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VERMONT
DEPARTMENT OF HEALTH

Testing Drinking Water from Private Water Supplies

If you are drilling a new well or buying real estate with a well –

The Health Department recommends the following testing schedule to ensure that your drinking water is safe:

- Total coliform bacterial test every year
- Inorganic chemical test every five years
- Gross alpha radiation screen every five years

Total Coliform Bacteria

A Total Coliform bacterial test is recommended every year for homeowners with private wells. Coliform bacteria are a large group of soil and intestinal bacteria that indicate potential well contamination and may cause health problems. However, coliform bacteria do not necessarily make you sick. If Total Coliform bacteria are found, the water is then checked for *E. coli* bacteria. Test results show whether recent animal or human waste has entered the water. Do not drink water that has tested positive for bacterial contamination. Boiling water for one minute will kill bacteria so that it can be used for drinking.

Inorganic Chemical Test

This screen is recommended every five years. Recommended tests include arsenic, chloride, copper, fluoride, hardness, iron, lead, manganese, nitrate, nitrite, sodium and uranium.

These inorganic chemicals can create nuisance problems, or in some cases, health symptoms or concerns. When you receive test results they will be compared with maximum levels.

Gross Alpha Screen

A screen for alpha radiation is recommended every five years. This is a screening test for naturally occurring mineral radioactivity in water such as uranium and radium. This radioactivity is measured and reported in picocuries per liter (pCi/l). The gross alpha test will help determine if additional specific testing is needed. If screening results are equal to or greater than 5 pCi/l, the water should also be tested for radium. If the screening results are equal to or greater than 15 pCi/l, the water should be tested for radium and uranium.

Certified Laboratories

You can order test kits from the Health Department Laboratory at (800) 660-9997 or (802) 338-4724 – or use another certified drinking water lab: **healthvermont.gov**
On tab marked A – Z, click "w" for water testing and scroll down for the link to the list.

If your water has an unusual smell, taste, color or sheen –

Switch to another safe water source until test results are known. Call the Health Department at (800) 439-8550 or (802) 863-7220.

Health Concerns

Health symptoms related to drinking water that is contaminated with coliform bacteria can range from no effects to severe cramps and diarrhea. Potential health effects from chemicals in drinking water depend on the level in the water, how much and how long the water has been used for drinking and, in some cases, personal health issues.

The following are concerns related to specific chemicals found in drinking water:

• **Arsenic** has been linked to increased lifetime risk for bladder, lung, or skin cancer. The maximum level for arsenic in water is 0.010 milligrams per liter (mg/l).

• **Chlorides** do not cause health problems, but high chloride levels in drinking water give water an unpleasant taste and may be a sign of other problems. The maximum level for chlorides in water is 250 mg/l.

• **Copper** is an important mineral for the formation of red blood cells. Copper can stain plumbing fixtures and give the water a metallic taste. High amounts of copper in water can cause stomachaches, vomiting, or diarrhea. The maximum level for copper in water is 1.3 mg/l.

• **Fluoride** is a mineral found in nature that helps the body resist tooth decay. It is important to know if well water contains fluoride so adjustments can be made before making infant formula or giving children supplements. The maximum level for fluoride in water is 4.0 mg/l.

• **Hardness** causes no known health risks but can cause reduced lathering of soap, and buildup of scale in water heaters, cookware and plumbing. No limits are established for water hardness.

• **Iron** is an essential element and does not generally cause health effects. However, high amounts of iron can cause staining of clothing, sinks, toilets and bathtubs. Iron can give water a metallic taste. The maximum level for iron in water is 0.3 mg/l.

• **Lead** is a toxic metal, especially for children under 6 and pregnant women. In young children, lead can hurt the brain, kidneys and nervous system. Older plumbing can contain lead. The action level for lead in water is 0.015 mg/l.

• **Manganese** is an essential element for human metabolism. However, manganese can discolor water and stain clothing and bathroom fixtures grey/black. The maximum level for manganese in water for staining is 0.050 mg/l and to protect the nervous system, the maximum level is 0.300 mg/l.

• **Nitrate/Nitrite** in elevated levels are linked with two known health problems. They can cause an oxygen deficiency in the blood of young infants, resulting in a bluish skin tone. In adults, nitrates can form chemicals called nitrosamines. This is a long term health risk linked to cancer. Elevated nitrate levels in well water may also indicate contamination from sources such as septic systems or fertilizers. The maximum level for nitrate in water is 10.0 mg/l and for nitrites is 1.0 mg/l.

• **Sodium** is a necessary dietary element and can occur naturally in water. Water with high levels of sodium tastes salty, can corrode metal piping, and can contribute to high blood pressure. Salt from road de-icing may cause sodium levels to rise in wells close to roads. The maximum level for sodium in drinking water is 250 mg/l.

• **Uranium** is a radioactive element found in nature, including soil, water, rocks, plants and food. Most ingested uranium is eliminated from the body, but a small amount is absorbed and may go through the bloodstream and kidneys. Elevated levels of uranium may increase a person's risk of kidney damage or lifetime risk of cancer. The maximum level for uranium is 0.020 mg/l in Vermont.