FOURTH FIVE-YEAR REVIEW REPORT FOR MIDVALE SLAG SUPERFUND SITE SALT LAKE COUNTY, UTAH

Prepared by

Utah Department of Environmental Quality
Division of Environmental Response and Remediation
For
U.S. Environmental Protection Agency
Region 8
DENVER, COLORADO

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4/8/19
Date

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LIST OF ABBREVIATIONS & ACRONYMS

ACL	Alternate Concentration Limits
ARAR	Applicable or Relevant and Appropriate Requirement
BLL	Blood Lead Level
BRA	Baseline Risk Assessment
CDC	Centers for Disease Control
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
COCs	Chemicals of Concern
ESD	Explanation of Significant Differences
EPA	United States Environmental Protection Agency
ERA	Ecological Risk Assessment
FYR	Five-Year Review
ICs	Institutional Controls
ICPP	Institutional Control Process Plan
IHC	Intermountain Health Care
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PCE	Tetrachloroethene
POA	Private Owners Associations
PRGs	Preliminary Remediation Goals
PRP	Potentially Responsible Party
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SPLP	Synthetic Precipitation Leaching Procedure
TCLP	Toxicity Characteristic Leaching Procedure
UDEQ/DERR	Utah Department of Environmental Quality/Division of Environmental Response and Remediation
US&G	Upper Sand and Gravel
UU/UE	Unlimited Use and Unrestricted Exposure
WENE	Winchester Estates North East
WENW	Winchester Estates North West
WWTP	Wastewater Treatment Plant

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The Utah Department of Environmental Quality/Division of Environmental Response and Remediation (UDEQ/DERR) is preparing this FYR for the U.S. Environmental Protection Agency (EPA) pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the Midvale Slag Superfund Site. The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site is 446 acres in size and consists of two operable units (OUs) that will be addressed in this FYR. OU1 encompasses the northern portion of the site and OU2 encompasses the southern portion of the site.

The Midvale Slag Superfund Site FYR was led by Tony Howes with UDEQ/DERR. Participants included Dania Zinner, EPA remedial project manager (RPM); Jennifer Chergo, EPA Public Involvement Coordinator; and Dave Allison, UDEQ/DERR Environmental Planning Consultant. The review began on 2/13/2018.

EPA has determined in the five-year review that the cleanup at the Midvale Slag Superfund site is protective. This means that the current remedy is protective of human health and the environment and allows for residential, recreational and commercial reuse. Drinking water is provided by the Jordan Valley Water Conservation District (https://jvwcd.org/water/wqrpage) with groundwater use being restricted by the Salt Lake Valley Ground Water Management Plan and the Midvale City ordinance. The ordinance also describes the procedures for workers handling soils at depth and Midvale City staff oversee any redevelopment projects.

Site Background

The Midvale Slag Superfund Site is located approximately 12 miles south of Salt Lake City, Utah. The majority of the Site is located within Midvale City; however, the northern portion of OU1 extends into Murray City (Figure B-1). The Site is bounded by 7800 South Street on the south, the Jordan River on the west, 6400 South Street on the north, and 700 West Street on the east. The Sharon Steel Superfund Site (UTD980951388) is located immediately adjacent to and south of the Midvale Slag Site.

The Site was historically used as a lead and copper smelting/milling facility that operated from 1871-1971. In addition to lead and copper, the facility produced other metals, including gold and silver. Wastes generated from the smelting/milling process were disposed of on-site and impacted groundwater and soil.

OU1 is approximately 266 acres in size and included the Winchester Estates residential area, an abandoned Wastewater Treatment Plant (WWTP), WWTP lagoons, and jurisdictional wetlands. Based on the unique characteristics of OU1 and to facilitate the organization of the remedial investigation (RI), OU1 was divided into the following parcels:

- LR - The southern one third of OU1.
- LF - The west-central portion of OU1 (site of a small former landfill).

- LG - The area formerly occupied by the abandoned WWTP lagoons, the east-central portion of OU1.

- WENW - The northwestern portion of OU1 that includes the Winchester Estates residential area, bordered on the north by 6400 South Street and on the west by the Jordan River.

- WESE - The southeast portion of Winchester Estates, bordered on the east by 700 West Street.

These parcels are depicted in Figure B-2.

OU2 is approximately 180 acres in size and the OU2 remedy addressed groundwater, mixed smelter wastes, and slag in the unit. For purposes of organizing OU2 materials and their associated environmental effects, the materials were defined as one of the following waste categories:

- Category I: Principal threat wastes that are considered highly mobile, highly toxic and are unacceptable for exposure at the surface under any land use scenario. Category I wastes contain very high concentration of chemicals of concern (COC) and fail toxicity characteristic leaching procedure (TCLP) and synthetic precipitation leaching procedure (SPLP) tests.

- Category II: Smelter wastes, demolition debris, foundations, and soils with high COC concentrations. Category II wastes are also unacceptable for exposure at the surface under any land use scenario and fail TCLP and SPLP tests.

- Category III: Contaminated demolition debris, foundations, and soils. Category III wastes contain elevated concentrations of COCs and are unacceptable for exposure at the surface under residential land use scenarios.

- Category IV: Slag

Groundwater at the Midvale Slag Site is comprised of three distinct hydrogeologic units: an unconfined upper sand and gravel (US&G) aquifer (also referred to as the shallow unconfined aquifer), a confined deep principal aquifer and local/perched groundwater. Wastes generated and disposed of on-site contaminated the US&G aquifer primarily with arsenic. The US&G aquifer has also been contaminated by a tetrachloroethene (PCE) plume that passes through the Site and appears to originate from an upgradient off site source.

The Site has been developed and is currently the home of Bingham Junction, a mixed use residential, commercial office and retail area. The Site was deleted from the National Priorities List (NPL) on April 8, 2015.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Midvale Slag		
EPA ID: UTD081834277		
Region: 8	**State:** UT	**City/County:** Midvale and Murray/Salt Lake

SITE STATUS	
NPL Status: Deleted	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Tony Howes
Author affiliation: UDEQ/DERR
Review period: 2/13/2018 - 9/3/2018
Date of site inspection: 4/5/2018
Type of review: Statutory
Review number: 4
Triggering action date: 4/11/2014
Due date: 4/1/2019

II. RESPONSE ACTION SUMMARY

Basis for Taking Action OU1

The OU1 baseline risk assessment (BRA) found that arsenic, cadmium, and lead in surface soils posed an unacceptable risk to some residents in the Winchester Estates developed area. The BRA also concluded that, if the undeveloped portions of OU1 should be developed, exposure to surface soils could result in unacceptable health risks depending on the type of land use. The OU1 BRA found no risks associated with groundwater at OU1. The following cleanup levels were established for OU1:

Table 1: OU1 Soil Cleanup Levels

Contaminant	Cleanup Level (mg/kg)	
	Current and Hypothetical Residents	Hypothetical Future Workers
Arsenic	73	960
Cadmium	49	2,980
Lead	650	--

A lead clean-up level was not calculated for hypothetical future workers since lead was primarily a concern for children.

Basis for Taking Action OU2

The OU2 BRA found that COCs in groundwater and surface and subsurface soil exceeded threshold levels and posed an unacceptable risk to trespassers, future residents and workers. Remedial action was necessary to reduce potential contact, ingestion, and inhalation of contaminants to acceptable risk based levels. The OU2 Record of Decision (ROD) identified arsenic and lead as the primary COCs for soil since these contaminants were considered to be the main risk drivers for OU2. The following risk-based preliminary remediation goals (PRGs) for soil were identified in the OU2 ROD.

Table 2: OU2 Human Health Risk Based PRGs for Soil

	Human Health Risk Based PRGs (mg/kg)				
Contaminant	Residential Land Use	Non-Contact Intensive	Contact Intensive	Construction Worker	Recreational
Arsenic	61	560	50	80	68
Lead	438	2063	430	365	1066

The ecological risk assessment (ERA) found that COCs in sediment and surface water posed little risk to aquatic receptors. However, the ERA found that COC concentrations in riparian area soils could pose a potential threat to aquatic receptors if the soils were to enter the river.

Investigations completed at the site indicated that contaminated groundwater in the US&G aquifer discharges to the Jordan River and so alternate concentration limits (ACLs) and points of compliance monitoring wells were established for the US&G aquifer. The ACLs established for the compliance monitoring wells are as follows:

Table 3: Groundwater ACLs

Contaminant	Groundwater ACL (µg/L)			
	Arsenic	Cadmium	Selenium	Antimony
	7,000	1,560	900	380

Response Actions OU1

EPA listed the Midvale Slag Superfund Site in 1991.

Removal actions were completed for OU1 in 1990 and 2001. These removal actions addressed fencing; and disposal of drums containing mainly investigation derived wastes.

The OU1 ROD was finalized on April 28, 1995 and addressed soil. The following remedial action objective (RAO) was identified in the ROD:

- Reduce or eliminate exposure to contaminated soils for current or hypothetical residents and hypothetical future workers.

The components of the remedy selected in the OU1 ROD consisted of the following:

- Excavating the upper 18 inches of native soils at 14 residential yards in the Winchester Estates residential development. The 18-inch depth was considered to be a minimum with confirmatory sampling used to identify areas requiring additional excavation. Clean fill was imported to restore the original grade, and each yard restored as closely as possible to its original condition. The wastes, being non-hazardous, were disposed of in Resource Conservation and Recovery (RCRA) Subtitle D landfill or stored at the Midvale OU2 Site pending remedy selection for OU2.

- Placement of a 2-foot thick monolayer soil cover on Parcel WESE (undeveloped southeast portion of Winchester Estates zoned residential). See Figure B-2.

- Implementing deed restrictions or other institutional controls (ICs) on Parcel WESE precluding most future excavation that would breach the monolayer soil cover. Any native soils from permitted excavations must be properly controlled on-site or disposed of in a RCRA Subtitle D landfill.

- Implementing deed restrictions or other ICs on Parcels LR-east, LR-west, LF, and LG which prohibit future residential land use without additional property remediation to residential soil cleanup levels.

- Groundwater monitoring at the hydraulically downgradient site boundary (west and north) for a minimum of five years.

An Explanation of Significant Differences (ESD) was issued in May 1998 and changed two of the OU1 remedy components. The two changes were (1) excavation and relocation of contaminated soils to OU2, instead of placement of a soil cover, on the WESE parcel and (2) elimination of deed restrictions or other ICs for the protection of the permeable soil cover on the WESE parcel.

As a result of zoning changes and information from additional sampling, a second ESD was issued in February 2006 that clarified certain modifications of the OU1 remedy and consisted of the following:

- Land Use – Land use requirements for the undeveloped portion of OU1 can be changed to accommodate multiple land uses as allowed under the new zoning for this area with the incorporation of the *Technical Memorandum for preliminary Remediation Goals and Decision-Making Process at Midvale Slag OU1*, dated March 2005 into the decision-making process. In addition, the *Institutional Control Process Plan, Operable Unit No. 1, Midvale Slag Site* (ICPP), shall control the process of implementing institutional controls, when needed. The ICPP identified the unrestricted use protocol to achieve unrestricted residential use in a portion of OU1. If this protocol is met, the ICs do not apply.

- Riparian Zone – The Technical Memo and the ICPP addressed requirements for maintaining protectiveness with recreational uses and those requirements should also be used for the riparian zone. The ROD for OU2 sets out general requirements for the riparian zone. Through the second ESD, the riparian zone remedy came to include some bank stabilization and/or revegetation to minimize site contaminated material from sloughing into the Jordan River. In addition, the ESD identifies several ARARs in the OU2 ROD that would apply to OU1 and anticipated the formation of a riparian stakeholder group.

- Groundwater – The OU1 ROD required semi-annual monitoring of the groundwater in OU1 for a period of five years after the implementation of the remedy. Additional groundwater sampling, however, indicated that a comprehensive groundwater plan for the plume that underlies both OU1 and OU2 would be more effective. As such, the OU2 ROD selected a comprehensive groundwater monitoring plan and developed RAOs for groundwater that will apply to both OU1 and OU2. In addition, the ESD identified several ARARs selected in the OU2 ROD that will supersede those groundwater ARARs identified in the OU1 ROD.

Response Actions OU2

Removal actions were completed at OU2 in 1990, 1995, and 1996. These removal actions addressed fencing; well abandonment; disposal of lab chemicals and explosives; and the excavation of contaminated soils and backfilling with clean soils at Butterfield Lumber and the Pioneer Cemetery.

The OU2 ROD was finalized on October 29, 2002 and addressed contaminated groundwater, mixed smelter waste, slag, and soils. The OU2 RAOs included the following:

- Prevent unacceptable exposure risk to current and future human populations presented by contact, inhalation, or ingestion of contaminated groundwater, smelter materials, associated contaminated materials, and COCs derived from smelter materials and slag.

- Prevent unacceptable exposure risks to current and future ecological receptors presented by contact, ingestion, inhalation, and uptake of smelter materials and slag and associated contaminated materials or COCs derived from smelter materials and slag.

- Provide that the future migration of contaminants from smelter materials and slag or contaminated materials within slag is within limits considered protective of ground water.

- Prevent smelter materials and slag or contaminated materials within slag from entering the Jordan River via surface water flow.

- 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 ground water from the Site to the Jordan River is protective of the aquatic environment and designated use.

- Restore groundwater to beneficial use.

The major components of the remedy selected in the OU2 ROD include:

- Excavating and disposing off-Site any Category I material and soils in direct contact with this waste.

- Covering Category II and III materials with slag (Category IV material) or with a demarcation layer consisting of a colored geotextile followed by a vegetative cover. Under commercial/light industrial land use, leaving Category III material uncovered if it is demonstrated that COC concentrations are below the applicable cleanup goals.

- Covering Category IV material with a vegetative cover.

- Providing periodic inspection and long-term maintenance of covers.

- Developing ICs to prevent exposure to contaminated materials (including slag) by placing restrictions on future excavations and reviewing any proposals to change the type of land use at the Site. ICs will also restrict surface water management and irrigation practices to limit infiltration in the plume area.

- Establishing ICs including expansion of the Sharon Steel Restricted Area to include the US&G aquifer and require buildings constructed over the US&G aquifer PCE plume to install air vapor mitigation systems.

- Developing and implementing a surface water and groundwater monitoring program (applicable to both OU1 and OU2) to assess whether applicable surface water and groundwater quality criteria are being met.

- Stabilizing the banks of the Jordan River and/or possible revegetation to minimize Site contamination from sloughing off into the Jordan River.

An ESD was issued in October 2013 that clarified the final remedial goals and cleanup standards for the contaminated portion of the US&G aquifer and identified: (1) the RAO regarding beneficial use of this aquifer as a drinking water source and (2) ACLs established for contaminants of concern (COCs) in groundwater in lieu of standards that would have otherwise been suitable ARARs. These changes were 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 and OU2 remedies.

Status of Implementation OU1 Soils

The excavation of soils and importation of clean fill for 14 residential yards located in the WENW Parcel was conducted in 1996. The excavation of contaminated soil on the WESE Parcel and relocation to OU2 was conducted in 1998. The remedial action for OU1 WENW and WESE parcels is complete and the final Remedial Action Report was signed in March 1999.

Land use restrictions for OU1 soils have been established as an IC Ordinance that is enforced by Midvale City. The ICs in this Ordinance are based upon the Institutional Control Process Plans for OU1 of the Midvale Slag Site.

Status of Implementation OU2 Soils

Remedial action activities for OU2 soils were completed in August 2007. During the remedial action Category I wastes were not encountered, therefore excavation and offsite disposal was not necessary. Category II and III wastes were covered with a demarcation layer of either slag or geotextile material and the slag and geotextile material were covered with soil and vegetation. Land use restrictions for OU2 soils have been established under the IC Ordinance that is enforced by Midvale City.

Status of Implementation OU1 and OU2 Groundwater

A groundwater monitoring system consisting of 30 monitoring wells was installed in December 2008. UDEQ/DERR performs routine groundwater and surface water monitoring and sampling to ensure (1) discharges to the Jordan River are protective of the aquatic environment; (2) groundwater COCs do not migrate into the deep principal aquifer and uncontaminated portions of the US&G aquifer; and (3) groundwater COC concentrations remain below established ACL values. Groundwater use at OU1 and OU2 is restricted by the Salt Lake Valley Ground Water Management Plan and Midvale City IC Ordinance.

Status of Implementation OU1 and OU2 Riparian Zones

Riparian zone bank stabilization and revegetation was completed in July 2011. This work included laying back the steep river banks, installing benches, and vegetating the benches and banks to prevent erosion and the potential sloughing of contamination into the Jordan River.

IC Summary Table

Table 4: Summary of Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soils	Yes	Yes	OU1/OU2	Requires procedures to prevent unacceptable human exposure to contaminants that remain on Site, ensures protection, maintenance, and improvement of covers that have been constructed at the Site.	Midvale Municipal Code Chapter 8.10 Institutional Controls Ordinance for Bingham Junction, Jordan Bluffs and designated Rights-of way June 26, 2007
Groundwater	Yes	Yes	OU1/OU2	Prohibits the installation of groundwater wells and requires vapor mitigation measures for residential building constructed above the groundwater PCE plume	Midvale Municipal Code Chapter 8.10 Institutional Controls Ordinance for Bingham Junction, Jordan Bluffs and designated Rights-of way June 26, 2007
Groundwater	Yes	Yes	OU1/OU2	Restricts the transfer of water rights into the Site	Utah Department of Natural Resources, Division of Water Rights, Salt Lake Valley Groundwater Management Plan June 25, 2002

SYSTEMS OPERATIONS/OPERATION & MAINTENANCE

Groundwater and Surface Water Monitoring

UDEQ/DERR performs routine semi-annual groundwater and surface water monitoring and sampling under a cooperative agreement with EPA. Reports summarizing the results of each semi-annual groundwater and surface water sampling event are prepared by UDEQ/DERR and submitted to EPA. In March 2018, EPA completed a groundwater optimization study. Recommendations in this study included the following:

- Properly abandon monitoring wells MW-501s and MW-501i;
- Eliminate the analyses of PCE and its degradation by-products;

- Change the frequency of monitoring and sampling from semi-annual to annual;
- Reduce the number of wells that are sampled on an annual basis; and
- Sample all wells every two years (biennially).

In May 2018, UDEQ/DERR began annual monitoring and sampling of select monitoring wells and two surface water locations.

Institutional Controls

ICs outlining procedures for ensuring protection, maintenance, and improvement of covers that have been constructed at the Site are enforced through a Midvale City Ordinance. Requirements and responsibilities for enforcing the ICs are as follows:

City of Midvale Responsibilities

1. Periodic inspection of covers and final barriers on the Site.
2. Prohibit new groundwater wells without prior consent of EPA, UDEQ, and the State Engineer.
3. Repair covers and final barriers, if the Private Owners Associations (POA) or landowner is unresponsive. The city will enforce repair and collection of costs.
4. Review of Site plan applications and issuance of final Site plan approval.
5. Review of road-cut permit applications and issuance of permits.
6. Review of intrusive activity plans and issuance of final approval.
7. Periodic inspections during initial Site development and post-development construction to ensure compliance with construction permits including air quality monitoring plans.
8. Oversight of landscaping activities of POA (or similar entity).
9. Verification that private covenants and deed restrictions for developments include the requirements of the ordinance relating to landscaping and excavation.
10. Review irrigation plans for non-residential development with Source Areas and issue approval for such plans.
11. Review request for Certificate of Occupancy to determine whether the final depth of surface cover meets or exceeds the approved depth.

U.S. EPA and UDEQ Responsibilities

1. Review of procedures and protocols for testing excavated materials and issuance of final approvals.
2. UDEQ has general oversight responsibilities for operations and maintenance (O&M) of the remedy.
3. EPA reviews and approves Five-Year Reviews.

Landowner/POA Responsibilities

1. Maintenance and repair of covers on their property.
2. Review, approve and oversee the implementation of irrigation plans in residential areas.
3. Establish conditions, covenants and restrictions which include the creation of POAs to oversee compliance with applicable excavation and grading restrictions.
4. Prepare and submit all plans and request for approvals as required by the Midvale Ordinance. Hire a Special Inspector to oversee residential development projects.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 5: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	**Protectiveness Statement**
1	Protective	Protectiveness has been achieved at OU1 through the excavation of contaminated soils, the implementation of institutional controls and stabilization of the banks of the Jordan River. Contaminated soils from OU1 were excavated and placed on OU2 and then backfilled with clean soil to prevent future exposure. The institutional controls implemented restrict use of land on OU1 to prevent exposure. The Banks of the Jordan River have also been stabilized through the construction of riparian zones, addition of riprap and vegetation to prevent contamination from sloughing off into the surface water.
2	Protective	Protectiveness has been achieved at OU2 through the excavation of contaminated soils, capping of wastes left in place, the implementation of institutional controls, continued groundwater monitoring, and stabilization of the banks of the Jordan River. Any wastes left in place have been adequately capped to prevent exposure. The institutional controls implemented restrict use of land on OU2 to prevent activities that could cause exposure. The banks of the Jordan River have also been stabilized through the construction of riparian zones, addition of riprap, a drop structure and vegetation to prevent contamination from sloughing off into the surface water. A groundwater and surface water monitoring network has been established and is sampled semi-annually.
Sitewide	Protective	Because the remedies at OU1 and OU2 are protective, the Midvale Slag Superfund Site remedial action is protective of human health and the environment.

There were no were no issues identified and recommendations made in the last FYR.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by a newspaper posting (Appendix C) in the Deseret News and Salt Lake Tribune on 6/8/2018, stating that there was a FYR and inviting the public to submit any comments to UDEQ/DERR. There were no public comments. The results of the review and the report will be made available at the Site information repository located at UDEQ/DERR, 195 North 1950 West 1st Floor Salt Lake City, Utah and at http://eqedocs.utah.gov.

The UDEQ/DERR conducted community interviews with individuals knowledgeable about the Site. Individuals that were interviewed included an individual with Salt Lake County; two individuals with Intermountain Health Care (IHC) – Supply Chain Fulfillment Center; three individuals with Midvale City; and three individuals with Wasatch Residential. None of the interviewees expressed any health or environmental concerns. Reports summarizing the interviews are included in Appendix D.

DATA REVIEW

Groundwater Monitoring

The groundwater monitoring system at the Midvale Slag Site consists of collocated wells at 15 locations, for a total of 30 wells and two surface water sampling locations (Figure B-3). Each well pair consists of one shallow monitoring well screened in the upper interval of the US&G aquifer and one intermediate monitoring well screened at a lower interval within the US&G aquifer. The monitoring system is divided into five groups and consists of upgradient, downgradient, plume core, and ACL monitoring wells.

COC concentrations in samples collected within the last five years from each monitoring well are provided in Appendix E. Based on information collected within the last five years, the following general conclusions can be made for groundwater:

- Horizontal groundwater flow direction is towards the northwest and Jordan River.
- COCs in groundwater were below their established ACL value.
- Stable or decreasing COC trends in most wells throughout the site demonstrate that the plume core is stable.
- Stable or low concentration trends in intermediate monitoring wells demonstrate that COC concentrations are not migrating to uncontaminated portions of the US&G aquifer or the deep principal aquifer.

Surface Water Monitoring

Surface water samples are collected from the Jordan River at two monitoring locations at the Midvale Slag Site (Figure B-3). COC concentrations in samples collected within the last five years from each sample location are provided in Appendix E. A review of the contaminant trends in surface water over the last five years shows concentrations are stable and well below levels that would have an adverse impact to aquatic life.

Institutional Controls

Individuals with Midvale City that were interviewed included the City Engineer, the current Superfund Site Coordinator, and the former Superfund Site Coordinator. The City Engineer indicated that the Site is almost fully developed and that the last major redevelopment project was completed in 2016.

Midvale City employs a Superfund Site Coordinator that enforce ICs at the Midvale Slag Site. During the community interview with Midvale City, it was noted that the Superfund Site Coordinator and other Midvale City employees were on Site daily during construction activities to ensure that ICs were being met. The City Engineer also said current property owners notify his division with minor landscaping modifications, which demonstrates that the ICs are functioning and property owners are aware of their responsibilities.

During the community interviews, individuals with IHC and Wasatch Residential indicated they were both aware of the ICs and have worked with Midvale City to ensure that they were in compliance with the ICs when performing minor landscaping modifications or planning potential future construction activities. These individuals also said that baseline irrigation systems with soil moisture sensors are in place on their properties that would prevent a water breakage from going unnoticed and damaging the cover.

Site Inspection

The inspection of the Site was conducted on 4/5/2018. In attendance were UDEQ/DERR Project Manager Tony Howes; EPA RPM Dania Zinner; Midvale City Site Coordinator Jordan Vaughn, EPA Hydrogeologist Ian Bowen

and PWT Project Manager/Environmental Scientist Aaron Baird. The purpose of the inspection was to assess the protectiveness of the remedy.

The group toured the site, observed covers constructed wastes at OU2, inspected monitoring wells, and noted general site conditions. Results of the site inspection are available in the completed site inspection check list (Appendix F).

V. TECHNICAL ASSESSMENT

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

Question A Summary:

The remedies at both OU1 and OU2 are functioning as intended by the decision documents.

The excavation and removal of contaminated soils from OU1 eliminated exposure to contaminated soils for current or hypothetical residents and hypothetical future workers. Removal of OU2 Category I wastes was not necessary, since these wastes were not encountered during the response action. The cover constructed over OU2 wastes are in place and continues to prevent exposure.

Data from routine groundwater and surface water monitoring and sampling shows that COCs are below their respective ACL value. An analysis of the trends in all groundwater wells also shows contaminated groundwater plume is stable. Relatively stable contaminant trends in all wells also supports that the plume is not migrating to uncontaminated portions of the US&G aquifer or the deep principal aquifer. Last, an analysis of surface water sampling results indicates that the contaminant concentrations remain at levels that do not have an adverse impact on the aquatic environment.

River bank stabilization and revegetation of the OU1 and OU2 riparian zones remains intact and prevents the erosion and potential sloughing of contamination into the Jordan River.

Midvale City enacted and enforces an IC ordinance for both OUs. The IC ordinance identifies procedures for the management and disposal of soils and requires permits and a special inspector to certify that construction activities comply with ICs. The IC ordinance also provides for the maintenance and repair of the cover to ensure future protectiveness and prohibits the installation of groundwater wells. In addition to the IC ordinance, groundwater use at the Site is restricted under the Salt Lake Valley Groundwater Management Plan, which restricts the transfer of water rights into the Site.

Vapor intrusion concerns identified in the OU2 ROD for the Midvale Slag Site have been addressed through Midvale City's IC Ordinance which requires vapor mitigation measures for residential building constructed above the groundwater PCE plume.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

Question B Summary:

Exposure assumptions and toxicity data have changed since the risk assessments were conducted at the site. However, currently, these changes do not impact the cleanup levels for the remedy. The RAOs are still valid and any land use changes are addressed as part of the comprehensive IC program for the site.

The clean-up numbers for OU1 and OU2 were derived from the exposure assumptions and toxicity data in the OU1 (1992) and OU2 (1994) BRAs for the Midvale Slag Superfund Site and the OU1/OU2 Ecological Risk Assessment (1994). There have been changes to the exposure assumptions and toxicity information since those

documents were issued. Because these documents were developed prior to EPA's RAGS Part F (2009) guidance, the exposure assumptions for the inhalation exposure pathway were conducted differently. The exposure metric that was used in the RODs and the BRA used inhalation concentrations that were based on ingestion rate and body weight (mg/kg-day). The updated methodology uses the concentration of chemical in the air, with the exposure metric of $\mu g/m^3$. Revising the inhalation calculations to be consistent with the most recent EPA guidance, however, would not change the current cleanup levels for OU1 and OU2.

Under the current EPA Office of Land and Emergency Management policy, the soil lead screening level was established so that a typical child or similarly exposed group of children would have an estimated probability of no more than 5 percent of exceeding a blood lead level (BLL) of 10 micrograms per deciliter (µg/dL). The 10 µg/dL BLL target concentration is based (in part) on the 1991 Center for Disease Control's (CDC) blood lead "level of concern." In 2012, CDC accepted the recommendations of its Advisory Committee on Childhood Lead Poisoning Prevention that the "level of concern" be replaced by a reference value based on the 97.5th percentile of the National Health and Nutrition Examination Survey-generated BLL distribution in children 1-5 years old (currently 5µg/dL).

EPA is in the process of updating its policy based on recent studies. The most recent scientific literature on lead toxicology and epidemiology provide evidence that adverse health effects are associated with BLL less than 10 µg/dL and there is no apparent threshold level for adverse effects. EPA Region 8 will continue to use the current EPA policy, OLEM Directive 9200.2-167 (December 2016), until the Agency finalizes and updates its policy.

The OU2 ROD indicated that if conditions develop that are inconsistent with the site conceptual model and/or the assumptions used to calculate groundwater ACLs, then the protectiveness of the remedy would need to be reevaluated. These conditions could consist of one or more of the following:

- COCs are detected in point of assessment wells established outside of the present plume boundaries.
- Hydrologic data indicates that the flow direction (vertical and/or horizontal) in or near the contaminated portion of the US&G aquifer has changed significantly.
- Hydrologic data indicate that the contaminant plume no longer discharges to the Jordan River.

The Groundwater and Surface Water Monitoring and Sampling Plan prepared for EPA in 2004 established paired monitoring wells MW-701s and MW-701i and paired monitoring wells MW-707s and MW-707i (Figure B-3) as locations for assessing lateral migration of the plume.

A review of data found in the semi-annual groundwater monitoring reports prepared over the last five years show there are no significant changes in groundwater flow direction (vertical or horizontal) and groundwater continues to flow to the Jordan River. COC concentrations detected at points of assessment are stable and well below ACLs. Based on this information, the assumptions used to calculate the ACL values remain valid.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No additional information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the FYR:
1 and 2
Issues and Recommendations Identified in the FYR:
None

OTHER FINDINGS

The following are recommendations that were identified during the FYR and the monitoring optimization that do not affect current and/or future protectiveness:

- Properly abandon monitoring wells MW-501s and MW-501i;
- Eliminate the analyses of PCE and its degradation by-products;
- Perform groundwater, at a subset of wells, and surface water monitoring and sampling annually instead of semi-annually;
- Collect groundwater samples from monitoring wells MW-505s, MW-505i, MW-507s, MW-507i, MW-601s, MW-601i, MW-602s, MW-602i, MW-701s, MW-701i, MW-706s, MW-706i, and surface water samples SW-201 and SW-202 annually (once a year); and
- Collect groundwater and surface water samples from all 30 monitoring wells and the two surface water locations biennially (every two years).

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement	
Operable Unit: 1	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at OU1 is protective of human health and the environment.	

Protectiveness Statement	
Operable Unit: 2	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at OU2 is protective of human health and the environment.	

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: Because the remedial actions at both OUs are protective, the Site is protective of human health and the environment.

VIII. NEXT REVIEW

The next FYR report for the Midvale Slag Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

CDM, 2004, Midvale Slag Superfund Site Midvale, Utah Groundwater and Surface Water Monitoring Plan September 2004 Technical Report, 300p.

CDM, 2005, Midvale Slag Superfund Site Operable Units 1 and 2 Midvale, Utah Supplemental Technical Memorandums for Midvale Slag OU1 and OU2, Technical Memorandum For Preliminary Remediation Goals and Decision-Making Process At Midvale Slag OU1 Midvale Slag Superfund Site Midvale, Utah, 46p.

Life Systems Inc., 1992, Baseline Risk Assessment-Human Health Evaluation, Midvale Slag Superfund Site, Operable Unit 1, Midvale, Utah.

Office of Superfund Remediation and Technology Innovation Environmental Protection Agency, 2009, Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment), 68p.

United States Environmental Protection Agency, 1994, Engineering Evaluation/Cost Analysis at the Midvale Slag Operable Unit No. 2 (0U2) Superfund Site Midvale, Utah Volume 2 Baseline Risk Assessment Report, 619p.

United States Environmental Protection Agency, 1995, EPA Superfund Record of Decision: Midvale Slag (O.U. 1), Midvale, UT 4/28/1995, 98p.

United States Environmental Protection Agency, 1998, Explanation of Significant Differences for the Midvale Slag Operable Unit One Superfund Site Winchester Estates Southeast Parcel, 4p.

United States Environmental Protection Agency, 2002, Midvale Slag Superfund Site Operable Unit 2 Midvale, Utah, Record of Decision, October 2002, 273p.

United States Environmental Protection Agency, 2003, First Five-Year Review Report for Midvale Slag Superfund Site Midvale, Salt Lake County, Utah CERCLIS ID: UTD081834277, 122p.

United States Environmental Protection Agency, 2004, Midvale Slag Superfund Site Midvale, Utah RD/RA Consent Decree, Institutional Control Process Plan Operable Unit No. 1 Midvale Slag Site Midvale, Utah, p.560.

United States Environmental Protection Agency, 2006, Explanation of Significant Differences Midvale Slag Superfund Site Midvale, Utah Operable Unit #1, 9p.

United States Environmental Protection Agency, 2008, Second Five-Year Review Report for Midvale Slag Superfund Site CERCLIS ID: UTD081834277 Midvale Salt Lake County, Utah, 74p.

United States Environmental Protection Agency, 2013, Explanation of Significant Differences Midvale Slag, Operable Units 1 & 2 Midvale, UT, 11p.

United States Environmental Protection Agency, 2014, Third Five-Year Review Report Midvale Slag Superfund Site Salt Lake County, Utah CERCLIS ID:UTD081834277, 122p.

United States Environmental Protection Agency, 2016, Updated Scientific Considerations for Lead in Soil Cleanups, December 22, OLEM Directive 9200.2-167.

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2014, Semi-annual Groundwater and Surface Water Monitoring Report Midvale Slag Superfund Site Midvale City, Utah, October 2014, 445p.

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2015, Semi-annual Groundwater and Surface Water Monitoring Report Midvale Slag Superfund Site Midvale City, Utah, April 2015, 879p.

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2015, Semi-annual Groundwater and Surface Water Monitoring Report Midvale Slag Superfund Site Midvale City, Utah, September 2015, 3131p.

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2016, Semi-annual Groundwater and Surface Water Monitoring Report Midvale Slag Superfund Site Midvale City, Utah, March 2016, 1991p.

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2016, Semi-annual Groundwater and Surface Water Monitoring Report Midvale Slag Superfund Site Midvale City, Utah, September 2016, 2629p.

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2017, Semi-annual Groundwater and Surface Water Monitoring Report Midvale Slag Superfund Site Midvale City, Utah, March 2017, 84p.

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2017, Semi-annual Groundwater and Surface Water Monitoring and Sampling Report Midvale Slag Superfund Site Midvale City, Utah, September 2017, 2102p.

Utah Department of Natural Resources Division of Water Rights, 2002, Salt Lake Valley Groundwater Management Plan, 9p.

APPENDIX B – SITE MAPS

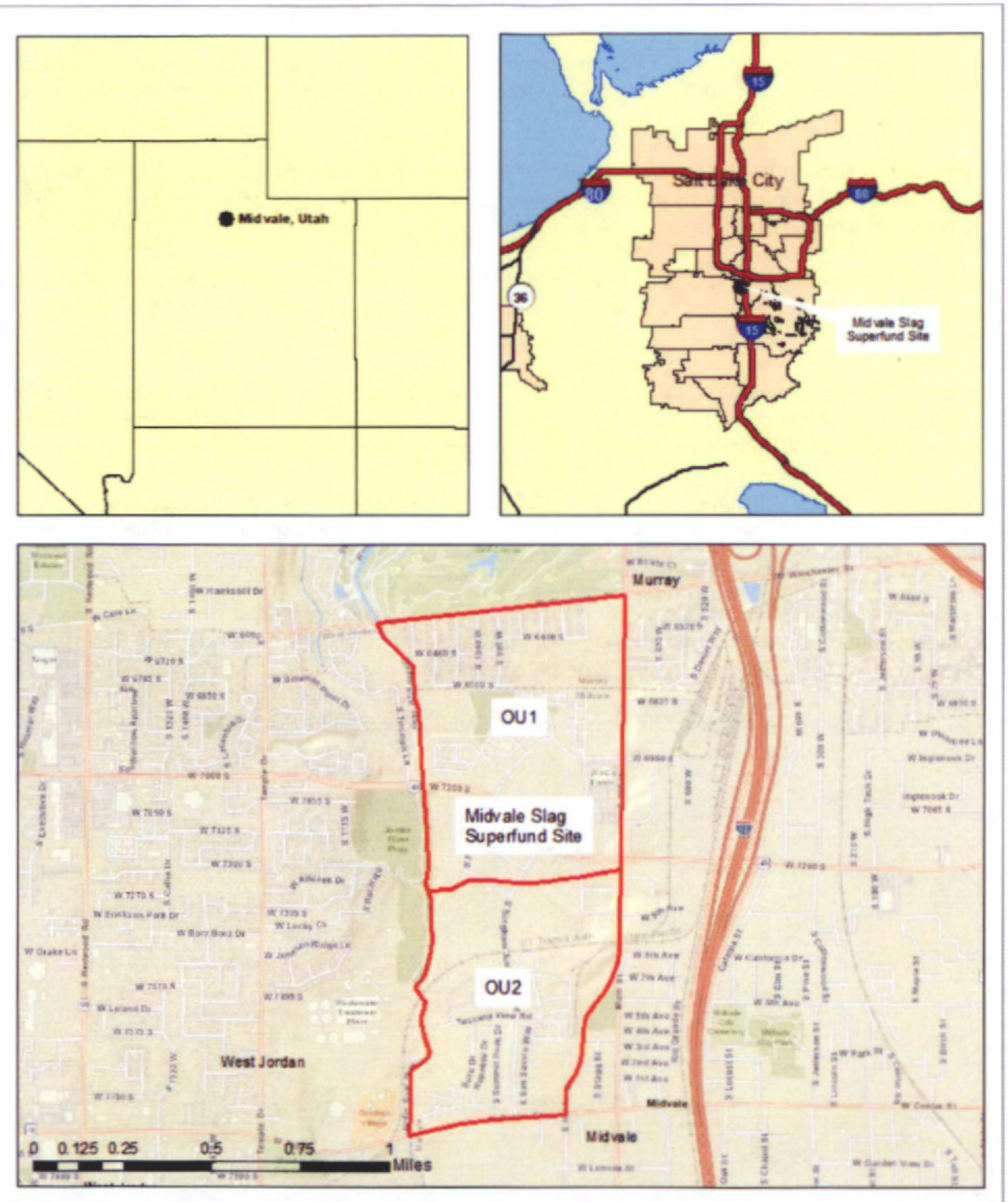

Figure B-1: Site Location Map
Midvale Slag Site
Midvale, Salt Lake County, Utah

Figure B-2: OU1 Parcel Boundaries
Midvale Slag Site
Midvale, Salt Lake County, Utah

Figure B-3:
Monitoring Well and Surface Water Sample Locations
Midvale Slag Site
Midvale, Salt Lake County, Utah

APPENDIX C – PUBLIC NOTICE

PUBLIC NOTICE
Five -Year Review of Midvale Slag Superfund Site
Salt Lake County

The Utah Department of Environmental Quality (UDEQ), in cooperation with the U.S. Environmental Protection Agency (EPA), is conducting the fourth Five-Year Review of the former Midvale Slag Superfund Site located between 7800 and 6400 South, 700 West, in Midvale, Utah. The Midvale Slag site was added to the EPA Superfund National Priorities List (NPL) in 1991.

EPA and UDEQ completed cleanup in 2011 and the site was deleted from the National Priorities List in 2015. The 446-acre Midvale Slag site encompassed the area where, from 1871 to 1971, five lead and copper smelters, a mill and waste disposal operations took place. Potential human health threats included exposure to toxic metals in contaminated groundwater, soil, and on-site wastes. Cleanup activities involved excavating highly contaminated soil and disposing it off-site and less contaminated soil was capped with clean soil. Bank stabilization was also conducted to prevent erosion of site contaminants into the Jordan River.

What is a Five-year Review? It is a protective measure required by law to ensure that EPA cleanup actions are protective of human health and the environment. The review includes physically inspecting the site and all cleanup remedies in place, while examining collected monitoring data and maintenance records. This process is repeated every five years and will determine whether the completed site work is meeting the goals of EPA's cleanup decision for the site. Upon completion of the review, a report will be compiled and made available to the public. The review is scheduled to be completed by September 2018.

The site file includes all reports and documents used for the Midvale Slag Superfund Site and is available for public review at the:

Utah Dept. Environmental Quality
Multi Agency State Office Building
195 North 1950 West (First Floor)
Salt Lake City, Utah 84116
Phone: 801-536-4157

U.S. EPA Region 8 Superfund Records Center
1595 Wynkoop Street
Denver, Colorado 80202
Phone: 303-312-7273

Documents are also available online at: http://eqedocs.utah.gov using the search phrase "Midvale Slag." Information about the Midvale Slag Superfund site is also online at the U.S. EPA, Region 8 website: http://www2.epa.gov/region8/midvale-slag

If you would like more information about the Midvale Slag Superfund Site Five-Year Review or participate in an interview, please contact:

Tony Howes
UDEQ Project Manager
Phone: 801-536-4283
E-Mail: thowes@utah.gov

Dave Allison
UDEQ Community Involvement
Phone: 801-536-4479
E-Mail: dallison@utah.gov

APPENDIX D – COMMUNITY INTERVIEW SUMMARY REPORTS

Midvale Slag Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Midvale Slag Superfund Site EPA ID: UTD081834277	June 13, 2018
Type of Contact: Visit	Contact Made By: Dave Allison, UDEQ-DERR Community Involvement
Persons Contacted	
Name: Chris Haight, Watershed Planner/Project Manager	Organization: Salt Lake County Watershed Planning and Restoration
Address: Watershed Planning and Restoration 2001 South State Street N3-120 PO Box 144575 Salt Lake City, UT 84114	Telephone Number: (385) 468-6646

1. **Is your organization/department aware of the Midvale Slag Superfund site and the actions underway to address environmental contamination?** Chris Haight is a Watershed Project Manager for Salt Lake County and does an annual inspection report on riparian restoration completed in 2011 for Operable Unit 2. Haight has worked on the site for three years and is knowledgeable of the site history and assisted with restoration work on the Jordan River.

2. **What's your overall impression (your general sentiment) of the actions performed at the Midvale Slag Superfund Site?** Haight said the site has accomplished the goals of maintaining the current river grade to reduce the potential for riverbank erosion near the cleanup site. The bank stabilization and re-vegetation the County conducted from 2008-2011, between 6400 South and 7800 South, remain in great condition. The riprap on both sides of the bank is in good shape and secure without signs of erosion or scouring.

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) for the Midvale Slag Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the past several years.** Haight is responsible for an annual inspection on the restoration of the riparian zone at Midvale Slag Superfund Site as required by EPA grant funding. With the work completed in 2011, Salt Lake County inspected the restoration work areas and provided the report to EPA and UDEQ. As the EPA project funding expires in 2018 a final report is in development by Haight for the end of the year.

4. **Are you aware of any community concerns regarding the Midvale Slag Superfund Site or its operation and administration? If so, please give details.** Haight said no one from the community, environmental or recreation groups have communicated any issues with the riparian zone work or structures.

5. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Midvale Slag Superfund Site?** As far as the remediation work, Haight knows the site was delisted and the County grant is ending so his office' involvement will be limited with the Midvale cleanup site. Haight's office hasn't had a need for information considering the site's status. The County has contacts with EPA and UDEQ and would be able to address and contact the appropriate people with any concerns if an incident occurred.

6. **Over the past five years, have there been any changes in your department's policies or regulations that impact the Midvale Slag Superfund Site and/or your role? If so, please describe the changes and the impacts.** Haight said the County's role hasn't changed regarding water quality planning, restoring and maintaining the integrity of waters in Salt Lake County. Haight doesn't anticipate any impacts to the riparian zone work and as the EPA grant funding ends; the final riparian zone status report would conclude the County's work in 2018.

7. **Over the past five years, have there been any changes in land use surrounding the Midvale Slag Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** No land use changes but the city of West Jordan installed a culvert facing the east bank where the County wanted to make sure would not cause erosion. Water levels are low over the last five years and if the water levels become high the drain may direct stronger flows to the riparian riprap. Haight said there are no anticipated issues with the Wet Jordan City culvert.

8. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** No additional comments with the established riparian work. However, a recommendation would be a better response to the invasive species taking over the river. Haight knows it's difficult to do however the re-vegetation is good where irrigation and weed mitigation has taken place. Haight said not every property owner has taken proactive steps keeping irrigation lines working or removing evasive species. Areas along the riparian zone without watering are over-un with the usual Tamarisk, Phragmite, and Russian olive trees.

Midvale Slag Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Midvale Slag Superfund Site EPA ID: UTD081834277	June 27, 2018
Type of Contact: Visit	Contact Made By: Dave Allison and Tony Howes, UDEQ-DERR
Person Contacted	
Name: Dan Olson, Facilities Manager and Chris Shurtleff, Safety and Process Improvement Manager	Organization: Intermountain Health Care- Supply Chain Organization
Address: Kem C. Gardner Supply Chain Center 7302 S. Bingham Junction Blvd. Midvale, UT 84047	Telephone Number: 801.442.4086

1. **Is your organization/department aware of the Midvale Slag Superfund site and the actions underway to address environmental contamination?** Dan Olson, IHC Facilities Manager, and Chris Shurtleff, Safety and Process Improvement Manager, know the building was built at the former Midvale Slag Superfund site. Olson was involved in pre-construction of the building from 2010 until completion in 2012 and knows the extent (with before and after photos) the site transformed from cleanup to site operations. Olson and Shurtleff understand established institutional controls (ICs) regarding the facility and are responsible for any facility construction, including landscaping, where ICs would be implemented.

   The IHC building is a 327,000 square foot, state-of-the-art fulfillment center operating 24-hours a day, and 365 days a year with four areas of operations: Category Management, Purchasing, Logistics and Materials Management, Support Services and Business Programs and Services. The site location has access to Interstate 15 and Interstate 215 highways and close proximity to IHC hospital facilities at Bingham Junction. Olson said the Supply Center is a model for prepared storage and relief centers for their communities.

2. **What's your overall impression (your general sentiment) of the actions performed at the Midvale Slag Superfund Site?** Olson and Shurtleff said the cap remedy is excellent and without any drawbacks, and works well. Now delisted, the cleanup history is not an issue for their facility. Olson and Shurtleff have also had to address a parking lot expansion and tree replacement with landscaping and have had to work with the remedy cap controls.

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) for the Midvale Slag Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the past several years**. Olson said IHC doesn't have any formal reporting and would make sure a check-in phone call to notify Midvale city with any plans for landscaping or repairs.

4. **Are you aware of any community concerns regarding the Midvale Slag Superfund Site or its operation and administration? If so, please give details.** Olson and Shurtleff are not aware of any employee or community concerns regarding health or environmental protectiveness.

5. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Midvale Slag Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** Olson and Shurtleff have not had any incidents and have had to dig on their property. A parking lot

expansion and replacement of a few trees over the last five years required soils management efforts to address these activities. Olson and Shurtleff said they take these activities a seriously, report any construction needs to the Midvale City Engineers office for guidance, and make sure all soil management measures are strictly followed by contractors. Measures such as making sure slag is placed back into the ground any displaced soil is on tarps, and air monitoring was conducted during the parking lot work. Olson also said they've had extra dirt bought in for additional cover just to be sure in some areas.

6. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Midvale Slag Superfund Site?** Olson said they are aware of groundwater monitoring is conducted and any site inspections by UDEQ are communicated with staff. Olson is not sure what else is necessary and have established contacts at Midvale City and UDEQ.

7. **Over the past five years, have there been any changes in land use surrounding the Midvale Slag Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** Other than the parking lot expansion there haven't been any changes to the land use said Olson. Olson said the facility property has expansion capability and expects additional structures built within the next five-to-ten years to accommodate growth. Olson would take the same approach to carefully manage any activities which may require digging into the cap. Baseline controllers and soil moisture sensors. This case study demonstrates how much water and money they are saving.

8. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** Olson said IHC has understands the importance for maintaining their property according to the institutional controls and take every possible precaution not to disturb the cap. This effort has worked well with past construction activities and Olson doesn't anticipate any issues in the future for a possible building expansion.

Midvale Slag Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Midvale Slag Superfund Site EPA ID:	July 11, 2018
Type of Contact: Visit	Contact Made By: Dave Allison and Tony Howes, UDEQ-DERR
Persons Contacted	
Name: Keith Ludwig, P.E. City Engineer Billie Smathers, Site Coordinator John Jacobson, Sampling Tech (former Site Coord.)	Organization: Midvale City Engineering Division
Address: Midvale City Hall 7505 S Holden St Midvale, UT 84047	Phone Number: (801) 567-7217

1. **Is your organization/department aware of the Midvale Slag Superfund site and the actions underway to address environmental contamination?** Keith Ludwig, P.E. City Engineer, has worked for Midvale City Engineering Division since 1999 and throughout the Midvale Slag site cleanup and redevelopment of Bingham Junction (Operable Units 1&2). Billie Smathers is the current Midvale City Site Coordinator and recently hired in June of 2018, primarily to oversee the development construction work at the Sharon Steel Superfund site south of Bingham Junction.

   The Site Coordinator position was established with funding from EPA Region 8 to oversee Institutional Controls for the city during development of the Midvale Slag site by reviewing site plans, conducting site development inspections, and ensuring the long-term maintenance of covers. John Jacobson, Sampling Tech, was the previous Site Coordinator hired in 2012 and remains on staff with Midvale City Public Works Division.

   Ludwig said his Division is responsible for implementing the Institutional Control Process Plans, local zoning, building, road and excavation permits, engineering design guidelines, residential requirements, and controls on water management and groundwater use. This includes reviewing site plans, conducting site development inspections.

2. **What's your overall impression (your general sentiment) of the actions performed at the Midvale Slag Superfund Site?** Ludwig said the capping remedy has not presented any issues and actually has worked out nice since construction finished in 2007. The cap remedy allowed for redevelopment to occur quickly and the 18-inch clean soil cap delineates the cleanup work throughout the site with a unique slag demarcation layer. Ludwig said digging into cleanup areas where slag contamination exists is easily identified of which construction activities need to use protective controls to keep the slag in place or properly removed. Bingham Junction is well managed and development has been a non-issue with the cleanup of Midvale Slag.

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) for the Midvale Slag Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the past several years.** As the former Superfund site has redeveloped to near capacity, Ludwig said no regular formal reporting or inspections outside of a new construction are happening at this time at Bingham Junction. The last major project was completed in 2016 with the Overstock Headquarters building (242,000 sq. feet on 19 acres). Ludwig's staff and permit coordinator were on site daily working with property owners

and contractors during redevelopment ensuring institutional controls were met. The Engineering Office does have staff that drives through the area at times with department related duties.

4. **Are you aware of any community concerns regarding the Midvale Slag Superfund Site or its operation and administration? If so, please give details.** Ludwig could not recall any health or environmental community concerns over the last five years and not since the Bingham Junction construction ended. An occasional call from people working in office buildings near active construction sites would report seeing exposed slag. Nothing ever resulted other than providing information and was always related to the construction work going on. The Permit Coordinator would address any concerns, provide information, and coordinate with the contractors to resolve any questions.

5. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Midvale Slag Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** Ludwig said there haven't been any incidents or emergencies relative to the cleanup remedy. Vandalism to construction equipment and stealing copper wiring would happen once in a while in the years with a lot of redevelopment activity. Nothing related to the protectiveness of the site.

6. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Midvale Slag Superfund Site?** Through an EPA Region 8 cooperative agreement, a new Permit Coordinator, Billie Smathers, was hired to handle responsibilities associated with operations and maintenance of Land Use Controls for the City. Smathers said he's read the formal documents on Midvale's cleanup history and doesn't have questions at this time.

   Smathers is busy with the Jordan Bluffs Development to the south as the development of the Sharon Steel Superfund site to the south began in 2017. Other than groundwater inspection reports there is not much for Ludwig's division to be informed about with the former Midvale Slag site. Smathers is the City's regular point of contact for institutional controls with the EPA and UDEQ and was introduced to respective project managers.

7. **Over the past five years, have there been any changes in your department's policies or regulations that impact the Midvale Slag Superfund Site and/or your role? If so, please describe the changes and the impacts.** Ludwig has not had any policy or regulation changes to report. There have been recent City staff turnover, including a new Permit Coordinator, which have led to new people taking over management positions. Ludwig said this might be a good time to transition as the site is delisted and in a maintenance phase with very little development possible at Bingham Junction.

8. **Over the past five years, have there been any changes in land use surrounding the Midvale Slag Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** Ludwig said the commercial/ residential zoning designations are the same and isn't aware of any re-zoning changes. Any potential changes to current properties would be building or parking lot expansions to existing property owners. Ludwig said property owners have notified his division from time-to-time with minor landscaping changes; replacing trees, and parking lot expansions, good sign property owners are aware of the IC's and work accordingly.

9. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** Ludwig said the Engineering Division duties aren't much different at Bingham Junction than anywhere else in Midvale. Standard pre-construction meetings and the permitting process provides management of cleanup areas as with any new development which bodes well for the future protectiveness of the remedy.

Midvale Slag Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Midvale Slag Superfund Site EPA ID:	July 17, 2018
Type of Contact: Visit	Contact Made By:
Person Contacted	
Name: Janae Jarvis, Regional Vice President Jeff Nielson, President and CEO Keith Ruesch, President of Construction	Organization: Wasatch Residential Group, Developer and Management of: Florentine Villas Apartments 7497 South Siena Vista Lane Midvale, UT Lofts at 7800 7650 South Euro Drive Midvale, UT San Moritz Apartments 966 Powder Hill Road Midvale, UT Talavera at the Junction Apartments & Townhomes 1004 Tuscany View Rd. Midvale, UT
Address: Wasatch Residential Group 620 South State Street Salt Lake City, UT 84111	Telephone Number: (801) 961-1061

1. **Is your organization/department aware of the Midvale Slag Superfund site and the actions underway to address environmental contamination?** Wasatch Group leadership, Janae Jarvis, Regional Vice President, Jeff Nielson, President and CEO, and Keith Ruesch, President of Construction, have extensive knowledge and experience from cleanup, development, and management of their residential apartments at Bingham Junction (former Midvale Slag Superfund Site). The Wasatch Company manages several apartment buildings with approximately 1800 units over 100-acres. The apartment buildings were some of the first structures built at the site.

2. **What's your overall impression (your general sentiment) of the actions performed at the Midvale Slag Superfund Site?** The management team said they have not had any issues with the apartment's location and Superfund site history. Occupancy has always been strong and the cap-cover, landscaping, and parking areas remain in great shape. With knowledge of the strict cleanup requirements and measures taken to properly develop residential apartments according to the site conditions, the cap remedy remains protective and working as intended.

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) for the Midvale Slag Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the past several years.** The management team said an annual inspection of the grounds is conducted and provided to Midvale City. None of the reports have ever identified any problems with landscaping or structural issues requiring repair to the cap.

4. **Are you aware of any community concerns regarding the Midvale Slag Superfund Site or its operation and administration? If so, please give details.** The management team said they're not aware of any concerns expressed by the community regarding health or environment since the apartments were developed. Any occasional questions and any prospective tenants with Superfund questions have access to their contractor files available in binders detailing the cleanup at respective apartment offices. There is general environmental indemnification language in all of their lease agreements. The management team said they've never had anyone not rent because of the site history and no one could recall a time the site history was ever a point of concern.

5. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Midvale Slag Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** No complaints or work has ever been necessary to respond. All of the remediation requirements were taken care of during the development and as the apartments are now built, site conditions have no changed.

6. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Midvale Slag Superfund Site?** The management team hasn't had any reason, no concerns, to contact the state or EPA regulators about. The site was delisted in 2015 with a celebration ceremony which might be the last time any communication has happened regarding Bingham Junction development and former status as a Superfund site. The apartments were built and there isn't any progress to be informed about since the site delisting.

7. **Over the past five years, have there been any changes in land use surrounding the Midvale Slag Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** The management team said there aren't any plans for expansion or changes to parking areas or open space at any of their apartment buildings. A Baseline irrigation system with soil moisture sensors is also in place on all of their properties which would prevent a water breakage going unnoticed and damaging capped areas. The management team couldn't think of any out-of-the-ordinary situation where the day-to-day operations would disturb the remedy conditions.

8. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** The Wasatch Company Residential Managers said the Bingham Junction development at the former Midvale Slag has never been a problem.

APPENDIX E – COC CONCENTRATIONS IN GROUNDWATER

MW-501s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.65 J	0.13 J	10.7
October-14	2.0 U	1.6	0.4 J	15.5
April-15	0.62 J	0.7 J	0.23 J	7.2
October-15	0.36 J	0.66 J	0.12 J	9.0
March-16	0.86 J	1.80	0.57 J	7.6
September-16	2 U	0.72 J	0.11 J	11.9 J
March-17	2 U	1 U	1 U	11.6
September-17	2 U	0.71 J	1 U	12.9

MW-501i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.53 J	0.17 J	5.9
October-14	2.0 U	1.0 J	0.25 J	5.4
April-15	0.72 J	0.41 J	1.0 U	5.1
October-15	0.57 J	0.63 J	0.11 J	4.9 J
March-16	0.79 J	0.54 J	0.41 J	5.0
September-16	2 U	0.49 J	1 U	6.6 J
March-17	2 U	1 U	1 U	6.3
September-17	2 U	0.57 J	0.14 J	5.5

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-503s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	0.41 J	1.1	0.24 J	0.47 J
October-14	2.0 U	1.2	0.53J	5 U
April-15	2.0 U	2.0 U	1.0 U	0.78 J
October-15	NS	NS	NS	NS
March-16	0.64 J	0.73 J	0.14 J	5.0 U
September-16	NS	NS	NS	NS
March-17	2 U	1 U	1 U	1.8 J
September-17	2 U	0.75 J	0.04 J	5 U

MW-503i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.58 J	0.18 J	4.0 J
October-14	2.0 U	0.61 J	0.21 J	3.6 J
April-15	2.0 U	0.52 J	1.0 U	3.5J
October-15	0.46 J	0.55 J	0.06 J	3.3 J
March-16	1.1 J	0.74	1 U	3.3 J
September-16	2 U	0.94 J	1 U	4.9 J
March-17	2 U	1 U	1 U	4.2 J
September-17	2 U	12.7	0.03 J	0.64 J

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-504s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.71 J	0.15 J	5.5
October-14	2.0 U	0.94 J	0.19 J	5.6
April-15	2.0 U	0.89 J	0.18 J	5.8
October-15	0.40 J	0.70 J	0.16 J	5.4
March-16	0.89 J	0.81 J	0.22 J	6.0
September-16	2 U	0.91 J	0.37 J	5.8
March-17	2 U	1 U	0.14 J	7.6
September-17	2 U	0.8 J	0.19 J	6.1

MW-504i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.74 J	0.28 J	3.7 J
October-14	2.0 U	0.75 J	0.083 J	6.3
April-15	2.0 U	1.0 U	1.0 U	5.7
October-15	0.41 J	0.60 J	0.04 J	6.3
March-16	0.83 J	0.46 J	0.07 J	7.0
September-16	2 U	0.59 J	1 U	7.7
March-17	2 U	1 U	1 U	7.5
September-17	2 U	0.56 J	1 U	8.1

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-505s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	1.1 J	11.4	0.059 J	2.6 J
October-14	0.64 J	8.6	0.038 J	0.71 J
April-15	2.4	8.8	1.1	1.4 J
October-15	1.0 J	7.8	0.47 J	2.2 J
March-16	1.6 J	7.4	1.0 U	2.8 J
September-16	2 U	9.6	1.7	5 UJ
March-17	2.1	16.1	2.4	1.9 J
September-17	2 U	8.6	2	5 U

MW-505i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.62 J	0.27 J	1.9 J
October-14	2.0 U	0.62 J	0.11 J	1.8 J
April-15	0.57 J	0.32 J	1.0 U	1.4 J
October-15	0.45	0.5	0.07	1.9
March-16	0.98 J	0.55 J	1.0 U	2.5 J
September-16	2 U	0.55 J	1 U	2.9 J
March-17	2 U	1 U	1 U	3.3 J
September-17	2 U	0.53 J	1 U	5 U

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-506s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	2.2	0.080 J	5.0 U
October-14	2.0 U	7.2	1.0 U	5.0 U
April-15	2.0 U	9.2	0.37 J	5.0 U
October-15	0.33 J	32.1	1.0 U	1.6 J
March-16	1.5 J	2.1	0.07 J	5.0 U
September-16	2 U	3.1	1 U	5 UJ
March-17	2 U	8.7	1 U	0.67 J
September-17	2 U	37.0	1 U	5 U

MW-506i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.59 J	1.1	4.6 J
October-14	2.0 U	0.66 J	0.029 J	4.5 J
April-15	0.56 J	0.51 J	1.0 U	3.7 J
October-15	0.38 J	0.64 J	0.10 J	5.9
March-16	1.1 J	0.52 J	1.0 U	4.9 J
September-16	2 U	0.62 J	1 U	6.3
March-17	2 U	1 U	1 U	5.7
September-17	2 U	0.86 J	0.31 J	6.7

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-507s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	0.78 J	25.1	0.85 J	0.86 J
October-14	2.0 U	37.9	0.17 J	5.0 U
April-15	0.55 J	21.8	0.17 J	5.0 U
October-15	0.32 J	31.9	0.04 J	5.0 U
March-16	1.3 J	13.5	0.17 J	5.0 U
September-16	2 U	8.9	1 U	5 UJ
March-17	2 U	18.9	1 U	5 U
September-17	2 U	18.7	0.09 J	5 U

MW-507i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.97 J	0.26 J	1.5 J
October-14	2.0 U	1.1	0.31 J	0.63 J
April-15	0.61 J	2.6	0.48 J	2.6 J
October-15	0.42 J	1.1	0.24 J	0.89 J
March-16	1.4 J	0.72 J	0.53 J	3.9 J
September-16	2 U	1.8	0.22 J	1.6 J
March-17	2 U	1 U	0.22 J	5 U
September-17	2 U	1.1	0.13 J	5 U

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-601s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	6.7	1900	488	23
October-14	6.1	2170	454	20.6
April-15	8.3	2140	572	14.6
October-15	6.5	3300	485	19.4
March-16	8.1	2910	541	19.7
September-16	6.3	4600	444	31.6
March-17	7.4	4260	474	35.8
September-17	7.1	3850	440	23.5

MW-601i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	1.1 J	291	0.073 J	13
October-14	1.0 J	291	0.15 J	12.8
April-15	1.9 J	612	1.0 U	9.6
October-15	1.2 J	286	0.11 J	12.6
March-16	3.2	1040	0.07 J	14.6
September-16	2 U	261.0	0.5 J	18.8
March-17	2 U	914.0	1 U	21.0
September-17	2 U	1080	1 U	24.7

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-602s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	19.6	684	0.22 J	21.4
October-14	17.5	622	0.24 J	7.9
April-15	21.2	646	0.08	32.5
October-15	17.8	550	0.12 J	31.3
March-16	19.4	582	0.15 J	56.5
September-16	16.7	510	0.19 J	29.7 J
March-17	17.4	522	1 U	23.6
September-17	19.4	525.0	0.06 J	19.8

MW-602i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	0.85 J	7.3	0.30 J	7.7
October-14	0.67 J	10.2	0.15 J	6.4
April-15	1.1 J	11.5	1.0 U	7.5
October-15	0.98 J	10.3	0.08 J	6.5
March-16	2.0	12.0	0.17 J	11.1
September-16	2 U	10.1	1 U	10.4 J
March-17	2 U	11.4	1 U	10.5
September-17	2 U	10.1	0.03 J	9.9

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-701s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	0.72 J	12.5	0.35 J	32.4
October-14	0.85 J	13.9	0.40 J	67.8
April-15	1.2 J	12	0.34 J	16.5
October-15	1.1 J	13.6	0.44 J	29.4
March-16	2.2	12.1	0.35 J	12.3
September-16	2 U	12.8	0.32 J	27.7 J
March-17	2 U	11.9	0.33 J	23.2
September-17	2 U	11.9	0.42 J	36.8

MW-701i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.79 J	0.035 J	7
October-14	2.0 U	0.80 J	1.0 U	5.3
April-15	2.0 U	0.54 J	1.0 U	7.3
October-15	0.36 J	0.66 J	1.0 U	7.1
March-16	0.88 J	0.66 J	1.0 U	6.6
September-16	2 U	0.66 J	1 U	7.6 J
March-17	2 U	1 U	1 U	7.2
September-17	2 U	1 U	1 U	5

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-702s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	7.3	0.040 J	3.2 J
October-14	0.36 J	27.90	0.044 J	3.4 J
April-15	2.0 U	55.2	1.0 U	2.1 J
October-15	0.37 J	2.8	0.10 J	24.0
March-16	1.5 J	43.4	1.0 U	3.6 J
September-16	2 U	3.6	1 U	21.3 J
March-17	2 U	11.7	1 U	5 U
September-17	2 U	2.2	0.07 J	26.1

MW-702i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	0.56 J	1.0 U	12
October-14	2 U	0.84 J	0.032 J	12.2
April-15	2.0 U	0.69 J	1.0 U	11.5
October-15	0.29 J	0.61 J	0.03 J	15.3
March-16	1.5 J	0.59 J	1.0 U	13.1
September-16	2 U	0.65 J	1 U	16.4 J
March-17	2 U	1 U	1 U	14.5
September-17	2 U	1 U	1 U	14.8

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-703s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	1.6 J	684	0.088 J	26
October-14	1.5 J	630	0.08 J	28.1
April-15	2.2	725	1 U	22.2
October-15	1.8 J	695	0.08 J	22.4
March-16	2.2	767	0.1 J	21.1
September-16	2 U	649.0	1 U	26.5 J
March-17	2 U	784.0	1 U	29.9
September-17	2 U	734.0	1 U	24.3

MW-703i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	1.1	0.036 J	3.4 J
October-14	2.0 U	1.0	0.033 J	4.9 J
April-15	2.0 U	1.4	1.0 U	4.0 J
October-15	1.1 J	4.6	0.53 J	2.8 J
March-16	1.5 J	5.7	0.3 J	4.3 J
September-16	2 U	0.98 J	1 U	6.7 J
March-17	2 U	1.4	1 U	5 U
September-17	2 U	2.8	0.17 J	6.2

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-704s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	0.75 J	714	0.10 J	13.5
October-14	1.0 J	753	0.11 J	7.7
April-15	1.2 J	692	0.067 J	11.3
October-15	1.2 J	653	0.12 J	8.9
March-16	1.5 J	652	0.14 J	21.6
September-16	2 U	553.0	1 U	11.3 J
March-17	2 U	644.0	1 U	14.1
September-17	2 U	680.0	1 U	5.1

MW-704i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	1.8	0.048 J	2.2 J
October-14	2.0 U	0.81 J	1.0 U	1.8 J
April-15	2.0 U	0.57 J	1.0 U	1.4 J
October-15	0.26 J	0.73 J	1.0 U	1.8 J
March-16	0.58 J	0.65 J	1.0 U	2.6 J
September-16	2 U	0.71 J	1 U	2.5 J
March-17	2 U	1.5	1 U	5 U
September-17	2 U	1 U	1 U	1.5 J

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-705s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	1.5 J	385	1 U	0.41 J
October-14	1.8 J	405	0.035 J	5 U
April-15	2.3	404	1 U	0.42 J
October-15	2.7	360	0.07 J	5.0 U
March-16	2.5	387	1.0 U	5.0 U
September-16	2.1	404	1 U	5 UJ
March-17	2 U	412	1 U	0.53 J
September-17	2.1	417.0	1 U	5 U

MW-705i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	104	0.044 J	1.8 J
October-14	0.43 J	108.0	0.034 J	2.2 J
April-15	0.92 J	8.7	1.0 U	2.0 J
October-15	0.53 J	87.0	1.0 U	2.1 J
March-16	1.0 J	96.1	1.0 U	5.0 U
September-16	2 U	89.3	1 U	2.5 J
March-17	2 U	89.1	1 U	2.5 J
September-17	2 U	89.8	1 U	0.79 J

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-706s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	70.2	172	1.2	46.9
October-14	58.7	185.0	1.2	43.6
April-15	78	166	0.69 J	28.7
October-15	65.4	198	0.75 J	60.4
March-16	61.2	202	1.4	46.6
September-16	62.6	215	0.53 J	65.4 J
March-17	62.1	230	1.2	53.7
September-17	63.7	251	1 U	45.6

MW-706i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	4.7	0.26 J	3.6 J
October-14	2.0 U	4.5	0.16 J	2.3 J
April-15	2.0 U	4.0	1.0 U	3.4 J
October-15	0.29 J	4.6	0.07 J	3.3 J
March-16	0.77 J	4.8	1.0 U	3.4 J
September-16	2 U	4.1	1 U	3.4 J
March-17	2 U	5.7	1 U	3.7 J
September-17	2 U	4.8	1 U	2.1 J

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

MW-707s				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	43.6	0.12 J	2.6 J
October-14	2.0 U	44.8	0.24 J	1.2 J
April-15	0.52 J	43.8	0.18 J	3.5 J
October-15	0.45 J	42.8	0.22 J	2.2 J
March-16	1.1 J	40.5	0.15 J	3.3 J
September-16	2 U	18.7	0.17 J	16.9 J
March-17	2 U	39.5	0.17 J	5 U
September-17	2 U	131	1 U	3.3 J

MW-707i				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2.0 U	1.3	0.16 J	0.73 J
October-14	2.0 U	1.5	0.29 J	1.1 J
April-15	2.0 U	1.6	1.0 U	0.54 J
October-15	0.51 J	1.4	0.38 J	5.0 U
March-16	1.1 J	1.3	1.0 U	5.0 U
September-16	2 U	1.5	0.11 J	2.2 J
March-17	2 U	1.4	1 U	5 U
September-17	2 U	1.6	1 U	0.99 J

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

SW-201				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	0.39	8.9	0.2	3.1
October-14	0.48	9.2	0.038	2.4
April-15	1	8.8	0.016	2.5
October-15	0.75	11.5	0.016	1.1
March-16	1.2	10	0.04	3.3
September-16	0.14	9.7	0.04	2.4
March-17	0.14	11.1	0.016	3.6
September-17	0.14	12.8	0.016	0.88

SW-202				
	Analyte and Units			
Sample Date	Antimony µg/L	Arsenic µg/L	Cadmium µg/L	Selenium µg/L
April-14	2	8.5	0.041	2.4
October-14	0.47	8.6	0.048	1.6
April-15	0.97	99.8	0.073	1.6
October-15	0.74	10.7	0.04	0.5
March-16	1.1	9	0.05	3.1
September-16	0.14	9.9	0.1	2.4
March-17	0.14	10.5	0.016	3.1
September-17	0.14	11.3	0.016	0.36

µg/L Micro grams per Liter

U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

APPENDIX F – SITE INSPECTION CHECKLIST

I. SITE INFORMATION	
Site name: Midvale Slag	**Date of inspection: 04/05/2018**
Location and Region: Midvale, Utah 8	**EPA ID: UTD081834277**
Agency, office, or company leading the five-year review: UDEQ/DERR	**Weather/temperature: Cloudy/66°F**

Remedy Includes: (Check all that apply)

- ☑ Landfill cover/containment
- ☐ Access controls
- ☑ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other _____
- ☑ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map 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 Utah Department of Environmental Quality, Division of Environmental Response and Remediation

Contact	Title	Date	Phone no.
Tony Howes	Project Manager	4/5/18	801-536-4283
Name			

Problems; suggestions; ☐ Report attached _____

Agency Midvale City

Contact	Title	Date	Phone no.
Billie Smathers	Site Coordinator	4/5/18	807-567-7217
Name			

Problems; suggestions; ☐ Report attached See Appendix D for completed Interview Summary Report

Agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached _____

Agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ☑ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ☑ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ☑ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☑ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☑ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☑ N/A
   - ☐ Other permits _____ — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

7. **Groundwater Monitoring Records** — ☑ Readily available — ☐ Up to date — ☐ N/A

   Remarks UDEQ/DERR conducts routine groundwater monitoring and sampling at the Site under a cooperative agreement with EPA.

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☑ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ☑ N/A

   Remarks _____

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☑ 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 ☑ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A

Remarks_____

B. Other Access Restrictions

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

Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☑ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☑ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Midvale City enforces ICs at the Midvale Slag Site

Frequency _____

Responsible party/agency Midvale City

Contact Billie Smathers (Name) Site Coordinator (Title) 4/5/18 (Date) 801-567-7217 (Phone no.)

Reporting is up-to-date ☐ Yes ☐ No ☑ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☑ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☑ N/A

Violations have been reported ☐ Yes ☐ No ☑ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☑ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks _____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident

Remarks _____

2. **Land use changes on site** ☑ N/A

Remarks _____

3. **Land use changes off site** ☑ N/A

Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads ☑ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☑ Roads adequate ☐ N/A

Remarks The Site is a developed mixed residential and commercial area with asphalt roads.

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS ☑ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks The OU2 remedy consists of a barrier between site wastes and human contact, it is not a true landfill. There are no covers on OU1.

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks N/A - monitoring not required

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks N/A - monitoring not required

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks N/A - monitoring not required.

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks The Site is a developed mixed residential and commercial area that includes landscaping of grass, trees, and shrubs, which appear to be well maintained.

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks River bank stabilization and rock armor along the Jordan River appeared to be in good condition, visible signs of erosion were not observed.

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks None

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 ☑ 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 ☑ 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 ☑ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks _____

G. Detention/Sedimentation Ponds ☐ Applicable ☑ 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 ☑ 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 ☑ 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 ☑ 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_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☑ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☑ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition☐ Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

C. Treatment System ☐ Applicable ☑ 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

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

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.).
The purpose of the remedy is to prevent exposure to contaminated wastes/soils and groundwater. The cover constructed over OU2 Category II, III, and IV wastes is in place and prevents exposure to these wastes. Data from routine groundwater and surface water monitoring and sampling shows that COCs are below their respective ACL value. The data also shows contaminated groundwater is not migrating to uncontaminated portions of the US&G aquifer or the deep principal aquifer and the Jordan River remains protective of the aquatic environment. River bank stabilization and revegetation of the OU1 and OU2 riparian zones remains intact and prevents the erosion and potential sloughing of contamination into the Jordan River. Midvale City enforces an IC ordinance that provides for the maintenance and repair of the cover to ensure future protectiveness and prohibits the installation of groundwater wells. In addition to the IC ordinance, groundwater use at the Site is restricted under the Salt Lake Valley Groundwater Management Plan.

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.
UDEQ/DERR performs routing groundwater and surface water monitoring and sampling to ensure that (1) contaminated groundwater does not migrate to uncontaminated areas of the US&G aquifer or the deep principal aquifer; (2) COC concentrations remain below their established ACL value; and (3) groundwater discharges to the Jordan River remains protective of the aquatic environment. Institutional controls restrict groundwater use and ensure long-term protectiveness.

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.
None

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.
In March 2018 EPA completed a groundwater optimization study that recommended (1) abandoning two monitoring wells; (2) eliminate the analyses of PCE and its degradation by-products (3) changing the frequency of monitoring and sampling from semi-annual to annual; (4) reducing the number of wells that are sampled annually; and (5) sampling all wells every two years.