Hopewell Township, Cumberland County Private Well Testing Outreach 2021

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NJ Department of Health
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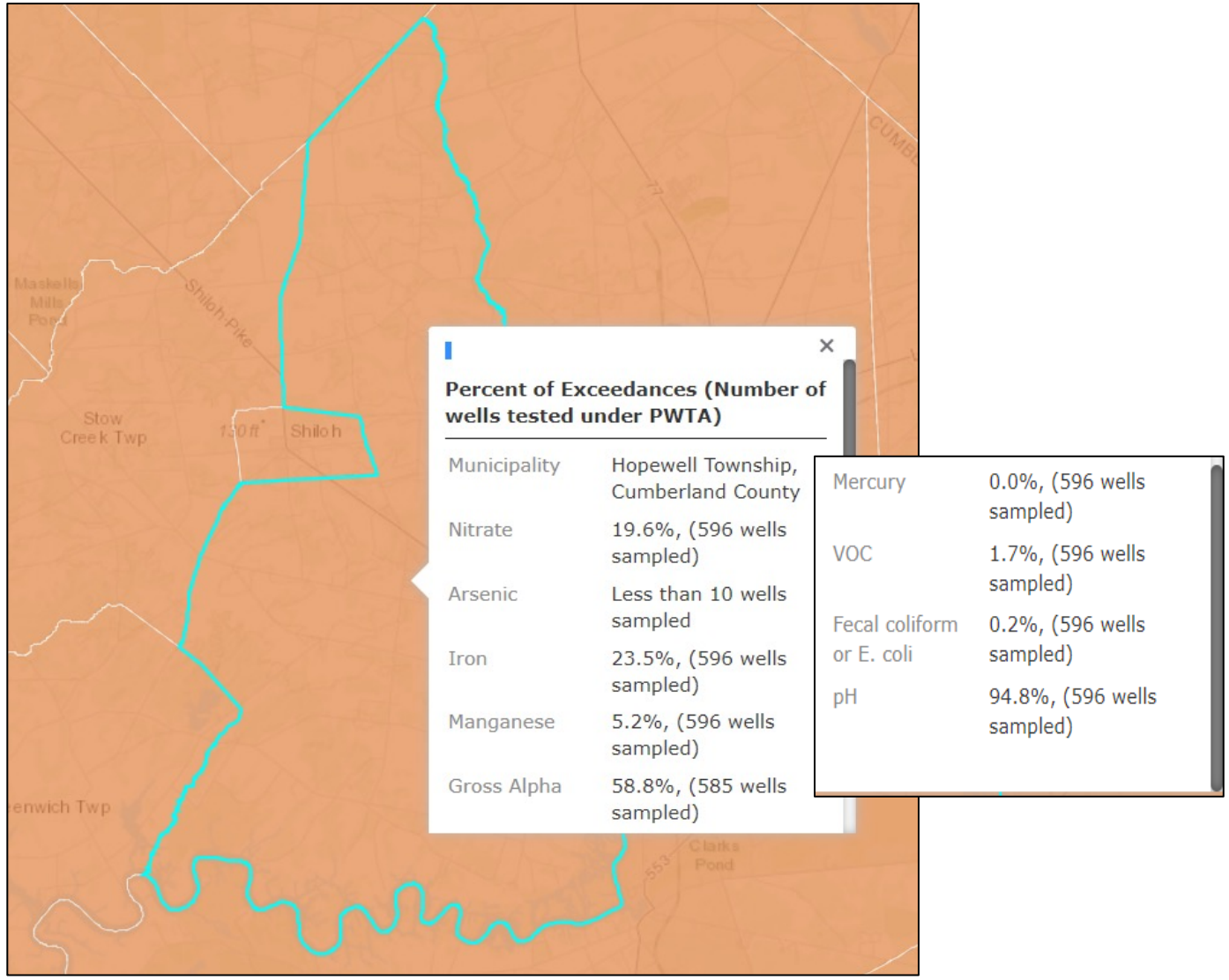
NJ Private Wells

- **400,000** private wells are used for drinking water consumption in NJ (about **12%** of population)
- NJ PWTA - Requires buyers or sellers of real estate property to test for variety of parameters in raw/untreated water before closing of title
- Only about **100,000 (25%)** wells have been tested under the Private Well Testing Act (PWTA) since 2002
- The quality of private well drinking water is solely the responsibility of the homeowner.
- NJDOH awarded funding from CDC to support well testing in communities

NJ PWTA Summary Data: Hopewell Township, Cumberland County

- Percent of PWTA tested wells exceeding standards
- Primary contaminants of concern
  - Gross alpha – **58.8%**
  - Nitrate – **19.6%**
- Secondary contaminants of concern:
  - pH – **94.8%**



https://njdep.maps.arcgis.com/apps/MapSeries/index.html?appid=826ec9fae77543caa582a787d5f088e7

Hopewell Twp. 2021 Outreach Implementation

- In partnership with Hopewell Twp. Environmental Commission
- Informational flyers posted online, school webpage and at community locations; online registration
- Funding available to sample and test ~60 private wells
  - Received 30 registrants
  - 23 homeowners had their water tested
- Analyses: Gross alpha (raw and treated) and nitrates (raw or treated)
- NJ Analytical Laboratory conducted water sampling and analyses

HOPEWELL TOWNSHIP FREE PRIVATE WELL TESTING EVENT

How can I sign-up and participate?

DEADLINE EXTENDED TO:

May 20th, 2021

Did you know?

In Hopewell Township, **59%** of wells tested exceeded the standard for **gross alpha** and **19%** exceeded the standard for **nitrates**

bit.ly/hopewelltesting

After you register, you will receive a confirmation email with instructions on next steps.

If you have any questions or concerns, feel free to email us at:

rebecca.schwartz@doh.nj.gov
or
clerk@hopewelltwp-nj.com

SIGN UP ONLINE @
bit.ly/hopewelltesting

The Hopewell Township Environmental Commission and New Jersey Department of Health are offering **free** private well testing for **gross alpha** and **nitrates** to **60 homes**. Water test results are **confidential** and will not be shared. Funding for this testing is being provided by the Centers for Disease Control and Prevention. **This is a first-come, first-serve opportunity valued at $300. Sign up today to protect your family and test your well water!**

Gross alpha is a total measurement of radioactivity in drinking water. In South Jersey, this radioactivity is usually indicative for the presence of **radium**. Chronic exposure to elevated levels of **radium** is associated with adverse health effects such as bone and sinus cancer.

Nitrates are chemicals derived from fertilizers and are particularly more susceptible to cause adverse health effects in infants. Baby blue syndrome, a condition when oxygen decreases in blood supply, can affect infants at high levels.

Hopewell Township NJ Cumberland County

NJ Health New Jersey Department of Health

Gross Alpha Background

Abbreviations:
pCi/L = picocuries per liter

What is Gross Alpha?

- A measure of total radioactivity in drinking water
- Radium most prevalent and likely element contributing to radioactivity in South Jersey wells

Drinking Water Standard

- Gross alpha: MCL=**15** pCi/L
  - MCL is a maximum contaminant level which is an enforceable limit on amount of contaminant permitted in public drinking water
- Radium: MCL = **5** pCi/L

Health Effects

- Drinking water with radium over a long period of time is associated with bone and sinus cancer

Gross Alpha Recommendations

≤ 5 pCi/L:

- No further action required

> 5 pCi/L and ≤ 15 pCi/L:

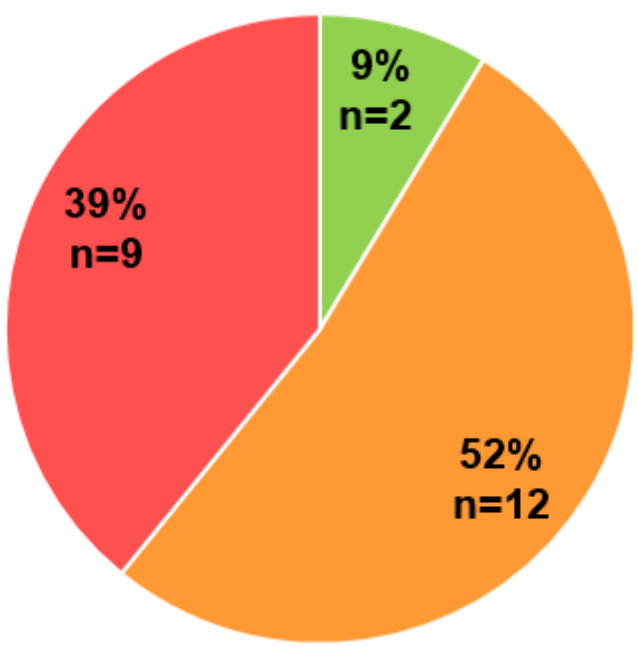
- Recommend testing for Ra-226 and Ra-228 (MCL = **5** pCi/L)
- Alternatively, could just install water treatment
- Water Softener or Reverse Osmosis (RO)

> 15 pCi/L:

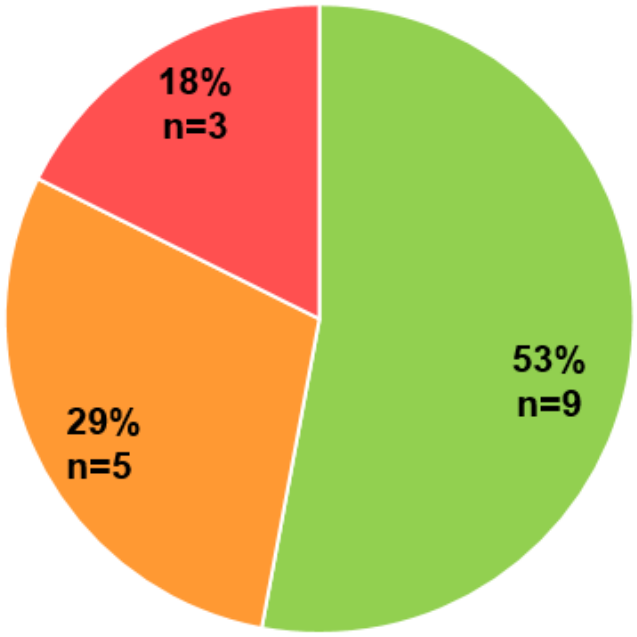
- Water treatment is strongly recommended
- Water Softener or Reverse Osmosis (RO)
- Test for gross alpha again after installation
- Maintenance and monitoring of water treatment, test at least once every year

Gross Alpha Results

Raw Water (n=23)

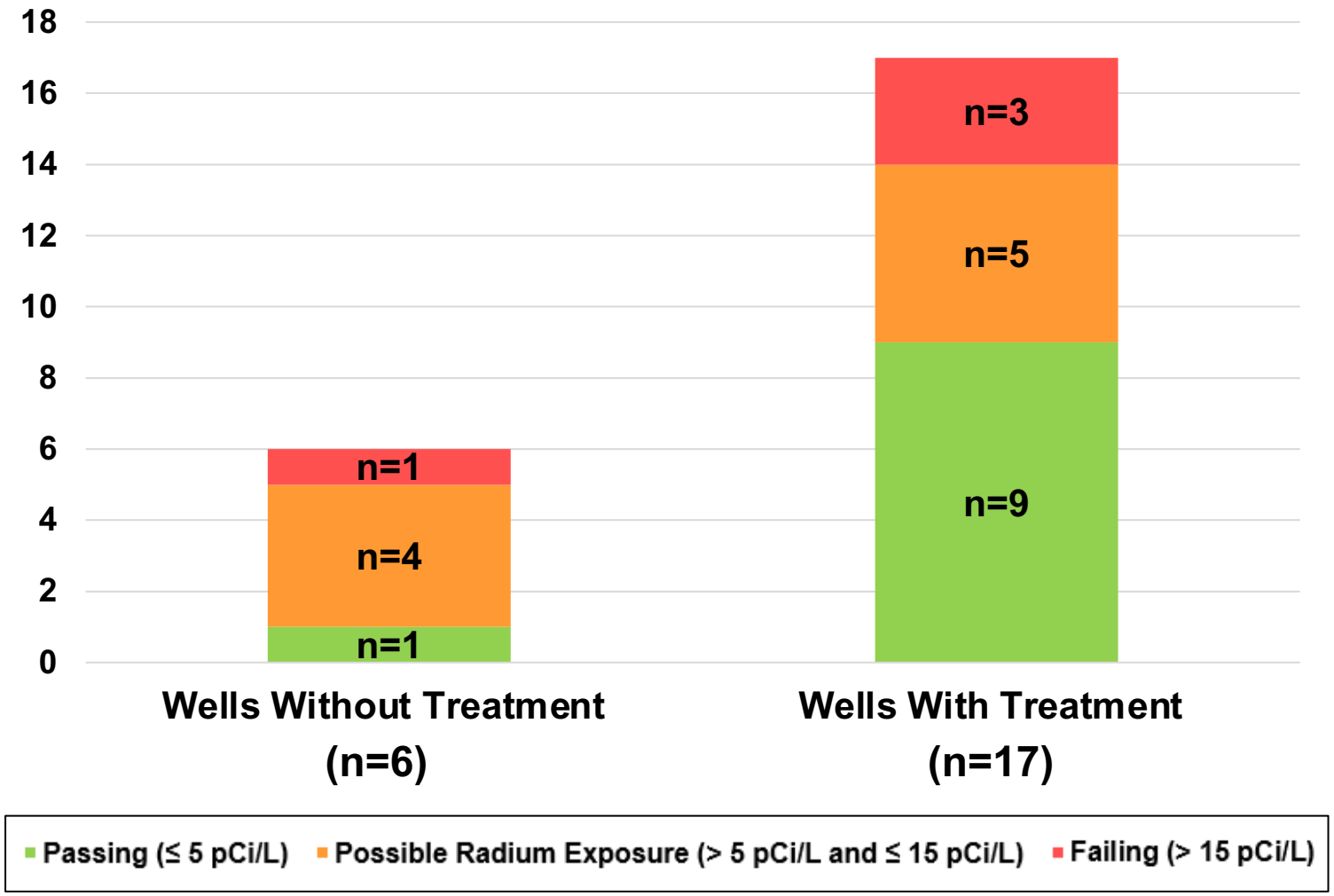


Treated Water (n=17)



Passing (≤ 5 pCi/L) Possible Radium Exposure (> 5 pCi/L and ≤ 15 pCi/L) Failing (> 15 pCi/L)

Summary of Gross Alpha Exposure from Drinking Water



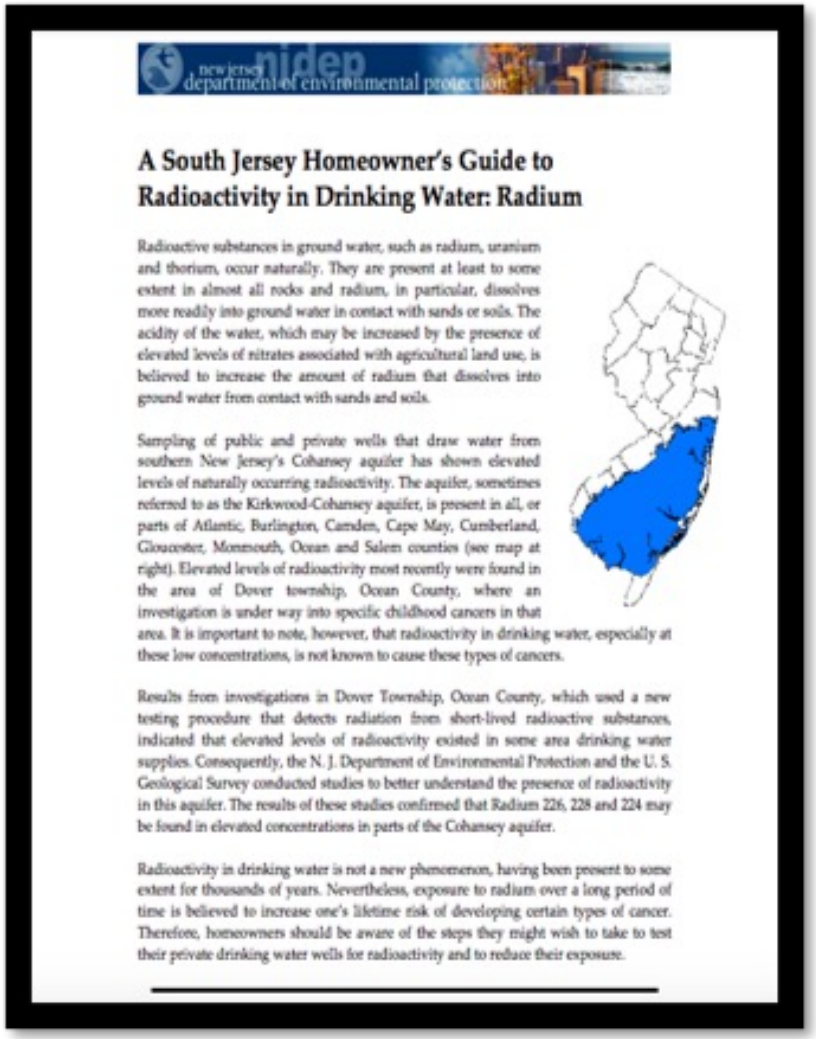
Who is being exposed?

Possible radium exposure: **4** raw water + **5** treated water = **9** out of 23 (**39.1%**)

Failing for gross alpha: **1** raw water + **3** treated water = **4** out of 23 (**17.4%**)

Frequently Asked Questions

- Is it safe to shower?
  - Yes – skin absorption from radium not a concern
- Will cooking/boiling water remove the contaminants?
  - No – boiling will not remove these contaminants, instead it could concentrate
- Pets
  - If your drinking water exceeds the standard, you and/or your pets should not drink it
- Additional resources:
  - Link for South Jersey homeowner's guide
  - https://www.nrc.gov/docs/ML0721/ML072150380.pdf
    - How much does treatment cost?
    - How much does water testing cost?



new jersey department of environmental protection njdep

A South Jersey Homeowner's Guide to Radioactivity in Drinking Water: Radium

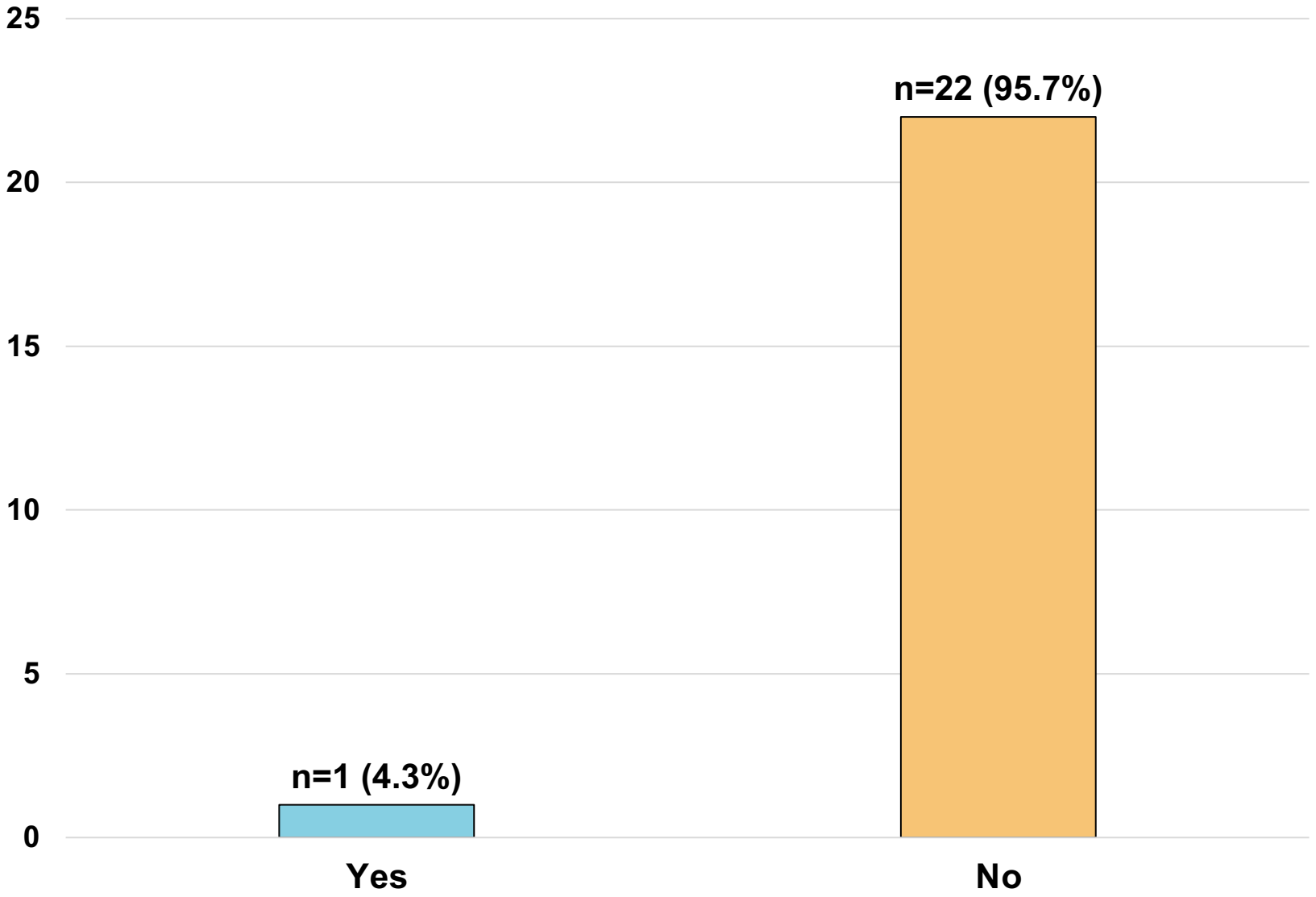
Radioactive substances in ground water, such as radium, uranium and thorium, occur naturally. They are present at least to some extent in almost all rocks and radium, in particular, dissolves more readily into ground water in contact with sands or soils. The acidity of the water, which may be increased by the presence of elevated levels of nitrates associated with agricultural land use, is believed to increase the amount of radium that dissolves into ground water from contact with sands and soils.

Sampling of public and private wells that draw water from southern New Jersey's Cohansey aquifer has shown elevated levels of naturally occurring radioactivity. The aquifer, sometimes referred to as the Kirkwood-Cohansey aquifer, is present in all, or parts of Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Monmouth, Ocean and Salem counties (see map at right). Elevated levels of radioactivity most recently were found in the area of Dover township, Ocean County, where an investigation is under way into specific childhood cancers in that area. It is important to note, however, that radioactivity in drinking water, especially at these low concentrations, is not known to cause these types of cancers.

Results from investigations in Dover Township, Ocean County, which used a new testing procedure that detects radiation from short-lived radioactive substances, indicated that elevated levels of radioactivity existed in some area drinking water supplies. Consequently, the N. J. Department of Environmental Protection and the U. S. Geological Survey conducted studies to better understand the presence of radioactivity in this aquifer. The results of these studies confirmed that Radium 226, 228 and 224 may be found in elevated concentrations in parts of the Cohansey aquifer.

Radioactivity in drinking water is not a new phenomenon, having been present to some extent for thousands of years. Nevertheless, exposure to radium over a long period of time is believed to increase one's lifetime risk of developing certain types of cancer. Therefore, homeowners should be aware of the steps they might wish to take to test their private drinking water wells for radioactivity and to reduce their exposure.

Previously Tested for Gross Alpha



Nitrates Background

Source of Contamination

- Contamination from nitrates is often a result of fertilizers or septic systems.

Drinking Water Standard

- MCL=**10** mg/L

Health Effects

- High levels of nitrates in infants can cause “blue baby syndrome,” an illness which decreases oxygen in the blood supply

Nitrates Recommendations

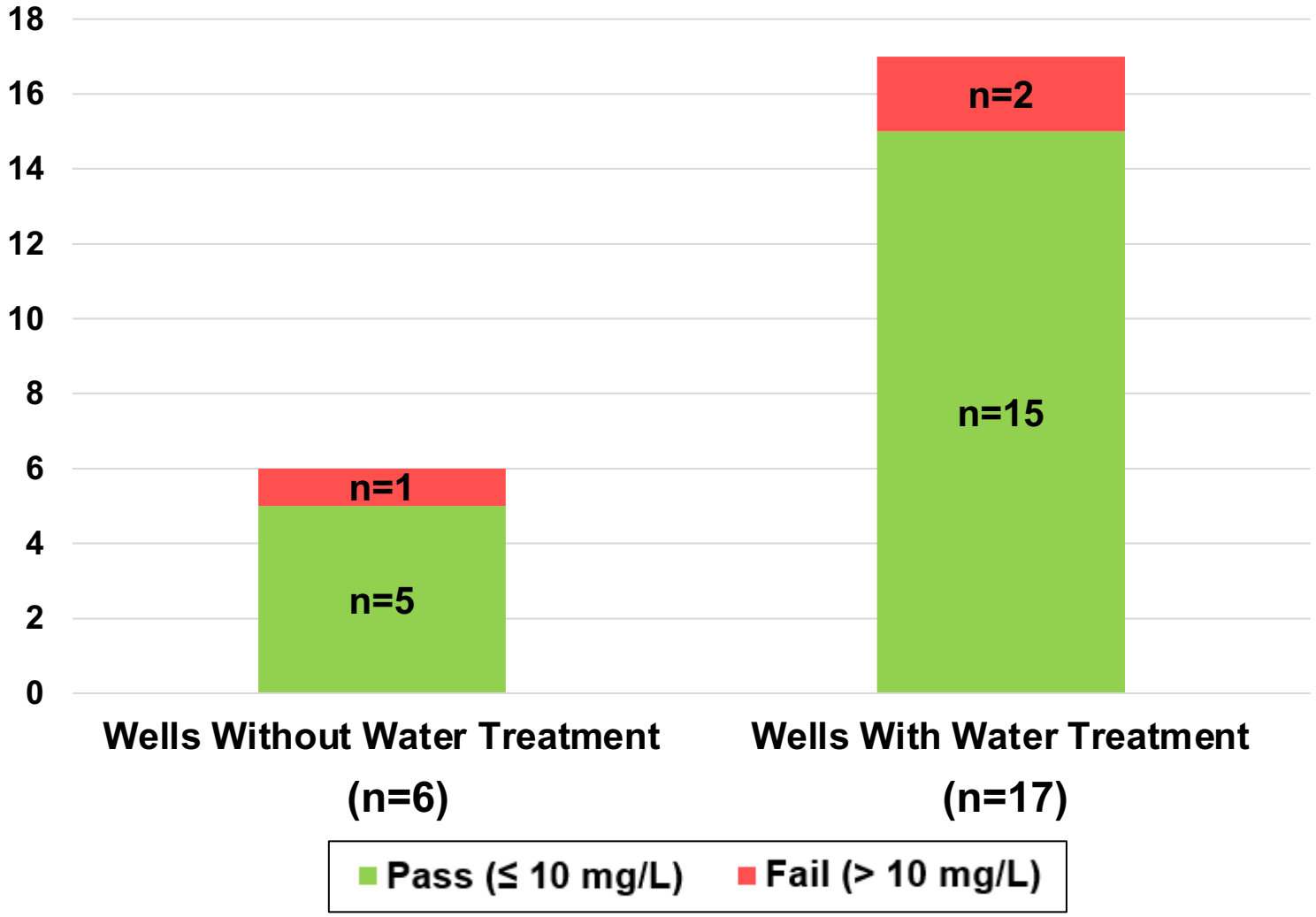
≤ 10 mg/L:

- No further action required

> 10 mg/L:

- Water treatment is strongly recommended
- Anion Exchange or Reverse Osmosis (RO)
- Test for nitrates again after installation
- Maintenance and monitoring of water treatment, test at least once every year

Summary of Nitrates Exposure from Drinking Water



Who is being exposed?

1 raw water + **2** treated water = **3** out of 23 (**13.0%**)

Water Treatment Financing

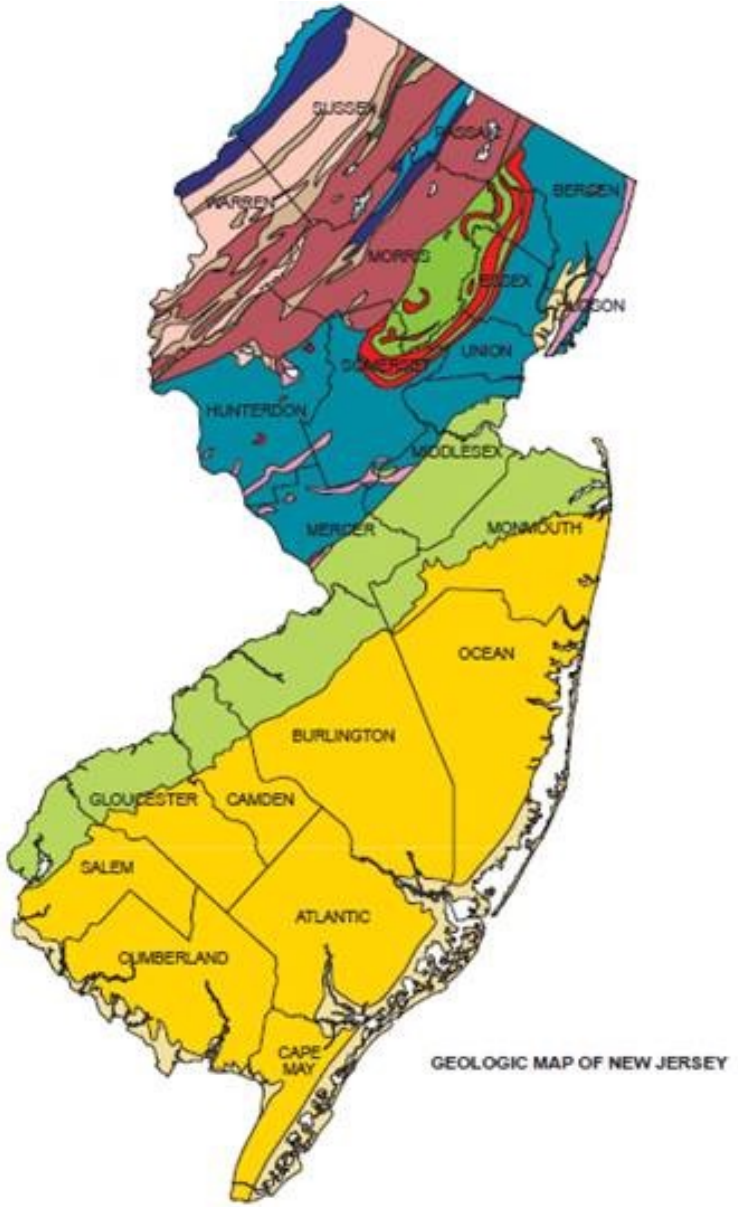
- NJ Housing and Mortgage Finance Agency: Potable Water Program
- A no-interest mortgage loan is available – up to $10,000
- Violations of primary drinking water standards (**gross alpha and nitrates** included)

https://www.njhousing.gov/dca/hmfa/consumers/docs/ho_potablewater_fs.pdf

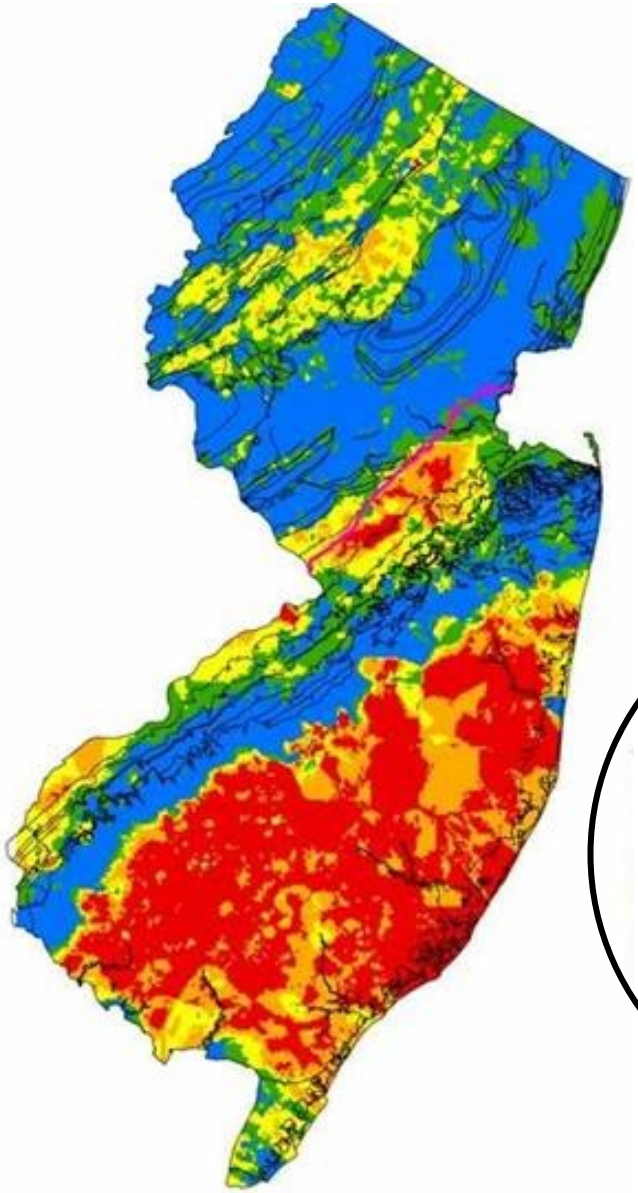
pH and Lead Correlation

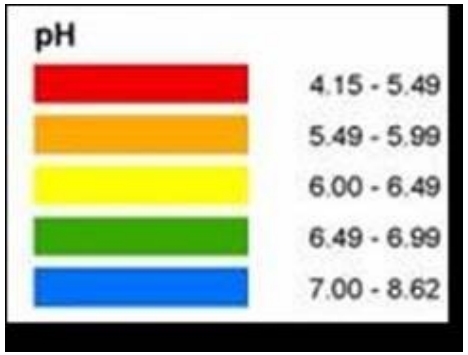
- Recommended pH range: 6.5 - 8.5; Acidic pH levels (< 6.5)
- Low pH (acidic) can increase corrosivity of water
- Corrosivity can increase risk of lead to leach from piping and fixtures
- Affordable treatment systems available for tap/pitchers to treat water for drinking and cooking
- Recommend a whole house pH neutralizer which can raise pH to the recommended range (6.5 - 8.5)
  - Protects plumbing and all taps are treated.
  - Would have to test effectiveness

Bedrock Geology vs pH



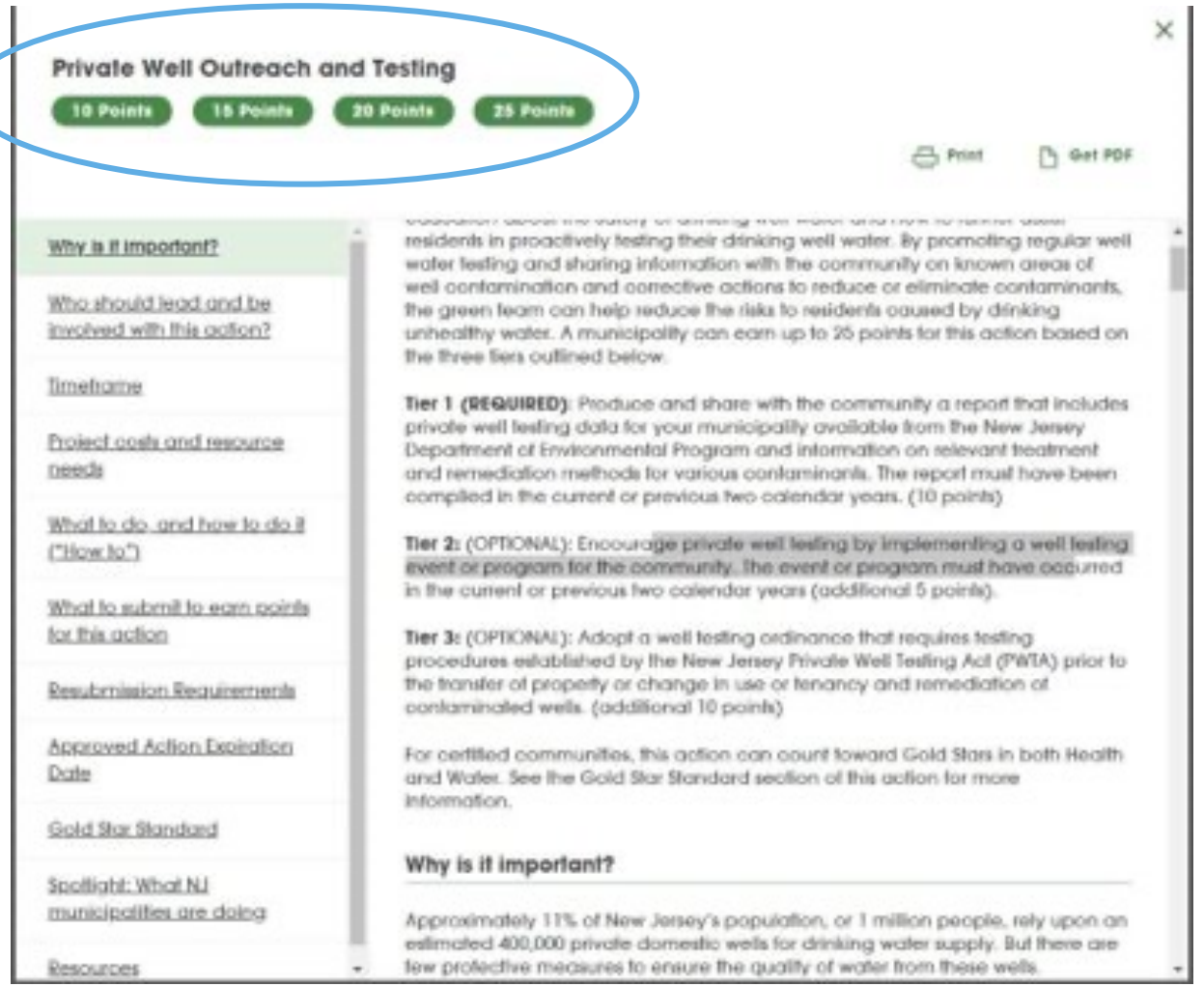
GEOLOGIC MAP OF NEW JERSEY





Community Certification – Private Well Outreach

A **FREE** certification program for municipalities that want to go green, save money and take steps to sustain their quality of life over the long term



https://www.sustainablejersey.com/actions/#close

What's Next -

- Encourage your neighbors to test their well water
- Learn about water treatment
- Test annually, make sure your treatment is maintained and is effectively reducing the concentration of contaminants in your water
- Consider testing for other recommended contaminants:
- **https://www.state.nj.us/dep/watersupply/pwta/pwta_faq.htm**

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