



ANNUAL
**WATER
QUALITY
REPORT**

Water testing performed in 2007



BRUNSWICK & TOPSHAM
WATER DISTRICT

Continuing Our Commitment

Once again we proudly present our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2007. As in the past, we are committed to delivering the best quality drinking water. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

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.

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 110 miles of water main, three storage tanks, 6,500 services, and 800 private and public hydrants. In 2007 we delivered an average of approximately 2 million gallons of water per day to our customers.

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.



Water Professionals

Did you know that the Brunswick and Topsham Water District has twelve licensed operators on staff? A big part of their job is anticipating what is going to happen next. Whether they're working on the distribution system or at one of the three pumping and treatment facilities, they're working to insure that your water is safe and your service is reliable and consistent.

The State of Maine, as mandated by the U.S. EPA, has developed a licensing system for operating a water system. Maine's licensing system has two grades of water operator - Water Treatment System Operator and Water Distribution System Operator. Within each grade there are four classes of operator. Each successive class reflects a higher level of expertise and training. The Maine Drinking Water Program requires that we have at least one Class 3 Treatment System Operator and one Class 3 Distribution System Operator. At our District we require all of our operators to obtain at least a Class 3 license and many have completed their Class 4. These personnel are responsible for operating and maintaining over 110 miles of water main, more than 800 hydrants, the three pumping and treatment facilities, and ensuring the system is ready to meet the community's needs for safe drinking water and fire protection.

We always have Class 3 licensed Treatment and Distribution System Operators on call twenty-four hours a day, seven days a week. The District employs the kind of people who at one o'clock in the morning, in the middle of winter, receive a call and are ready to go to work. Our operators need to respond to many different situations from pipe leaks and broken valves to electrical and instrumentation failures. We take pride in our expertise and it is our pleasure to be here to serve you. You can reach us 24/7 by calling (207) 729-9956.

Community Participation

We want our valued customers to be informed about their utility. Feel free to attend our monthly board meetings held on the second Monday of each month at 5:30 p.m. at our office located at 266 River Road in Topsham. We have also updated our Web site; please visit it at www.btwater.org.

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).

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?

At 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.



Lead and Drinking Water

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. The Brunswick and Topsham Water District is 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.



Coliform Sampling

The District collects 15 samples per month at various locations in our system to test for coliform bacteria. Coliform bacteria are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.

Normally, there are no coliform bacteria present, but in August 2007, the District had three positive tests for total coliform. Coliform were found in more samples than allowed and this was a warning of potential problems. Within 24 hours of receiving the results, we collected re-check samples, with additional samples up and down stream of the locations where coliform were detected. All of the re-check plus additional sampling showed no bacteria.

Although this was not an emergency, the District made public notification describing the incident and what we did to correct the situation. If it had been an emergency you would have been notified immediately. The District investigated possible causes of this problem including main breaks, construction activities, pressure losses, and contamination of the samples themselves but found no verifiable cause. All of our subsequent routine tests have been negative for coliform bacteria.

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 turning on the tap. Only about 1% to 2% of the radon in the air comes from drinking water. The U.S. EPA is proposing setting lower standards for public drinking water between 300 and 4,000 pCi/L. The State of Maine currently recommends follow-up action (or treatment) for radon levels in drinking water above 4,000 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) SOS-RADON, or contact the State Drinking Water Program and request a Radon Fact Sheet.

Variations, Exemptions and Waivers

The State of Maine Department of Health and Human Services can grant waivers such that Maximum Contaminant Level or treatment technique requirements do not have to be met under certain conditions. We have not requested or received any variances. The State can also grant testing waivers to water utilities that have shown negative test results of contaminants for at least three consecutive years. The watershed must have no previous production, storage, disposal, or transportation of such contaminants or materials that may cause these contaminants.

The Brunswick and Topsham Water District has been granted a waiver for synthetic organic compound (SOC) testing at all of our sources until the end of 2007.

What's in My Water?

The Brunswick and Topsham Water District routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table shows any detection resulting from our monitoring for the period of January 1 to December 31, 2007. Regulated contaminants that were below detectable levels are not shown. If no tests were required for a given contaminant in 2007, the law requires that the most recent test results be included here. Test results that are more than five years old are not allowed.



REGULATED SUBSTANCES				Distribution System	Jackson Station	Jordan Station	Taylor Station	VIOLATION		TYPICAL SOURCE			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2005	10	0	NA	NA	3.2	NA	0.5	NA	3	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2005	2	2	NA	NA	NA	NA	NA	NA	0.0061	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2007	[4]	[4]	0.82	NA	NA	NA	NA	NA	NA	NA	No	Water additive used to control microbes
Chromium (ppb)	2005	100	100	NA	NA	1.1	NA	1.2	NA	2.1	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride ¹ (ppm)	2007	4	4	1.46	NA	NA	NA	NA	NA	NA	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate ² (ppm)	2007	10	10	NA	NA	NA	NA	1.6	NA	NA	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radon ³ (pCi/L)	2003	4,000	NA	NA	NA	531	NA	23	NA	909	NA	No	Naturally occurs in some drinking water sources.
TTHMs [Total Trihalomethanes] ⁴ (ppb)	2007	80	NA	42.6	29.9–52	NA	NA	NA	NA	NA	NA	No	By-product of drinking water chlorination
Total Coliform Bacteria (# positive samples)	2007	1	0	3	NA	NA	NA	NA	NA	NA	NA	Yes	Naturally present in the environment

Tap water samples were collected from sample sites throughout the community ⁵

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	ACTION LEVEL	MCLG	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2005	1.3	1.3	0.55	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2005	15	0	1	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

INITIAL DISTRIBUTION SYSTEM EVALUATION RESULTS ⁶

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Haloacetic Acids [HAA]- IDSE Results ¹ (ppb)	2007	NA	26.6–33.3	By-product of drinking water disinfection

¹Fluoride levels must be maintained between 1 to 2 mg/L, for those water systems that fluoridate the water.

²Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. 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 for advice from your health care provider.

³The 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.

⁴Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) are formed as a by-product of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water.

⁵Action levels (AL) are measured at consumer's tap - 90% of the tests must be equal to or below the AL.

⁶Our public water system was required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations.

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).