Scott County Drinking Water Report - 2021

Private Wells

Abstract

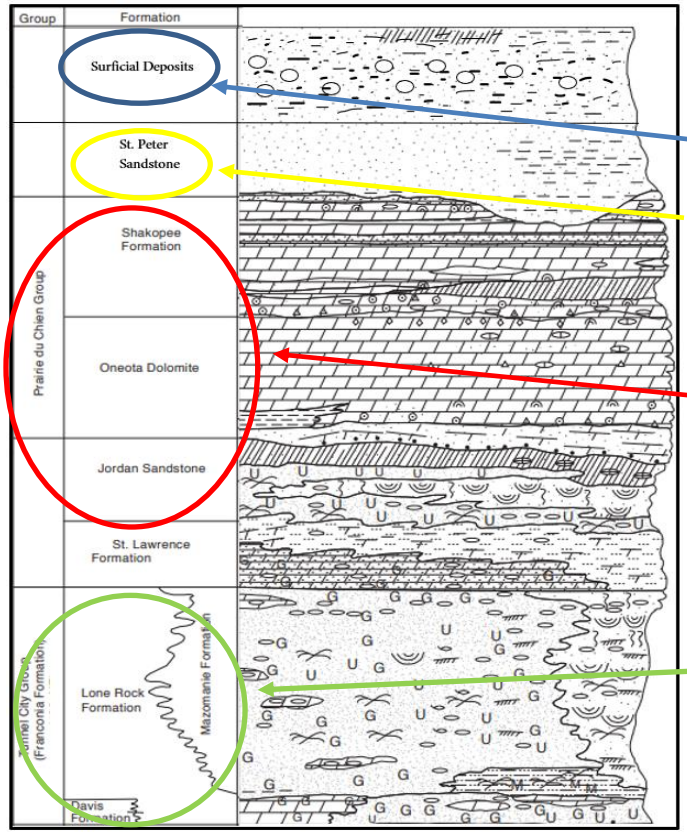
Each year Scott County sells water test kits to residents who rely on private well water for their drinking water. This report summarizes those results while providing important drinking water information to all residents.

Introduction

Most of the information and data in this report reflects the drinking water of Scott County for those who rely on private wells as their source of drinking water. Community Public Water Suppliers (cities) must follow strict testing guidelines as defined by the Minnesota Department of Health (MDH) and U.S. Environmental Protection Agency (EPA) to ensure the drinking water that is provided to residents is safe to drink. Annually these public water suppliers must provide a Consumer Confidence Report (CCR) detailing the previous year in review of the testing results of the drinking water they provide and any necessary treatment. If you get your water from a Community Public Water Supplier and have further questions regarding your water quality, then you should reach out to the City in which you reside.

Where is your water coming from?

The aquifers (water bearing rock) that are utilized by private wells across Scott County ultimately depends on the geology of where you live. Unconsolidated glacial deposits, the Prairie du Chien aquifer, and the Jordan aquifer are the most common aquifers that provide drinking water to private well users across Scott County. The stratigraphic column below illustrates commonly accessed aquifers for private wells in the County.



Glacial deposits across the County consist of sand, gravel, silt, clay. Thicknesses of these deposits vary from 0 - 200+ feet. Provides aquifers utilized by private wells.

St. Peter Sandstone is mostly eroded away across the entire County.

These geologic units are heavily relied upon as drinking water aquifers for both private and community wells in Scott County.

These deeper geologic units and accessible aquifers are mostly utlized by community wells and are preserved for future needs but service private wells in certain areas of the County.

Source: Adapted from Minnesota Geological Survey

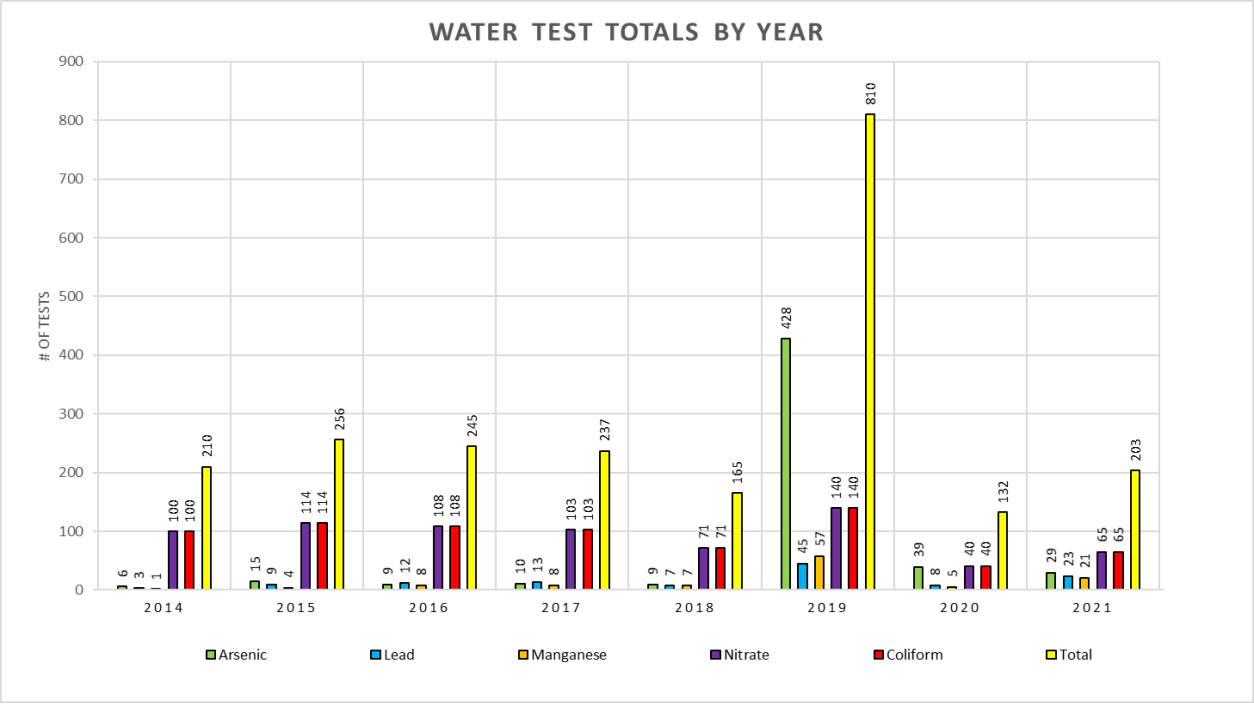
Testing and Monitoring

Since there are no testing requirements for private well users, the County works to provide education to residents on testing recommendations. Scott County Environmental Services offers several testing kits for purchase to anyone looking to test their drinking water. Scott County follows the testing recommendation provided by the Minnesota Department of Health.

Results

The results presented in this report represent all the test kits sold in 2021. The figure below shows the total number of water test kits sold over the past several years.

Figure 1 Water Test Totals



In 2021, a total of 203 test kits were sold. Prior to 2019, coliform/nitrate was by far the dominant test kit sold by the County. Over the last couple of years the trends have started to shift to see more testing for all other test kits while the number of tests for coliform/nitrate have started to come down.

Understanding the Results

The tables below will illustrate all the contaminants that were tested by Scott County residents in 2021 and how they compare to EPA contaminant limits or to MDH health-based guidance levels.

Definitions (Reminder that these definitions and action levels apply to community public water supplies as there is no enforcement for private well water quality)

- **EPA:** Environmental Protection Agency
- **MCL (Maximum contaminant level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG (Maximum contaminant level goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **MDH**: Minnesota Department of Health
- **µg/L (micrograms per liter):** Micrograms per liter is the same as parts per billion (ppb). One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool.
- **mg/L (milligrams per liter):** Milligrams per liter is the same as parts per million (ppm). One part per million is like one drop in one million drops of water, or about one cup in a swimming pool.

Table 1 Contaminants with No EPA Limits

Contaminant	MDH Guidance (infants)	MDH Guidance (non-infant)	% Test Kits Over Guidance (non-infant)	Range of Test Results	Likely Sources
Manganese	100 µg/L	300 µg/L	33.3%	0.0 – 746.0 (µg/L)	Erosion of natural deposits.

Table 2 Contaminants with EPA Limits

Contaminant	EPA's Ideal Goal (MCLG)	EPA's Limit (MCL)	% Test Kits Over MCL	Range of Test Results	Likely Sources
Arsenic	0	10 µg/L	6.9%	0.0 – 13.3 (µg/L)	Erosion of natural deposits (specifically glacial deposits).
Nitrate	< 10 mg/L	10 mg/L	0	0 – 4.56 (mg/L)	Runoff from fertilizer use; Leaching from failing septic systems, sewage; Erosion of natural deposits.
Lead	0	90% of homes less than 15 µg/L	39.1% over the MCLG (no level of lead is safe to drink)	0.0 – 64.5 (µg/L)	Corrosion of household plumbing.
Coliform Bacteria	0	0	4.6%	0.0 – 140 CFU/100 mL	Potential sources of contamination include sewage, septic systems, feedlots, and animal yards.

Health Concerns and Treatment Options

MDH provides treatment recommendations for common drinking water contaminants at https://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html.

Arsenic: Consuming water with even low levels of arsenic over a long time is associated with diabetes and increased risk of cancers of the bladder, lungs, liver, and other organs. The most common treatment option for removing arsenic from drinking water is reverse osmosis. Proper treatment and maintenance can remove arsenic from drinking water and ensure it is safe to drink.

Nitrate: Nitrate in drinking water at levels above 10 parts per million is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. Reverse osmosis is also the most common form of treatment for nitrate contamination.

Lead: There is no safe level of lead. Coming in contact with too much lead can damage the brain, kidneys, and nervous system. In children, lead can also slow development or cause learning, behavior, and hearing problems. Treatment for lead is recommended by doing the following:

- Let the water run before using it for drinking or cooking. If you have a lead service line, let the water run for 3-5 minutes. If you do not have a lead service line, let the water run for 30-60 seconds. The more time water has been sitting in your home's pipes, the more lead it may contain.
- You can find out if you have a lead service line by contacting your public water system.
- The only way to know if lead has been reduced by letting it run is to check with a test. If letting the water run does not reduce lead, consider other options to reduce your exposure.
- Use cold water for drinking, making food, and making baby formula. Hot water releases more lead from pipes than cold water.
- Install a treatment device.

Coliform Bacteria: Coliform bacteria can indicate that other infectious bacteria, viruses, or parasites may be in your water. These may cause diarrhea, vomiting, cramps, nausea, headaches, fever, and fatigue. Infants and children are more likely to get sick or die from infectious diseases. Any level of coliform bacteria may be harmful. Disinfection of your water system can remove any bacteria but should be retested to verify there is not a bigger issue with contamination.

Manganese: Children and adults who drink water with high levels of manganese for a long time may have problems with memory, attention, and motor skills. Infants may develop learning and behavior problems if they drink water with too much manganese in it. Water softeners have shown to be effective at removing some manganese from drinking water. However, additional treatment may be necessary, and it is important to test your water to see how efficiently the manganese is being removed.

Special Concerns

Due to the geology of Scott County, many wells utilize aquifers within unconsolidated glacial deposits. In certain areas of the County there is an increased likelihood of a well having elevated arsenic due to these glacial deposits. In the State of Minnesota, when a new well is drilled it is required to be tested for arsenic. However, recent studies have shown that it is important to have a second test completed a year after the well has been drilled due to several factors that could affect the initial test at the time of well installation. Figure 2 below shows arsenic test results over the past few years and provide an excellent visual representation of where it is important for private well users to test their drinking water. The red dots represent test results over the EPA standard for arsenic (10 µg/L)

Figure 2 Arsenic Results

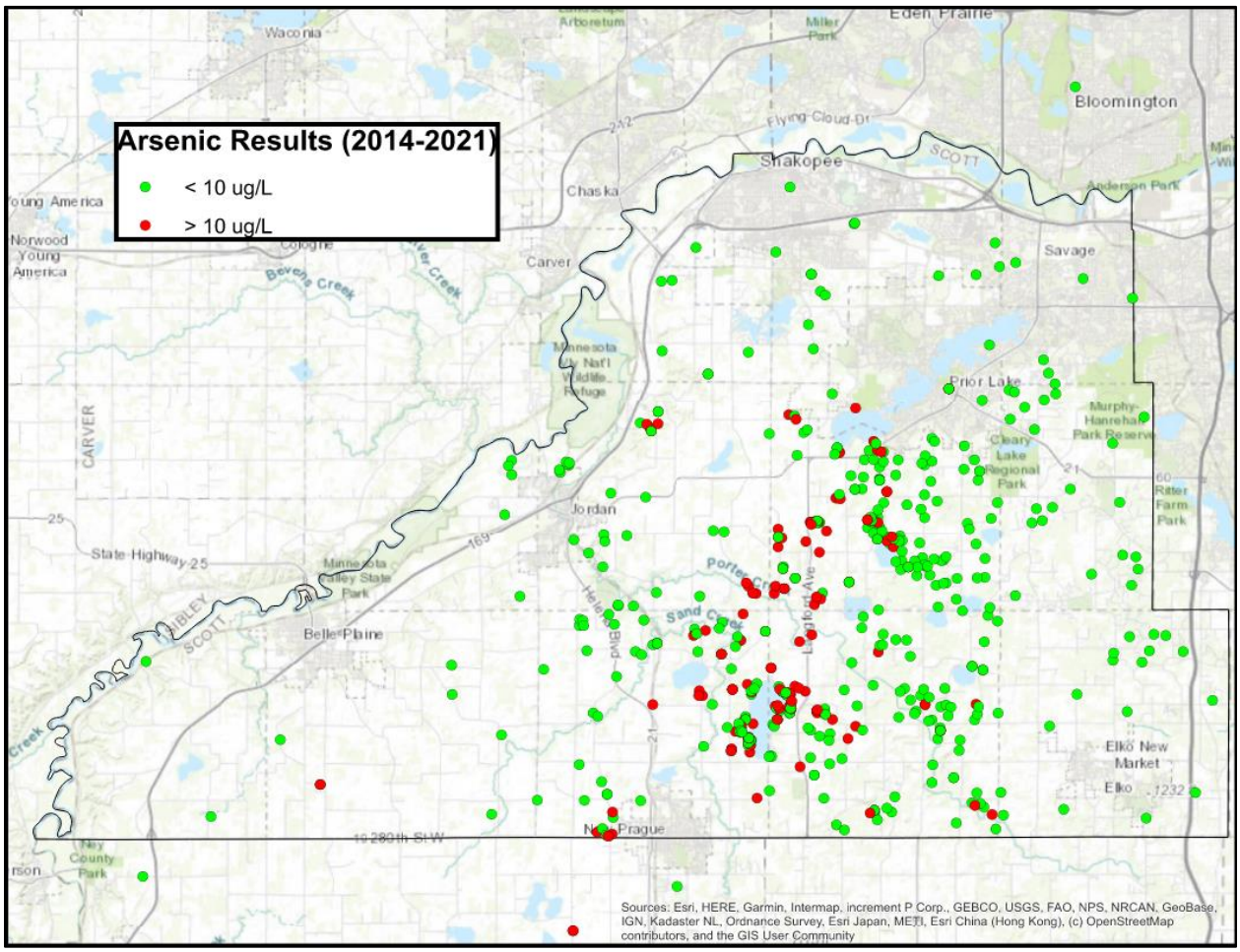
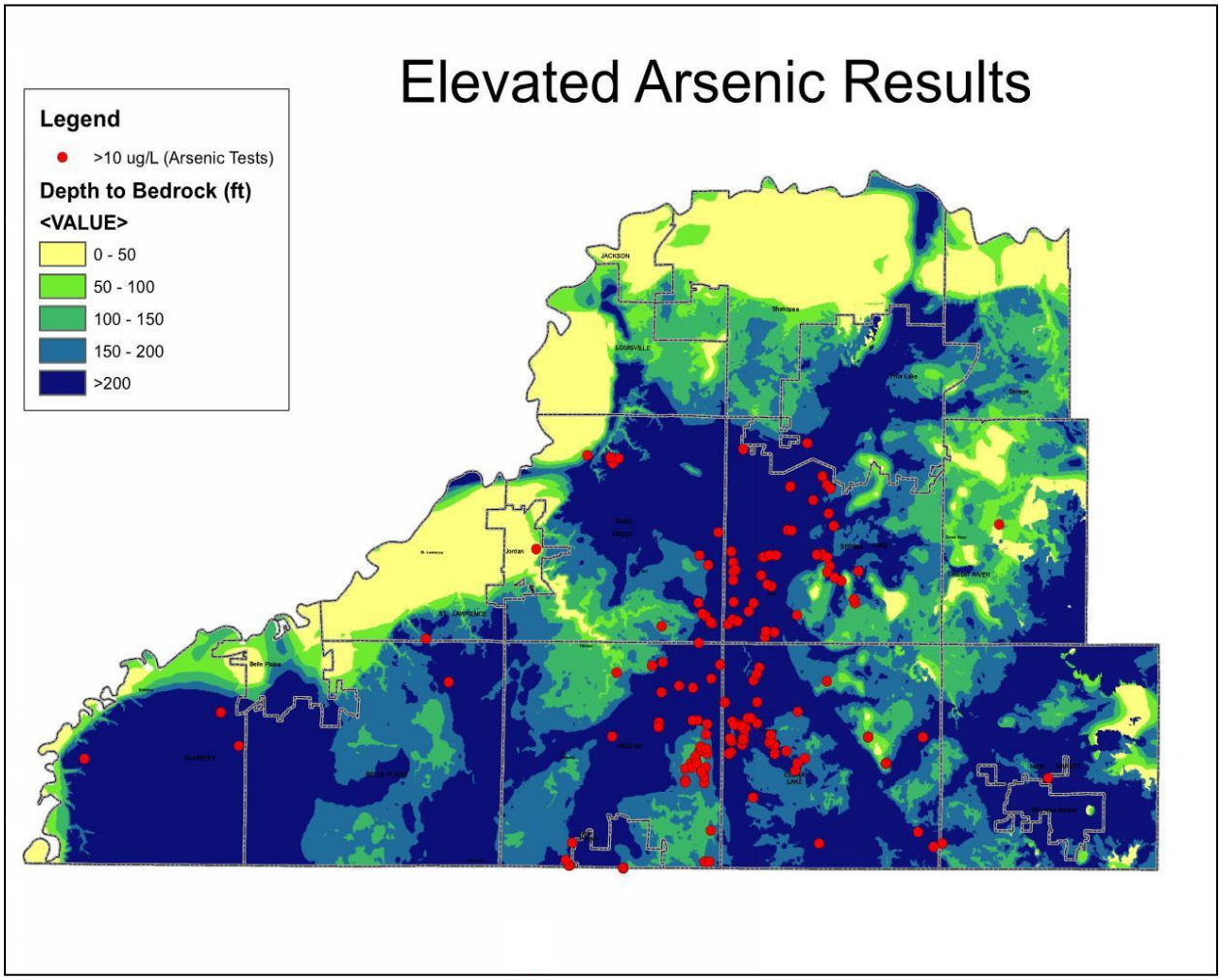


Figure 3 displays elevated arsenic test results overlayed on a map showing depth to bedrock across the County. When a well is drilled in an area where depth to bedrock is a significant distance, it is more likely that the well will be completed in an unconsolidated glacial layer, increasing the likelihood of elevated arsenic levels. As you can see in Figure 3, elevated arsenic results occur in areas where the depth to bedrock is at least 100 feet, which supports the assumption that in areas where depth to bedrock is significant it increases the likelihood of elevated arsenic in a private well.

Figure 3 Elevated Arsenic Results vs Depth to Bedrock



Conclusions

2021 testing results shows the continued need for testing of private wells across Scott County, specifically for arsenic, manganese, and lead. While the geology of Scott County and the abundance of clay glacial till soils act as an efficient filter for nitrate for most areas of the County, it also carries natural contaminants in arsenic and manganese. For private well users, these contaminants do not have a taste, smell, or color so the only way of knowing it is in your drinking water is to test. Testing is the only way to know if drinking water treatment is needed to keep drinking water safe.

Scott County residents can purchase well water tests through Scott County Environmental Services by visiting the website scottcountymn.gov/wells and following the directions for purchasing a well water test kit.