



# Technical Assistance Services for Communities

## 700 South 1600 East PCE Plume Site

### Review of August 2020 Phase 2 Remedial Investigation Work Plan

The Technical Assistance Services for Communities (TASC) program is providing this review of the August 2020 Phase 2 Remedial Investigation Work Plan for the 700 South 1600 East PCE Plume Community Advisory Group (CAG). This review focuses on the following sections of the Work Plan:

1. Introduction
  2. Site Location and Background
  3. Preliminary Conceptual Site Model
  4. Work Plan Rationale
  5. Data Management, Reporting and Project Quality Assurance
  6. Schedule
- Appendix A: Field Sampling Plan  
Appendix B: Quality Assurance Project Plan

Each of these sections is summarized below. TASC comments are after the summary.

This fact sheet is funded by the U.S. Environmental Protection Agency's (EPA's) TASC program. Its contents do not necessarily reflect the policies, actions or positions of EPA.

#### 1. Introduction

The dry-cleaning solvent PCE (tetrachloroethene) was dumped down the drain at the Veterans Affairs (VA) Medical Center in the late 1970s and early 1980s, causing groundwater contamination at the VA Medical Center and neighborhoods to the west. Phase 1 of the site's remedial investigation (RI) began in 2018 and is scheduled to be done in summer 2020. Phase 2 of the RI is being planned to

collect additional data to fill data gaps and refine the understanding of the site. The Phase 2 RI Work Plan describes the work planned for Phase 2.

#### 2. Site Location and Background

Section 2 summarizes previous investigations of the site's environmental contamination. Groundwater is contaminated with PCE and other volatile organic compounds (VOCs) that form when PCE degrades. VOCs are carbon-based chemicals that tend to evaporate.

Groundwater at the site flows generally westward. However, groundwater flow at the site is complex and not fully understood, so more study is needed to clarify how groundwater flow is affected by things like fault lines, springs, seeps, soil types and surface water.

The site's groundwater contamination was first discovered in 1990. In 2004, PCE was detected in a public drinking water well near the site. Even though the concentration was less than EPA's drinking water standard, Salt Lake City shut down the well.

Previously, the site was divided into two parts called "operable units." Accelerated Operable Unit 1 investigated whether there was an immediate risk to residents from vapors entering their homes from contaminated groundwater and soil (vapor intrusion). Work was done at one home to address

*Soil vapor: the air between soil particles underground*

*Vapor intrusion: when vapors from contaminated soil or groundwater get into buildings*

this risk in 2016. There is no longer an immediate risk from vapor intrusion. Operable Unit 2 was designated to address groundwater. The two operable units have now been combined into a single site-wide operable unit (Operable Unit 1).

In Phase 1 of the RI, the VA installed monitoring wells on the VA Medical Center and near East High School and collected groundwater, surface water and soil vapor samples.

### 3. Preliminary Conceptual Site Model

After Phase 1 of the RI is done (scheduled to be done in summer 2020), the VA will identify what data gaps need to be filled during Phase 2. Data collected during both phases will be used to refine the site's conceptual site model, which will help guide future cleanup decisions.

### 4. Work Plan Rationale

Section 4 lists the questions that Phase 2 will try to answer, along with the plan for collecting data to answer each question. The questions are:

- How does the site's groundwater flow affect the movement of contaminants?
- Where is the groundwater contamination (depth and lateral extent)?
- How much contamination is there?
- How are natural processes changing the contaminant concentrations?
- Is contamination above the water table acting as a source of groundwater contaminants?
- Is there a risk from vapor intrusion at the VA Medical Center?
- Does groundwater contamination pose a risk to human health?
- Does surface water contamination pose a risk to human or ecological health?

The key Phase 2 data collection activities will include:

- Installing more monitoring wells to define the length, width and depth of the plume.

### Conceptual Site Model

A conceptual site model describes what contaminants are present at a site, where they are, how they move and change in the environment, and how they might pose a risk to people or the environment. Diagrams can help explain the conceptual site model.

The conceptual site model unifies the site data into a manageable story that can be used to chart the path forward. The conceptual site model can point out data gaps and be updated as new information is collected.

- Collecting data to better understand how groundwater flows at the site and how much contamination is moving across the site.
- Collecting data to see if and how PCE is breaking down naturally in the groundwater ("natural attenuation").
- Collecting surface water samples to help define the plume location and assess risk.
- Collecting soil vapor samples to better define the source areas and assess the risk from vapor intrusion.
- Collecting indoor air samples at about 20 homes to assess vapor intrusion.

The two maps below show the site's monitoring wells and the planned locations for Phase 2 monitoring wells. The number of wells needed will depend on the Phase 1 results.

The data collected during Phases 1 and 2 of the RI will help to improve the understanding of the groundwater flow at the site and support the development of groundwater flow and transport models. There will be both a visualization model and a numerical model. The models will be used to predict the movement of the plume under different scenarios (different well pumping rates, different amounts of rainfall).



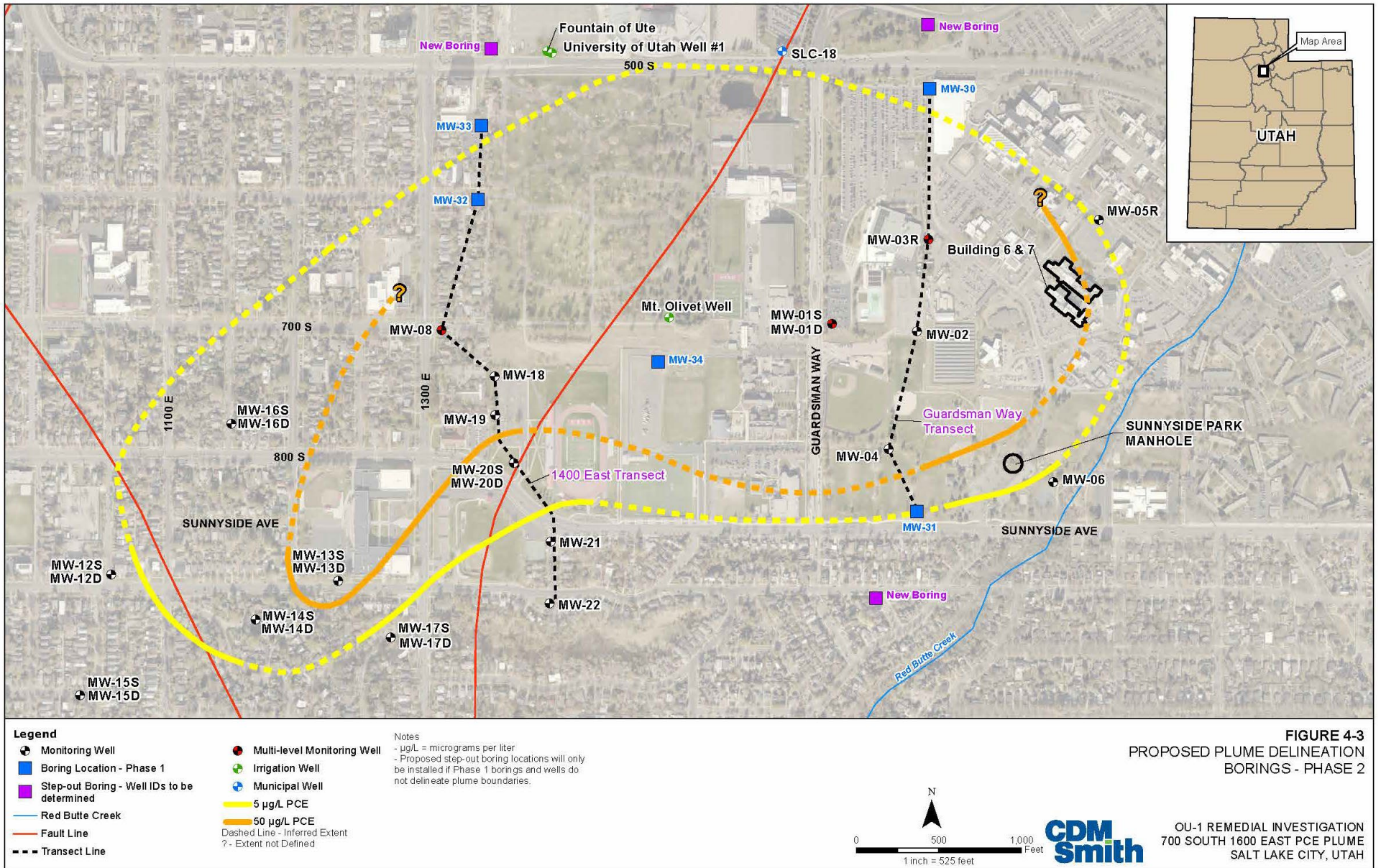


Figure 1. Site Map Showing Planned Monitoring Wells at Northern and Southern Edges of Plume<sup>1</sup>

<sup>1</sup> Source: Phase 2 RI Work Plan



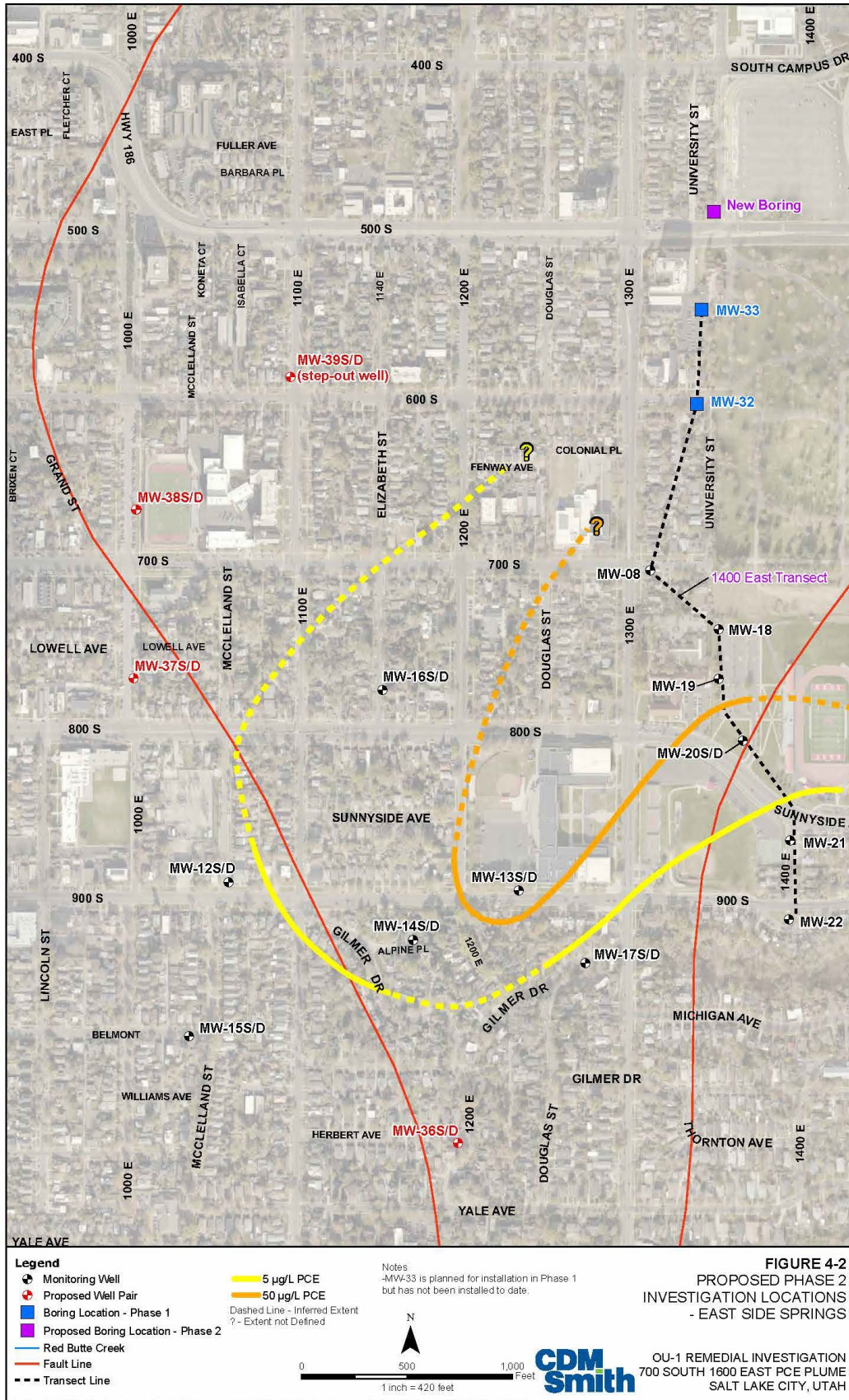


Figure 2. Site Map Showing Planned Monitoring Wells at Western Edge of Plume<sup>2</sup>

<sup>2</sup> Source: Phase 2 RI Work Plan

The RI will include a human health risk assessment and a screening-level ecological risk assessment. The Work Plan states that a full ecological risk assessment will probably not be needed based on the urban setting and the fact that site contaminants are mainly in groundwater.

## 5. Data Management, Reporting and Project Quality Assurance

The VA has set up an environmental data management system to manage all of the data that will be collected (including chemical, geological, hydrogeological, geospatial and well construction data, as well as project documents).

After the Phase 2 RI data collection is done, the VA will prepare an RI report summarizing the following:

- Field activities
- Analytical results
- Updated conceptual site model
- Nature and extent of contamination
- Fate and transport results of contaminants
- Human health and ecological risk assessments
- Conclusion and recommendations

After the RI is done, the next step will be a feasibility study to evaluate cleanup options.

A field audit and a laboratory audit will be done to ensure that the contractors are using proper procedures during the RI.

## 6. Schedule

The draft RI report is scheduled to be submitted in June 2021. After two rounds of review by EPA and the Utah Department of Environmental Quality (UDEQ), the final RI report is scheduled to be submitted in October 2021.

## Appendix A: Field Sampling Plan

The Field Sampling Plan describes the methods that will be used to collect data during Phase 2 of the RI. It also explains where samples will be collected, and why those locations were chosen.

## Appendix B: Quality Assurance Project Plan

The Quality Assurance Project Plan (QAPP) describes how environmental data will be collected for the Phase 2 RI, to ensure that the data will be reliable. The QAPP documents the project's technical planning process, providing a detailed plan for the environmental data operation.

The QAPP includes the standard operating procedures to be followed for collecting different types of samples and how the data are to be evaluated. In addition, the information requirements specified in the QAPP ensure that the data quality objectives are met by specifying the level of accuracy and precision needed by the sampling and analysis methods.

## TASC Comments

TASC comments are for the CAG and community to support understanding of the site and improve communication with EPA and UDEQ. TASC does not provide comments about the site directly to EPA or UDEQ. It is best for people who live and work near the site to share their concerns directly.

- **Schedule:** The project schedule (Section 6) shows Phase 2 field work beginning before EPA and UDEQ have completed their review of the Phase 2 RI Work Plan. Community members may want to ask for clarification on why the Phase 2 work will begin before the Work Plan is finalized.
- **Vapor intrusion:** The Work Plan states that Phase 2 of the RI will collect indoor air samples at about 20 homes to assess vapor intrusion. Community members may want to ask several questions:
  - How were the 20 homes selected?
  - Why does the Field Sampling Plan not mention indoor air sampling?
  - What will the VA do if it discovers an immediate risk from vapor intrusion?
  - How will indoor air sampling be affected by COVID-19?

- Vapor intrusion: As noted in the Work Plan, the concentrations of VOCs in homes due to vapor intrusion are usually higher in winter than in summer. Community members may want to ask if indoor air sampling will be conducted during the winter. Community members may also want to ask whether the language about wintertime sampling that appears in Table 4-1 for the VA Medical Center (under D2) should also be added for other areas of the site (under D3).
- Study area: The Study Area Boundary (shown on Figure 2-1 of the Work Plan) does not include Red Butte Creek or Liberty Park Pond. Community members may want to ask whether the Study Area Boundary is large enough to include all potentially impacted areas, including surface water.
- Outdoor air: High levels of PCE were detected in soil vapor near a manhole in Sunnyside Park. Community members may want to ask whether there is a risk to park users from breathing vapors.
- Dioxane: The Field Sampling Plan includes a memo explaining why the VA thinks 1,4-dioxane does not need to be included in routine groundwater monitoring. The memo says that 1,4-dioxane has been detected above its screening level of 0.46 micrograms per liter [ $\mu\text{g/L}$ ] only one time (at an estimate level of 0.47  $\mu\text{g/L}$ ). Community members may want to ask why the memo does not mention the 2.7  $\mu\text{g/L}$  detection in GW-052 in 2016.

FOR MORE INFORMATION, PLEASE  
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