



EPA Residential Groundwater and Vapor Intrusion Update #2

Middlefield-Ellis-Whisman (MEW) Study Area

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • March 2013

Mountain View, California

Summary of EPA Initial Groundwater and Air Investigation Results

From November 2012 through February 2013, the U.S. Environmental Protection Agency (EPA) conducted a groundwater investigation to better define the western extent of the regional shallow groundwater contamination plume boundary of the Middlefield-Ellis-Whisman (MEW) Superfund Site in Mountain View, CA. Groundwater samples were initially collected in the residential area along Evandale and Devonshire Avenues. Groundwater sampling identified two “hot spot” areas with high concentrations of trichloroethene (TCE) exceeding 1,000 parts per billion (ppb) in the shallow groundwater, from 13 to 40 feet below ground surface. EPA identified homes in the immediate vicinity of these high concentration “hot spot areas” as high priority areas for indoor air sampling to determine whether contamination from the subsurface was entering into overlying homes. The figure shows the groundwater sample results collected along Devonshire and Evandale Avenues and the high priority areas for indoor air sampling.

After contacting the owners/residents of the residences in the high priority areas, EPA conducted indoor air sampling in the high priority areas at those residences where EPA obtained the owners/residents’ permission to sample.

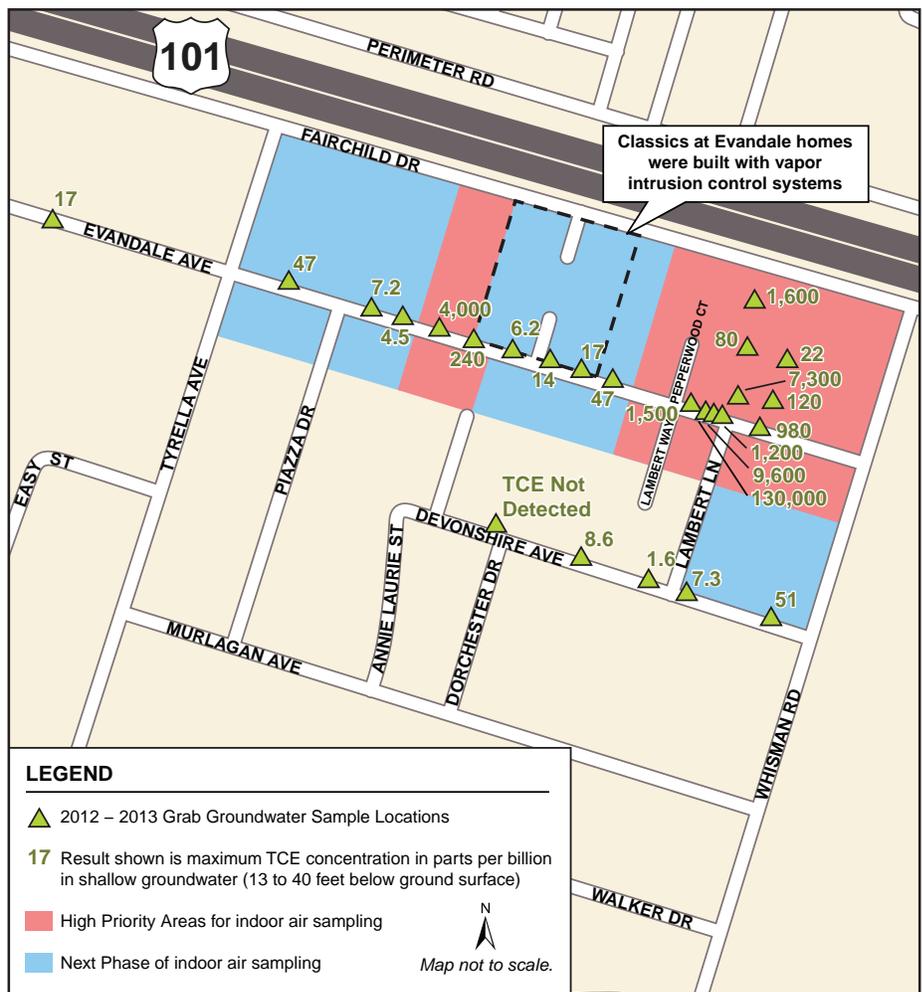


Figure 1: 2012 – 2013 Groundwater Results – TCE in Shallow Groundwater

EPA’s Health Protective TCE Indoor Air Cleanup Level

As part of the vapor intrusion remedy for the MEW Site, EPA has set a residential indoor air cleanup level of 1 microgram per cubic meter (ug/m³) of TCE in air. EPA’s TCE indoor air cleanup level is health protective for both long-term and short-term health concerns.

Results of Indoor Air Sampling

In January 2013, EPA sampled indoor air in 30 residences within the high priority areas and, of these, two residences were found to have TCE indoor air concentrations exceeding EPA's TCE indoor air cleanup level. A vapor intrusion control system was promptly installed in one of the residences to mitigate the vapor intrusion concern. The system for the second residence is currently being designed and will be installed this spring. Most of the remaining residences had no TCE detected in indoor air. A few residences had low concentrations of TCE, but these were all below EPA's indoor air cleanup level. These residences are being re-tested to confirm that the levels do not exceed the indoor air cleanup level.

Indoor air results for each home are shared with each individual homeowner and resident. Due to privacy concerns, EPA will not publicly disclose the individual residential addresses of the results. A general summary of the data will be publicly available.

EPA Next Steps – Vapor Intrusion

The results from the high priority area sampling showed that vapor intrusion was not a problem in most of the residences sampled. As a next step, EPA is expanding the vapor intrusion investigation to confirm that homes in the larger surrounding area (beyond the high priority areas) overlying lower levels of shallow TCE groundwater contamination are also not being affected by the potential vapor intrusion pathway. **Based on the groundwater and indoor air data available to date, these areas outside the high priority areas that overlie lower TCE groundwater concentrations are considered to be a low risk for vapor intrusion. However, EPA would like all residents and homeowners to be informed about the situation and have the option to have their home tested if they choose.**

This next phase of residential sampling will begin in March 2013 and will include residences noted in blue in the figure on the front page. The general area to be sampled includes the homes along Evandale Avenue and Fairchild Drive between Tyrella Avenue and North Whisman Road.

Residential air sampling in this area is voluntary, and the sampling will be conducted at no charge to the homeowner or resident. If your home is within this area and you would like your home sampled, please contact EPA (see contact information on next page) with your phone, address, and email, so that EPA may easily get in touch with you. If you are a renter, we will also need the contact information of the property owner in order to obtain permission to sample. EPA will also attempt to contact any remaining residents in homes that have not already been sampled in this area through door-to-door or telephone outreach.

What is vapor intrusion?

Vapor intrusion is the migration of volatile chemicals from the subsurface into overlying buildings. Volatile chemicals (those that evaporate readily in air) can migrate upward through the soil and enter buildings through cracks in the foundation and floors and around utility piping conduits.

What is TCE and why is it a concern?

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

What are the potential health effects of TCE?

In September 2011, EPA finalized its TCE Health Assessment [see *Toxicological Review of Trichloroethylene* - <http://www.epa.gov/iris/subst/0199.htm>]. The Assessment concluded that TCE is a human carcinogen. This means that TCE can cause cancer in humans if they are exposed to high enough concentrations for a long enough period of time. TCE can also affect the central nervous and immune systems, the kidneys and the liver, male reproductive organs, and the developing fetus.

Like any other toxic chemical, the effects of TCE on human health depend on the toxicity of the chemical; the general health, age, and lifestyle of the person; how much a person is exposed to TCE (amount, concentration); how long a person is exposed (exposure time, duration); and how often a person is exposed (frequency of exposure).

Frequently Asked Questions about Indoor Air Testing

How is indoor air testing done?

Air samples are collected in sampling canisters or sorbent samplers that slowly draw surrounding air over either a 24 hour period (canisters) or for a period of 3 to 10 days (sorbents) and are placed in the living space and crawlspace, if one is present. EPA will assess TCE concentrations and other MEW Site-related volatile chemicals inside residences by comparing the sample results with outdoor air results, crawlspace air results (if present) and with EPA's health-protective residential indoor air cleanup levels.

Who pays for the testing?

The MEW Superfund Site responsible parties are paying for the costs of the sampling in the area. There is no charge to the owner or resident for testing.

What if there is a Vapor Intrusion problem in my home?

If indoor air sampling results show TCE from vapor intrusion exceeding EPA's residential indoor air cleanup level of 1 µg/m³, EPA recommends the installation of a vapor intrusion control system to reduce indoor air contaminant levels. With the consent of the homeowner, EPA and the MEW responsible parties will work with the homeowner and resident to

Important Facts to Know

- **Groundwater in this area is not used as a source of drinking water or other household purposes.** Drinking water in this area is treated to meet all state and federal drinking water standards.
- It is safe for residents to eat fruits and vegetables grown in their yards. Plant roots do not extend to the depth of the groundwater.

lower the TCE indoor air levels and to prevent the contamination from accumulating in the residence. This generally includes sealing any potential conduits and the installation of a sub-slab or sub-membrane vapor intrusion control system. There is no cost to the homeowner or resident for installation of a vapor intrusion control system. Note that EPA is not requiring residential owners to complete these response actions themselves.

Contacting EPA – For More Information

EPA is committed to meaningful public involvement and keeping residents, owners, and community members informed about the ongoing groundwater and vapor intrusion work.

EPA will continue to provide updates to the community regarding the work in the residential area through flyers and meetings. If you would like to be added to EPA's mailing list, please contact EPA.

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See also EPA's websites for more information on the MEW Superfund Site and vapor intrusion:
www.epa.gov/region9/mew
www.epa.gov/oswer/vaporintrusion



EPA Next Steps – Groundwater

EPA is continuing to conduct subsurface work to investigate the source and extent of the TCE contamination in the “hot spot” areas. Two new extraction wells are being installed in these areas to clean up the groundwater contamination and they will begin operating this summer. Permanent monitoring wells will also be installed and sampled annually to monitor the plume boundary over time.

The results of the groundwater sampling, along with additional sampling collected in other areas of the regional groundwater contamination plume, will be summarized in a report that will be available in Spring 2013.

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