

FACT SHEET



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May, 2008

Naturally Occurring Arsenic In Private Well Water

Because arsenic is naturally present in bedrock, and because groundwater in some areas is contaminated with arsenic, surveys of water wells have been conducted in several New England states, including some areas of Connecticut. Results of a recent study conducted by the US Geological Survey (USGS), ⁽¹⁾ indicate that some Connecticut bedrock drinking water wells can exceed the Environmental Protection Agency's (EPA) new drinking water standard for arsenic of 0.01 milligrams per liter (mg/l). Though the extent of this contamination is not well known, the number of affected wells is thought to be relatively small.

Arsenic is a metal that has no smell or taste. Only a specific water test can determine the presence and concentration of arsenic in well water. Some useful information on arsenic and arsenic testing is included below. For more information, call your local health department or the Connecticut Department of Public Health's Environmental & Occupational Health Assessment Program (860-509-7742).

HOW DOES ARSENIC GET INTO DRINKING WATER & HOW CAN YOU FIND OUT IF YOUR 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. Surveys in Eastern Connecticut have 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 Environmental Protection Agency (EPA) and expert scientific committees have classified arsenic as a human cancer-causing agent. EPA recently lowered the drinking water standard for arsenic because of concerns about possible cancer risks at exposure levels near the old standard. Research indicates that people living in areas where water concentrations are very high are more likely to have bladder, lung, or skin cancer. These toxic effects of arsenic exposure developed after many years of exposure.

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.

HOW MUCH ARSENIC IS SAFE TO DRINK?

The Federal government sets safe drinking water standards for public water. EPA recently lowered the arsenic drinking water standard (i.e.,

the Maximum Contaminant Level, or MCL) to 0.01 mg/l. Because this new standard is the maximum considered safe for long-term consumption, the Department of Public Health supports 0.01 mg/l as a health-based guideline for private wells.

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 Department of Public Health's web site at

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/in_state.pdf

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 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.) because arsenic does not get into the air.

IS THERE A WAY TO REMOVE ARSENIC FROM WELL WATER?

Arsenic can be removed with a reverse osmosis type of water treatment system, a distiller, or a filter bed of activated alumina. 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. Information on specific water treatment products is available from the National Sanitation Foundation (NSF) web site at <http://www.nsf.org/Certified/DWTU>. 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's (FDA) total diet study, ⁽²⁾ on the 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, ⁽³⁾ 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 from.

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.*