



St. George

THE BRIGHTER SIDE

Presents

2022 Drinking Water Quality Report City of St. George

Spanish (Español)

Este informe contiene información muy importante sobre la calidad de su agua potable. Por favor lea este informe o comuníquese con alguien que pueda traducir la información.

We are once again pleased to present to you our annual water quality report. This edition covers all water quality monitoring through December 31, 2022. The Water Services Department is dedicated to producing drinking water that meets or exceeds all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users. Please share your thoughts with us about the information in this report, as well-informed customers are our best allies.

How can I learn more? If you want to learn more about this report or have questions relating to your drinking water provided by St. George, please call Scott Taylor, Water Services Director or Kerry Benson at (435) 627-4800.

If you want to get involved in water resources, you can attend any of the regularly scheduled meetings of the Washington County Water Conservancy District (WCWCD). Meetings are held at 533 East Waterworks Drive (just off East Red Hills Parkway) in St. George. The schedule is available at <http://www.wcwc.org/about-us/management/board-of-trustees-meeting-schedule/> or call (435) 673-3617.

Where does my water come from? Our water sources are from both groundwater and surface water sources. Our multiple spring and groundwater sources draw from consolidated rock aquifers of the Navajo Sandstone and Kayenta Formation, which lie within the Virgin River basin. We purchase our surface water from the Washington County Water Conservancy District. Their surface water is drawn from the Virgin River, stored at Quail Lake and Sand Hollow Reservoirs and treated at the Quail Creek Water Treatment Plant before transmission to our City boundaries and distribution to our customers. With some exceptions, all water customers within the City receive a mixture of water from groundwater and surface water sources during some of the year. Customers located along State Highway 18 as far north as the Ledges Subdivision are served by groundwater from our Tolman-Ledges wells and by spring water supplied by a recently completed pipeline and pump station.

Water Conservation Tip - Repair a dripping faucet and you can save 15 to 20 gallons per day or 6,000 gallons of water each year.

Source Protection: Drinking Water Source Protection Plans (DWSPPs) for the City of St. George are available for your review. They contain information about source protection zones, potential contamination sources, and management strategies to protect drinking water that originates from City-owned groundwater wells and springs. Most of our groundwater sources are located in remote and protected areas and have a low level of susceptibility to potential contamination sources. We have also developed management strategies to further protect our sources from contamination. Our plans are available for review on the City's web site at www.sgc.org/utilities/waterdepartment or during normal business hours from the St. George Water Department office located at 811 East Red Hills Parkway. Please contact us if you have questions or concerns about our source protection plan.

The WCWCD maintains the Watershed Protection Plans for the portion of the Virgin River basin from which they draw, store and treat surface water. Additional information on their source protection plans can be obtained by calling (435) 673-3617.

Water Conservation Tip - Check toilets for leaks by putting a few drops of food coloring in the rear tank. Check the bowl after a few minutes to see if the color appears. If it does, you can easily repair the leak and save up to 30,000 gallons of water per year.

Water Hardness: Most of the water sources in Southern Utah are said to be "hard" and that's because they contain high amounts of non-toxic calcium or magnesium minerals. Hard water does not dissolve soap readily, so making lather for washing and cleaning is difficult.

Many customers use treatment devices, such as water softeners, to remove the calcium and magnesium from tap water to produce soft water for household use. Customers with water softeners may find that softener settings between **13 to 24 grains per gallon** will provide the most effective treatment.

CITY OF ST. GEORGE – 2022 WATER QUALITY DATA

Contaminant	Violation Y/ N	City of St. George Groundwater Sources		Washington County Water Conservancy District Sources			Unit of Measurement	MCLG (EPA Goal)	MCL (EPA Limit)	Likely Source of Contamination
				Quail Creek WTP	Sand Hollow Wells	Last Sample Date				
		Level Detected Low-High	Last Sample Date	Level Detected Value	Level Detected Value					
Microbiological Contaminants – (Sampled Throughout the Distribution System & Includes City of St. George Groundwater Sources & Washington County Conservancy District Sources)										
Total Coliform Bacteria	N	2 positive sample counts*	2022	NA	NA	NA	NA	0	Presence of total coliform bacteria in 5% of monthly samples	Naturally present in the environment
*One water sample taken in January and one sample taken in September indicated the presence of total coliform. These sites were resampled and all resamples were negative. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria is usually a result of a problem with water treatment or the pipes which distribute the water and indicates that the water may have been contaminated with organisms that can cause disease. Symptoms may include diarrhea, cramps, nausea, and possible jaundice, and any associated headaches and fatigue.										
E. Coli	N	0 positive sample counts	2022	NA	NA	NA	NA	0	If routine & repeat samples are total coliform positive, and one is also <i>E. coli</i> positive	Human and animal fecal waste
The presence of Total Coliform and E. Coli bacteria indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special risk for infants, young children, and people with severely compromised immune systems.										
Turbidity	N	0.1	2021	0.12	0.22	2022	NTU	0	0.3	Naturally present in the environment
Inorganic Contaminants										
Aluminum	N	ND	2022	200	ND	2022	ppb	NE	50-200 (SMCL)	Residual from treatment process
Antimony	N	ND - 1.8	2022	NA	NA	NA	ppb	6	6	Erosion of natural deposits
Arsenic	N	RAA = 7.28 Range = ND - 13.00	2022	RAA = 5 Range = 3 - 10		2022	ppb	0	RAA = 10	Erosion of natural deposits
Your drinking water meets EPA's standard for arsenic, but it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. The EPA Maximum Contaminant Level for arsenic is 10 ppb running annual average therefore arsenic concentrations in individual samples may exceed 10 ppb without exceeding the EPA standard if the running annual average of these samples does not exceed 10 ppb.										
Barium	N	ND – 310	2022	100	300	2022	ppb	2,000	2	Erosion of natural deposits
Calcium	N	95	2015	65	ND	2022	ppm	NE	NE	Erosion of natural deposits
Fluoride	N	ND – 1.9	2022	0.2	0.4	2022	ppm	4	4	Erosion of natural deposits
Magnesium	N	ND	2022	38	NA	2022	ppm	NE	NE	Erosion of natural deposits
Manganese	N	ND	2022	ND	3.4	2022	ppb	NE	50 (SMCL)	Erosion of natural deposits
Nitrate	N	0.21 – 0.85	2022	ND	3	2022	ppm	10	10	Runoff from fertilizer use; Erosion from septic tanks, sewage; erosion of natural deposits
Selenium	N	ND – 1.1	2022	1	6	2022	ppb	50	50	Erosion of natural deposits
Sodium	N	4.99 – 158	2022	56	3	2022	ppm	NE	NE	Erosion of natural deposits
Sulfate	N	2.0 – 458	2022	222	273	2022	ppm	NE	500†	Erosion of natural deposits
Thallium	N	ND – 0.54	2022	NA	NA	NA	ppb	0.5	2	Discharge from electronics, glass, ore-processing; pharmaceuticals
Total Dissolved Solids	N	118 – 885	2022	516	480	2022	ppm	NE	1,000†	Erosion of natural deposits
†Although the EPA has not established an MCL for sulfate and TDS, the Utah Division of Water Quality requires a sulfate concentration of less than 500 ppm and a total dissolved solids concentration of less than 1,000 ppm unless the water system has no other water sources available. In no case is the Sulfate concentration to exceed 1,000 ppm or the total dissolved solids concentration to exceed 2,000 ppm.										
Copper & Lead – Sampled at 31 residences throughout the distribution system.										
Copper	N	Range = 0.0036 – 0.36, 90 th percentile = 0.155, No sites exceeded AL				2021	ppm	1.3	AL=1.3	Corrosion of household plumbing systems, Erosion of natural deposits
Lead	N	Range = ND – 14, 90 th percentile = 0, No sites exceeded AL				2021	ppb	0	AL=15	Corrosion of household plumbing systems, Erosion of natural deposits
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 associated with service lines and home plumbing. St. George City is responsible for providing high quality drinking water, but cannot control the materials used in household plumbing components. If you have not been using water in your home for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using your 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: www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water										
Disinfectants & Disinfection Byproducts – City of St. George Distribution System - There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.										
Chlorine (as Cl ₂)	N	0.09 – 2.61	2022	NA	NA	NA	ppm	4.0	4.0	Used to control microbes
Haloacetic Acids [HAA5]	N	ND – 16.9	2022	NA	NA	NA	ppb	0	60	Byproduct of drinking water disinfection
Total Trihalomethanes [TTHM]	N	6.5 – 76.2	2022	NA	NA	NA	ppb	0	80	Byproduct of drinking water disinfection
Organic Contaminants										
Carbon, Total Organic	N	ND – 1.62	2015	2.1	NA	2022	ppm	NE	TT	Naturally present in the environment
Radioactive Contaminants										
Alpha Emitters	N	-3.0 – 4.3	2022	1	4	2022	pCi/L	0	15	Erosion of natural deposits
Beta Emitters	N	NA	NA	4	5	2022	pCi/L	0	50	Natural and man made deposits
Combined Radium 226/228	N	0 – 2.50	2022	NA	NA	2022	pCi/L	0	5	Erosion of natural deposits
Radium 226	N	0.2 – 0.62	2022	NA	1	2022	pCi/L	0	5	Erosion of natural deposits
Radium 228	N	-0.82 – 2.0	2022	0.6	3.5	2022	pCi/L	0	5	Erosion of natural deposits

Water Quality Test Results: The City of St. George routinely monitors for constituents in our drinking water in accordance with Federal and State law. Some contaminants are sampled less frequently because they do not change frequently. Unless otherwise noted, the following table lists all drinking water contaminants that we detected in our water through analytical monitoring during the 2022 calendar year, or during the last sample event. You may find terms and abbreviations in the table below that you may not be familiar with. We have provided definitions below.

When reviewing this table, please recognize that all sources of drinking water are subject to potential contamination by constituents that are naturally occurring or man-made. Those constituents can be microbes, organic or inorganic chemicals, or radioactive materials. All 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 the water poses a health risk. To ensure that tap water is safe to drink, EPA imposes regulations that limit the quantity of certain contaminants in water provided by public water systems. Please note that all contaminants listed in this table were found to be present in concentrations below the maximum contaminant levels established by EPA. The EPA has determined that your water IS SAFE at these levels.

More information about contaminants and potential health effects may be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Unit of Measure Descriptions	
ppb	Parts per Billion - The number of parts of a substance in one billion parts of water. Also known as micrograms per liter (µg/L).
ppm	Parts per Million - The number of parts of a substance in one million parts of water. Also known as milligrams per liter (mg/L).
pCi/L	Picocuries per Liter - A measure of the radioactivity in a liter of water.
NTU	Nephelometric Turbidity Unit - Turbidity is a measure of the cloudiness of water. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system at the Quail Creek Water Treatment Plant (QCWTP). Turbidity in excess of 5 NTU is just noticeable to the average person.
positive samples	The number of positive samples taken this year.
% positive samples/month	The percentage of monthly samples that were positive.
NA	Not Applicable
ND	Not Detected - The contaminant was not detected in the water sample during laboratory analysis.
NE	None Established - MCL or MCLG has not been established for particular contaminant.
ND/Low - High	For water systems like St. George with multiple water sources, the Utah Division of Drinking Water allows the option of listing the test results of the constituents in one table, instead of multiple tables. To accomplish this, the lowest and highest values detected in the multiple sources are recorded in the same space in the report table. As noted above, most customers receive a mixture of water from the City's groundwater wells and springs and surface water purchased from the WCWCD that is treated at QCWTP. The ranges for these analytical values are included in the column as indicated.
NR	Not Required - Monitoring not required, but recommended.
RAA	Running Annual Average - Highest running annual average of four consecutive quarters when sampling occurs quarterly.
W	Waiver - Because certain chemicals are not present near some drinking water sources, water systems are sometimes issued waivers that exempt them from having to sample for those chemicals not present, these waivers are also associated with Drinking Water Source Protection Plans.

Definitions of Important Drinking Water Terms & Acronyms	
AL	Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Last Sample Date	Date - Because of required sampling time frames i.e. yearly, 3 years, 6 years and 9 years, sampling dates may seem outdated.
MCLG	Maximum Contaminant Level Goal - The "Goal" (MCLG) is 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.
MCL	Maximum Contaminant Level - The "Maximum Allowed" (MCL) is 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.
SMCL	Secondary Maximum Contaminant Level - Non enforceable guideline for contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply.
TT	Treatment Technique - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
AL	Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances & Exceptions	Variances or Exceptions - State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MNR	Monitored Not Regulated
MPL	Maximum Permissible Level - State assigned

Substances That Could Be in Water: Sources of drinking water (both bottled and tap) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it can dissolve naturally occurring materials, and can pick up a wide variety of substances:

- **Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife,
- **Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining or farming,
- **Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses,

- **Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which may also come from urban stormwater runoff, gas stations and septic systems.
- **Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.
- More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791, or their web site at: www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-information

Water Conservation Tip - Irrigate during the evening, night or early morning hours to reduce water lost to evaporation.

Arsenic: Some individual water sources in our system have arsenic concentrations that exceed 10 ppb. The City meets the MCL by combining sources to blend water or by treating the source water to remove arsenic so that the water delivered to customers does not exceed the EPA standard. All water delivered to customers in 2022 met the EPA standard for arsenic concentrations not exceeding 10 ppb running annual average.

Our blending treatment proposals were approved by the Utah Division of Drinking Water & detailed performance testing concluded in 2011. The City was able to demonstrate that our blending treatment process can meet the arsenic MCL for our affected sources.

In 2021, the City of St. George completed construction of an arsenic removal plant which is now reducing the arsenic concentration in water produced by our Gunlock well sources. Also, in 2021, the Washington County Water Conservancy District placed a similar plant into service that is now removing arsenic from the District's Sand Hollow Well sources.

Some people who drink water containing arsenic that is in excess of the MCL over many years could experience skin damage or problems with their circulatory system and may have an increased cancer risk. It is important to note that EPA's arsenic MCL balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of chronic exposure to low levels of arsenic (see table for arsenic levels).

Point-of-use treatment devices (i.e., reverse osmosis or distillation) can be effective in removing arsenic. However, their effectiveness varies, they can be expensive, and they must be properly maintained. Customers who choose to install water treatment devices are advised to monitor system performance with routine testing and ensure the system is maintained as recommended by the manufacturer.

Health Info on Microbiological Contaminants: Some people may be more vulnerable to microbiological 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. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by microbiological contaminants are available from the EPA's Safe Drinking Water Hotline (800-426-4791).

In Home Filtration Systems: Customers are advised to exercise caution with whole-house filtration systems that remove the chlorine used by our water utility for water disinfection.

By unknowingly removing the residual chlorine concentration in your home piping network, you could allow microbes to multiply in the home piping. These microbes may cause illnesses, especially for immuno-compromised family members. These types of filters are best limited to point of use such as the kitchen faucet.

Fluoride: The fluoride present in our drinking water is from natural deposits. St. George City does not add fluoride to our water (see table for fluoride concentrations).

Answer to Common Concern: Growths in bathrooms or pet bowls that are *pink or black* in color come from various types of molds in the air – not your tap water. Wash those surfaces frequently and keep fresh water in pet bowls.

Water Conservation Tip - Use your water meter to detect hidden leaks. Check the meter reading, and then turn off all water faucets and water using appliances. Check the meter again after 15 minutes of no water use. If the reading changed, you have a leak that needs to be repaired.

Lead: 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. We are responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. All customers can minimize their potential for exposure to lead by flushing faucets for 30 seconds to 2 minutes before using the water for drinking or cooking. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at www.epa.gov/safewater/lead.

The age of your home is an indicator of what type of plumbing materials you may have. Homes built prior to the early 1900s commonly used lead pipes for plumbing. Until the 1940s, lead piping was often used for the service lines connecting meters to the water mains. In the 1950s, copper or galvanized piping replaced lead piping in many homes. Until the mid-1980s, copper piping was installed with solder and fluxes containing lead. If your home fits any of these categories, your plumbing may contain lead that can leach into your drinking water, especially when it has not been used for several hours (see table for lead levels).

Cross-connections: Cross-connections to drinking water system lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment containing chemicals, or water sources of questionable quality. Examples are boilers, air conditioning systems, fire sprinkler systems, irrigation systems, etc. Whenever equipment pressure rises above the pressure in the drinking water system line, contamination can occur. Backpressure from the equipment allows contamination to pass into the drinking water line. Contamination by backsiphonage occurs when the pressure in the drinking water line drops below that outside of the pipe or in connected equipment. This can happen under normal operating scenarios when demand is heavy, or when a main breaks. Backsiphonage draws contaminants out of surrounding soil and water or connected equipment & into the drinking water line.

City Ordinance Section 8-2-4, A requires the following from property owners: "...It shall be the responsibility of the owner of property where water is consumed to purchase, install, test, inspect and maintain backflow prevention devices or assemblies wherever it will be possible for used, unclean, polluted or contaminated water, mixtures or substances to enter any portion of his potable water system, and to otherwise control cross-connections."

Customers must protect water supplies from cross-connections by identifying cross-connections and installing & maintaining proper backflow prevention assemblies. Exterior water faucets tend to be the most common sources of cross-connection contamination. All exterior faucets should be equipped with *hose bib vacuum breakers* to provide backsiphonage protection. Garden hoses attached to chemical sprayers, submerged in a swimming pool, etc., can allow contaminants to be backsiphoned into the City's distribution system. Commercial operators must fit chemical tanks with air gap devices.

Irrigation systems are a potential cross-connection so make certain to do the following:

1. Confirm that your irrigation system is equipped with an approved backflow assembly. If your system is not equipped with a backflow preventer, get one installed.
2. Test the backflow assembly annually.

The mission of the City of St. George, Water Services Department is to provide our community with safe, clean, healthy, and reliable drinking water at a reasonable price. We hope that this information gives you a better understanding of how we are meeting this vital objective.