



Radionuclides in Private Wells

Approximately 15% of Americans rely on private drinking water supplies. Unlike public drinking water systems, wells generally are not routinely inspected. Therefore, these households must take special precautions to ensure the safety and quality of their drinking water supply.

Drinking water with elevated levels of radium and uranium – which are found in virtually all rock, soil, and water – may cause cancer after several years. Drinking water with elevated concentrations of uranium may affect a person over a much shorter time period.

If purification filters, storage tanks, and associated piping begin to collect radioactive wastes in elevated concentrations, these materials may require disposal in off-site facilities licensed to receive and dispose of radioactive waste.

Radon is a radioactive gas. It occurs naturally and is produced by the breakdown of uranium in soil, rock, and water. It can also dissolve into our water supply. As you shower or use your water for other household tasks, the gas can be released from the water into the air.

Who is protecting you

U.S. Environmental Protection Agency (EPA)

Although EPA regulates public water systems, it does not have the authority to regulate private drinking water wells. However, under the Safe Drinking Water Act (SDWA), EPA sets guidelines for radioactive contaminants that well owners can reference.

The States

Most states have established drinking water standards that implement EPA's Safe Drinking Water Act, enforce those standards, and establish monitoring programs.

What can you do to protect yourself

Test your well water for radiation contamination annually.

Radionuclides can be found in ground water using a gross alpha test. A gross alpha test measures the amount of alpha radiation from all radionuclides that may be present in the water. If a high level of radioactivity is found, additional tests are needed to identify which radionuclides are present.

All naturally-occurring radioactivity can be treated.

Radium and uranium can both be treated using reverse osmosis—the process of squeezing water through a special membrane, which is a specialized filter. The membrane has microscopic holes, which are specially sized to allow relatively small water molecules to pass through, while trapping larger contaminants.

Radon can be removed from water by using one of two methods:

- Aeration treatment—spraying water or mixing it with air and then venting the air from the water before use.

- GAC treatment—filtering water through carbon. Radon attaches to the carbon and leaves the water free of radon. Disposing the carbon may require special handling if it is used at a high radon level or if it has been used for a long time.

Filters for drinking water purification can concentrate radionuclides in elevated amounts. Contact your well or water treatment system supplier or servicer to discuss periods between filter changes, and disposal of used filters.

Call your local or state health department for testing and treatment information.

Resources

You can explore this radiation source further through the resources at the following URL:

<http://www.epa.gov/radtown/well-water.html#resources>

We provide these resources on-line rather than here so we can keep the links up-to-date.