



## Environmental Health Risks in Drinking Water

### Sources of New Hampshire's drinking water

In New Hampshire, approximately 54% of households get their drinking water from public water systems that are routinely monitored for water quality by the NH Department of Environmental Services. Another 2% of households rely on bottled drinking water. The remaining 44% of households get their drinking water from private wells that are not regulated and do not require testing by state law. Recent well water test results show that 1 in 5 wells test greater than the standard for arsenic, while more than half of private wells contained detectable amounts radon. Both arsenic and radon are classified as carcinogenic to humans. Arsenic is linked to bladder, skin and lung cancer. Radon is linked to lung cancer.

Most contaminants have no taste, odor or color. Homeowners should periodically test their well to be sure their water is safe to drink and treat their well if necessary.

### How can drinking water become contaminated?

Certain contaminants found in NH's groundwater occur naturally due to geologic or soil conditions, while others are associated with human activities. Naturally occurring contaminants such as arsenic, radon or uranium can enter groundwater from bedrock. Examples of potential human sources include leaking underground fuel tanks, lawn care products, landfills, septic system failure and road salt.



### How are people exposed to contaminants in drinking water?

People can be exposed to contaminants by drinking the water, as well as by eating foods prepared with the water or breathing water droplets or contaminants released from the water while showering.

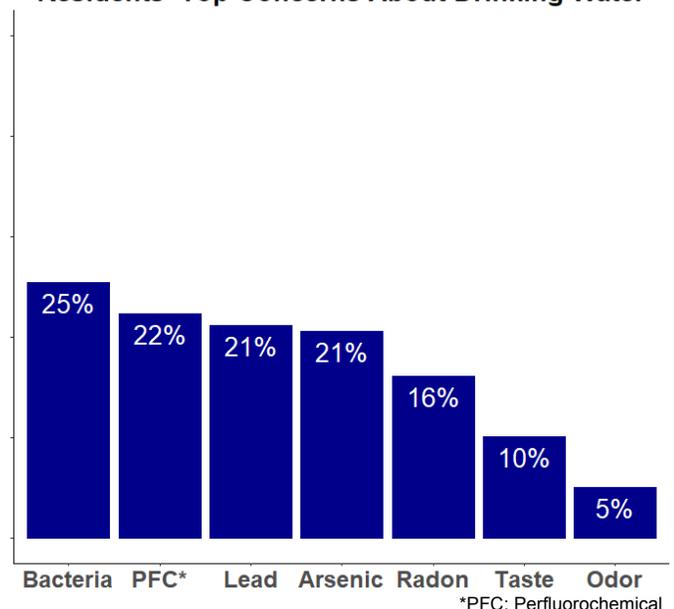
### Contaminants perceived as most dangerous

The Granite State Poll, conducted by the University of New Hampshire Survey Center, randomly surveyed 515 New Hampshire residents in the Spring 2018. The poll asked the respondents which contaminants in their drinking water were of most concern.

According to the survey, residents on both public water systems and private wells ranked bacteria as the contaminant of most concern. In most cases, bacteria in drinking water will cause short term health effects, such as nausea, diarrhea, cramps, headaches, or in extreme cases even death.

Arsenic and radon were ranked fourth and fifth, respectively, on the survey. Past studies in NH estimate that a relatively high number of private drilled wells contain levels of arsenic exceeding the maximum contaminant level for public drinking water systems. Radon, frequently found in well water, may also contaminate the air during showering, dishwashing, and laundry when gas escapes from the water and goes into the air. Both of these contaminants pose a greater health risk to residents than bacteria.

### Residents' Top Concerns About Drinking Water



Survey data is from the Spring 2018 Granite State Poll. The data shown is based on the percentage of respondents who identify each of the drinking water threats as a top concern.

This study is a partnership between NH Environmental Public Health Tracking Program and the Community Health Institute.

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## When to test your well water

NH Department of Environmental Services (NHDES) recommends that prospective homebuyers test the water in a home with a private well before purchase.

NHDES recommends [standard and radiological analysis testing](#) every three to five years. Bacteria and nitrate are exceptions and should be tested annually.

The following conditions would call for more frequent testing:

- Heavily developed areas or land uses that apply fertilizers or other hazardous chemicals.
- Recent construction activities or well repairs. NHDES recommends testing for bacteria after any well repair or pump or plumbing modification, but only after disinfecting and thorough flushing of the pipes.
- High levels of contaminants found in earlier testing.
- Noticeable changes in the water, such as a change in taste, odor or appearance after a heavy rain, or an unexplained change in a previously trouble-free well.

For more information on testing your well water, visit: [des.nh.gov](https://des.nh.gov) (go to the A to Z list and select water well testing).

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## Public Perceptions vs. Actual Risk

The maps below compare the public's perception of risk from the Granite State Poll survey to actual well water test results. The study revealed opportunities for outreach about naturally occurring contaminants in well water to raise awareness of the importance of testing in high risk areas.

### Arsenic In Water

#### Perceived Risk

Percent of residents concerned about arsenic in water

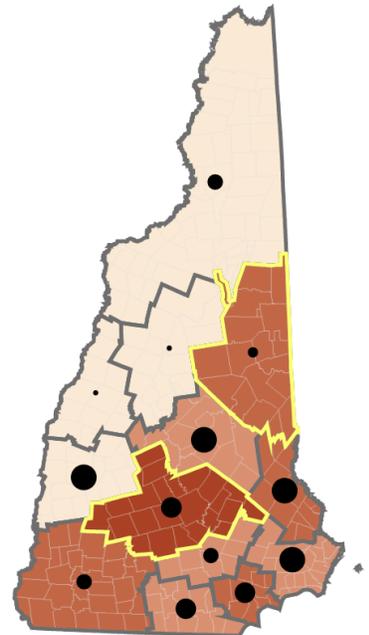
- 0 - 6%
- >6 - 12%
- >12 - 18%
- >18 - 24%
- >24%

#### Actual Risk

Percent of wells that tested above the EPA standard for arsenic of 10 ppb

- 0 - 5%
- >5 - 10%
- >10 - 15%
- >15 - 20%
- >20%

The map to the right shows a mismatch in perceived versus actual risk among private well users in Carroll County and Capital Area Public Health Regions. NH residents are advised to test their wells due to the percentage of wells testing above the EPA standard. EPA drinking water standard is 10 ppb arsenic: <https://www.epa.gov/dwreginfo/chemical-contaminant-rules>



### Radon In Water

#### Perceived Risk

Percent of residents concerned about radon in water

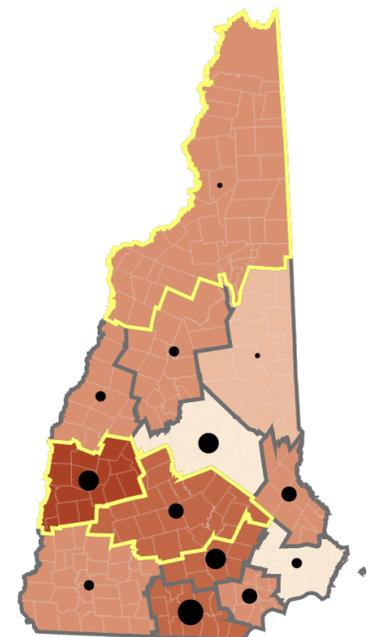
- 0 - 6%
- >6 - 12%
- >12 - 18%
- >18 - 24%
- >24%

#### Actual Risk

Percent of wells that tested above the EPA recommendation for radon

- 0 - 12%
- >12 - 18%
- >18 - 24%
- >24 - 30%
- >30%

The map to the right shows a mismatch in perceived versus actual risk among private well users in the North Country, Greater Sullivan, and Capital Area Public Health Regions. NH residents are advised to test their wells due to the percentage of wells testing above the EPA recommendation. EPA drinking water recommendation is less than 4000 pCi/L radon: <https://archive.epa.gov/water/archive/web/html/basicinformation-2.html>



All water data is compiled from NH Public Health Lab and NH Department of Environmental Services 2014-2018.