

Annual Water Quality Report 2022

City of Greenbrier Water Department

790 West College Street
P. O. Box 466
Greenbrier, TN. 37073

PWSID# 0000271

Our Mission Continues

Once again, we proudly present our annual water quality report covering all testing performed between January 1 and December 31, 2022. Over the years, we have dedicated ourselves to provide drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users. Please remember that we are always available should you ever have any questions or concerns about your water.

For more information about this report, or for any questions relating to your drinking water, please call **Jason Harrington, 615-829-3304**.

How can I get involved?

Our Board of Mayor and Alderman meets on the first Monday night of each month at 6:00 P.M. at City Hall, which is located at 790 West College Street. Please feel free to participate in these meetings.

Important Health Information

Nitrate in drinking water at levels above 10 ppm 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. If you are caring for an infant you should ask advice from your health care provider.

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 may be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) has 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 (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

Substances that could be in Water

In order to ensure that tap water is safe to drink, U.S. EPA and the Tennessee Department of Environment and Conservation prescribe regulations, which limit the number of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including

bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material; and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

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 may 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 can also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

Your water, which is surface water, comes from the Red River. Our goal is to protect our water from contaminants and we are working with the State to determine the vulnerability of our water supply to contamination. The Tennessee Department of Environment and Conservation (TDEC) has prepared a Source Water Assessment Program (SWAP) Report for the water sources serving this water system. The SWAP report assesses the susceptibility of untreated water sources to potential contamination. The Springfield Water System is rated as reasonably susceptible to potential contamination. To ensure safe drinking water, all public water systems treat and routinely test their water.

Source Water Assessment

A Source Water Assessment Plan (SWAP) is now available at Springfield Water Treatment Plant. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reaches our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources. An explanation of Tennessee's Source Water Assessment Program, the Source Water Assessment summaries, susceptibility scorings and the overall TDEC report to the EPA can viewed online at www.tn.gov/environment/article/wr-wq-source-water-assessment or you can contact the City of Springfield Water and Wastewater Department at 615-382-1600 or call TDEC EAC at 1-888-891-8332 (1-888-891-TDEC).

Lead in Home Plumbing

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. 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 at 1-800-426-4791 or at www.epa.gov/safewater/lead.

The Springfield Water Department and Greenbrier Water Department participated in the 4th stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on their drinking water. UDMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if U.S. EPA needs to introduce new regulatory standard to improve drinking water quality. Unregulated Contaminants Monitoring Rule, please call the Safe Drinking Water Hotline at 1-800-426-4791.

Benefits of Chlorination

Disinfection, a chemical process used to control disease-causing microorganisms by killing or inactivating them, is unquestionably the most important step in drinking water treatment. By far, the most common method of disinfection in North America is chlorination.

Before communities began routinely treating drinking water with chlorine (starting with Chicago and Jersey City in 1908), cholera, typhoid fever, dysentery, and hepatitis A killed thousands of U.S. residents annually. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in the U.S. Significant strides in public health are directly linked to the adoption of drinking water chlorination. In fact, the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement in human history.

How chlorination works:

Potent Germicide Reduction in the level of many disease-causing microorganisms in drinking water to almost immeasurable levels.

Taste and Odor Reduction of many disagreeable tasted and odors like foul-smelling algae secretions, sulfides, and odors from decaying vegetation.

Biological Growth Elimination of slime bacteria, molds, and algae that commonly grow in water supply reservoirs, on the walls of water mains, and in storage tanks.

Chemical Removal of hydrogen sulfide (which has a rotten egg odor), ammonia, and other nitrogenous compounds that have unpleasant tastes and hinder disinfection. It also helps to remove iron and manganese from raw water.

Violation

Springfield water system recently violated a drinking water standard. We routinely monitor for the presence of contaminants in our drinking water. A quarterly sample collected on June 8, 2022, indicated that we exceeded the maximum contaminant level (MCL) for Atrazine. The (MCL) for Atrazine is 0.0003 mg/L. The level detected was 0.0163 mg/L. This was not an emergency. If it had been, you would have been notified immediately. However, some people who drink water containing Atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties. Springfield Water System will continue quarterly sampling beginning July 1, 2022. Samples will be collected following a 1-inch rainfall event. If no qualifying event occurs, a sample will be collected before the end of the required quarter. We will monitor the results to determine if additional action needs to be taken.

Our water system received a letter dated October 31, 2022 stating the system identified a possible violation of the Stage 2 Disinfection Rule. After review of the potential violation, the City of Greenbrier investigated the testing dates and took immediate action. This was not an emergency. If it had been, you would have been notified immediately. During the July 1, 2022 through September 30, 2022 compliance period the water system's Locational Running Annual Average (LRAA) at site #203, 1423 West College Street, for Total Haloacetic Acids (HAAS) has been calculated to be only 0.06483 mg/L. this value exceeds the maximum contaminant level of 0.060 mg/L set for this parameter.

Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of cancer. Total haloacetic acids are disinfection byproducts resulting from or chlorination of the water to minimize risk of microbial life in the drinking water. The EPA considers microbial contaminants as the greatest risk to the public. We are evaluating the results of the required disinfection and will continue to make an effort to reduce the disinfection byproducts without increasing the microbial risks.

Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all the analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below the respective maximum allowed levels.

The State recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

The Springfield and Greenbrier Water Departments participated in the 4th stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on their drinking water. UDMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if U.S. EPA needs to introduce new regulatory standard to improve drinking water quality. Unregulated Contaminants Monitoring Rule, please call the Safe Drinking Water Hotline at 1-800-426-4791.

Regulated Substances							
City of Springfield/City of Greenbrier Water Department							
Substance (Unit of Measure)	Year Sampled	MCL [MRD L]	MCLG[MR DLG]	Amount Detected	Range Low- High	Violation	Typical Source
Atrazine (ppb)	2022	3	3	16.3	BDL- 16.3	Yes	Runoff from herbicide used on row crops
Chlorine (ppm)	2022	[4]	[4]	2.2	0.70-2.9	No	Water additive used to control microbes
Fluoride (ppm)	2022	4	4	0.56	0.48- 0.66	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] Stage 2(ppb)	2022	60	N/A	.064	.015- .0153	Yes	By-product of drinking water disinfection
Nitrate (ppm)	2022	10	10	5.5	3.8-5.5	No	Runoff from fertilizer use/ Leaching from septic tanks, sewage; erosion of natural deposits
TTHMs [Total Trihalomethanes] – Stage 2 (ppb)	2022	80	N/A	.046	020-.071	No	By-product of drinking water disinfection
Total Coliform Bacteria (%positive samples)	2022	TT	N/A	1	N/A	No	Naturally present in the environment
Total Organic Carbon ¹ (% removal)	2022	TT	N/A	100	22.4- 100	No	Naturally present in the environment
Turbidity 2 (NTU)	2022	TT	N/A	0.22	0.03-0.22	No	Soil runoff
Turbidity (Lowest Monthly percent of samples meeting limit)	2022	TT	N/A	100	N/A	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community (Greenbrier service area)							
City of Greenbrier Water Department							
Substance (Unit of Measure)	Year Sampled	AL	MCLG	Amount Detected (90 th % tile)	Sites Above AL/Total Sites	Violation	Typical Source
Copper (ppm)	2021	1.3	1.3	0.889	0/21	No	Corrosion of household plumbing systems; Erosion of natural deposits;
Lead (ppm)	2021	ND	0	ND	0/21	No	Corrosion of household plumbing systems; Erosion of natural deposits
Unregulated Substances							
City of Springfield Water Department							
Substance (Unit of Measure)	Year Sample	Amount Detected	Range Low-High	Typical Source			
Bromodichloromethane (ppm)	2022	2.4	N/A-N/A	By-product of drinking water disinfection			
Chloroform (ppm)	2022	3.3	N/A-N/A	By-product of drinking water disinfection			
Sodium (ppm)	2022	9.0	N/A-N/A	Naturally present in the environment			

¹ Footnote for City of Springfield Water & Wastewater Department: We are required to have a percent removal of 15%. We met the treatment technique for Total Carbon in 2022.

²Footnote for City of Springfield Water & Wastewater Department: Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Table Definitions

ppm (parts per million): One-part substance per million parts water (or milligrams per liter).

ppb (parts per billion): One-part substance per billion parts water (or micrograms per liter).

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

BDL (Below Detection Limit): Indicates that the substance was not found by laboratory analysis.

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.

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.

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.

NA: Not applicable

ND: (Not detected): Indicates that the substance was not found by laboratory analysis.

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

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected Values for TTHMs and HAAs are reported as LRAAs.

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect aesthetic qualities of drinking water and are not health based.

90th % percentile: The level reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.