



Natural Radionuclides in Private Wells

About 15 percent of Americans use private wells as their main source of drinking water. Those who use private wells should remember:

- Test for radionuclides every three years.
- Take appropriate steps if radionuclide levels are higher than EPA's limits.

About Natural Radionuclides in Private Wells

About 15 percent of Americans use private wells as their main source of drinking water. Unlike community water systems, wells are usually not regulated or routinely inspected for radionuclides. As a result, well owners are responsible for making sure their drinking water is safe and of good quality. Well water should be tested on a regular schedule:

- Each year, test for contaminants such as bacteria and viruses.
- Every three years, test for radionuclides.

Test kits are available on the Internet and from some state drinking water offices. Contact information for state drinking water offices usually can be found on the state's official website.

The radionuclides radium and uranium are minerals that are present naturally in most rocks and soils. Radium breaks down to form the radioactive gas, radon. All three of these radionuclides can dissolve in water, which means they can be drawn into private well water. If the soil and rocks surrounding a well have high enough concentrations, the well water may contain levels that exceed EPA's standards. The likelihood that groundwater in a certain area will contain radionuclides depends on soil and rock conditions in that area.

The entry of radon into homes directly from the soil is an additional concern. Homes can accumulate much higher and more dangerous levels of radon gas when cracks in the foundation allow it to seep in. Radon comes from the natural decay of uranium and radium found in nearly all rocks and soils. Radon moves up from the ground into buildings through openings in floors or walls that are in contact with the ground. Radon can accumulate in buildings over time and may pose a health hazard. Any home or building may have high levels of radon, including new and old homes, well-sealed and drafty homes, and homes with or without basements. It's important to test the air in all homes and fix any problems caused by radon seeping in from the nearby soil.



Private well cap.

Rules and Guidance

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

Although EPA regulates public water systems, it does not regulate private drinking water wells. However, the limits that EPA sets for public drinking water systems under the Safe Drinking Water Actⁱ, can be used as guidelines for drinking water wells.

THE STATES

Most states have set drinking water limits for radionuclides in community drinking water systems that are based on EPA's limits. The states enforce those standards, and establish monitoring programs. Some state and local governments set rules to protect people who use well water by setting limits on well water contaminants.

What you can do

It's important to test both the air and well water in your home for radionuclides, especially radon. Testing for radon in the air of your home is easy and only takes a few minutes of your time. There are many kinds of low-cost radon test kits available by phone, online and in many stores. If you prefer, you can hire a professional to do the testing. For more information about radon, its risk and what you can do to protect yourself, visit EPA's Radon webpageⁱⁱ.

Well water should be tested every three years. Kits for testing well water for radionuclides are available online, in hardware stores and from many state governments. You can find contact information for your state's radiation control program on the Conference of Radiation Control Program Directors (CRCPD) websiteⁱⁱⁱ.

Treat your drinking well water if necessary. If your well water needs to be treated, there are several organizations that can help you pick the best treatment:

- National Sanitation Foundation^{iv}
- Water Quality Association^v
- The National Ground Water Association^{vi}

Radionuclides can be removed from water by installing a treatment system at the tap. Systems that work at the tap are called Point of Use (POU) systems. Several types of POU systems (filters) are available. Two types that EPA has found to work well are ion exchange and reverse osmosis.

These filters can collect enough radioactivity to be a health risk themselves. Often, they collect too much radiation to be disposed of with ordinary trash. The company that installs the POU system or state radiation and solid waste offices will be able to help well owners with proper disposal guidelines.

Remember: Testing is the only way to know if well water contains radionuclides. Contact your local or state radiation control office for testing and treatment information.

Where to learn more

You can learn more about radionuclides in private wells by visiting the resources available on the following webpage: <http://www3.epa.gov/radtown/private-wells.html#learn-more>.

ⁱ <http://water.epa.gov/lawsregs/rulesregs/sdwa/index.cfm>

ii <http://www2.epa.gov/radon/>

iii <http://www.crcpd.org/Map/default.aspx>

iv <http://www.nsf.org/consumer-resources/health-and-safety-tips/water-quality-treatment-tips>

v <http://www.wqa.org/>

vi <http://www.ngwa.org/Pages/default.aspx>