

ANNUAL WATER QUALITY REPORT

Reporting Year 2024



Presented By
Bristol Water and Sewer Department

PWS ID#: CT0170011



Our Commitment

We are pleased to present to you this year's annual water quality report. This report is a snapshot of last year's water quality covering all testing performed between January 1 and December 31, 2024. Included are details about your sources of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and providing you with this information because informed customers are our best allies.

Where Does My Water Come From?

The Bristol Water and Sewer Department has supplied the City of Bristol with high-quality drinking water since the early 1900s. The Bristol Water Department has accomplished this by making major investments in the supply, treatment, and distribution facilities needed to operate a sophisticated water system.

The Bristol watershed area is composed of six contributing reservoir areas. Water from reservoirs in the towns of Burlington, Harwinton, Plymouth, and Bristol is channeled through the Poland River to transmission mains and from these to a water treatment plant, where it is treated and sent into the distribution system and storage facilities. Along with the reservoir system, we have five gravel-packed wells that provide water to the distribution system's low-service area and an interconnection with the City of New Britain Water Department to supplement the Stevens Street area.

In 2024 the Bristol Water and Sewer Department produced a total of 1.943 billion gallons of water, or approximately 5.33 million gallons per day. On June 18, we produced 8,133,780 gallons of water, making it the highest production day of the year.

Important Health Information

Sources of lead in drinking water include corrosion of household plumbing systems and erosion of natural deposits. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Sources of copper in drinking water include corrosion of household plumbing systems, erosion of natural deposits, and leaching from wood preservatives. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 from infections. These people should seek advice about drinking water from their health-care providers. The U.S. Environmental Protection Agency (U.S. EPA)/Centers for Disease Control and Prevention (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 (800) 426-4791.



Water Conservation Tips

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:



- Automatic dishwashers use three to six 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 an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Superintendent Robert Longo at (860) 582-7431.

Substances That Could Be in Water

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, in some cases, radioactive material and can pick up substances resulting from the presence of animals or from human activity. Contaminants 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, and wildlife.

Inorganic Contaminants, such as salts and metals, which can occur naturally in the soil or groundwater 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 occur naturally or be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, U.S. EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. 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 contaminants does not necessarily mean that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Safe Drinking Water Hotline (800-426-4791) or visiting epa.gov/safewater.

What's a Cross-Connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air-conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection. For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

Source Water Assessment

In 2003 a source water assessment was completed by the Department of Public Health, Drinking Water Division. The updated assessment report can be found on the Department of Public Health website at dir.ct.gov/dph/Water/SWAP/Community/CT0170011.pdf. The assessment found that the Bristol reservoir system has a rating of low susceptibility and the wellfields have a rating of high susceptibility. Specifics are available in the assessment report.

Count on Us

Delivering high-quality drinking water to our customers involves far more than just pushing water through pipes. Water treatment is a complex, time-consuming process. Because tap water is highly regulated by state and federal laws, water treatment plant and system operators must be licensed and are required to commit to long-term, on-the-job training before becoming fully qualified. Our licensed water professionals have a basic understanding of a wide range of subjects, including mathematics, biology, chemistry, and physics. Some of the tasks they complete on a regular basis include:

- Operating and maintaining equipment to purify and clarify water.
- Monitoring and inspecting machinery, meters, gauges, and operating conditions.
- Conducting tests and inspections on water and evaluating the results.
- Maintaining optimal water chemistry.
- Applying data to formulas that determine treatment requirements, flow levels, and concentration levels.
- Documenting and reporting test results and system operations to regulatory agencies.
- Serving our community through customer support, education, and outreach.

So the next time you turn on your faucet, think of the skilled professionals who stand behind each drop.



Annual Chair's Report 2024

While meeting Bristol citizens and answering general questions about the Bristol Water and Sewer Department, I have devised a quiz on basic information pertinent to being a customer. See how well you do in this informal quiz.

Q1. Who owns the water service pipe into your property?

A1. The water pipes in the road are owned by the department. The water service pipe coming into your property is owned by the water department to the curb stop (underground shutoff valve). All pipe from the curb stop to the home is owned by the property owner.

Q2. How are my water and sewer bills related?

A2. Since we are unable to meter sewage discharge from a property, we use the water usage from the winter quarter of your water bill because this is the lowest amount of water used during the year. This winter usage is set as the sewer usage throughout the year. Although there may actually be more usage at other times of the year, during the winter, there is a better measure of the water that actually goes down the sewer, so it provides a more accurate estimate for the customer.

Q3. What are the causes of discolored water?

A3. There are many reasons for discolored water: main breaks, system flushing, hydrant use, problems with the homeowner's water service, or even a hot water heater issue. The Water Department is only responsible for the cold water distributed to properties. To determine if the discoloration is caused by a water heater, simply run hot water only. If there is discoloration, this can help identify the source.

Q4. Unfortunately, a few homeowners experience extremely high water bills, and these high bills are sometimes due to toilet leaks. How can a homeowner determine if there is a leaky toilet?

A4. The customer can look at the water meter to see if it is spinning when no faucets are open in the home, which would mean there is something leaking, and most likely, it's a flap valve in a toilet. The customer can test toilets by adding a water-soluble dye to the toilet water tank. If the dye appears in the toilet bowl, the flap valve in the toilet is leaking and will run up a water bill quickly. At the present time, customers are billed every three months, which means this leak can occur over an extended period of time. Hopefully, in the near future, the Water Department will switch to monthly billing, and this will help alert the customer to a possible leak quicker.

Q5. Why is the City of New Britain Water Department in Bristol?

A5. In the early 1900s, farmland became available in the Edgewood area of Bristol. Someone from New Britain had the foresight to purchase this land and build a wellfield, which is now owned by the New Britain Water Department. Water departments commonly own land in other communities to develop water sources; the Bristol Water and Sewer Department also owns land in Burlington, Harwinton, and Plymouth.

I will end this quiz with one last question. Do you know where your shutoff valve is in the house in case of an emergency? This is important for every customer to know!

How did you do on the quiz? If you ever have water-related questions, there is beneficial information on our website, or you can always contact our office.

Sincerely,

Elizabeth Phelan
Chair

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through them.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen and disinfectant levels and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use, and avoid using hot water to prevent sediment accumulation in your hot water tank. Please contact us if you have any questions or if you would like more information on our water main flushing schedule.



Lead in Home Plumbing

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 and removing lead pipes but cannot control the variety of materials used in plumbing components in your home. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, or doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute-accredited certifier to reduce lead in drinking water. Contact us if you are concerned about lead and wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at epa.gov/safewater/lead.

To address lead in drinking water, public water systems were required to develop and maintain an inventory of service line materials by October 16, 2024. Developing an inventory and identifying the location of lead service lines (LSL) is the first step for beginning LSL replacement and protecting public health. The lead service inventory may be found at bristolwaterdept.org/1219/Service-Line-Inventory. Please contact us if you would like more information about the inventory or any lead sampling that has been done.

What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, and toothbrush holders and on pets' water bowls is caused by the growth of the bacterium *Serratia marcescens*. *Serratia* is commonly isolated from soil, water, plants, insects, and vertebrates (including humans). The bacteria can be introduced into the house through any of these sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to clean and dry these surfaces to keep them free from bacteria. Chlorine-based compounds work best, but keep in mind that abrasive cleaners may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleach can be used periodically to disinfect the toilet and help eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence. *Serratia* will not survive in chlorinated drinking water.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our reservoir and pumped into the water treatment plant, where it enters a large mixing chamber. Here we add powdered activated carbon for taste and odor. Also added is PCH-180 (a type of liquid aluminum sulfate), which causes small particles to adhere to one another, forming floc. The water goes through three flocculators, which slowly mix the water and bring all the suspended particles (floc) into the sedimentation tanks, where they slowly settle to the bottom and are removed as sludge. The water is then filtered through layers of a mixed-media filtering system. As smaller suspended particles are removed, turbidity disappears and clear water emerges. The water goes into a clearwell where chlorine, fluoride, caustic soda, and phosphate are added before it is sent to your home.

Source Water Protection

The Bristol Water and Sewer Department is always working to protect our water sources. Each year, our watershed division inspects all septic systems in the vicinity of our reservoirs to ensure they are not failing, which could cause contamination to our water sources. The Bristol Water Department constantly monitors the sanitary radius around all wells and works with land use officials to review any new construction in the source water areas, as required by the Aquifer Protection Act, to ensure contamination does not occur.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water is needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water is used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water is required to produce one quart of milk, and 4,200 gallons of water is required to produce two pounds of beef.



According to the U.S. EPA, the average American uses over 180 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet, twice the global per capita average. With water use increasing sixfold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish. To check out your own water footprint, go to watercalculator.org.

What Are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of manufactured chemicals used worldwide since the 1950s to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water. During production and use, PFAS can migrate into the soil, water, and air. Most PFAS do not break down; they remain in the environment, ultimately finding their way into drinking water. Because of their widespread use and their persistence in the environment, PFAS are found all over the world at low levels. Some PFAS can build up in people and animals with repeated exposure over time.

The most commonly studied PFAS are perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). PFOA and PFOS have been phased out of production and use in the United States, but other countries may still manufacture and use them.

Some products that may contain PFAS include:

- Some grease-resistant paper, fast food containers/wrappers, microwave popcorn bags, pizza boxes
- Nonstick cookware
- Stain-resistant coatings used on carpets, upholstery, and other fabrics
- Water-resistant clothing
- Personal care products (shampoo, dental floss) and cosmetics (nail polish, eye makeup)
- Cleaning products
- Paints, varnishes, and sealants

Even though recent efforts to remove PFAS have reduced the likelihood of exposure, some products may still contain them. If you have questions or concerns about products you use in your home, contact the Consumer Product Safety Commission at (800) 638-2772. For a more detailed discussion on PFAS, please visit bit.ly/3Z5AMm8.

Community Participation

You are invited to attend our Water and Sewer Board Meetings. We meet the third Tuesday of each month at 6:00 p.m. for the Sewer Commission and 6:15 p.m. for the Water Commission at the water treatment plant, 1080 Terryville Avenue. We are also now on Facebook! Like us on Facebook or sign up for email notifications on our website, bristolwaterdept.org, to get up-to-date information on hydrant flushing, water main breaks, special meetings, and more.

Definitions

90th %ile: The levels 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.

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

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.

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.

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

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.

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

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

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).

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

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



Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and 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 our 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 their 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 is included, along with the year in which the sample was taken.

We participated in the fifth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR5) program by performing additional tests on our drinking water. UCMR5 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 to determine if it needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data is available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2024	2	2	0.27	0.0082–0.0138	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2024	[4]	[4]	0.87	14.9–19.2	No	Water additive used to control microbes
Fluoride (ppm)	2024	4	4	0.53	0.50–0.85	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2024	60	NA	32	0.08–46.0	No	By-product of drinking water disinfection
Nitrate (ppm)	2024	10	10	1.05	ND–1.05	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon [TOC] (ppm)	2024	TT ¹	NA	1.4	1.4–1.6	No	Naturally present in the environment
TTHMs [total trihalomethanes] (ppb)	2024	80 ³	NA	47	17–74	No	By-product of drinking water disinfection
Turbidity² (NTU)	2024	TT	NA	0.11	NA	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2024	TT = 95% of samples meet the limit	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	RANGE LOW-HIGH	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2023	1.3	1.3	0.0996	0.0064–0.155	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2023	15	0	1.3	ND–27.3	1/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2024	250	NA	87.8	25.7–87.8	No	Runoff/leaching from natural deposits
Sulfate (ppm)	2024	250	NA	13	ND–13.0	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Perfluorooctanoic Acid [PFOA] (ppt)	2024	4.1	ND–4.1	NA
Perfluoropentanoic Acid [PFPeA] (ppt)	2024	3.1	ND–3.1	NA
Sodium⁴ (ppm)	2024	13.5	13.5–60.6	NA

¹ The value reported under Amount Detected for TOC is the lowest ratio of percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

² 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.

³ Based on a quarterly average.

⁴ Please note in CCR that sodium has no established MCL but has a state notification level of 100 ppm.