

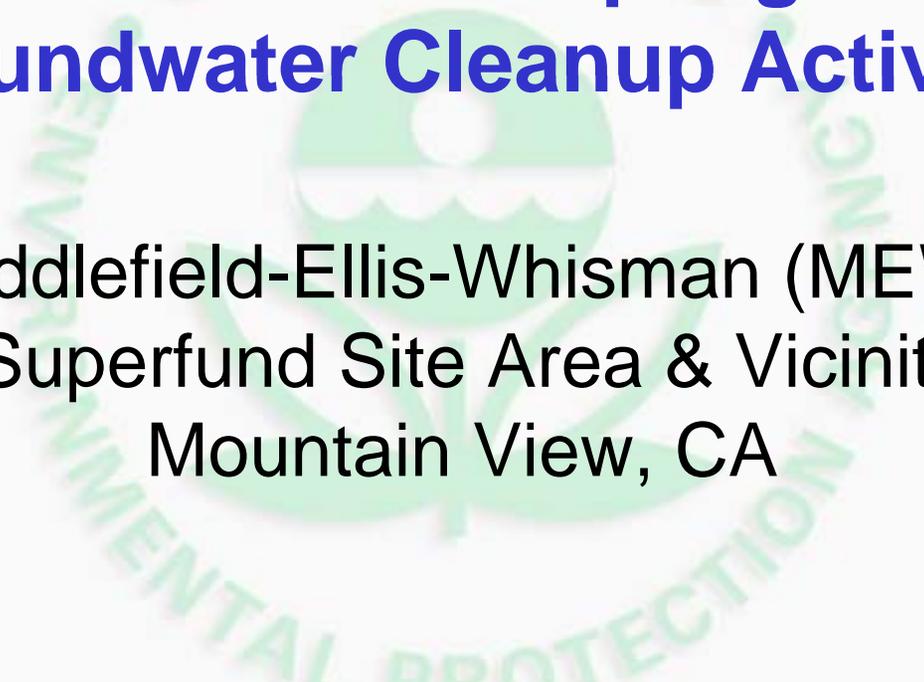


EPA Update

Residential Sampling and Groundwater Cleanup Activities

Middlefield-Ellis-Whisman (MEW)
Superfund Site Area & Vicinity
Mountain View, CA

May 7, 2014



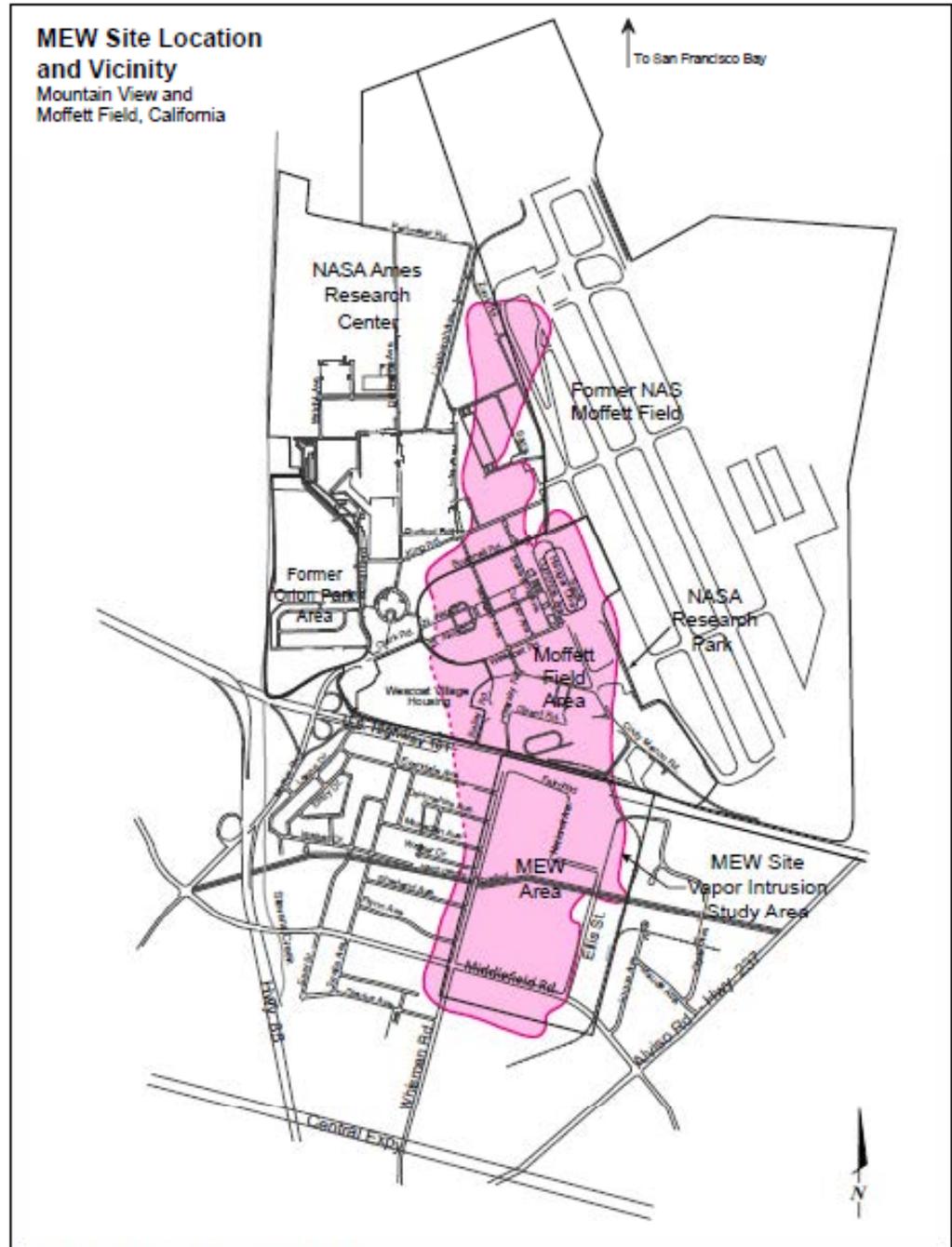
EPA Presentation Outline



- Introductions/Overview (5 minutes)
 - Residential Indoor Air and Groundwater Update (15 min)
 - *Questions & Answers*
 - In situ Chemical Oxidation Pilot Test (10 min)
 - *Questions & Answers*
-
- *Resume poster session. EPA available to answer questions.*

Overview

MEW Site Vapor Intrusion Study area (as known in 2013)



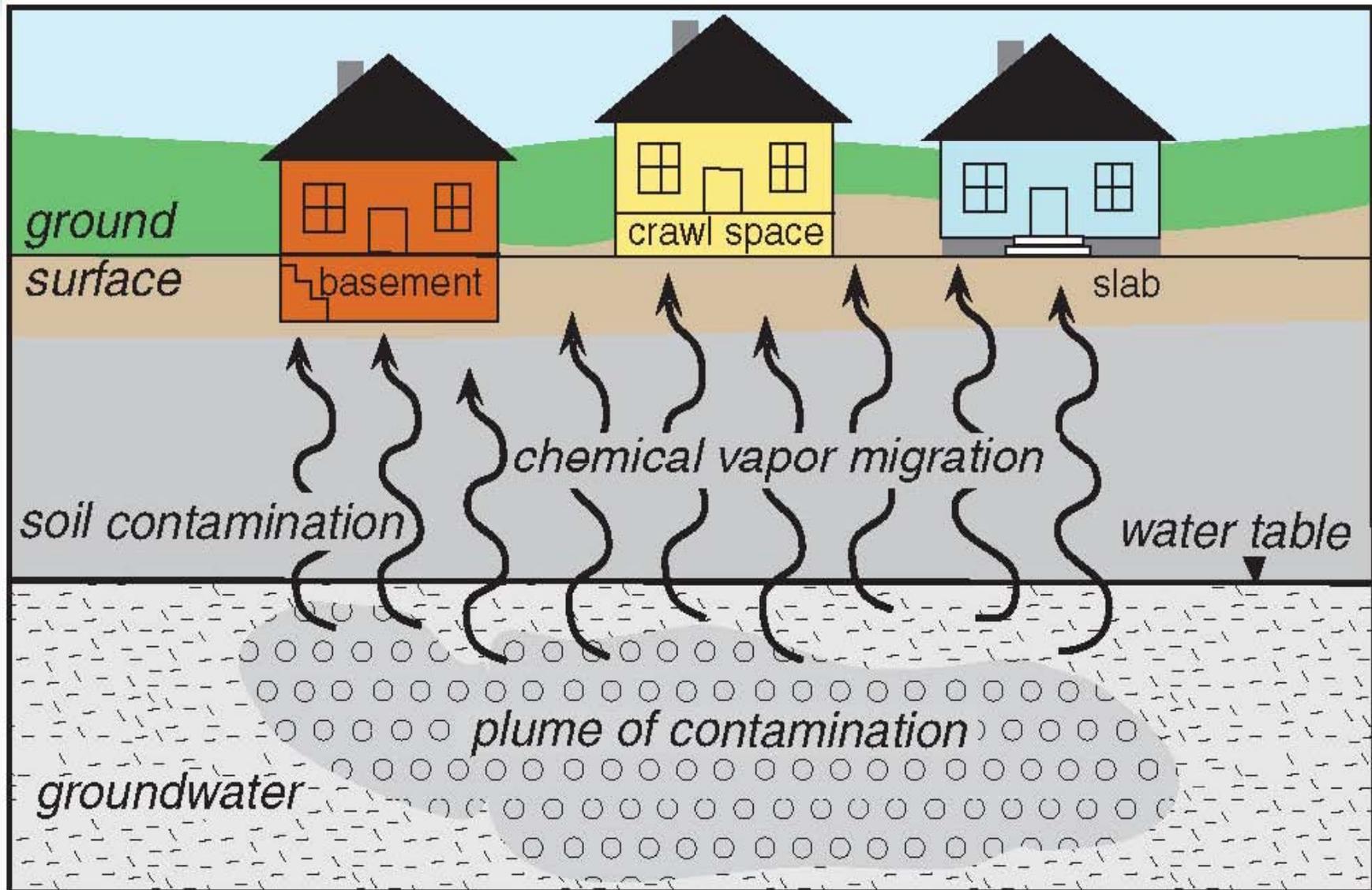
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What is TCE and why is it a concern?



- TCE or trichloroethene is a solvent used that was widely used in past for degreasing and cleaning.
- TCE can readily evaporate into air and has potential to migrate from shallow contaminated groundwater upwards into overlying buildings through the **vapor intrusion pathway**.
- If TCE is in indoor air at high enough levels for a long enough duration, it may pose a potential health concern.

Vapor Intrusion Pathway

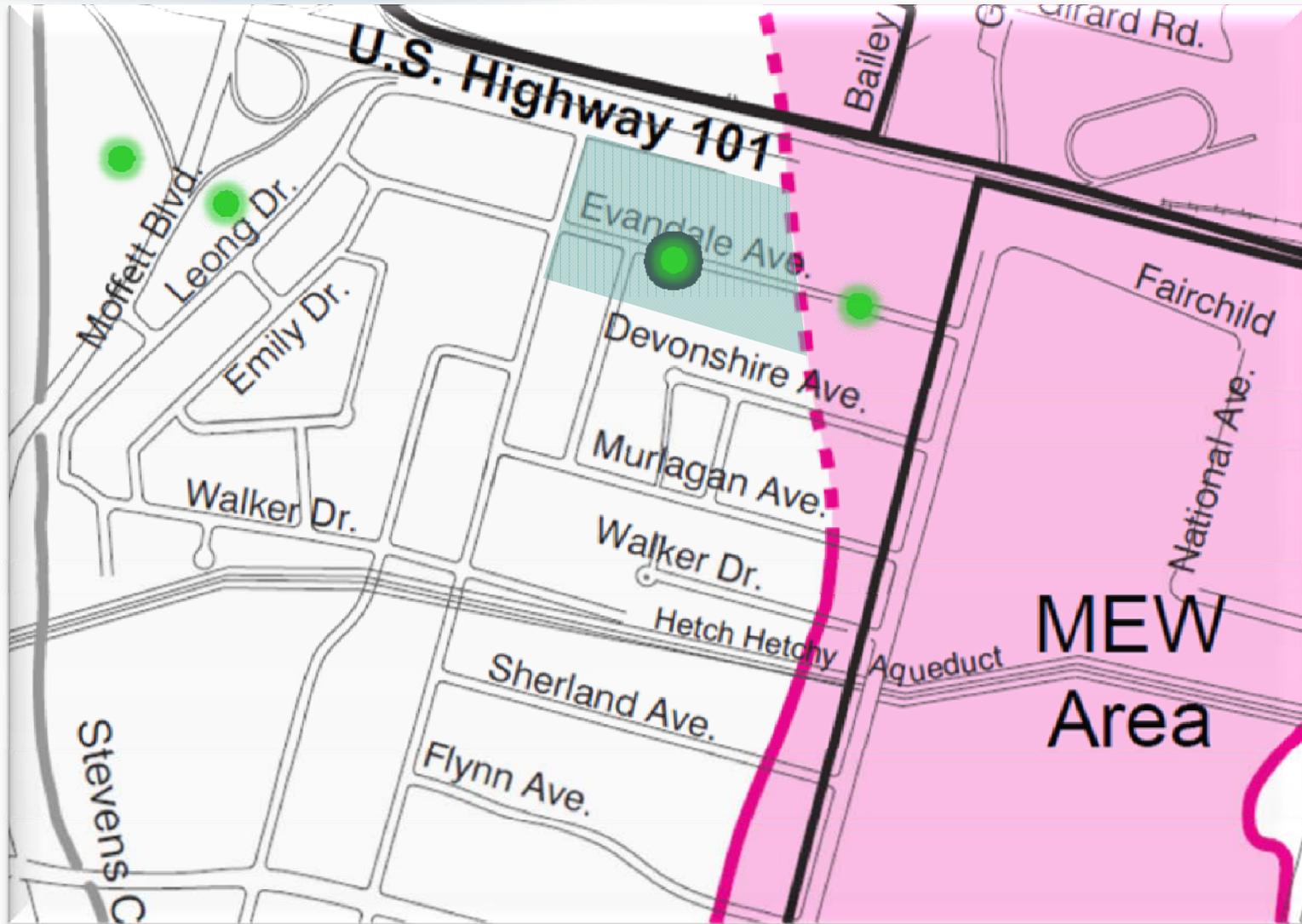


MEW Vapor Intrusion Study Area



- Generally defined by the area where TCE concentrations in shallow groundwater are greater than 5 micrograms per liter ($\mu\text{g/L}$), or parts per billion (ppb).
- In 2010, EPA selected a vapor intrusion remedy for the MEW Site, which applies to all existing and future residential and commercial buildings, within the MEW Vapor Intrusion Study Area.
- EPA has set TCE indoor air cleanup levels that are protective of both short-term and long-term health concerns.

Residential Indoor Air



Indoor Air Sampling Results



- EPA sampled over 90 residences in expanded residential areas, and a total of over 140 residences.
- No TCE was detected in most residences sampled.
- TCE was detected in some residences, but below indoor air cleanup levels. These homes were re-sampled to confirm TCE below indoor air cleanup levels.
- TCE has been found in only three residences exceeding EPA's TCE indoor air cleanup level of 1 microgram per cubic meter.
- Vapor intrusion control systems were installed to mitigate TCE indoor air concentrations to below indoor air cleanup levels.

How do I have my residence sampled?



Residences within MEW Site Vapor Intrusion Study Area and vicinity – overlying TCE shallow groundwater contamination exceeding 5 ppb may be sampled

- Contact EPA with your residence address, phone number, and email, and an EPA representative will get in touch with you.
- Permission to sample must be obtained from property owner.
- Sampling ground floor units only of multi-unit buildings.

Sampling Summary and 2014 Sampling Activities

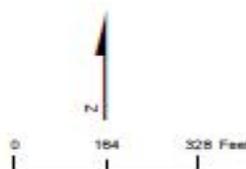


- Results from all indoor air sampling to date showed vapor intrusion is not a problem in most residences sampled.
- Based on groundwater and air sampling to date, areas that overlie lower TCE groundwater concentrations are considered as low vapor intrusion risk.
- EPA continues investigation of TCE Hot Spot Areas and additional groundwater investigation to fill data gaps on Fairchild Drive.

TCE Shallow Groundwater Results September 2013



- ▲ 2013 EPA grab groundwater location
- ▲ 2005-2012 grab groundwater location
- The result shown is the maximum groundwater TCE concentration in parts per billion (ppb) to 40 feet below ground surface.
- ND = Not Detected (below 0.5 ppb TCE)
- Sanitary sewer drainage route
- Stormwater drainage route



TCE Shallow Groundwater Results September 2013



In Vicinity of Highway 101 & Moffett Blvd Study Area & MEW Superfund Site, Mountain View, CA



Sampling Notice

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • April 2014

Mountain View, California

The U.S. Environmental Protection Agency (EPA) continues to investigate the extent of trichloroethene (TCE) groundwater “hot spot” areas previously found on Evandale Avenue and Leong Drive. These “hot spot” areas are where concentrations of TCE exceeded 1,000 parts per billion in shallow groundwater.

Beginning on Monday, April 21st and during May 2014, you may see field crews in your neighborhood conducting groundwater and soil gas sampling (Figure 1).

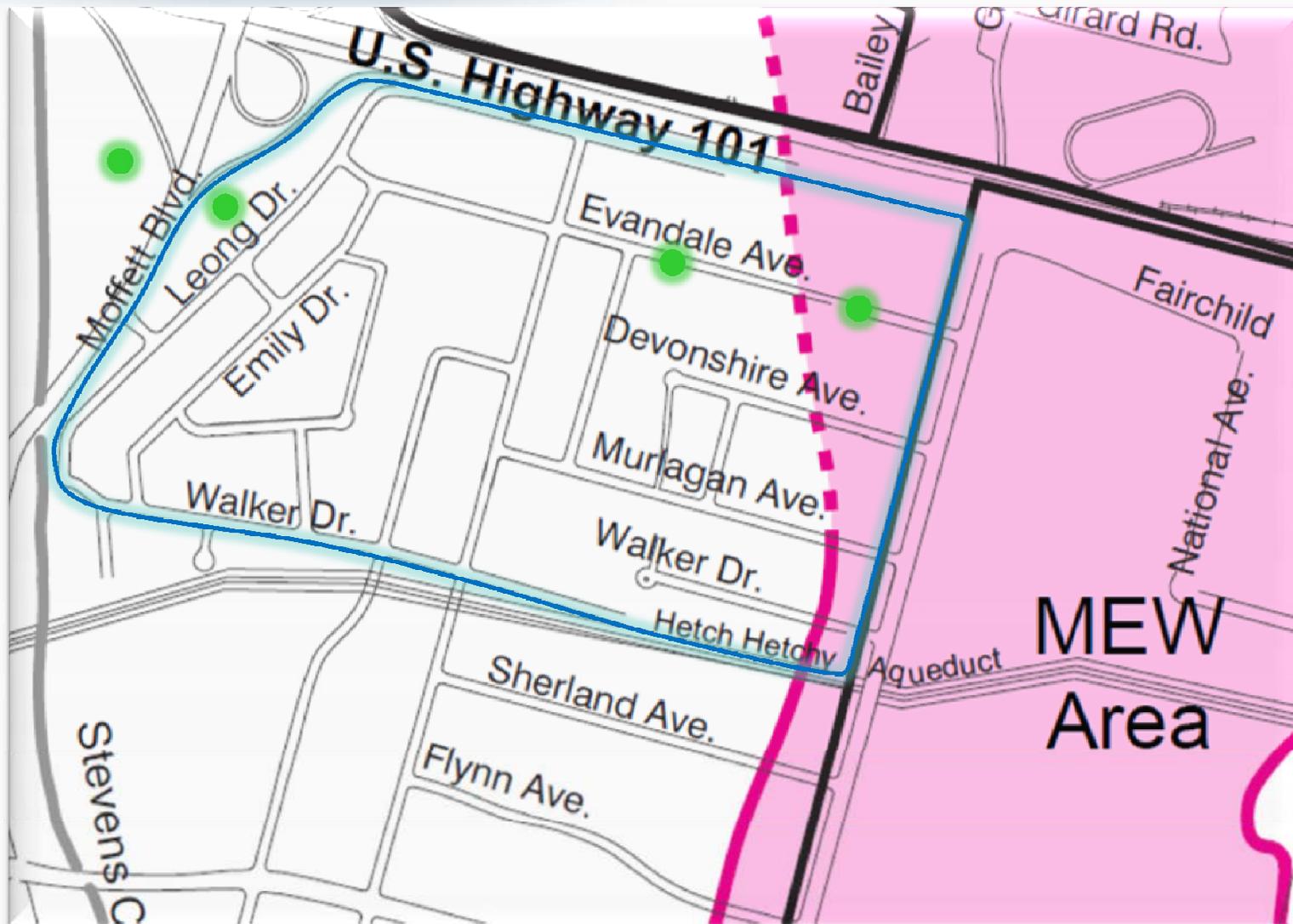


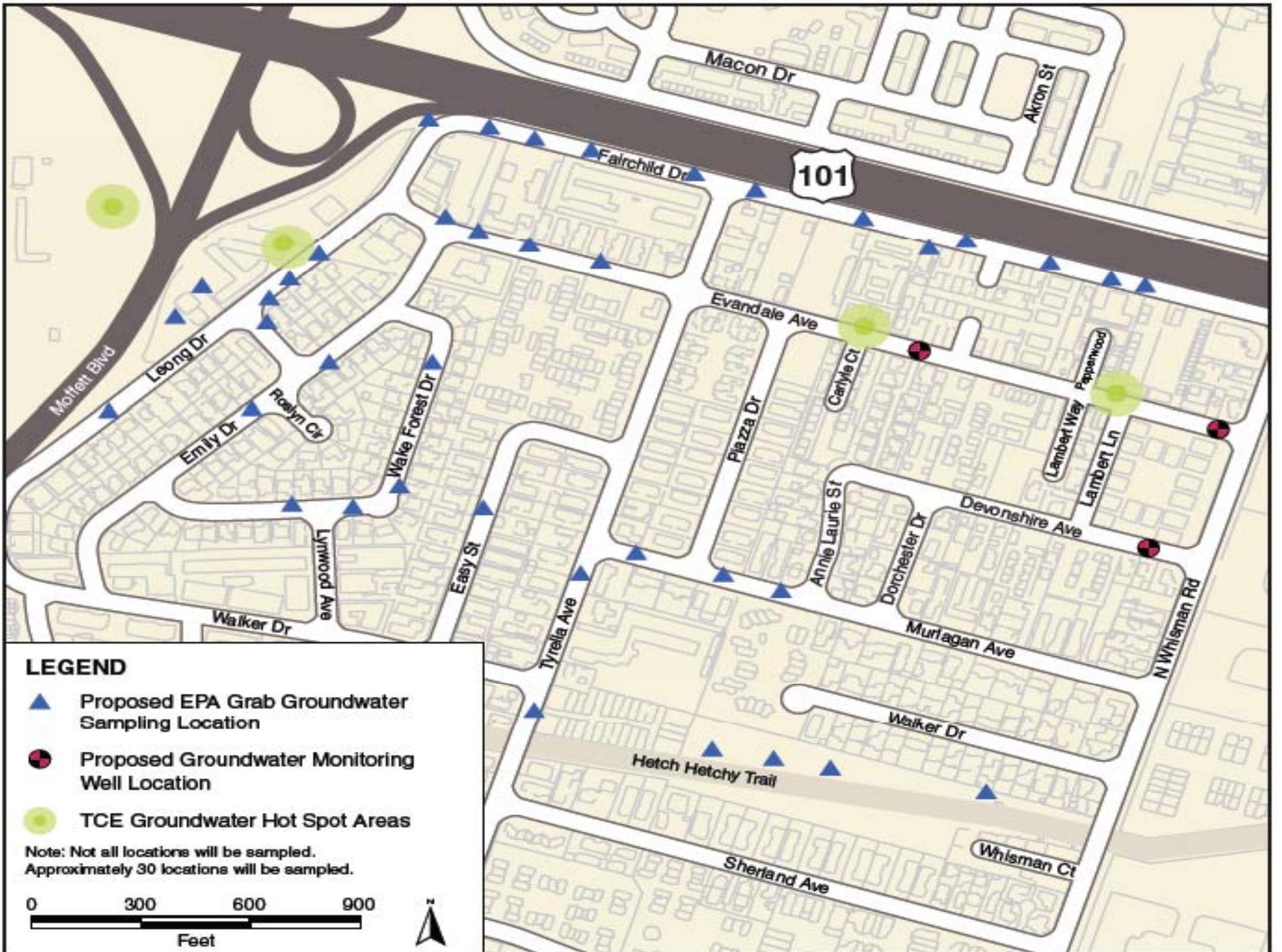
**EPA Open House /
Informational Poster
Session**

You are invited to attend an EPA

The graphic features a blue background with silhouettes of people in a meeting or presentation setting. The text is white and bold, inviting the public to an EPA Open House / Informational Poster Session. Below the graphic, the text "You are invited to attend an EPA" is partially visible.

2014 Residential Study Area





Macon Dr

Akron St

101

Fairchild Dr

Evandale Ave

Carlyle Ct

Papenwood

Leong Dr

Roslyn Ct

Wake Forest Dr

Emily Dr

Lynwood Ave

Easy St

Plaza Dr

Arnie Laurie St

Devonshire Ave

Lambert Way

Lambert Ln

Walker Dr

Tyrella Ave

Dorchester Dr

Murlagan Ave

N Whisman Rd

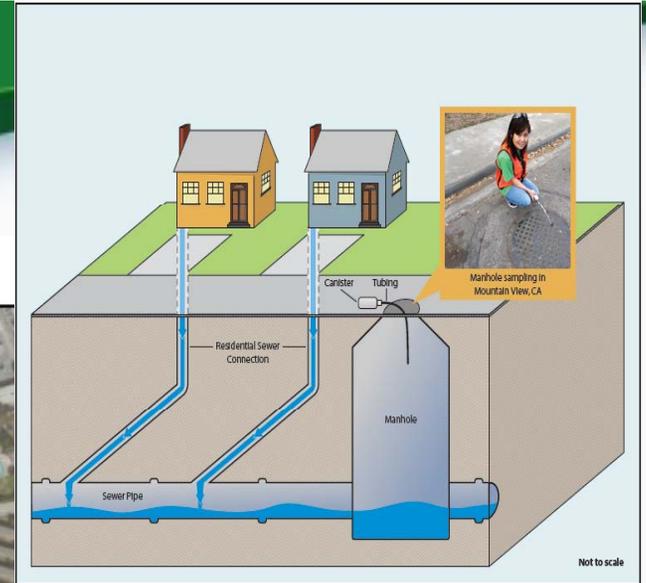
Walker Dr

Hetch Hetchy Trail

Sherland Ave

Whisman Ct

Sewer Flow Direction Map



EPA Mobile Lab and TAGA - Trace Atmospheric Gas Analyzer

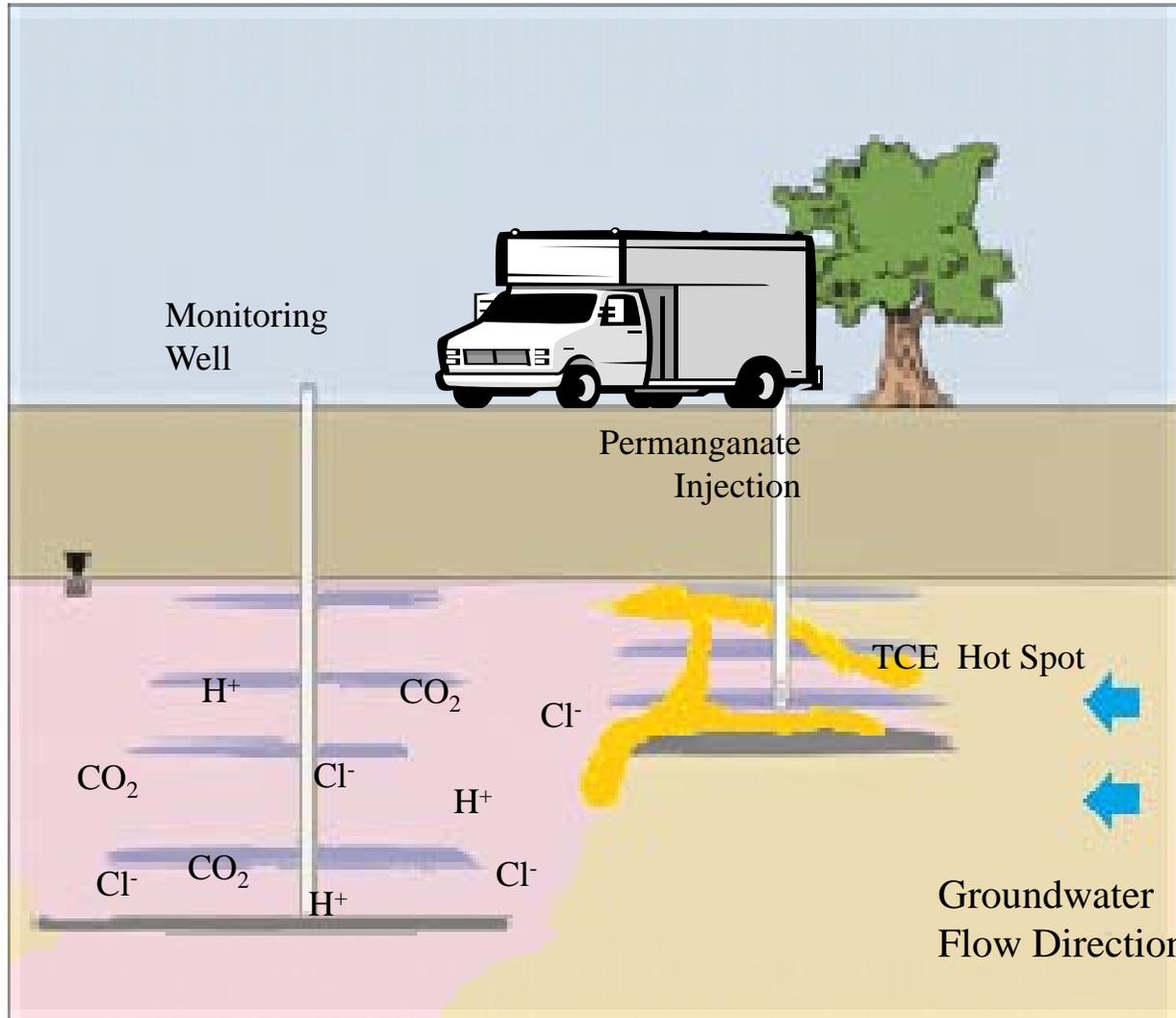


In Situ Chemical Oxidation Pilot Test Update



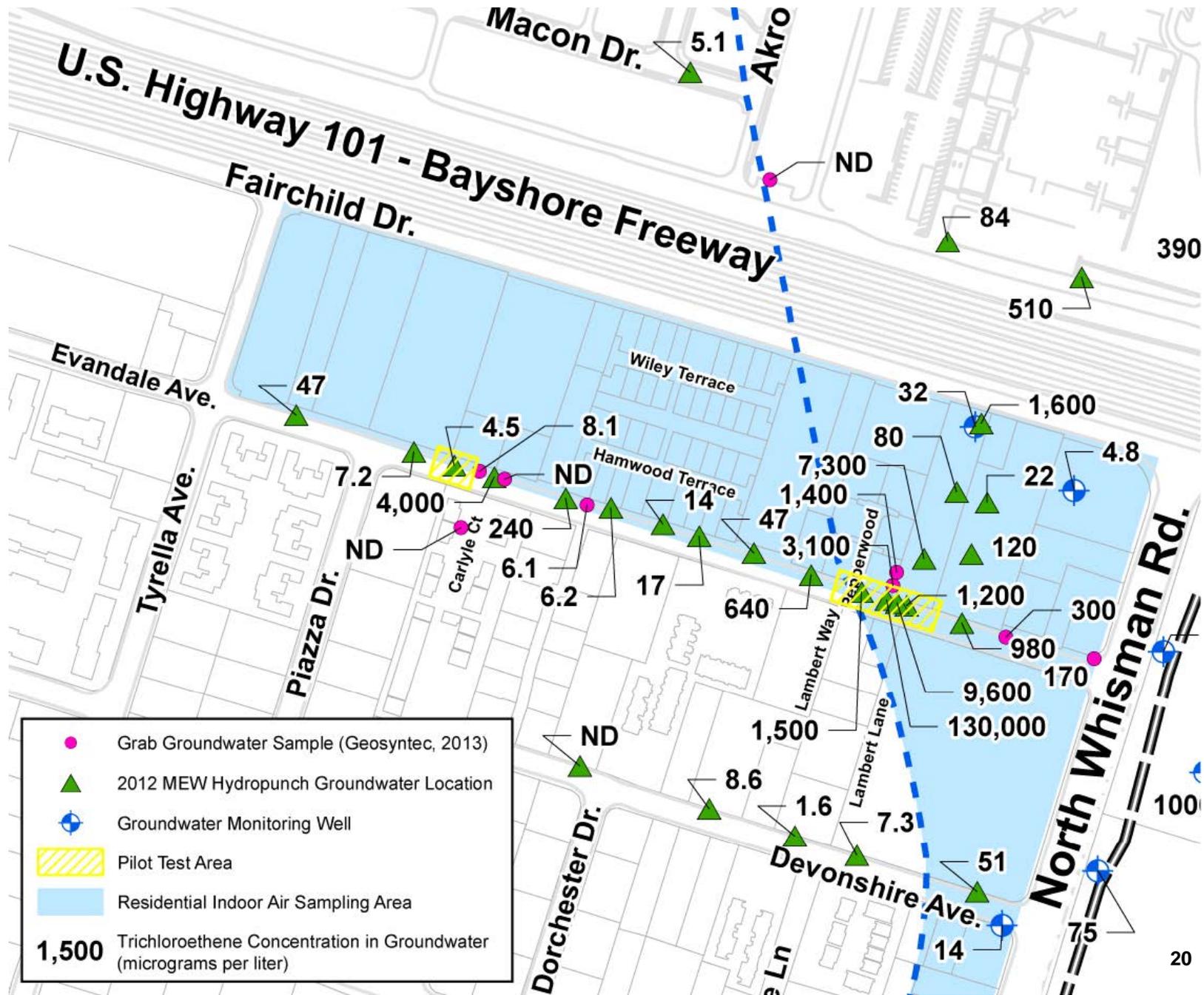
- Purpose: To see if chemical oxidant can be used to more rapidly reduce high concentrations in groundwater faster than pump and treat.
- Completed two injections of oxidant in hot spot area along Evandale Avenue in February and April 2014

Injection Process



- Permanganate reacts with TCE
- Forms harmless byproducts:
 - carbon dioxide
 - manganese oxide
 - salt solutions

2013 Sampling Results and Proposed Pilot Test Locations



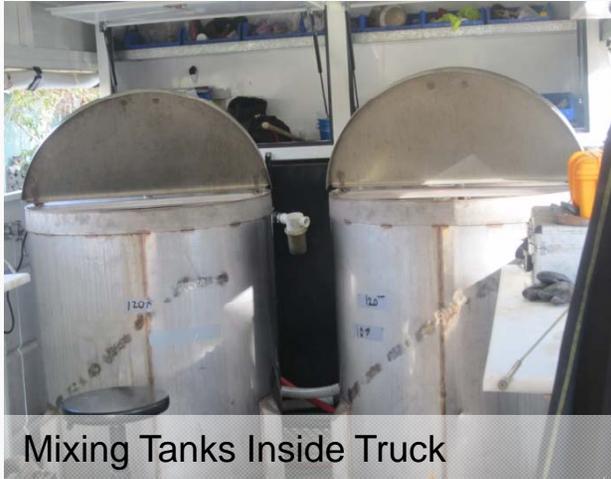
Pilot Test Location – CPT-15



Note:
Locations are approximate.
Aerial Source: USGS, April 2011

- Legend**
- Pilot Test Area
 - Proposed temporary monitoring well location
 - Proposed injection point (approximate location)
 - Proposed temporary piezometer to monitor water levels

Pilot Test Equipment



Mixing Tanks Inside Truck



Flow meter



Mixing Tanks

Injection port

Performance Monitoring



Monitoring Wells



Utility monitoring



Purpled –colored oxidant

Results from February and April 2014 Injections



- Successfully injected permanganate into subsurface from 15 to 35 feet bgs
 - » February 2014 event – 17,700 gallons of 2.5% solution
 - » April 2014 event – 24,300 gallons of 2.0% solution
- Samples collected after April 2014 event indicate TCE reductions in injection area
- Distribution of permanganate limited by slow groundwater migration

Next Steps



- Continue sampling of performance monitoring wells
- Third injection event (as early as July 2014)
- Injection in additional area along Evandale Avenue (as early as July 2014)
- Pilot Test Report and Recommendations (Winter 2015)

Potential Neighborhood Impacts



- 7 business days of injection activity
- One way access on street
- No driveway access impacts
- Work done during City Permit Hours
(~8:00 am to 5:00 pm)
- Street parking reduced in pilot test area
- No odors or dust generated during previous injections; none anticipated for future injection

EPA Contact Information



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**EPA Websites –
For More Information**

www.epa.gov/region9/mew

www.epa.gov/region9/moffettfield

www.epa.gov/oswer/vaporintrusion