

# Trichloroethylene (TCE) and Drinking Water

*Trichloroethylene (TCE) is a contaminant that has been found in Minnesota waters that could be used as drinking water sources. The Minnesota Department of Health (MDH) developed a health-based guidance value for TCE in drinking water.*

## What is TCE?

TCE spilled on the ground can move through the soil and into underground water where it may pollute private and public drinking water wells. TCE is:

- A common, man-made chemical found in the environment;
- Used in industry to remove grease from metal parts; and
- Found in household products – such as correction fluid, paint removers, parts cleaners, and spot removers.

## Is TCE found in Minnesota water?

TCE is one of the most commonly found groundwater contaminants in the state<sup>1</sup>, particularly at industrial or commercial sites where past disposal practices did not protect groundwater. However, there is no TCE present in drinking water for most Minnesotans who receive drinking water from a public utility or a private well.

## What is the MDH guidance value for TCE in drinking water?

In 2013, MDH updated past drinking water guidance for TCE due to new toxicity and health effects information.<sup>2</sup> The updated value is 0.4 parts per billion (ppb). Because of new information and new methods used to develop guidance, this level is more than 10 times lower than the previous guidance value of 5 ppb. A person drinking water at or below the updated guidance value, whether exposed briefly, occasionally, or daily for a lifetime would have little or no risk of health effects.

## Can TCE in drinking water affect my health?

The information we have about the health effects from TCE comes from studies of animals and from studies of people who come in contact with TCE in their environment at home or at work.<sup>3</sup>

## At a Glance

### TCE is...

- A colorless chemical with a slightly sweet odor.
- A contaminant in groundwater and drinking water that can easily move from water to air.

### TCE enters your body from...

- Drinking water with TCE in it (for example, private wells with water that contains TCE).
- Breathing in TCE from the air when you bathe, shower, wash dishes, boil water, or do laundry.



### TCE in drinking water is safe if...

The level is at or lower than the MDH guidance value of 0.4 ppb.

People may be exposed to TCE through drinking water or by breathing it in when it moves into the air from water (for example, when taking a shower). MDH has concluded that the main health concerns from exposures to TCE are:

- Immune system effects such as hypersensitivity or risks for autoimmune disease;
- An increased risk of cancer (kidney and liver cancer and Non-Hodgkin Lymphoma) from long-term exposure;
- Heart defects in the developing fetus if the pregnant mother is exposed in the first trimester.

At higher levels of exposures, TCE also can harm the central nervous system, kidney, liver, and male reproductive system.

### How do I know if my drinking water contains TCE?

First, determine whether your water comes from a public water system or a private well. Public water supplies are routinely tested for TCE. Private wells are usually not tested routinely unless there is reason to suspect that groundwater in a specific area contains TCE.<sup>4</sup> If you get your drinking water from a public system, you can check your annual report or contact your utility to find out if your water contains TCE. If you have a private well, you may have to send a water sample to a private laboratory for testing.<sup>5</sup>

### What can I do to remove TCE from my drinking water?

An activated carbon filter is the best way to remove TCE from drinking water. There are two types of filters: those that filter water for one sink or appliance (such as a refrigerator) and those that can filter all of the water that enters the home (a whole-house filter).

A whole-house filter allows all of the water coming into the home to be filtered, not just water from one sink or appliance. There are two benefits of a whole-house filter: 1) it stops people from having contact with TCE while bathing and, 2) it stops TCE from being breathed in when it evaporates from the water during other uses (washing dishes, flushing toilets). This type of system does cost more and can be difficult to install.

Because TCE can move from drinking water into air, ventilation is also an effective way to reduce the amount of TCE in indoor air when bathing or showering and while cooking or running the dishwasher.

### For more information contact:

Health Risk Assessment

Phone: (651) 201-4899

Website: <http://www.health.state.mn.us/divs/eh/risk/index.html>

E-mail: [health.risk@state.mn.us](mailto:health.risk@state.mn.us)

### At a Glance Continued

#### Your exposure to TCE can be reduced by....

- Using a proper carbon filter for drinking water.
- Using ventilation such as a fan when bathing or boiling water.

### References

1. Minnesota Pollution Control Agency. 2007. Minnesota's Ground Water Condition: A Statewide View. <http://www.pca.state.mn.us/index.php/view-document.html?gid=6395>
2. MDH Technical and Application Information for Trichloroethylene (TCE): <http://www.health.state.mn.us/divs/eh/risk/guidance/gw/tceaddedguidance.html>
3. Environmental Protection Agency, Integrated Risk Information System (IRIS) Trichloroethylene summary: <http://www.epa.gov/iris/subst/0199.htm>
4. Special Well Construction and Boring Areas in Minnesota: <http://www.health.state.mn.us/divs/eh/wells/swca/>
5. MDH. Protect Your Health – Test Your Private Well. [www.health.state.mn.us/divs/eh/wells/waterquality/test.html](http://www.health.state.mn.us/divs/eh/wells/waterquality/test.html)