

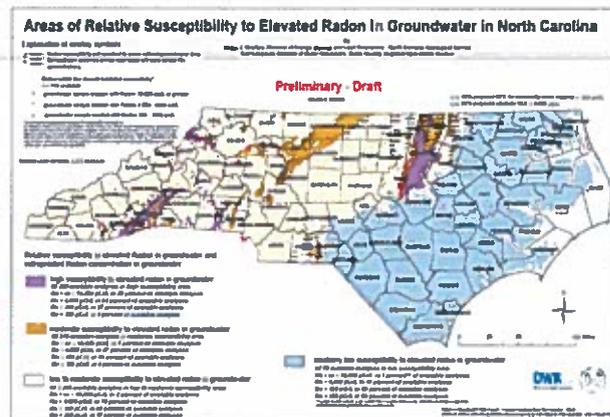
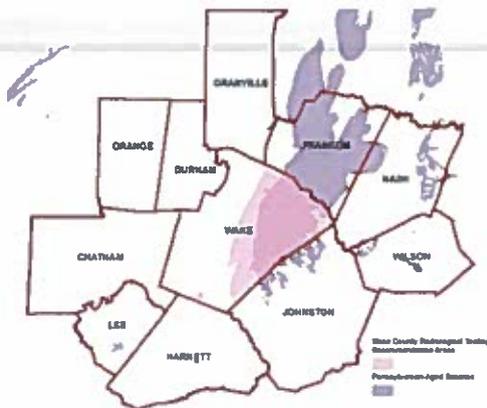
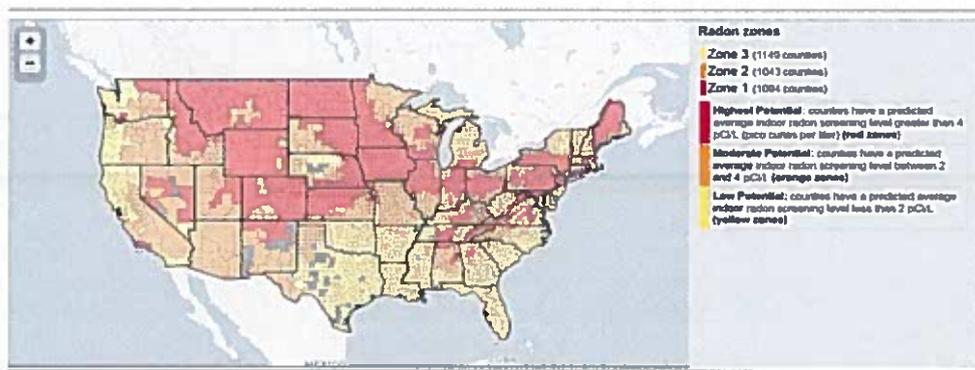


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**Frequently Asked Questions:**  
**Naturally-Occurring Radiological Contaminants**  
**In Franklin County Ground Water & Indoor Air**

1. **“Why am I hearing about Ground (well) Water Radiological Contaminants now?”**  
 Naturally occurring Radium, Uranium and Radon Gas are (see map below). According to a recently updated North Carolina Geological Survey map, the same Pennsylvania-Aged Granite found in portions of eastern Wake county, called the Rolesville Granite formation, has now been shown to be present in nearly all of Franklin County (see maps below).

Map of Radon Zones in the United States based on Environmental Protection Agency (EPA) data

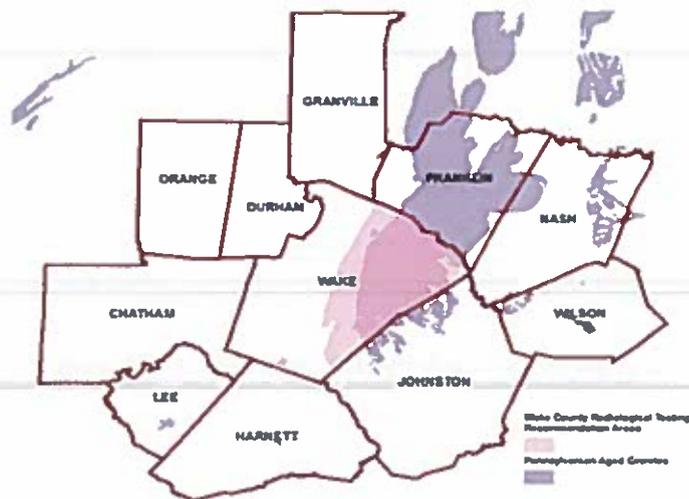


2. **“What does it mean for my water?”**

Municipal drinking water in Franklin County, covered under Federal “Safe-Water Standards,” uses surface water which is largely free from radiological/radon gas contamination. “Private Well Owners” are not covered under these regulations and therefore regular testing is not required by federal and/or state law. However, without testing for Uranium, Radium and Radon, you have no way of knowing whether your well (ground-water) is affected. We therefore encourage private well owners in the affected areas to consider having their well-water & indoor air tested for radiological contaminants.

3. **“How do I know if my well-water might be affected?”**

If you suspect your well is within the “Rolesville Granite” formation (see previous maps) and you have concerns about radiological contaminants, Franklin County encourages you first have your indoor air tested for radon gas, since radon is also found in aged granite formation zones and this test is relatively inexpensive. Next, we encourage getting your well-water screened using the “Gross Alpha Test.” If this relatively inexpensive screen detects elevated levels of Gross Alpha radiation, additional radiological tests could be done to determine the type of contaminant present. If there is NO detection of Gross Alpha, then there is no need for water treatment and you should consider re-testing in 1-2 years. However, the absence of Gross Alpha in well water does not guarantee your home is free from Radon, which may be entering through basements/crawlspaces. Getting both the indoor air Radon test and the Gross Alpha is an important first step for those living in the affected area.



4. **“How can Uranium, Radium and Radon gas in well-water affect our health?”**

Long-Term exposure to radiological contaminants in well-water above recommended levels has been associated with increased risk of cancers and kidney toxicity. Radon-gas in water becomes a problem when it is released into the air inside a home: largely during activities like clothes/dishes washing and bathroom activities like showering. Prolonged exposure to elevated levels of Radon gas is associated with elevated risk for cancers.

5. **“I’m a SMOKER, how can Radon gas in well-water affect my health”**

If you are a smoker or used to smoke, your risk of lung cancer with prolonged radon gas exposure is significantly greater than that of non-smokers and even that of other smokers.

**SMOKER’S RISK**

Air Radon Level	If 1,000 people who <u>smoked</u> were exposed to this level over a lifetime*...	The risk of cancer from radon exposure compares to**...	WHAT TO DO: Stop smoking and...
20 pCi/L	About 260 people could get lung cancer	250 times the risk of drowning	Fix your home
10 pCi/L	About 150 people could get lung cancer	200 times the risk of dying in a home fire	Fix your home
8 pCi/L	About 120 people could get lung cancer	30 times the risk of dying in a fall	Fix your home
4 pCi/L	About 62 people could get lung cancer	5 times the risk of dying in a car crash	Fix your home
2 pCi/L	About 32 people could get lung cancer	6 times the risk of dying from poison	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	About 20 people could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult.)
0.4 pCi/L	About 3 people could get lung cancer	(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be lower.  
 \* Lifetime risk of lung cancer deaths from EPA Assessment of Risks from Radon in Homes (EPA 402-R-03-003).

**6. “I NEVER smoked, how can Radon gas in well-water affect my health”**

The good news is that for those who never smoked, with prolonged exposure to Radon gas, your rates of lung cancer are better than those of the smokers. The Bad news is that a non-smoker’s risk of lung cancer when exposed to radon gas over a lifetime greatly increases their risk when compared to non-smokers with little/no radon gas exposure.

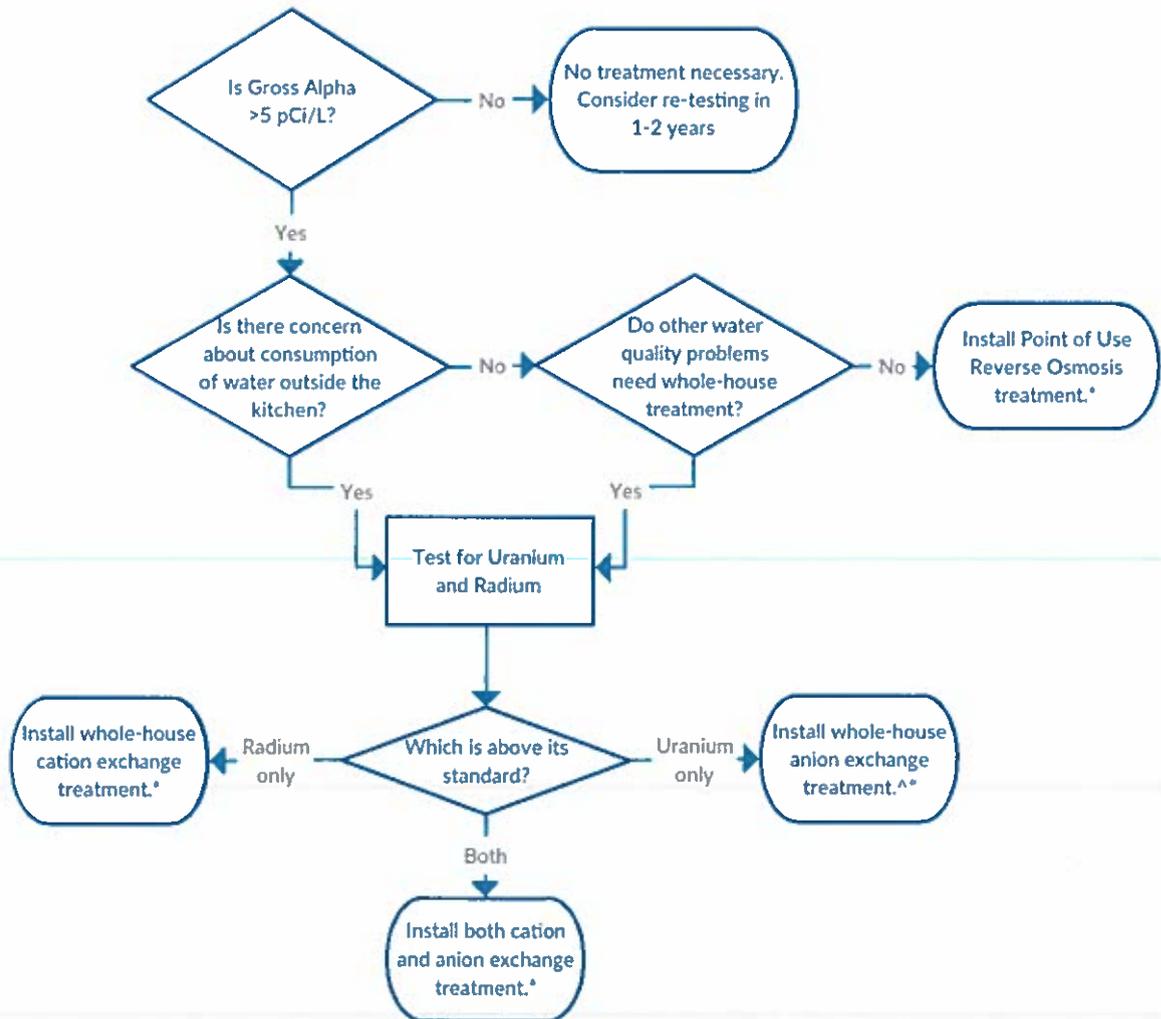
**NON-SMOKER’S RISK**

Air Radon Level	If 1,000 people who <u>never</u> smoked were exposed to this level over a lifetime*...	The risk of cancer from radon exposure compares to**...	WHAT TO DO:
20 pCi/L	About 36 people could get lung cancer	35 times the risk of drowning	Fix your home
10 pCi/L	About 18 people could get lung cancer	20 times the risk of dying in a home fire	Fix your home
8 pCi/L	About 15 people could get lung cancer	4 times the risk of dying in a fall	Fix your home
4 pCi/L	About 7 people could get lung cancer	The risk of dying in a car crash	Fix your home
2 pCi/L	About 4 people could get lung cancer	The risk of dying from poison	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	About 2 people could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult.)
0.4 pCi/L	About 2 people could get lung cancer	(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be higher.  
 \* Lifetime risk of lung cancer deaths from EPA Assessment of Risks from Radon in Homes (EPA 402-R-03-003).

7. **“What will the Gross-Alpha Test tell me about my well-water?”** If you suspect you live in the “Rolesville Granite” formation area, and get your water tested, here’s a decision-chart to explain what actions your Gross-Alpha test-results could suggest:

Gross Alpha Testing Flowchart



\*Re-test immediately after installation and regularly afterwards to ensure effectiveness of treatment.

^ In conjunction with any other needed treatments for non-radiological contaminants.

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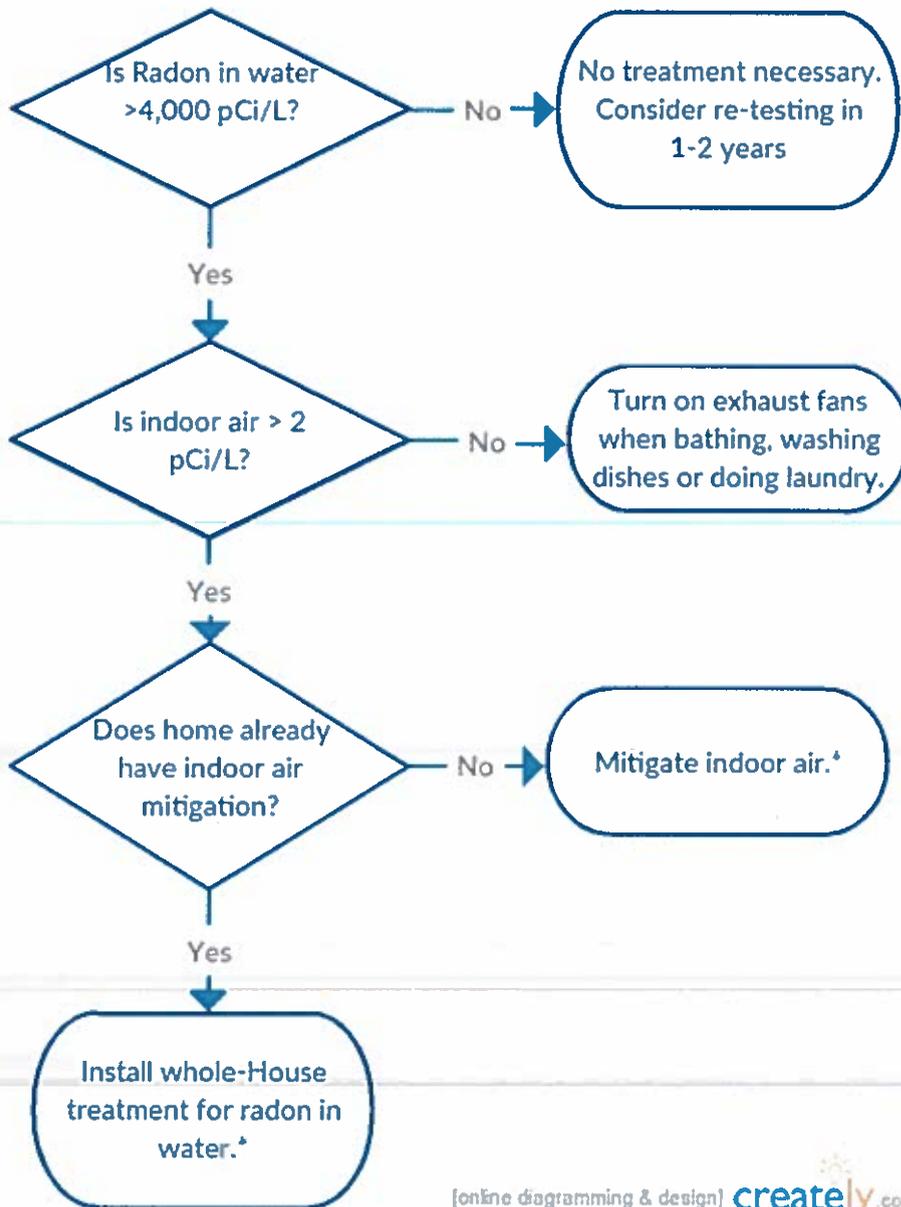
If you’re not concerned about ingesting water from taps outside the kitchen and have no other water quality concerns you want to address, an inexpensive Point of Use (POU) reverse osmosis system can be installed at the kitchen sink to filter out Uranium and radium. Follow-up Gross alpha testing is necessary to ensure your filter system is working properly.

If you are concerned about ingesting water from taps outside the kitchen (i.e. bathroom) or are considering whole-house treatment for any other reason, additional testing for Uranium, Radium and Radon gas is critical.

8. **“What about Radon in my well-water and Indoor-Air?”**

If radon is elevated in well-water, the decision of how/what to treat should be made in consideration of indoor AIR radon measurements. Here is a Radon-Testing Flow Chart:

Radon Testing Flowchart



**9. “So, I have a well and live in the affected area, what should I do?”**

The Franklin County Health Department recommends you do two things to start:

1. Water Test: get your well-water tested using the Gross-Alpha test; and
2. Indoor Air Test: get your indoor air tested for Radon Gas levels.

Both of these tests are relatively inexpensive, and can provide you with the information you need to make informed decisions about your well-water and indoor air, and what you need to do next (if anything).

**10. “How Worried Should I be about Radiologicals or Radon gas in my well-water?”**

Please keep in mind that the health-risks these contaminants carry is from a “lifetime” of exposure, so there’s no need to panic. However, the sooner you address these concerns the less you and your family will be at risk.

**11. “So, what do I do next?”**

Here’s a set of suggested instructions on how to address your well’s risk:

1. Confirm you have Well Water: Municipal water in Franklin County is surface water and is not affected by Uranium/Radium/Radon.
2. Confirm if you have a Single or Shared Well: Check to see if you use a “Shared-Well” with others in your neighborhood, and if so contact that shared-well’s operator about what to do next.
3. Check the Map: Check if you live in/near the Rolesville Granite Formation.
4. Water Test: If you think you live in the suspected area, or just for “peace-of-mind”, get your well-water tested using the Gross-Alpha test. Contact the Franklin County Health Department if you’re not sure where to get this test done by calling 919-496-8100.
5. Indoor Air Test: Get your indoor air tested for Radon Gas levels. These inexpensive self-test kits can be bought at stores like Home Depot and Lowes.
6. Use the Decision Trees: Whether you use the Gross-Alpha water test or the indoor Air Radon Test (or both), use the decision trees from this article to start a discussion with a professional on any needed mitigation plan.
7. Consult with a Professional: contact someone qualified to assess your water and/or air test-results who can make migration recommendations (if any).
8. When in Doubt, call the Health Department’s Environmental Health Program for free consultation and suggestions on any next steps. We can be reached by phone at 919-496-8100.

- 12. Testing “Package” Under Development**: Franklin County Health Department is currently working with several labs to develop a comprehensive package for Franklin County Residents that is reliable and at a reasonable cost. Check our Webpage often to see when we have this available for purchase:

<https://www.franklincountync.us/services/health/services/environmental-health>

Or, feel free to pursue your own testing if you have a provider you wish to use.