FOURTH FIVE-YEAR REVIEW REPORT FOR INTERMOUNTAIN WASTE OIL REFINERY SUPERFUND SITE DAVIS 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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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
BHHRA	Baseline Human Health Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DPE	Dual Phase Extraction
EPA	United States Environmental Protection Agency
FCOR	Final Close Out Report
FYR	Five-Year Review
ICs	Institutional Controls
IWOR	Intermountain Waste Oil Refinery
HQ	Hazard Quotient
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SI	Site Inspection
TCE	Trichloroethylene
UDEQ/DERR	Utah Department of Environmental Quality/Division of Environmental Response and Remediation
UST	Underground Storage Tank
UU/UE	Unlimited Use and Unrestricted Exposure
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to (1) evaluate the implementation and performance of a remedy and (2) 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, if any, found during the review and document recommendations to address them.

The Utah Department of Environmental Quality, Division of Environmental Response and Remediation (UDEQ/DERR) is preparing this FYR report 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 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the Intermountain Waste Oil Refinery (IWOR) Superfund Site. The triggering action for this statutory review is the previous FYR completed on August 15, 2018. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants have been shown to remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of two operable units (OU) that are addressed in this FYR. OU1 addressed soils, subsurface soils, and potential onsite contaminant sources including tanks, drums, and containers. OU2 addressed contaminants found in the groundwater, mainly trichloroethylene (TCE), that are above drinking water standards and the risk-based levels of concern.

This IWOR Superfund Site FYR began on January 18, 2023, and was led by Tony Howes, UDEQ/DERR Project Manager. Participants included Ken Wangerud, EPA Remedial Project Manager (RPM); Dave Allison, UDEQ/DERR Community Involvement Coordinator; and Scott Everett, UDEQ/DERR Toxicologist.

The EPA has determined in the Five-Year Review that the cleanup at the Intermountain Waste Oil Refinery Superfund Site is presently protective of human health and the environment. Source materials have been removed from the Site. An Institutional Control that requires buildings to have a vapor mitigation system is in place and buildings constructed at the Site have active vapor mitigation systems. Groundwater beneath the Site is not used for consumptive (drinking water and other purposes) purposes, and contaminant levels in groundwater have been below the drinking water standards.

Site Background

The IWOR Site is a former waste oil facility in Bountiful City, Davis County, Utah, at 995 South 500 West, and is approximately two acres in size (Figure 1). The Site is mostly flat with a slightly lower elevation to the west. Two buildings, a garage/warehouse and laboratory/office space, that were once part of the former waste oil facility were demolished, and the Site was redeveloped by a new property owner in 2007 and 2008.

Several different operations occurred at the IWOR Site including a brick manufacturing facility, an asphalt business, handling and refining of waste oil, a petroleum trucking business, and an oil-blending business. During the operation of the Intermountain Oil Company, numerous above-ground processing and storage tanks were located on the property.

The Site is currently owned and occupied by the Bountiful Irrigation Water District. An office building and a large garage are currently located at the Site, and vacant areas of the Site are used for parking or equipment storage. The surrounding area consists of residential and commercial properties. Thirteen groundwater monitoring wells (Figure 2) are located at the Site, and groundwater beneath the Site is considered a potential drinking water source by the State of Utah.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Intermountain Waste Oil Refinery		
EPA ID: UT0001277359		
Region: 8	**State:** UT	**City/County:** Bountiful/Davis

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

REVIEW STATUS
Lead agency: State
Author name: Tony Howes
Author affiliation: UDEQ/DERR
Review period: 1/18/2023 - 8/15/2023
Date of site inspection: 4/7/2023
Type of review: Statutory
Review number: 4
Triggering action date: 8/15/2018
Due date *(five years after triggering action date)*: 8/15/2023

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In May 1992, Enviro Search conducted a soil and groundwater study for the property owners. This study detected volatile organic compounds (VOCs) in the groundwater beneath the Site. The UDEQ, Division of Solid and Hazardous Waste (DSHW) sampled an onsite sump in January 1995 and detected toluene, tetrachloroethane (PCA), and TCE above maximum contaminant levels (MCLs).

UDEQ/DERR and the EPA conducted a Site Inspection (SI) in April 1996 and collected groundwater and soil samples from the Site. These samples contained 1,1-DCA and TCE above MCLs in groundwater, and contaminant concentrations in soil for ethylbenzene, trimethylbenzene, n-butylbenzene, toluene, and 1,2-DCA exceeded the Superfund Chemical Data Matrix (SCDM) Cancer Risk Screening Concentrations. UDEQ/DERR and the EPA also conducted an Expanded Site Investigation (ESI) in June 1998 and found cis-1,2- dichloroethene (DCE) and TCE concentrations in groundwater above MCLs. The EPA placed the IWOR Site on the NPL in May 2000.

The EPA conducted a Remedial Investigation (RI) at the Site from December 2001 through June 2004 for both OU1 and OU2. The OU1 RI consisted of a Site reconnaissance, a passive soil gas survey, and sampling potential source areas that contained laboratory chemicals, tanks, drums, and sump contents. The OU2 RI included the

installation of monitoring wells, hydrogeologic testing to determine local groundwater parameters, groundwater sampling, and surface and subsurface soil sampling.

The EPA completed a baseline human health risk assessment (BHHRA) for OU1 in 2002 that also included a screening level ecological risk assessment. The OU1 BHHRA evaluated risks to potential workers and hypothetical future residents and determined that VOCs in soils could potentially accumulate inside a building and create an unacceptable risk. This risk was primarily due to 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene, with smaller contributions from naphthalene, hexane, and cis-1,2-dichloroethene in the soil at some locations. There were no ecological concerns identified in the assessment.

The EPA completed a BHHRA for OU2 in 2004 that evaluated exposure pathways for contaminated groundwater at the Site for future or current onsite workers and future residents. The OU2 BHHRA looked at risks from the inhalation and ingestion of contaminated groundwater beneath the IWOR Site. The risk assessment identified TCE as the only contaminant of concern identified in groundwater. Risks from exposure to contaminated groundwater were determined to be above a level of concern for non-cancer and cancer risks.

Response Actions

The EPA completed a removal action in August 2001 to address conditions that presented imminent and substantial endangerment to human health and the environment. The removal action involved:

- Disposal of chemicals located in a laboratory building;
- Disposal of 55-gallon drums and 5-gallon containers holding various chemical or oily mixtures;
- Disposal of two trailer tanks and their contents;
- Removal and disposal of contents in an underground storage tank;
- Removal and disposal of the oily mixture in a sump that was stored above ground; and
- Removal of miscellaneous piping, scrap equipment, empty tanks, and related debris located in various parts of the Site.

Operable Unit 1

The OU1 Record of Decision (ROD) was finalized on November 26, 2002, and addressed surface soils, subsurface soils, and potential onsite contaminant sources including tanks, drums and containers. Remedial action objectives (RAOs) identified in the ROD include:

- Prevent exposure of workers and future residents from inhalation of contaminated vapors intruding from soil to indoor air. Non-cancer risks should be reduced to within or below a level of concern (HQ<1); and
- Remove potential sources of soil and/or groundwater contamination.

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

- Land-use control: Establish land-use controls that require buildings built in whole or in part on the property to have a vapor mitigation system and require that soils excavated during the building or other construction activities will be managed appropriately; and
- Removal of an underground storage tank (UST).

Operable Unit 2

The OU2 ROD was finalized on August 4, 2004, and addressed groundwater and proper disposal of containers located in the garage. The RAOs identified in the ROD consisted of the following:

- Restore the aquifer to beneficial use (drinking water standards) within a reasonable time frame;

- Prevent exposure to contaminated groundwater through ingestion of contaminated groundwater or inhalation of vapors during use; and
- Prevent the future contamination of groundwater that is currently uncontaminated.

The drinking water standard of 5 µg/L for TCE was established in the OU2 ROD as the cleanup level for restoring the aquifer to beneficial use.

The components of the OU2 selected remedy are:

- Dual phase extraction (DPE) and treatment. Where effective in removing contaminated vapors as well as contaminated groundwater, DPE will be used. DPE involves pumping groundwater and soil vapors from the same well. Where, or when, there are no significant contaminated soil vapors recovered through DPE, a groundwater pump and treatment will be used.

- Land-Use Control, or Institutional Control. The land-use control will prevent the installation of a drinking-water well on the property until drinking-water standards are met in the groundwater.

- Monitoring. A monitoring plan to evaluate the effectiveness of the remedy will be developed and implemented. The plan will likely include sampling at least four wells monthly for the first six months and quarterly thereafter.

- Treatment and Discharge. The groundwater that is extracted will be treated by a treatment system that uses granular activated carbon to remove the contaminants. The treated water will be discharged to a stormwater drain or other approved discharge point.

- Disposal of containers. There are about 25 one- and five-gallon containers currently stored in the garage. A number of the containers contain lead-based paint and most would be classified as a hazardous waste for disposal purposes. Proper disposal now will prevent any potential future risks from the mismanagement of these containers.

Status of Implementation

Response actions at the Site were completed on July 1, 2019, as documented in the Final Close-Out Report (FCOR). The Site was deleted from the NPL on September 20, 2019. In March 2020 the institutional control, in the form of an Environmental Covenant, that restricted the installation of drinking water wells was terminated. TCE concentrations in groundwater were shown to be below the cleanup goal and drinking water standard of 5 µg/L, which satisfied the OU2 ROD requirement that well installations be prevented until drinking water standards are met.

A land use control was established for OU1 in the form of an Environmental Covenant that requires buildings built in whole or in part on the property to have a vapor mitigation system as required by the OU1 ROD. Two buildings built at the Site in 2008 by Bountiful Irrigation Water District were constructed with active sub-slab vapor mitigation systems; these systems necessarily continue to operate.

IC Summary Table

Table 1: Summary of Planned and/or 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-Soils Intermountain Oil Company property	Requires buildings built in whole or in part on the property to have a vapor mitigation system.	Environmental Notice and Institutional Control 9/23/2003
Groundwater	No	Yes Per the ROD, ICs are only necessary until groundwater is restored	OU2-Groundwater Intermountain Oil Company, Kemar, and Marjorie P. Winegar Family Trust properties	Restricts the installation of groundwater wells for consumptive use until drinking water standards are met.	TCE concentrations in groundwater were shown to be below the drinking water standard and the Environmental Notice and Institutional Control was Terminated 3/5/2020

Systems Operations/Operation & Maintenance

Current OU1 operation and maintenance (O&M) activities at the site consist of maintaining the operability of two active sub-slab vapor mitigation systems.

Current OU2 O&M activities at the Site consist of groundwater monitoring and sampling. The 2018 FYR Report recommended that groundwater monitoring and sampling be completed with the next FYR. This recommendation was identified as a finding that did not affect current and/or future protectiveness. In addition to this recommendation, the 2019 FCOR indicated that groundwater samples will only be collected every five years according to the requirements for conducting a FYR and that there is no ongoing operation and maintenance required. Monitoring wells at the Site were dry and groundwater samples could not be collected as part of this FYR. Consequently, this FYR is recommending that DERR take note of groundwater re-charge conditions and obtain groundwater samples at the earliest collection opportunity.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last five-year review as well as the recommendations from the last five-year review and the current status of those recommendations.

Table 2: Protectiveness Determinations/Statements from the 2018 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The remedy for OU1 is protective of human health and the environment because potential sources of contamination were removed and disposed of off-Site. The environmental notice and institutional control that requires buildings to have a vapor mitigation system is in place and buildings constructed at the Site have active sub-slab vapor mitigation systems that continue to operate.
2	Protective	The remedy for OU2 is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled through an environmental notice and institutional control that restricts the installation of groundwater wells for consumptive use. Analytical results show TCE concentrations in groundwater at the Site are below the established cleanup goal and drinking water standard of 5 µg/L.
Sitewide	Protective	Because the remedial actions at all OUs are protective, the Site is protective of human health and the environment.

There were no issues and recommendations identified 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 Davis Journal, on 2/3/2023, stating that there was a Five-Year Review underway and inviting the public to submit any comments to the EPA and UDEQ/DERR. The results of this 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 results of the review and the report will also be made available on the EPA's Site profile page at http://www.epa.gov/superfund/intermountain-waste.

The UDEQ/DERR conducted a community interview with the General Manager of Bountiful Irrigation Water District on 4/17/2023. The interviewee did not express any health or environmental concerns. The General Manager for Bountiful Irrigation Water District indicated that the sub-slab vapor mitigation system continues to operate in their office and garage buildings. Reports summarizing the interview are included in Appendix D.

Data Review

Groundwater samples were last collected from the Site in February 2018 and the TCE concentrations in groundwater were below the cleanup goal and drinking water standard of 5 µg/L. Further review of the analytical data shows TCE levels have been below the cleanup goal and drinking water standard of 5 µg/L since May 2013. A summary of TCE concentrations in groundwater from May 2013 to February 2018 is provided in Appendix E. Groundwater samples were not collected in 2023 because monitoring wells were dry. Further groundwater monitoring and sampling attempts will be slated.

Site Inspection

The Site was inspected on 2/1/2023 and 4/7/2023 by the UDEQ/DERR Project Manager Tony Howes. The purpose of these inspections was to measure the depth to groundwater in monitoring wells at the Site and determine if the wells contained enough water for sample collection. Monitoring wells at the Site were found to be dry for each inspection, and groundwater samples could not be collected for this FYR.

The overall integrity of each monitoring well and general Site conditions were also observed during the 2/1/2023 and 4/7/2023 inspections. The Site appeared to be in good condition and all monitoring wells were found to be secured/locked and in good condition. Photographs of the Site taken during the 4/7/2023 inspection are provided in Appendix F, and the completed site inspection check list is included in Appendix G.

V. TECHNICAL ASSESSMENT

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

Question A Summary:

The remedy is functioning as intended by the decision documents. Potential sources of contamination were removed and disposed of off-Site. Buildings subsequently constructed at the Site have functioning, active sub-slab vapor mitigation systems as required by ICs. Groundwater beneath the Site is not used for consumptive (drinking water) purposes, and the business located at the Site, Bountiful Irrigation Water District, is connected to municipality culinary water. Since 2013, TCE concentrations in groundwater have been below the cleanup goal and drinking water standard of 5 µg/L

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:

The toxicity data, cleanup levels, and RAOs established at the time of remedy selection are still valid. There have been no changes in the ARARs, and no new standards affecting the protectiveness of the remedy have been identified.

There have been changes to the exposure assumptions and toxicity data since the OU1 and OU2 BHHRA documents were completed. These documents were developed prior to the EPA's Risk Assessment Guidance for Superfund (RAGS) Part F (2009) guidance, the exposure assumptions for the inhalation exposure pathway were conducted differently. The exposure metric that was used in the OU1 and OU2 BHHRA used inhalation concentrations based on ingestion rate and body weight (mg/kg-day). The updated 2009 methodology uses the concentration of chemical in the air, with the exposure metric of ug/m^3. Revising the inhalation calculations to be consistent with the 2009 EPA guidance would not change the RAOs established for OU1 and OU2. Vapor intrusion concerns at the IWOR Site have been addressed through ICs, and the Site owner has constructed an active sub-slab vapor mitigation system to address these concerns.

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 Five-Year Review:
None

OTHER FINDINGS

Certain activities that do not affect current or future protectiveness identified during the FYR need attention:

- Given that groundwater samples for OU2 could not be collected as part of this FYR and because TCE was previously detected above the cleanup goal in wells MW-2 and MW-4, it is recommended that groundwater samples continue to be collected from MW-2 and MW-4 within the next FYR period, if/as possible, to evaluate TCE levels.
- Update the O&M Implementation Plan to (1) develop an annual process to verify/document the implementation of the OU1 Environmental Covenant and (2) update the Plan to reflect a reduction in the number of monitoring wells sampled and changes in the frequency of when monitoring and sampling are performed for OU2.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement	
Operable Unit: 1	*Protectiveness Determination:* Protective
Protectiveness Statement: The operating remedy for OU1 is protective of human health and the environment because potential sources of contamination were removed to the extent reasonably possible and disposed off-Site. However, without confirmation that 100% COC removal had been achieved, further risk mitigation was deemed appropriate. The environmental notice and institutional control that requires buildings to have a vapor mitigation system is in place, and buildings constructed at the Site have active sub-slab vapor mitigation systems that continue to operate.	

Protectiveness Statement	
Operable Unit: 2	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy for OU2 is protective of human health and the environment. 2018 FYR results showed TCE concentrations in groundwater at the Site to be below the established cleanup goal and drinking water standard of 5 µg/L, and groundwater beneath the Site is not being used for consumptive (drinking water and other) purposes.	

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: Because the vapor-mitigation system of OU1 and the confirmatory monitoring of OU2 are underway, the Site is protective of human health and the environment.

VIII. NEXT REVIEW

The next FYR report for the Intermountain Waste Oil Refinery Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

CDM Smith, 2013, Operation and Maintenance Plan for the Remedial Action Treatment System at Intermountain Waste Oil Refinery, 65p. – *SEMS ID 1867209*

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. – *no SEMS ID*

Syracuse Research Corporation, 2002, Baseline Human Health Risk Assessment for the Intermountain Waste Oil Refinery Site Bountiful, Utah, 189p. – *SEMS ID 494694*

Syracuse Research Corporation, 2004, Baseline Human Health Risk Assessment for the Intermountain Waste Oil Refinery Site Bountiful, Utah, Operable Unit 2 (Groundwater), 128p. – *SEMS ID 2003798*

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2003, Intermountain Waste Oil Refinery Operable Unit 1 Superfund Site CERCLIS # UT0001277359 Environmental Notice and Institutional Control, 6p. – *SEMS ID 2003794*

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2020, Termination and Release of Operable Unit 2 Institutional Control, Intermountain Oil Company, 5p. – *no SEMS ID*

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2020, Termination and Release of Operable Unit 2 Institutional Control, Kemar Corporation, 4p. – *no SEMS ID*

Utah Department of Environmental Quality Division of Environmental Response and Remediation, 2020, Termination and Release of Operable Unit 2 Institutional Control, Marjorie P. Winegar Family Trust, 4p. – *no SEMS ID*

United States Environmental Protection Agency, 2001, Action Memorandum Request For A Time-Critical Removal Action at the Intermountain Waste Oil Refinery Site, Bountiful, Davis County, Utah, 51p. – *SEMS ID 487904*

United States Environmental Protection Agency, 2001, Remedial Investigation Report for Operable Unit 1 Intermountain Waste Oil Refinery Site Bountiful, Utah, 483p. – *SEMS ID 2002098*

United States Environmental Protection Agency, 2002, Record of Decision Intermountain Waste Oil Refinery (IWOR) Operable Unit 1 Superfund Site Bountiful, Utah, 77p. – *SEMS ID 2003751*

United States Environmental Protection Agency, 2004, Intermountain Waste Oil Refinery Operable Unit 2 Bountiful, Utah Remedial Investigation Report, 123p. – *SEMS ID 1026058 and 2003796-97*

United States Environmental Protection Agency, 2004, Record of Decision Intermountain Waste Oil Refinery (IWOR) Superfund Site Operable Unit 2 Bountiful, Utah, 58p. – *SEMS ID 2020725*

United States Environmental Protection Agency, 2011, Streamlined Remediation System Evaluation Intermountain Waste Oil Refinery Bountiful, Utah, 49p. – *SEMS ID 1904305*

United States Environmental Protection Agency, 2018, Third Five-Year Review Report for Intermountain Waste Oil Refinery Superfund Site Davis County, Utah, 42p. – *SEMS ID 100005484*

United States Environmental Protection Agency, 2019, Final Close-Out Report Intermountain Waste Oil Refinery Superfund Site Bountiful, Utah (UT0001277359), 7p. – *SEMS ID 1918808*

APPENDIX B – SITE MAPS

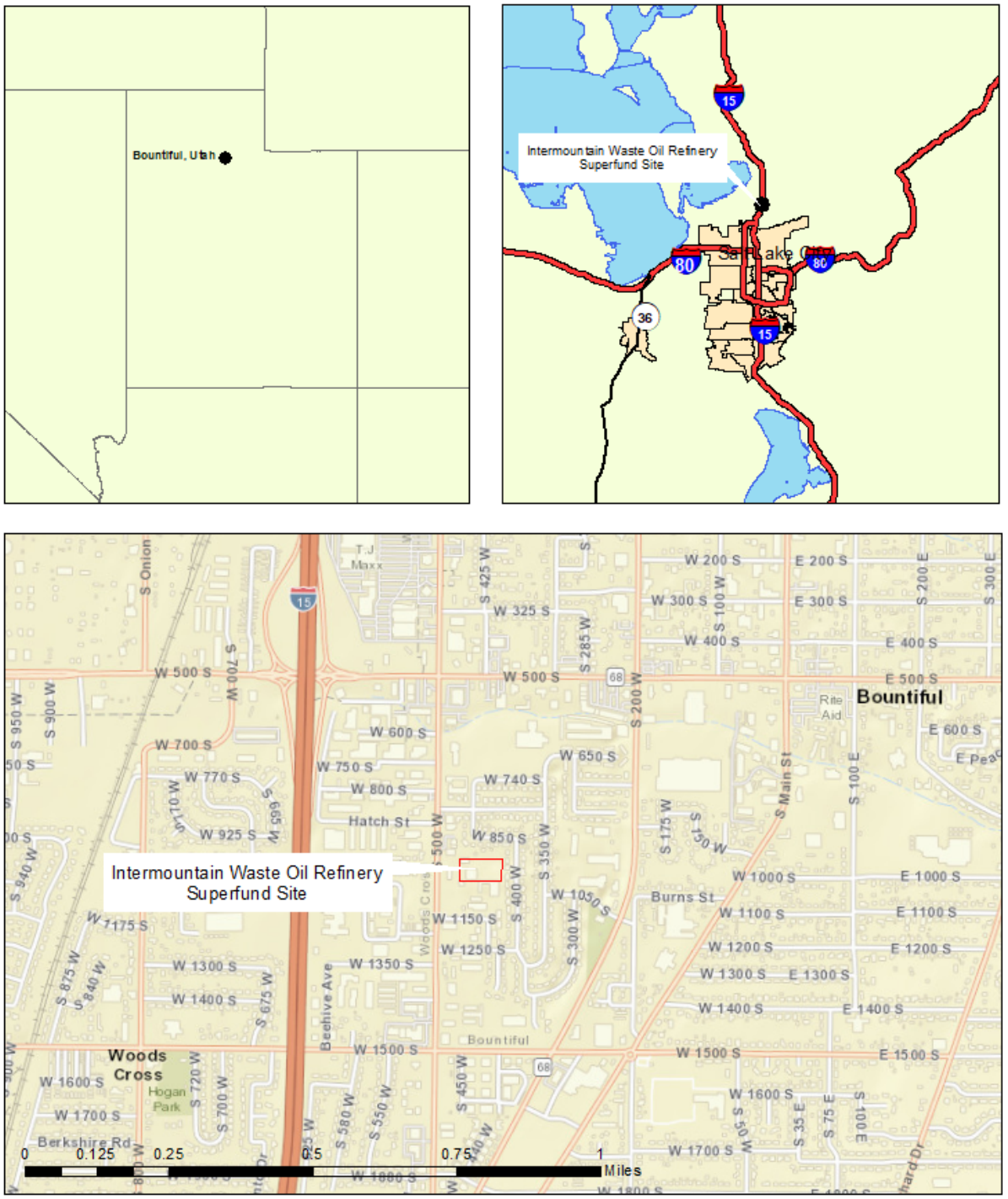

Figure 1: Site Location Map
Intermountain Waste Oil Refinery Site
Bountiful, Davis County, Utah

Explanation

Monitoring Well

Site Boundary

0 12.5 25 50 75 100 Feet

Scale: 1:550

N

Figure 2: Monitoring Well Locations
Intermountain Waste Oil Refinery

APPENDIX C – PUBLIC NOTICE

PUBLIC NOTICE

Five-Year Review Planned for the former Intermountain Waste Oil Refinery Superfund Site Davis County, Utah

The Utah Department of Environmental Quality, Division of Environmental Response and Re mediation (UDEQ/DERR) and the U.S. Environmental Protection Agency (EPA) are conducting the fourth Five-Year Review of the remedial actions performed for the Intermountain Waste Oil Refinery (IWOR) Superfund Site located at 995 South 500 West in Bountiful, Utah. The purpose of a Five-Year Review is to evaluate the implementation and performance of a remedy in order to determine if it is or will be protective of human health and the environment.

The Five-Year Review will include a review of Site documents, community interviews, and a Site inspection to evaluate all remedy components, as well as the status of land-use controls. Upon completion of the review, a report will be made available to the public and is scheduled to be completed by September 2023.

From 1957-1993, operations at the IWOR Site included brick manufacturing, an asphalt business, waste oil refining, petroleum trucking and oil blending. These operations contaminated soil and groundwater with hazardous chemicals and the site was placed on the National Priorities List (NPL) in 2000. Cleanup was completed in 2004 and included operations and maintenance activities as well as institutional controls. The property was redeveloped in 2008 and delisted from the NPL in 2019.

UDEQ and EPA invites community participation in the Five-Year Review process: As part of the Five-Year Review process, community members are encouraged to contact UDEQ staff with any information that may help EPA make its determination regarding the protectiveness and effectiveness of the remedies at the site.

Additional site information is available at: DERR Offices located on the 1st Floor, at 195 North 1950 West, Salt Lake City, Utah, 84114. Please call for an appointment to review records at (801) 536-4100, Monday through Friday, from 8:30 A.M. to 4:30 P.M. Documents are available online at: http://eqedocs.utah.gov/ using the search phrase “Intermountain Waste Oil.”

Or visit the EPA website at: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0801545

If you would like more information about the review, please contact:

Tony Howes, UDEQ Project Manager, Phone: (385) 391-8127 or Email: thowes@utah.gov
Dave Allison, UDEQ Community Involvement, Phone: (385) 391-8143 or Email: dallison@utah.gov Ken Wangerud, EPA Project Manager, Phone: (303) 312-6703 or Email: wangerud.ken@epa.gov

Publishing: 2/3/23 J-01-216

APPENDIX D – COMMUNITY INTERVIEW SUMMARY REPORT

Site Name: Intermountain Waste Oil Refinery **EPA ID:** UT0001277359	**Date:** April 17, 2023
Type of Contact: Telephone	**Contact Made By:** Dave Allison, UDEQ/DERR Community Involvement Coordinator
Person Contacted	
Name: Kirk Goff, General Manager	**Organization:** Bountiful Irrigation Water District (IWOR Property Owner)
Bountiful Irrigation Water District 995 South 500 West Bountiful, Utah 84010	**Telephone Number:** (801) 550-5573 **Email:** www.bountifulirrigation.com

1. **Are you aware of the Intermountain Waste Oil Refinery (IWOR) Superfund Site and the work that was completed to address historical environmental contamination?** Kirk Goff is the General Manager for the Bountiful Irrigation Water District. Goff said he worked for the District when they completed construction of an office and warehouse located at the former IWOR Superfund Site property in 2009. Goff said he knows the Superfund Site history and said their company has a vapor mitigation system on their office building. Goff said the vapor mitigation system is operational and runs continuously. Goff oversees eight full-time employees, one part-time employee, and a couple seasonal employees.

2. **Were you involved with any of the past activities associated with remedy actions at the Intermountain Waste Oil Refinery Superfund Site?** Goff said there haven't been any activities involving the remedy other than sampling groundwater wells on the property conducted by UDEQ. Goff said there is coordination with the UDEQ Project Manager as they lock gates at 4:00 pm.

3. **What's your overall impression (your general sentiment) of the work that was completed at the Intermountain Waste Oil Refinery Superfund Site?** Goff said the Site's cleanup history has never been an issue for the District's operations and meets all health and environment standards. Goff said he's aware the former IWOR Site was delisted from the National Priorities list in 2019 and knows that the EPA will not require any further remediation for the Site.

4. **What would you say are the effects that Site operations had on the community surrounding the Intermountain Waste Oil Refinery Superfund Site?** Goff said he has never heard from anyone concerned with the Superfund history and the District is using the property productively and without any reservations.

5. **Are you aware of any unusual activities at the Intermountain Waste Oil Refinery Superfund Site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give date(s), details, and outcome(s) if known.** Goff said there have not been any incidents requiring a response for the property. Goff said there are no construction plans which might result in disturbing soils. Goff said they would like to pave asphalt for the area to park equipment. The parking area currently has road base over the soil. Asphalt work is being looked at to fund as budgets allow.

6. **Do you feel well informed about the Site's cleanup activities and progress over the last five-years? Do you know how to contact the Environmental Protection Agency or UDEQ if you have questions or concerns about the Intermountain Waste Oil Refinery Superfund Site?** Goff says any communication with regulators only involves the UDEQ-DERR Project Manager with ongoing groundwater monitoring. Goff said he has phone and email information for UDEQ and although hasn't needed to call, would communicate any developing issues.

7. **Do you have any additional comments, suggestions, or recommendations regarding the Intermountain Waste Oil Refinery Superfund Site?** Goff did not have any comments or questions about the property and the current Five-Year Review.

APPENDIX E – TCE CONCENTRATIONS IN GROUNDWATER

Well	May 2013 Trichloroethene µg/L	December 2013 Trichloroethene µg/L	December 2015 Trichloroethene µg/L	April 2016 Trichloroethene µg/L	February 2018 Trichloroethene µg/L
MW-01	0.7 J	5 U	NC	NC	5 U
MW-02	12	3.6 J	1.6 J	2.6 J	1.6 J
MW-03	5 U	5 U	NC	NC	5 U
MW-04	5.4	4.5 J	2.7 J	NC	1.4 J
MW-05	1.7 J	5 U	NC	NC	0.24 J
MW-08	5 U	5 U	NC	NC	5 U
MW-09 U	0.86 J	NC	NC	NC	5 U
MW-09 M	5 U	5 U	NC	NC	5 U
MW-09 L	5 U	5 U	NC	NC	5 U
MW-10 U	1.7 J	NC	NC	NC	5 U
MW-10 M	5 U	5 U	NC	NC	5 U
MW-10 L	5 U	5 U	NC	NC	5 U

Note: Groundwater samples were collected from only MW-02 and MW-04 for December 2015 and MW-02 for April 2016.
NC Not Collected
J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

APPENDIX F – SITE INSPECTION PHOTOS

General view to the east of the Intermountain Waste Oil Refinery Site

Groundwater monitoring well MW-2

General view to the west of the Intermountain Waste Oil Refinery Site

APPENDIX G – SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site name: Intermountain Waste Oil Refinery	**Date of inspection: 4/7/23**
Location and Region: Bountiful, Davis County, UT Region 8	**EPA ID: UT0001277359**
Agency, office, or company leading the five-year review: Utah Department of Environmental Quality Division of Environmental Response and Remediation	**Weather/temperature: Sunny and 78°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; ☐

2. **O&M staff** Name: _____ Title: _____ _____ Date

Interviewed ☐ at Site ☐ at office ☐ by phone Phone no. _____
Problems, suggestions; ☐

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 _____
Contact _____ Name _____ Title _____ Date _____ Phone no.
Problems; suggestions; □ Report attached _____
_____

4. **Other interviews** (optional) ☒ Report attached as Appendix D

The General Manager for Bountiful Irrigation Water District was interviewed for this FYR.

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: Groundwater samples were last collected from the Site in February 2018 and show that TCE concentrations in groundwater were below the cleanup goal and drinking water standard of 5 µg/L.			
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 EPA Lead	

2. **O&M Cost Records**

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place ☐ Unavailable
Original O&M cost estimate _____ ☐ Breakdown attached
Total annual cost by year for review period if available

From mm/dd/yyyy	To mm/dd/yyyy	_____	☐ Breakdown attached
Date	Date	Total cost	
From mm/dd/yyyy	To mm/dd/yyyy	_____	☐ Breakdown attached
Date	Date	Total cost	
From mm/dd/yyyy	To mm/dd/yyyy	_____	☐ Breakdown attached
Date	Date	Total cost	
From mm/dd/yyyy	To mm/dd/yyyy	_____	☐ Breakdown attached
Date	Date	Total cost	
From mm/dd/yyyy	To mm/dd/yyyy	_____	☐ Breakdown attached
Date	Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**

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) Drive by
Frequency Five Years
Responsible party/agency UDEQ/DERR

Contact Tony Howes (Name) Project Manager (Title) 385-391-5917 (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:** _____		
B. Other Site Conditions		
Remarks:		
VII. LANDFILL COVERS ☐ **Applicable** ☒ **N/A**		
A. Landfill Surface		
1. **Settlement** (Low spots) Arial extent _____ Remarks: _____	☐ Location shown on Site map	☐ Settlement not evident Depth _____
2. **Cracks** Lengths _____ Remarks: _____	☐ Location shown on Site map Widths _____	☐ Cracking not evident Depths _____
3. **Erosion** Arial extent _____ Remarks: _____	☐ Location shown on Site map	☐ Erosion not evident Depth _____
4. **Holes** Arial extent _____ Remarks: _____	☐ Location shown on Site map	☐ Holes not evident Depth _____
5. **Vegetative Cover** ☐ No signs of stress Remarks: _____	☐ Grass ☐ Trees/Shrubs (indicate size and locations on a diagram)	☐ Cover properly established
6. **Alternative Cover** (armored rock, concrete, etc.) Remarks: _____		☐ N/A
7. **Bulges** Arial extent _____ Remarks: _____	☐ Location shown on Site map	☐ Bulges not evident Height _____
8. **Wet Areas/Water Damage**	☐ Wet areas/water damage not evident	
☐ Wet areas	☐ Location shown on Site map	Arial extent _____
☐ Ponding	☐ Location shown on Site map	Arial extent _____
☐ Seeps	☐ Location shown on Site map	Arial extent _____
☐ Soft subgrade	☐ Location shown on Site map	Arial extent _____
Remarks: _____		
9. **Slope Instability** ☐ No evidence of slope instability Arial extent _____ Remarks: _____	☐ Slides	☐ Location shown on Site map

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

1. **Settlement** (Low spots) ☐ Location shown on Site map ☐ No evidence of settlement
Arial extent _____ Depth _____
Remarks: _____

2. **Material Degradation** ☐ Location shown on Site map ☐ No evidence of degradation
Material type_____ Arial extent _____
Remarks: _____

3. **Erosion** ☐ Location shown on Site map ☐ No evidence of erosion
Arial extent _____ Depth _____
Remarks: _____

4. **Undercutting** ☐ Location shown on Site map ☐ No evidence of undercutting
Arial extent _____ Depth _____
Remarks: _____

5. **Obstructions** Type _____ ☐ No obstructions
☐ Location shown on Site map Arial 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 Arial 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: Require proper identification labeling of all wells

4. **Extraction Wells Leachate**
☐ 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** Area extent _____ Depth _____ ☐ N/A
☐ Siltation not evident
Remarks: _____

2. **Erosion** Area 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
Area extent _____		Depth _____
Remarks: _____		
2. **Vegetative Growth**	☐ Location shown on Site map	☐ N/A
☐ Vegetation does not impede flow		
Area extent _____		Type _____
Remarks: _____		
3. **Erosion**	☐ Location shown on Site map	☐ Erosion not evident
Area 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
Area extent _____		Depth _____
Remarks: _____		
2. **Performance Monitoring**		Type of monitoring Groundwater monitoring
☐ Performance not monitored		
Frequency Every five years		☐ 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

E. 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 and 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
Response actions at the Site were completed on July 1, 2019, as documented in the Final Close-Out Report. The Site was deleted from the NPL on September 20, 2019. In March 2020 the institutional control in the form of an Environmental Covenant that restricted the installation of drinking water wells was terminated. TCE concentrations in groundwater were shown to below the cleanup goal and drinking water standard of 5 µg/L, which satisfied the OU2 ROD requirement that well installation be prevented until drinking water standards are met. An Environmental Covenant requires buildings built in whole or in part on the property to have a vapor mitigation system in place as required by the OU1 ROD. Two buildings built at the Site in 2008, by Bountiful Irrigation Water District, were constructed with active sub-slab vapor mitigation systems.
B. Adequacy of O&M
Current activities at the Site consist of groundwater monitoring and sampling, and Site inspections to ensure ICs are in place. The previous 2018 FYR Report recommended that groundwater monitoring and sampling be completed with the next FYR. This recommendation was identified as a finding that did not affect current and/or future protectiveness. In addition to this recommendation, the 2019 FCOR indicated that groundwater samples will only be collected every five years according to the requirements for conducting a FYR and that there is no ongoing operation and maintenance required.
C. Early Indicators of Potential Remedy Problems
There are no early indicators of potential remedy problems.
D. Opportunities for Optimization
Not applicable at this time.