



# Brewer Water Department 2008 Water Quality Report

This is the annual water quality report of the Brewer Water Department serving the City of Brewer as well as customers in Eddington, Holden, and Orrington. This report is intended to provide our customers with important information about their drinking water. We know that you count on a safe and reliable supply of water every day and we are dedicated to providing the highest quality of service to you.



## Water Supply/System Information

Hatcase Pond, located in Dedham and Eddington, has been the primary water source for the City of Brewer, and parts of Eddington, Holden and Orrington, since the 1950's. From the beginning, the District and now the Department realized the importance of protecting this pristine water supply. Today, the Water Department owns over 300 acres of the 1,870 acres in the watershed, and has acquired conservation easements on an additional 545 acres. The Department maintains an active monitoring program of all land use activity in the watershed. Our goal is to maintain a high quality water supply for our current customers and for future generations.

Protecting the Hatcase Pond watershed from contaminants is an important focus of the Brewer Water Department. We are one of only ten public water utilities in Maine that has been granted a waiver (December 1991) from filtration. This waiver, in addition to saving rate payers a multi-million dollar investment in filtration facilities, recognizes the excellent quality of our source of supply and our watershed protection activities. We are in the first

year of a three-year waiver from testing for synthetic organics contaminants, which included pesticides, herbicides, and semi-volatile organic compounds. The Department has also been awarded reduced monitoring status for bromide and bromate, two compounds typically found in surface water supplies, but which are in very low concentrations in Hatcase Pond.

Treatment techniques used by the Department to ensure the safety of the water at your tap, include ozonation and chloramination. Ozone gas, a powerful disinfectant, is used to provide primary disinfection. Chloramines, a combination of chlorine and ammonia, are used to provide a disinfectant residual in the distribution system. Ozone levels at the plant and chloramine residuals in the distribution system are continuously monitored to ensure adequate disinfection has occurred, prior to delivery to you. Since surface waters in Maine are naturally acidic, sodium carbonate (soda ash) is added to raise the pH and alkalinity of the water to make it less corrosive to metal pipes. This not only protects our distribution system from corrosion but also

reduces the amount of lead and copper that can leach out of your home's plumbing system. The success of our corrosion control program is reflected in two consecutive passing rounds of lead and copper testing. As a result, we are now on reduced monitoring for lead and copper (once per year instead of twice per year).

Our final treatment technique is the addition of fluoride (hydrofluorosilicic acid) to promote improved dental health. Fluoride has been proven to reduce rates of tooth decay, especially in children. We closely monitor the levels of fluoride in the water system to keep them within the recommended range.

Our distribution system includes nearly 20 miles of transmission mains and more than 40 miles of distribution mains. The Department serves more than 9,000 people through 3,500 individual service connections. We also provide fire protection throughout our service area via 430 hydrants. In 2008, we produced and delivered over 290 million gallons of water. The average daily usage for 2008 was 795,000 gallons, with a maximum day usage of 1,170,000 gallons on July 17th.

Brewer Water Dept.  
223 Green Point Rd.  
P. O. Box 39  
Brewer, ME 04412



Office  
(207)989-4214  
Fax (207)989-2883  
Plant (207)843-7190  
Fax (207)843-7189

PWS#90220

The Brewer City Council meets the second Tuesday of each month at 6:30 PM in the Brewer City Hall Council Chambers. The Public is always Welcome.

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## Mission Statement

The mission of the Brewer Water Department can be summarized by the following four declarations:

- To provide high quality drinking water to our customers.
- To provide continuous, uninterrupted service to our customers.
- To do so at the most reasonable cost possible.
- To hold the protection of Hatcase Pond and it's watershed above all other considerations.

## How Brewer Water Fulfilled our Mission in 2008

**Provide high quality drinking water**— in 2008 our corrosion control efforts continued to pay off with a second passing round of lead and copper testing. We are now on reduced monitoring and wish to thank our customers who faithfully took the samples, for this positive result. Last year also saw us increasing the level of monitoring in our distribution system to ensure that water quality stays high even on dead end lines. This involves taking samples above and beyond what is required from a regulatory standpoint.

**Provide uninterrupted service to our customers**— the reliability of service to our customers is a major focus of the Brewer Water Department staff. Increasing the reliability of service often involves having redundant systems in place, so that if the primary system fails, the backup can be placed into service. In 2008 we initiated the design of the Route 9 Interconnection Facility, a collaborative project with the Bangor Water District, which will allow us to temporarily share water between the two utilities during an emergency, i.e. if one utility loses its source of supply or has trouble at its respective treatment plant, the other utility can provide sufficient water to meet the demand until the problem is corrected. We expect to have this facility fully operational by the fall of 2009. The "Mutual Aid" approach not only improves the reliability of service of both utilities, it also allows each utility to avoid the staggering expense of pursuing a redundant source of supply independently.

**Most reasonable cost possible**— in December the Water Department implemented a 7.3% rate decrease for all metered customers. The rate decrease is part of our on-going effort to provide high quality drinking water for the most reasonable cost possible.

**Protect Hatcase Pond**— we believe that watershed protection is the most cost effective form of water treatment. If you can control the land use activities within the watershed of your drinking water supply, then you can pretty much ensure high quality drinking water. In 2008 we began extensive negotiations with a group of landowners who own 515 acres directly around Hatcase Pond. Our goal is to obtain a conservation easement on this parcel which will keep the land and shoreline in an undeveloped, wooded condition on a permanent basis. If successful, we will increase our land use control within the Hatcase Pond watershed from just under 50% to over 80%.

## Water Quality

### WATER QUALITY

We ensure that your water is safe through regular monitoring and testing of water quality. These tests are conducted by our own state-certified water testing laboratory as well as the State of Maine Health and Environmental Testing Laboratory (HETL). This report includes a comprehensive summary of the laboratory test results for the constituents we regularly monitor in your water supply. Responsibility for maintaining your water quality resides with our staff of certified water treatment plant operators, licensed by the State of Maine Department of Human Services.

The Safe Drinking Water Act directs the state, along with the Environmental Protection Agency (EPA), to establish and enforce minimum drinking water standards. These standards set limits on certain biological, radioactive, organic and inorganic substances sometimes found in drinking water. Two types of standards have been established. Primary drinking water standards set achievable levels of drinking water quality to protect your health. Secondary drinking water standards provide guidelines regarding the taste, odor, color, and other aesthetic aspects of drinking water which do not present a health risk. **With the exception of lead, the 2008 testing results indicate your water quality is within acceptable state and federal drinking water requirements.**

## Source Water Assessment Information

In 2003, the Maine Drinking Water Program completed an evaluation of all public water supplies statewide as part of the Source Water Assessment Program. The evaluation will consider geology and hydrology, land uses, water testing information, and the extent of land ownership or protection by local ordinance to determine how likely our drinking water source is to being contaminated in the future. Based on the largely undeveloped nature of the watershed (97% is forest growth), existing ownership and zoning, Water Departments monitoring and alliance with landowners, the overall susceptibility of the Hatcase Pond water supply is considered to be low. For more information you may contact the Drinking Water Program at 287-2070. You may also obtain a copy of the Source Water Assessment from our office.

**Detected Regulated Parameters**  
**Primary Drinking Water Standards: Levels established to prevent known health risks**

<u>Physical Parameters</u>	<u>MCLG</u>	<u>MCL</u>	<u>RESULTS</u>	<u>Comments</u>
Turbidity (NTU)	N/A	5	2.15	NTU - Nephelometric Turbidity Unit, defines the level of cloudiness of a water sample NTU - Turbidity is the measurement of cloudiness or suspended colloidal matter (silt). Excessive turbidity levels can cause problems with water disinfection. On the table to the left, 2.15 NTU was the highest measurement of turbidity, taken on December 12, 2008. 100% of the samples taken in our water system were below 5 NTU's as required to maintain our waiver for filtration.
<b>Microbiological</b>				
Total Coliform	0	1 Pos	0 Pos	Naturally present in the environment.
<b>Radioactive Contaminants</b>				
Alpha Emitters (pCi/l)-picocuries per liter	0	5	0.70	Sample every four years - sample collected on 3/30/06
<b>Inorganic Chemicals</b>				
Barium (mg/L)	2	2	0.0015	Sample taken on 3/14/08. Erosion of natural deposits.
Fluoride (mg/L) (Range for 2008: 1.08 – 1.27 mg/L)	4	4	1.27	Sample taken on 3/06/08. Water additive which promotes strong teeth.
Nitrite-Nitrogen (mg/L)	1	1	< 0.010	Sample taken on 3/14/08. Erosion of natural deposits.
Bromate (ug/L)	0	10	ND	Samples taken Quarterly . Byproduct of Ozonation.
Lead (ug/L) (90th percentile)	0	AL=15 ug/L	24 ug/L	March 2008 sample - Corrosion of household plumbing systems. 12 ug/L September 2008 sample - Corrosion of Household plumbing systems.
Copper (mg/L) (90th percentile)	1.3	AL=1.3mg/L	0.16 mg 0.11 mg/L	March 2008 sample - Corrosion of household plumbing systems. September sample - Corrosion of Household plumbing systems.
<b>Disinfectants and Disinfection Byproducts</b>				
Trihalomethanes (TTHM) (ug/L)	0	80 ug/L	1.18 ug/L	By product of drinking water chlorination. (RAA)
Haloacetic Acid (HAA5) (ug/L)	0	60 ug/L	8.89 ug/L	By product of drinking water chlorination. (RAA)
mg/L (milligrams per liter) or ppm (parts per million) ug/L (micrograms per liter) or ppb (parts per billion) RAA = Running Annual Average				
MCLG = maximum contaminant level goal MCL = maximum contaminant level				

## Definitions

**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,

**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.

**Variance or exemption:** State or U.S. EPA permission not to meet an MCL or treatment technique under certain conditions.

**Treatment Technique:** A required process intended to reduce the level of a contaminant in drinking water.

**AL- Action Level:** The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.

**RAA:** Running Annual Average of all quarterly samples taken.

### HEALTH INFORMATION

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

However, some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, people who have undergone organ transplants, people with AIDS/HIV or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water

## EPA mandatory language for all systems

The United States Environmental Protection Agency (EPA) and the Brewer Water Department are concerned about lead in your drinking water. Although most homes and buildings have very low levels of lead in their drinking water, some (homes in this community, or taps in their building) have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/l). Under Federal law we were required to have a program in place to minimize lead in your drinking water by December 31, 1997. This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace each lead service line that we control if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation, please contact the above water system at either 843-7182 or 989-4214. This material explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

**LEAD VIOLATION:**

In March & September 2008, routine sampling was done for Lead & Copper. The March sampling event had six samples that exceeded the action level for lead. In the September sampling, we had four samples exceed the action level for lead. All samples were below the action level for copper. Drinking water regulations require that samples are taken from homes with a high risk potential for Lead/Copper in the plumbing. We are optimizing our corrosion control chemicals to reduce the corrosiveness of the water, thereby reducing the Lead/Copper levels in household plumbing. The results indicate that the amount of Lead being detected is decreasing due our Corrosion Control Program.

**LEAD HEALTH EFFECTS**

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones and it can be released later in life. During pregnancy the child receives lead from the mother's bones, which may affect brain development. The Brewer Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

**STEPS YOU CAN TAKE IN THE HOME OR WORK FACILITY TO REDUCE YOUR EXPOSURE TO LEAD IN DRINKING WATER**

i. Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some taps could be high. You may wish to have your drinking water tested to determine if it contains excessive concentrations of lead. Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking

Water Hotline (1-800-426-4791) or at <http://www.epa.gov/lead>.

ii. If a water test indicates that the drinking water drawn from a tap in your home contains lead above 15 ppb, or 0.015 mg/L, then you should take the following precautions:

(A) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in the plumbing the more lead it may contain. Before drinking or cooking, flush the tap by running the cold water faucet until the water gets noticeable colder, usually about 30 seconds to two minutes. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one or two gallons of water and costs very little. If you wish to conserve water, fill a couple of bottles for drinking water after flushing the tap, and whenever possible use the first flush water to wash the dishes or water the plants. If you live in a high-rise building, letting the water flow before using it may not lessen your risk from lead. This is because high rise plumbing systems have more, and sometimes larger, pipes than smaller buildings. Ask your landlord for help in locating the source of the lead and for advice on reducing the lead level.

(B) Use cold water for cooking and preparing baby formula. Lead dissolves more easily in hot water. Boiling the water does not remove the lead.

(C) Remove loose lead solder and debris from the plumbing materials by removing the faucet strainers from all taps and run the water from 3 to 5 minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulate over time.

(D) If your copper pipes are joined with lead solder (appears dull gray and when scratched with a key becomes shiny), you should contact a licensed plumber.

(E) Determine whether or not the service line that connects your home, apartment or building to the water main is made of lead. To do this, either hire a licensed

plumber to inspect the line or contact the plumbing contractor who installed the line. If a larger public water system delivers water to your home, they should maintain records of the materials located in the distribution system. You can identify the plumbing contractor by checking the building permits recorded in your city or town. A licensed plumber can at the same time check to see if the plumbing in your home or building contains lead solder, lead pipes, or pipe fittings that contain lead. If the service line connecting your dwelling or building to the water supply contributes more than 15 ppb to drinking water, after a comprehensive treatment program is in place, then replacement of that line is required with appropriate follow-up tap water sampling. Acceptable replacement alternatives include copper, steel, iron, and plastic pipe.

(F) Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.

iii. The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead concentrations in excess of 15 ppb after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:

(A) Purchase or lease a transaction device. Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all of the devices require periodic maintenance and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap, however all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.

(B) Purchase bottled water for drinking and cooking.

iv. You can consult a variety of sources for additional information:

(A) Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health affects of lead.

(B) The Division of Health Engineering within the Maine Department of Human Services at (207) 287-2070 can provide you with information about your community's water supply, and a list of local laboratories that have been certified by the Health Department for testing water quality.

(C) Your local town office can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home.

The following is intended to provide you with additional information on:

**LEAD IN DRINKING WATER**

i. Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

ii. Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes and other plumbing materials to 8.0%.



