



## Groundwater Contamination in the Six Mile Richardson Highway Area

### Background

Trichloroethene, also known as trichloroethylene or TCE, was discovered in groundwater and drinking-water wells serving homes and businesses in the Six Mile Richardson Highway area of Fairbanks in 1995. TCE is an industrial solvent and degreaser that has been shown to cause adverse health effects in humans. The Alaska Department of Environmental Conservation (ADEC) has been monitoring groundwater quality and other environmental conditions in the area since the 1990s, to evaluate the potential risk to human health.

The TCE groundwater contaminant plume in the area measured slightly more than a mile long, up to 1,200 feet wide, and more than 100 feet deep when it was discovered in the 1990s. The plume originates from multiple sources in an industrial area south of the Richardson Highway, near the intersection with Davison Street, and extends northwest into the Six Mile Village Subdivision. ADEC has been studying the plume by measuring concentrations of TCE and other volatile organic compounds (VOCs) in drinking-water wells and monitoring wells of various depths. TCE concentrations in the plume have gradually decreased since 1995 as the result of natural breakdown and dilution.

### Proposed Changes to Groundwater Cleanup Levels

The ADEC has established a groundwater cleanup level of 5.0 micrograms per liter ( $\mu\text{g/L}$ ) for TCE. In 2011, the U.S. Environmental Protection Agency (EPA) released information that indicated TCE may be more toxic than previously believed. The ADEC is proposing to set a new groundwater cleanup level for TCE of 2.82  $\mu\text{g/L}$  based on an evaluation of exposure risk to humans.

Given the proposed cleanup level change, the 2015-16 sampling effort includes drinking-water wells that have not been recently sampled, as well as a search for any new drinking-water wells that may be present in the area.

### Drinking Water Treatment Systems

Activated carbon water treatment systems that remove TCE from drinking water have been installed in qualifying homes in the Six Mile area. The ADEC currently pays for maintenance of these water treatment systems.

If TCE in your well is not above 2.82  $\mu\text{g/L}$ , your well water may be safe to drink without treatment. It is important to note that there are many types of contaminants other than TCE that can affect your drinking water quality. ADEC does not regulate or test private drinking water wells. If you have a treatment system, proper maintenance of your system is necessary. Improper maintenance may worsen water quality. If you are concerned about your water quality, additional information can be found at <http://dec.alaska.gov/eh/dw/publications/publications.html>.

### Vapor Intrusion

Certain chemicals, including TCE, give off vapors that can travel through air spaces in soil. Under some circumstances chemical vapors can enter buildings near contaminated soil or groundwater. Factors that influence the potential for such vapor intrusion include air pressure, contaminant concentration, and the presence of cracks in foundations, crawl spaces, or basements.

In 2009, the ADEC began monitoring TCE vapor concentrations in and near occupied homes to investigate the potential for TCE vapor intrusion. The vapor intrusion investigation has focused on

permanent buildings within 100 feet of the TCE contaminant plume. Air sampling has included evaluation of indoor air quality, sub-slab soil gas (vapor concentrations beneath buildings), and soil gas near buildings. Although TCE has been found in soil gas near or beneath buildings, the TCE has not been found to be moving into most buildings at harmful levels.

### Continuing Investigation

The ADEC plans to continue its investigation of vapor intrusion, which could include more soil gas and indoor air sampling and will continue sampling drinking-water wells as necessary.

### For More Information

The ADEC maintains a website relating to the Six Mile Richardson Highway TCE groundwater investigation (includes maps): [https://dec.alaska.gov/spar/csp/sites/6mile\\_area.htm](https://dec.alaska.gov/spar/csp/sites/6mile_area.htm) and see the Center for Disease Control (CDC) ToxFAQ Fact Sheet for TCE, updated May 2015: <http://www.atcdr.cdc.gov/toxfaqs/tfacts19.pdf>

For other questions on the Six Mile investigation contact DEC's project manager in the Fairbanks Office, Janice Wieggers, at [Janice.Wieggers@alaska.gov](mailto:Janice.Wieggers@alaska.gov) or (907) 451-2127.

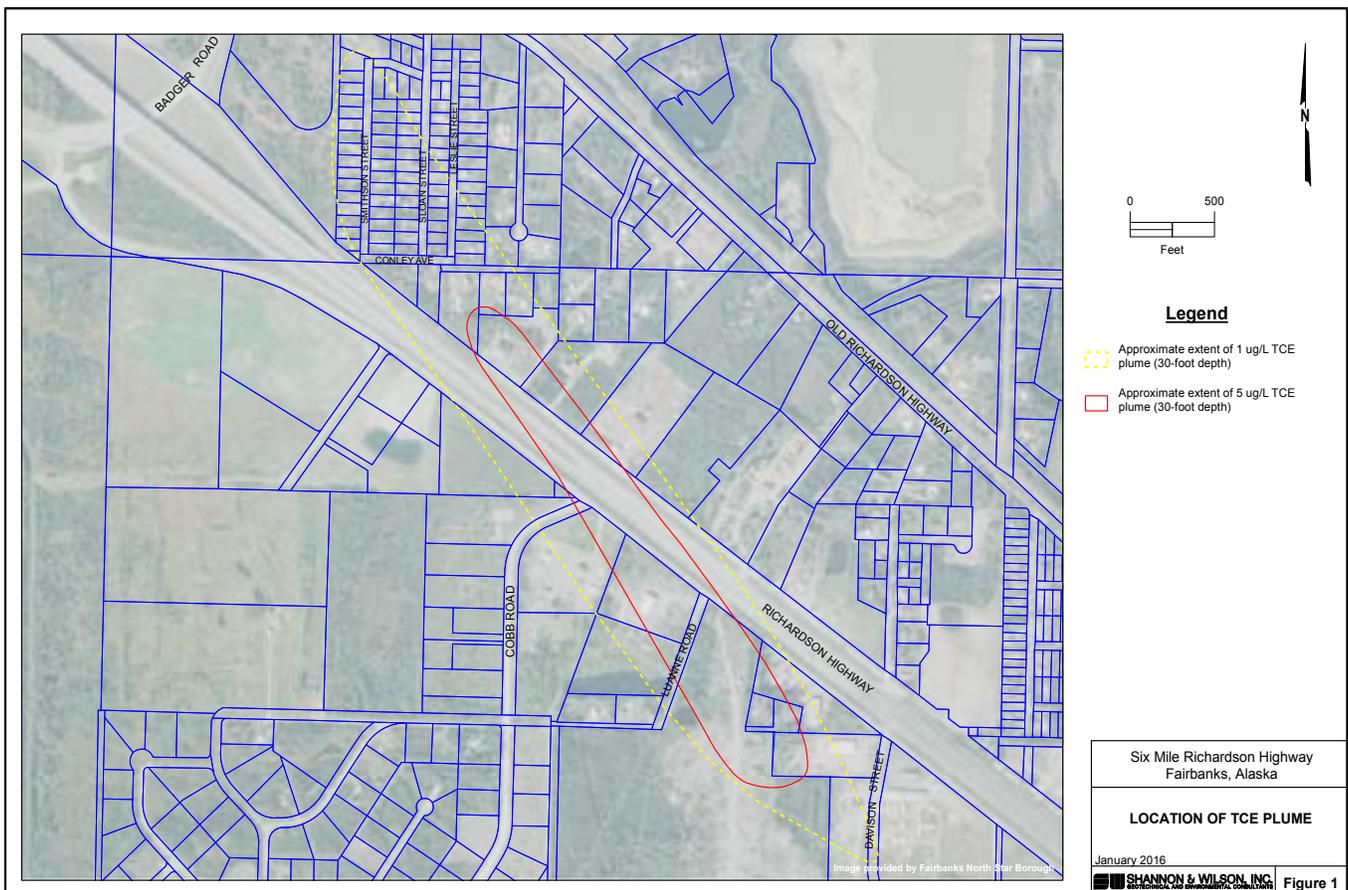


Figure 1 shows the approximate extent of TCE contamination in groundwater at a concentration of 5  $\mu\text{g/L}$ , the ADEC groundwater cleanup level (red line). The yellow line shows the approximate extent of the 1  $\mu\text{g/L}$  TCE contamination. ADEC samples monitoring wells, but is not regularly testing drinking water wells for TCE outside the 5  $\mu\text{g/L}$  line.