

Arsenic in Drinking Water

Arsenic occurs naturally in rocks and soil across Minnesota. Small amounts can dissolve into groundwater that may be used for drinking water. Drinking water with arsenic in it can increase your risk of cancer and other serious health effects. It is important to know how much arsenic is in your drinking water and how you can reduce your exposure.

Health Effects

Drinking water with low levels of arsenic over a long time is associated with diabetes and increased risk of cancers of the bladder, lungs, liver, and other organs. Arsenic can also contribute to cardiovascular and respiratory disease, reduced intelligence in children, and skin problems, such as lesions, discoloration, and the development of corns.

Health impacts of arsenic may take many years to develop, especially if you are in contact with arsenic at a low level over a long time.

How to Protect Yourself and Your Family

The U.S. Environmental Protection Agency (EPA) standard for arsenic in drinking water is 10 micrograms per liter ($\mu\text{g}/\text{L}$).^{*} However, drinking water with arsenic at levels lower than the U.S. EPA standard over many years can still increase your risk of cancer. As a result, EPA has set a goal of 0 $\mu\text{g}/\text{L}$ for arsenic in drinking water. This goal does not consider the cost of water treatment to completely remove arsenic from drinking water.

^{*}1 microgram per liter ($\mu\text{g}/\text{L}$) = 1 part per billion (ppb).

If you have a private well

Minnesota Department of Health (MDH) recommends every private well is tested for arsenic at least once. As of 2008, well contractors test each newly drilled well for arsenic and share the results with the well owner and MDH. You can find existing test results online at *Minnesota Well Index* (see Resources).

- If arsenic *was not detected* in the first sample, your water is unlikely to have arsenic later.
- If arsenic *was detected* in the first sample, you may want to retest your well water about six months after construction. MDH research found that when arsenic is detected in a new well, the level may increase or decrease in the first few months after construction (see *Private Well Protection Arsenic Study*).

MDH recommends you use an accredited laboratory to test your water. Contact a laboratory to get sample containers and instructions, or ask your county environmental or public health services if they provide well testing services (see *Search for Accredited Laboratories*).

If arsenic is detected in your water and repeat sampling confirms the results, consider installing home water treatment or using a different source of drinking water (see *Home Water Treatment*). **MDH highly recommends taking action if your water has an arsenic level above 10 $\mu\text{g}/\text{L}$.**

If you are on a public water system

The EPA has a federal drinking water standard of 10 $\mu\text{g}/\text{L}$ for public water systems serving places where people live, work, go to school, and receive childcare. These systems take action to reduce arsenic if levels exceed the standard. You can find the level of arsenic detected in the system serving where you live by reading the system's water quality report (also known as a Consumer Confidence Report [CCR]). You can call your public water system to get a paper copy of your CCR, or you may be able to find it online (see *Consumer Confidence Reports*).

Noncommunity systems serving schools, offices, factories, and childcare facilities test for arsenic; you can contact your non-community system to find the level of arsenic detected in the system.

Noncommunity systems serving restaurants, resorts, and campgrounds are not required to test for arsenic.

If you want to take additional steps to reduce your exposure to arsenic in drinking water, you can install home water treatment (see *Home Water Treatment*).

Reduce Other Contact with Arsenic

You may come into contact with arsenic in ways other than water. Use these tips to reduce your contact:

- Throw away arsenic-treated wood in the trash; do not burn it.
- Know the ingredients of all medications or health remedies you use, especially "folk" remedies.
- Seal arsenic-treated wood structures every six months to two years.
- Make sure children wash their hands after playing on structures with arsenic-treated wood.
- Wash and peel vegetables grown underground (e.g., potatoes, carrots).
- Eat less rice, cereal grains, or other foods that contain arsenic.
- Do not use old pesticides and soil supplements if they contain arsenic. (If they contain arsenic, drop them off at a hazardous waste collection site.)

Background Information

Arsenic occurs naturally in soil and rock and can dissolve into groundwater. For most people, food and water are the biggest sources of exposure to arsenic.

There are two forms of arsenic:

- *Inorganic arsenic* is the type found in contaminated drinking water, and is the most harmful type of arsenic. It is also found in rice, cereal grains, and other foods.
- *Organic arsenic* is the most common type of arsenic found in food. It is common in fish and shellfish and is less harmful to health than inorganic arsenic.

Some arsenic in the environment comes from human activity. Arsenic was an ingredient in some pesticides and was used as a wood preservative for wood foundations, decks, and children's outdoor play structures.

Arsenic in Minnesota Water

Arsenic can be found in groundwater throughout Minnesota but is more likely in some areas than others. Approximately 10 percent of private drinking water wells in Minnesota have arsenic levels higher than 10 µg/L. Some wells have levels as high as 350 µg/L. Arsenic levels can vary between wells, even within a small area. See a map of arsenic levels in private wells at *Private Wells-Arsenic*.

Few public water systems have detected arsenic levels above the EPA standard. If a system detects arsenic

levels above the standard, MDH works with the system to reduce the level.

Resources

[Arsenic in Well Water \(PDF\)](#)

(www.health.state.mn.us/communities/environment/water/docs/wells/waterquality/arsenic.pdf)

[Consumer Confidence Reports](#)

(www.health.state.mn.us/ccr)

[Drinking Water Arsenic Rule History](#)

(www.epa.gov/dwreginfo/drinking-water-arsenic-rule-history)

[Find Your Household Hazardous Waste Collection Site](#)

(www.pca.state.mn.us/waste/find-your-household-hazardous-waste-collection-site)

[Home Water Treatment](#)

(www.health.state.mn.us/communities/environment/water/factsheet/hometreatment)

[Minnesota Well Index](#)

(www.health.state.mn.us/mwi)

[Private Wells-Arsenic](#)

(<https://mndatamaps.web.health.state.mn.us/interactive/wells.html>)

[Private Well Protection Arsenic Study](#)

(www.health.state.mn.us/communities/environment/water/cwf/arsenic)

[Search for Accredited Laboratories](#)

(www.health.state.mn.us/labsearch)

[Well Testing, Results, and Options](#)

(www.health.state.mn.us/welltesting)

Minnesota Department of Health

Environmental Health Division

651-201-4700

health.drinkingwater@state.mn.us

www.health.state.mn.us

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