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John G. Rowland, Governor
Joxel Garcia, MD, MBA, Commissioner

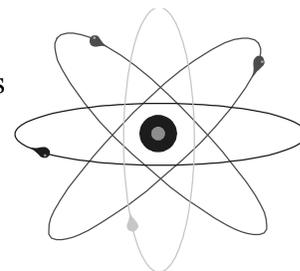
WHAT YOU NEED TO KNOW ABOUT

Uranium in Drinking Water

This information on uranium in drinking water has been prepared by the Connecticut Department of Public Health, Division of Environmental Epidemiology and Occupational Health. It answers some of the most common questions and concerns about uranium in drinking water.

What is Uranium?

Uranium is a silver-colored metal that is radioactive. Small amounts of uranium occur naturally in rocks, soil, and water. Natural uranium is composed of three forms (also known as *isotopes*): uranium-234, uranium-235, and uranium-238. Over 99 percent of the uranium found in nature is uranium-238. Uranium is not stable but breaks down into other elements including radium and radon. This process is called decay. Uranium-238 decays very slowly. Uranium-238 is not the same form of uranium used in nuclear power plants or weapons.



How Does Uranium Get Into Drinking Water?

Uranium is a naturally occurring element in groundwater in some portions of Connecticut. However, there is not enough data to know where uranium levels are elevated. It gets into drinking water when groundwater dissolves minerals that contain uranium. The amount of uranium in well water will vary depending upon its concentration in bedrock. However, within high uranium bedrock types there is a large amount of variation within small areas. Levels of naturally occurring radiation in water are not likely to be high in shallow wells. Therefore the potential exists for deep bedrock wells in Connecticut to have uranium, although most will be very low. High levels of uranium indicate the potential for radon and radium also to be present.

How Can Uranium Affect My Health?

Naturally occurring uranium has very low levels of radioactivity. However, the chemical properties of uranium in drinking water are of greater concern than its radioactivity. Most ingested uranium is eliminated from the body. However, a small amount is absorbed and carried through the bloodstream. Studies show that elevated levels of uranium in drinking water can affect the kidneys. Bathing and showering with water that contains uranium is not a health concern.

Do I Have Uranium in My Drinking Water?

To find out if you have uranium in your drinking water you must test for it. The Connecticut Department of Public Health recommends conducting an initial screening test for "**gross alpha.**" If this initial and less costly analysis indicates there is little or no gross alpha, then there is no need to conduct additional testing. If, on the other hand, the results indicated high gross alpha, then the water should be re-sampled and analyzed for additional compounds.

How to interpret gross alpha tests:

- if 5 pCi/L or less, water is OK, no further testing is needed.
- if greater than 15 pCi/L, then test for Uranium, Radium 226, and Radium 228
- if lower than 15 pCi/L and above 5 pCi/L, then test for Radium 226 and Radium 228

There are private labs that are certified to conduct these analyses in Connecticut. You should contact your local health department for the most current listing.

What Do The Uranium Levels in My Water Test Mean?

The new federal standard, known as the "maximum contaminant level" (or MCL), for uranium in public water supplies is 30 µg/L (30 picoCuries per liter). If your water test comes back with uranium results over 30 µg/L, you should look into obtaining a filter to treat your water. However, since results can vary widely from season to season, it is prudent to re-test whenever the results are above 10 µg/L. While water treatment is necessary only at confirmed levels of 30 µg/L. or higher, some individuals on private wells may choose to increase their safety margin and treat water that contains lower levels (e.g., 10-30 µg/L).

What Type of Treatment Will Decrease Uranium in Well Water?

Water treatment systems can effectively remove uranium from drinking water. Two common methods are **reverse osmosis** and **ion exchange**. Reverse osmosis works by forcing water through a filter that prevents the uranium from passing through. This filter should be replaced every 2 to 3 years. Ion exchange works by passing water through a system that replaces uranium with a safer compound. It usually involves low maintenance but requires backwashing. These two methods involve varying costs and different disposal systems that should be investigated before choosing a system. Both systems require periodic monitoring of the treated water to make sure the system is working properly. To find out more about treating uranium in drinking water, call the CT Department of Public Health Water Supplies Section at (860) 509-7333.

Who Can I Contact For More Information?

For Health Questions:

CT Dept. of Public Health
Division of Environmental Epidemiology &
Occupational Health
PO Box 340308, MS # 11CHA
410 Capitol Avenue
Hartford, CT 06134-0308
Phone: (860) 509-7742
Fax: (860) 509-7785
www.state.ct.us/dph

For Private Well Testing, Treatment and Certified Laboratories, Contact:

Contact your local health department

Note: The Water Supplies Section of the CT Dept of Public Health will provide guidance to local health officials.

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For Public Water Systems, Contact:

Your Water Company, or:

CT Dept. of Public Health
Water Supplies Section
PO Box 340308, MS # 51WAT
410 Capitol Avenue
Hartford, CT 06134-0308
Phone: (860) 509-7333
Fax: (860) 509-7359