

What Your Radon Test Results Mean for Your St. Charles County Home

Understanding the numbers from your radon test

After you run a radon test in your home, the piece of paper or digital report you get back can feel a little abstract. You see numbers, units like pCi/L, and maybe a comparison to an EPA guideline. But what do those numbers actually mean for the air your family breathes every day? I have spent years working with homeowners across St. Charles County, and I can tell you that the story behind your radon test results is more practical than you might think. It is not just a pass-fail grade. It is a measurement that tells you something specific about the air pressure, soil conditions, and ventilation in your home.

Radon is a radioactive gas that comes from the natural breakdown of uranium in soil. It seeps into homes through cracks in the foundation, gaps around pipes, and other openings. Because it is invisible and odorless, the only way to know if it is present is to test. And once you have those numbers, the question becomes: what next? That is where understanding your radon test results in context becomes important. They are not just a data point. They are a guide for what action, if any, your home needs.

How radon is measured and what the numbers mean

Radon concentration is measured in picocuries per liter of air, abbreviated as pCi/L. The EPA has set an Action Level of 4 pCi/L. That is the point at which they recommend taking steps to reduce radon levels in your home. But this Action Level is not a safety boundary where everything below it is perfectly fine. It is a practical threshold based on risk reduction and the effectiveness of available mitigation techniques. Many homes in St. Charles County, including those in St. Charles, O'Fallon, St. Peters, and Wentzville, test below that level. But some test above it.

When I review [radon test results](#) with a homeowner, I always remind them that the number is a snapshot. Radon levels can fluctuate by season, by weather, and even by the time of day. A short-term test, which typically runs for two to seven days using a charcoal canister or a continuous radon monitor, gives you a quick read. But it is influenced by how tightly the house is sealed, whether windows are open, and whether the heating or cooling system is running. A long-term test, which runs for three months to a year, smooths out those fluctuations and gives a more accurate annual average. The EPA actually recommends a long-term test as the best way to decide whether mitigation is needed.

Why your first test might not tell the whole story

I have seen cases where a homeowner in St. Peters gets a short-term test result of 3.8 pCi/L, just below the Action Level, and feels relieved. Then they run a long-term test and it comes back at 5.2 pCi/L. That is not uncommon. Short-term tests can miss peaks that happen during colder months when the house is closed up and the stack effect pulls more soil gas inside. Conversely, I have seen a high short-term reading cause unnecessary alarm when a follow-up long-term test showed a lower average. The key is to treat your initial radon test results as a starting point, not a final verdict.

If your first test comes back above 4 pCi/L, the EPA recommends doing a follow-up test to confirm. That follow-up can be another short-term test or you can go straight to a long-term test. Many people prefer to use a continuous radon monitor for the follow-up because it gives hourly readings and can show how levels change with weather patterns and household activities. That kind of detail can be very helpful when deciding whether to install a radon mitigation system.

What happens if your results are above the Action Level

If your radon test results come back above 4 pCi/L, the standard recommendation is to install a radon mitigation system. In the St. Charles County area, the most common and effective method is sub-slab depressurization, sometimes called soil suction. This involves drilling a small hole through the basement floor or slab, creating a suction point, and using radon fans to pull the gas from beneath the house and vent it safely above the roofline. The system is not terribly invasive, and once installed, it runs quietly and continuously. The radon fans used in these systems are designed to operate for years with minimal maintenance.

I have worked on homes in O'Fallon where the soil is particularly permeable, and a simple sub-slab system brought radon levels from 8 pCi/L down to below 1 pCi/L. That is a dramatic reduction. The cost of mitigation is usually far less than most people expect, and it adds long-term value to the home. More importantly, it gives you peace of mind that the air inside your home is as clean as it can be.

What if your results are below the Action Level

If your radon test results are under 4 pCi/L, you are not in the danger zone, but you are not necessarily in the clear either. The EPA states that there is no known safe level of radon. The risk at 2 pCi/L is lower than at 4 pCi/L, but it is not zero. Some homeowners choose to install mitigation anyway, especially if they spend a lot of time in the basement or if young children are in the home. Others decide to retest every couple of years to make sure levels have not changed. Renovations, foundation settling, or changes to the HVAC system can all affect radon entry.

I often tell people in Wentzville that if their test result is between 2 and 4 pCi/L, it is worth considering a long-term test to get a more reliable average. If that comes back in the same range, you might choose to monitor periodically rather than mitigate. But if you ever notice a musty smell in the basement or feel that the air is stale, that can sometimes indicate increased soil gas entry, and retesting is a good idea.

Choosing the right test for your situation

There are two main types of tests available to homeowners. The first is the charcoal canister, which is a passive device. You open it, leave it in the lowest livable area of your home for the specified time, then seal it and mail it to a lab. It is simple and inexpensive. The second is a continuous radon monitor, which is an electronic device that plugs into a wall and gives you real-time readings. Many people in St. Charles County prefer the continuous monitor because it removes the guesswork of whether the test conditions were ideal. You can see exactly when levels spike and when they drop.

Some local home inspectors and radon professionals, including Air Sense Environmental, offer testing services that include a continuous radon monitor placed for a set period. That gives you a detailed report, not just a single number. If you are buying or selling a home, that kind of thorough radon test can be very valuable. It gives both parties a clear picture of what the radon situation really is.

How to use your test results to protect your family

Once you have your radon test results, the best thing you can do is act on them. If they are high, get a mitigation system installed by a qualified professional. If they are moderate, consider a long-term test or a follow-up during a different season. If they are low, keep a record and retest every few years. Radon levels can change. I have seen homes in St. Charles that tested low for years and then, after a basement remodel that sealed off a crawl space, tested much higher. The soil gas found a new path inside.

It also helps to understand that radon mitigation is not a one-size-fits-all solution. A good contractor will evaluate your home's foundation type, soil conditions, and existing ventilation before designing a system. In Missouri, where the geology varies from clay to gravel to limestone, the approach can differ from one neighborhood to the next. That is why it pays to work with someone who knows the local ground, not just the theory.

Final thoughts on reading your radon test

Your radon test results are one of the most important pieces of information you can have about your home's indoor air quality. They are not something to ignore or file away. They are a

tool. Whether you live in St. Charles, O'Fallon, St. Peters, or Wentzville, the same principles apply: test properly, understand what the numbers mean, and take action if needed. Radon is a natural part of the environment, but it does not have to be a part of your home's air. With the right knowledge and the right steps, you can keep your family safe.