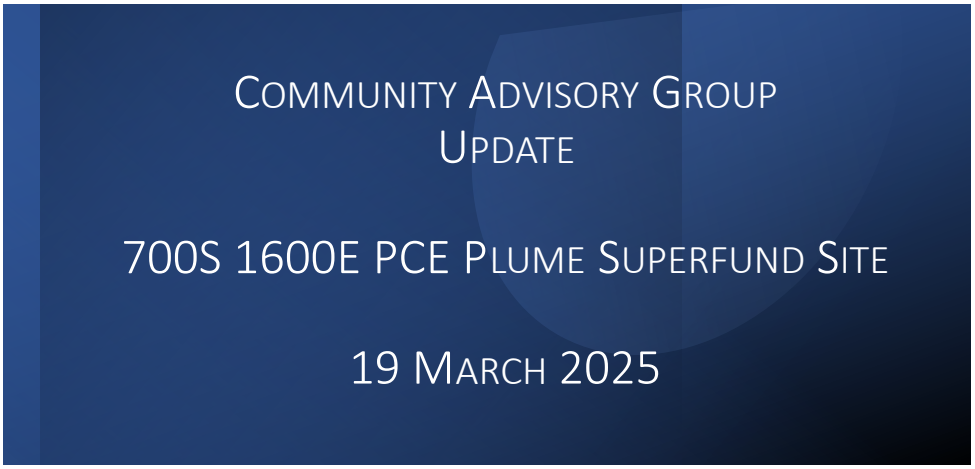
700S 1600E PCE Plume Community Advisory Group (CAG)
Meeting Minutes
March 19, 2025

Attendee	Organization	Attendee	Organization
Shaun Cwick	EPA Region 8 RPM	Kerry Lehtinen	
Missy Haniewicz	EPA R8 Community Involvement Coordinator	Catherine Wyffels	**Salt Lake City**
Briana Kistler	UofU Environmental, Health, and Science (EHS)	Jesse Gambrell	Salt Lake County
Hayley Shaffer	Salt Lake County Health Department	Ann Chenoweth	
Dave Allison	Utah Division of Environmental Response and Remediation Community Involvement	Erika Winegar	
William Hunter O'Neal	Salt Lake County	Shaine	
Jesse Stewart	SLC Public Utilities	Andy Hayford	UofU
Kyle J. Shields	Salt Lake City Parks Department	Jim L	
Kerry Lehtinen		Jim Webster	YNC
Jeremy M. Laird	VA Salt Lake City HCS Public Affairs	Michael VanVoorhis	Resident
Janet Hemming	Yalecrest Neighborhood Council	Vicki Varela	Resident
Robin Carbaugh		Esther Hunter	East Central Community Council
Shannon Smith	VA CERCLA Program Manager	Zane Kozarec	VA CERCLA Engineer
James Vanderslice	UofU Health		

Welcome (Slide 1)



Robin Carbaugh opened the meeting with a brief discussion regarding the community's involvement with the Site and their goals as a group. She then passed the presentation over to VA to continue the meeting.

Agenda (Slide 2)

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

VA began with a brief overview of the different topics that would be covered within the presentation. This included a site progress update, an updated plume map, the performed Treatability Studies, findings of these studies, conceptual ideas for site remediation, and an update on PFAS as it pertains to the site. The audience requested that they receive a notification when new reports and figures are added to the Site website.

Background (Slide 3)

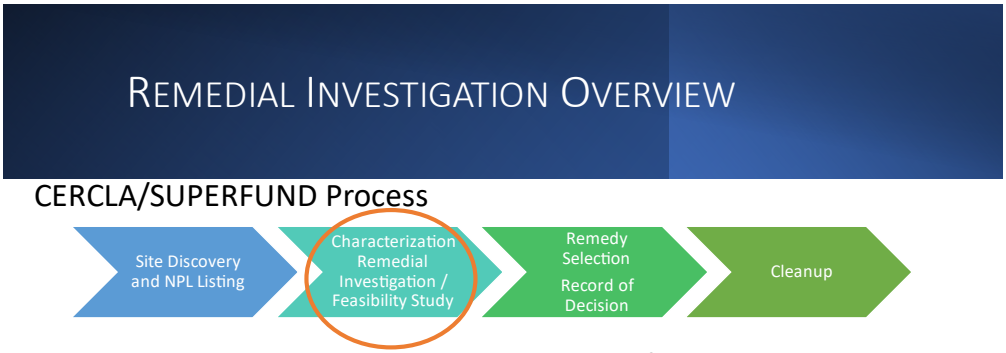
- The SLC VAMC operated a dry-cleaning machine that used tetrachloroethylene (abbreviated as PCE) in the late 1970s and early 1980s.
- During this period, dry-cleaning residuals were likely disposed of into the sanitary sewer system which leaked into the ground.
- PCE-contaminated groundwater is present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

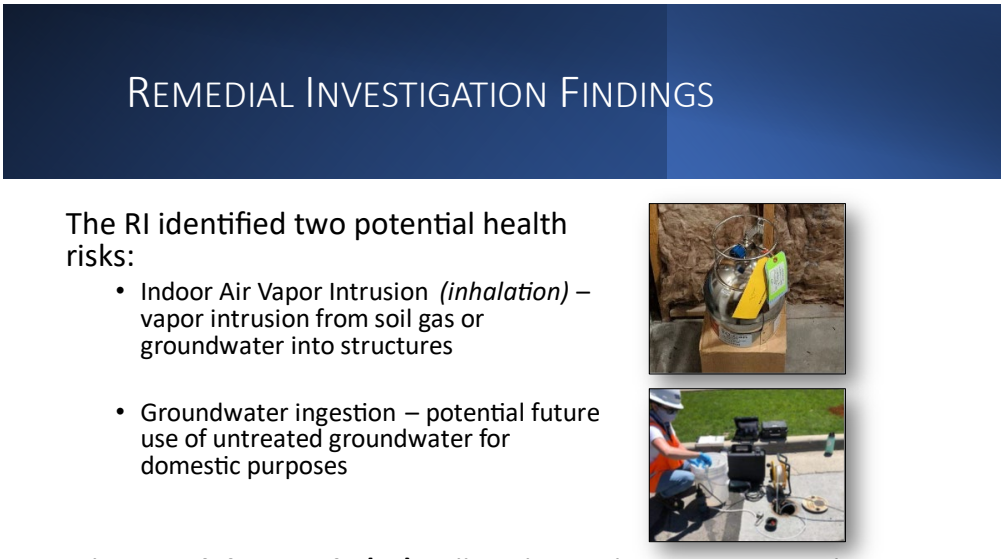
VA provided a history of Site relevant operations, a description of the plume extent, PCE background, and health concerns associated with long-term exposure of PCE.

Remedial Investigation Overview (Slide 4)



VA provided an overview of the work completed in support of the Site's Remedial Investigation. This included the collection of over 900 environmental samples collected through the sampling of groundwater, indoor air, and surface water.

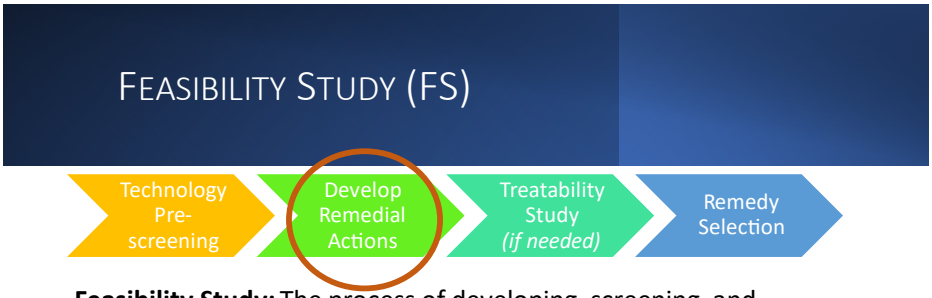
Remedial Investigation Findings (Slide 5)



VA discussed the data collected during the Remedial Investigation and its use in evaluating potential risk pathways associated with the PCE plume. Two risk pathways were identified: inhalation of PCE due to vapor intrusion and future potential ingestion of PCE-contaminated groundwater.

The audience inquired about ongoing sampling of the nearby SLC Public Utilities drinking water well (SLC-18). VA responded that sampling conducted around the year 2000 indicated PCE concentrations of 4 ppb, which is below the drinking water standard of 5 ppb. Additionally, a study was performed in 2012, and recent sampling of SLC-18 showed that PCE was not detected. It was noted that if SLC-18 were in operation, the PCE plume could be drawn towards the drinking water well.

Feasibility Study Overview (Slide 6)



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

VA reiterated that the main objective of the Feasibility Study is to implement a treatment system that effectively cleans the groundwater plume in a timely manner. In support of this objective, VA has also completed small-scale Treatability Studies aimed at facilitating the implementation of a full-scale treatment system.

During the meeting, the audience sought clarification on how the soil would be remediated. VA explained that there have been no elevated detections of contaminants in the soil; the chemical PCE has only been found in the groundwater.

The audience inquired why PCE has not been detected in the soil. VA clarified that due to the chemical properties of PCE, and because it was released as an aqueous solution, it is unlikely to migrate to the soil and tends to remain in the groundwater.

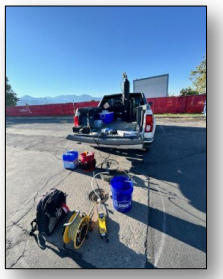
Furthermore, the audience asked how many homes VA sampled. VA responded that approximately 90 homes were sampled. The audience wanted to know which areas of the neighborhood were included in the sampling and whether homes with issues were still being tested. VA replied that indoor air sampling was primarily conducted at homes west of East High School. Only one residence has been identified as having vapor intrusion concerns, and VA is actively working to remediate that home.

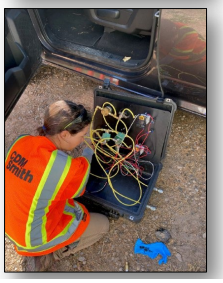
Sitewide Groundwater Monitoring (Slide 7)

SITEWIDE GROUNDWATER MONITORING

Sitewide groundwater monitoring conducted in September & October 2024

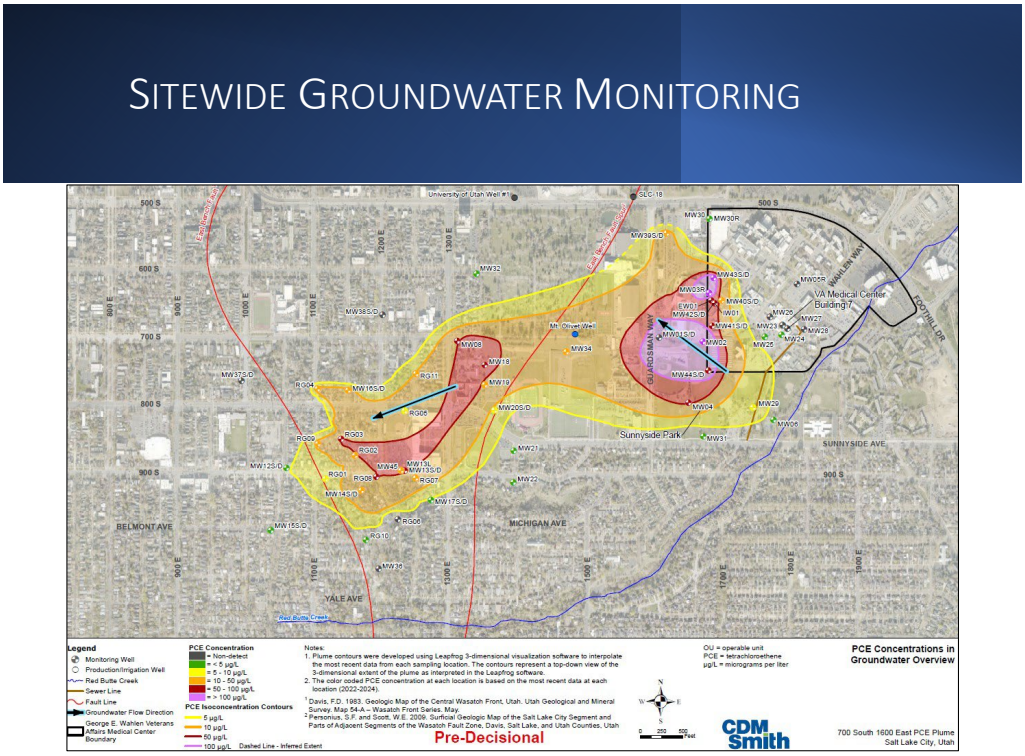
- Samples collected from 88 groundwater wells
- Water levels collected from 91 groundwater wells
- Evaluating potential changes in groundwater plume since last sampling event (Nov 2022)





VA described sitewide groundwater monitoring activities conducted last fall; objective was to use collected data to develop updated plume maps. The audience asked if the plume extent has changed over time, VA answered that the data is showing a relatively stable plume boundary but that our understanding of the northern boundary increased.

Sitewide Groundwater Monitoring Figure (Slide 8)



VA presented the updated plume map generated from data collected last Fall (Sep -Oct 2024). VA also clarified the new color scheme being used and that its purpose is to be able to show decreases in contaminant concentrations when a full-scale treatment is in operation.

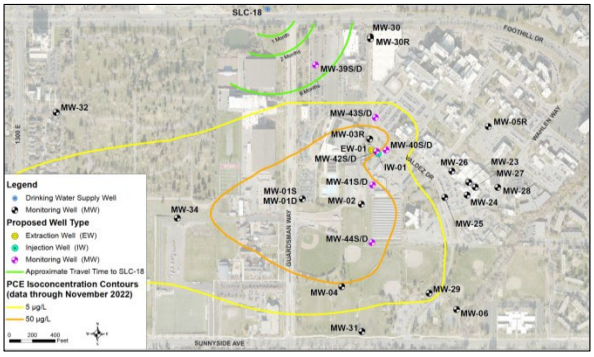
The audience asked if the goal is to reduce the groundwater concentrations to below 5 ppb, and if the University wells are in operation, do they have any effect on the PCE plume. VA answered that the goal is to remediate the groundwater to meet the drinking water standard of 5 ppb, both University wells shown in the figure are assumed to be in operation, and modeling has shown they have minimal impact on the PCE plume.

MW-39 "Sentinel" Monitoring Well (Slide 9)

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.



VA discussed the implementation of MW-39 and its objective of providing early detection of migrating PCE if SLC-18 is put into operation. VA explained that PCE was detected in the shallow screening interval, which has led to a revised understanding of the northern plume boundary. Additionally, VA noted that there has been minimal change in concentrations observed at each established well and that significant seasonal variation has not been identified.

An audience member requested clarification on the depth of the shallow screened interval, as it is located under a parking lot and the depth of the groundwater in the Source Area. VA clarified that, while it is the shallower of the two intervals, it is still approximately 200 feet below the surface. The depth to groundwater in the Source Area ranges from 150 to 200 feet below ground surface (bgs). East of East High School, the depth is roughly 100 feet bgs, while west of East High School, it can be as shallow as 10 feet bgs.

The audience also inquired whether the detection of PCE so close to SLC-18 raised concerns for VA. VA acknowledged that this discovery did cause some concern, prompting a reevaluation of the plan moving forward. The audience also wondered if nearby Red Butte Creek had been sampled. VA responded that it was sampled as part of the Remedial Investigation and returned non-detect results for PCE.

Treatability Study – Bioremediation Amendment Injection Test (Slide 10)

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).

VA provided an overview of the Bioremediation Amendment Injection Test, including what was performed, goals of the study, and lessons learned.

Treatability Study – Aquifer Performance Test (Slide 11)

TREATABILITY STUDY - AQUIFER PERFORMANCE TEST

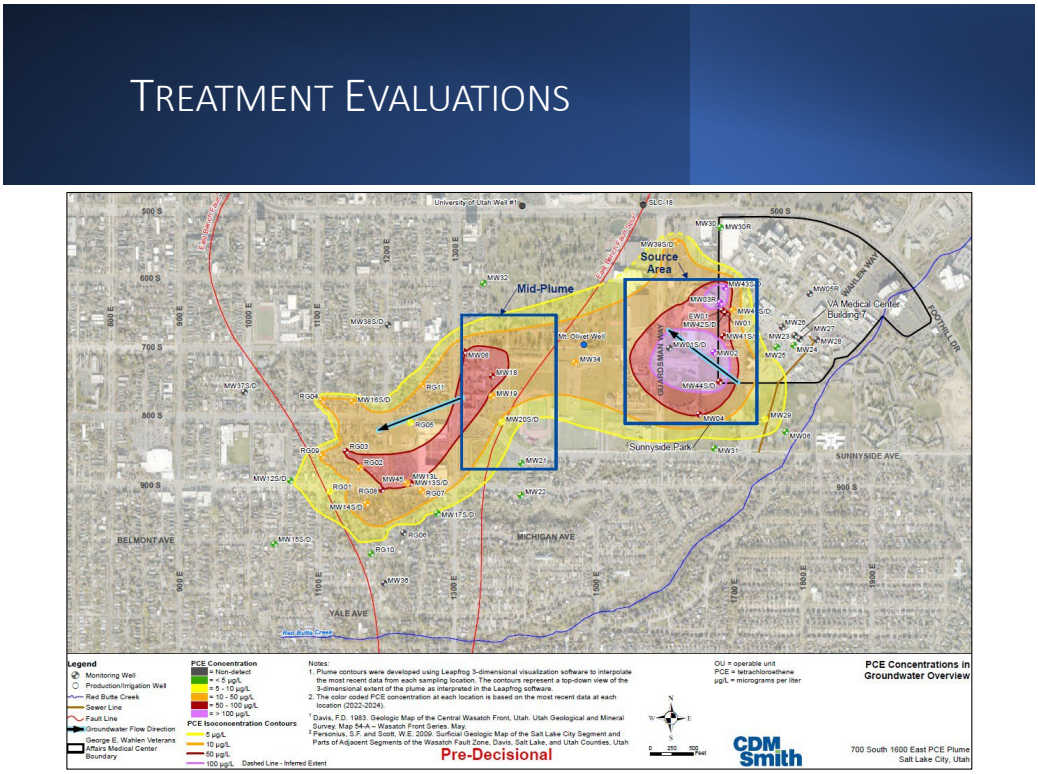
Aquifer Performance test conducted in November 2024

- 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.

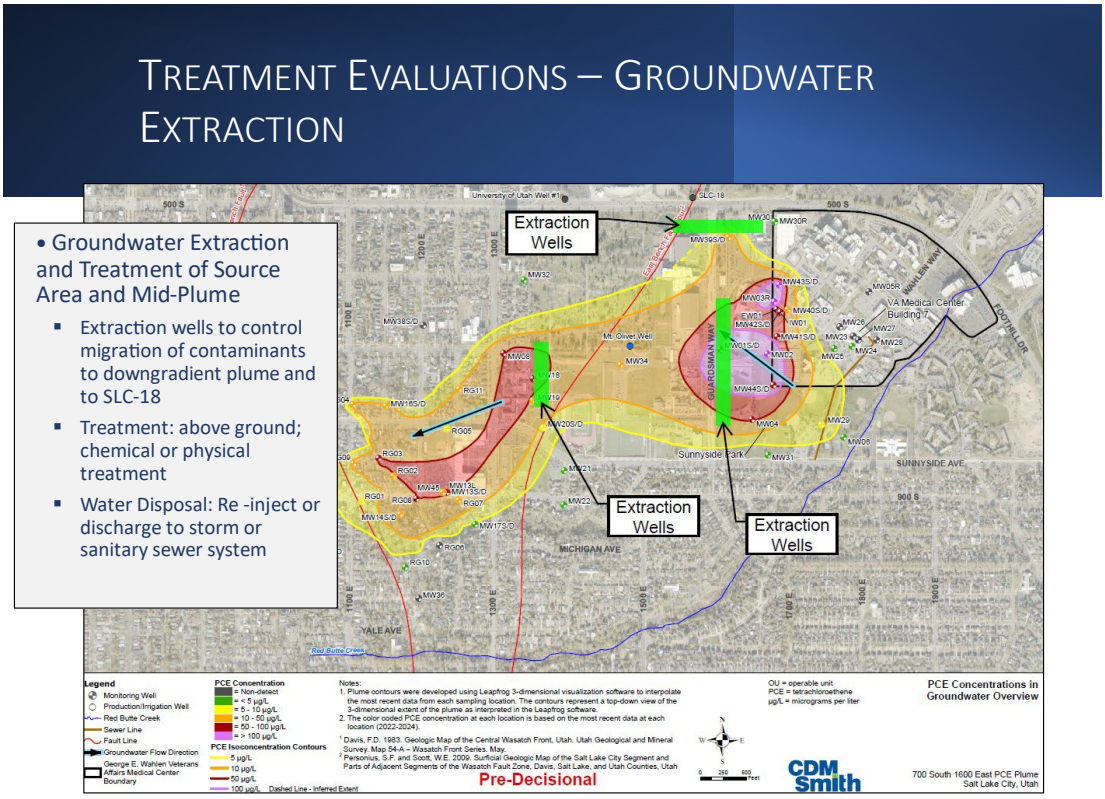
VA provided an overview of the Aquifer Performance Test, including what was performed, goals of the study, and lessons learned. The audience asked if this was the preferred treatment technology based on the studies, VA answered that this is not necessarily the preferred treatment at this time.

Treatment Evaluations – Treatment Locations (Slide 12)



VA presented the two locations within the plume that will be targeted by a treatment system. VA also explained that the “toe-end” of the plume is not being specifically targeted due to the high groundwater velocities observed west of the fault spur, leading VA to believe that Mid-Plume treatment will also treat downgradient PCE within a reasonable timeframe, VA will model this to confirm. The toe also presents many logistical and structural concerns.

Treatment Evaluations – Groundwater Extraction (Slide 13)

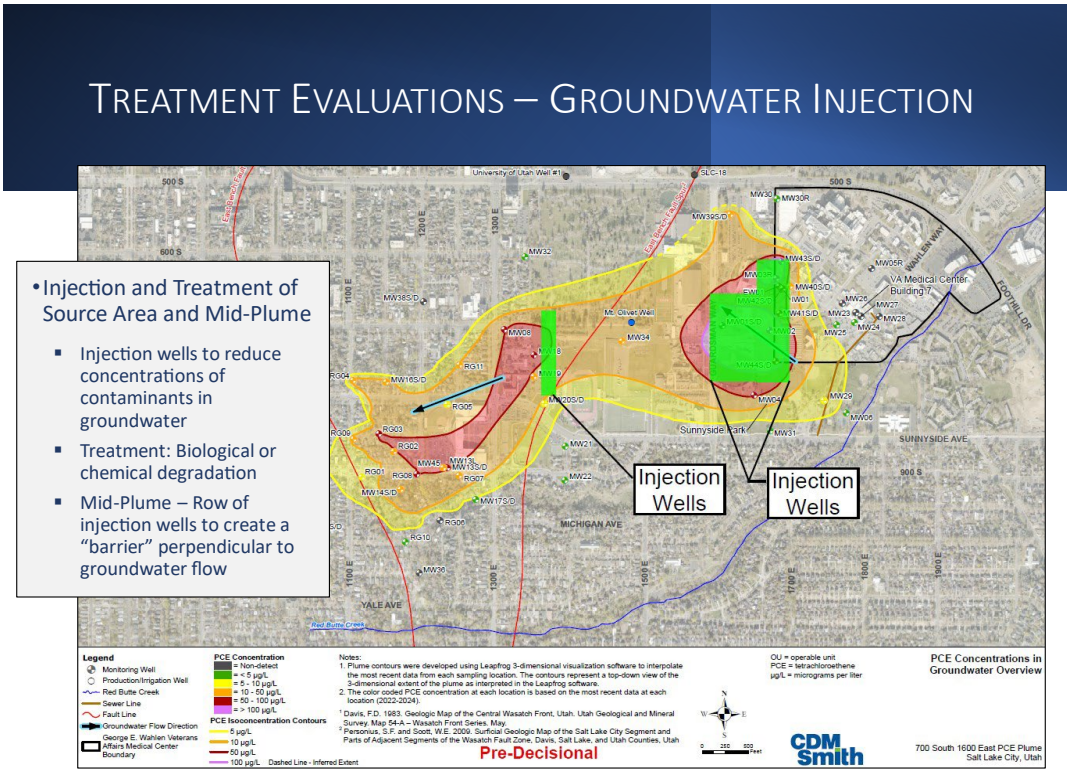


VA described the first treatment alternative which includes groundwater extraction implemented sitewide. VA also mentioned that drawdown would need to be closely monitored at the toe.

The audience asked how many wells would need to be implemented to accomplish desired results and asked for clarification on how treatment would be implemented. VA answered that further modeling will be required to know exactly how many extraction wells would be needed and that extracted groundwater would be treated aboveground, either physically or chemically.

The audience also asked why VA doesn't just use retention ponds and allow PCE to evaporate off extracted groundwater. VA answered that there would be too much volume of water extracted for this to be a feasible option.

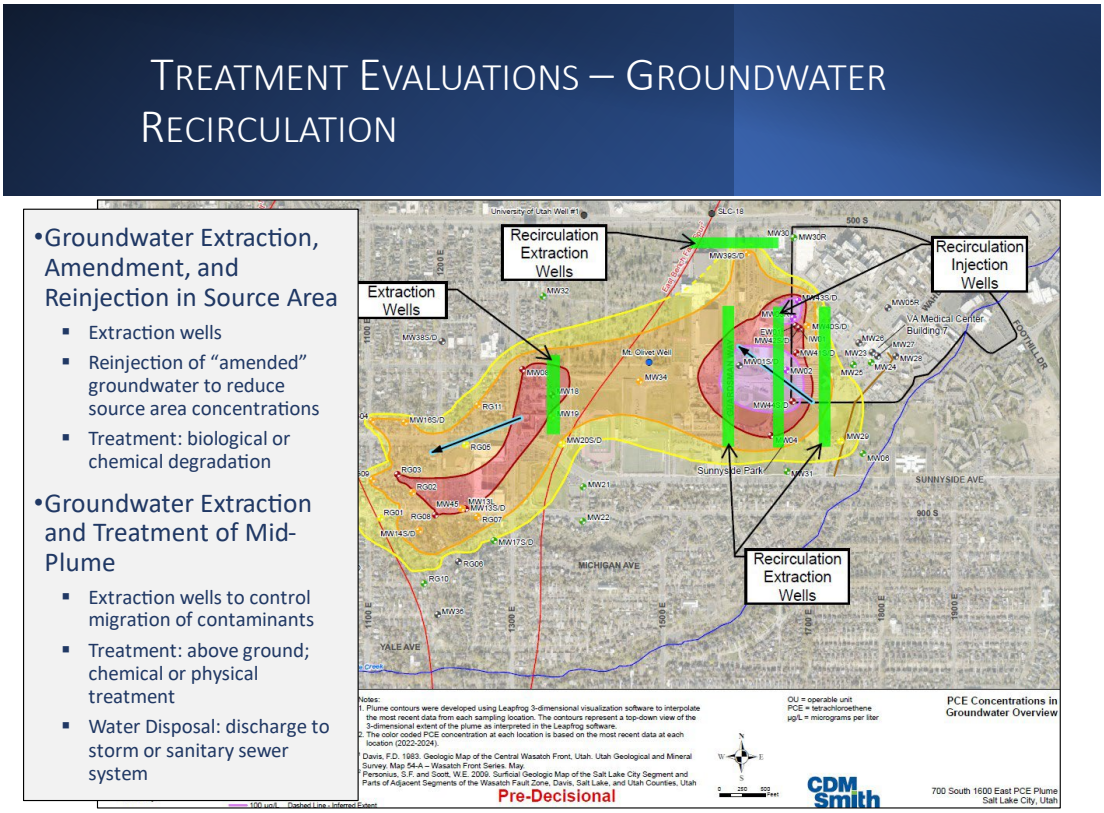
Treatment Evaluations – Groundwater Injection (Slide 14)



VA described the second treatment alternative which includes groundwater injection implemented sitewide, accomplished through multiple injection wells. As previously discussed, deep aquifer injection at the Source Area would require fracturing.

The audience asked if there was any concern with spreading the PCE with this treatment option. VA responded that the PCE plume itself would not move, only the injected amendment. The audience also asked what kinds of chemicals would be injected, and VA answered that it could be permanganate or zero valent iron among other things. VA then clarified that there will be an effort to not allow injected chemicals to reach surface springs located at the toe.

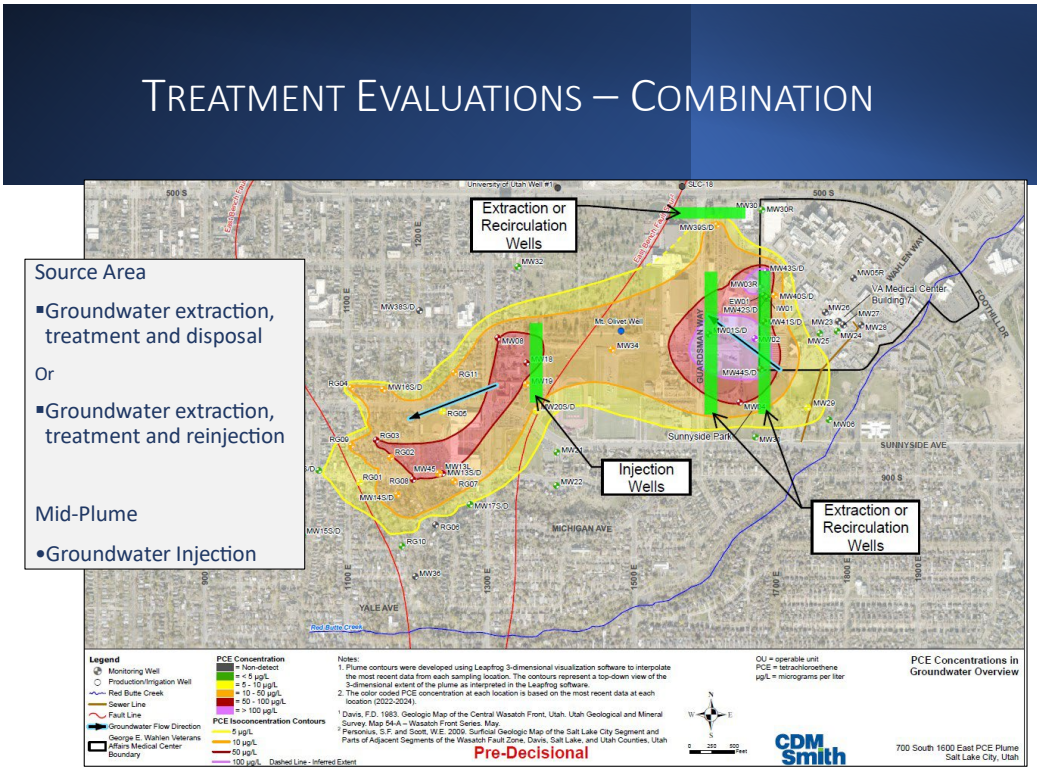
Treatment Evaluations – Groundwater Recirculation (Slide 15)



VA presented the third treatment alternative, which involves implementing groundwater recirculation at the Source Area and groundwater extraction at the Mid Plume.

The audience inquired about cost estimates for these treatment systems and the benefits of reinjecting the extracted groundwater. VA responded that there are currently no cost estimates available. Additionally, managing extracted groundwater can be challenging; however, reinjecting it with amendments can effectively further reduce contaminant concentrations.

Treatment Evaluations – Combination (Slide 16)



VA presented the fourth treatment alternative, which includes groundwater recirculation implemented at the Source Area and groundwater injection at the Mid Plume.

During the meeting, the audience inquired whether VA could conduct a cancer study. VA clarified that such a study would be undertaken by either the State or County Health Department. In response, the audience expressed concerns and motioned to raise these issues with the County Health Department in hopes of initiating a study. This motion was passed.

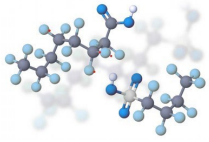
Additionally, the audience asked about the estimated timeline for treatment and whether there were any concerns regarding potential cuts to project funding. VA responded that the treatment of the mid-plume and toe would take approximately 20 to 30 years, while the treatment of the Source Area could take up to 50 years. VA also provided insights into how this project is funded, reassuring attendees that it would not impact patient care funds.

Treatment Evaluations – PFAS Question (Slide 17)

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.



VA provided an overview of PFAS, and how it pertains to the site as well as an update on recently completed PFAS sampling activities. VA also described the difficulties with treating PFAS contamination due to the strong carbon fluorine bond. Audience then asked if a PFAS release could've coincided with the PCE release, VA responded that stain resistant gowns were laundered at the VA, so it is possible.

PFAS Next Steps (Slide 18)

Based on sample results…

No or very low PFAS Detections:

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

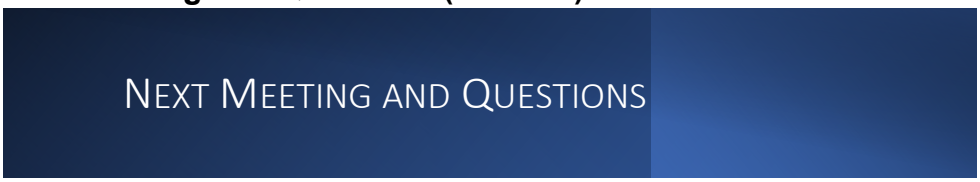
PFAS Detected Above Regulatory Limits:

- 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

The VA presented two options for addressing PFAS contamination, that would be based on the results from the recent sampling event. The audience expressed concerns that PFAS might hinder the remediation efforts for PCE. In response, the VA explained that if there is significant PFAS contamination attributable to the VA, a separate operable unit could be established for PFAS, allowing PCE remediation to proceed concurrently.

Additionally, audience members inquired whether Red Butte Creek could serve as a control site due to its documented PFAS use. The VA clarified that linking surface water and groundwater contamination is challenging; therefore, sampling hydraulically upgradient groundwater would be a more effective control method. The VA also noted that sampling conducted by the State has not revealed extensive PFAS contamination.

Next Meeting and Questions (Slide 19)



Agenda items for next meeting

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VA then opened the room up to any more questions the audience may have. The audience planned to have the next CAG meeting in the Fall, after the draft Feasibility Report is completed, and more details of the treatment alternatives can be provided.