

Arsenic

Test your well for arsenic at least once so you know how much arsenic is in your drinking water and you can make an informed decision about whether to take further action.

Arsenic occurs naturally in rocks and soil across Minnesota and can dissolve into groundwater. Drinking water that contains arsenic can increase your risk of cancer and other serious health effects. Unfortunately, there is no way to know the arsenic level in water before a well is drilled. Arsenic levels can vary between wells, even within a small area. You cannot taste, see, or smell arsenic in your water.

Drinking Water Standard

The maximum level of arsenic the U.S. Environmental Protection Agency (EPA) allows in community water systems is 10 micrograms per liter ($\mu\text{g/L}$ *). However, consuming water with arsenic at levels lower than the EPA standard over many years can still increase your risk of cancer. As a result, the EPA has set a goal of 0 $\mu\text{g/L}$ of arsenic in drinking water.

*1 $\mu\text{g/L}$ is the same as 1 part per billion (ppb).

Health Risks

Consuming water with even 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.

Test Your Well Water

Test for Arsenic at Least Once

MDH recommends you use an accredited laboratory to test your water. Contact an accredited laboratory to get sample containers and instructions, or ask your county environmental or public health services if they provide well testing services.

New Wells are Tested for Arsenic

As of August 2008, well contractors test each newly drilled well for arsenic and share the results with the well owner and the Minnesota Department of Health (MDH).

Find existing test results: Use the online Minnesota Well Index or contact MDH for test results for a well constructed since 2008.

Consider Confirming the Arsenic Level

If arsenic was NOT detected in the first sample, your water is unlikely to have arsenic later.

If arsenic was detected in your new well, you may want to retest your well 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.

Protect your health!
Test your well water for:



- Coliform Bacteria (Every year)
- Nitrate (Every other year)
- Arsenic (At least once)
- Lead (At least once)
- Manganese (Before a baby drinks the water)

Testing is even more important if young children drink the water.

MDH may recommend you test for additional contaminants based on where you live.

Protect Your Family

If arsenic is detected at any level, consider:

- Installing a treatment unit or
- Using a different drinking water source.

Drinking water with arsenic over many years increases the risk of diseases such as cancer.

MDH highly recommends you take action if arsenic levels are above 10 $\mu\text{g/L}$.

Water treatment units that reduce arsenic:

Reverse Osmosis	Distillation
Adsorptive Media	Anion Exchange
Ozonation and Filtration	Oxidation Filtration
Chlorination and Filtration	

Learn more at the “Home Water Treatment” webpage. A water treatment specialist can help you select the best option for your household.

Water with arsenic is safe to use for other things (unless the level is above 500 $\mu\text{g/L}$).

Since your skin does not easily absorb arsenic, your water is safe for washing dishes and clothes, brushing teeth, showering, bathing, and watering plants (including vegetables).

Tips for reducing other contact with arsenic:

- Do not burn wood treated with arsenic.
- Be aware of ingredients in medications and folk remedies.
- Seal arsenic-treated wood structures.
- Make sure children wash their hands.
- 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.

Arsenic in Minnesota Water

Arsenic has been detected in about 40 percent of new wells drilled since 2008 in Minnesota.¹ About 10 percent of Minnesota's private wells have arsenic levels higher than 10 µg/L.

Arsenic is in groundwater throughout the state, but it is more likely in some areas. The map on the front shows where arsenic is found most often in Minnesota wells.² The way glaciers moved across Minnesota affects where arsenic is found in sediment and groundwater. Arsenic levels can vary between wells, even within a small area. Some wells have arsenic levels as high as 350 µg/L.

Background Information

For most people, food and water are the biggest sources of arsenic exposure. There are two forms of arsenic:

- *Inorganic arsenic* is the type found in drinking water and is the more harmful type of arsenic. It is also found in rice, cereal grains, and other foods. It forms when arsenic combines with metals and elements other than carbon.
- *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. It is formed when arsenic combines with carbon.

While most arsenic in Minnesota's environment occurs naturally, some comes from human activity. Arsenic was an ingredient in some pesticides and was used as a wood preservative in the past.

¹ The detection level for arsenic is usually 2 µg/L.

² Map made with MDH data from 2008-2017.

Resources

- [Search for Accredited Laboratories](http://www.health.state.mn.us/labsearch) (www.health.state.mn.us/labsearch).
- [Minnesota Well Index](http://www.health.state.mn.us/mwi) (www.health.state.mn.us/mwi).
- [Map of Private Wells-Arsenic](http://mndatamaps.web.health.state.mn.us/interactive/wells.html) (mndatamaps.web.health.state.mn.us/interactive/wells.html).
- [Home Water Treatment](http://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html) (www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html).

MDH District Offices

625 North Robert Street
P.O. Box 64975
St. Paul, Minnesota 55164-0975
651-201-4600 or 800-383-9808
health.wells@state.mn.us
www.health.state.mn.us/wells

705 Fifth Street Northwest
Bemidji, Minnesota 56601
218-308-2100

11 East Superior Street
Duluth, Minnesota 55802
218-302-6166

2312 College Way
Fergus Falls, Minnesota 56537
218-332-5150

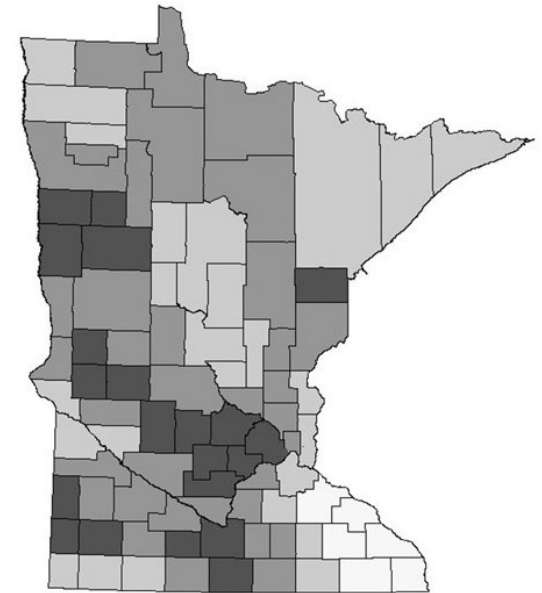
3333 West Division Street
St. Cloud, Minnesota 56301
320-223-7300

1400 East Lyon Street
Marshall, Minnesota 56258
507-476-4220

18 Wood Lake Drive Southeast
Rochester, Minnesota 55904
507-206-2700

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Percent of New Wells with
Arsenic Detections



Well Management Section
Environmental Health Division