

# PRIVATE DRINKING WATER IN CONNECTICUT

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## Publication No. 3: Arsenic in Private Drinking Water Wells

Arsenic is a metal that has no smell or taste. Arsenic is naturally present in bedrock in many places throughout CT. When a drinking water well is drilled into bedrock containing arsenic, the arsenic can get into the well water. We know that there are private wells in locations across CT with high levels of arsenic. The only way to find out if your well has high arsenic is to test. We recommend that homeowners test their private well at least once for arsenic. This fact sheet provides homeowners with information about the health effects from arsenic, how to test well water for arsenic and what to do if your well water has high levels of arsenic.



### **How Does Arsenic Get Into Drinking Water & How Can I Find Out If My Well Is Contaminated?**

Depending on local environmental conditions, arsenic can leach from soils or mineral deposits into groundwater. However, the extent to which this occurs in Connecticut bedrock wells is uncertain. A survey in Eastern Connecticut<sup>(1)</sup> found that contamination is not widespread, but also, not predictable. Therefore, the only way to know if your well is contaminated is to test the water.

### **What Are The Potential Health Effects Of Arsenic In Drinking Water?**

The EPA and expert scientific committees have classified arsenic as a human cancer-causing agent. Research indicates that people living in areas where water concentrations are very high are more likely to have bladder, lung, or skin cancer. They are also more likely to have problems with their skin, and with their cardiovascular, immune and neurological systems. These toxic effects of arsenic exposure developed after many years of exposure.

### **How Much Arsenic Is Safe To Drink?**

The Federal government sets safe drinking water standards for public water. The EPA drinking water standard for arsenic (i.e., the Maximum Contaminant Level, or MCL) is 0.01 mg/l (10 ug/l; 10 ppb). The Department of Public Health supports 0.01 mg/l as a health-based guideline for private wells.

Usually, arsenic contamination is measured in units of milligrams per liter (mg/l), which is equivalent to parts per million (ppm). Otherwise, the units may be micrograms per liter (ug/l), which is equivalent to parts per billion (ppb), and 1000 times lower than ppm.

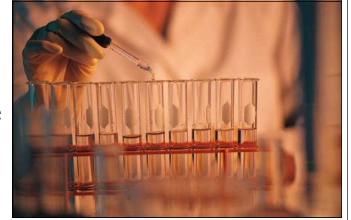


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### **Where Can I Have My Well Water Tested For Arsenic?**

You can have your water tested at any state-certified water testing lab. A current list of certified labs can be obtained from your local health department, or from the [DPH Environmental Labs](#) web site.



### **I Just Found Out I Have High Arsenic Levels In My Water: What Should I Do?**

If your water has more than 0.01 mg/l arsenic (the EPA public water standard), we recommend you consider bottled water or a treatment system to purify tap water for drinking and cooking. It is safe to wash in arsenic contaminated water because very little arsenic gets into your body through the skin. It is also safe to use the water for other chores (laundry, gardening, etc.).



### **Is There A Way To Remove Arsenic From Well Water?**

Removal of arsenic from well water can be a complicated process. If your water has high arsenic, we recommend that you consult a knowledgeable water treatment specialist. There are several treatment technologies that can remove arsenic from well water. These technologies include metal oxide filters, ion exchange systems and reverse osmosis systems. However, the chemical parameters of your well water and the chemistry of the arsenic present in your water will dictate which treatment technology will effectively remove the arsenic. This is why it is important to involve a water treatment specialist.

Because it is not necessary to treat all of the water in your house, treatment needs can be met by installing a “point of use” treatment system at a convenient location at the kitchen sink, or the water tap on the refrigerator and icemaker. When deciding on a treatment system, consider both the initial cost and the operating costs. Operating costs include the energy needed to operate the system, additional water that may be needed for flushing the system, consumable supplies and filters, repairs, and general maintenance. Information on specific water treatment products is available from the [National Sanitation Foundation](#) (NSF). Staff from the Private Well Program of the Department of Public Health (860-509-7296) are also available to answer questions about treatment options.

### **What Are Some Other Sources Of Arsenic?**

According to results of the Food & Drug Administration (FDA) total diet study,<sup>(2)</sup> on average, the amount of inorganic arsenic in your food is equivalent to drinking one to two liters of water containing 0.005 mg/l of arsenic. Though some types of seafood contain high amounts, the form of arsenic in seafood is not known to be toxic.

### **Is There A Medical Test That Will Tell Me If My Body Has Too Much Arsenic?**

Although there are tests for urine and hair, results from these tests are difficult to interpret and, according to the American Medical Association,<sup>(3)</sup> are unreliable. Therefore, the best way to find out if you are being exposed to excessive amounts of arsenic is to test the well water you drink.

### **References**

1. Brown, C & Chute S. (2002). Arsenic Concentrations in Bedrock Wells in Colchester, East Hampton, and Woodstock CT. US Geological Survey, Water Investigations Report 02-4135.
2. National Research Council (1999). Arsenic in Drinking Water. National Academy Press, Washington DC. Pp 46-51.
3. Siedel, S., et al. (2001). Assessment of Commercial Laboratories Performing Hair Mineral Analysis. Journal of the American Medical Association: Vol 285, #1, 67-72.

### **When Should I Test My Well for Arsenic?**

You should test for arsenic when you buy a house with a well or at the time a new well is drilled. It is possible for arsenic levels in well water to fluctuate so even if one arsenic test shows no arsenic problem, it is a good idea to test for arsenic every 5 years. If you have a treatment system to remove arsenic from your water, you should test every year to be sure your treatment system is working properly.

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### **For more information about arsenic, well water testing and treatment:**

[Arsenic ToxFAQ](#)

DPH Publication #19, [Questions to Ask When Purchasing Water Treatment Equipment](#)

DPH Publication #24, [Residential Drinking Water Well Testing](#)

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### **For Health Questions:**

CT Department of Public Health

[Environmental & Occupational Health Assessment Program](#)

(860)509-7740

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### **For Treatment Questions:**

For technical advice on well water construction, maintenance, quality or treatment, contact your [Local Health Department](#) or the Department of Public Health, [Private Well Program](#) at 860-509-7296.

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### **Certified Testing Labs:**

Go to the [DPH Environmental Labs](#) web page.

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### **For more information:**

[EPA Office of Groundwater and Drinking Water](#)

[EPA New England](#)