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Environmental Fact Sheet

(Information compiled from New Hampshire Department of Environmental Services Literature)

Arsenic in Drinking Water

Arsenic is an important contaminant in New Hampshire's groundwater resources. Drinking water supplied from bedrock wells, also called drilled or artesian wells, is more likely to contain levels of arsenic than shallow "dug" wells.

WHERE DOES ARSENIC COME FROM?

Arsenic (chemical symbol As) occurs naturally in many parts of the United States, including New Hampshire and other areas of New England. In fact, arsenic was mined commercially in New Hampshire during the 1800s. Arsenic also occurs as a result of human activities. Activities that could have left arsenic residuals include, e.g., apple orchard spraying and coal ash disposal. Arsenic may be either a residual of man's past activities or naturally occurring. Generally is not possible to predict if a well will have elevated arsenic. Arsenic has no smell, taste, or coloration when dissolved in water, even at high concentrations. Only water quality testing can determine its presence and concentration in well water.

HEALTH EFFECTS

Arsenic has been classified by the U.S. Environmental Protection Agency (EPA) as a human carcinogen (cancer causing agent.) Long-term exposure to arsenic has been linked to cancer, cardiovascular disease, immunological disorders, diabetes, and other medical issues. Specific health questions concerning arsenic should be directed to your personal physician.

For general health information concerning arsenic, please visit the [EPA website](#) . The New Hampshire Dept. of Health & Human Services has concluded that skin adsorption of arsenic is not a factor if the concentration of arsenic in the water is below 0.500 mg/L.

HOW MUCH IS TOO MUCH?

The standard that limits arsenic in public water supplies, called a Maximum Contaminant Level (MCL), has recently been made more stringent. On February 22, 2002 a new EPA rule for arsenic in drinking water became effective. The new MCL is 0.010 mg/L, which replaced the old limit of 0.050 mg/L. This action completes an approximately one year review concerning the appropriate level of stringency for the drinking water arsenic MCL.

State of New Hampshire. The DES adopted a revision to the state of New Hampshire's arsenic standard for public water systems. Like the EPA, the new drinking water standard is 0.010 mg/L. Similarly this new MCL went into effect in January 2004, and public water systems had until January 2006 to achieve compliance.

FREQUENCY OF ARSENIC OCCURRENCE

Approximately 3% of New Hampshire wells exceed the old MCL of 0.050 mg/L. Approximately 13% of New Hampshire wells are projected to exceed the current DES standard of 0.010 mg/L. The statewide distribution of arsenic in drinking water wells is shown below.

<u>Concentration</u>	<u>Percent of All Bedrock Wells</u>
Greater than 0.05 mg/L	3%
0.025-0.049 "	5%
0.010-0.024 "	5%
0.005-0.009 "	6%
less than 0.005 "	80%

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Arsenic Chemistry There are typically two variations, or species, of arsenic molecules in water: "arsenic III" and "arsenic V." The numbers III and V describe the balance of the arsenic in the molecule when the arsenic compound is dissolved in water. This dissolved form of an element or compound in water is called an "ion." The form of the arsenic, III or V, is very important relative to the effectiveness of many treatment methods. Arsenic V is generally easier to remove from water than arsenic III. Most arsenic seen in New Hampshire is arsenic V. Arsenic III can be transformed to arsenic V by the addition of a common oxidant to the water.

FOR MORE INFORMATION

The New Hampshire DES recommends that at least two tests be processed before concluding the well's arsenic concentration, since well water quality can change due to rainfall, length of pumping time, and season of the year, among many other factors. Please contact Nelson Analytical Lab regarding testing your drinking water for arsenic. We can mail you a water test kit with the necessary test bottle and water sampling instructions. Results will be emailed upon completion within 1 to 2 business days. Nelson Analytical Lab will discuss your test results with you should you have any questions or concerns, or would like to be directed to speak with a water treatment company regarding treatment options for your water supply.