

How to Interpret Your Radon Test Results and What to Do Next

Understanding What Your Radon Test Results Really Mean

I have been involved in radon measurement and mitigation for over a decade, and I still see the same confusion when homeowners get their radon test results back. People open the report, see a number like 4.7 pCi/L or 2.1 pCi/L, and have no frame of reference for what it means for their family's health or their home. That uncertainty is understandable. The science behind radon gas is not something most of us learn in school, and the numbers can feel abstract. But interpreting your radon test results correctly is the first step toward making a smart decision about your home.

The EPA has set an action level of 4.0 picocuries per liter of air. If your radon test results show a level at or above that number, the agency recommends fixing your home. But I have seen plenty of cases where results came back at 3.2 or 3.5, and the homeowner shrugged it off because it was technically below the action level. That is a mistake. The EPA also states that there is no safe level of radon gas. Any exposure carries some risk. So if your number is in the 2.0 to 4.0 range, you should still consider installing a radon mitigation system. The difference between 3.0 and 4.0 is not a safety cliff. It is a continuum.

Different Tests Give Different Answers

The type of test you used matters. Many people start with a radon test kit from a hardware store or an online retailer. These are usually short-term tests that sit in your home for two to seven days. They give you a snapshot. That snapshot can be useful, but it is not the full picture. Radon levels fluctuate day to day, season to season, and even hour to hour depending on weather, heating and cooling patterns, and how much the house is ventilated. A single short-term test might miss a spike or catch a lull.

I often recommend using an alpha track detector for a longer test period, ideally 90 days to a year. These devices are passive, meaning they just sit in your home and collect data over time. They give you an average radon level, which is a much better basis for deciding whether to mitigate. In towns like Chesterfield, Ballwin, Wildwood, and Town and Country, I have seen short-term tests read 2.0 in summer and then 6.0 in winter when the house is sealed tight. If you only tested in July, you might think you are fine. Your [radon test results](#) from a longer-term alpha track detector would tell a different story.

There are also continuous radon monitors, which are electronic devices that take readings every hour or even more frequently. These are often used by professionals like Air Sense

Environmental for diagnostic work. A continuous monitor can show you exactly when radon levels rise, which helps pinpoint the entry points and the best strategy for mitigation. But for a standard homeowner looking for peace of mind, a good alpha track detector placed in the lowest lived-in level of the house is usually the right choice.

Reading the Numbers on Your Report

When you get your radon test results back, you should see a few things: the average radon level, the duration of the test, and sometimes the range of readings. The average is the key number, but pay attention to the test duration. If someone ran a two-day test with the house closed up tight and the weather was stormy, the result could be artificially high. That does not mean the test is wrong, but it means the result is less representative of your long-term exposure. Reputable testers follow EPA protocols, which include keeping the house closed for at least 12 hours before and during the test, and not running heating or cooling systems in a way that would change ventilation.

I have walked into homes in West St. Louis County where the homeowner had a radon test kit sitting in a finished basement with the windows open. That test is worthless. The conditions have to be right, or you are wasting your money. If you are unsure about the conditions during your test, it is worth repeating the test, ideally with a professional who uses a continuous radon monitor and can guarantee the protocol was followed.

What to Do If Your Radon Test Results Are Elevated

If your radon test results come back above 4.0, you need a radon mitigation system. The most common and effective method for homes in this region is active soil depressurization, also called sub-slab depressurization. A radon vent pipe is run from the gravel layer beneath your basement slab up through the roof, and a small radon fan creates suction that pulls radon gas from below the house and vents it safely outside. The fan runs continuously. It is quiet, uses very little electricity, and costs a fraction of what people worry it will.

After installation, the system includes a manometer, usually a U-tube manometer, mounted on the pipe in your basement. That little gauge shows you whether the fan is working. Liquid inside the tube sits level when the system is off, and it shows a difference when the fan is pulling suction. You can check it with a glance. If the liquid levels are even, the fan may have failed or the system may have a leak. That simple check is your ongoing assurance that the radon mitigation system is doing its job.

I have seen homes in Wildwood where the original builder had installed basic radon-resistant construction, like a layer of gravel and a vapor barrier under the slab, but no fan. Those homes often tested between 2.0 and 3.5. Adding a fan and vent pipe brought them down to below 1.0.

That is the difference between a passive system and an active one. For new construction, radon-resistant construction techniques are required in many parts of Missouri, but existing homes often need a retrofit. The good news is that sub-slab depressurization works in most houses and is a permanent solution.

When to Retest After Mitigation

After a radon mitigation system is installed, you should retest within 30 days. The installer should do a post-mitigation test using a continuous radon monitor to confirm the radon level has dropped below the action level. I always tell homeowners to do their own follow-up test a few months later, during a different season, just to be sure. If the system was installed correctly, the radon test results should remain low year-round. But I have seen cases where a fan was undersized or the pipe routing was poor, and the system did not pull enough suction. A second test catches that.

If you live in Chesterfield, Ballwin, Wildwood, or Town and Country, you are in an area with moderate to high radon potential. The geology here, with its limestone and shale, produces radon gas naturally. It is not a reflection on your housekeeping or your home's value. It is simply a fact of the ground we build on. The smart move is to test, interpret your radon test results honestly, and mitigate if needed. The cost of a radon test kit is trivial compared to the health risk of long-term exposure. And the cost of a mitigation system is a one-time investment that protects your family for as long as you own the home.

I always tell people: do not treat your radon test results as a pass-fail exam. Treat them as information. A result of 3.8 is not a pass. It is a warning. A result of 1.2 is great, but you should still retest every few years because homes settle, cracks form, and soil conditions change. The manometer on your system will tell you if the fan is running, but only a new radon test will tell you if the system is still effective. That is the cycle: test, interpret, mitigate, retest. It is not complicated, but it requires attention.

Air Sense Environmental has performed hundreds of tests and installations across West St. Louis County. The most common mistake I see is homeowners who test once, get a low number, and never think about radon again. That is fine if your home is brand new with radon-resistant construction and you test every few years. But for older homes, especially those built before the 1990s, the situation can change. I have gone into homes that tested fine for ten years and then suddenly showed a spike after a foundation crack opened up. The only way to know is to test.

So if you have a radon test kit sitting in your closet, use it. If you already got your results and they were borderline or high, call a professional. And if your system has been running for years,

check the manometer today. Then order a new test kit. The process is simple, and the peace of mind is worth it.