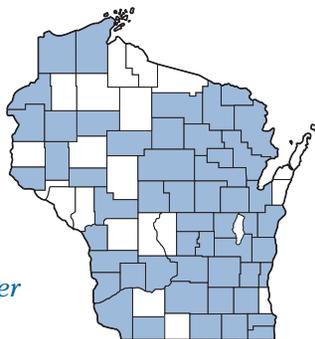




# Arsenic in Drinking Water

**Drinking Water Wells  
tested with Arsenic  
Levels Greater  
than 10 ppb.**

*Arsenic has been detected in every county in the State of Wisconsin. The shaded counties on the map represent areas with water wells that had arsenic levels exceeding the arsenic drinking water standard of 10 parts per billion (ppb). Serious problems with arsenic are however concentrated in specific regions within these counties.*



Wisconsin Department of Natural Resources  
Bureau of Drinking Water & Groundwater

## ***How can I be exposed to arsenic?***



Since arsenic is a natural part of our environment, everyone is exposed to small amounts. The major source of arsenic exposure is drinking water that contains elevated levels of arsenic. Other sources of arsenic exposure include:

- foods containing traces of arsenic
- pesticides
- smoke from wood, coal, tobacco products
- anti-parasitic veterinary medicines
- dust from some industrial processes
- folk remedies
- some treated lumber

People who are exposed to arsenic over a period of years can experience a variety of health problems. Arsenic can be easily absorbed into the human system by drinking contaminated water or by breathing airborne particulates. In most cases, it is safe to use water that contains arsenic to bathe and for household chores. Arsenic is not easily absorbed through the skin and does not evaporate from the water into the air.

## ***How does arsenic get into a drinking water supply?***

Most of the arsenic found in Wisconsin groundwater is naturally occurring, deposited in the soil and bedrock layers over millions of years. Arsenic is tied up in sulfide minerals, which are common in bedrock formations and in some glacial deposits. Arsenic can be released from soil and rock into the groundwater and drawn into wells.



Scientists who have studied this problem believe arsenic is being released into groundwater at elevated levels in the Outagamie, Winnebago and Brown County area at least partly because people are now using more water than ever before due to rapid suburban development. During the past ten years, about 10,000 new wells have been constructed in this area. Water quality problems have increased as more new wells are being drilled and demands on groundwater continue to increase.

Studies have shown that increased water demands have lowered the water table in this area. This has allowed oxygen to get into the bedrock aquifers, creating chemical reactions that release arsenic into the water. In other areas of the State, different types of reactions can release arsenic that moved into Wisconsin, in the geologic past, from other geographic sources. Scientists are studying these and other possible factors

to determine the best ways to avoid arsenic problems. The Department of Natural Resources staff continue to study arsenic contamination problems throughout the State to determine its geographical extent and severity.

## ***How can arsenic affect my health?***

Consumption of arsenic-contaminated water has been associated with the following possible health effects:

- Skin cancer
- Internal cancers (bladder, prostate, lung and other sites)
- Thick, rough skin on hands and feet
- Unusual skin pigmentation (dapping of dark brown or white splotches)
- Numbness in the hands and feet
- Circulatory disorders
- Tremors
- Stomach pain, nausea, diarrhea
- Diabetes
- Depression

Arsenic contamination of drinking water is a serious health concern. If you think you or someone in your family has symptoms from arsenic exposure talk to your doctor and have your water tested for arsenic.

## ***How can I find out if my water is contaminated with arsenic?***

You cannot smell, taste or see arsenic in your drinking water. The only way to know if your water contains arsenic is to have a water sample from your private well tested by a certified laboratory. A list of certified labs is available at [dnr.wi.gov](http://dnr.wi.gov), Search: Arsenic

If you use water from a public water system, check the water system's Consumer Confidence Report (CCR). Public water systems distribute copies of their CCR to system users each summer. The section titled "Where can I get more information", found in this brochure contains instructions to help you find your CCR on the website.

If the arsenic level in your water is above the drinking water standard of 10 ppb, stop drinking your water. Obtain water from a known safe source for drinking and preparation of beverages or for foods like baby formula, soup, and coffee. Unless your arsenic level exceeds 100 ppb, it is safe to bathe in the water and use it for household purposes. If arsenic levels exceed 100 ppb, you should consult your local or County health department.

If the arsenic level in your water is just under 10 ppb and you consume 2 liters (about 68 ounces) or more of drinking water from this source per day, you may wish to try to reduce your exposure to arsenic. Contact your health care provider or local health department to determine your specific needs.



## ***What is arsenic?***

Arsenic is an element that occurs naturally in soil and bedrock formations. Traces of arsenic are also found in groundwater, lakes, rivers and ocean water. Foods like fruits, vegetables, and seafood can also contain arsenic. Some fruits and vegetables absorb traces of arsenic from the soil they grow in. Ocean fish and seafoods naturally have high levels of an organic non-toxic form of arsenic.

High levels of inorganic arsenic, the most toxic form, have been found in over 1,200 private drinking water wells in Wisconsin. The map on the cover shows counties where wells have been tested and found to contain arsenic above 10 ppb.

New well construction or reconstructions have been successful at reducing the arsenic concentrations in water supply systems. For levels of arsenic contamination exceeding 50 ppb, Department of Natural Resources *Well Compensation Program* funds may be available for replacement water systems for income eligible private well owners or lessees.

Everyone should have a sample of their water tested for arsenic at least once every five years, whenever a change in the color of your water or staining of fixtures is observed, or if water levels in your well have changed. If you are in the "Special Well Casing Depth Area" (Outagamie and Winnebago Counties) or an area where arsenic has been detected, the Department of Natural Resources recommends you retest your well water each year, regardless of previous test results because concentrations of arsenic can change over time. (See the map on the front of this brochure for counties in Wisconsin where arsenic levels are known to have exceeded 10ppb.) In a small percentage of wells that produce water with high levels of arsenic, the water is very acid and can corrode plumbing pipes and fixtures. Conversely, if you have corrosive water, i.e. your pipes and fixtures are corroding, there is a greater chance you have an arsenic problem.

**Can water treatment systems remove arsenic?**

Yes, special treatment systems can remove arsenic from well water. However, be aware that common treatment systems like water softeners, carbon filters and sediment filters do not adequately remove arsenic from water. Do not purchase a treatment system unless you have first checked with the Department of Safety and Professional Services (DSPS) approved treatment device list. (website below under Department of Safety and Professional Services)



There are two types of treatment systems currently available for arsenic removal. These treatment systems are "point-of-use" and "point-of-entry" systems. Point-of-use systems generally only treat one faucet that is used for drinking and cooking. Point-of-entry systems treat all the water entering the house. New treatment technologies that will reduce arsenic in your water supply are presently being developed. Once you have determined which treatment option is correct for your water supply, it is recommended that you use a licensed plumber for installation. After installation,

follow the maintenance instructions provided by the manufacturer very closely and verify with sampling to make sure the system continues to operate as a viable arsenic reduction water treatment system.

Drilling a new well may be necessary for extremely high levels of arsenic. Talk to your well driller or your drinking water & groundwater specialist at your DNR regional office about special well construction guidelines.

**Where can I get more information?**

**Health Departments**

The Department of Health & Family Services has more information on the health effects of arsenic exposure at [dhs.wi.gov](http://dhs.wi.gov), Search: Arsenic



- State Department of Health Services, Division of Public Health..... 608-266-7480
- Brown Co. Health Dept. ....920-448-6400
- Outagamie Co. Health Dept. .... 920-832-5100
- Winnebago Co. Health Dept..... 920-232-3000

**Department of Safety and Professional Services**

The Department of Safety and Professional Services maintains a list of treatment devices approved for removing arsenic at [dsps.wi.gov/php/sb-ppalopp/contam\\_alpha\\_list.php](http://dsps.wi.gov/php/sb-ppalopp/contam_alpha_list.php)

**Department of Natural Resources**

The DNR maintains the following pages with information relating to labs, water quality and arsenic research.

**Wisconsin's Arsenic Information Page**

Visit the DNR Web site for arsenic information related to well drilling, water treatment options, recent news articles, research papers and more! Go to [dnr.wi.gov](http://dnr.wi.gov), Search: Arsenic

**Certified Laboratories**

A list of certified labs is available on the Arsenic webpage mentioned above or check your local yellow pages and ask if they are state certified to test for arsenic.

**Consumer Confidence Reports**

Your local water supplier prints a special report on the quality of your public water system's drinking water. Contact your local water supplier or find your system's latest report on the Web! Go to [dnr.wi.gov](http://dnr.wi.gov), Search: Consumer Confidence Report. A query, or search, can then be made by city or individual system.

**Contact Us**

**Customer Service Staff are here to assist you.**

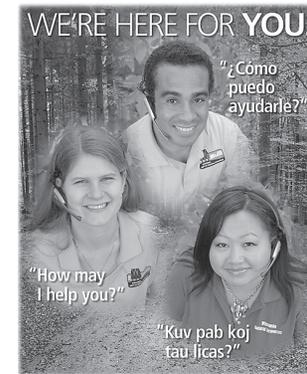
**How may we help you?**

Call Toll Free 1-888-WDNRINFO (1-888-936-7463) Or, go to [dnr.wi.gov](http://dnr.wi.gov), Search: Contact Click on one of the following options:

**Chat** with customer service.

**Call** a representative.

**Email** your question.



**Toll free hotlines Violation Hotline:**

1-800-TIP-WDNR or phone 1-800-847-9367 **Confidentially report** suspected wildlife, recreational and environmental violations.

**Emergency Spill Hotline:**

1-800-943-0003 phone

**Bilingual Services are available Drinking Water & Groundwater Program**

101 S. Webster  
P.O. Box 7921  
Madison, WI 53707-7921  
(608) 266-1054

For more information, go to [dnr.wi.gov](http://dnr.wi.gov), Search: Drinking Water

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