

Radon in Your Well Water

Radon in your water can increase your risk of developing cancer.
Read this fact sheet for information on radon in drinking water.

What is radon?

Radon is:

- a natural element found in soil and rocks all over the world
- a radioactive gas formed from the decay of uranium, another natural element
- colorless, odorless and tasteless.

Why is radon a health concern?

Radon is the leading cause of lung cancer in nonsmokers. If you breathe air that contains radon, your risk of developing lung cancer increases. If you smoke and are exposed to radon, then your risk of developing lung cancer is magnified. Radon in the water you drink can also contribute to a very small increase in your risk of stomach cancer. However, this risk is almost insignificant compared to the risk of developing lung cancer from radon in your indoor air.

How can radon get into my water?

Radon can enter homes through openings in the basement and, in some cases, through the water supply. Radon gas can dissolve and build up in water from underground sources.

Radon is not a health concern if your water comes from a lake, river or reservoir. Radon is released into the air before it reaches your home.

If your water comes from a well, it may contain radon.

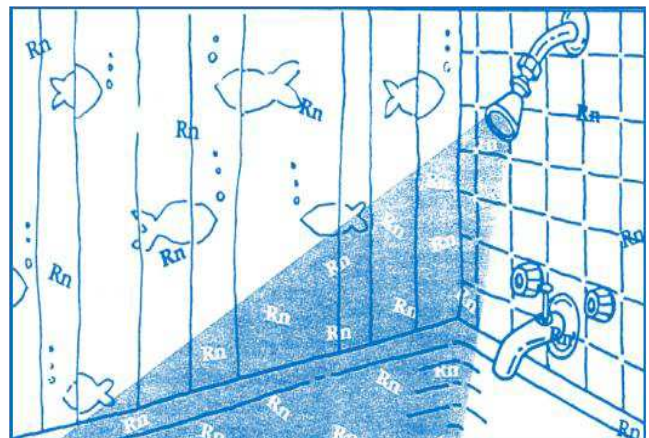
When you use water, particularly when you aerate or heat it, radon in the water is released into the air. Any time you use a dishwasher, washing machine, or take a shower or bath, the radon in the water increases the level of radon in the air for a short period of time.

Should I test my water for radon?

The Connecticut Department of Public Health (CT DPH) recommends testing for radon in your water if your home is served by well water. Repeat the test every 5 years.

The CT DPH recommends testing your home's indoor air first. The most significant source of radon gas in your home comes from soil. An elevated radon level in your indoor air is a greater health risk than the radon level in your water.

It is possible to have elevated radon levels in your water even if the radon level in your indoor air is low. The only way to know for sure is to test for radon in both air and water.



Radon from your water can enter the air you breathe.

What is the radon level in my indoor air?

The U.S. Environmental Protection Agency (EPA) has established an action level of 4.0 pCi/L for radon in indoor air. Radon laboratory results are reported in picocuries per liter (pCi/L); picocuries per liter is a unit of measure for radioactivity. If the average level of two radon tests in your air is equal to or greater than 4.0 pCi/L, then you should fix or “mitigate” your home’s indoor air. Any level of radon poses some health risk. You may also want to consider mitigation for radon levels of 2.0 pCi/L or greater. Hire a qualified radon mitigation professional to install a radon reduction system in your home.

Refer to the CT DPH [Basic Radon Facts](#) publication for more information on radon in indoor air.

What do my test results mean?

There are no standards or laws concerning radon in private well water. The CT DPH has established a guidance level of 5,000 pCi/L for radon in water.

The CT DPH recommends reducing radon in your water if the average radon level of two tests is equal to or above 5,000 pCi/L. It is recommended that two water tests be collected in different seasons before determining the average radon concentration. Radon concentrations in water may vary from one test to another due to many reasons including seasonal fluctuations in the water table. The second water sample should be collected at least three months after the first sample.

How can I reduce radon in my water?

There are two options used to reduce radon levels in your water. If the average of two radon test results is 5,000 pCi/L or higher, one of the following systems is recommended.

Granular Activated Carbon (GAC) System

GAC systems can reduce radon effectively when levels are below 10,000 pCi/L. A typical GAC tank is 4 ½ feet tall and 10 inches round. GAC treatment is usually installed next to the well tank where your water supply first enters the house. The tank is typically filled with coconut-based activated carbon. Radon gets trapped in the millions of pores inside the carbon as the water passes through it. The carbon will also capture other contaminants, which is beneficial, but it shortens the life of the carbon bed. GAC filter media eventually becomes saturated and can no longer adsorb contaminants. Hire a qualified professional to replace the system’s carbon filter on a regular basis. Service periods vary greatly, based on the size of the filtration unit, household water usage, and level of contamination. Replacement of GAC filters adds significant cost to the maintenance of this system. The cost for a GAC system installation is between \$1,500 and \$3,000.

Aeration System

Aeration systems are the only effective method for reducing radon levels that are at or above 10,000 pCi/L. An aeration system is typically installed next to the well tank where your water supply first enters the house. The system takes up about 2 feet by 4 feet of floor space. This system bubbles air through the water to release radon into the air and vents it up above the roof line away from your home. Aeration systems do not become radioactive with use and there is no long term accumulation of radioactive elements. The solenoid valves should be checked and serviced once per year. The system may also need to be cleaned annually depending on the sediment and hardness of the water. The cost for an aeration system is between \$3,500 and \$5,000.

How can I find a qualified radon professional?

The CT DPH maintains lists of qualified radon professionals. The individuals listed are trained according to EPA protocols and are nationally certified in radon measurement and mitigation. Mitigation professionals are qualified to install systems to reduce radon in air and water. Measurement professionals are able to collect water samples from your well to submit to state-approved labs for analysis. Visit the Radon Program website for current lists of qualified radon professionals and state-approved laboratories.

For more information on radon and private wells, visit the CT DPH Radon and Private Well Program websites at:

www.ct.gov/dph/radon
www.ct.gov/dph/privatewells