

Annual Drinking Water Quality Report for 2019
City of Saratoga Springs

Geyser Crest Subdivision - Public Water Supply ID #4500178
Loughberry Lake Watershed - Public Water Supply ID #4500168

INTRODUCTION

To comply with State regulations, the City of Saratoga Springs issues an annual report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. Last year, your tap water met all State drinking water health standards. We are proud to report that our system did not violate a health related maximum contaminant level. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

If you have any questions about this report or concerns regarding your drinking water, please call Mr. Brett Johnson at (518) 587-3550, extension 2472. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled city council meetings. The meetings are held on the first and third Tuesday of each month.

WHERE DOES OUR WATER COME FROM?

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The State Health Departments and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

The City of Saratoga Springs receives surface water from the Loughberry Lake Watershed and ground water from the Geysers Crest system. Water is also pumped into Loughberry Lake from Bog Meadow Brook and three Bog Meadow groundwater wells during the high demand summer months to help maintain the lake level.

The Loughberry Lake source is treated conventionally at the Excelsior Avenue treatment plant with flocculation, sedimentation, and filtration. It is disinfected with a combination of ultraviolet light and sodium hypochlorite application. Fluoride is added to attain the optimal level of fluoride in the finished water to aid in preventing tooth decay. The Geysers Crest wells are disinfected with sodium hypochlorite and fluoride is added. Although all the systems are interconnected, Loughberry Lake is our primary source and supplies most of the City. The Geysers Crest wells supply the Geysers Crest Subdivision and a portion of the southwest section of the City.

FACTS AND FIGURES

Our water system serves approximately 28,000 people through 9,680 service connections. The total water produced in 2019 was 1,444,257,000 gallons. The city's daily average was 3,957,000 gallons. Our highest single day consumption was 6,637,000 gallons on July 04, 2019. The amount of water delivered through metered sales was 1,193,020,358 gallons. This leaves an unaccounted for total of 251,236,642 gallons. These losses came from city operations, flushing mains, fighting fires, water main breaks, and unauthorized use (adding up to approximately 17.40% of the total amount produced). In 2019 water customers were charged a sliding scale rate with most customers paying approximately \$12.90 per 1,000 cubic feet of water consumed (or approximately \$1.72 per 1,000 gallons).

The NYS DOH has completed source water assessments for the Bog Meadow Brook, Geysers Crest Subdivision, Interlaken Water Works and Loughberry Lake Watershed systems based on available information. Possible and actual threats to these drinking water sources were evaluated. The State source water assessments include a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can move through the environment. The susceptibility rating is an estimate of the potential for contamination of the source water, it does not mean that the water delivered to consumers is, or will become contaminated. See section "Are there contaminants in our drinking water?" for a list of the contaminants that have been detected, if any. The source water assessments provide resource managers with additional information for protecting source waters into the future.

The Bog Meadow Brook assessment found a moderate susceptibility to contamination for this source of drinking water. The amount of row crops in the assessment area results in a medium susceptibility to pesticides, and there is reason to believe that land cover data may overestimate the percentage of pasture in the assessment area. No permitted discharges are found in the assessment area. There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, and these facility types include: mines. Finally, it should be noted that relatively high flow velocities make river drinking water supplies highly sensitive to existing and new sources of microbial contamination.

The Geysers Crest Subdivision assessment rated our water source as having an elevated susceptibility to microbials, nitrates, industrial solvents and other industrial contaminants. These ratings are due primarily to the close proximity of the wells to a permitted discharge facility (industrial/commercial facilities that discharge wastewater into the environment and are regulated by the state and/or federal government), a hazardous waste site, and the residential land use in the assessment area. In addition, the wells draw from fractured bedrock and the overlying soils may not provide adequate protection from potential contamination. While the source water assessment rates our wells as being susceptible to microbials, please note that our water is disinfected to ensure that the finished water delivered into your home meets New York State's drinking water standards for microbial contamination.

The Loughberry Lake Watershed assessment found an elevated susceptibility to contamination for this source of drinking water. The amount of pasture in the assessment area results in a medium potential for protozoa contamination, and the amount of residential lands in the assessment area results in an elevated potential for microbial contamination. A single non-sanitary wastewater discharge is unlikely to contribute to contamination. There are no noteworthy contamination threats associated with other discrete contaminant sources. Finally, it should be noted that hydrologic characteristics (e.g. basin shape and flushing rates) generally make reservoirs highly sensitive to existing and new sources of phosphorus and microbial contamination.

The State Health Department will use this information to direct future source water protection activities. These may include water quality monitoring, resource management, and planning and education programs. A copy of the assessment can be obtained by contacting us, as noted below.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

As the State regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include: total coliform bacteria, turbidity, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, haloacetic acids, radiological aspects and synthetic organic compounds. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

It should be noted that all drinking water, including bottled drinking water, may be reasonably 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 EPA's Safe Drinking Water Hotline (800-426-4791) or the New York State Department of Health, Glens Falls Regional Office at (518) 793-3893.

Table of Detected Contaminants – Loughberry Lake Watershed

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Average) (Range)	Unit of Measure	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Microbiological Contaminants							
Turbidity ¹	No	08/01/19	0.296	NTU	N/A	TT = 1	Soil runoff
Turbidity	No	2019	100% < 0.3	NTU	N/A	95% < 0.3	Soil runoff
Inorganic Contaminants							
Alkalinity, Total (Raw Water)	No	Monthly 2019	137.9 (13.4-176)	mg/L	N/A	N/A	Naturally occurring.

Table of Detected Contaminants – Loughberry Lake Watershed (Continued)

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Average) (Range)	Unit of Measure	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Barium	No	12/05/19	0.0230	mg/L	2	MCL = 2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Copper	No	2019	0.111 ² (ND-0.305) ³	mg/L	1.3	AL = 1.3	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.
Fluoride	No	1/23/19 2/12/19 12/05/19	0.5 0.8 0.717	mg/L	N/A	MCL = 2.2	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories.
Chloride	No	12/05/19	116	mg/L	N/A	MCL = 250	Naturally occurring or indicative of road salt contamination.
Lead		2019	.0063 ² (ND-0.017) ³	mg/L	0	AL = 0.015	Corrosion of household plumbing systems; Erosion of natural deposits.
Manganese	No	12/05/19	0.002	mg/L	N/A	0.3	Excess manganese produces a brownish color in laundered goods and impairs the taste of tea, coffee, and other beverages. Concentrations may cause a dark brown or black stain on porcelain plumbing fixtures. As with iron, manganese may form a coating on distribution pipes. These may slough off, causing brown blotches on laundered clothing or black particles in the water.
Nitrate (as Nitrogen)	No	12/05/19	0.772	mg/L	10	MCL = 10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Organic Carbon, Total	No	Monthly 2019	1.8 (1.4-2.6)	mg/L	N/A	N/A	Naturally occurring.
Sodium	No	12/05/19	66.7 ⁶	mg/L	N/A	N/A	Naturally occurring; Road salt; Water softeners; Animal waste.
Sulfate	No	12/05/19	16.2	mg/L	n/a	MCL = 250	Naturally occurring.

Stage-2 Disinfection Byproducts

Haloacetic Acids (HAAs)	No	Quarterly 2019	Denny's 42.8 ⁴ (31.1-45.7) ⁵ Hilton Garden 38.1 (27.7-48.9) DPW 37.5 (26.6-45.3) Longfellows 50.5 (34.5-65.1)	µg/L	N/A	MCL = 60	By-product of drinking water disinfection needed to kill harmful organisms.
Trihalomethanes (TTHMs)	No	Quarterly 2019	Denny's 51.68 ⁴ (34.9-64.3) ⁵ Hilton Garden 58.35 (35.7-74.1) DPW 54.2 (38.8-65.7) Longfellows 58.8 (43.5-76)	µg/L	N/A	MCL = 80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.

NOTES – LOUGHBERRY LAKE WATERSHED:

1 – Turbidity is a measure of the cloudiness of the water. We test it because it is a good indicator of the effectiveness of our filtration system. Our highest single turbidity measurement (0.296 NTU) for the year occurred on Aug 1st, 2019. State regulations require that turbidity must always be below 1 NTU. The regulations also require that 95% of the turbidity samples collected have measurements below 0.3 NTU. In 2019 100% of our measurements met that requirement.

2 – The level presented represents the 90th percentile of the sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead and copper values detected at your water system. The action level for copper was not exceeded at any of the sites tested. The action level for lead was exceeded at one of the sites tested during the year.

3 – The level presented represents the range of results.

4 – Compliance for TTHM and HAA5 MCLs is based on a locational running annual arithmetic average, computed quarterly, of quarterly averages of all samples. For example, the 1st Quarter 2019 Running Annual Average was calculated using data collected during the 1st Quarter 2019, the 4th Quarter 2018, the 3rd Quarter 2018 and the 2nd Quarter of 2018. The highest locational running average for the year 2019 is shown for each sample site.

5 – The level presented represents the range of results for the four quarterly samples collected at each site in 2019.

6 – Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used for drinking by people on moderately restricted sodium diets.

Table of Detected Contaminants – Geyser Crest Subdivision

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Average) (Range)	Unit of Measure	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Inorganic Contaminants							
Barium (Entry Point)	No	10/24/17	38	µg/L	2000	MCL = 2000	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Copper	No	6/2018	0.066 ¹ (ND-0.370) ²	µg/L	1.3	AL = 1.3	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.
Chloride	No	12/05/19	132	mg/L	N/A	MCL = 250	Naturally occurring or indicative of road salt contamination.
Fluoride	No	1/23/19 2/12/19	0.6 0.8	mg/L	N/A	MCL = 2.2	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories.
Lead	No	6/2018	.0028 ¹ (ND – .0055) ²	mg/L	0	AL = 0.015	Corrosion of household plumbing systems; Erosion of natural deposits.
Manganese	No	12/05/19	0.001	mg/L	N/A	0.3	Excess manganese produces a brownish color in laundered goods and impairs the taste of tea, coffee, and other beverages. Concentrations may cause a dark brown or black stain on porcelain plumbing fixtures. As with iron, manganese may form a coating on distribution pipes. These may slough off, causing brown blotches on laundered clothing or black particles in the water.
Nitrate (as Nitrogen)	No	12/05/19	0.782	mg/L	10	MCL = 10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Sodium	No	12/05/19	76.4 ³	mg/L	N/A	N/A	Naturally occurring; Road salt; Water softeners; Animal waste.
Sulfate	No	12/05/19	26.4	mg/L	n/a	MCL = 250	Naturally occurring.
Zinc	No	12/05/19	0.005	mg/L	n/a	MCL = 5	Zinc has no health effects unless detected at high concentrations. The presence of zinc may result in an undesirable taste in drinking water.
Stage-1 Disinfection Byproducts							
Trihalomethanes (TTHMs)	No	07/01/19	7.32	µg/L	N/A	MCL = 80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.

NOTES – GEYSER CREST SUBDIVISION:

1 – The level presented represents the 90th percentile of the 20 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the values detected at your water system. In this case 20 samples were collected at your water system and the 90th percentile value was 66 mg/L for copper and 2.8 mg/L for lead. The action levels for copper and lead were not exceeded at any of the sites tested.

2 – The level presented represents the range of results.

3 – Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used for drinking by people on moderately restricted sodium diets.

DEFINITIONS:

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

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible.

Maximum Contaminant Level Goal (MCLG): 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.

Maximum Residual Disinfectant Level (MRDL): 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.

Maximum Residual Disinfectant Level Goal (MRDLG): 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 contamination.

Micrograms per liter ($\mu\text{g/L}$): Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

Milligrams per liter (mg/L): Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).

Millirems per year (mrem/yr): A measure of radiation absorbed by the body.

Nephelometric Turbidity Unit (NTU): A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Non-Detects (ND): Laboratory analysis indicates that the constituent is not present.

Picocuries per liter (pCi/L): A measure of the radioactivity in water.

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

UNREGULATED CONTAMINATES

The following chart contains the results of testing for a series of unregulated contaminants. Unregulated contaminants are those that do not yet have a drinking water standard set by the EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. The following chart shows the ranges of the contaminants found in the samples taken throughout the test period (February and November 2016). A list of all contaminants tested for during this period can be found below.

Table of Detected Unregulated Contaminants

Contaminant	Unit of Measure	Regulatory Limit (MCL or MCLG)	Level Detected	Use or Environmental Source ¹
Loughberry Lake Watershed				
Hexavalent Chromium	µg/L	N/A	0.042 (2015)	Naturally-occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation.
PFOA (Perfluorooctanoic Acid)	ng/L	N/A	ND (2015)	Perfluorinated aliphatic carboxylic acid; used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives and photographic films.
Strontium	µg/L	N/A	225 (2015)	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.

Table of Detected Unregulated Contaminants (Continued)

Contaminant	Unit of Measure	Regulatory Limit (MCL or MCLG)	Level Detected	Use or Environmental Source ¹
Geysers Crest Subdivision				
Chlorate	mg/L	N/A	0.139 (2015)	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide.
PFOA (Perfluorooctanoic Acid)	ng/L	N/A	ND (2015)	Perfluorinated aliphatic carboxylic acid; used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives and photographic films.
Strontium	µg/L	N/A	223 (2015)	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
Vanadium	µg/L	N/A	0.4 (2015)	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst.

NOTES – DETECTED UNREGULATED CONTAMINATES:

1 - "Use or Environmental Source" further documented in UCMR 3 Contaminants – Information Compendium. EPA 815-B-11-001. January 2012

DEFINITIONS:

Micrograms per liter (µg/L): Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

Milligrams per liter (mg/L): Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).

Nanograms per liter (ng/L): Corresponds to one part of liquid in one trillion parts of liquid (parts per trillion - ppt).

Non-Detects (ND): Laboratory analysis indicates that the constituent is not present.

WHAT DOES THIS INFORMATION MEAN?

As you can see by the table, our system had no MCL violations in 2019. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below the level allowed by the State.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2019, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

INFORMATION ABOUT LEAD IN DRINKING WATER AND ITS EFFECT ON CHILDREN:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Saratoga Springs, through the Loughberry Lake, Geyser Crest and Interlaken Water Works is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

INFORMATION ON FLUORIDE ADDITION:

Our system is one of many drinking water systems in New York State that provides drinking water with a controlled, low level of fluoride for consumer dental health protection. According to the United States Center for Disease Control, fluoride is very effective in preventing cavities when present in drinking water at a target level of 0.7 mg/L (part per million). To ensure that the fluoride supplement in your water provides optimal dental protection, the State Department of Health requires that we monitor fluoride levels on a daily basis. During 2019 our monitoring showed daily fluoride levels for our two plants were within 0.3 mg/L of the target level as recommended by the Department of Health.

None of the monitoring results showed fluoride at levels that approached the 2.2 mg/L MCL for fluoride.

Composite Filter Monitoring Information:

Our highest single composite turbidity measurement for the year was 0.296 on August 1, 2019. The regulations require that 95% of the turbidity samples collected have measurement below 0.3 NTU. In 2019, 100% of our measurements met that requirement.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Although our drinking water met or exceeded state and federal regulations, some people may be more vulnerable to disease causing microorganisms or pathogens 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. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

WHY SAVE WATER AND HOW TO AVOID WASTING IT?

There are a number of reasons why it is important to conserve water:

- ◆ Saving water saves energy and some of the costs associated with both of these necessities of life;
- ◆ Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and
- ◆ Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential firefighting needs are met.

You can play a role in conserving water by becoming conscious of the amount of water your household is using, and by looking for ways to use less whenever you can. It is not hard to conserve water. Conservation tips include:

- ◆ Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- ◆ Turn off the tap when brushing your teeth.
- ◆ Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- ◆ Check your toilets for leaks by putting a few drops of food coloring in the tank, watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.
- ◆ Water your lawn only when it needs it and avoid running the sprinkler all night long. You can save 750-1,500 gallons per month.
- ◆ Install water-saving showerheads or flow restrictors. This can save 700 gallons per month.
- ◆ Shorten your showers. Even a one or two minute reduction can save up to 700 gallons per household per month.
- ◆ Capture tap water, while waiting for hot water to come down the pipes, in a watering can to use later on house plants or your garden. Saves 200 to 300 gallons per month.

CLOSING

Thank you for allowing us to continue to provide your family with quality drinking water this year. In order to maintain a safe and dependable water

supply we sometimes need to make improvements that will benefit all of our customers. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have questions.

This report was prepared for the City of Saratoga Springs by:

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