

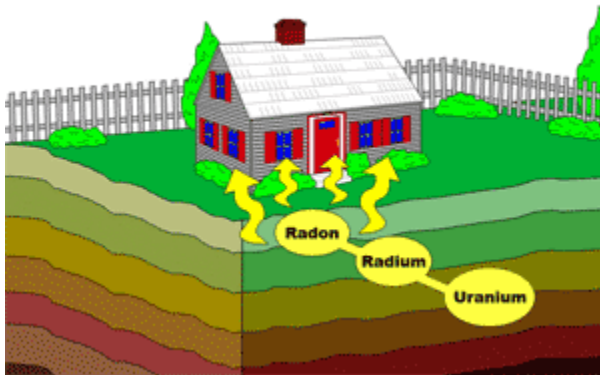
Subject: Private Well Owner Tip Sheet



Private Well Owner Tip Sheet

September-October, 2014

Have a question?
Visit the Private Well Owner Hotline at 855-420-9355 (855-H2O-Well)

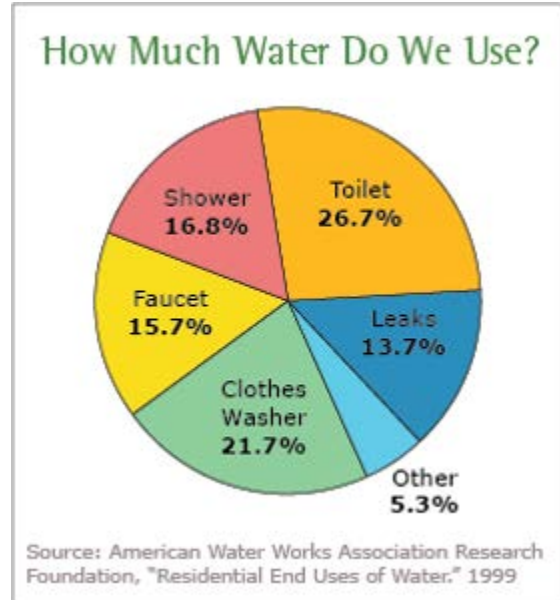


Radon in well water: What is it, and what do you do?

Radon is a colorless, odorless gas produced by the radioactive decay of the element radium, which has itself been formed by the decay of uranium. All rocks contain some uranium, although most contain a very tiny amount. Just as uranium is present in all rocks and soils, so are radium and radon, due to radioactive decay.

How is health risk measured?

Currently there is no federally enforced drinking water standard for radon. The EPA is proposing that radon



levels in drinking water from public systems be below 300 pCi/L, or alternatively below 4000 pCi/L if a multimedia mitigation plan for indoor air is developed by the state. The U.S. EPA does not regulate residential wells, but private well owners may use the U.S. EPA's proposed radon levels as their personal action levels.

What are the health effects of radon?

The U.S. EPA estimates that in homes served by wells, groundwater contributes about 5 percent of the radon found in the household air. Exposure can take place when taking a shower, doing laundry, or washing dishes. Compared to radon entering the home through water, radon entering through the soil and house foundations represents a much larger risk--so it is very important to test the level of radon in the air and, if it presents a health risk, to treat it using readily available technologies. Although the U.S. EPA still considers the risk from ingestion of radon through water to be small compared to the risk from breathing indoor air containing radon, it now says drinking water contaminated with radon may add some minor risk of developing stomach or other internal organ cancer.

How does radon enter a private well system?

Radon is found in groundwater in areas that have high levels of uranium in the underlying rocks, such as granites and shales.

Is my private well at risk?

Persons who live in areas that have high levels of uranium in the underlying rocks, such as granites and shales, may be at greater risk. Given that radon is a naturally produced substance in groundwater and not the result of human activities, there is no water well construction method that will prevent it from being in groundwater.

A water well system professional can determine whether your well can be retrofitted to draw from zones in which the water contains radon at levels consistently below the proposed U.S. EPA standard.

What type of treatment solutions are available?

It is possible to have water tested for radon; however special collection vials are required. Drinking water testing should be done by a certified drinking water testing laboratory.

Because the primary source of radon exposure is from breathing contaminated air in the home, removal should be where water enters a house or building. Point-of-use devices, such as those installed on a tap or under the sink, treat only a small portion of the water in the home and are not as effective in reducing radon; radioactivity also can build up on the filters of these devices and become a hazard. The two most common treatment technologies are granular activated carbon and aeration:

Water is life: Use Wisely

Groundwater is vitally important to human life and the environment. Ninety-nine percent of all available fresh water in the world is groundwater.

If you are a water well owner, conserving water can be particularly important during times of low rainfall or drought.

One place to start conserving is with an assessment of how much water you currently are using. Try our [water use calculator](#) that allows you to insert values specific to your household for different areas of water use. The National Ground Water Association also provides this [water use calculator as a free app](#).

Be smart by never pouring water down the drain when you can use it for something else.

Other potentially big water savers include:

- Repairing dripping toilets or taps. One drop a second wastes an estimated 2,700 hundred gallons of water a year.
- Install a flow restrictor your faucet or install a showerhead with a flow restrictor.
- You also can find water saving plumbing fixtures or appliances.

Be creative in saving water!



[Online lessons](#) now available cover:

- What to test water for
- How to get and interpret a test
- Water treatment
- Arsenic

- **Granular activated carbon:** This technology will remove 95 percent of the waterborne radon. It works by adsorbing the radon onto the surface of activated carbon. There the radon continues to decay and give off radiation; however, the treatment equipment is usually not located in the living area of the home. Although the granular activated carbon system has few moving parts and should have a long, useful life, radon build up over long periods of time becomes a low-level radioactive source requiring special disposal. This technology has a lower front-end cost, but there are costs associated with disposal of radioactivity build up after many years.
- **Aeration:** Radon can be easily removed from water supplies by blowing air up through the water and venting the resulting vapor out through the roof. This is most commonly accomplished with an air diffuser mounted at the bottom of a storage tank filled with water to be treated. As the air bubbles rise through the water, they strip radon and carry it out of the top of the tank and through a vent pipe to above the roof line. A greater level of success—as much as 99 percent removal—can be achieved when selecting a unit that utilizes a mister or nozzle located at the top of the tank to fill the tank along with a bubbler. This technology has a higher front-end cost than granular activated carbon but has no associated disposal costs.

- Bacteria
- Nitrate
- Radon
- Well maintenance
- Groundwater protection
- Well flooding
- Well construction
- Decommissioning unused wells
- Water testing near hydraulic fracturing
- Finding a qualified water well professional
- Using water wisely

The free webinars, which are recorded, cover many of the same topics.

Try the National Ground Water Association's free online lesson about radon by visiting www.WellOwner.org.



www.wellowner.org

Informing consumers about groundwater and water wells.

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Add the sender ngwa@ngwa.org to your safe sender list to be sure you don't miss any future announcements.



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