

**Is your home radioactive?
How we discovered Uranium in our well water and Radon in our air –
at about 6 times the “safe” levels.**

Summary:

Water Testing Resource Links

State Testing Lab: <https://www.colorado.gov/pacific/cdphe/homeowner-water-testing>

Certified Testing Labs: <https://www.colorado.gov/cdphe/dwllabs>

Local Testing Labs: <https://www.larimer.gov/health/environmental-health/drinking-water-sampling>

Radon Testing Links

<https://www.larimer.gov/health/radon>

Radon Test Kits

Lowes: <https://www.lowes.com/search?searchTerm=radon%20test%20kit>

Amazon: <https://www.amazon.com/s?k=radon+test+kit>

The Story

When we first had our well water tested, we were told we just needed to test for bacteria. When the possibility of uranium mining east of Fort Collins was in the news, we learned that the State was offering a package deal on a set of tests designed to allow homeowners to document mineral levels in the event that their wells were later contaminated by mining operations. We decided to send in water for the battery of tests, called the Mining Baseline package. In doing so, we discovered that our well water had Uranium at levels about 6 times what the state deems “safe”. (Is any amount of radioactivity really safe to consume?) This prompted us to also test for, and find, radon. As a result, I installed a radon mitigation system. While we still use the well water for most purposes, we buy Reverse Osmosis water from the grocery store for all cooking and drinking. The danger comes from ingesting or breathing the radioactivity – it collects in the body and can cause cancer. We learned a couple of other things:

1. Wherever a well is near decomposing granite, there is the possibility of Uranium – and we have a lot of granite in our area.
2. Whenever Uranium is present, there is also the possibility of radon gas – a colorless, odorless radioactive gas that can collect in your home and, over time, cause lung cancer.

Radon

My recommendation is that everyone tests their home for radon. January is “National Radon Awareness Month” when radon test kits are often on sale (or free with a county program). Lowes sells home test kits. The AccuStar brand sold at McGuckins is highly regarded, and we used it until recently when the price went up significantly. (When buying a test kit, be sure the lab fee is included – some kits sell for about the same, and want you to send another \$30 when you send the sample in.) The test is easy to perform. You simply select a location in the lowest

level of your home, unseal the test and let it sit in the room according to directions – the kit we used said for 48-96 hours, 2-4 days. Seal it back up and mail it to the lab. Since you really want to know the worst-case scenario, pick a location in the lowest level of the house that is not well ventilated – i.e. not near a door or window. Radon is more a problem in the winter when we tend to keep windows closed.

If you find radon, mitigation involves venting the radon-laden air from under your house to the outside before it can seep into the house, after doing your best to seal cracks in the floor that can let radon seep in. Several local companies specialize in radon mitigation, though I ended up installing ours myself with parts I bought from an internet web site. We installed a 4" PVC pipe from the center of our basement concrete slab to the outside, with a radon mitigation fan that runs continuously to suck air from under the slab and blow it outside. We were fortunate that our slab sits on a pretty deep bed of gravel with a French drain, so there is good air flow under the slab. This reduced radon levels in the basement from about 23 (pico-curies/liter) to around 1 (We test yearly, in the winter when the house is closed up). Ideal level is less than 2, with mitigation suggested when the reading is over 4.

Uranium

The state does water testing, as do a number of other labs. The water testing page for the State of Colorado Department of Public Health and Environment – Laboratory Services Division linked below is a good place to start:

<https://www.colorado.gov/pacific/cdphe/homeowner-water-testing>

Links from this page take you to pricing and ordering information. The basic procedure has you order containers for the tests you want. The state sends them to you, and you send them back with water taken from one of your faucets. Some of the tests need to be overnighted to the lab, but I don't remember which ones. I remember taking the sample from the faucet at about 2PM and running down to the post office so it would meet the afternoon pickup deadline, and get to the lab the next day. Some of the test bottles also have chemicals in them to preserve the water for the test – following the directions that come with the sample bottles is easy, but important.

The Colorado Deluxe test is probably the best deal at \$265, because it also includes bacterial testing. Tests can also be purchased individually. If you discover radon in your air, it is important to find out whether your water has radon, as showering releases the radon into the air pretty effectively. I was told that radon lasts only about 5 days in sitting water before it decays. We stage well water into a storage cistern and didn't find radon in our cistern water. The test results are fairly easy to read – they show what was found in your sample, and what the "safe" level is to compare to. People at the state lab are willing to answer questions.

There are many other state certified water testing labs available, listed at the link below:

<https://www.colorado.gov/cdphe/dwlab>

I hope this prompts you to test for Radon and Uranium. The testing is relatively inexpensive. We considered buying a reverse-osmosis water system to filter the Uranium, but RO systems waste as much or more water than you get for use, and we have a low-production well. In the end, we choose to buy reverse osmosis water from the Glacier machines found in many grocery stores at a cost of 40-50 cents / gallon, for cooking and drinking.

John Green

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