## Introduction

To ensure the safety of a private well, the water must be tested regularly. The Safe Drinking Water Act (SDWA) requires the regular testing of municipal and other public water supplies. In addition, the Minnesota Department of Health (MDH), or delegated local agency, performs inspections of public water systems.

However, the SDWA does not cover private water wells. It is the choice and the responsibility of a private well owner to ensure the safety of their drinking water. Over 30% of Anoka County residents are served by a private water well.

## Annual Sanitary Analysis Test Recommended

The appearance of water is not a reliable means of determining whether or not it is safe to drink. The Public Health and Environmental Services Department recommends that private well owners perform an annual "sanitary analysis" test of their drinking water supply. A sanitary analysis test determines whether or not coliform bacteria are present and the concentration of nitrate-nitrogen in the water sample.

MDH has established Health Risk Limits (HRLs) for drinking water contaminants. Private well owners are not required to test or comply with the HRL standards, but residents are encouraged to use these standards to determine the safety of their drinking water.

## Coliform Bacteria

Testing for coliform bacteria is a good indicator of whether or not the water possibly contains disease-causing bacteria. This test is not usually quantitative – instead, the results of the test indicate whether coliform organisms are present or absent. The test analyzes for many different coliform organisms, and if one or more are found, the test will give a "present" result. If none are found, the test will give an "absent" result. Which particular organisms were found is not known with this test. The exception to this is E.coli – the test will tell whether or not E.coli specifically is positive or negative. More detailed testing may be available from some private labs.

The presence of coliform bacteria in a water sample indicates that the well may not be safe to drink. The bacterial HRL for drinking water is that it is free of coliform bacteria. Many coliform organisms are not harmful to human health. However, it is important to follow-up with the recommended treatment, as any presence of coliform bacteria indicates a potential pathway for contaminants to enter a drinking water supply.

## Nitrate

Nitrate is a tasteless, odorless, and colorless chemical compound containing nitrogen and oxygen. Nitrate is commonly measured and expressed as nitrate-nitrogen ($NO_3$-N) concentration. Nitrate-nitrate readily dissolves in water and is transported with traveling groundwater. For this reason, annual well water tests indicating increased nitrate-nitrogen concentration are viewed as an early sign of deteriorating groundwater quality and drinking water safety.

Excessive nitrate-nitrogen in drinking water poses a risk to infants less than 6 months old. The nitrate-nitrogen reduces the capacity of the infant's blood to carry oxygen, leading to a condition called "blue baby syndrome" (or methemoglobinemia). This can occur even after just one day of exposure. Pregnant women and people with certain stomach and blood disorders may also be susceptible.

The HRL for nitrate-nitrogen is 10 milligrams per liter (mg/L). This standard addresses the potentially serious and rapid impact to infants and susceptible people.

## Well Maintenance and Testing

After the well is constructed, it is the responsibility of the private well owner to maintain their well.

Anoka County Public Health and Environmental Services has a well water testing program through a contract with a state-certified water testing laboratory. Test kits are available at the Anoka County Government Center on the 6$^{th}$ floor, or at many city halls. See "Water Testing Frequently Asked Questions" for a list of these locations and for more information on the program.

## Tips to Avoid Trouble

- Perform an annual sanitary analysis test to determine if unsafe conditions develop.
- Maintain the well in good condition and avoid vehicular damage.
- Be sure the well cap is properly and securely attached and in good condition.
- Ensure the electrical wire conduit passing through the well cap is properly sealed.
- Keep hazardous chemicals away from the well.
- Do not construct a deck or building over a well. Be sure additions to the home and alterations to the septic system meet the minimum isolation distances of the Minnesota Well Code.
- Modern wells must be maintained with the casing extending at least 12 inches above ground. Minnesota Law prohibits anyone from burying a well.
- Do not totally enclose a well under a cover that can be a harborage for animals and may support the growth of bacteria.
- Disinfect the well with chlorine any time it is opened for surface
- If purchasing a home with a private well, test the safety of the water before drinking.

Anoka County
HUMAN SERVICES DIVISION
Public Health & Environmental Services

## Resources

Anoka County Water Information and Management
(www.anokacounty.us/water)

Know the Flow
(www.knowtheflow.us)

Water Testing Frequently Asked Questions
(https://www.anokacounty.us/DocumentCenter/View/24239/Water-Water_Testing_FAQs)

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# Testing Your Private Water Well