



MATRIX

Health & Safety Consultants, L.L.C.

January 30, 2023

Graham County
196 Knight Street
Robbinsville, North Carolina 28771

Attention: Jason Marino

Subject: Indoor Radon Sample Analysis
66 Atoah Road
Robbinsville, NC 28771
Matrix Project # 230162

Dear Mr. Marino:

Matrix Health & Safety Consultants, L.L.C. (Matrix) conducted ambient air monitoring for Radon gas in the referenced property during the period of January 20, 2023 to January 24, 2023. Two activated charcoal sampling kit were placed in the lowest living spaces of the residence. The sampling kits were forwarded to Air Check, Inc. in Naples, North Carolina for laboratory analysis.

The table below summarized the sample location and radon concentration in picoCuries per liter (pCi/l) for each sample. Attached you will find the laboratory report and interpretation provided by Air Check.

| Sample Location | Radon Test Result pCi/L |
|---------------------------------|-------------------------|
| Living Room Test Kit 7383809 | 0.7 +/- 0.3 pCi/l |
| Hallway Test Kit 7383810 | <0.3 pCi/l |

The current action level for indoor radon exposure established by the EPA is 4.0 pCi/L. The EPA indicates that there is little short-term risk with test results in the range reported. However, because radon levels fluctuate daily, as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes, you should test again.

Matrix is pleased to have provided our professional services for this project. If you have any questions, please do not hesitate to call me at (919) 833-2520.

Sincerely,
Matrix Health & Safety Consultants, L.L.C.

C. Britt Wester, CIH
Principal

Attachment: Laboratory Analysis Reports

Attention: P3418 / C BRITT WESTER

Kit #: 7383809 Result: 0.7 ± 0.3 pCi/l

Location: 1st Floor Living Room

Matrix

66 Atoah Rd

Robbinsville, NC 28771-8063

Analysis Note :

Analyzed : 2023-01-24 at 11:00 am

Started : 2023-01-20 at 10:00 am

Ended : 2023-01-23 at 11:00 am

Hours/MST% : 73 hours 5.1% 75°F

Kit #: 7383810 Result: < 0.3 pCi/l

Location: 1st Floor Hallway

Matrix

66 Atoah Rd

Robbinsville, NC 28771-8063

Analysis Note :

Analyzed : 2023-01-24 at 11:00 am

Started : 2023-01-20 at 10:00 am

Ended : 2023-01-23 at 11:00 am

Hours/MST% : 73 hours 5.8% 70°F



Radon Test Result: < 0.3 ±0.3 pCi/L

Test Started 01/20/23 at 10:00 am
Test Ended 01/23/23 at 11:00 am
Closed house conditions maintained during test.

Air Chek

PO Box 2000

Naples, NC 28760

Location 1st Floor

hallway

www.radon.com



MATRIX
66 ATOAH RD
ROBBINSVILLE, NC 28771-8063

Your Test Result

This result has been rounded to one-tenth (0.1) of a pCi/L (picocurie per liter). This test result reflects the amount of radon measured in this sample AFTER it arrived at our laboratory. All analysis calculations are automatically adjusted to reflect the length of test, the amount of moisture in the sample, temperature, time from the end of test, and the amount of radiation measured. If your test kit was used prior to the Use By date, ALL the testing protocols and instructions were carefully followed, and the data recorded properly on the test packet, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the test period.

This radon test was provided to you by MATRIX HEALTH AND SAFETY / 919-833-2520.

INTERPRETING YOUR TEST RESULT

The US EPA action level for indoor radon is 4.0 pCi/L. Test results in this range (0.5 pCi/L or less) are, for all practical purposes, equivalent to the radon levels found in fresh air. However, if you make any structural changes or start to use a lower level of the building more frequently you should test again.

Health Risks

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends both on how much radon is present and how long you are exposed to radon. The higher the radon level or the longer the time of exposure, even if the levels are relatively low, the greater the risk. EPA has set an Action Level for radon at 4 pCi/L; however radon concentrations less than 4 pCi/L still pose some health risks. The Indoor Radon Abatement Act set a goal for indoor radon concentrations to equal the amount of radon found outdoors, which is estimated to be ~ 0.4 pCi/L.

Conducting Follow-up Measurements

USEPA protocol describes two general types of radon measurements: short-term tests conducted from 48 hours up to 90 days, and long-term tests that last from 91 to 365 days. Your first test (initial/screening) should be a short-term 'worst-case' screening to see if there is a potential for high exposure to radon. Screening tests should be conducted under closed-building conditions, in the lowest lived-in area in the house, because the highest concentrations of radon will usually be found in a room closest to the underlying soil. Tests made under these conditions are less likely to miss a house with a potential for high concentrations. On the other hand, if the results of worst-case screening tests are very low, there is a high probability that the average annual concentrations in the house are also low.

(Continued on Back)

Most states have a radon office to assist citizens with general questions about radon and radon reduction techniques. Many states maintain a list of licensed or certified radon testing and mitigation professionals. You can visit www.state-radon.info to find the list of state radon contacts, as well as links to additional radon resources in your area.



Radon Test Result: 0.7 ±0.3 pCi/L

Test Started 01/20/23 at 10:00 am
Test Ended 01/23/23 at 11:00 am
Closed house conditions maintained during test.

Air Chek

PO Box 2000

Naples, NC 28760

Location 1st Floor

living room

www.radon.com



MATRIX
66 ATOAH RD
ROBBINSVILLE, NC 28771-8063

Your Test Result

This result has been rounded to one-tenth (0.1) of a pCi/L (picocurie per liter). This test result reflects the amount of radon measured in this sample AFTER it arrived at our laboratory. All analysis calculations are automatically adjusted to reflect the length of test, the amount of moisture in the sample, temperature, time from the end of test, and the amount of radiation measured. If your test kit was used prior to the Use By date, ALL the testing protocols and instructions were carefully followed, and the data recorded properly on the test packet, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the test period.

This radon test was provided to you by MATRIX HEALTH AND SAFETY / 919-833-2520.

INTERPRETING YOUR TEST RESULT

The US EPA action level for indoor radon is 4.0 pCi/L. The EPA indicates that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily, as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

Health Risks

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends both on how much radon is present and how long you are exposed to radon. The higher the radon level or the longer the time of exposure, even if the levels are relatively low, the greater the risk. EPA has set an Action Level for radon at 4 pCi/L; however radon concentrations less than 4 pCi/L still pose some health risks. The Indoor Radon Abatement Act set a goal for indoor radon concentrations to equal the amount of radon found outdoors, which is estimated to be ~ 0.4 pCi/L.

Conducting Follow-up Measurements

USEPA protocol describes two general types of radon measurements: short-term tests conducted from 48 hours up to 90 days, and long-term tests that last from 91 to 365 days. Your first test (initial/screening) should be a short-term 'worst-case' screening to see if there is a potential for high exposure to radon. Screening tests should be conducted under closed-building conditions, in the lowest lived-in area in the house, because the highest concentrations of radon will usually be found in a room closest to the underlying soil. Tests made under these conditions are less likely to miss a house with a potential for high concentrations. On the other hand, if the results of worst-case screening tests are very low, there is a high probability that the average annual concentrations in the house are also low.

(Continued on Back)

Most states have a radon office to assist citizens with general questions about radon and radon reduction techniques. Many states maintain a list of licensed or certified radon testing and mitigation professionals. You can visit www.state-radon.info to find the list of state radon contacts, as well as links to additional radon resources in your area.

Conducting Follow-up Measurements

The higher your initial (screening) tests, the sooner you should conduct follow-up measurements. The EPA states that you should retest the same location that was tested initially.

For additional or follow-up testing, make sure at least one test is conducted in the **lowest lived-in level** of the home. Also choose regularly used rooms, such as family rooms, dens, playrooms, or bedrooms. A bedroom on the lower level may be a good choice, because people generally spend the most time in their bedrooms (approximately one-third of the year). If there are children, it may be appropriate to test their rooms or other areas where they spend a lot of time, especially at the lower levels. All short-term follow-up tests **must** be conducted under closed-building conditions. If closed-building conditions cannot be maintained, a long-term measurement conducted under normal living conditions could be used to help estimate average annual exposures.

Tests **should not be conducted** in a kitchen or a bathroom because high humidity, exhaust fans, and other factors can adversely affect the test results. Tests **should not be conducted** in storage areas or laundry rooms, because relatively little time is spent there. Although radon in water may be a contributor to the concentration of airborne radon, radon in air should be **confirmed** before a test for radon in water is performed.

It is recommended that before spending any time or money on radon mitigation, one should conduct multiple (two or more) tests to be certain there is a need. A few more tests will most certainly cost considerably less than any mitigation work.

If follow-up measurements have **confirmed** that the average annual level of radon is equal to or greater than 4 pCi/L, the USEPA recommends that the building or home be mitigated for radon. Consider also that a future buyer is likely to demand that the building pass a radon test before purchasing.

Variations in Radon Levels - What can affect your test results and why it may be important to conduct confirmation tests.

When tests are performed in different seasons or under different weather conditions, the initial screening and follow-up tests may vary considerably. Radon levels can vary significantly between seasons, so different results **are often expected**. Even during normal weather, indoor radon levels may rise and fall by a factor of two on a daily cycle; for example, from 5 pCi/L to 10 pCi/L in 24 hours. During rapidly changing or stormy weather, the levels may change more dramatically.

If you are comparing tests, or are averaging a series of tests, bear in mind that any radon test returns only the average of the levels present during a **specific period of time** at the **precise location** of the test. Conditions during a different test period or at a different location in the building are **expected to be different**.

Test results can also vary if the radon test instructions were not carefully followed. A laboratory measuring radon in samples taken outside the lab **must rely on the person conducting the test**. For example, the wrong starting or ending date of a test will significantly affect the calculated result. The location of each radon test can also influence the result. For example, a test placed in the blowing air stream of a fan is likely to collect more radon than it would under normal conditions. Also, three tests conducted in one home, but in three different rooms, **would be expected to have at least slightly different test results**.

Test results from a properly used activated charcoal test will more closely reflect the average radon concentrations over the last three to four days of the test period. This happens because the radon collected by the activated charcoal has a radioactive half-life of only four days. This means, for example, over one-half of the radon collected during the first three days of a seven day test 'died' before the test ended.

If you have further questions regarding this test or need advice on follow-up testing, call fax or email our technical service department listed below.

Thank you for choosing the Air Chek test device

PERFORMING RADON TESTS FOR A REAL ESTATE TRANSACTION

EPA guidelines recommend that at least two short-term tests should be conducted, either together or sequentially, in the lowest level of the building usable by the buyers. If the average of all the tests is 4 pCi/L or more, the recommendation is to have the building mitigated by a certified professional. If the average is below 4 pCi/L, then no further action is necessary at this time, although testing in the future is recommended. It is **highly recommended** that any property transaction tests be conducted by a certified radon professional. To locate a listed or certified radon tester, contact your state radon office (www.state-radon.info) or go to www.nrpp.info to download a list of professionals certified by the National Radon Proficiency Program (NRPP).

Also visit www.epa.gov/radon to download the latest copy of their publication: *Home Buyer's and Seller's Guide to Radon*.

Limitation of Liability: While we at Air Chek make every effort to maintain the highest possible quality control and include several checks and verification steps in our procedures, we make NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS with respect to any item furnished, information supplied or services rendered you by Air Chek. Before any action is taken on the basis of test results given to you by Air Chek, we recommend that further testing be done. Neither Air Chek, nor any of our employees or agents, shall be liable under any claim, charge, or demand, whether in contract, tort or otherwise, for any and all losses, costs, charges, claims, demands, fees, expenses, injuries or damages (including without limitation INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH ARE EXCLUDED) of any nature or kind arising out of, connected with, resulting from, or sustained as a result of any item furnished, information supplied, or service rendered to you by Air Chek.

Notice to Pennsylvania Residents: The Radon Certification Act requires that anyone who provides any radon-related service or product to the general public must be certified by the Pennsylvania Department of Environmental Protection. You are entitled to evidence of certification from any person who provides such services or products. You are also entitled to a price list for services or products offered. All radon measurement data will be sent to the Department as required in the Act and will be kept confidential. If you have any questions, comments, or complaints concerning persons who provide radon-related services, please contact the Department of Environmental Protection, P.O. Box 8469, Harrisburg, PA 17105-8469 (717-783-4594).

The radon test kit(s) used for this report is certified by the National Radon Proficiency Program (NRPP), Lab ID: 101138AL, for use in all fifty states. It is also listed or certified for use in all states that have a radon program.

For technical information, call (800) 247-2435. Office hours are Mon-Fri 8:30 to 5:30 Eastern
You can reach us by Fax at (828) 684-8498 or by email at info@radon.com
Web Site: www.radon.com