

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2018



Presented By



BRUNSWICK & TOPSHAM
WATER DISTRICT

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. Over the years, we have dedicated ourselves to producing 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 our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

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 120 miles of water main, two storage tanks, 7,226 services, and 1,100 private and public hydrants. In 2018, we delivered an average of 2.05 million gallons of water per day to our customers. February 5th was our highest demand day in 2018, when we delivered 3.4 million gallons of water.

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 Web site—www.btwater.org
- Like us on Facebook—Brunswick & Topsham Water District
- Subscribe to a construction blog—www.btwater.org
- Stop in the office—266 River Road, Topsham, M - Th, 7 a.m. - 5 p.m.
- Attend a Board Meeting—Second Monday of the month at 5:30 p.m.
- Call the office—(207) 729-9956, M - Th, 7 a.m. - 5 p.m.

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

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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>.



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 that 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.

“ We remain vigilant in delivering the best-quality drinking water ”

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 the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not themselves pose health concerns, they can affect the taste, clarity, and color of the water. In addition, 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 such times. 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. We also post updates on where we're flushing on our Facebook page.



QUESTIONS?

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

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 among 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 have, on average, moderate risk for existing and future chronic contamination.

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.



Information on the Internet

The U.S. EPA (<https://goo.gl/TFAMKc>) and the Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the Maine Division of Environmental Health has a Web site (<https://goo.gl/by5pWl>) that provides complete and current information on water issues in Maine, including valuable information about our watershed.



System Update

The Jackson Station in Topsham is the District's largest water source and headquarters for administration and operations. The station was constructed in 1971. As you can imagine, several of the building systems, including structural, electrical, and mechanical, are not operating efficiently and cannot easily be repaired or replaced. The District commissioned a strategic plan in 2012 that recommended replacement of the facility by 2025.

In 2015, levels of disinfection by-products (DBPs) were seen to be increasing. These are substances that we regularly test for to stay within federal guidelines. DBPs form when chlorine, which is used for disinfection, combines with naturally occurring organic matter (NOM). Operational changes have been made to keep levels below EPA and state water quality limits. While operational changes can lessen DBP formation, the basic characteristics of the water source are unchanged.

In 2016, the District began evaluating treatment options to remove NOM. Potential treatment methods were evaluated using pilot testing in 2017. In December 2017, the District retained CDM Smith, consulting engineers, to finalize selection of a treatment scheme and develop a preliminary design for a new facility. Final design is expected in 2019, with start of construction in 2020. The estimated cost is in the \$25M range. These upgrades are necessary for us to continue producing and delivering safe drinking water. Project updates can be viewed on our Web site and Facebook page.

PFOS/PFOA

Two contaminants of emerging concern, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), have been in the news a lot recently. The District tested for these chemicals in 2016 and was not able to detect the presence of these or other related substances. Recently, test methods have improved allowing detection at lower levels. In response, the District plans to re-test to establish a baseline for these substances if they are present in the water. If they are found, the District will monitor and respond if the levels begin to approach the State of Maine Guidelines for these substances.

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.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, the water we deliver must meet specific health standards. Here, we show only 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 substances below their maximum allowed levels.

The state recommends monitoring for certain substances less often 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)	2017	10	0	3	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2017	2	2	0.00066	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2018	[4]	[4]	0.87	0.13–1.71	No	Water additive used to control microbes
Chromium (ppb)	2017	100	100	1.4	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Uranium (ppb)	2017	30	0	1.2	NA	No	Erosion of natural deposits
Fluoride (ppm)	2018	4	4	0.62	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2018	60	NA	40.25	30–62	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	2.25	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2018	80	NA	59	24–85	No	By-product of drinking water disinfection
Total Coliform Bacteria (Positive samples)	2018	TT	NA	0	NA	No	Naturally present in the environment
Uranium (ppb)	2014	30	0	0.89	NA	No	Erosion of natural deposits

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)	2018	1.3	1.3	0.439	0/36	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2018	15	0	1	0/36	No	Corrosion of household plumbing systems; 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 that, if exceeded, triggers treatment or other requirements that 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

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.

MINERAL CONTENT AND SECONDARY STANDARDS

SUBSTANCE (MGL)	MAINE RECOMMENDED LIMIT	RESULT RANGE	
Chloride	250	10	41
Hardness	150	24	56
Iron	0.3	<0.01	0.07
Manganese	0.05	0.001	0.007
Sodium	100	11	55
Magnesium	50	1.7	2.1
Calcium	500	6.9	19
Zinc	5	<0.002	0.21