

Explanation of Significant Differences

**Midvale Slag Superfund Site
Operable Units 1 & 2
Midvale, Utah**

September 2013

U.S. Environmental Protection Agency
Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

Explanation of Significant Differences

Midvale Slag, Operable Units 1 & 2

Midvale, UT

September 2013

1.0 Introduction

Site Name: Midvale Slag Superfund Site (Site) Operable Units 1 & 2 (OU1 & OU2)
Site Location: Midvale, UT
Site ID: UTD 081834277

1.1 Lead and Support Agencies

The United States Environmental Protection Agency (EPA) is the lead agency. The Utah Department of Environmental Quality (UDEQ) is the support agency.

1.2 Legal Authority for Explanation of Significant Differences

Under Section 117 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund), as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA), the EPA is required to publish an Explanation of Significant Differences (ESD) when significant, but not fundamental, changes are proposed to a previously selected site remedy. Sections 300.435(c)(2)(i) and 300.825(a)(2) of the National Contingency Plan (NCP) set forth the criteria for issuing an ESD and requiring that an ESD be published if the remedy is modified in a way that differs significantly in either scope, performance, or cost from the remedy selected in the Record of Decision (ROD) for the Site.

1.3 Summary of Purpose

This ESD applies to the remedies chosen for the Upper Sand and Gravel (US&G) aquifer at the Site in the ROD for OU2, signed by the EPA and the UDEQ on October 29, 2002 and October 31, 2002, respectively, and in the ROD for OU1, pursuant to the ESD for OU1 signed on February 10, 2006 (2006 ESD).

The ESD is intended to clarify the final remedial goals and cleanup standards for the contaminated portion of the US&G aquifer and involves: (1) the remedial action objective (RAO) regarding beneficial use of this aquifer as a drinking water source and (2) alternate contamination limits (ACLs) established for contaminants of concern (COCs) in groundwater in lieu of standards that would have otherwise been suitable as applicable or relevant and appropriate requirements (ARARs).

The significant changes documented by this ESD are as follows:

- The ACLs established for arsenic, cadmium, selenium and antimony, the COCs, in the

2002 OU2 ROD are the final, applicable groundwater standards for those contaminants in the US&G aquifer.

- Restoration of the contaminated portion of the US&G aquifer to beneficial use as a drinking water source is not an RAO for the OU1 or OU2 remedies.

1.4 Administrative Record

This ESD and its supporting documentation will be incorporated into the Administrative Record as directed in Section 300.825(a)(2) of the NCP. The Administrative Record file is available for public review at the following locations:

U.S. EPA, Region 8, Superfund Records Center

1595 Wynkoop Street

Denver, CO 80202-1120

303.312.6373 or toll free 800.227.8917

Viewing hours: 8:00 a.m. to 4:00 p.m., M-F, excluding holidays (call for an appointment)

Tyler Branch Library

8041 South Wood

Midvale, UT 84047

801.944.7641

2.0 Site History, Contamination and Selected Remedy

2.1 Site History and Contamination

The Midvale Slag Superfund Site is located 12 miles south of Salt Lake City, Utah. Most of the Site lies within Midvale City. However, the northern portion extends into Murray City. Site boundaries include: 7800 South Street on the south, the Jordan River on the west, 6400 South Street on the north, 700 West Street on the northeast and east and Holden Street on the southeast. The Site encompasses approximately 446 acres and consists of two operable units (OUs), OU1 and OU2, comprising the northern and southern portions of the Site, respectively. OU1 encompasses approximately 266 acres and includes the Winchester Estates Mobile Home Park, an abandoned Wastewater Treatment Plant (WWTP), WWTP lagoons and jurisdictional wetlands. OU2 encompasses approximately 180 acres and is also subdivided into areas based on the distribution of unique smelter- and mill-related wastes.

The Midvale Slag Superfund Site was proposed for addition to the National Priorities List (NPL) in the Federal Register on June 10, 1986 and finalized to the NPL in the Federal Register on February 11, 1991.

The history of ore processing at the Site covers the period from 1871 to 1971. Five lead and copper smelters operated in the vicinity during that period. OU2 was the location of the majority

of smelter waste disposal activities. Smelter wastes included arsenic trioxide, calcine, slag and other miscellaneous smelter wastes. In addition, mill tailings and smelter stack fallout originating from the Sharon Steel Superfund Site located immediately to the south were disposed of and deposited at portions of the Midvale Slag Site.

Site Location Map

Attachment – Site location map indicates OU1 and OU2, as well as key features such as groundwater and surface water monitoring locations. 7200 South Parkway is the boundary between OU1 and OU2.

2.2 Summary of Selected Groundwater Remedy

The RAOs specific to the US&G aquifer, as established in the 2002 ROD and in the OU1 ROD, pursuant to the 2006 ESD, are as follows:

- Provide that future migration of COCs into previously uncontaminated portions of the US&G aquifer and into the Deep Principal Aquifer is protective of these aquifers as sources of drinking water.
- Provide that future discharge of contaminated groundwater from the Site to the Jordan River is protective of the aquatic environment and designated use.
- Restore groundwater to beneficial use (if possible).

The site-wide selected remedy for groundwater was alternative GW-2 (“limited action with ACLs”), which did not involve active restoration of the US&G aquifer.

Elements of this alternative included the following:

- Establish points of assessment and action levels (including ACLs) based on site-specific analyses.
- Install point of assessment monitoring wells in the upper and lower portions of the US&G aquifer.
- Establish surface water monitoring points in the Jordan River.
- Establish institutional controls (ICs) to prevent access to and use of contaminated groundwater and to restrict surface water uses that result in increased infiltration through waste areas.
- Provide groundwater and surface water monitoring.
- Conduct 5-year reviews to verify effectiveness.

ACLs were established for the contaminated portion of the US&G aquifer that discharges to the Jordan River for arsenic (7,000 µg/L), cadmium (1,560 µg/L), selenium (900 µg/L) and antimony (380 µg/L). The process for developing ACLs is discussed in the OU2 ROD with supporting documentation provided in the Administrative Record.

Although the limited action remedy under alternative GW-2 did not actively attempt to restore the US&G aquifer, it provided for the monitoring of groundwater and surface water to assess whether applicable groundwater and surface water quality criteria are being met for the selected COCs. It also provided for the creation of ICs to prevent exposure to the contaminated US&G aquifer.

Point of assessment locations for monitoring the US&G aquifer were selected based on the location and movement of arsenic contamination on the Site. Arsenic was selected as the indicator chemical since it is the most mobile and widespread of the COCs in this aquifer. Monitoring wells for points of assessment were installed in the shallow and deep portions of the US&G aquifer in accordance with plans and specifications developed during the remedial design.

The specific monitoring objectives are as follows:

- Conduct groundwater and surface water monitoring to assess if applicable groundwater and surface water quality criteria are being met for COCs (antimony, arsenic, cadmium and selenium).
- Assess monitoring data and determine if contamination is moving laterally or vertically within the boundaries of the Site.

The UDEQ performs semi-annual groundwater and surface water monitoring at this Site. The most recent monitoring event for which analytical results are available occurred in September 2012 (*See Semi-Annual Groundwater and Surface Water Monitoring Report – Midvale Slag Superfund Site dated May 24, 2013*).

Two key conclusions presented in this report, which are consistent with the semi-annual monitoring results from 2008 to the present, were that COC concentrations in the ACL monitoring wells have not exceeded their respective ACL values and that COC concentrations in surface water have not exceeded established surface water quality criteria values for the Jordan River.

The Site has achieved the construction completion milestone, indicating that all components of the selected remedy were constructed in accordance with EPA-approved plans and specifications and that no additional remedial construction is anticipated. Construction activities at the Midvale Slag Superfund Site are documented in the Preliminary Closeout Report (PCOR), finalized on September 29, 2011.

In addition, all required ICs are in place and being implemented. Specifically, the EPA finalized the Site-wide Institutional Control Process Plan, followed by development and implementation of appropriate ordinances by Midvale City.

3.0 Basis for and Description of Significant Differences

One of the RAOs set forth in the OU2 ROD, which was incorporated into the OU1 remedy by the 2006 ESD, provided that the US&G aquifer would be restored to beneficial use, if possible (the "Restoration RAO"). As stated in the OU2 ROD, EPA and the UDEQ decided that active restoration of the US&G aquifer, which would have involved extraction/treatment and discharge to the Jordan River or in situ ("in place") treatment, was not practical. Although the selected remedy ("limited action with ACLs") did not involve active restoration of the US&G aquifer, maximum contaminant levels ("MCLs"), non-zero MCL goals and state standards were identified as ARARs, considered relevant and appropriate for the remediation of groundwater and intended to serve as long-term goals for the restoration of the contaminated portion of the US&G aquifer. ACLs were also established for the contaminated portion of the US&G aquifer and identified as applicable standards for the selected remedy.

This has resulted in misunderstandings regarding the ultimate objective of the OU1 & OU2 remedies with respect to addressing contaminated portions of the US&G aquifer, as well as the role of ACLs established in the OU2 ROD. This ESD strikes the Restoration RAO for the US&G aquifer from both the OU1 & OU2 remedies, discusses the purpose for establishing ACLs in the OU2 ROD and affirms the applicability of ACLs as final site-wide cleanup standards for the US&G aquifer.

3.1 Restoration RAO

As documented in the OU2 ROD and supported by information contained in the Administrative Record, the EPA and the UDEQ determined that active restoration of the contaminated portions of the US&G aquifer to beneficial use as a drinking water source was not practical at this Site. The inclusion of the Restoration RAO in the OU2 ROD, as well as other statements made in the OU2 ROD, suggested that returning the contaminated portion of the US&G aquifer to beneficial use, even in the absence of active remediation, might be possible as a long-term goal. However, due to the extended time frame estimated to achieve MCLs (i.e., 90 to 300 years), which was based on removal and containment of wastes remaining on-site and active restoration activities, returning the contaminated portion of the US&G aquifer to beneficial reuse is not practicable and, as such, is not a realistic goal under any circumstances.

Moreover, subsequent to issuance of the OU2 ROD, construction of paved areas and buildings as part of redevelopment activities on the Site has resulted in the creation of impermeable surfaces that are expected to reduce infiltration of precipitation into the US&G aquifer. Additionally, compaction of underlying soils required as part of construction activities is also expected to reduce the flow of water through the subsurface. While no study has been conducted regarding the precise impact of these features on the contamination plume in the US&G aquifer, EPA believes that these activities will likely prolong the time required to completely flush Site contaminants from the US&G aquifer beyond the estimates presented in the OU2 ROD.

Thus, the following RAO is stricken from both the OU1 & OU2 selected remedies:

*Restore ground water to beneficial use (if possible).

3.2 ACLs

The ACLs established in the OU2 ROD are intended to be the final groundwater clean-up standards for the contaminated portion of the US&G aquifer that discharges to the Jordan River. As a result, these standards replaced the MCLs and/or State groundwater standards for the COCs in the US&G aquifer. This was not clearly stated in either the 2008 five-year review report for the Site or the PCOR. Thus, five-year review report and the PCOR should be interpreted in light of the determinations made in this ESD.

Subsequent to the establishment of ACLs in the OU2 ROD, EPA updated guidance on use of ACLs, (OSWER Directive 9200.4-39). This guidance recognizes that “EPA and other decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from those described in this memorandum.” To this end, after consideration of the circumstances at this Site, EPA continues to believe that ACLs established pursuant to CERCLA Section 121(d)(2)(B)(ii) for COCs in the US&G aquifer, as documented in the OU2 ROD signed prior to issuance of OSWER Directive 9200.4-39, represent the applicable cleanup standards for use at the Site.

Consequently, consistent with OSWER Directive 9200.4-39, ACLs established as part of the OU2 ROD take the place of the following standards, which were identified as chemical-specific ARARs with respect to the contaminated portion of the US&G aquifer:

- *Safe Drinking Water Act National Primary Drinking Water Standards, 40 CFR Part 14.*
- *Utah Primary Drinking Water Standards, Utah Administrative Code (UAC) R309-103-2.*
- *Utah Ground Water Quality Standards, UAC R317-6-2.*

4.0 Support Agency Comments

The UDEQ concurs with this ESD.

5.0 Statutory Determinations

The EPA has determined that these significant changes comply with the statutory requirements of Section 121 of CERCLA such that the remedy remains protective of human health and the environment and complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted no less often than each five years after the initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

6.0 Public Participation

All public participation requirements set forth in Sections 117(c) and (d) of CERCLA, as well as Section 300.435(c)(2)(i) of the NCP will be met. Although a formal public comment period is not required when issuing an ESD, this ESD and all documents that serve as the basis of this ESD are contained in the Administrative Record for the Midvale Slag Superfund Site.

EPA will also publish a notice of availability and a brief description of the ESD in the Midvale Times.

7.0 References

Record of Decision (ROD), Midvale Slag Operable Unit 1 (OU1)-04-28-1995 – SEMS# 90224

Final Focused Feasibility Study Report for Groundwater OU2 - 05-01-2002 – SEMS# 1230637

Final Site Characterization Report, Final Phase II Site Characterization Report, Midvale Slag Superfund Site, OU 1 & 2 - 05-16-2002 – SEMS# 494559

Midvale Slag Superfund Site OU2 Midvale, Utah Record of Decision (ROD) - 10-29-2002 – SEMS # 2003421

First Five-Year Review Report for Midvale Slag 10-20-2003 – SEMS# 1064962

Final Groundwater and Surface Water Monitoring Plan - Technical Report – 09-30-2004 – SEMS# 1128659

Technical Memorandum: Evaluation of the Mineral Resources Reclamation Company (MRCC) Property Area for OU 2; Technical Memorandum for Preliminary Remediation Goals and Decision-Making Process - OU1 – 06-01-2005 – SEMS # 1072871

Final Summary of Groundwater Sampling Activities before Remedial Action at the Midvale Slag Superfund Site, OU 1 & 2 – 07-11-2005 – SEMS# 1025159

Technical Clarification of OU2 ROD – 08-10-2007 – SEMS# 1074952

Explanation of Significant Differences (ESD), OU1 ROD, February 10, 2006 – SEMS# 90224

Ready for Mixed Reuse Determination – 05-23-2008 – SEMS# 1072872

Second Five-Year Review Report for Midvale Slag – 12-30-2008 – SEMS# 2092845

Groundwater Monitoring System, Monitoring Well Installation Report – 05-01-2009 – SEMS# 1117644

Quarterly Groundwater and Surface Water Monitoring Report, Third Quarter – 11-13-2009 – SEMS# 1128655

Semi-Annual Groundwater and Surface Water Monitoring Reports, Utah Department of Environmental Quality 2010 through 2013– SEMS# 1167643, # 1215930, # 1265863 and # 1249661

Court Filings – Civil Docket for Case # 04-CV-843 USA v. Littleton, Inc. – SEMS# 1230623

Midvale City, 2007. Ordinance No. 06/26/07 O-8 “Institutional Controls Ordinance for Bingham Junction, Jordan Bluffs (www.codepublishing.com/ut/Midvale/html/Midvale0810.html) – SEMS# 1117755

EPA 2011. Preliminary Closeout Report, September 29, 2011 – SEMS# 1207191

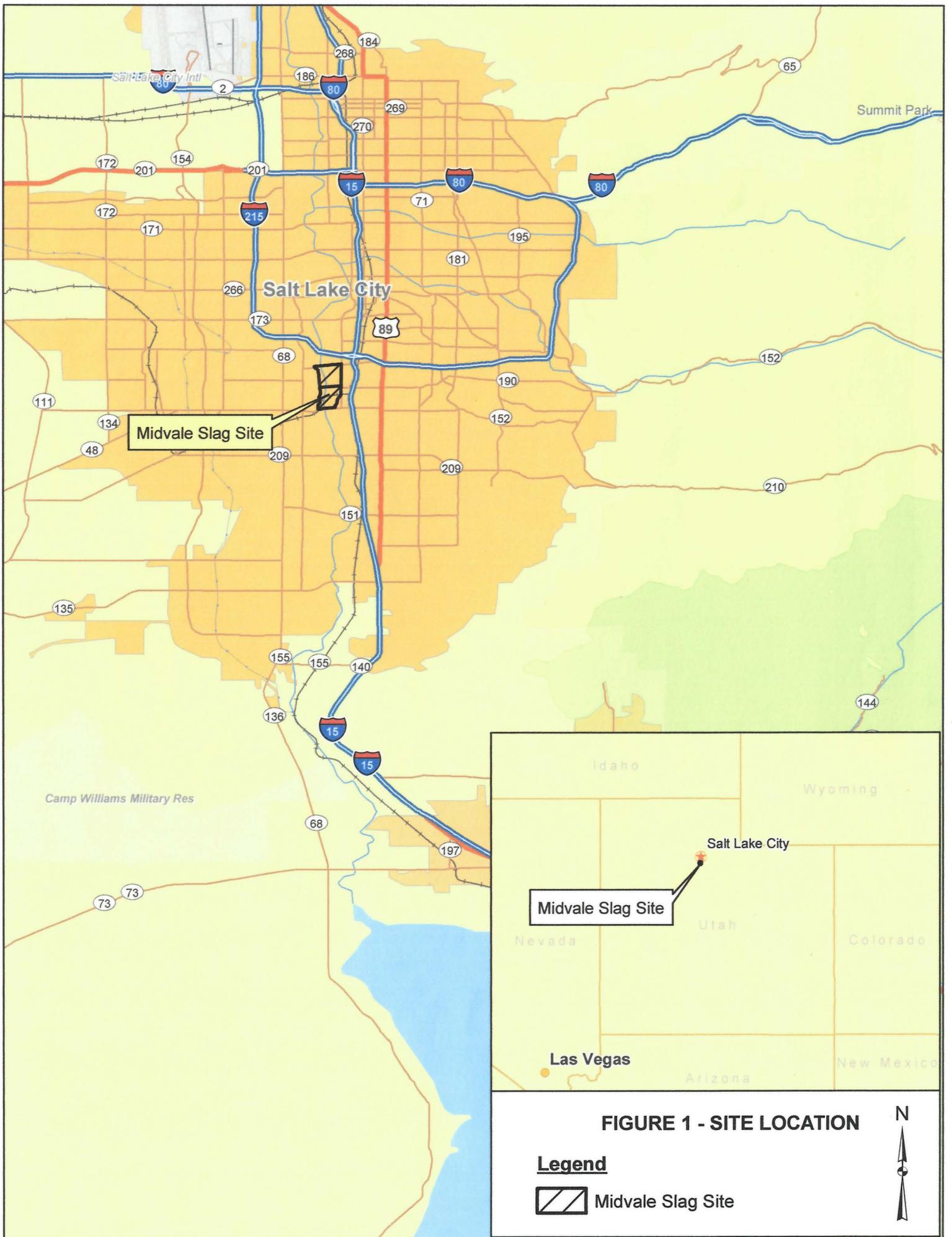

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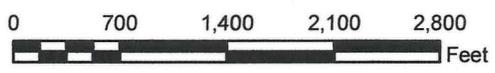
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- Legend**
- Midvale Slag Boundary
 - Upgradient Well
 - Plume Core Well
 - New Surface Water
 - Downgradient Well
 - ACL Well



U.S. Army Corps of Engineers
Omaha District

FIGURE 2 - SITE LOCATION MAP
Five-Year Review
Midvale Slag Superfund Site

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