



WATER QUALITY REPORT

SAVAGE, MN • 2019 TEST RESULTS

Making safe drinking water

Your drinking water comes from the following groundwater sources: Savage purchases water from Burnsville and our system has eight wells ranging from 152 to 1029 feet deep, that draw water from the Prairie Du Chien Group, Mt. Simon, Quaternary Buried Artesian and Tunnel City-Wonewoc aquifers.

Savage works hard to provide you with safe and reliable drinking water that meets federal and state water quality requirements. The purpose of this report is to provide you with information on your drinking water and how to protect our precious water resources.

The U.S. Environmental Protection Agency sets safe drinking water standards. These standards limit the amounts of specific contaminants allowed in drinking water. This ensures that tap water is safe to drink for most people. The U.S. Food and Drug Administration regulates the amount of certain contaminants in bottled water. Bottled water must provide the same public health protection as public tap water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at **1-800-426-4791**.

Questions? We are happy to help.

If you have questions regarding the City of Savage drinking water or would like information about opportunities for public participation in decisions that may affect the quality of water, please give us a call at 952-224-3440.



cityofsavage.com

In this issue...

- 1 • Making safe drinking water
- 2 • 2019 Savage monitoring results
- 2 • How to read the water quality data tables
- 2 • Definitions
- 3 • Water quality data tables - Savage
- 4 • Monitoring results - unregulated substances
- 5 • Learn about your drinking water
- 6 • Conserving water does make a difference
- 6 • Some people are more vulnerable to contaminants in drinking water
- 6 • Water is a great value!
- 7 • Help protect our most precious resource - water
- 7 • The pros and cons of home water softening
- 8 • Water quality data tables - Burnsville
- 10 • Monitoring results - unregulated substances

2019 Savage monitoring results

This report contains our monitoring results from January 1 to December 31, 2019.

We work with the Minnesota Department of Health to test drinking water for more than 100 contaminants. It is not unusual to detect contaminants in small amounts. No water supply is ever completely free of contaminants. Drinking water standards protect Minnesotans from substances that may be harmful to their health.

Learn more by visiting the Minnesota Department of Health's webpage Basics of Monitoring and Testing of Drinking Water in Minnesota (health.state.mn.us/communities/environment/water/factsheet/sampling.html).



How to read the water quality data tables

The tables on page 3 and 4 show the contaminants we found last year or the most recent time we sampled for that contaminant. They also show the levels of those contaminants and the Environmental Protection Agency's limits. Substances that we tested for but did not find are not included in the tables.

We sample for some contaminants less than once a year because their levels in water are not expected to change from year to year. If we found any of these contaminants the last time we sampled for them, we included them in the tables below with the detection date.

We may have done additional monitoring for contaminants that are not included in the Safe Drinking Water Act. To request a copy of these results, call the Minnesota Department of Health at 651-201-4700 or 1-800-818-9318 between 8 a.m. and 4:30 p.m., Monday through Friday.

DEFINITIONS

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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.

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

MRDL (Maximum residual disinfectant level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum residual disinfectant level goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA (Not applicable): Does not apply.

NTU (Nephelometric Turbidity Units): A measure of the cloudiness of the water (turbidity).

pCi/l (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool. ppb is the same as micrograms per liter ($\mu\text{g/l}$).

ppm (parts per million): One part per million is like one drop in one million drops of water, or about one cup in a swimming pool. ppm is the same as milligrams per liter (mg/l).

PWSID: Public water system identification.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

WATER QUALITY DATA TABLES - SAVAGE

Monitoring Results - Regulated Substances

Lead and copper - tested at customer taps

Contaminant (Date, if sampled in previous year)	EPA's Action Level	EPA's Ideal Goal (MCLG)	90% of Results Were Less Than	Number of Homes with High Levels	Violation	Typical Sources
Copper (06/4/19 - 6/7/19)	90% of homes less than 1.3 ppm	0 ppm	0.41 ppm	0 out of 30	NO	Corrosion of household plumbing.
Lead (06/4/19 - 6/7/19)	90% of homes less than 15 ppb	0 ppb	0.89 ppb	0 out of 30	NO	Corrosion of household plumbing.

Inorganic and organic contaminants - tested in drinking water

Contaminant (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Barium (04/9/18)	2 ppm	2 ppm	0.21 ppm	N/A	NO	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposit.
Combined Radium (8/20/19)	5.4 pCi/l	0 pCi/l	3.2 pCi/l	2.6-3.2 pCi/l	NO	Erosion of natural deposits.

Contaminants related to disinfection - tested in drinking water

Substance (Date, if sampled in previous year)	EPA's Limit (MCL or MRDL)	EPA's Ideal Goal (MCLG or MRDLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Total Trihalomethanes (TTHMs) (2/11/19, 5/13/19, 8/12/19, 11/12/19)	80 ppb	N/A	27.1 ppb	10.5-42.0 ppb	NO	By-product of drinking water disinfection.
Total Haloacetic Acids (HAA) (2/11/19, 5/13/19, 8/12/19, 11/12/19)	60 ppb	N/A	7 ppb	2.4-10.4 ppb	NO	By-product of drinking water disinfection.
Total Chlorine (30 samples per month)	4.0 ppm	4.0 ppm	0.62 ppm	0.47-0.78 ppm	NO	Water additive used to control microbes.

Total HAA refers to HAA5

Other substances - tested in drinking water

Substance (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Fluoride (2/11/19, 5/22/19, 8/20/19, 11/20/19)	4.0 ppm	4.0 ppm	0.61 ppm	0.58 - 0.68 ppm	NO	Erosion of natural deposits; Water additive to promote strong teeth.

Potential health effects and corrective actions (if applicable)

Fluoride: If your drinking water fluoride levels are below the optimal concentration range of 0.7 to 1.2 ppm, please talk with your dentist about how you can protect your teeth and your family's teeth from tooth decay and cavities. For more information, visit: MDH Drinking Water Fluoridation (health.state.mn.us/divs/eh/water/com/fluoride/index.html).

Monitoring results - unregulated substances

In addition to testing drinking water for contaminants regulated under the Safe Drinking Water Act, we sometimes also monitor for contaminants that are not regulated. Unregulated contaminants do not have legal limits for drinking water.

Detection alone of a regulated or unregulated contaminant should not cause concern. The meaning of a detection should be determined considering current health effects information. We are often still learning about the health effects, so this information can change over time.

The following table shows the unregulated contaminants we detected last year, as well as human-health based guidance values for comparison, where available. The comparison values are based only on potential health impacts and do not consider our ability to measure contaminants at very low concentrations or the cost and technology of prevention and/or treatment. They may be set at levels that are costly, challenging, or impossible for water systems to meet (for example, large-scale treatment technology may not exist for a given contaminant).

A person drinking water with a contaminant at or below the comparison value would be at a little or no risk of harmful health effects. If the level of contaminant is above the comparison value, people of a certain age or with special health conditions - like a fetus, infants, children, elderly, and people with impaired immunity - may need to take extra precautions. Because these contaminants are unregulated, EPA and MDH require no particular action based on detection of an unregulated contaminant. We are notifying you of the unregulated contaminants we have detected as a public education opportunity.

Unregulated contaminants - tested in drinking water

Contaminant	Comparison Value	Highest Average Result or Highest Single Test Result	Range of Detected Test Results
Manganese (11/19/19)	100 ppb	0.41 ppb	0.00-0.41 ppb
Sodium* (6/11/19)	20 ppm	38.4 ppm	13.8-38.4 ppm
Sulfates (6/11/19)	500 ppm	44.4 ppm	44.10-44.4 ppm
Group of 6 Haloacetic Acids (HAA6Br) (6/11/19)	N/A	6.7 ppb	5.01-8.38 ppb
Group of 9 Haloacetic Acids (HAA9) (6/11/19)	N/A	9.1 ppb	6.82-11.39 ppb

More information is available at MDH's A-Z list of contaminants in water (health.state.mn.us/communities/environment/water/contaminants/index.html) and Fourth Unregulated Contaminant Monitoring Rule (UCMR 4) (health.state.mn.us/communities/environment/water/com/ucmr4.html).

*** Note:** Home water softening can increase the level of sodium in your water.

LEARN MORE ABOUT YOUR DRINKING WATER

Drinking water sources

Minnesota's primary drinking water sources are groundwater and surface water. Groundwater is the water found in aquifers beneath the surface of land. Groundwater supplies 75 percent of Minnesota's drinking water. Surface water in lakes, rivers, and streams above the surface of the land. Surface water supplies 25 percent of Minnesota's drinking water.

Contaminants can get in drinking water sources from the natural environment and from people's daily activities. There are five main types of contaminants in drinking water sources.

- **Microbial contaminants**, such as viruses, bacteria, and parasites. Sources include sewage treatment plants, septic systems, agricultural livestock operations, pets, and wildlife.
- **Inorganic contaminants** include salts and metals from natural sources (e.g. rock and soil), oil and gas production, mining and farming operations, urban stormwater runoff, and wastewater discharges.
- **Pesticides and herbicides** are chemicals used to reduce or kill unwanted plants and pests. Sources include agriculture, urban stormwater runoff, and commercial and residential properties
- **Organic chemical contaminants** include synthetic and volatile organic compounds. Sources include industrial processes and petroleum production, gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** such as radium, thorium, and uranium isotopes come from natural sources (e.g. radon gas from soils and rock), mining operations, and oil and gas production.

The Minnesota Department of Health provides information about your drinking water source(s) in a source water assessment, including:

- How Savage is protecting your drinking water source(s);
- Nearby threats to your drinking water sources;
- How easily water and pollution can move from the surface of the land into drinking water sources, based on natural geology and the way wells are constructed.

If you wish to obtain the entire source water assessment regarding your drinking water, please call **651-201-4700** or **1-800-818-9318** during normal business hours. You can also view it online at health.state.mn.us/communities/environment/water/swp/swa.

Lead in drinking water

You may be in contact with lead through paint, water, dust, soil, food, hobbies, or your job. Coming in contact with lead can cause serious health problems for everyone. There is no safe level of lead. Babies, children under six years, and pregnant women are at the highest risk.

Lead is rarely in a drinking water source, but it can get in your drinking water as it passes through lead service lines and your household plumbing system. Savage provides high quality drinking water, but it cannot control the plumbing materials used in private buildings.

Minimizing exposure to lead

A few simple practices can minimize your exposure to lead in drinking water.

1. Always use cold water for your cooking and drinking. If your plumbing contains lead, hot water will draw more lead out of it.
2. Allow your cold water to run for 30 - 60 seconds. This flushes out any water that may have been in your pipes long enough to pick up higher concentrations of lead.
3. If you are concerned about lead in your water, you may wish to have your water tested. Contact a Minnesota Department of Health accredited laboratory to get a sample container and instructions on how to submit a sample:
 - Environmental Laboratory Accreditation Program at health.state.mn.us/public/accreditedlabs/labsearch.seam.
 - The Minnesota Department of Health can help you understand your test results.
4. Treat your water if a test shows your water has high levels of lead after you let the water run. Read about water treatment units:
 - Point-of-Use Water Treatment Units for Lead Reduction health.state.mn.us/communities/environment/water/factsheet/poulead.html.

Conserving water does make a difference

We all know we are supposed to conserve water, but here in Minnesota with water all around, do these small everyday decisions make any difference? YES! Conserving water means conserving energy and resources. Any water that runs down the drain goes to the wastewater treatment facility. All the water entering the facility needs to be treated, which takes both money and energy. And any water that you conserve is water that you do not have to pay for. It is much more efficient to save water by shutting off the tap when not using it than to let it flow down the drain to the wastewater treatment facility than have it pumped back to you. Plus, when hot water is wasted, you not only pay for the water but also for the energy to heat it. Tips for saving water around your home:

- Use less hot water. Wash clothes in cold or warm water, and always wash full loads.
- Find leaks and fix them. A leak in your house can waste hundreds of gallons of water. A one-drip-per-second drip can waste 2,500 gallons in a year.
- Take shorter showers. A four-minute shower can use as little as 8 gallons of water. A bath takes 50-60 gallons.
- Don't run water unnecessarily. Turn off the water when brushing teeth or shaving.
- Use water-efficient appliances. An Energy Star rated appliance can use up to half of the water and a third of the electricity of an older model.

WATER IS A GREAT VALUE!

Water is essential to our daily lives. Without it, there would be no fire protection, no agriculture, no manufacturing, and no power grid. Yet, this precious resource is too easily undervalued, particularly in the U.S. where 300 million Americans are accustomed to paying as little as a penny a gallon to have clean, safe water delivered straight to their tap.

Some people are more vulnerable to contaminants in drinking water

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. The developing fetus and therefore pregnant women may also be more vulnerable to contaminants in drinking water. These people or their caregivers should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at **1-800-426-4791**.



Help protect our most precious resource - water

Reduce backflow at cross connections

Bacteria and chemicals can enter the drinking water supply from polluted water sources in a process called backflow. Backflow occurs at connection points between drinking water and non-drinking water supplies (cross connections) due to water pressure differences.

For example, if a person sprays an herbicide with a garden hose, the herbicide could enter the home's plumbing and then enter the drinking water supply. This could happen if the water pressure in the hose is greater than the water pressure in the home's pipes. Property owners can help prevent backflow. Pay attention to cross connections, such as garden hoses.

The Minnesota Department of Health and American Water Works Association recommend the following:

- Do not submerge hoses in buckets, pools, tubs, or sinks.
- Keep the end of hoses clear of possible contaminants.
- Do not use spray attachments without a backflow prevention device. Attach these devices to threaded faucets. Such devices are inexpensive and available at hardware stores.
- Use a licensed plumber to install backflow prevention devices.
- Maintain air gaps between hose outlets and liquids. An air gap is a vertical space between the water outlet and the flood level of a fixture (e.g. the space between a wall-mounted faucet and the sink rim). It must be at least twice the diameter of the water supply outlet, and at least one inch.
- Commercial property owners should develop a plan for flushing or cleaning water systems to minimize the risk of drawing contaminants into uncontaminated areas.

The pros and cons of home water softening

The water hardness in Savage is 19 grains per gallon (gpg). This is moderately hard water.

Water softeners are a common water treatment device in many homes. They are effective for removing water hardness (dissolved calcium and magnesium) in water. The benefits of soft water include an increased efficiency for soaps and detergents, a reduction in mineral staining on fixtures and in pipes, and a potential increase in the lifespan of water heaters. Like all water systems components, water softeners must be installed and maintained properly in order to operate safely and efficiently.

Softened water can contain elevated sodium levels, so people on low-sodium diets should consult a physician if they plan on regularly consuming softened water. Water softeners have

operation and maintenance costs, and many produce salt brine as a byproduct. Minimizing the amount of salt brine used can help minimize downstream affects at wastewater treatment plants and ecosystem. Some softeners also use a salt-free system.

In Savage, water softening systems are recommended and should be set between 19-21 gpg, depending on how soft you like your water. Water systems recharge based on daily water usage. Hard water and higher water usage means it will need to recharge more frequently. Follow your water system instructions to determine the recharge cycle that is right for you.

Additional resources

- EPA Safe Drinking Water Hotline **1-800-426-4791**
- EPA Ground Water and Drinking Water website **[water.epa.gov/safewater/lead](https://www.water.epa.gov/safewater/lead)**
- MDH **[websitehealth.state.mn.us](https://www.health.state.mn.us)**
- City of Savage website **[cityofsavage.com](https://www.cityofsavage.com)**

WATER QUALITY DATA TABLES - BURNSVILLE

The tables on page 3 and 4 relate only to water drawn from wells in Savage. Homes and businesses in Savage also receive water via a pipeline that delivers groundwater collected from a quarry and treated by the City of Burnsville. This water accounts for 71.8% of all water distributed in Savage.

The tables on this page relate to tests conducted on the water distributed to Savage and water distributed by the City of Burnsville in 2018. In addition to the water from the quarry, the City of Burnsville gets its water from 17 wells that draw from the Jordan, Mt. Simon, Prairie du Chien Group, and Tunnel City - Mt. Simon aquifers.

Lead and copper - tested at customer taps

Contaminant (Date, if sampled in previous year)	EPA's Action Level	EPA's Ideal Goal (MCLG)	90% of Results Were Less Than	Number of Homes with High Levels	Violation	Typical Sources
Copper (8/30/18)	90% of homes less than 1.3 ppm	0 ppm	0.48 ppm	0 out of 30	NO	Corrosion of household plumbing.
Lead (8/30/18)	90% of homes less than 15 ppb	0 ppb	2.2 ppb	0 out of 30	NO	Corrosion of household plumbing.

Inorganic and organic contaminants - tested in drinking water

Contaminant (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Nitrate	10.4 ppm	10 ppm	0.44 ppm	N/A	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Gross Alpha	15.4 pCi/l	0 pCi/l	6.8 pCi/l	N/A	NO	Erosion of natural deposits.
Combined Radium	5.4 pCi/l	0 pCi/l	3.8 pCi/l	N/A	NO	Erosion of natural deposits.

Contaminants related to disinfection - tested in drinking water

Substance (Date, if sampled in previous year)	EPA's Limit (MCL or MRDL)	EPA's Ideal Goal (MCLG or MRDLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Total Trihalomethanes (TTHMs)	80 ppb	N/A	32.1 ppb	9.90 - 52.60 ppb	NO	By-product of drinking water disinfection.
Total Haloacetic Acids (HAA)	60 ppb	N/A	7.1 ppb	2.80 - 8.30 ppb	NO	By-product of drinking water disinfection.
Total Chlorine	4.0 ppm	4.0 ppm	0.75 ppm	0.63 - 0.82 ppm	NO	Water additive used to control microbes.

Total HAA refers to HAA5

Other substances - tested in drinking water

Substance (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Fluoride	4.0 ppm	4.0 ppm	0.59 ppm	0.56 - 0.64 ppm	NO	Erosion of natural deposits; Water additive to promote strong teeth.

Treatment indicator - tested during treatment

Substance	Removal Required	Lowest Monthly Percentage of Results Compliance	Highest Test Result	Violation	Typical Sources
Turbidity	Treatment Technique	100	0.27 NTU	NO	Soil runoff.

Potential health effects and corrective actions (if applicable)

Fluoride: If your drinking water fluoride levels are below the optimal concentration range of 0.7 to 1.2 ppm, please talk with your dentist about how you can protect your teeth and your family's teeth from tooth decay and cavities. For more information, visit: MDH Drinking Water Fluoridation (health.state.mn.us/divs/eh/water/com/fluoride/index.html).

Turbidity: Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Disinfection Byproduct Indicator - Tested in source water and in drinking water

Substance	Removal Required	Range of Percent Removal Achieved	Average of Percent Removal Achieved	Violation	Typical Sources
Total Organic Carbon	Variable	N/A	N/A	N/A System provides direct filtration	N/A

The percentage of Total Organic Carbon (TOC) removal was measured each month. The system met all TOC removal requirements, unless there is a "YES" in the Violation column.

Monitoring results - unregulated substances

In addition to testing drinking water for contaminants regulated under the Safe Drinking Water Act, we sometimes also monitor for contaminants that are not regulated. Unregulated contaminants do not have legal limits for drinking water.

Detection alone of a regulated or unregulated contaminant should not cause concern. The meaning of a detection should be determined considering current health effects information. We are often still learning about the health effects, so this information can change over time.

The following table shows the unregulated contaminants we detected last year, as well as human-health based guidance values for comparison, where available. The comparison values are based only on potential health impacts and do not consider our ability to measure contaminants at very low concentrations or the cost and technology of prevention and/or treatment. They may be set at levels that are costly, challenging, or impossible for water systems to meet (for example, large-scale treatment technology may not exist for a given contaminant).

A person drinking water with a contaminant at or below the comparison value would be at little or no risk for harmful health effects. If the level of a contaminant is above the comparison value, people of a certain age or with special health conditions - like a fetus, infants, children, elderly, and people with impaired immunity - may need to take extra precautions. Because these contaminants are unregulated, EPA and MDH require no particular action based on detection of an unregulated contaminant. We are notifying you of the unregulated contaminants we have detected as a public education opportunity.

- More information is available on MDH's A-Z List of Contaminants in Water (health.state.mn.us/communities/environment/water/contaminants/index.html) and Fourth Unregulated Contaminant Monitoring Rule (UCMR 4) (health.state.mn.us/communities/environment/water/com/ucmr4.html).

Unregulated contaminants - tested in drinking water

Contaminant	Comparison Value	Highest Average Result of Highest Single Test Result	Range of Detected Test Results
Manganese	100 ppb	22.62 ppb	8.54-36.70 ppb
Group of 6 Haloacetic Acids (HAA6Br)	N/A	7.67 ppb	6.36-10.02 ppb
Group of 9 Haloacetic Acids (HAA9)	N/A	11.33 ppb	8.95-14.61 ppb