ANNUAL WATER QUALITY REPORT

Reporting Year 2021

Brunswick & Topsham Water District

Presented By

Brunswick and Topsham Water District

PWS ID#: 0090260

We've Come a Long Way

Once again, we are proud to present our annual water quality report covering the period between January 1 and December 31, 2021. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at all hours—to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, we feel that by investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

Where Does My Water Come From?

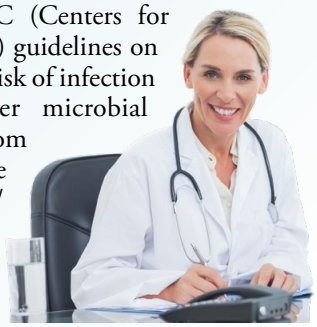
Our sources of supply are all groundwater taken from various wells, as follows:

- Jackson Station, Topsham: one 24-inch-diameter well, one 18-inch-diameter well
- Jordan Avenue Station, Brunswick: 138 2.5-inch-diameter wells
- Taylor Station, Brunswick: one 24-inch-diameter well, one 18-inch-diameter well, and one 12-inch-diameter well
- Williams Station, Brunswick: one 12-inch-diameter well

Our water distribution system includes approximately 122 miles of water main, two storage tanks, 7,378 services, and 1106 private and public hydrants. In 2021 we delivered an average of 2.18 million gallons of water per day to our customers. June 28 was our highest demand day in 2021, and we delivered 3.98 million gallons of water.

Important Health Information

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. EPA/CDC (Centers for Disease Control and Prevention) 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.



SWAP

In 1996, amendments to the Federal Safe Drinking Water Act (SDWA) required each state to complete assessments for each public water supply source. The assessments identify and describe conditions that may threaten the quality of water available to consumers. These assessments are the focus of Maine's Source Water Assessment Program (SWAP). The State of Maine Drinking Water Program (DWP) completed its SWAP report for the Brunswick and Topsham Water District in 2003. The report was sent to municipal officials in Brunswick and Topsham. The report can be viewed by contacting the Brunswick & Topsham Water District.

The responsibility for protecting public water supply sources from contamination falls largely to the public water suppliers. But municipal officials, not water suppliers, make land-use decisions. This means that protection of public water supplies requires a partnership between water suppliers, state and federal regulators, local landowners, and municipalities.

Categories of risk evaluation for public water sources include well type and site geology; existing and future risk of acute contamination; and existing and future risk of chronic contamination. The following is a summary of the assessment provided by the DWP. If you have any questions or comments, feel free to contact the Brunswick & Topsham Water District.

The DWP has assessed the risk of all our water sources, based on type and geology, to be at the moderate level. The only practical means of reducing the risk is through replacement of the source. Acute contaminants, such as pathogens, nitrates, and nitrites, are those that can make people sick immediately after being consumed. The DWP has assessed all of our sources to have low risk for existing and future acute contamination. Chronic contaminants are those that pose a health risk if consumed over many years. The DWP has assessed our sources to be, on average, at moderate risk for existing and future chronic contamination

Questions?

If you have any questions or comments about this report or any other aspect of our operations, please contact Craig W. Douglas PE, General Manager, at (207) 729-9956 (phone), (207) 725-6470 (fax), or cwdouglas@btwater.org (email).

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount 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 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 may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may 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.

How to Learn More About Your Water

This report highlights some of our activities during the past year. There are many ways to get the information you need:

- Visit our Website
  www.btwater.org
- Like us on Facebook
  Brunswick & Topsham Water District
- Attend a Board Meeting Second Monday of the Month at 5:30 pm
- Call the office (207) 729-9956; M-Th 7 am - 5 pm

In case of emergency after normal business hours, please call (207) 729-9956 and the answering service will contact the appropriate personnel. A technician will return your call as soon as possible.

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 we 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 (800) 426-4791 or at www.epa.gov/safewater/lead.

How Is My Water Treated and Purified?

At all of our sources, we add sodium hypochlorite (chlorine) to protect against bacteriological contaminants, and fluoride to promote dental health. We also add a phosphate compound to inhibit corrosion of the distribution system piping and to reduce lead and copper corrosion of internal plumbing systems. The water from the Jackson and Taylor wells is filtered to remove iron and manganese caused by erosion of natural deposits in the sand and gravel aquifer. The pH of the water from the Jordan Avenue well field is adjusted using aeration to reduce the corrosivity of the water.

MINERAL CONTENT AND SECONDARY STANDARDS

SUBSTANCE (MGL)	MAINE RECOMMENDED LIMIT	RESULT RANGE
Chloride	250	25–72
Hardness	150	10–61
Iron	0.3	<0.01– 0.07
Manganese	0.05	0.001– 0.007
Sodium	100	11–50
Magnesium	50	2.2–6
Calcium	500	6.9– 19
Zinc	5	<0.002– 0.21

Topsham Treatment Facility

Construction is nearly complete for the Holden Treatment Station to replace the Jackson Station in Topsham. The new facility will allow us to use less chlorine to treat the water and will provide safer and aesthetically more pleasing water for the community.

There will be an open house on Thursday September 22, 2022. We will be giving tours to allow the public to experience first-hand the District's hard work for the past 10 years to improve the operations and treatment and to reduce water waste here at the District. For groups interested in organizing a tour on a different day, we can schedule those starting in October. Please email info@btwater.org to get more information.

We are extremely appreciative to our neighbors who have put up with more than 2 years of construction activities here on River Road. We too look forward to a quiet 2023.

PFOS/PFOA Update

PFOS (perfluorooctane sulfonate) and PFOA (perfluorooctanoic acid) continue to make headlines across the country, region, and locally. We sent a letter to all customers and made posts on Facebook, sharing the challenges our Jordan Avenue Station is facing from the collective compounds known as perfluoroalkyl and polyfluoroalkyl substances (PFAS).

We are pleased to announce that by the time you receive this report, the District will be ready to activate a treatment system to pump, treat, and discharge back to the land, water with PFAS removed. (A photo of the system is included with this report.) This will allow approximately half of our wellfield to operate with no detectable PFAS. This will provide the District the necessary safe water to meet summer demands, while we work with regulators, the Navy, and Midcoast Regional Redevelopment Authority (MRRA) to determine the source and the best long-term solution(s).

To better monitor the situation, the District has set up a special "rush sample set" for PFAS to ensure that our water stays safely below the 20 parts per trillion limits for PFAS6. Naturally, all of this work comes at an expense to the District and its customers. We are pleased to announce that the District has been awarded a $155,000 grant to help offset these costs. We intend to apply for further grants moving forward as the extent of the contamination and expense becomes better defined.

One of the most difficult things about working on a PFAS contamination issue is sampling. Sampling needs to be done very carefully and according to strict sampling rules. Additionally, a single sample costs more than $300 (rush samples twice as much) and takes more than 4 weeks to process. It creates considerable stress and time delays to investigate and characterize what is happening in the aquifer. Nevertheless, we continue to pull many samples, because without sufficient samples to produce datasets for trending, it would be difficult to ensure safe water. The data also allows us to find the best solution for the challenge the District is facing.

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 are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2021	10	0	1.8	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2021	2	2	0.0177	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2021	[4]	[4]	0.99	0.14–1.81	No	Water additive used to control microbes
Chromium (ppb)	2020	100	100	1.2	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2020	5	0	0.3	NA	No	Erosion of natural deposits
Fluoride (ppm)	2021	4	4	0.76	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs]–Stage 1 (ppb)	2021	60	NA	36.05	5.4–54	No	By-product of drinking water disinfection
Nitrate (ppm)	2021	10	10	1.26	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radon (pCi/L)	2020	4,000	300	813	NA	No	Naturally occurs in some drinking water sources.
TTHMs [Total Trihalomethanes]–Stage 1 (ppb)	2021	80	NA	43.225	7.1–67	No	By-product of drinking water disinfection
Total Coliform Bacteria (Positive samples)	2021	TT	NA	0	NA	No	Naturally present in the environment

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)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2021	1.3	1.3	0.338	0/36	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	< 1	0/36	No	Corrosion of household plumbing systems; Erosion of natural deposits

OTHER REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Combined Uranium (ppb)	2021	30	0	2.3	NA	No	Erosion of natural deposits

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

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

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).

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