

Bath Water District Annual Water Quality Report

2007

This report contains information about your drinking water. Customers can use this report to see how BWD water compares to state and federal drinking water standards. *Testing conducted January 1, 2007 through December 31, 2007.*



Potter Hill Tank Construction, 2007

Our Drinking Water Source - Nequasset Lake

Drinking water can come from many different sources including rivers, lakes, ponds, streams and wells. For over 100 years, the 21-square-mile watershed of Nequasset Lake has been Bath Water District's source of supply. The majority of Nequasset watershed lies in the Town of Woolwich, but extends into the neighboring towns of Dresden and Wiscasset. High-quality drinking water supplies are hard to find in coastal Maine. As the only major lake in the area, Nequasset Lake is relied upon to provide both drinking water and recreational activities to the region. Classified as a "moderate quality/sensitive" lake by the Maine Department of Environmental Protection (DEP), Nequasset Lake currently exhibits good water-quality characteristics, but is at risk of being degraded by a combination of environmental conditions and land-use pressures. BWD works with the local communities to minimize these risks by implementing protective measures that prohibit detrimental activities within the watershed.

Source Water Monitoring

BWD performs extensive source-water quality testing and is a member of the Maine Volunteer Lake Monitoring Program sponsored by the Maine DEP. Samples are taken from various locations throughout the watershed in addition to the lake itself and tested for bacteriological content, phosphorus, chlorophyll A, color and alkalinity. These parameters are strong indicators of watershed health. Monitoring dissolved oxygen and phosphorus levels can help the district predict the likelihood of an algae bloom, which could degrade water quality and increase treatment costs. *continued on page 2...*

Bath Water District: Regional Water Provider

On October 10, 1915, the Maine Legislature created the Bath Water District (BWD) to replace the Bath Water Company, which had provided drinking water to the region since 1887. BWD was established as a quasi-municipal organization under the direct ownership of its' customers, separate from the City of Bath. Customers wanted a district because it allowed several municipalities to be serviced by one organization. Water districts have many of the same characteristics as municipal governments. They differ in that they do not collect property taxes and are regulated by the Maine Public Utilities Commission. BWD services a population of approximately 15,000 people in the five communities of Bath, West Bath, East Brunswick, Woolwich and Wiscasset via the Wiscasset Water District. A five member Board of Trustees governs the district.

The Treatment Process

Water from the Nequasset Lake flows into BWD's treatment plant where multiple treatment processes, including filtration and disinfection, are used to remove particles and microorganisms. The Microfloc filtration system was designed specifically for the water characteristics of Nequasset Lake.

Intake - Water is withdrawn from Nequasset Lake through two intakes. Logs, fish and plants are screened out at the intake.

Coagulation and Flocculation - Chemicals are added to the water to help group suspended particles together, so they can be easily filtered. This process is known as coagulation and flocculation. Chemically treated water is mixed to ensure that it is uniformly treated.

Clarification - After the water has undergone coagulation and flocculation, it is ready to be put through the clarifiers. The clarifiers remove large particles in preparation for filtering.

Filtration - Filtering removes pathogens (giardia, cryptosporidium, etc.), organic materials and suspended solids. The filters consist of several layers of granular media that remove small particles.

Disinfection/Chemical Treatment - Chlorine and a small amount of ammonia are added to kill any harmful protozoa, bacteria or viruses that are not removed by the filters. Sodium hydroxide and polyphosphate are added to maintain the proper pH and condition the water for the distribution system. Fluoride is added to prevent tooth decay.

Clearwell Storage - Treated water is pumped out of the 126,000 gallon storage tank, called the clearwell, into the system by three 150 hp pumps.

Storage and Distribution - Water travels to the system through two 16-inch transmission lines. These lines pass under the Kennebec River to 60 miles of distribution mains and two storage tanks. The distribution system provides a method of getting water from the treatment plant to customers, allows for additional water treatment, and provides fire protection capacity. Customers are connected to the distribution system via individual service lines.



Health Notification.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 can be particularly at risk of infection. These people (or their guardians) should seek advice about drinking water from their health-care providers. The EPA and the Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the [Safe Drinking Water Hotline: 800-426-4791](tel:800-426-4791).

Nequasset Lake

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How Do We Protect Water Quality?

BWD owns approximately 370 acres of watershed land, only a small fraction of the 21 square miles that make up the entire watershed. BWD does, however, own roughly seventy percent of the shoreline around the lake and restricts activities that could potentially contaminate the water within this zone. BWD participates in frequent lake and foot patrols within the watershed. Swimming is prohibited, except at the south end of the lake near the state boat launch area. The use of boats with motors larger than 10 hp is also forbidden.

Source Assessment

The Drinking Water Program(DWP) completed an evaluation of Nequasset Lake for susceptibility of contamination as part of their Source Water Protection Program (SWAP). Nequasset Lake received either a low or moderate risk level rating for all parameters categorized. The overall rating was Low-Moderate. In addition to our standard watershed protection, BWD continues to work with stakeholders in an ongoing effort to maintain the good health of the lake. Our current project is the implementation phase of a grant received through Androscoggin Valley Soil and Water Conservation District (AVSWCD) to remedy erosion sites and other potentially problematic areas identified in a 2007 watershed survey. During this phase of the grant, we continue working toward our goal of increased public education and water quality protection.

Detected Contaminants & Aesthetic Compounds

Aesthetic Compounds	Amount Detected	MCLG	MCL	Interpretation of Water Quality Results
Color (units)	<5	5	15	Color in the distribution system is very low.
Chloride (ppm)	12	3	250	Chloride is very low.
Hardness (ppm as Ca 2+)	7.55	n/a	500	Hardness in Nequasset Lake is very low.
Iron (ppb)	<50	50	300	Iron is very low.
Manganese (ppb)	13	5	50	Manganese is typically very low.
pH	8.3	n/a	6.5-8.5	pH is adjusted to the upper limit of the MCL to aid corrosion control in the system.
Sodium (ppm)	10	.05	100	Sodium is very low.
Zinc (ppb)	<2	1	500	Zinc levels are extremely low.

Substance	Amount Detected	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)	Likely Sources in Drinking Water & Health Language	Notes & Compliance Information
Chloramines (ppm)	1.35	MRDLG=4	MRDL=4	BWD adds chloramines to kill any harmful protozoa, bacteria or viruses.	highest concentration detected below MRDL.
Arsenic (ppb)	0.54	.5	10	Erosion of natural deposits. Runoff from orchards, glass and electronics production waste.	Concentration was below the MCL. The U.S. EPA adopted a new MCL standard in October 2001. Sytems must meet this new standard by January 2006.
Barium (ppm)	0.0014	.0005	2	Erosion of natural deposits.	Concentration was below the MCL.
Copper (ppm)	90th percentile = <0.01 ppm	.0005	AL = 1.3	Corrosion of household plumbing. 90% of the samples must be equal to or below the AL. AL is measured at the customer's tap.	Concentration was below the MCL. BWD currently monitors 20 customer homes in a three year cycle.
Fluoride (ppm)	1.3	1.2	4	BWD adds it to prevent tooth decay. Fluoride levels must be maintained between 1-2 ppm.	Concentration was below the MCL. Fluoride levels must be maintained between 1-2 ppm.
Gross Alpha pCi/L	.264	.634	AL =15	Alpha radiation in water is due to dissolved, naturally occurring elements such as radon and uranium.	Gross Alpha is exetremely low.
Lead (ppb)	90th percentile =<.5	0.5	AL = 15	Corrosion of household plumbing. Lead is a metal commonly found in the environment. 90% of the samples must be equal to or below the AL.	Concentration was below the MCL. AL is measured at the customer's tap. BWD monitors 20 customers' homes.
Turbidity (NTU)	<.6	n/a	<0.3 NTU in 95% of monthly samples	Soil runoff. High turbidity can shield disease-causing microorganisms from disinfection.	One sample exceeded the MCL of <.3 NTU in 95% of all samples taken.
Total Haloacetic Acids (HAA5)	21.98ppb	5	60ppb	By-product of drinking water chlorination.	Concentration was below the MCL.
Total Trihalomethanes (TTHM)	24.25ppb	1	80 ppb	By product of drinking water chlorination	Concentration was below the MCL.

Glossary of Terms

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers other requirements that a water system must follow

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water; MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health; MCLG's allow for a margin of safety.

Nephelometric Turbidity Unit (NTU): A measure of water's "cloudiness" or suspended colloial matter (silt); excessive turbidity levels can cause problems with water disinfection. .26 ntu was the single highest measure of turbidity for the calendar year. 100% of samples taken were below .5ntu. Therefore, your finished drinking water is clean and safe to drink.

pci: picocuries **pci/L:** picocuries per liter

ppb: Parts per billion or micrograms per liter (mg/L)

ppm: Parts per million or milligrams per liter (mg/L)

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

Testing Waivers: Initial testing indicated that these contaminants were not present in the source; BWD was able to apply for and receive a state waiver from subsequent testing, provided source-water protection conditions are unchanged.

Running Annual Average (RAA): Average of all monthly or quarterly samples for the last year at all sample locations

Maximum Residual disinfectant level goal(mrdlg): Level of drinking water disinfectant below which there is no known or expected risk to health; MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum Residual disinfectant level (mrdl):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.

Are There Contaminants In Our Water?

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of contaminants. The presence of these contaminants does not necessarily mean that it poses a health risk. In fact, it is the presence of certain minerals that gives water its distinctive taste. More information about contaminants and potential health effects can be obtained by calling EPA's Safe Drinking Water Hotline: 800-426-4791. Contaminants that may be present in drinking water include:

Organic Chemical Compounds - The main threats of organic chemical contamination occur from surface water runoff and groundwater leaching. Organic contaminants are by-products of industrial processes, urban storm-water runoff, and malfunctioning septic systems. BWD regularly tests for a wide variety of organic compounds including pesticides, herbicides, petroleum distillates, solvents and other volatile organic compounds (VOCs).

Radiological Contaminants - Radiological quality is primarily a concern of groundwater systems. Regular testing by BWD confirms that no contamination from these substances is present.

Inorganic Compounds - Inorganic contaminants, such as salts and metals, can be naturally occurring or result from storm-water runoff, industrial or domestic wastewater discharges, mining or farming.

Microbiological Contaminants - Microbial contaminants, such as protozoa, viruses and bacteria, come from septic systems, agricultural livestock operations and wildlife. BWD's treatment plant is designed to remove or kill 99.9% of the giardia and 99.99% of the viruses that may be present in the source water. Neither giardia nor cryptosporidium have ever been detected in Nequasset Lake.

Non-Regulated and Aesthetic Compounds - In addition to the regulated compounds, the EPA provides guidelines on non-regulated and aesthetic compounds. Regular testing shows that our water meets or exceeds all secondary standards.

The water-quality tables on page three list regulated constituents that were detected in the 2006 calendar year. BWD routinely tests for more than 100 contaminants.

Lead in 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, which belong to the customer, not the public water supply. BWD, like any public water supply, 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 with lead in your water, you may wish to have your water tested. More information about lead in drinking water is available from the Safe Drinking Water Hotline or at epa.gov/safewater/lead.

Synthetics Organics Waiver

In 2005, our system was granted a "Synthetic Organics Waiver." This is a three year exemption from the monitoring and reporting requirements for herbicides, pesticides, fungicides and other industrial chemicals. This was granted due to the absence of these potential sources of contamination within a half mile radius of our water source.

For More Information:

Maine Drinking Water Program [207-287-2070](tel:207-287-2070)

American Water Works Association [303-794-7711](tel:303-794-7711)

EPA Safe Drinking Water Hotline [800-426-4791](tel:800-426-4791)



1 Lambard Street
Bath, Maine 04530
Tel: [207-443-2391](tel:207-443-2391) Fax: [207-443-5321](tel:207-443-5321)
www.bathwd.org

Board of Trustees

President - David W. Calhoun
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BWD board meetings are held the second Monday of the month at 6p.m. at the main office. When the second Monday is a holiday, the meeting is held the second Tuesday of the month.