



## Memorandum

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**Date:** November 24, 2020

**Subject:** **Modification #1 to Phase 2 Field Sampling Plan**  
700 South 1600 East Tetrachloroethene Plume Superfund Site,  
Salt Lake City, Utah

On behalf of the U.S. Army Corps of Engineers (USACE), CDM Federal Programs Corporation (CDM Smith) prepared this minor field modification (MFM) #1 to the Phase 2 Field Sampling Plan (FSP), which is an appendix to the Phase 2 Remedial Action Work Plan (RIWP) (CDM Smith 2020) for 700 South 1600 East Tetrachloroethene (PCE) Plume Site located near the George E. Wahlen Veterans Affairs Medical Center (VAMC) in Salt Lake City, Utah. This MFM #1 to the Phase 2 FSP proposes the installation of an additional soil boring and groundwater monitoring well at the MW-13 shallow/deep (S/D) well pair (to be named MW-13 lower, or MW-13L to further define the hydrostratigraphy and hydrogeology characteristics of the site for assessment of the nature and extent of groundwater contamination.

### 1.0 Scope of Work

This MFM includes the rationale and description of work for the installation of an additional groundwater monitoring well, MW-13L. Currently, the MW-13 monitoring well pair consists of MW-13S (screened interval 15.5–20.5 feet below ground surface [ft bgs]) and MW-13D (screened interval 79–84 ft bgs). As can be seen in the cross section presented on **Figure 1**, both MW-13S and MW-13D are screened above an aquitard, within the shallow aquifer. Monitoring well MW-13L will be drilled and constructed below the aquitard within the deeper aquifer, to provide vertical delineation of the plume.

**Figure 2** shows the current extent of the PCE groundwater plume in the shallow aquifer based on the data collected during the 3Q (Sep 2020) sampling event. In the shallow aquifer, the PCE concentration was 24 micrograms per liter ( $\mu\text{g/L}$ ) in MW-13S, 75  $\mu\text{g/L}$  in MW-13D, 3.9  $\mu\text{g/L}$  in MW-14S, 59  $\mu\text{g/L}$  in MW-08A, and 55  $\mu\text{g/L}$  in MW-08B (**Figures 1 and 2**). In the deep aquifer, the PCE concentration was 4.4  $\mu\text{g/L}$  in MW-08C and 34  $\mu\text{g/L}$  in MW-14D (**Figures 1 and 2**). As can be seen on **Figure 2**, there are limited monitoring wells in the downgradient area of the plume that are

screened in the deep aquifer. Because of the lack of downgradient wells and the lack of vertical delineation at MW-13S/D, a well screened within the deep aquifer at MW-13S/D (referred to as MW-13L and shown on **Figure 2**) is planned to further define the extent of the PCE groundwater plume.

## 2.0 Groundwater Monitoring Well Installation

Prior to drilling, the boring will be hand-augured or cleared using a hydrovac to a minimum of 5 ft bgs. The boring will be advanced using a sonic drill rig to the first water-bearing zone below the aquitard locations (anticipated to be approximately 100 to 120 ft bgs). Borings will be logged as described in Section 3.2 in the FSP (CDM Smith 2020). Soil from the borings will be screened for the presence of volatile organic compounds using a photoionization detector (PID) All soil will be containerized and stored in the investigation-derived waste storage area.

After completion of the borehole and review of the lithology and PID screening, the soil boring will be completed as a single 2-inch groundwater monitoring well. A 10-foot 0.010-slot or 0.020-slot screened interval will be installed unless geologic observations suggest a 5-foot screen should be used. The filter pack will be constructed using 10/20 silica sand and will extend 2 to 3 feet above the top of the screened interval. Monitoring well construction will be completed in accordance with CDM Smith SOP 4-4 and the general well construction diagrams presented in the FSP (CDM Smith 2020). The location will be completed at the surface with a flush-mounted manhole vault.

The well will be developed to remove fine grain sediment and to verify the monitoring well is connected to the aquifer according to CDM Smith SOP 4-3 and the methods described in Section 3.2 of the FSP (CDM Smith 2020). This task will lag a minimum of 48 hours behind completion of the well. A minimum volume will be calculated prior to pumping, and the wells will be purged until the minimum volume is removed from the well and parameter stabilization occurs, and turbidity requirements are met. The development water will be handled as investigation-derived waste.

MW-13L will be sampled during the Quarter 4 2020 groundwater monitoring event, as well as monitoring events that occur in 2021 as described in the FSP (CDM Smith 2020). The installation and sampling of MW-13L will improve the vertical delineation of the extent of PCE in groundwater, specifically in the downgradient area of the plume.

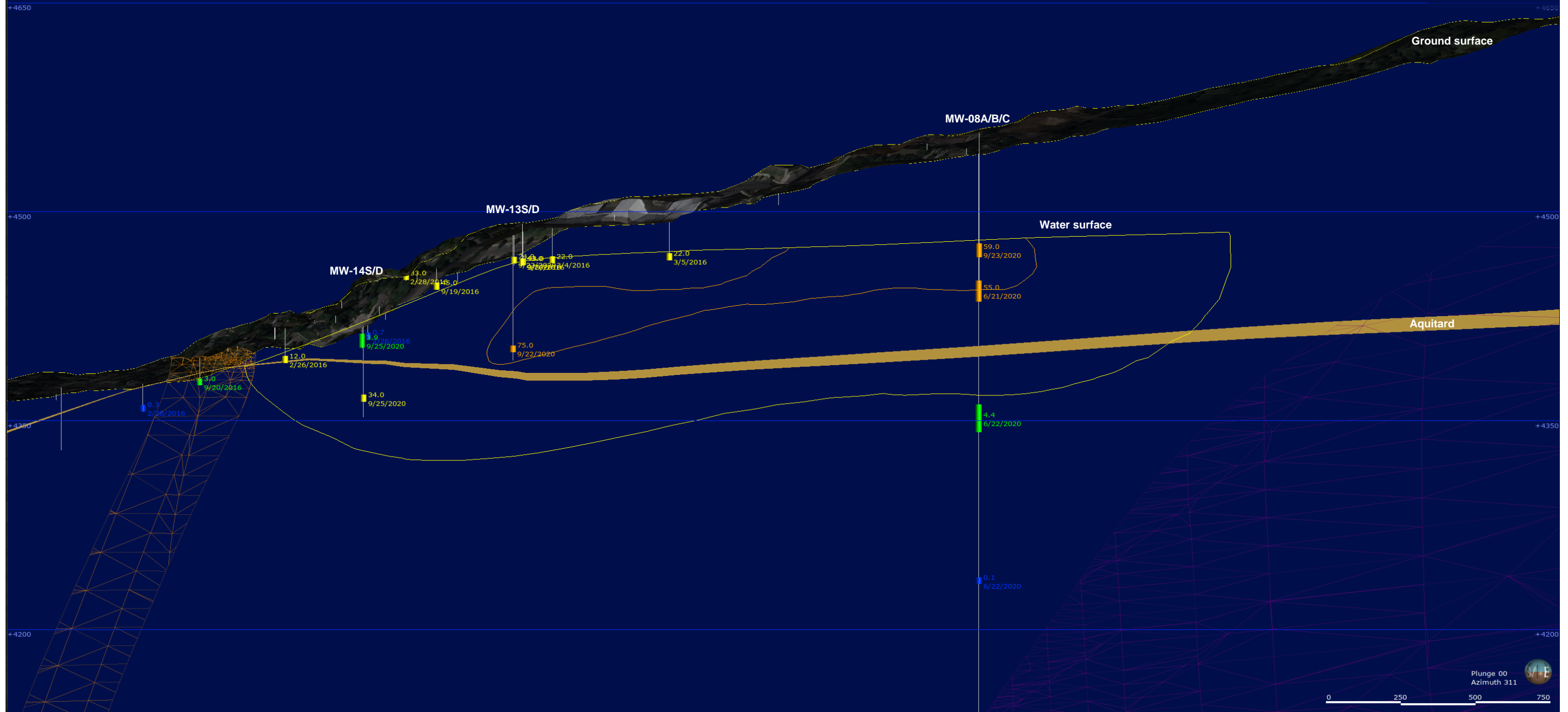
## 3.0 References

CDM Smith. 2020. *DRAFT FINAL Phase 2 Remedial Investigation Work Plan, Operable Unit 1, 700 South 1600 East PCE Plume, Salt Lake City, Utah*. Prepared for U.S. Army Corps of Engineers.

### Figures

Figure 1 Leapfrog Cross Section through MW-08, MW-13, and MW-14

Figure 2 Q3 2020 Groundwater PCE and TCE Results and Approximate Extent of PCE in Groundwater – Shallow Aquifer

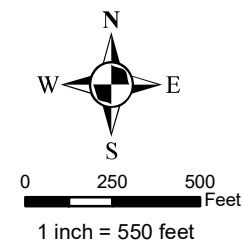


**PCE Concentrations ( $\mu\text{g/L}$ )**  
■  $\le 5 \mu\text{g/L}$   
■  $5 - 50 \mu\text{g/L}$   
■  $> 50 \mu\text{g/L}$   
**PCE Contours**  
—  $5 \mu\text{g/L}$   
—  $50 \mu\text{g/L}$

**Notes**

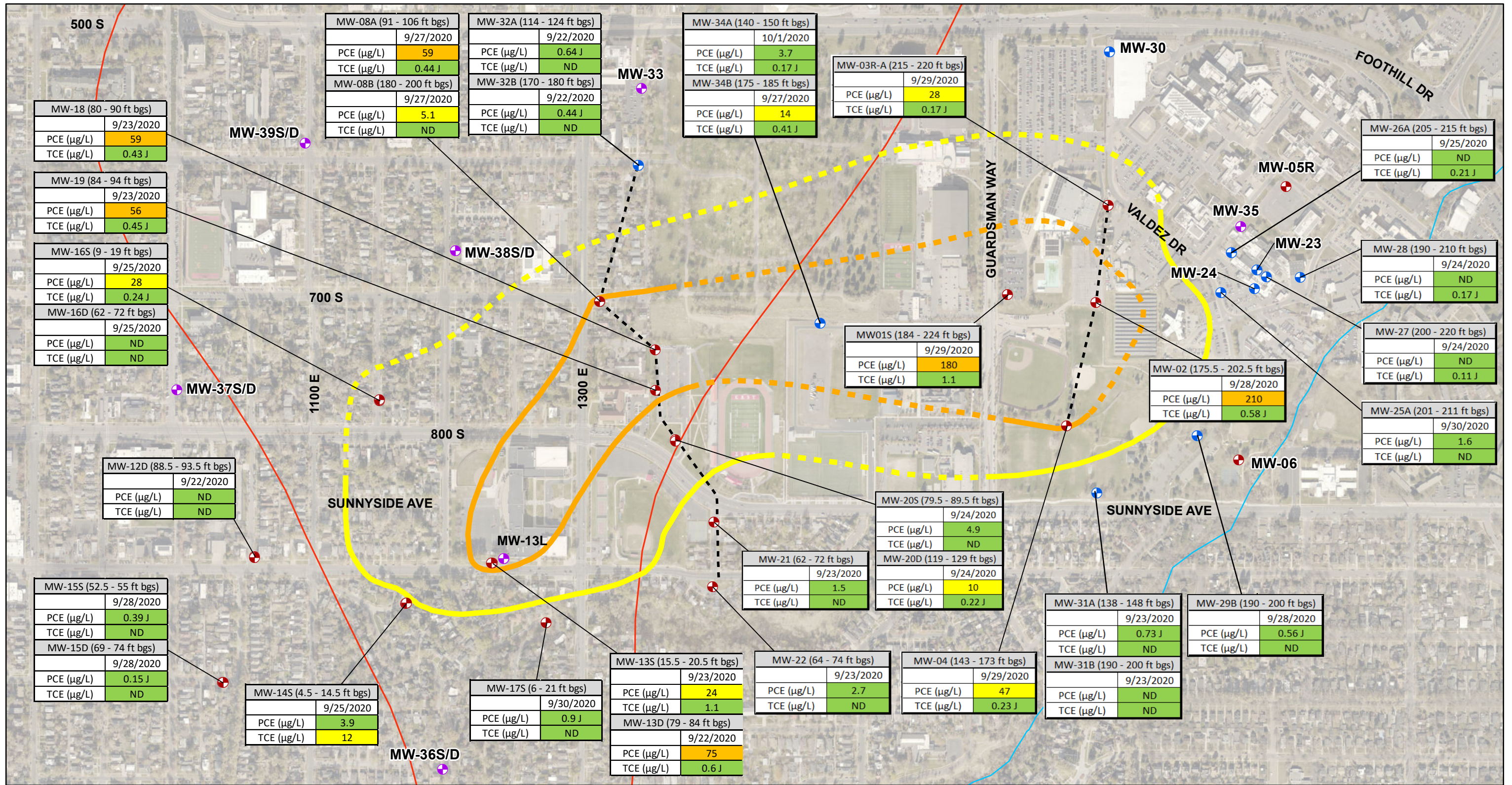
1. Plume contours were developed using Leapfrog 3-dimensional visualization software to interpolate data from the Q3 2020 groundwater sampling event.

OU = operable unit  
 PCE = tetrachloroethene  
 TCE = trichloroethene  
 $\mu\text{g/L}$  = micrograms per liter



**Figure 1**  
 Leapfrog Cross Section  
 through MW-08, MW-13 and MW-14

Minor Field Modification #1  
 Phase 2 Remedial Investigation Work Plan  
 OU1 700 South 1600 East PCE Plume  
 Salt Lake City, Utah



- Legend**
- Monitoring Well
  - New Monitoring Well
  - Proposed Monitoring Well
  - Monitoring Well Transect Line
  - Red Butte Creek
  - Fault Line

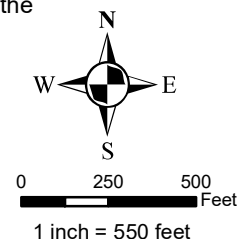
- PCE and TCE Concentrations (µg/L)**
- < 5 µg/L
  - 5 - 50 µg/L
  - > 50 µg/L
- PCE Contours**
- 5 µg/L
  - 50 µg/L
  - Dashed Line - Inferred Extent

**Notes**

1. Plume contours were developed using Leapfrog 3-dimensional visualization software to interpolate data from the Q3 2020 groundwater sampling event. The contours represent a top-down view of the 3-dimensional extent of the plume as interpreted in the Leapfrog software.

OU = operable unit  
PCE = tetrachloroethene  
TCE = trichloroethene  
µg/L = micrograms per liter

ft bgs = feet below ground surface  
J = Result is estimated  
ND = Analyte was not detected



**Figure 2**  
Q3 2020 Groundwater PCE and TCE Results and  
Approximate Extent of PCE in Groundwater  
Shallow Aquifer



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