

# Protect Your Family's Health

## A Guide to Water Quality Testing for Private Wells

March 2017

**A**s a private well owner, you are responsible for the quality of your own drinking water. Your water is required to meet standards set by the Concord Board of Health "Minimum Sanitation Standards for Private and Semi-Public Water Supplies". These standards are based on the U.S. Environmental Protection Agency (EPA) and Commonwealth of Massachusetts guidelines for private drinking water wells.

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Routine maintenance and inspection of water wells can help protect water quality, ensure your well is operating properly, prolong the useful life of the well system, and protect your investment. Greatest of all these is the protection of your health, as water quality issues can have adverse health impacts without any detectable indicators. Small problems can often be identified by performing maintenance before they become costly, inconvenient problems. Do not become stranded without water over the relatively small cost of an annual service call—the cost of a repair call could be much higher. At a minimum, wells should be evaluated annually by a licensed or certified water well system professional.

## Locating Your Well

Locating your well is the first step to protection. Start by walking around your yard. If you discover a metal pipe, six or eight inches wide, sticking up above the ground's surface and topped with a metal cap, then you have a drilled well. If you find a large cement well cap, about three to five feet in diameter and at the ground's surface, it could be a dug, driven or older drilled well. Remove the cement cap to determine what's below it. If you see an open hole with water standing in it, you have a dug well; if you see a pit with a pipe and/or pump at the bottom of the pit, you have either a driven or older drilled well.

If you've looked and can't find your well or still aren't sure what kind you have, consider enlisting the help of a registered well driller or someone with a metal detector. As a rule, even dug wells contain metal fittings and pipe that can be located up by a metal detector. It is possible that topsoil and grass or other vegetation in your yard may hide the cover of an older well. If this is the case, the well should be located and repaired with some additional casing, extending one to two feet above the ground surface, and properly capped. In some cases, old wells may be located in the basement of your home.

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*The USGS estimates that  
13% of wells in  
Massachusetts have  
high levels of Arsenic*

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## Testing Well Water



Testing your drinking water will tell you what is in your water at the time the sample is collected. Test results from 6 months ago represent the water quality at that well 6 months ago. The levels of most naturally occurring contaminants stay fairly consistent, or slowly increase or decrease over time, or have a seasonal fluctuation, depending on water levels.

Once each year, have a routine analysis of total coliform bacteria, nitrate, nitrite, and any other contaminants of concern. All are good general indicators of water quality. Test whenever you notice a change in taste, color, or odor of your drinking water. In addition, test the pH of your well water every 3-5 years—this will help you to determine the acidity of the water and whether you might have problems with pipe pitting and leaching of metals from the plumbing. The best times to test are usually after a spring or summer rainy period or after repair or replacement of your well, pump, or water pipes.

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*Testing your well water  
is the only way to  
determine if it is  
SAFE!*

## Why should I test my well water?

Unhealthy levels of various contaminants are common in private wells in Massachusetts. 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. If you have a private well, Concord Board of Health Regulations requires that you have your well water tested – for all of the most common pollutants – to help protect your family's health.

## How do pollutants get into well water?

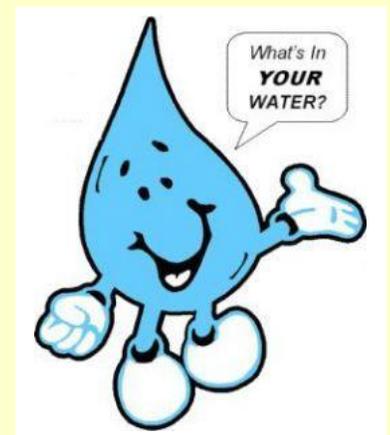
Well water comes from rain and snow that soaks into the ground. As water seeps through the soil and rock, it can pick up pollutants and other materials that are present on or in the ground. Some contaminants that are commonly found in well water at unsafe levels come from the rocks and soil that the water flows through. The most common in Massachusetts are bacteria, radon, arsenic, manganese, uranium and radium. For example, the U.S. Geological Survey estimates that 13% of private wells in Massachusetts have 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 Massachusetts. 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. This list provides a cost-effective, reasonable overview of a well's water quality.

<b>Required Testing Parameters and Frequencies for Private Water Supply Wells</b>	
<b>Parameter</b>	<b>Frequency (after the initial test)</b>
Alkalinity	Every 5 Years
Ammonia	Every 5 Years
Arsenic	Every 5 Years
Calcium	Every 5 Years
Chloride	Every 5 Years
Chlorine	Every 5 Years
Copper	Every 5 Years
Color	Every 5 Years
Conductivity	Every 5 Years
Copper	Every 5 Years
<i>Escherichia coli</i> bacteria	Every Year
Fluoride	Every 10 Years
Hardness	Every 5 Years
Gross Alpha Activity	Every 10 Years
Iron	Every 5 Years
Lead	Every 5 Years
Magnesium	Every 5 Years
Manganese	Every 5 Years
Nitrate	Every Year
Nitrite	Every Year
pH	Every Year
Potassium	Every 5 Years
Sediment	Every 5 Years
Radon	Every 10 Years
Sodium	Every 5 Years
Sulfate	Every 5 Years
Turbidity	Every 5 Years
Total <i>coliform</i> bacteria	Every Year
Volatile Organic Compounds (EPA Method 524)	Every 10 years




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**Contact an accredited laboratory for availability and pricing.**

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<b>Required Testing Parameters and Frequencies for Irrigation Wells</b>	
<b>Parameter</b>	<b>Frequency (after the initial test)</b>
<i>Escherichia coli</i> bacteria	Every 5 Years
Nitrate	Every 5 Years
Total <i>coliform</i> bacteria	Every 5 Years

## Certified Labs in your Area

Nashoba Analytical Laboratory  
31A Willow Rd  
Ayer, MA 01432  
(978) 391-4428

Environmental Testing and Research  
60 Elm Hill Ave  
Leominster, MA 01453  
(978) 840-2941

RI Analytical Laboratory  
131 Coolidge St,  
Hudson, MA 01749  
(978) 568-0041

ALPHA Analytical  
8 Walkup Dr  
Westborough, MA 01581  
(978) 898-9220



## What will testing Tell me?

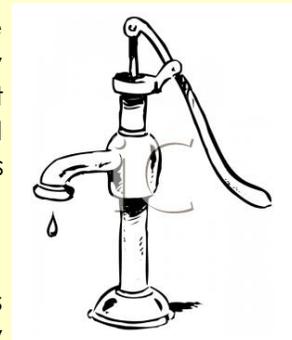
The laboratory report you receive will show the level at which any of the tested substances were found in your water sample. The mere presence of a contaminant in your well water does not necessarily mean that there is a problem. However, when levels exceed state or federal health standards or recommended 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. The State of New Hampshire has a web tool at <http://xml2.des.state.nh.us/DWITool/> that 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. Before making any final treatment decisions, be sure to consult with a qualified treatment professional.

## When should I test my well water?

The Concord Board of Health requires that all new wells be tested at the time of construction. Testing frequencies are also outlined in the table on the previous page. 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, 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 best times to test are usually after a spring or summer rainy period or after repair or replacement of your well, pump, or water pipes. 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. The Board of Health 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, visit the Massachusetts DEP website: <http://www.mass.gov/eea/agencies/massdep/water/drinking/private-wells.html> or contact the Concord Board of Health, 141 Keyes Rd, Concord, MA (978)318-3275.