Community Advisory Group Update

700S 1600E PCE Plume Superfund Site

19 March 2025

Veterans Health Administration – SLC VA Medical Center

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Pre-Decisional

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PCEPLUME.ORG

Agenda

- **Site Overview & Progress Update**
  - Remedial Investigation
  - Feasibility Study
  - Treatability Studies
- **Sitewide Groundwater Monitoring Results**
  - Updated Groundwater Concentration Map
- **Treatment Evaluations**
- **PFAS Update**

Introduction

- The SLC VAMC operated a dry-cleaning machine that used tetrachloroethylene (abbreviated as PCE) in the late 1970s and early 1980s.
- During this period, dry-cleaning residuals were likely disposed of into the sanitary sewer system which leaked into the ground.
- PCE-contaminated groundwater is present beneath the VAMC property and in areas downgradient, extending to approximately 1100 East.

PCE

- PCE is a colorless liquid used for dry cleaning fabrics and degreasing metals.
- Long-term exposure to PCE can impair cognitive and motor behavioral performance; can adversely effect kidney, liver, and immune systems; likely carcinogenic to humans (bladder cancer, non-Hodgkin lymphoma, and multiple myeloma).

Remedial Investigation Overview

CERCLA/SUPERFUND Process

The site **Remedial Investigation** was conducted from 2015-2022. It involved:

- collecting over 900 environmental samples to evaluate the extent of PCE, and
- evaluating the potential risks to human health.

The *Remedial Investigation Report (RI)* was finalized in Sep 2022 and is available at www.PCEPlume.org in the Administrative Record under the Resources tab.

Remedial Investigation Findings

The RI identified two potential health risks:

- Indoor Air Vapor Intrusion *(inhalation)* – vapor intrusion from soil gas or groundwater into structures
- Groundwater ingestion – potential future use of untreated groundwater for domestic purposes

The **Feasibility Study (FS)** will evaluate cleanup options that address groundwater contamination (the source of the two potential health risks).

Feasibility Study (FS)

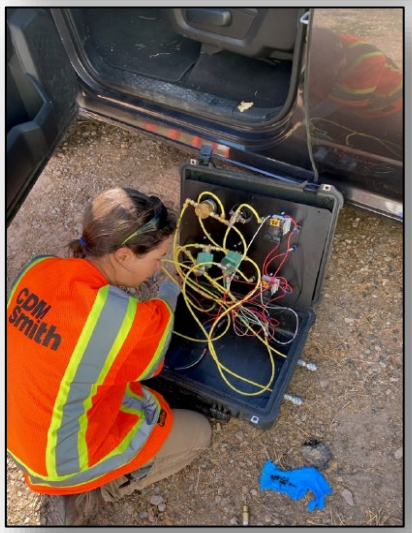
Feasibility Study: The process of developing, screening, and evaluating remedial action (cleanup) alternatives

- Main objective: determine treatment technologies that will *effectively* reduce risks to human health in a reasonable timeframe
- Study will focus on groundwater treatment technologies based on the risks identified in the RI
- Additional data collection and treatability studies (small-scale field studies) are being conducted as part of the process

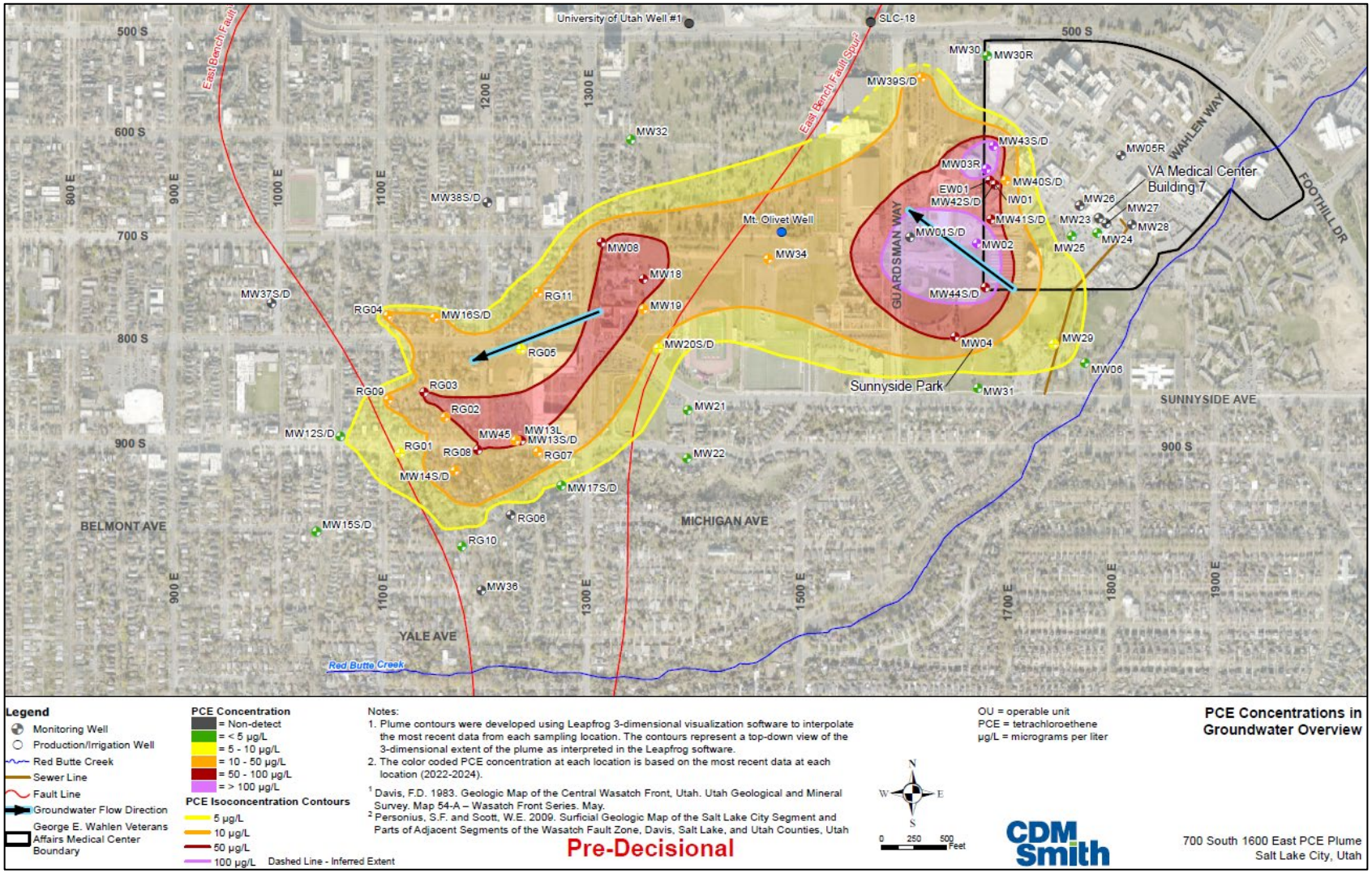
Sitewide Groundwater Monitoring

Sitewide groundwater monitoring conducted in September & October 2024

- Samples collected from 88 groundwater wells
- Water levels collected from 91 groundwater wells
- Evaluating potential changes in groundwater plume since last sampling event (Nov 2022)



Sitewide Groundwater Monitoring



Legend

- Monitoring Well
- Production/Irrigation Well
- Red Butte Creek
- Sewer Line
- Fault Line
- Groundwater Flow Direction
- George E. Wahlen Veterans Affairs Medical Center Boundary

PCE Concentration

- = Non-detect
- = < 5 µg/L
- = 5 - 10 µg/L
- = 10 - 50 µg/L
- = 50 - 100 µg/L
- = > 100 µg/L

PCE Isoconcentration Contours

- 5 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

Dashed Line - Inferred Extent

Notes:

1. Plume contours were developed using Leapfrog 3-dimensional visualization software to interpolate the most recent data from each sampling location. The contours represent a top-down view of the 3-dimensional extent of the plume as interpreted in the Leapfrog software.
2. The color coded PCE concentration at each location is based on the most recent data at each location (2022-2024).

[1] Davis, F.D. 1983. Geologic Map of the Central Wasatch Front, Utah. Utah Geological and Mineral Survey. Map 54-A – Wasatch Front Series. May.

[2] Personius, S.F. and Scott, W.E. 2009. Surficial Geologic Map of the Salt Lake City Segment and Parts of Adjacent Segments of the Wasatch Fault Zone, Davis, Salt Lake, and Utah Counties, Utah

Pre-Decisional

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

N W E S

0 250 500 Feet

CDM Smith

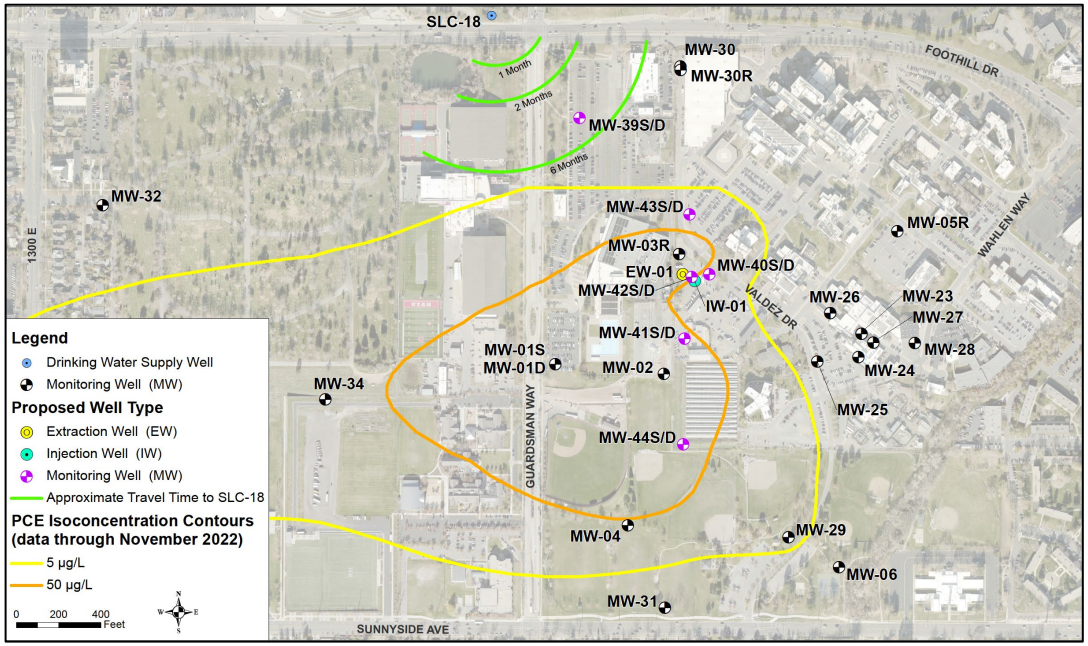
PCE Concentrations in Groundwater Overview

700 South 1600 East PCE Plume
Salt Lake City, Utah

MW-39 "Sentinel" Monitoring Well

Monitoring well 39 was installed in July 2024 and sampled in September 2024

- Installed at depths that matched most transmissive zones of SLC Public Utilities nearby drinking water well (SLC-18).
- Objective was to provide early warning of PCE prior to entering the SLC Drinking Water System.
- Unexpected detection of PCE; expanded our understanding of the plume boundary.
- Met with SLC Public Utilities to discuss the future of the well.



Treatability Study - Bioremediation Amendment Injection Test

Bioremediation amendment injection test conducted in November 2024

- Injected vegetable oil into IW-01 located on the western boundary of the VA Campus
- Encountered difficulties with injecting into the deep aquifer
- Transitioned to injecting into shallow aquifer
  - No issues encountered

Study Result: cleanup options that include injection in deeper zone will require higher injection pressures (fracturing).

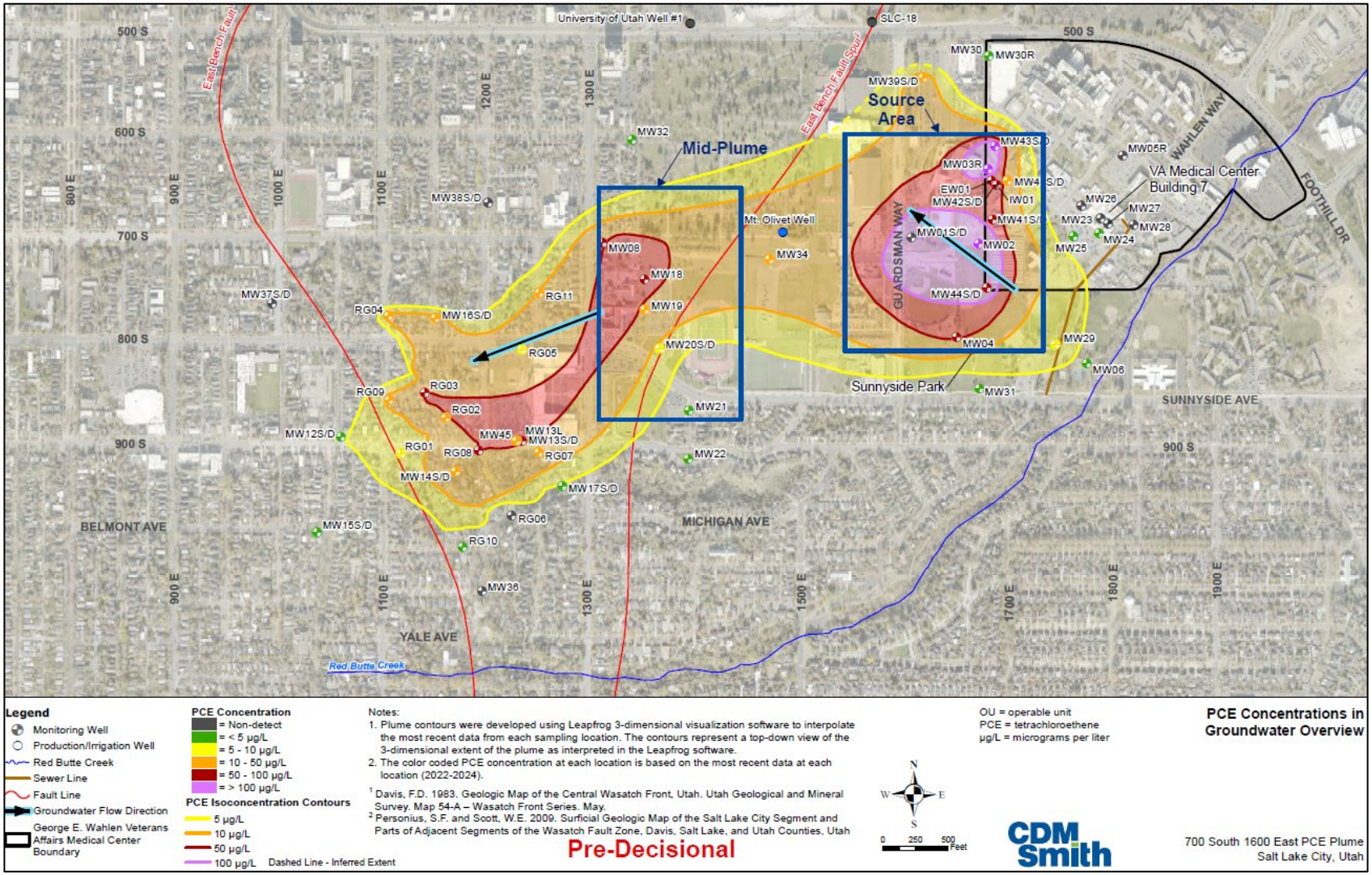
Treatability Study - Aquifer Performance Test

Aquifer Performance test conducted in November 2024

- Groundwater extracted from the deep aquifer zone using EW-01, located on the western border of the VA campus.
- Two-phase test, an 8-hour step test and a 48-hour constant rate test.
- Groundwater levels monitored at 13 monitoring wells during pumping.
- Deep aquifer max pumping rate of ~17 gallons per min (gpm)

Study Result: Extraction rate for deeper aquifer limited to about 17 gpm; compared to SLC-18 at 2,000 gpm. Study provided info for designing a full-scale extraction system.

Treatment Evaluations



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PCE Concentrations in Groundwater Overview

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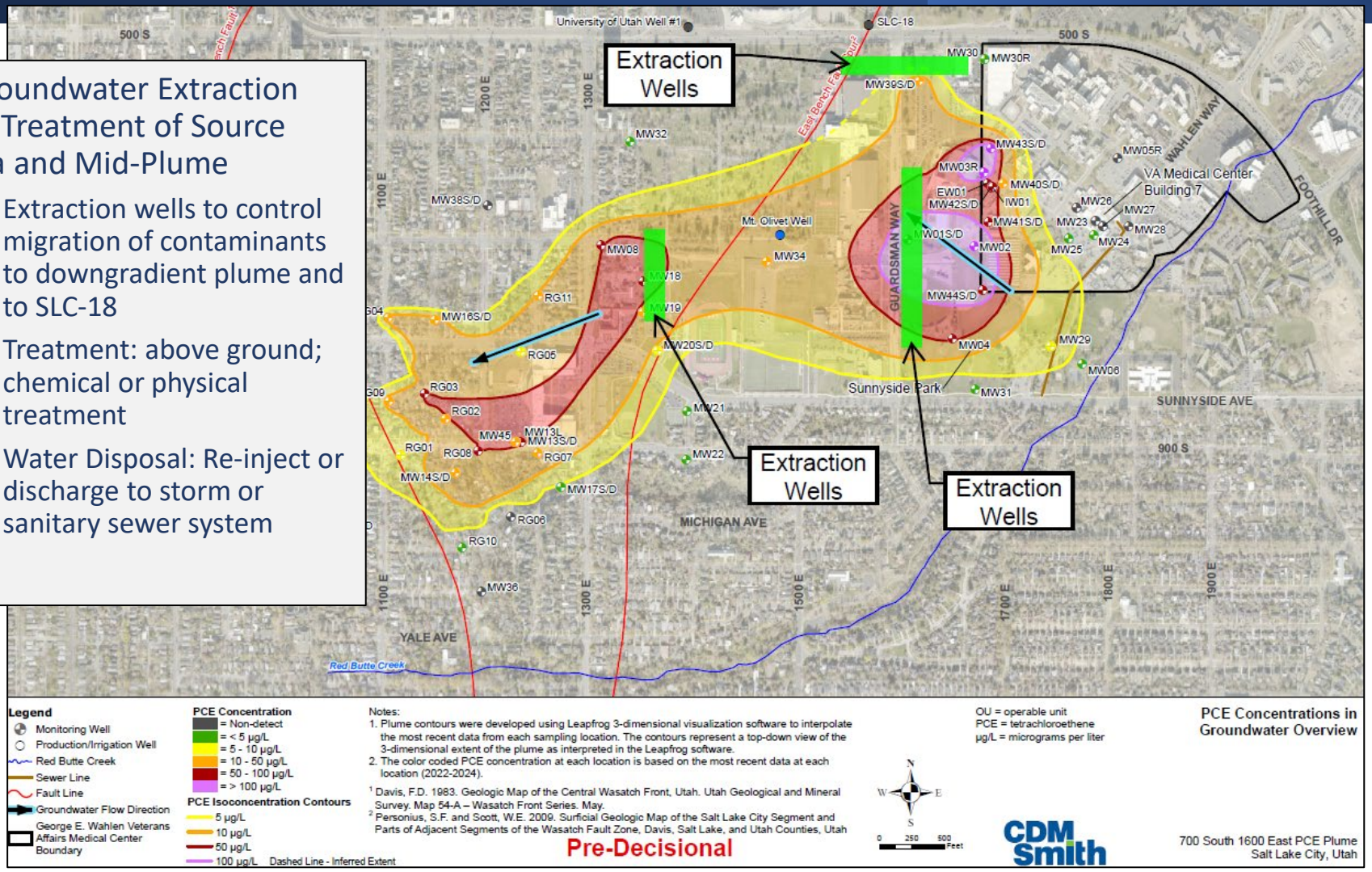
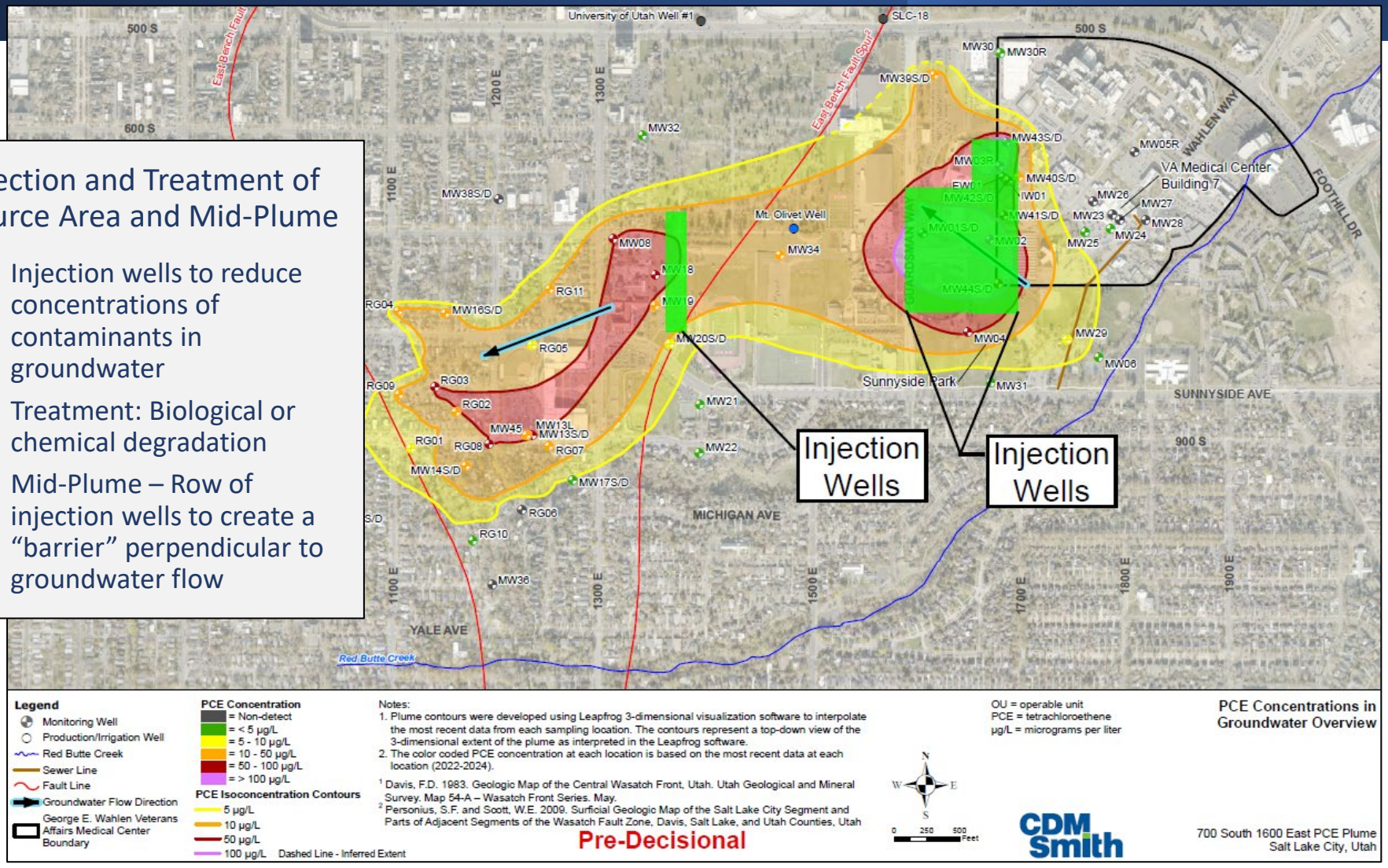
Treatment Evaluations – Groundwater Extraction

- Groundwater Extraction and Treatment of Source Area and Mid-Plume
  - Extraction wells to control migration of contaminants to downgradient plume and to SLC-18
  - Treatment: above ground; chemical or physical treatment
  - Water Disposal: Re-inject or discharge to storm or sanitary sewer system



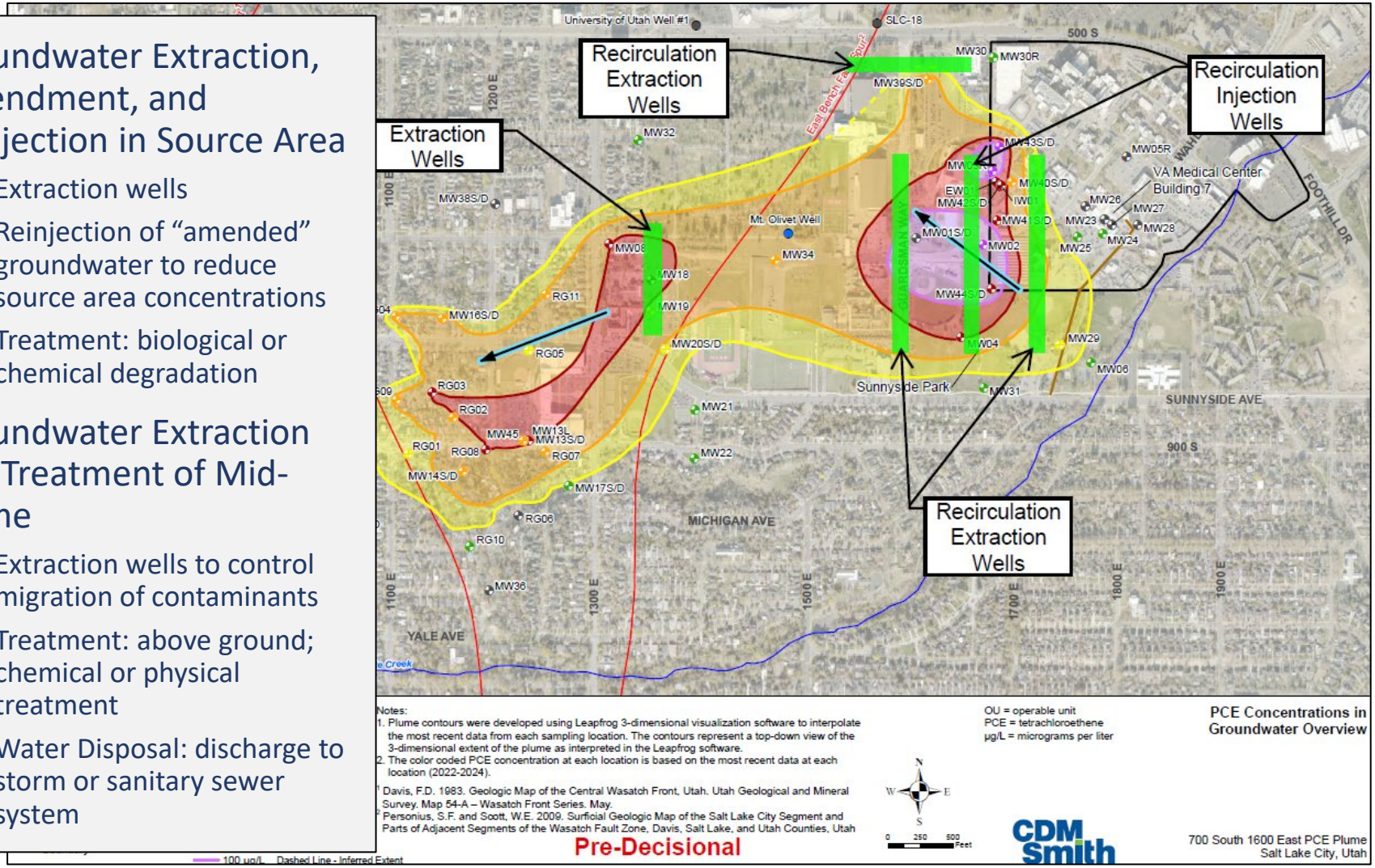
Treatment Evaluations – Groundwater Injection

- Injection and Treatment of Source Area and Mid-Plume
  - Injection wells to reduce concentrations of contaminants in groundwater
  - Treatment: Biological or chemical degradation
  - Mid-Plume – Row of injection wells to create a "barrier" perpendicular to groundwater flow



Treatment Evaluations – Groundwater Recirculation

- Groundwater Extraction, Amendment, and Reinjection in Source Area
  - Extraction wells
  - Reinjection of "amended" groundwater to reduce source area concentrations
  - Treatment: biological or chemical degradation
- Groundwater Extraction and Treatment of Mid-Plume
  - Extraction wells to control migration of contaminants
  - Treatment: above ground; chemical or physical treatment
  - Water Disposal: discharge to storm or sanitary sewer system



Treatment Evaluations – Combination

Source Area

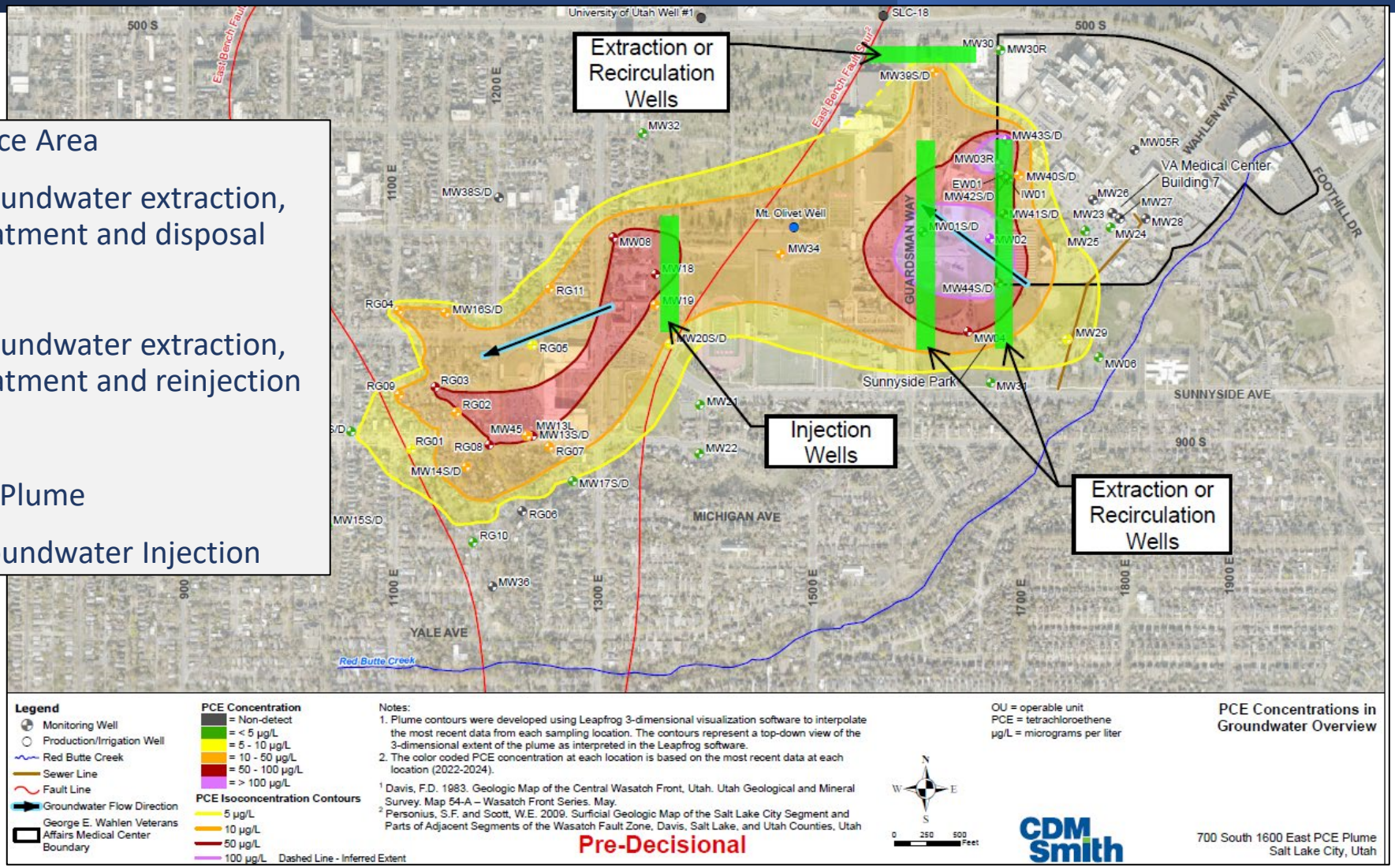
- Groundwater extraction, treatment and disposal

Or

- Groundwater extraction, treatment and reinjection

Mid-Plume

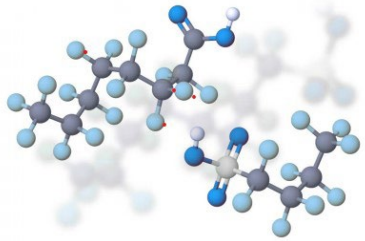
- Groundwater Injection



Per- and Polyfluoroalkyl Substances (PFAS) Question

EPA expressed concerns about potential PFAS contamination at the site associated with healthcare operations.

- PFAS – Are manufactured chemicals widely used in industry and consumer products, including healthcare equipment and devices, pharmaceuticals, cleaning products and stain- and water-resistant treated materials.
- Preliminary Assessment/Site Inspection (PA/SI)
  - PA/SI – researched PFAS use at medical facility and identified 5 locations to collect groundwater samples
  - Groundwater samples of 5 monitoring wells collected last week.



PFAS Next Steps

Based on sample results…

No or very low PFAS Detections:

- Develop a *No Further Action Report* and submit to EPA

PFAS Detected Above Regulatory Limits:

- Expand data collection effort;
- Request EPA send CERCLA 104e *Information Request* letters to other potential PFAS users/sources in the area;
- Determine best way to keep PCE treatment plans on track while evaluating PFAS extent
  - Most treatment options presented for PCE will also work for PFAS or can be modified to address PFAS

Next Meeting and Questions

Agenda items for next meeting

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