

What is arsenic?

Arsenic is a trace element that occurs naturally in the environment. Arsenic occurs from the dissolution of certain rock formations. Arsenic also has various uses in industrial and agricultural industries. In 2006, the federal and state Safe Drinking Water Act standard for arsenic in drinking water was changed from 50 parts per billion (ppb) to 10 ppb for community water systems. Ten parts per billion arsenic is roughly equivalent to a drop of water in an Olympic-size swimming pool.

Contact Information

**North Dakota
Department of
Environmental Quality
Division of Water Quality**
918 East Divide Ave
Bismarck, ND 58501-1947
701-328-5210

How common is arsenic in North Dakota groundwater?

Naturally occurring arsenic is common in North Dakota groundwater. The concentrations of arsenic vary throughout the state and exceed 10 ppb in some areas.



How is arsenic regulated in drinking water?

Public or municipal water systems must comply with the federal 10 ppb arsenic standard. Public water systems are required to test for arsenic. If they do not meet the 10 ppb standard, they must treat for arsenic in their drinking water. All wells must be constructed according to Article 33-18-01 of the North Dakota Administrative Code. However, water quality in private wells is not regulated by the state.

Can arsenic in drinking water affect human health?

While there is some risk associated with long-term arsenic exposure, it is difficult to predict whether arsenic in drinking water will affect you or what the effects might be. Some potential health effects are skin damage, circulatory system problems and an increased risk of getting cancer. The risk of health problems from drinking water contaminated with arsenic is dependent on:

- Your individual sensitivity to arsenic
- The amount of arsenic in the water
- The amount of water you consume
- The length of time you drink the water

When evaluating the potential risk to human health, other factors should also be considered. These factors may include diet, genetic makeup, lifestyle, exposure to other chemicals and preexisting illnesses.

What should I do about arsenic in my drinking water?

If your drinking water comes from a public water system, your water is already being tested for arsenic and treated if over the standard. If you have a private well, you are responsible for maintaining and routinely testing the water quality of your well. The first step is to contact a certified water testing laboratory. A list of state-certified laboratories for well water testing is included with this document. The laboratory will provide instructions on how to collect the sample or send out a sampling kit. The most common water quality tests are for bacteria, nitrate and mineral content. Well own-

North Dakota Laboratories for Well Water Testing

Fargo-Cass Public Health Environmental Laboratory

Fargo, North Dakota
701-298-6997

Minnesota Valley Testing Laboratories, Inc.

Bismarck, North Dakota
701-258-9720
800-279-6885

North Dakota Department of Environmental Quality

Division of Chemistry
Bismarck, North Dakota
701-328-6142

RMB Environmental Laboratories, Inc.

Watford City, ND
701-444-2202

REFERENCES

U.S. Environmental Protection Agency. (2000). Technologies and Costs for Removal of Arsenic from Drinking Water. (EPA Publication 815-R-00-028). Rockville, MD: U.S. Environmental Protection Agency.

National Research Council. (2001). Arsenic in Drinking Water 2001 Update. Washington, D.C.: National Academy Press.

U.S. Department of Health and Human Services. (2007). Toxicological Profile for Arsenic. Atlanta, GA: Agency of Toxic Substances and Disease Registry.

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ers should contact a mineralogical testing laboratory for an arsenic analysis if they are concerned about the presence of arsenic in their drinking water. The typical cost of an arsenic test is under \$40.

If private wells used for drinking water purposes have arsenic levels that exceed the drinking water standard, options to limit risk include:

- Household treatment/water purification units installed at owners' homes
- Connection to a public water supply, if available (Contact your regional rural water system for more information.)
- Use of bottled drinking water



What are some household treatment systems?

There are two main kinds of household treatment systems. A household point-of-entry system treats all the water you use in your home. A household point-of-use system treats water at a point such as a kitchen faucet. Some common treatment systems for removing arsenic for household use are:

- Reverse osmosis systems
- Anionic exchange systems
- Iron oxide filter systems

The effectiveness of a treatment system will vary based on water chemistry; we recommend having a professional evaluate your household to determine the right water treatment system for your use. Contact your local water purification professional for an evaluation and estimate of cost. Some useful publications regarding household water supplies can be found at the NDSU Extension Service website: <https://www.ag.ndsu.edu/publications/environment-natural-resources/groundwater>

FOR MORE INFORMATION

<http://www.cdc.gov/healthywater/drinking/private/wells/disease/arsenic.html>

<https://www.epa.gov/north-birmingham-project/fact-sheet-arsenic>

https://www.usgs.gov/mission-areas/water-resources/science/arsenic-and-drinking-water?qt-science_center_objects=0#qt-science_center_objects