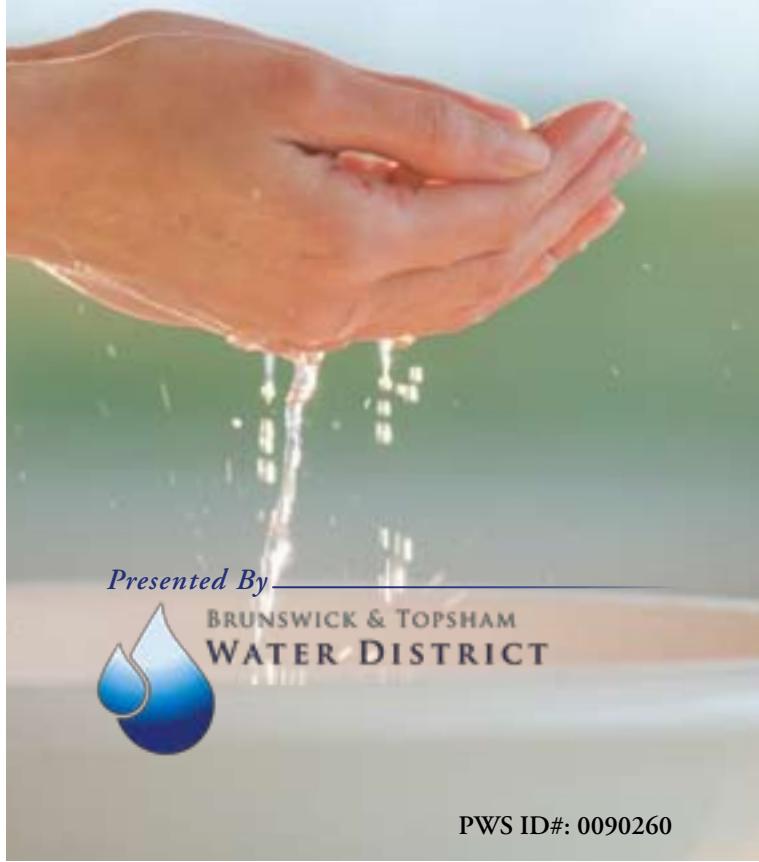


*Annual*

# WATER QUALITY REPORT

*Reporting Year 2011*



## Quality First

Once again we are proud to present our annual water quality report, covering all testing performed between January 1 and December 31, 2011. As in years past, we are committed to delivering the best quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all our water users. Thank you for allowing us to continue providing you and your family with high-quality drinking water.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you.



## Fluoride Reduced

The U.S. Department of Health and Human Services (HHS) changed the recommendation for optimal fluoride levels in drinking water to 0.7 parts per million (ppm) from 1.2 ppm. This new recommendation takes into account the latest science and the multiple sources of fluoride we are exposed to. After the announcement, BTWD reduced the fluoride dosage and now maintains a range of 0.6-0.8 ppm of fluoride in the water. The CDC still considers fluoridation a safe and effective method to reduce tooth decay. Too much fluoride can contribute to fluorosis in children – spotting of tooth enamel or, in severe cases, pitting in teeth.

## 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 Is My Water Treated and Purified?

**A**t all of our sources, we add sodium hypochlorite (chlorine), to protect against bacteriological contaminants, and fluoride, to promote dental health. We also add sodium-zinc polyphosphate 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.

## Where Does My Water Come From?

**O**ur 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 115 miles of water main, two storage tanks, 6,800 services, and 1,100 private and public hydrants. In 2011, we delivered an average of approximately 1.7 million gallons of water per day to our customers.

## Important Health Information

**S**ome 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>.

## How to Learn More About Your Water

**T**his 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](http://www.btwater.org)
- Friend us on Facebook
- Subscribe to a construction blog – [www.btwater.org](http://www.btwater.org)
- Stop in the office – 266 River Road, Topsham; M-Th, 7am-5pm
- Attend a Board Meeting – Second Monday of the month at 5:30pm
- Call the office – M-Th, 7am-5pm

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

## 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).

## Drinking Water Notice

Due to a procedural error, we did not meet the water testing requirements for pesticide screen SVO 525, chlorinated acids, carbomates and, toxaphene/Chloradane/PCB contamination within our water supply at the Jordan Avenue pumping station for the 2011-2013 compliance period. For the three year period, two samples were required to be taken, but they had to be in 2011. Our first sample was taken in September 2011 and a second sample in March 2012. As a result, our water system violated a drinking water rule last year. All results for these contaminants in 2011 and 2012 were below detectable limits and met U.S. EPA requirements. The Maine Drinking Water Program has scheduled our next monitoring for 2014. Even though this is not an emergency, you, as our customers, have a right to know what happened and what we did to correct the situation.



## Radon

The highest radon level for our system was 587 picocuries per liter (pCi/L), taken in December of 2004. Radon is found in soil and bedrock formations and is a water-soluble, gaseous by-product of uranium decay. Most radon is released to the air moments after the tap is turned on. Only about 1 to 2 percent of the radon in the air comes from drinking water. The State of Maine currently recommends follow-up action (or treatment) for radon levels in drinking water above 20,000 pCi/L. Breathing radon released to air from tap water increases the risk of lung cancer over the course of your lifetime. If you wish to seek more information about radon, please call (800) SOSRADON, or contact the State Drinking Water Program and request a Radon Fact Sheet.

## 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 and Topsham Water District.

The responsibility for protecting public water supply sources from contamination falls largely to the public water suppliers. But the 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.

## Variances, Exemptions, and Waivers

In 2011, the Brunswick and Topsham Water District applied for and was granted a full three-year waiver for water testing for certain synthetic organic compounds (SOC) at both the Jackson and Taylor treatment facilities; the Jordan treatment facility was required to test for all regulated SOCs. This is an exemption from doing tests for insecticides, herbicides, fungicides, and certain other industrial chemicals that are regulated in drinking water. The State of Maine Drinking Water Program grants a waiver only upon determining, on a case by case basis, that “it will not result in an unreasonable health risk.” For any water tests that are not waived, the District is required to report contaminants that were detected in our water supply in this CCR.

Mineral Content and Secondary Standards			
Substance	Limit* mg/L	Result Range mg/L	
Chloride	250	37	<10
Hardness	150	61	10
Iron	0.3	0.2	0.004
Manganese	0.05	0.012	0.001
Sodium	100	93.66	11
Magnesium	50	2.8	1.7
Calcium	500	20.6	6.9
Zinc	5	0.27	<0.16

\*Maine Recommended Limit

## 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/safewater/lead](http://www.epa.gov/safewater/lead).

## Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor 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 <sup>1</sup> (ppb)	2011	10	0	3.4	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2011	2	2	0.0058	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2011	[4]	[4]	0.54	0.1–1.6	No	Water additive used to control microbes
Chromium (ppb)	2011	100	100	1.3	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2011	5	0	0.00571	NA	No	Erosion of natural deposits
Fluoride (ppm)	2011	4	4	1.07	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] <sup>2</sup> (ppb)	2011	60	NA	37	27–58	No	By-product of drinking water disinfection
Nitrate <sup>3</sup> (ppm)	2011	10	10	1.1	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radon <sup>4</sup> (pCi/L)	2008	4,000	300	548	NA	No	Naturally occurs in some drinking water sources
TTHMs [Total Trihalomethanes] <sup>2</sup> (ppb)	2011	80	NA	51	33.2–65	No	By-product of drinking water disinfection
Total Coliform Bacteria (# positive samples)	2011	1 positive monthly sample	0	0	NA	No	Naturally present in the environment
Uranium <sup>5</sup> (ppb)	2011	30	0	1.1	NA	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community<sup>6</sup>

Substance (Unit of Measure)	Year Sampled	AL	MCLG	Amount Detected (90th%tile)	Sites Above AL/ Total Sites	Violation	Typical Source
Copper (ppm)	2011	1.3	1.3	0.37	0/38	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2011	15	0	1	0/38	No	Corrosion of household plumbing systems; Erosion of natural deposits

<sup>1</sup>The U.S. EPA adopted the new MCL standard in October 2001. Water systems must meet this new standard by January 2006.

<sup>2</sup>Haloacetic Acids and Total Trihalomethanes are formed as by-products of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water.

<sup>3</sup>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.

<sup>4</sup>The State of Maine adopted a Maximum Exposure Guideline (MEG) for Radon in drinking water at 4,000 pCi/L, effective 1/1/07. If Radon exceeds the MEG in water, treatment is recommended. It is also advisable to test indoor air for Radon. The U.S. EPA is proposing setting federal standards for Radon in public drinking water.

<sup>5</sup>The U.S. EPA adopted the new MCL standard of 30 ug/L (ppb), in December 2000. Water systems must meet this new standard after December 2003.

<sup>6</sup>Action Levels (AL) are measured at consumer's tap. Ninety percent of the tests must be equal to or below the action level.

## 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).