with three percent phosphate by weight, to reduce the leachability of lead and arsenic to non-hazardous levels. Soils were transported and disposed of at the Allied Waste Regional Landfill, located in Tooele County, Utah.

Contaminated soils were excavated using a track hoe and were direct loaded onto articulated haul trucks. The contaminated soils were stockpiled in a staging area for testing prior to shipment to the landfill. Excavation depths ranged from six inches to ten feet. One area that required excavation to a ten foot depth was located in the vicinity of the Flagstaff Smelter foot print. Two gullies that had been filled with tailings and other contaminated material were also excavated to a depth of ten feet. An area adjacent to the Little Cottonwood Creek on the southern boundary of the site was excavated to a depth of five feet.

Principal threat wastes were treated with phosphate prior to excavation. This allowed for complete mixing of the soil and the phosphate prior to testing and transportation. Soils were stockpiled in 2,500 CY quantities and analyzed for TCLP lead. The result for each stockpile was submitted and approved by Allied Waste prior to transportation to the landfill.

Large rocks and boulders greater than 12 inches in diameter were separated from the contaminated soils, cleaned with water and stockpiled. The rocks were field screened to confirm that contamination had been removed. Confirmation sampling was conducted after the soil removal. Results of the confirmation samples can be found in the Removal Action Final Report for OU3.

The Removal Action Report also identified two areas containing impacted soils that were not remediated. One area (Cell 1), is located adjacent to Little Cottonwood Creek. Complete removal of this area would have compromised the stream bank and flooded the site. At the recommendation of EPA, this area was treated with phospate, reinforced with construction fence and then backfilled with clean material. The second area (Cell 2), consists of three 100 by 100 foot zones. This area contains lead concentrations averaging 1,350 mg/kg and consists of steep slopes greater than 30% that cannot be developed due to geotechnical considerations. Cell 2 encompasses approximately 0.68 Acres.

EPA and DERR conducted a final inspection of removal activities at OU3 on September 6, 2006. Neither EPA nor DERR had any outstanding issues with the cleanup.

Operation and Maintenance

OU1

There are no active systems that require operation at OU1 and Operation and Maintenance (O&M) at OU1 is not required. The removal of contaminated material to a depth of 18 inches over the majority of the OU1 left very little contaminated material in the cleanup areas. A visible barrier was placed in areas where contaminated material remained, (either at the property owners request due to a desire to save native vegetation, or at depths greater than 18 inches). Post construction drawings for each property delineate the extent and depth of excavation that took place and demark areas where contamination remains. Slopes that were steep enough to preclude excavation are also shown on the post construction drawings.

OU2

There are no active systems that require operation at OU2. O&M consists of maintaining vegetation in areas where contamination remains at depth.

OU3

There are no active systems that require operation at OU3 and O&M at OU3 is not required. Soils containing elevated lead and arsenic concentrations that remain at OU3 are located in areas where construction and exposure are limited due to proximity to the Little Cottonwood Creek or to steepness of the slope. These areas will not require maintenance.

V. FIVE-YEAR REVIEW PROCESS

Administrative Components

Activities related to the Davenport and Flagstaff Smelters Superfund Site, Five-Year Review were led by Thomas Daniels, UDEQ Project Manager of the Site. The following team members assisted in the review:

Dave Allison, UDEQ Community Affairs Specialist
Scott Everett, UDEQ Toxicologist
Lisa Lloyd, USEPA Region 8, Remedial Project Manager

From April 1 to August 31, 2011, the review team established the review schedule, which included:

- Community Involvement
- Document Review
- Data Review
- Site Inspection
- Community Interviews
- Review of Institutional Control, and
- Five-Year Review Report Development and Review

Community Involvement

EPA's comprehensive Five-Year Review Guidance states that at a minimum the community should be notified that a five-year review will be completed and again notified when the review is completed. In accordance with the community involvement requirements of the five-year review a public notice was published on May 7, 2011, in the *Salt Lake Tribune and Deseret News Newspapers* announcing the Five-Year Review of the Davenport and Flagstaff Smelter Site was to be conducted (see Attachment A).

Document Review

The Five-Year Review included a review of relevant documents including the OU1 and OU2 RODs, the OU3 ESD, the OU2 RD, OU2 Minor Modification, OU2 ESD, the Draft OU2 Construction Completion Report, and the Removal Action Final Reports for both OU1 and OU3. This review found that UDEQ was not in possession of the OU1

Removal Action Plans for the 2006, 2007 and 2008 construction seasons, nor was UDEQ in possession of copies of a number of post construction letters to property owners within OU1 or all of the post construction figures. Completion of the Site file has been listed as one of the follow up actions for this Five-Year Review.

Data Review

Results from the confirmation sampling results at OU1, OU2 and OU3 were evaluated and incorporated into this five-year review.

Site Inspection

An Inspection of the Site was conducted July 28, 2011 by Thomas Daniels and Dave Allison of UDEQ. The purpose of the inspection was to assess the protectiveness of the remedy for OU1 and OU3.

Inspection of the properties within OU1 showed that fill, landscaping, and vegetation on the cleaned properties remains in good condition. The areas that were not cleaned up due to the steepness of the slopes remain heavily vegetated and continue to provide vegetative cover that prevents exposure. Minor erosion of the soil cover was observed on property D04, but not to the extent that contaminated material that remained on the property was exposed.

Inspection of the properties within OU3 showed that fill and landscaping on the cleaned properties remains in good condition. The areas that were not cleaned up due to the steepness of the slopes remain heavily vegetated and continue to provide vegetative cover. The vegetative cover consists of native grasses and, while well established, is much less aesthetically pleasing than the mature gambel oak stands that it replaced. The majority of OU3 has not been developed for residential use and is considered an eyesore by many area residents. The Site Inspection Checklist and narrative can be found in Attachment C.

The OU2 RA completion inspection was conducted November 23, 2011 and showed that construction and restoration had been performed in compliance with the RD specifications. The Construction Completion checklist can be found in Attachment C.

Community Interviews

During the Five-Year review, the Utah Department of Environmental Quality (UDEQ) conducted a number of interviews with local officials and property owners to obtain their opinion and concerns about the Site. Community Interviews were conducted by UDEQ from May 26, 2011 to July 28, 2011.

None of the interviewees expressed any health or environmental concerns with the remedy conducted over the last five year period and felt the remedy remains protective. No concerns were expressed with existing property values and overall, individuals

interviewed felt the Superfund work was successful. There were some concerns regarding the construction work being performed in OU2, with property owners and elected officials wanting preventative measures taken for migrant dust and maintaining as much vegetation as possible.

Any adverse comments with the existing remedy at OU1 and OU3 related to the replacement of vegetation not growing back successfully or the development of weeds in backfill areas. However, a couple of property owners mentioned some trees dying and compacted soil requiring excessive watering. One property owner within OU1 complained that he had experienced property damage due to a leaking sprinkler system installed by the EPA Removal Contractor. Another property owner claimed that the visible barrier to demark where contaminated material remained was not installed on his property. No compensation was provided to the property owner for fixing the sprinkler valve and repairing the damage to a flooded basement. The other property owner felt the property was never fully cleaned up. Both property owners felt better follow-up from EPA or their contractors would have rectified their problems.

Review of Institutional Controls

ICs are part of the remedy for both OU1 and OU2 and are desirable to ensure the protectiveness of the remedy. The objectives of the ICs for OU1 and OU2 are to:

- Restrict residential development without proper assessment of risk to human health and the environment.
- Ensure that contaminated soil, above unrestricted use levels, remaining after cleanup is characterized and disposed of appropriately if encountered during future development activities.
- Provide information regarding the nature of cleanup activities and contamination left in place to future property owners.

There are no formal ICs in place for the Site. Currently, Salt Lake Valley Health Department, Salt Lake County Planning and Zoning Department and UDEQ are drafting a county ordinance to address development and construction within the boundaries of the Site.

Despite the lack of formal ICs, UDEQ, EPA Region 8, Salt Lake County Planning and Zoning and the Salt Lake Valley Health Department have effectively pooled resources to inform current and future property owners about contamination remaining on remediated properties within OU1. Based on discussions with property owners, the current interagency cooperation, as well as education and outreach efforts have effectively informed property owners of remaining contamination.

Based on conversations with the OU2 property owners, the future use of OU2 is unlikely to change from the observed present use as a watershed protection area and commercial restaurant. All of the property owners have expressed willingness to enter into environmental covenants that would restrict development, ensure that contaminated soil

encountered in future development is handled appropriately, and provide information regarding cleanup activities and contamination left in place to future property owners.

The only areas with remaining contamination on OU3 are on heavily vegetated slopes that are too steep for building. Salt Lake County Planning and Zoning has already established ordinances that prevent construction on steep slopes. No other additional ICs are required for OU3.

VI. TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

Yes. The review of documents, risk assumptions and results of the Site Inspection indicates that the remedies at OU1, OU2 and OU3 are functioning as intended by the OU1 and OU2 RODs and the OU3 ESD.

The excavation, treatment and off-site disposal of the lead and arsenic contaminated soil, associated with the Removal Action at OU1 and the subsequent backfilling and landscaping has achieved the remedial objective necessary to prevent direct contact with or ingestion of contaminants in soil. The landscaping and vegetation on the cleaned properties remain in good condition. The areas that were not cleaned up due to the steepness of the slopes remain heavily vegetated and continue to provide vegetative cover that prevents exposure. Minor erosion of the soil cover was observed on property D04 but not to the extent that contaminated material that remained on the property was exposed.

The excavation, treatment and off-site disposal of lead contaminated soil at OU2 have effectively minimized direct contact with or ingestion of the contaminants in the soil and are protective of human health and the environment. The imported fill and top soil has been planted with a native seed mix as well as native trees, shrubs and other vegetation. Sloped areas have been covered with bamboo matting to prevent soil erosion until the vegetation is established.

The excavation, treatment and off-site disposal of lead contaminated soil at OU3 have effectively minimized direct contact with or ingestion of contaminants in the soil and remain protective of human health and the environment. The areas that were not cleaned up due to the steepness of the slopes remain heavily vegetated and continue to provide vegetative cover that prevents exposure. The imported fill and top soil currently supports wild grasses. A four residential lots have been developed but the majority of OU3 remains undeveloped. Several community members have stated that the removal of mature native vegetation has left OU3 an eyesore.

The remedies for OU1, OU2 and OU3 are functioning as intended by the decision documents.

Question B: Are the exposure assumptions, toxicity data, clean up levels, and RAOs used at the time of the remedy still valid?

Yes. The exposure assumptions, toxicity data, clean up levels and RAOs used at the time of the remedy are still valid for OU1, OU2 and OU3.

Question C: Has any other information come to light that would call into question the protectiveness of the remedy.

No

Summary of Technical Assessment

According to the data reviewed, including the Site inspection and the community interviews, the remedies are functioning as intended by the RODs and associated ESDs for OU1, OU2 and OU3. There have been no changes in the physical conditions of OU1, OU2 or OU3 that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for the COCs nor has there been a change to the standardized risk assessment methodology that could affect the protectiveness of the remedies for OU1, OU2 and OU3.

VII. ISSUES

Table 2 - Issues

#	OU#	Issue	Affects Protectiveness (Yes/No)	
			Current	Future
1	1, 2	ICs have not been implemented	No	Yes
2	1	Removal and post-removal records, and figures are incomplete	No	Yes

VIII. RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 3 – Recommendations and Follow-Up Actions

#	OU	Issue	Recommendations/Follow Up Actions	Party Responsible	Milestone Date
1	1	ICs have not been implemented	Continue working with Salt Lake County to implement ordinance	UDEQ/EPA, Salt Lake County	April, 2013
2	2	ICs have not been implemented	Prepare Environmental Covenants and get them placed on property by owner.	UDEQ/EPA	April, 2013
3	1	Removal and post-removal records and figures are incomplete	Coordinate getting complete records from EPA Removal Branch to update Site file.	UDEQ/EPA	April, 2013

IX. PROTECTIVENESS STATEMENTS

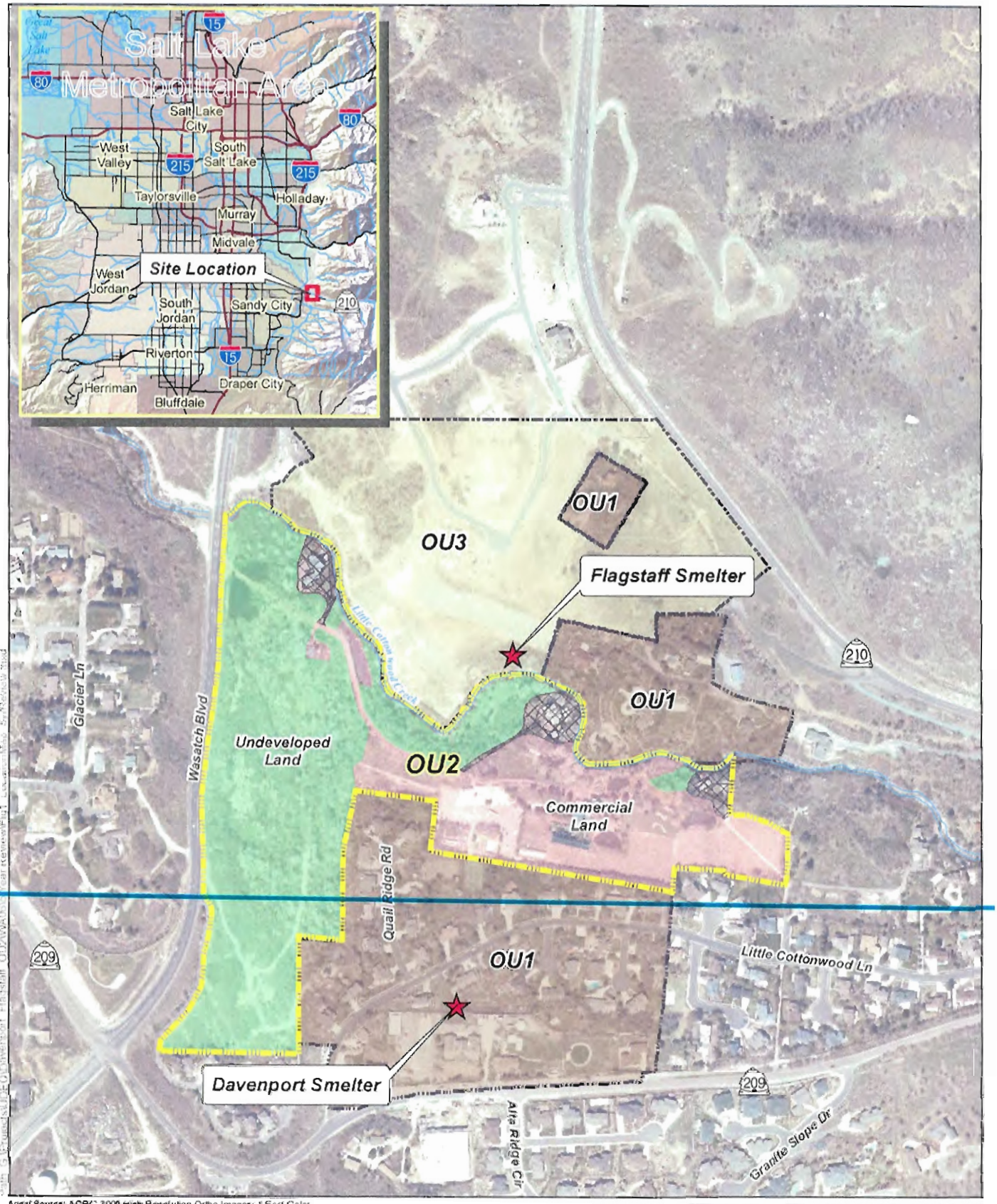
The remedy at OU1 is currently protective of human health and the environment
The remedy at OU2 is currently protective of human health and the environment
The remedy at OU3 is currently protective of human health and the environment.

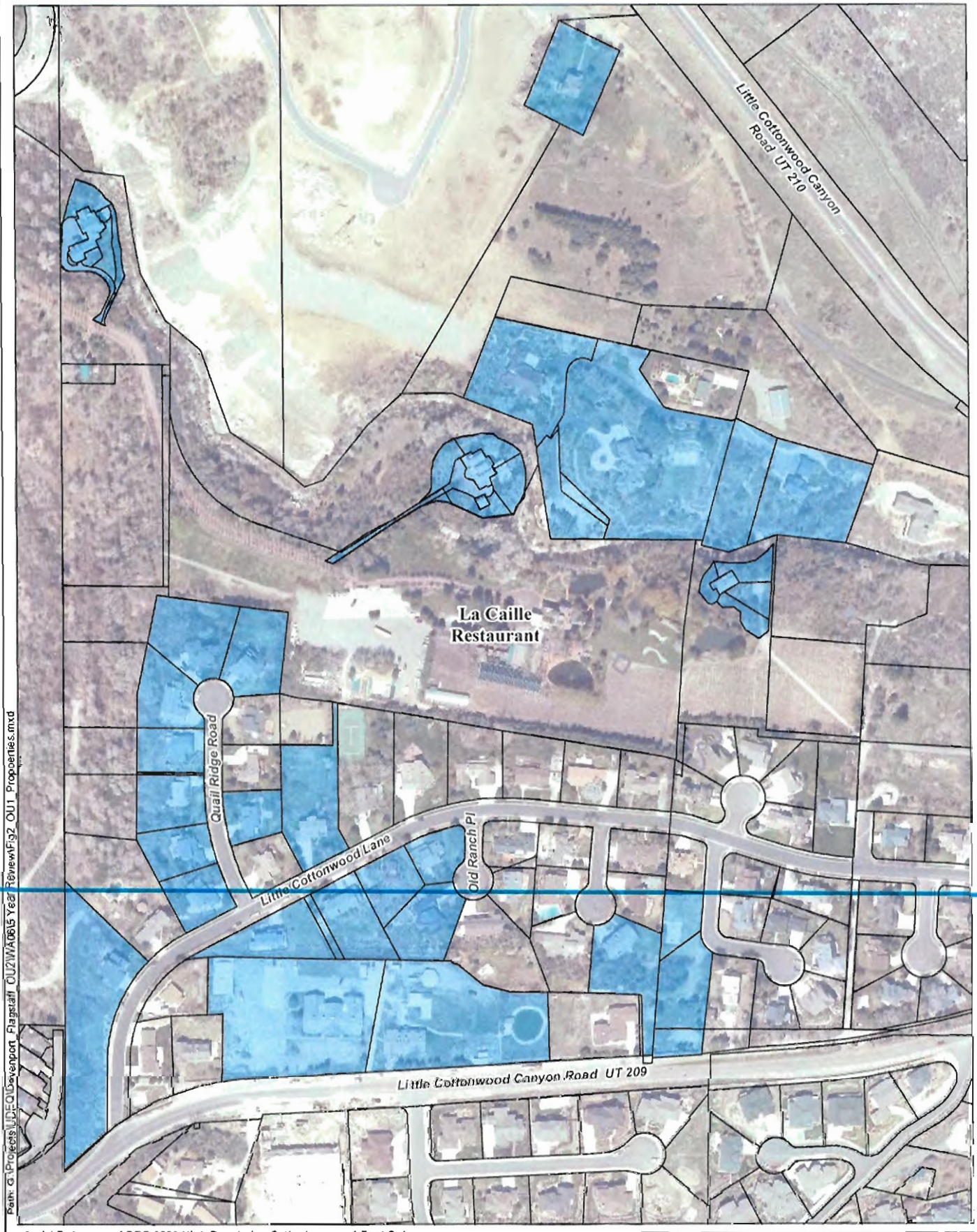
The excavation, treatment and off-site disposal of contaminated soil have effectively eliminated the majority of the risk associated with the Site. However, in order for the remedy to remain protective in the long-term, ICs have to be implemented.

X. NEXT REVIEW

This is a discretionary five-year review. A statutory five-year review is required by August 22, 2016, five years after the on-site Remedial Action construction date for OU2.

FIGURES


Salt Lake Metropolitan Area
Salt Lake City
West Valley
South Salt Lake
Taylorsville
Holladay
Murray
Midvale
West Jordan
Site Location
South Jordan
Sandy City
Riverton
Herriman
Draper City
Bluffdale
OU1
OU3
Flagstaff Smelter
OU1
Undeveloped Land
OU2
Commercial Land
Glacier Ln
Wasatch Blvd
Quail Ridge Rd
OU1
Little Cottonwood Ln
Davenport Smelter
Alta Ridge Cir
Granite Slope Dr
210
209
209
Aerial Source: AGRC 2008 High Resolution Ortho-Imagery 1 Foot Color
OU1 Residential Operable Unit 1 (OU1)
OU2 Operable Unit 2 (OU2)
OU3 Operable Unit 3 (OU3)
OU2 Residential Properties Cleaned Up as Part of OU1
N
W
E
S
250 0 250 500
Feet
Davenport and Flagstaff Smelters Superfund Site
Salt Lake County, Utah
Five-Year Review
Figure 1:
Site Location and OU Boundaries
URS



Path: G:\Projects\UDEQ\Davenport_Flagstaff_OU2\WA0615 Year Review\Fig2_OU1_Properties.mxd

Aerial Reference: AGRC 2009 High Resolution Ortho-Imagery 1 Foot Color

Properties Part of OU1 Cleanup

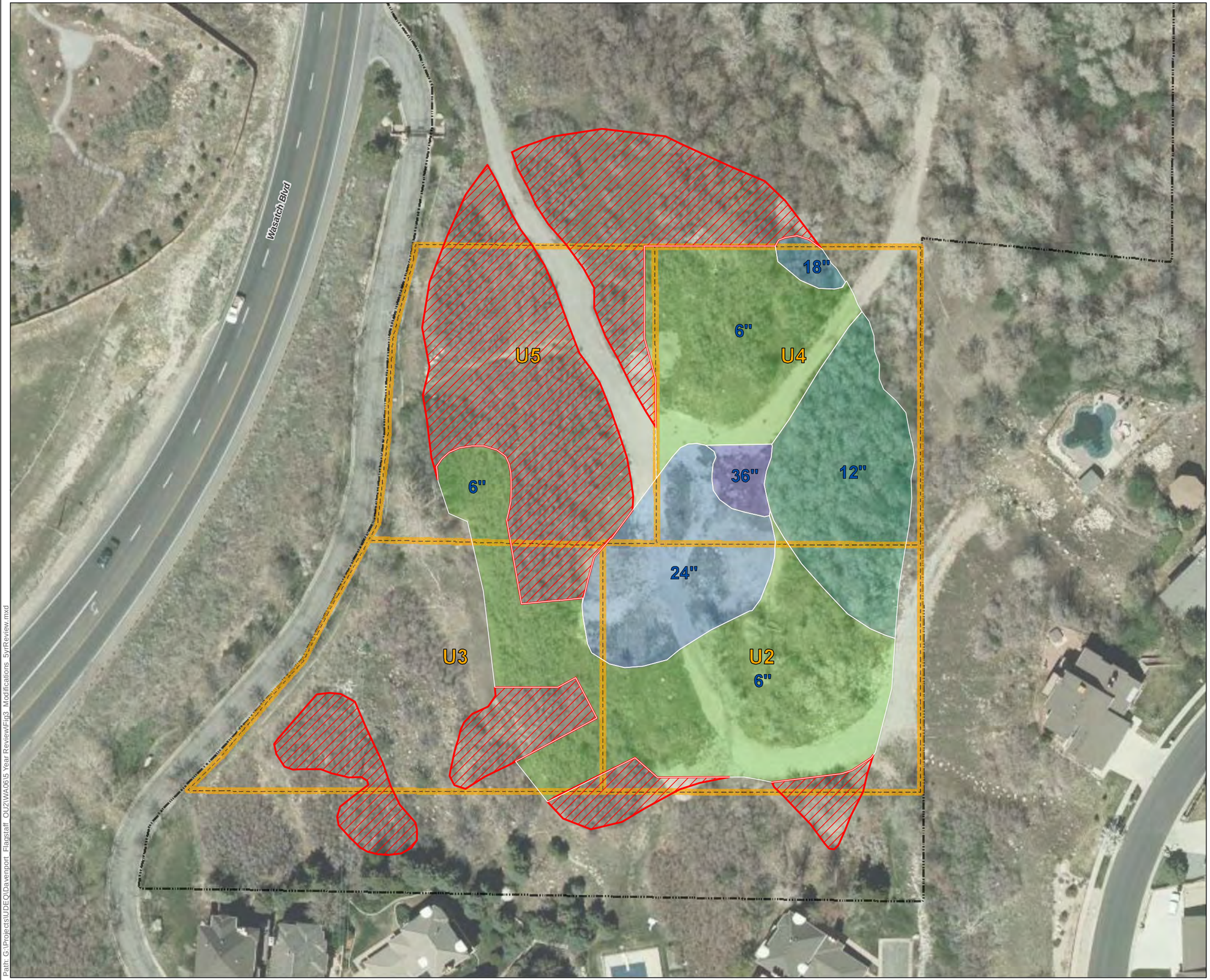
N
W E
S

150 0 150 300
Feet

Davenport and Flagstaff Smelters Superfund Site
Salt Lake County, Utah
Five-Year Review

Figure 2:
OU1 Properties

URS



Remediation Areas and Depth (inches)

- 6" (0.99 acres)
- 12" (0.30 acres)
- 18" (0.02 acres)
- 24" (0.27 acres)
- 36" (0.04 acres)

Areas of Gambel Oak Retained

U2 — Grids With RI Sample Results Exceeding Lead Clean-Up Level & Requiring Pre-Design Sampling

OU2 Boundary

Note: Undeveloped Clean-Up Level > = 3,000 mg/kg

N W E S

30 0 30 60

Feet

Projection: UTM NAD83 Zone 12N

Aerial Reference: AGRC 2009 High Resolution Ortho-Imagery 1 Foot Color

Path: G:\Projects\UDEQ\Davenport_Flagstaff_OU2\WA06\5 Year Review\Fig3_Modifications_5yrReview.mxd

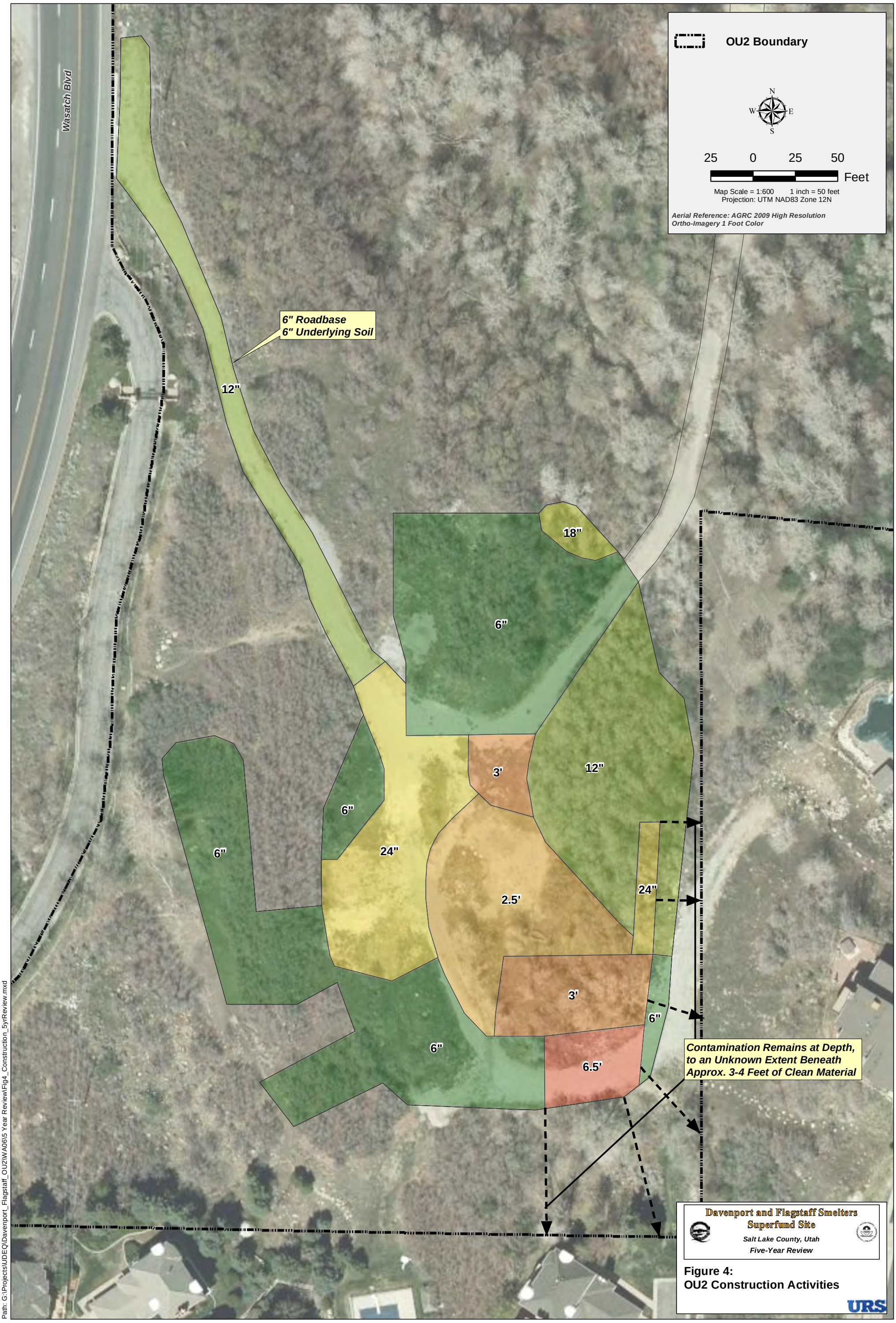
Davenport and Flagstaff Smelters Superfund Site

Salt Lake County, Utah

Five-Year Review

Figure 3:
Minor Modification to the ROD

URS



Davenport and Flagstaff Smelters Superfund Site

Salt Lake County, Utah

Five-Year Review

Figure 4:
OU2 Construction Activities

URS

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ATTACHMENTS

Attachment A

Public Notice

PUBLIC NOTICE
Five-Year Review of Davenport and Flagstaff Smelters Superfund Site

The Utah Department of Environmental Quality; Division of Environmental Response and Remediation (UDEQ/DERR), in cooperation with the U.S. Environmental Protection Agency (EPA) is conducting a Five Year Review of the Davenport and Flagstaff Smelters Superfund Site. The site is located at the mouth of Little Cottonwood Canyon in an unincorporated area of Salt Lake County, Utah.

The purpose of a five-year review is to determine whether or not the cleanup and other actions taken at the site are protective of human health and the environment. Past cleanup actions included the removal and off site disposal of lead and arsenic contaminated soils impacting residential properties. The contamination resulted from historic smelting operations at the former Davenport and Flagstaff Smelters that processed lead and copper ores during the 1870's.

During this Review, UDEQ/DERR will examine current information, conduct a site inspection, and perform community interviews to evaluate all cleanup components. The Review will be completed by this fall. UDEQ will prepare a report for EPA summarizing the results.

If you would like more information about the review or would like to participate in an interview, please contact:

Thomas Daniels
UDEQ Project Manager
Phone: (801) 536-4090
Email: tdaniels@utah.gov

Dave Allison
UDEQ Community Involvement
Phone: (801) 536-4479
Email: dallison@utah.gov

Attachment B

Documents Reviewed

Documents Reviewed

Record of Decision
Operable Unit One
Davenport and Flagstaff Smelters Superfund Site

Record of Decision
Operable Unit Two
Davenport and Flagstaff Smelters Superfund Site

Explanation of Significant Difference
Operable Unit One
Davenport and Flagstaff Smelters Superfund Site
April 2005

Final Close Out Report
Davenport and Flagstaff Smelters Site
Operable Unit Three
September 7, 2006

Removal Work Plan
Davenport Residential Soils Removal
Salt Lake County, Utah
April 30 2004

Removal Work Plan
Davenport and Flagstaff NPL Site
Salt Lake County, Utah
July 8, 2005

Final Site Report
Davenport/Flagstaff Smelter Site NPL
Residential Operable Unit – OU1
Sandy, UT
US Army Corps of Engineers, Omaha District
Rapid Response Program
February 2010

Design Report
Davenport and Flagstaff Smelters Superfund Site
Operable Unit Two
Remedial Design
March 2011

Value Engineering Study Report
Davenport and Flagstaff Smelters Superfund Site
Operable Unit Two
September 2010

Memorandum
Re: Minor Modification to the Selected Remedy, Operable Unit Two, Davenport and Flagstaff Smelters Superfund Site, Salt Lake County, Utah

Draft Preliminary Remedial Action Report
Davenport and Flagstaff Smelters Site
Operable Unit Two

Explanation of Significant Differences
Davenport and Flagstaff Smelters Site
Operable Unit Two

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Attachment C

Site Inspection Checklist and Narrative

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Davenport and Flagstaff Smelters	**Date of inspection: 07/28/2011**
Location and Region: Salt Lake County, Utah, Region 8	**EPA ID: UTD988075719**
Agency, office, or company leading the five-year review: UDEQ	**Weather/temperature: Clear, sunny and warm**

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- X Access controls
- X Institutional controls
- • Groundwater pump and treatment
- • Surface water collection and treatment
- • Other_____
- • Monitored natural attenuation
- • Groundwater containment
- • Vertical barrier walls

Attachments: • Inspection Narrative attached •

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed • at site • at office • by phone Phone no. _____
   Problems, suggestions; • Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed • at site • at office • by phone Phone no. _____
   Problems, suggestions; • Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency: Salt Lake County (SLCO) Planning and Development
Contact: David White _____ June 23 2011 _____
Name Title Date Phone no.
Problems; suggestions; • Report attached See Attachment D

Agency: SLCO
Contact: Dan Drumlier City Engineer June 23 2011
Name Title Date Phone no.
Problems; suggestions; • Report attached See Attachment D

Agency: SLCO
Contact: Craig Anderson District Attorney June 23 2011
Name Title Date Phone no.
Problems; suggestions; • Report attached See Attachment D

Agency: Salt Lake Valley Health Department
Contact: John Hoggan _____ June 23 2011 _____
Name Title Date Phone no.
Problems; suggestions; • Report attached _____See Attachment D_____

4. **Other interviews** (optional) • See Attachment D

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	• O&M manual	• Readily available	• Up to date	X N/A
	• As-built drawings	• Readily available	• Up to date	X N/A
	• Maintenance logs	• Readily available	• Up to date	X N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	• Readily available	• Up to date	X N/A
	• Contingency plan/emergency response plan	• Readily available	• Up to date	X N/A
	Remarks			
3.	**O&M and OSHA Training Records**	• Readily available	• Up to date	X N/A
	Remarks			
4.	**Permits and Service Agreements**			
	• Air discharge permit	• Readily available	• Up to date	X N/A
	• Effluent discharge	• Readily available	• Up to date	X N/A
	• Waste disposal, POTW	• Readily available	• Up to date	X N/A
	• Other permits	• Readily available	• Up to date	X N/A
	Remarks			
6.	**Settlement Monument Records**	• Readily available	• Up to date	X N/A
	Remarks			
7.	**Groundwater Monitoring Records**	• Readily available	• Up to date	X N/A
	Remarks			
8.	**Leachate Extraction Records**	• Readily available	• Up to date	X N/A
	Remarks			
9.	**Discharge Compliance Records**			
	• Air	• Readily available	• Up to date	X N/A
	• Water (effluent)	• Readily available	• Up to date	X N/A
	Remarks			
10.	**Daily Access/Security Logs**	• Readily available	• Up to date	X N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**
   - State in-house
   - Contractor for State
   - PRP in-house
   - Contractor for PRP
   - Federal Facility in-house
   - Contractor for Federal Facility
   - Other_____

2. **O&M Cost Records**
   - Readily available
   - Up to date
   - Funding mechanism/agreement in place

   Original O&M cost estimate_____ • Breakdown attached

   Total annual cost by year for review period if available

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable • N/A

A. Fencing

1. **Fencing damaged** • Location shown on site map • Gates secured X N/A
   Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** • Location shown on site map X N/A
   Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
   Site conditions imply ICs not properly implemented • Yes X No • N/A
   Site conditions imply ICs not being fully enforced • Yes X No • N/A

   Type of monitoring (*e.g.*, self-reporting, drive by) Drive by
   Frequency
   Responsible party/agency UDEQ
   Contact
   Name Title Date Phone no.

   Reporting is up-to-date • Yes • No X N/A
   Reports are verified by the lead agency • Yes • No X N/A

   Specific requirements in deed or decision documents have been met • Yes • No X N/A
   Violations have been reported • Yes • No X N/A
   Other problems or suggestions: • Report attached

2. **Adequacy** • ICs are adequate • ICs are inadequate X N/A
   Remarks

D. General

1. **Vandalism/trespassing** • Location shown on site map X No vandalism evident
   Remarks

2. **Land use changes on site** X N/A
   Remarks

3. **Land use changes off site** X N/A
   Remarks

VI. GENERAL SITE CONDITIONS

A. Roads • Applicable X N/A

1. **Roads damaged** • Location shown on site map • Roads adequate X N/A
   Remarks

B. Other Site Conditions

Remarks _____

VII. LANDFILL COVERS • Applicable X N/A

A. Landfill Surface

1. **Settlement** (Low spots) • Location shown on site map • Settlement not evident
   Areal extent _____ Depth _____
   Remarks _____

2. **Cracks** • Location shown on site map • Cracking not evident
   Lengths _____ Widths _____ Depths _____
   Remarks _____

3. **Erosion** • Location shown on site map • Erosion not evident
   Areal extent _____ Depth _____
   Remarks _____

4. **Holes** • Location shown on site map • Holes not evident
   Areal extent _____ Depth _____
   Remarks _____

5. **Vegetative Cover** • Grass • Cover properly established • No signs of stress
   • Trees/Shrubs (indicate size and locations on a diagram)
   Remarks _____

6. **Alternative Cover (armored rock, concrete, etc.)** • N/A
   Remarks _____

7. **Bulges** • Location shown on site map • Bulges not evident
   Areal extent _____ Height _____
   Remarks _____

8. **Wet Areas/Water Damage** • Wet areas/water damage not evident
   • Wet areas • Location shown on site map Areal extent _____
   • Ponding • Location shown on site map Areal extent _____
   • Seeps • Location shown on site map Areal extent _____
   • Soft subgrade • Location shown on site map Areal extent _____
   Remarks _____

9. **Slope Instability** • Slides • Location shown on site map • No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches • Applicable • N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** • Location shown on site map • N/A or okay
Remarks_____

2. **Bench Breached** • Location shown on site map • N/A or okay
Remarks_____

3. **Bench Overtopped** • Location shown on site map • N/A or okay
Remarks_____

C. Letdown Channels Applicable • N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** • Location shown on site map • No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** • Location shown on site map • No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** • Location shown on site map • No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** • Location shown on site map • No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ • No obstructions
• Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
• No evidence of excessive growth
• Vegetation in channels does not obstruct flow
• Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations • Applicable X N/A

1. **Gas Vents** • Active • Passive
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance
• N/A
Remarks_____

2. **Gas Monitoring Probes**
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance • N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance • N/A
Remarks_____

4. **Leachate Extraction Wells**
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance • N/A
Remarks_____

5. **Settlement Monuments** • Located • Routinely surveyed • N/A
Remarks_____

E. Gas Collection and Treatment • Applicable X N/A

1. **Gas Treatment Facilities**
   • Flaring • Thermal destruction • Collection for reuse
   • Good condition • Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   • Good condition • Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   • Good condition • Needs Maintenance • N/A
   Remarks_____

F. Cover Drainage Layer • Applicable X N/A

1. **Outlet Pipes Inspected** • Functioning • N/A
   Remarks_____

2. **Outlet Rock Inspected** • Functioning • N/A
   Remarks_____

G. Detention/Sedimentation Ponds • Applicable X N/A

1. **Siltation** Areal extent_____ Depth_____ • N/A
   • Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   • Erosion not evident
   Remarks_____

3. **Outlet Works** • Functioning • N/A
   Remarks_____

4. **Dam** • Functioning • N/A
   Remarks_____

H. Retaining Walls • Applicable X N/A

1. **Deformations** • Location shown on site map • Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** • Location shown on site map • Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge • Applicable X N/A

1. **Siltation** • Location shown on site map • Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** • Location shown on site map • N/A
   • Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** • Location shown on site map • Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** • Functioning • N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS • Applicable X N/A

1. **Settlement** • Location shown on site map • Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   • Performance not monitored
   Frequency_____ • Evidence of breaching
   Head differential_____
   Remarks_____

C. Treatment System • Applicable X N/A

1. **Treatment Train** (Check components that apply)
   - • Metals removal • Oil/water separation • Bioremediation
   - • Air stripping • Carbon adsorbers
   - • Filters_____
   - • Additive (*e.g.*, chelation agent, flocculent)_____
   - • Others_____
   - • Good condition • Needs Maintenance
   - • Sampling ports properly marked and functional
   - • Sampling/maintenance log displayed and up to date
   - • Equipment properly identified
   - • Quantity of groundwater treated annually_____
   - • Quantity of surface water treated annually_____

   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   - • N/A • Good condition • Needs Maintenance

   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   - • N/A • Good condition • Proper secondary containment • Needs Maintenance

   Remarks_____

4. **Discharge Structure and Appurtenances**
   - • N/A • Good condition • Needs Maintenance

   Remarks_____

5. **Treatment Building(s)**
   - • N/A • Good condition (esp. roof and doorways) • Needs repair
   - • Chemicals and equipment properly stored

   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   - • Properly secured/locked • Functioning • Routinely sampled • Good condition
   - • All required wells located • Needs Maintenance • N/A

   Remarks_____

D. Monitoring Data X NA

1. Monitoring Data
   - • Is routinely submitted on time • Is of acceptable quality

2. Monitoring data suggests:
   - • Groundwater plume is effectively contained • Contaminant concentrations are declining

D. Monitored Natural Attenuation X NA

1. **Monitoring Wells** (natural attenuation remedy)
   - Properly secured/locked
   - Functioning
   - Routinely sampled
   - Good condition
   - All required wells located
   - Needs Maintenance
   - N/A

   Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

See Narrative

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C.	Early Indicators of Potential Remedy Problems
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Davenport and Flagstaff Smelters Superfund Site Five-Year Review
Site Inspection July 28, 2011

Inspectors: Thomas Daniels
Dave Allison

On July 28, 2011, DERR representatives conducted a site inspection of Operable Units 1 and 3 of the Davenport and Flagstaff Smelters Superfund Site. DERR inspected the entire property where access was granted by the property owners and inspected the areas visible from the street for properties where the property owner was not home to grant permission to inspect the property. Properties were inspected for vegetation and erosion in excavated areas. The determination of whether contamination remained on the property was based on post construction drawings provided by EPA Region 8.

Operable Unit 1

D01:

Vegetation on excavated slope is in good condition. There were no obvious signs of erosion. Observed utility corridor passes through excavated area where there is no remaining contamination.

D17

Vegetation on slopes and other excavated areas is well established, there were no obvious signs of erosion. Observed utilities on western side of property pass through an area where there is no remaining contamination. Utilities were not observed on eastern side of property but there is a possibility that they may run through an area where contamination remains at depth.

D02

Vegetation is in good shape, no signs of erosion. Utilities pass through an area where contamination remains at depth.

D15

Visible excavation areas contained established vegetation and no signs of erosion. There was no contamination left at depth.

D03

Vegetation well established. Larger shrubs planted on the slope did not survive but native grass mix was well established. No contamination was left at depth.

D04

Vegetation in xeriscaped area in front yard is well established with no signs of erosion. DERR was unable to inspect the rear of the property. Utilities did not pass through any areas where contamination remained at depth.

D05

DERR was unable to inspect any excavated areas. Utilities did not pass through any areas where contamination remained at depth.

D06

Vegetation was well established there were no visible signs of erosion. Utilities may pass through an area where contamination was left at depth.

D07

Vegetation is well established, no signs of erosion. Utilities did not pass through any excavated areas.

D19

Vegetation in front of property is well established with no signs of erosion. Utilities did not pass through any areas where contamination remained at depth. DERR was unable to inspect the rear of the property.

D18

Visible areas were well vegetated with no signs of erosion, DERR was unable to inspect the rear of the property.

D-16

Vegetation in excavated areas is well established and shows no signs of erosion. There are no areas where contamination remains at depth. Property owner is in the process of replacing the deck in the back yard. And there was a lot of exposed dirt. Post construction drawing do not provide information as to whether contamination was expected in the area under the deck. Utilities did not pass through any areas where contamination remained at depth.

D25

Vegetation in excavated areas is well established and shows no signs of erosion. Utilities did not pass through any areas that required excavation. Property owner's recollection of the areas that were excavated were different than what was shown on post construction

drawings. Property owner also recollected that contamination had been left at depth with a visible marker in an area that was not shown on the post construction drawing.

D13

Vegetation in excavated areas is well established with no signs of erosion. Utilities did not pass through any areas where contamination remained at depth.

D14

Vegetation is well established. Erosion was detected on the top of the slope near the retaining wall. The visible marker was not visible so contaminated material is still covered. A couple of the large boulders place to stabilize the slope after excavation have moved. Utilities pass through an area where contamination remains at depth. While property owner was aware that the property had been part of CERCLA clean up, they were not aware that contaminated material remained at depth.

D-15

Vegetation is well established with no signs of erosion. Utilities may pass through an area where contamination remains at depth.

F02

Vegetation is well established now, but larger trees did not survive and a lot of the scrub oak that was hand excavated died as well. Tree stands were contamination remained at depths less than 18 inches are still intact and continue to prevent exposure. There were no signs of erosion. Utilities pass through areas that have contamination remaining at depth.

DERR was unable to obtain access to inspect the following properties:

D08
D09
D14
D18
D20
D21
D22

F01
F03
F04

Operable Unit 3

Four lots have been developed, but the majority of the lots remain undeveloped. Vegetation on the undeveloped lots consists of mostly native grasses and weeds. The areas where contamination was left in place because of the steepness of the slope remain heavily vegetated.

URS

July 3, 2012

Thomas D. Daniels
Project Manager
Utah Department of Environmental Quality
Division of Environmental Response and Remediation
168 North 1950 West
P.O. Box 144840
Salt Lake City, Utah 84114-4840

Re: Substantial Construction Complete for the Remedial Action at
Davenport and Flagstaff Smelters Superfund Site Operable Unit 2 (OU2)

Dear Mr. Daniels:

This letter is to certify that substantial construction complete has been attained at the Davenport and Flagstaff Smelters Superfund Site, Operable Unit 2 (OU2). A pre-final site walk was conducted on November 16, 2011 with the Construction Contractor (DPS), URS, and UDEQ. At that time, several items that required completion were identified and were documented in the attached pre-final punch list.

The punch list items were addressed by DPS and a final site walk was performed on November 30, 2011. At that time DPS was informed that substantial construction complete had been obtained and that the final payment application would be processed. The final payment application was signed by DPS on December 9, 2011 and submitted to UDEQ for payment on December 12, 2011.

DPS is required by the contract documents to provide a one-year warranty on their work at the site, which includes all planting and seeding. A final warranty walk will be performed in the fall of 2012.

Sincerely,

URS Corporation

Tammi Messersmith

Tammi Messersmith, PE
Project Manager

Attachments

URS Corporation
756 East Winchester Street
Suite 400
Salt Lake City, Utah 84107
Tel: 801.904.4000
Fax: 801.904.4100
www.urscorp.com

URS

PRE-FINAL PUNCH LIST
11/16/11

Site Walk/Punch List

Present at Site Walk:
Tom Daniels (UDEQ), Tammi Messersmith (URS), Lawrence Cannon (URS), Colter Davis (URS), Chad Russell (DPS), Dusty Swank (DPS)

Area 3:

- Septic vent needs to be fixed in southeast part of Area 3
- Finish sprinklers in Area 3:
  - install emitters
  - install battery operated clock
  - install valve box
  - install posts for risers
- Planting of Lodgepole pines in Area 3
- Clean up trash in Area 3
- Clear downed pine in Area 3

Area 1:

- Seed disturbed area outside of project boundaries on west side of Area 1
- Determine if southwestern spur in Area 1 was seeded and seed if it was not
- Anchor bottoms of EC blanket in Area 1 along eastern slope
- Add small piece of EC blanket around tree on east slope of Area 1
- Remove top portion of dead tree Area 1 (located in northeastern section), down to just above the upturned rootball, place rootball back into ground in hopes of promoting growth.

Attachment D

Community Interviews

Contact:

Residential Property Owner

Date: July 17, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? Property Owner recently purchased this property in December 2010. The Superfund work was disclosed and after asking more risk questions had no reservations purchasing the property. Other than the usual closing documents, is not absolutely sure he has copies of a "clean letter" detailing the cleanup work.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? The Property Owner does have some personal concerns as they are in the process of renovating a patio deck. The soil was not cleaned underneath the deck during the construction and they do not know if it needs to be cleaned. The Property Owner has three children less than seven years of age and has requested UDEQ and EPA provide a sampling map or record of his property so he can build safely and handle suspect soils appropriately.

In the meantime, they'll take appropriate precautions and keep the children out of the area while replacing the deck. The Property Owner wasn't aware of any other community health concerns.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? Nothing has occurred to damage the work on their yard and they are not aware of any damage to remediated properties.

Do you have any additional comments, suggestions or questions regarding the clean up? They did say the neighbor purchased the house next door a few years ago and did not know where the outdoor water shutoff valve was located and may need some assistance. No additional comments, only requesting more property information from UDEQ.

Contact:

Residential Property Owner

Date: July 17, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? Property Owner has lived at this residence throughout the Superfund work and the removal lead and arsenic soils in their backyard. The Property Owner did not have an opinion of the cleanup and thought everything was completed until visited for the Five Year Review.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? Other than having a garden area relocated during the construction removal work, the Property Owner did not have any health or personal concerns. As far as they know there are no other community concerns.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? The Property Owner was not aware of any activity on their yard or the area damaging the remedy.

Do you have any additional comments, suggestions or questions regarding the clean up? No additional comments.

Contact:

Residential Property Owner

Date: July 28, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? The Property Owner was around at the time of the cleanup and had the majority of the back yard cleaned up. No issues with the cleanup, before, during or after. Fencing and a shed were temporarily removed and replaced without any problems.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? The Property Owner did not have any personal health or environmental concerns to report.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? Nothing has occurred to damage the work on their yard and is not aware of any issues with in the neighborhood. All of the vegetation remains intact without any erosion.

Do you have any additional comments, suggestions or questions regarding the clean up? No additional comments.

Contact:

Residential Property Owner

Date: July 17, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? Property Owner has lived at this residence during the Superfund investigation and thought the cleanup was great for the area. Also said the EPA did a great job with his back yard with no issues at all.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? Property Owner did not have any personal health or environmental concerns and was not aware of any health issues related to the cleanup of lead and arsenic. Property Owner wanted more information about the Operable Unit 2 plans as he is located next door to La Caille and hoped his yard would not undergo any additional work, of which will not be required.

He mentioned radon being prevalent and cases of lung cancer in the area and wondered if UDEQ or EPA had conducted any investigations into the neighborhood.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? Nothing has occurred to damage the work on their yard and is not aware of any issues with in the neighborhood.

Do you have any additional comments, suggestions or questions regarding the clean up? No additional comments

Contact:

Residential Property Owner

Date: July17, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? Property Owners purchased the property right after cleanup work was completed about six years ago. They were comfortable buying the home, felt everything was disclosed appropriately, and enough information on lead risks was available. The Property Owners have young children and asked a lot of questions prior to purchasing the house.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? No health concerns were expressed by the Property Owner. Property Owner mentioned some minor erosion issues in the backyard from a retaining wall adjacent to where the foundation of the historic smelter was located in their backyard. Some of the matting used for re-vegetation is visible and minor erosion has occurred from runoff from the wall. The Property Owner is not too concerned and will take any steps to prevent erosion from becoming a problem.

There were questions with the location of contaminated soils behind the retaining wall and the possibility of soils finding their way onto their property. They're aware of development interest of the property behind their yard, and understand measures will have to be taken by the developer to insure recontamination does not occur.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? They did not know of anything in the neighborhood damaging any of the cleanup areas.

Do you have any additional comments, suggestions or questions regarding the clean up? The Property Owner was not sure they had ever seen or have a copy of a "clean letter" and would like to know if EPA or UDEQ could provide one.

Contact:

Residential Property Owner

Date: July17, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? The Property Owners have lived at the property from the beginning of the of the cleanup investigation and had a large portion of their yard cleaned up. The Property Owners were pleased with the way the cleanup was conducted and dealt with appropriately.

The Property Owners said they were able to coordinate the clearing of an area with contractors so a swimming pool could be installed, of which they appreciated. Other than minor criticism of the soil used for backfill, weeds are a problem even today. A section of fencing that was replaced during the construction, fell months later, and needed to be replaced at their expense.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? The Property Owners did not have any health or environmental concerns and were not aware of any other neighbors with concerns. The Property Owners inquired about the safety precautions for Operable Unit 2 work as their home is directly above the property being remediated.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? There wasn't anything the Property Owner could think of damaging or detrimental to the existing remedy.

Do you have any additional comments, suggestions or questions regarding the clean up? The Property Owner was aware OU2 would undergo construction and asked questions to the extent the cleanup would dig. No other suggestions.

Contact:

Residential Property Owner

Date: July17, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? The Property Owners have lived at the property for the lifetime of the cleanup investigation and felt the cleanup went very well. They were not so pleased with the way EPA handled a water damage issue with their basement caused during the replacement of a sprinkler system.

Despite sprinkler issue, they felt the cleanup was successful overall, were happy with the quality, timeliness, and responsiveness of the cleanup contractors. Some steep side hills turned out much nicer than before, however some trees and shrubs died, the grasses and flowers did well.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? As professional toxicologists, they did not have any health or environmental concerns regarding the cleanup. Even questioned why the cleanup was necessary for lead and arsenic levels in area soils.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? The water damage to their basement was the only event cited during the remediation work. The Property Owner said months after a sprinkler system was replaced their basement began flooding, resulting in damages to the inside of a basement wall and carpeting. After checking all possible causes and after digging up the sprinkler system, discovered a valve not entirely closed off during the remediation causing a slow leak.

Their understanding from EPA and the subcontractor is the damage occurred after warranty. The resulting damages were fixed at the Property Owner's expense, very frustrating, considering the slow leaking circumstances were brought to the attention of EPA. No compensation or additional resources were ever offered by the EPA subcontractor who did the work. No final determination was provided to the Property Owner's disappointment.

Do you have any additional comments, suggestions or questions regarding the clean up? Suggested we interview his neighbor.

Contact:

Residential Property Owner

Date: June 16, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? The Property Owner was around at the time of the cleanup in 2007, and was happy to have the cleanup done and satisfied with the way construction turned out. They thought the reclamation work in their yard was safely conducted and looks pretty good.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? No personal health concerns for their family today. However prior to construction, were concerned with the slow investigation process with two children under seven. The Property Owners even looked into cleaning up their yard independently of the EPA and UDEQ to expedite removal of lead and arsenic contaminated soils. After considering the personal cost required and with more information, the Property Owner said it made more sense to wait their turn as the cleanup developed.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? Nothing has occurred to damage the work on their yard and is not aware of any issues with in the neighborhood.

Do you have any additional comments, suggestions or questions regarding the clean up? No additional comments

Contact:

Residential Property Owner

Date: July17, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? Property Owner has lived at the property for the lifetime of the cleanup investigation and felt the cleanup at his yard was never fully completed and EPA left contaminated areas in his back yard.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? Property Owner claims EPA just quit, walked away, and left areas of lead and arsenic contaminated soils at depth without protective marking fabric. Property Owner said he never heard anything regarding the work ever being completed. Property Owner was also mad with nursery contractor's knowledge of area vegetation and not pleased with any suggestions for his yard.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? Although the Property Owner questions the thoroughness of the remedial work on his yard, is not aware of any damages to the work that was done.

Do you have any additional comments, suggestions or questions regarding the clean up? No additional comments.

Contact:

Neighboring Property Owner

Date: May 26, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? Just over a year ago, the Property Owner became head of a Home Owners Association (HOA), located adjacent to Operable Unit 2, and taken on responsibilities to keep the HOA informed on the Superfund work. They are also aware of a small portion of contamination within the HOA property under some trees not requiring remediation.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? The HOA has expressed a number of concerns for remediation plans for Operable Unit 2, property adjacent to their properties. First, is the remediation even necessary as there is no lead or arsenic in their homes nor have any chemicals leached into their drinking water. Second, will the excavation create a high level of lead and arsenic dust throughout the area and will it find its way into homes and water supply.

Also, what is the most cost effective way to approach the remediation? Is it less expensive to remove all vegetation and restore and replant the entire area, or leave several bunches of the oak brush as anchors for the replanting? They believe that natural vegetation over the entire area will recover much more quickly if some brush is left. Some HOA members said they enjoy their view of the valley and do not want surrounding properties devalued by the cleanup work as well.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? The Property Owner was not aware of anything compromising previously remediated areas.

Do you have any additional comments, suggestions or questions regarding the clean up? The Property Owner felt well informed by UDEQ and EPA and wants to keep on top of any developments before, during and after the cleanup is done.

Contact:

LAURA BRIEFER
SPECIAL PROJECTS MANAGER
SALT LAKE CITY PUBLIC UTILITIES
SALTLAKE CITY, UT

Date: May 31, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

1. **What is your overall impression of the project?** The City Project Manager has a good impression of previous work and plans to date for city property located at Operable Unit 2. The majority of the undeveloped land within OU2 planned for remediation is owned by Salt Lake City and is part of their valley wide watershed protection plan. Disturbing several acres of surface and subsurface soils impacted by lead and arsenic within this close proximity of the intake becomes an issue because of the potential for exposing the City water supply to increased levels of lead and arsenic. To date the City has not identified any lead or arsenic contamination at this raw water intake, suggesting a weathered and stabilized soil condition on OU2 in which contaminated soils do not impact surface water quality.

How well the re-vegetation establishes itself with limited irrigation and runoff from steep hillsides are concerns in excavated areas remains to be seen. Salt Lake City does not expect any problems if construction goes as well as it has in previous work areas of the site.

2. **Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.** The Project Manager felt well informed throughout the Superfund process from the creation of the Record of Decision (ROD) and when addressing common concerns during planning processes.

3. **Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.** There were no complaints or incidents from the Project Manager in the last three years of working on the site

4. **Do you have any comments, suggestions.** The only additional comment is the property area is experiencing a high water year and they are closely watching any flood scenarios in the area near or on the property.

Contact:

J MICHAEL HANSEN, CHAIR PERSON
GRANITE COMMUNITY COUNCIL
SANDY, UT

Date: May 31, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

1. What is your overall impression of the project? The Granite Community Council feels the cleanup at the Davenport and Flagstaff Smelters has been successful over the years. There are residential concerns the Council would want addressed by EPA and UDEQ for remaining work at Operable Unit 2. The Council would like proper dust control, covered beds over trucks leaving the site, as well as any dirt tracked from tires, and all truck traffic in residential areas being conducted safely. How well the watershed is protected and how well the re-vegetation grows will be followed by the Council as well.

2. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results. Regular briefings are provided to update and inform the council on any and all construction activities.

3. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses. They could not recall any complaints requiring any additional response from EPA or UDEQ.

4. Do you have any comments, suggestions. Other than providing regulator contact information no additional comments were provided.

Contact:

Residential Property Owner

Date: July 28, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

What do you know and how long have you been involved with the Davenport and Flagstaff Smelters clean up? Property Owner was around at the time of the lifetime of the investigation and cleanup of their yard. Initially frustrated with the Superfund process and understanding the necessity of cleanup, eventually became satisfied with the way cleanup turned out on their property. Overall, felt there was a good balance of cleanup achieved without destroying their yard.

Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? The Property Owner did not have any personal health concerns yet was disappointed with some of the landscaping results. The Property Owner said the replacement sod was compacted too much and requires more water than usual and at a cost of around $600 dollars per month.

They were not convinced the top soil was of sufficient nutrients either and had some plants die. They've lost a few trees and suspect from stress during the remedy work, and some scrub oak. The nursery contractor was not very helpful and didn't seem to know the area plants as well as they would've liked. The sprinkler contractor didn't provide appropriate coverage in areas of the yard and was difficult to work with. They also said a positive arrangement was made to coordinate the installation of a pool.

Have you noticed anything going on in the area that you believe might have damaged or compromised the remedy? Nothing has occurred to damage the work on their yard and is not aware of any issues with in the neighborhood.

Do you have any additional comments, suggestions or questions regarding the clean up? No additional comments.

Contact:
Salt Lake County Government Center
2001 South State Street
SLC, Utah 84190-3050
Phone: 801 468-3000
David White, SLCO Planning and Development
Dan Drumiler, SLCO City Engineer
Craig Anderson, SLCO District Attorney
John Hoggan, Salt Lake Valley Health Dept.

Date: June 23, 2011

Davenport and Flagstaff Smelters Five Year Review Questions

1. What is your overall impression of the project? The Salt Lake Valley (County) Health Department (SLVHD) and Salt Lake County (SLCO) Planning and Engineering Departments are involved partners with EPA and UDEQ monitor and support the cleanup community by participating in public meetings and offering assistance. The SLVHD keeps in routine communication with regulators as site activities demand and keep informed on cleanup activities.

The Salt Lake County Planning and Engineering Departments keep track of property records and are developing a mapping system to identify cleanup areas related to possible Institutional Controls and Environmental Covenants. Salt Lake County officials said any issues regarding the cleanup areas, and health or environmental concerns, are coordinated with UDEQ, EPA, or with SLVHD.

2. Do you have any *personal* concerns regarding the clean up? Are you aware of any *community* concerns? Establishing Institutional Controls is the main priority for the County to insure cleanup areas remain protective. Insuring coordination with documentation at SLCO and the regulating entities for cleanup areas is important to provide the best information to property owners at the site. No one at SLCO expressed any health or environmental concerns regarding the cleanup and no issues have occurred over the last five years from the community. No situations have come up and the county uses building permit processes and ordinances to monitor construction on cleanup properties.

3. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses. No one could recall any complaints and only an occasional call with questions from someone purchasing in the area are received regarding the Superfund site.

4. Do you have any comments, suggestions,
No additional comments other than scheduling future meetings with EPA and UDEQ to develop Institutional Controls for Salt Lake County.