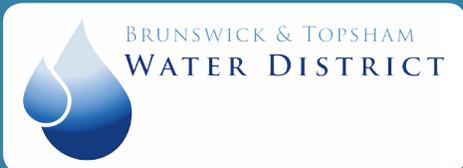


# ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2016



*Presented By*



## We've Come a Long Way

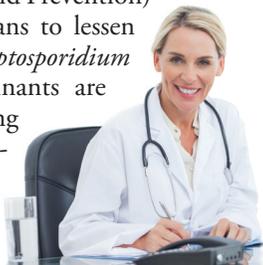
Once again we are proud to present our annual water quality report covering the period between January 1 and December 31, 2016. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at any hour—to deliver the highest quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly 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.

## 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.

## 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 at <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, 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 storm-water 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 storm-water 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 storm-water 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.

## Topics of Interest During this Past Year

Two topics were central to the customer inquiries we received this year. We would like to provide an update on both.

The first topic is lead in water. Lead is not typically found in source water; it is a by-product of corrosion in services and plumbing in homes. In the 1980s, the District did an extensive investigation of lead in the system and removed all known or suspected lead components. We encourage our customers to do the same. Your plumber is your best resource for this work. If you have questions, we would be willing to share additional resources.

We also partnered with all of the K-12 schools that we serve to test for lead at the schools. The results came back very favorable, indicating that the 15 schools we serve have fixtures meeting the water quality standards for lead. The EPA has set a limit of 20 parts per billion (ppb) for lead in schools. All of the samples were below 12 ppb and 96.4 percent (all but 5) of the samples below 5 ppb.

The second topic is disinfection by-products. These are formed when chlorine interacts with naturally occurring organic matter in the water. Our results in 2015 were trending high, resulting in a detailed investigation by District staff. This investigation revealed that the certified laboratory processing the samples had a complicated issue that caused their results to be reported high. By working with the State, the laboratory, and laboratory certification officers, we were able to identify and address the reporting issue.

Nevertheless, disinfection by-products are an issue that the District is continuing to monitor. Our current treatment process doesn't remove naturally occurring organic matter. This is an issue, as the water from our Jackson Treatment Plant tends to create more by-products than the water from our other facilities.

Given the age and condition of the Jackson facility, the District is planning to replace it. Structural, architectural, electrical, and water quality issues have been increasing in frequency and cost over the past decade. We plan to share more on this project as planning progresses. The tentative goal is to start constructing a new facility in 2020.



### Where Does My Water Come From?

Our sources of supply are all ground water 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 115 miles of water main, two storage tanks, 7,100 services, and 1,100 private and public hydrants. In 2016 we delivered an average of 2.09 million gallons of water per day to our customers. July 27 was our highest demand day in 2016, where we delivered 3.92 million gallons of water.

### 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 or at [www.epa.gov/lead](http://www.epa.gov/lead).



## 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](http://www.btwater.org)
- Like us on Facebook – Brunswick & Topsham Water District
- Subscribe to a construction blog - [www.btwater.org](http://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 and the answering service will contact the appropriate personnel. A technician will return your call as soon as possible.

## 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 and 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.



## Radon

Radon is a radioactive gas that occurs naturally in some ground water. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Radon is released into homes and ground water from soil. Inhalation of radon gas has been linked to lung cancer; however, the effects of radon ingested in drinking water are not yet clear. If you are concerned about radon in your home, tests are available to determine the total exposure level. For additional information on how to have your home tested, call (800) SOS-RADON.

## 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](mailto:ajfrasier@btwater.org) (email).



## What type of container is best for storing water?

Consumer Reports has consistently advised that glass or BPA-free plastics such as polyethylene are the safest choices. To be on the safe side, do not use any container with markings on the recycle symbol showing “7 PC” (code for BPA). You could also consider using stainless steel or aluminum with BPA-free liners.

## How much emergency water should I keep?

Typically, 1 gallon per person per day is recommended. For a family of four, that would be 12 gallons for 3 days. Humans can survive without food for 1 month, but can survive only 1 week without water.

## How long can I store drinking water?

The disinfectant in drinking water will eventually dissipate, even in a closed container. If that container housed bacteria before it was filled with tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

## How long does it take a water supplier to produce one glass of drinking water?

It could take up to 45 minutes to produce a single glass of drinking water.

## How many community water systems are there in the U.S.?

About 53,000 public water systems across the United States process 34 billion gallons of water per day for home and commercial use. Eighty-five percent of the population is served by these systems.

## Which household activity uses the most water?

Most people would say the majority of water use comes from showering or washing dishes; however, toilet flushing is by far the largest single use of water in a home (accounting for 40% of total water use). Toilets use about 4 to 6 gallons per flush, so consider an ultra-low-flow (ULF) toilet, which requires only 1.5 gallons.

## Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; 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)	2014	10	0	2.5	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2014	2	2	0.00069	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2016	[4]	[4]	0.58	0.12–1.58	No	Water additive used to control microbes
Chromium (ppb)	2014	100	100	2.1	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2011	5	0	0.0571	NA	No	Erosion of natural deposits
Fluoride (ppm)	2016	4	4	0.66	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2016	60	NA	54.9	15–45	No	By-product of drinking water disinfection
Nitrate (ppm)	2016	10	10	1.15	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2016	80	NA	30.8	13–90	No	By-product of drinking water disinfection
Total Coliform Bacteria (# positive samples)	2016	1 positive monthly sample	0	0	NA	No	Naturally present in the environment
Uranium (ppb)	2014	30	0	0.89	NA	No	Erosion of natural deposits
Uranium [Combined] (ppb)	2015	30	0	1	NA	No	Erosion of natural deposits

### Tap Water Samples Collected for Lead and Copper Analyses from Sample Sites throughout the Community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2015	1.3	1.3	0.342	0/40	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2015	15	0	1	0/40	No	Corrosion of household plumbing systems; Erosion of natural deposits

### MINERAL CONTENT AND SECONDARY STANDARDS

SUBSTANCE (MGL)	MAINE RECOMMENDED LIMIT	RESULTS RANGE
Chloride	250	10
Hardness	150	24
Iron	0.3	<0.01
Manganese	0.05	0.001
Sodium	100	11
Magnesium	50	1.7
Calcium	500	6.9
Zinc	5	<0.002

## Definitions

**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).