

Protect Your Health Test Your Private Well Water

Properly constructed and maintained water wells can provide many years of trouble-free service, but like any other mechanical devices, wells will eventually deteriorate or become damaged, and allow surface contaminants to enter the water. In addition, some groundwater can contain one or more chemical substances in concentrations above state health limits. Public water systems are tested regularly for a variety of contaminants, but if you have a private well, regular testing is up to you. Here are some recommendations from the Minnesota Department of Health (MDH) that you can follow to assure that your well water is safe.

First, make sure that your well is located and constructed properly.

Since 1974, all water wells constructed in Minnesota must meet the location and construction requirements of the Minnesota Well Code. Wells can provide safe water for many years, but as wells age, they will deteriorate and eventually lose their ability to keep contaminants out of the water. If your well is old, or has not been inspected for many years, contact a licensed well contractor and have the well inspected. If your well has outlived its useful life, it should be properly sealed and replaced with a modern, safe well.

When constructing additions to your house, adding new buildings, or making changes to septic systems or other contamination sources, be sure to maintain the required

separation distances to your well. For more information, a companion brochure on “Protecting Your Well” is available from the MDH. When landscaping, keep the top of the well at least 12 inches above the ground surface. Make sure that the well cap is undamaged and securely attached to the well casing, and that any connections to the well stay watertight. Keep hazardous chemicals like paint, fertilizer, pesticides, fuels, and motor oil away from your well. **Seal any unused wells on your property** to protect your groundwater from contamination (**Note:** Under Minnesota law, only a licensed well contractor can seal a well.) For more information on wells, well maintenance, and well water quality, request your free copy of the “Well Owner’s Handbook” from the MDH.

Test your well water at least once a year for bacterial safety.

Water that has become contaminated by human or animal wastes can transmit a variety of infectious diseases, including dysentery, salmonellosis, hepatitis, and giardiasis. Symptoms vary, but nausea, vomiting, and diarrhea, with or without fever, are most common. To assess bacterial safety, drinking water is tested for a group of “indicator bacteria” called *total coliform bacteria*. These bacteria do not usually cause disease themselves, but their presence indicates that surface contamination has found its way into the well and disease organisms may also be present. When total coliform bacteria are found in well water, the water should not be consumed without boiling, and the well should be disinfected.

For more information, companion brochures on “Bacterial Safety of Well Water” and “Well Disinfection” are available from the MDH.

Test your well water at least once every year or two for nitrate, and always test the water for nitrate before giving it to an infant.

Nitrate is a common contaminant of Minnesota groundwater. Elevated levels of nitrate are often caused by run-off from barnyards or feedlots, excessive use of fertilizers, or septic systems. Wells most vulnerable to nitrate contamination include shallow wells, dug wells with nonwatertight casings, and wells with damaged, leaking casing or fittings. Well water containing nitrate at levels above the state health limit (10 milligrams per liter as nitrogen) **should never be given to infants less than six months old**, because it can cause a potentially fatal disease called “blue baby syndrome.” In many cases, constructing a deeper well can reduce or eliminate a nitrate problem. For more information, a companion brochure on “Nitrate in Well Water” is available from the MDH.

Flush standing water to reduce levels of lead.

Well water in Minnesota usually does not contain detectable levels of lead. However, the pipes and other components of the household plumbing system (faucets, valves, or fittings) may contain lead. If they do, lead may slowly dissolve into the water. The longer the water stands idle in the pipes, the

higher the lead levels can become. Too much lead in the body can damage the brain, nervous system, and kidneys, and it can be especially harmful to infants and small children. To minimize your exposure to lead in your drinking water, **run the water until it gets cold** before using it for drinking or cooking. This will flush out most of the lead that may have accumulated in the plumbing. Also never use water from the hot water tap for drinking or cooking. The best way to get a complete picture of how much lead may be dissolving into your water is to **have the water tested for lead**. For more information on how to sample your water for lead, and more information on lead in water systems, a companion brochure on “Lead in Well Water Systems” is available from the MDH.

Test your well water at least once for arsenic.

Arsenic occurs naturally in about half the wells in Minnesota, and about 10 percent of Minnesota wells produce water which exceeds 10 micrograms per liter ($\mu\text{g/L}$) (parts per billion), the state health level. Arsenic is more prevalent in western Minnesota, but can occur almost anywhere in the state. Long-term consumption of arsenic above the drinking water standard may increase the risk of health problems of the skin, circulatory system or the nervous system, including some forms of cancer. Every private well should be tested at least once or twice to determine if arsenic is present, and at what levels. Arsenic levels in groundwater will not usually change

much over time. Long-term consumption of well water with arsenic levels above 10 µg/L should be avoided. Special types of water treatment systems which are proven effective in removing arsenic from drinking water include adsorption media systems, “reverse osmosis systems” with pretreatment, and “distillation” systems. Contact a reputable water treatment dealer in your area for information about water treatment systems. For more information, a companion brochure on “Arsenic in Minnesota's Well Water” is available from the MDH.

Testing your well water for other contaminants.

When **pesticides** are detected in Minnesota wells, the levels are usually very low, less than 1 µg/L (part per billion). But there are exceptions. Wells most at risk of pesticide contamination are shallow or old, located close to areas of pesticide use or storage, and located in geologically sensitive areas such as sand plains or “karst” bedrock areas. Wells that have high levels of nitrate are also more likely to have detectable levels of pesticides. If you have an old or shallow well and you live in an agricultural area, or if your well has a high level of nitrate, consider testing your well water for one or more of the pesticides used most frequently in your area.

Volatile Organic Chemicals, or “VOCs” are common components of gasoline and other fuels, as well as products such as solvents, paints, cleaners, and degreasers.

It is estimated that 3 to 6 percent of wells in Minnesota may have detectable levels of one or more VOCs. Long-term exposure to VOCs above state health limits may damage the central nervous system, liver, or kidneys, and some VOCs are known to cause cancer. If you live near a commercial or industrial area, a gas station, or a landfill, and especially if your well is old or shallow, you should consider having your water tested for VOCs.

If children or adolescents are drinking the well water, a test for natural levels of **fluoride** will give your dentist valuable information when considering fluoride supplements. A small number of wells, primarily in northeastern Minnesota, do exceed the recommended health limit for fluoride, which can cause discoloration of tooth enamel.

Who can I contact to have my well water tested?

Your county health agency can provide testing for bacteria and nitrate, and some operate certified laboratories. Prices vary, but usually fall in the range of \$20-\$40 for both tests. There are a number of commercial laboratories certified to test drinking water for arsenic, which typically costs about \$30-\$40. For a list of all state-certified laboratories, see the MDH Certified Environmental Laboratories website at: www.health.state.mn.us/labsearch. You can also look in your local Yellow Pages under "Laboratories-Testing." Be sure that the laboratory you choose is **state certified** to perform each test you want.

Where can I get more information?

If you have any questions about your well or well water quality, or would like more information, contact a well specialist at your local MDH district office.

MDH District Offices

625 North Robert Street
P. O. Box 64975
St. Paul, Minnesota 55164-0975
651-201-4600 or 800-383-9808

705 Fifth Street Northwest
Bemidji, Minnesota 56601
218-308-2100

320 West Second Street
Duluth, Minnesota 55802
218-723-4642

1505 Pebble Lake Road
Fergus Falls, Minnesota 56537
218-332-5150

3333 West Division Street
St. Cloud, Minnesota 56301
320-223-7300

1400 East Lyon Street
Marshall, Minnesota 56258
507-537-7151

18 Wood Lake Drive Southeast
Rochester, Minnesota 55904
507-206-2700

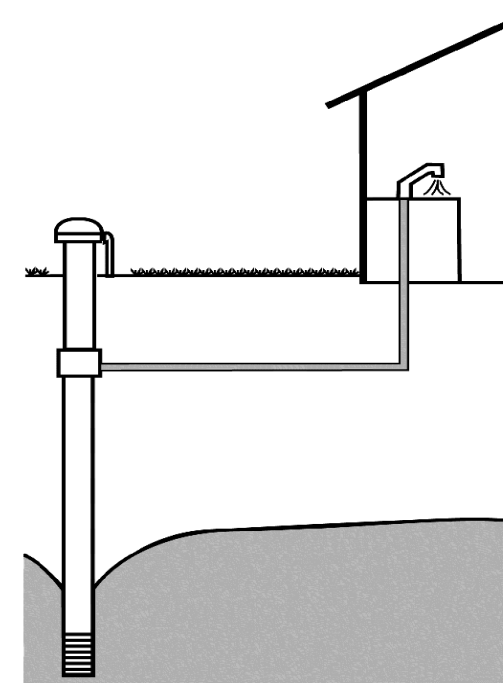
Visit the MDH Well Management Section website at:
www.health.state.mn.us/divs/eh/wells.

To request this document in another format, call 651-201-4600.
Deaf and hard-of-hearing: TTY 651-201-5797.

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