

Private Well Users: Know Your Water



Paul Susca

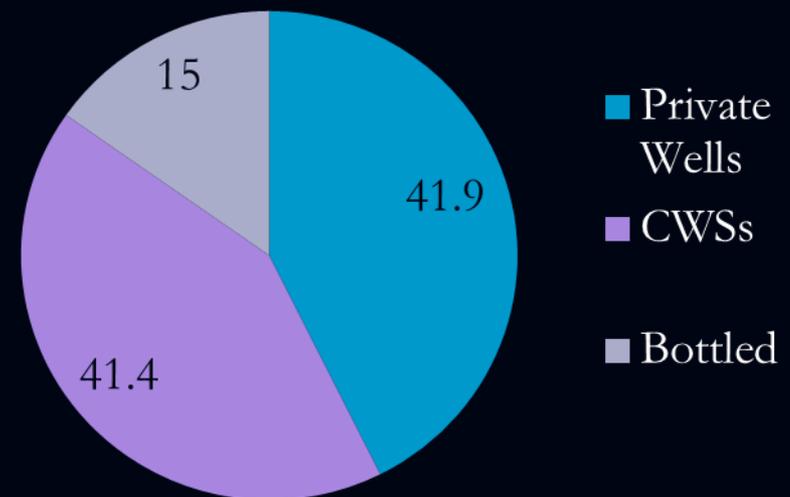
New Hampshire Department of Environmental Services

Drinking Water and Groundwater Bureau

Private Wells and Public Health

- A primary source of DW
- Contaminants present at unhealthy levels
- Many PW users not properly treating water

**Main DW Source at Home
in New Hampshire**



Source: NHDHHS, 2014 BRFSS Survey

Estimated Percentages of Private Wells in NH Exceeding Drinking Water Standards

PARAMETER AND MCL-SMCL (unless stated otherwise)	PRIVATE BEDROCK WELLS ¹ EXCEEDING STANDARD
Primary Maximum Contaminant Levels (MCLs)	
Arsenic (10 ug/L)	20% ²
Bacteria (present/ absent)	19% ³
Copper (1.3 mg /L) - EPA Action Level	1% ³
Lead (0.015 ug/L) - EPA Action Level	2% ³
Nitrate (10 mg /L)	0.3% ⁴
Gross alpha (15 pCi/L)	4% ⁴
Radon (4,000 pCi/L) - <i>proposed</i> federal Alternative MCL	33% ⁴
Radon (300 pCi/L) - <i>proposed</i> federal MCL	95% ⁴
Radon (2,000 pCi/L) - NHDES reco mmended action level	55% ⁵
Radium (5 pCi/L)	4% ^{4,6}
Uranium (30 ug/L)	6% ⁴
Secondary Maximum Contaminant Limit (SMCLs)	
Chloride (250 mg/L)	3% ³
Iron (0.30 mg/L)	31% ^{7,8}
Hardness (121 mg/L) - not an SMCL	11% ⁸
Manganese (0.05 mg/L)	40% ^{7,8}
Sodium (250 mg/L)	1% ³

Health-Based

Aesthetic

Protect Your Family's Health

Test Your Water Today for All Common Pollutants



Why should I test my well water?

Unhealthy levels of various contaminants are common in private wells in New Hampshire. Some of these contaminants have been linked to cancer and other diseases. Most of these contaminants have no taste, smell or color. You won't know what's in your well water unless you have it tested by a laboratory. State and local laws generally do not require testing of private well water. If you have a private well, the New Hampshire Department of Environmental Services (NHDES) strongly recommends that you have your well water tested – for all of the most common pollutants – to help protect your family's health. If a test shows that your well water has contaminants in it, NHDES can help you consider water treatment choices that work best for the level of contaminants in your water.

How do pollutants get into well water?

Well water comes from rain and snow that soaks into the ground. As water seeps through the soil and rock, it can pick up pollutants and other materials that are present on or in the ground.

Some contaminants that are commonly found in well water at unsafe levels come from the rocks and soil that the water flows through. The most common in New Hampshire are bacteria, radon, arsenic, manganese, uranium and radium. For example, the U.S. Geological Survey estimates that one in five private wells in New Hampshire has more arsenic than is allowed in public water systems.

Other contaminants get into well water from human activities. Gasoline storage and spills, industrial/commercial activities, improper waste disposal and road salting can introduce toxic substances to the ground. Even typical residential activities, such as using fertilizers or pesticides too close to a well, spilling fuel and improperly disposing of household chemicals can contaminate well water.

What should I test my well water for?

The following tests identify common contaminants found in well water in New Hampshire. Many private wells have been tested according to the requirements of mortgage companies or at the recommendation of well drillers, water treatment vendors, etc., but often those tests do not include all of the common contaminants that can harm your health, especially if they were done years ago. The list recommended in this flier provides a cost-effective, reasonable overview of a well's water quality. Contact an accredited laboratory for availability and pricing. *It is not necessary to do all of these tests at one time.*

Standard Analysis

This covers the most common contaminants (see the list on the next page). Some of these contaminants pose health-related concerns, while others only affect aesthetics (taste and odor).

Radiological Analysis

The rocks in New Hampshire contain naturally occurring radioactive elements that dissolve easily in well water. The recommended radiological analysis will test for uranium, analytical gross alpha and radon.

Testing for radon in air may have been required by your mortgage company; however, radon and other radioactive elements are also common in well water in New Hampshire. NHDES estimates that approximately 55 percent of private wells in New Hampshire exceed NHDES' advisory level for radon.

Volatile Organic Compounds (VOCs)

The most common VOCs come from compounds found in gasoline, such as MtBE and benzene, and from industrial solvents. MtBE can be found in well water even in remote areas.

Additional Tests

Circumstances specific to your well or property may require additional testing not described here. For instance, NHDES does not recommend routine testing for pesticides, herbicides or other synthetic organic compounds (SOCs), mainly because of the high cost. However, such testing might be a good idea if your water has elevated nitrite or nitrate concentrations and an agricultural source is suspected, or significant amounts of pesticide have been applied near your well.

These less-routine tests may not be performed at all laboratories.

What will testing tell me?

The laboratory report you receive will show the level at which any of the tested substances were found in your water sample. The mere presence of a contaminant in your well water does not necessarily mean that there is a problem. However, when levels exceed state or federal health standards or recommended action levels, there may be a problem and you should take steps to fix it. There are a number of appropriate treatment methods that can remove contaminants from water. NHDES' *Be Well Informed* web tool (see <http://xml2.des.state.nh.us/DWI/Tool/>) allows a user to enter water quality results from a lab report into the application, evaluates the contaminants and recommends appropriate treatment options when necessary. You can print a report from *Be Well Informed* that summarizes recommended treatment options along with potential impacts to your health and/or home. NHDES also has fact sheets on its website covering all common water quality problems and their solutions. Before making any final treatment decisions, be sure to consult with a qualified treatment professional.

When should I test my well water?

NHDES recommends that prospective homebuyers test the water in a home with a private well before purchase.

Water quality in wells is generally stable, and if a change is going to occur, it occurs slowly. Thus the time between water quality tests, once you've purchased the home, can generally be several years if a well is properly constructed and located in a safe area. Bacteria and nitrate are exceptions; you should test for them every year.

The following conditions would call for more frequent testing:

- Heavily developed areas with land uses that handle hazardous chemicals.
- Recent well construction activities or repairs. NHDES recommends testing for bacteria after any well repair or pump or plumbing modification, but only after substantial flushing of the pipes.
- Elevated contaminant concentrations found in earlier testing.
- Noticeable variations in quality such as a change in taste, smell, or appearance after a heavy rain or an unexplained change in a previously trouble-free well, such as a strange taste or cloudy appearance.

When taking any sample, NHDES recommends that it be taken after a heavy rainstorm. These events tend to highlight conditions of improper well construction or poor soil filtration.

Learn More

For information about private well testing, treatment or accredited laboratories in New Hampshire, visit the NHDES website: www.des.nh.gov

Go to the A to Z List and select "Private Well Testing"



NHDES recommends having the following tests done every 3 to 5 years, except for bacteria and nitrate, which are recommended annually.

Standard Analysis

Arsenic	Lead
Bacteria	Manganese
Chloride	Nitrate/Nitrite
Copper	pH
Fluoride	Sodium
Hardness	Uranium*
Iron	

Radiological Analysis

Analytical Gross Alpha
Radon
Uranium*

Volatile Organic Compounds (VOCs)

*Please note: Uranium is part of both the standard and radiological analysis for the State of NH Lab.

Granite State Analytical Packages (?)

Test	Coliform Bacteria	E. coli Bacteria	pH	Hardness	Nitrate	Nitrite	Chloride	Calcium	Sodium	Iron	Manganese	Magnesium	Fluoride	Arsenic	Total Nitrate/Nitrite	Lead	Copper	Radon in Water	Radon in Air	Uranium	Volatile Organic Compounds
Bacteria (Presence or Absence) \$30	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteria Count (MPN) \$35	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Basic \$65	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-
Basic Plus Arsenic \$85	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
FHA Maximum \$90 ¹	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-	-	-	-
Comprehensive \$145	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-	-	-
Comprehensive Plus Uranium \$195	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-	✓	-
Comprehensive Special \$265 ²	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-	-	✓
Comprehensive Special Plus Uranium \$295 ²	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-	✓	✓
Radon Water \$40 ³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-
Radon Air \$40 ⁴	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
Radon Air Double \$70 ⁴	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
Single Metal (choose one) \$30	-	-	-	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-
Uranium \$60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-
Volatile Organic Compounds \$165 ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓



¹ Meets FHA & VA Mortgage requirements

Private Well Testing

AAP Recommendations (2009)

- States – require testing at sale of home
- Local governments
 - Provide info about local GW conditions, recommendations for testing
 - Tests should be convenient, free or inexpensive
- Pediatricians
 - Ask patients about private well use
 - Recommend testing according to algorithm

American Academy of Pediatrics, Committee on Environmental Health and Committee on Infectious Diseases (2009). Drinking Water From Private Wells and Risks to Children. *Pediatrics* 2009;123;1599-1605.

Arsenic, Iron, Lead, Manganese, and Uranium Concentrations in Private Bedrock Wells in Southeastern New Hampshire, 2012–2013

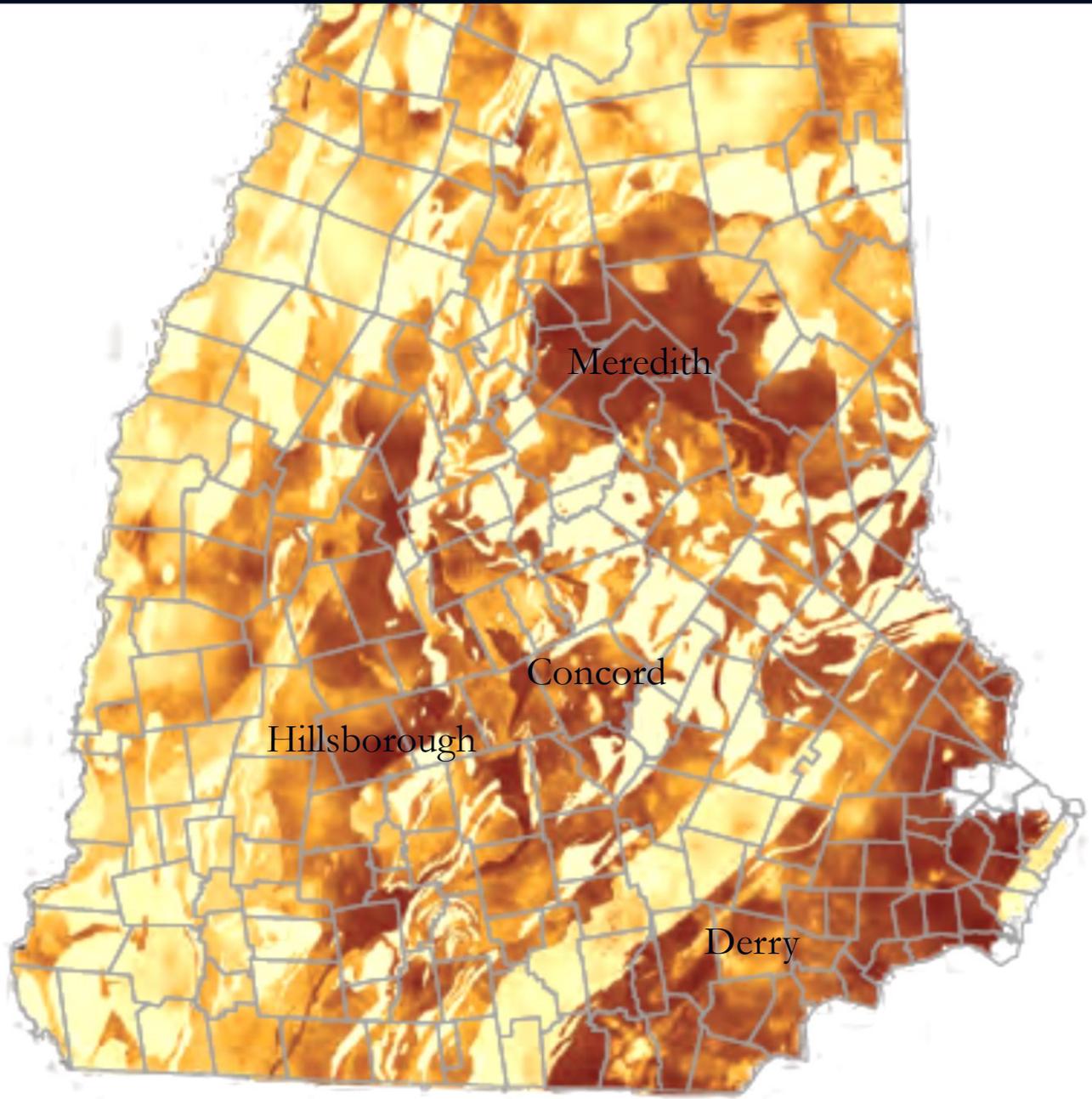
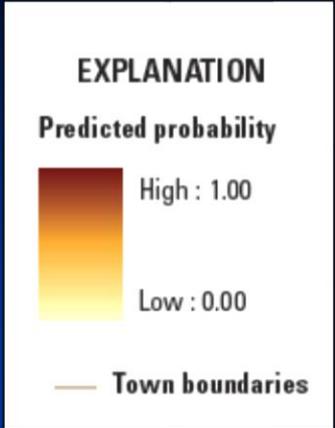
Major Findings:

- Nearly 3 out of 10 (28 percent) water samples from 232 private bedrock wells tested in southeastern New Hampshire contained trace-metal concentrations that exceed one or more of the following standards: the U.S. Environmental Protection Agency's (EPA) maximum contaminant levels in public water supplies of 10 micrograms per liter ($\mu\text{g/L}$) for arsenic and 30 $\mu\text{g/L}$ for uranium, the EPA action level of 15 $\mu\text{g/L}$ for lead, and the EPA lifetime health advisory level of 300 $\mu\text{g/L}$ for manganese.
- Whereas 92 percent of the study participants reported that they drink their well water, only 34 percent of those reported some type of treatment—and the most common reported systems were for the removal of iron and (or) manganese.
- As of 2010, estimates of the numbers of residents in the study area that may have private wells in bedrock aquifers that supply waters with trace-metal concentrations exceeding standards are: arsenic exceeding 10 $\mu\text{g/L}$, 49,700 people; lead exceeding 15 $\mu\text{g/L}$, 8,600 people; uranium exceeding 30 $\mu\text{g/L}$, 7,500 people; and manganese exceeding 300 $\mu\text{g/L}$, 14,900 people.

Prepared in cooperation with the
New Hampshire Department of Health and Human Services and the
New Hampshire Department of Environmental Services

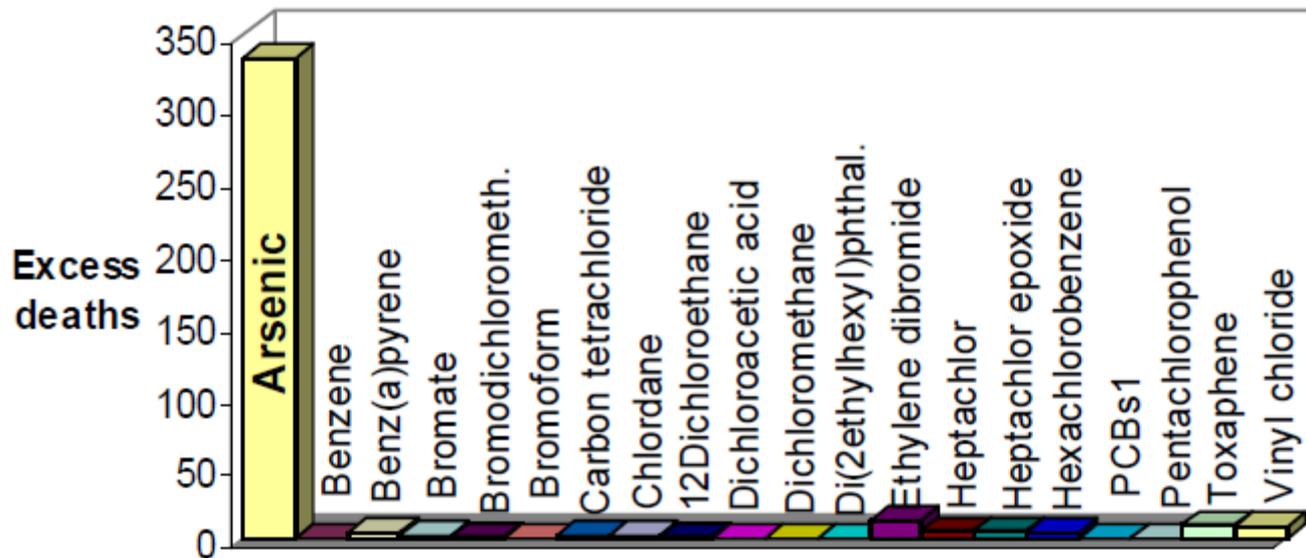
Estimated Probability of Arsenic in Groundwater from Bedrock Aquifers in New Hampshire, 2011





Estimated probability of As ≥ 1 ppb

Figure 1. Estimated cancer risk deaths per 100,000 people exposed at the MCL of each drinking water chemical carcinogen





THAYER SCHOOL OF
ENGINEERING
AT DARTMOUTH

Dartmouth Toxic Metals
Superfund Research Program

ARSENIC IN PRIVATE WELLS IN NH

YEAR 1 FINAL REPORT

Public Health Contract

Annual Performance Report

CDC Grant #1U53/EH001110-01

October 3, 2014

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Thomas Hampton, Statistician

Conclusions: As in NH

- 450-600 cases of lung, bladder, skin cancer could be avoided in NH by testing & treating
- Upcoming federal report will lead to increased estimates
- May contribute to several hundred deaths/year in NH
- “Over the last 25 years, the number of diseases associated with arsenic has increased, the parts of the body affected by arsenic-mediated disease have increased, and estimates of what constitutes a safe long-term arsenic dose have decreased.”

Barriers?

- Lack of knowledge about how to test and what to test for
- Complacency
- Inconvenience
- Lack of a perceived problem
- “Knowledge and better information by themselves were found to provide a weak basis for changing behavior.” Imgrund, et. al. (2011)



Well Water Community Action Toolkit

Congratulations on deciding to address private well water safety in your community. This toolkit was designed to help communities increase private well water testing and treatment. In this toolkit, you will find:

- Background information on private wells in New Hampshire
- A step-by-step guide for planning community activities
- Useful resources
- Communication materials
- Project planning worksheets

This toolkit may be used progressively from start to finish or you may choose to jump to the most relevant section that meets your community's needs. Either way the guidance and information provided here will help you work with your community partners and, over time, will create lasting community change.

Municipalities That Require Private Well Testing

- Bow, Derry, Pelham, Salem, Windham
 - ✓ Require testing to receive a CO (Bow)
 - ✓ Cite RSA 147:1 Public Health Authority
 - ✓ Refer to DES's Standard Analysis (tests)
 - ✓ Most require water quality testing (w/o treatment) vs. treatment
 - Bow, Derry, Pelham, Salem, Windham
- Defining “potable” could change that

February
2015

**Guidance to Refine the Potable Water Definition
in New Hampshire Municipal Building Codes**



*Developed through a collaborative effort of the
New Hampshire Building Officials Association,
NH Health Officers Association, NH Planners
Association, and NH Department of
Environmental Services.*

“Potable Water” Definition in Plumbing Code

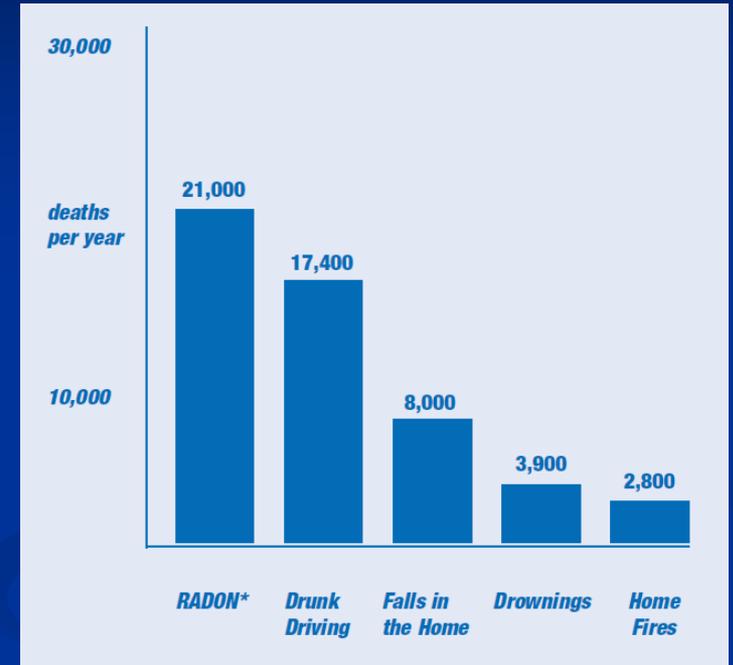
- Response to inquiries from local building & health officials
- DES guidance with partners
 - NH Building Code Officials
 - NH Health Officers
 - NH Planners Association
- Can be adopted by local legislative body into building code
- Before occupancy permit
 - Test for 8 contaminants
 - Meet health-based standards
- Published early 2015 (rev. 2016)

IPC Definition of Potable Water: *“Water free from impurities in quantities sufficient to cause disease...”*



Health Impacts – Rn and As

- Radon (air)
 - 21,000 lung ca deaths/yr in U.S.
 - 100 deaths/yr in N.H.
- Arsenic (water and food)
 - MCL dropped to 10 ppb in 2001
 - “100s of cases of cancer among current N.H. population”



Clarifying DES Radon Message

- 2,000 pCi/L Rn in water is “advisory level;” it does not indicate need for treatment/mitigation
- Decisions regarding treatment/mitigation should be based on air and water tests, actual exposure, risk, and cost/benefit.
- Reach out through:
 - Realtors
 - Home inspectors
 - Laboratories
 - Local officials
 - Home builders
 - Well drillers
 - Radon mitigators
 - Water treatment vendors



ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WD-DWGB-3-12

2016

Radon in Your Home: An Overview for New Hampshire Homeowners

RADON OCCURRENCE IN A HOME

Radon is a naturally-occurring radioactive gas that is commonly found in bedrock and in water from bedrock (drilled) wells in New Hampshire. Radon gas is colorless, odorless and tasteless.

Radon gas finds its way into indoor air mainly by migrating from bedrock, through the soil and into the home via cracks or other openings in the foundation. Radon from bedrock wells is released into indoor air during showering, dishwashing and doing laundry. Dug wells and point wells tend to have minimal to no radon. The amount of radon released from stone building materials such as a granite block foundations, fireplace materials, counter tops and floor or wall tiles is usually insignificant.

HEALTH RISK and MEASUREMENT

Exposure to radon poses an increased risk of developing certain types of cancer, primarily lung cancer and stomach cancer. Radon concentrations in both air and water are measured in picocuries per liter (pCi/L). A general rule of thumb is that for every 10,000 pCi/L of radon in a home's water supply, the radon concentration in indoor air is increased by 1 pCi/L.

RADON RISK FROM AIR

The increased risk of lung cancer is due to inhalation of radon-laden indoor air, including any radon entering the building through the water supply. (There is also an increased risk of stomach cancer due to ingesting radon in drinking water.) Any amount of radon in air or water increases one's risk of lung cancer; the greater the amount, the larger the risk. Radon is the leading environmental cause of cancer deaths in the U.S. and the leading cause of lung cancer in non-smokers. Exposure to a combination of radon gas and cigarette smoke creates a greater risk for lung cancer than either factor alone. Long-term exposure to radon leads to the deaths of an estimated 100 New Hampshire residents each year.

RADON RISK FROM YOUR HOME'S WATER SUPPLY

The U.S. Environmental Protection Agency (USEPA) has indicated that the inhalation of radon in air poses a much greater risk than radon in your water. It is always recommended that homeowners test their airborne radon in the home, as this presents the greater risk (see REDUCING HEALTH RISK below).

There are no federal or state standards for radon in drinking water. However, there are public health advisories for radon in drinking water, including that issued by USEPA. NHDES recommends the following:

- For private wells with radon concentrations at or above 10,000 pCi/L, the treatment of water is recommended in conjunction with mitigation of indoor air radon. Homeowners should consult with radon mitigation and water treatment providers.

Wells with radon concentrations between 2,000 and 10,000 pCi/L, the treatment of water is recommended if air concentrations in the home exceed 4 pCi/L. If well water is below 4,000 pCi/L, you should retest air and water every three to five years.

TESTING

The EPA and USEPA recommend testing for radon in air in all living spaces below the third floor. Set a long-term goal that indoor air radon levels be no more than outdoor levels, which is 1 pCi/L. While this goal is not yet technologically achievable in all cases, radon in most homes is 1 pCi/L or below and USEPA strongly recommends treatment when the radon indoor air level is 4 pCi/L. Approximately 27,000 cancer deaths can be expected for every 1 million persons over a 70-year period at 4 pCi/L. Radon mitigation is achieved mainly through reducing the passage of radon into the home and, in some cases, treating bedrock well water to remove radon.

Radon Test Kits – Both short-term and long-term testing methods are available. For information on testing with a local laboratory, visit <http://www.epa.gov/radon/radontest.html>, call (800) 767-6767 for "USEPA Where Can I Get a Radon Test Kit?" NHDES recommends using national radon measurement providers before investing in a radon mitigation system. Certified radon test kits can be found at www.nrsb.org and www.nrpp.info.

Water Testing – To find a laboratory that offers radon testing for drinking water, search the "Yellow Pages" for "radon testing." Radon concentrations in well water can vary substantially from one test to another. Radon tests (at least one month apart when possible), prior to making any purchase, because radon is not the only potentially harmful radioactive substance commonly found in New Hampshire. NHDES also recommends testing water from private bedrock wells for uranium and analytical laboratories offer these tests as a package along with radon. A well that has high levels of radon is also likely to have high levels of uranium and/or gross alpha.

Radon Mitigation Service Providers and Equipment Suppliers

All radon-in-air mitigation designers and installers must be nationally-certified to perform radon mitigation in New Hampshire. Certification is *not* required for radon-in-air testing or for radon-in-water testing. Radon-in-air testing providers are nationally-certified. Certified radon service providers can be found at www.nrpp.info and www.nrsb.org. Suppliers of radon water treatment devices can be found on the Yellow Pages under listings for "Water Treatment," "Water Conditioning," or "Radon Testing Equipment."

REFERENCES

To Radon, The Guide to Protecting Yourself and Your Family From Radon (USEPA, 2012), available at <http://www.epa.gov/radon>.
Publications about all aspects of radon at <http://www.epa.gov/radon>.
ARD-EHP-22, "Radium, Radon, and Uranium: Health Information Summary," available at <http://www.epa.gov/organization/commissioner/pip/factsheets/ard/documents/ard-ehp-22.pdf>.
GEO-2, "Radon in New Hampshire," available at <http://www.epa.gov/organization/commissioner/pip/factsheets/geo/documents/geo-2.pdf>.
Radon in Drinking Water (National Academy of Sciences, 1999), available at www.nas.edu.

DES Recommendation

- ★ For private wells with radon concentrations at or above 10,000 pCi/L, the treatment of water is recommended in conjunction with mitigation of indoor air radon. Homeowners should consult with radon mitigation and water treatment providers.
- ★ For private wells with radon concentrations between 2,000 and 10,000 pCi/L, the treatment of water may be advisable if air concentrations in the home exceed 4 pCi/L.
- ★ When radon in well water is below 4,000 pCi/L, you should retest air and water every three to five years.



The NHDES Be *Well* Informed Guide

PROTECT YOUR FAMILY'S HEALTH AND HOME

INFORMATION AND GUIDANCE FOR
TREATING YOUR WELL WATER



The **Be *Well* Informed** Guide from NHDES is designed to help you understand your water test results and, if your well water has commonly found pollutants in it, provide information about health concerns and water treatment choices. New Hampshire is fortunate to have an abundance of clean groundwater, and nearly half of New Hampshire's residents (over 500,000 people) rely solely upon domestic wells (also called "private wells") as their primary source of drinking water. While many private wells provide safe drinking water, certain pollutants like arsenic, iron and manganese are sometimes present in groundwater at levels that can affect your health and home.

NHDES recommends private well owners test their well water every three to five years for pollutants commonly found in New Hampshire's groundwater. This group of commonly found pollutants is listed in the NHDES Private Well Brochure and is referred to as the "**Standard Analysis**." The Be Well Informed Guide evaluates the pollutants that are part of the Standard Analysis. NHDES recommends that you have your water tested at a **NHCLAP accredited laboratory**. When you have your water tested, your test results will be summarized in the form of a **lab report**.

-  [DES Private Well Brochure](#)
-  [Accredited Labs in NH](#)
-  [NHDES Private Well Testing Program](#)

[Questions or Comments](#)

Purpose of the Web Tool



- Provide an interpretation of lab results in terms of water quality standards
- Provide treatment guidance concerning treatment technologies
- Provide information on health and home appliance impacts



Please Read Before You Continue

- Your lab report may show that a certain pollutant was "Not Detected" in your water. This may be indicated in your report by a "ND" (Not Detected), "BD" (Below Detection), "BDL" (Below Detection Limit) or a less than symbol ("<") next to the result. In these cases, enter a "0" for that parameter.
- If your lab report doesn't show a test result for a certain pollutant, do not enter a zero; leave the box blank.
- Only enter numbers (not letters) for your test results unless otherwise noted. Do not add commas.

Invalid Entry – Please try again

NH Town or City *

Anonymous

Please Make A Selection

Routine Water Analysis

	Units		Units		
Arsenic (As)	.009	mg/L	Lead (Pb)	.016	mg/L
Chloride (Cl)	251	mg/L	Lead, Stagnant (Pb)		mg/L
Copper (Cu)		mg/L	Manganese (Mn)		mg/L
Copper, Stagnant (Cu)		mg/L	Nitrate-N	11	mg/L
Fluoride (F)		mg/L	Nitrite-N	1.1	mg/L
Hardness as CaCO3		mg/L	pH		units
Iron (Fe)		mg/L	Sodium (Na)		mg/L

Bacteria

	Units
Total Coliform	CFU/100 mL
or choose	<input type="radio"/> Present <input type="radio"/> Absent
E. coli	CFU/100 mL
or choose	<input type="radio"/> Present <input type="radio"/> Absent

Radionuclides

	Units
Radon (Rn)	pCi/L
Uranium (U)	µg/L
Gross Alpha	pCi/L

Pop- Up: User Can Enter Fe, Mn Values from Lab Report or aesthetic issues

Draft - Testing Version



To receive the best treatment recommendation, please enter the following water quality values.

Please enter the value for Iron (symbol is "Fe") if there is a result within your lab report. If Iron was not tested as part of your water analysis, leave the box blank. Do not enter "0".

mg/L

Does your water taste salty?

A to Z LIST

Home

Printable Web App Report: Part 1: “Results Summary”

[Click Here To Start Over](#)



Results Summary

 Value entered meets the Drinking Water Limit.

 Value entered is close to the Drinking Water Limit.

 Value entered exceeds the Drinking Water Limit.

 Routine Analysis	 Water Test Value Entered	 Drinking Water Contaminant Limit or Radon Advisory Level	 About Your Well Water?
 Arsenic	.011 mg/L	0.01 mg/L	The value entered exceeds the drinking water standard
 Iron	.2 mg/L	0.3 mg/L	The value entered meets the drinking water guideline
 Lead Stagnant	.15 mg/L	0.015 mg/L	The value entered exceeds the drinking water standard
 Manganese	400 mg/L	0.05 mg/L	The value entered exceeds the drinking water guideline
 Nitrite-N	2 mg/L	1 mg/L	The value entered exceeds the drinking water standard. YOUR WATER IS NOT SAFE FOR BABIES UNDER SIX MONTHS OLD TO CONSUME.

Part 2: Treatment “Train”



Recommended Water Treatment To Remove Arsenic, Lead Stagnant, Manganese

The following recommended water treatment is based on the water quality information you entered. [Details concerning water treatment are below.](#)

Treatment Order

Step 1



Whole House Oxidizing
Filter System

OR

Whole House Cation
Exchange Water
Softener

Step 2



Whole House Acid
Neutralizer System

Step 3



Point-of-Use (POU)
Arsenic Adsorption
Media Filter System

OR

Point-of-Use (POU)
Reverse Osmosis (RO)
System

Part 3: Interpretation, Health, Treatment

Results Detail

- ✔ Value entered meets the Drinking Water Limit. ✘ Value entered exceeds the Drinking Water Limit.
! Value entered is close to the Drinking Water Limit. ● A Value was Not Entered

🧪 Routine Analysis	📝 Water Test Value Entered	⚠ Drinking Water Contaminant Limit or Radon Advisory Level	? About Your Well Water?
✘ Arsenic	.011 mg/L	0.01 mg/L	The value entered exceeds the drinking water standard

Treatment Options:

How can I reduce the level of arsenic in my water? In addition to arsenic, your test results show that your water also contains more than 0.1 mg/L of iron and manganese, which must be considered in the selection of a water treatment system. Install one of the following water treatment systems to reduce the level of iron, manganese, and arsenic in your water:

1. An NSF/ANSI Standard 42 certified whole house oxidizing filter system that uses chlorine or permanganate as the oxidizing agent to reduce the level of iron and manganese. This type of system will also reduce the level of arsenic in your water, though by how much depends on the levels of iron, pH, and arsenic. You may also need to install one of the following systems if additional arsenic reduction is needed:
 - a. An NSF/ANSI Standard 53 certified arsenic adsorption media filter system. This system may be a point-of-use (POU) system at your kitchen sink designed to treat only the water that you consume, or it may be a whole house system; or
 - b. An NSF/ANSI Standard 58 certified point-of-use (POU) reverse osmosis (RO) system at your kitchen sink designed to treat only the water that you consume.

Certified Treatment professionals

Home > Programs & Services > Resources > Find Water Treatment Providers > Find Certified Professionals

Find Certified Water Treatment Professionals

Certified water treatment professionals are individuals who have completed a voluntary credentialing process through WQA. WQA certified professional, the candidate must pass a comprehensive examination and accept WQA's Code of Ethics for program tests and certifies only individuals, not dealerships or companies. Certified professionals are typically employed not required for certification.

Professional Designations

- Certified Water Treatment Representative (CWR):** This designation is best suited for the professional whose job focuses on solving aesthetic water problems.
- Certified Water Specialist (CWS):** This designation best suited for professionals who provide solutions to "problem water" issues and health-related contaminants.
- Certified Installer (CI):** This designation is ideal for professionals who specialize in installing water quality improvement products.

Certified Service Technicians professionals who are responsible for water quality improvement.

Master Water Specialist (MWS) professionals responsible for water quality improvement applications.

Master Service Technicians experienced professionals.

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Selecting a Home Water Treatment System

It can be difficult to determine whether you actually need a water treatment system or what type of system would be best for you. Although the choice to use a water treatment system is up to each individual, consider these factors in your product selection process.

Certified Treatment products

Home Water Treatment Devices

Drinking Water and Human Health December 06, 2010

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The table below outlines information on specific home water treatment approaches. Keep in mind that some water treatment can be for aesthetic as well as health factors. If drinking water poses a health risk, the consumer may also consider the cost of purchasing bottled water or tying into a public water system if available as an alternative to treatment. If you need to contact a water treatment professional to install or repair a home treatment system or to assess a problem, be prepared to [ask questions](#) that may save you time, money, and frustration in the future.

Device	Primary Use	Limitations
Activated Carbon Filter	Removes chlorine, volatile organic compounds	<ul style="list-style-type: none"> Does not remove nitrate, bacteria or

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Treatment background

Reduction Need

It can be effective for the same group of contaminants. If you have identified a specific water that causes you concern, use NSF's contaminant selection guide to locate a water treatment system certified to reduce specific contaminants.



RELATED TOPICS

Private Well Users: Know Your Water



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