



# Your Drinking Water Report

2008



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## Dear Customer,

The Massachusetts Water Resources Authority is pleased to send you this year's annual report on your drinking water quality. MWRA and your local water department test thousands of water samples each week, under strict federal and state guidelines. The results for 2008 are excellent: for the 120 contaminants we test for, every standard was met.

I am also pleased to report that the lead test results for 2008 and the first half of 2009 show that system-wide, MWRA was below the federal Lead Action Level. It is important to remember that lead is not in the source water, but can enter the water through some household plumbing that contains lead. Recent tests have also shown that there are no traces of pharmaceuticals in MWRA water.

Your tap water is one of the best values around. For less than a penny a gallon, you receive some of the cleanest, best tasting drinking water in the country. That penny also provides you with experienced, professional staff who protect, treat and deliver your water and make sure it is always available.

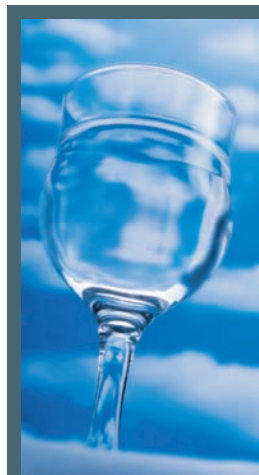
MWRA has great confidence in the water we deliver to your home, and we want you to have the same confidence. This report contains important information, and I hope you take a moment to read through it. Please contact us if you have any questions or comments about your water quality, or any of MWRA's programs.

Sincerely,

Frederick A. Laskey  
MWRA Executive Director

## This report is required under the Federal Safe Drinking Water Act and provides information on:

Where your water comes from _____	2
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## SHARE YOUR COMMENTS

Call or email us and let us know what you think about this report or your water.

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RESOURCES AUTHORITY

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# WHERE DOES YOUR WATER COME FROM?



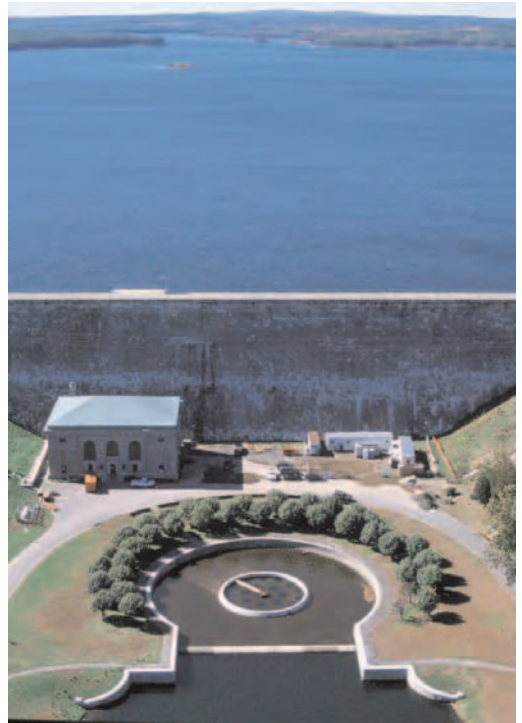
## WATERSHED PROTECTION:

The pristine watersheds enhance the value of the water by keeping potential pollutants out and making treatment easier.

Your water comes from the Quabbin Reservoir, about 65 miles west of Boston, and the Wachusett Reservoir, about 35 miles west of Boston. These reservoirs supply wholesale water to local water departments in 50 communities, 44 in greater Boston and MetroWest, three in western Massachusetts, and serves as a back-up supply for three others. The two reservoirs combined supplied about 206 million gallons a day of high quality water to consumers in 2008.

Quabbin and Wachusett watersheds are protected naturally with over 85% of the watersheds covered in forest and wetlands. About 75% of the total watershed land cannot be built on. The natural undeveloped watersheds help to keep MWRA water clean and clear. Also, to ensure safety, the streams and the reservoirs are tested often and patrolled daily by the Department of Conservation and Recreation (DCR).

Rain and snow falling on the watersheds - protected land around the reservoirs - turn into streams that flow to the reservoirs. This water comes in contact with soil, rock, plants, and other material as it follows its natural path to the reservoirs. While this process helps to clean the water, it can also dissolve and carry very small amounts of material into the reservoir. Minerals from soil and rock do not typically cause problems in the water. But, water can also transport contaminants from human and animal activity. These can include bacteria, viruses, and fertilizers - some of which can cause illness. The test data in this report show that these contaminants are not a problem in your reservoirs' watersheds.

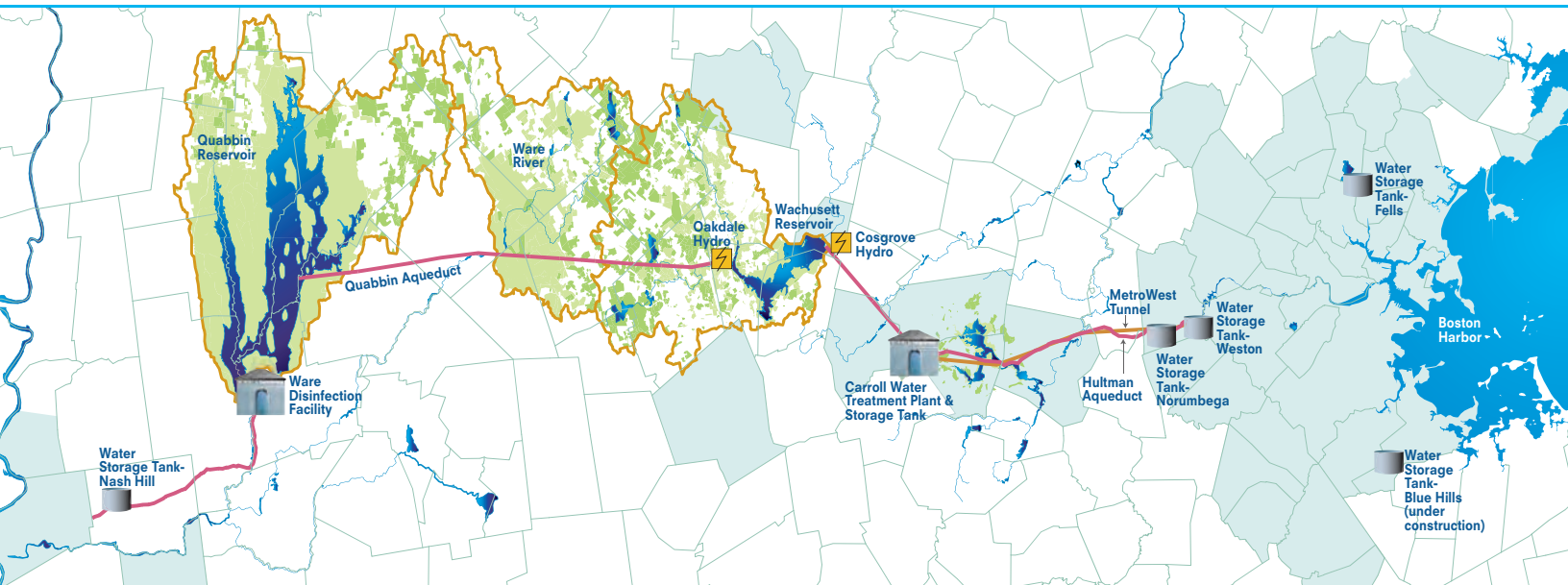


The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program report for the Quabbin and Wachusett Reservoirs. The DEP report commends DCR and MWRA on the existing source protection plans, and states that our "watershed protection programs are very successful and greatly reduce the actual risk of contamination." The report recommends that we maintain present watershed plans and continue to work with the residents, farmers, and other interested parties to maintain the pristine watershed areas.

## TAP WATER – THE GREEN CHOICE!



As water travels eastward through tunnels from the Quabbin and Wachusett Reservoirs, clean hydro-electric energy is produced. The electricity generated is used to reduce MWRA's energy demands. Also, the clean, fresh water is delivered straight to your home without the fuel consumption of trucking or the waste left behind by plastic bottles.





# FROM THE RESERVOIR TO YOUR HOME

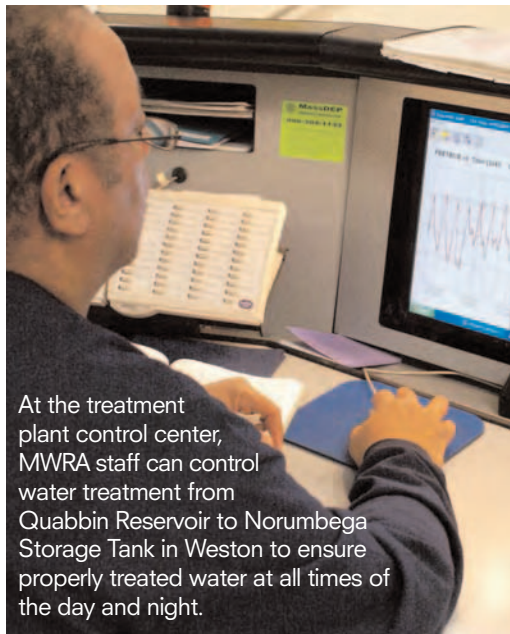


## BOTTLE VS. TAP – THE SMART CHOICE

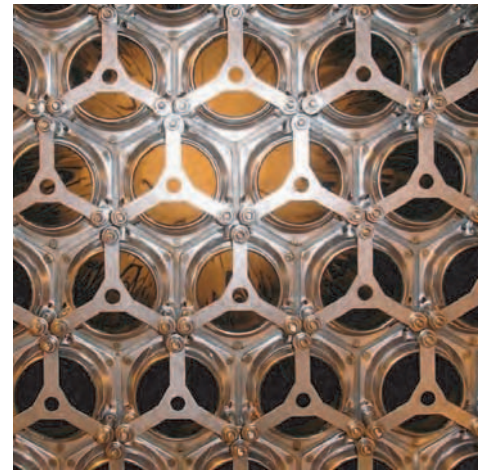
Even though tap and bottled water must meet the same standards, bottled water costs hundreds of times more - a penny for tap compared to \$1 to \$8 a gallon for bottled. Tap water must meet more intensive Environmental Protection Agency (EPA) testing requirements than bottled water, which is regulated by the Food and Drug Administration (FDA).

## WATER TREATMENT STEPS

The water you drink is treated at the John J. Carroll Water Treatment Plant in Marlborough. The first treatment step is disinfection of reservoir water. MWRA's licensed treatment operators carefully add measured doses of ozone gas bubbles to the water to kill any pathogens (germs) that may be present in the water. Fluoride is then added to reduce cavities. Next, the water chemistry is adjusted to reduce corrosion of lead and copper from home plumbing (see page 5). Last, we add mono-chloramine, a mild and long-lasting disinfectant combining chlorine and ammonia, which protects the water while it is in the local pipelines.



At the treatment plant control center, MWRA staff can control water treatment from Quabbin Reservoir to Norumbega Storage Tank in Weston to ensure properly treated water at all times of the day and night.



## WHAT IS OZONE?

Ozone consists of three atoms of oxygen. It is created by applying an electrical current to pure oxygen in a specially designed chamber. Ozone provides better disinfection than chlorine alone, especially against *Cryptosporidium* and other hard to kill germs. It also reduces the amount of potentially harmful chlorine byproducts.

## IMPROVEMENTS TO THE WATER SYSTEM

Over the last ten years, in addition to the treatment plant, MWRA has improved watershed protection, built the MetroWest tunnel, installed covered storage tanks, and rehabbed many miles of pipeline. These projects are the largest investments since the construction of the Quabbin Reservoir in the 1930s.

MWRA and its partner communities will continue to make necessary improvements to ensure high quality water is delivered directly to the customer's tap. One high priority is rehabbing older pipes within the extensive pipe network. MWRA is upgrading its own pipes, as well as providing zero-interest loans to help communities improve their older pipes. To save money and limit traffic and service disruptions, construction crews try to clean and reline rather than replace pipes whenever possible.

## WATER CONSERVATION

On average, each person uses about 65 gallons of water each day. There are many simple ways you can conserve water and lower your bills, including: fixing leaks, installing low-flush toilets and low-flow shower heads, or minimizing your outdoor watering. MWRA has an active conservation program, and it is paying off. Demand has dropped dramatically and water usage is lower than it has been in over 40 years. Still, there is more work to be done to conserve this precious resource. To find out more, contact the MWRA at 617-242-SAVE or visit [www.mwra.com](http://www.mwra.com).



The Blue Hills covered storage tanks are nearing completion and expected to go on-line in Fall 2009.

# TESTING YOUR WATER EVERY STEP OF THE WAY



Our professional lab staff has many years of experience and performs thousands of tests each week to make sure the water supplied meets all the federal and state standards.

## TESTS BEFORE TREATMENT

We test the water as it leaves the reservoir to see how well protected our watersheds are. Test results show few contaminants are found in the reservoir. The few that are found are in very small amounts, well below EPA's standards. Turbidity (or cloudiness of water) is one measure of overall water quality. Typical levels at the Wachusett Reservoir are 0.3 NTU (Nephelometric Turbidity Units). In 2008, turbidity was always below EPA's standard of 5.0 NTU. It was also below the stricter Massachusetts standard of 1.0 NTU over 99.99% of this time, with the highest level at 1.17 NTU. This did not interfere with effective disinfection. MWRA also tests reservoir water for pathogens – such as fecal coliform, bacteria, viruses, *Cryptosporidium*, and *Giardia*. They can enter the water from animal or human waste. All test results were well within state and federal testing and treatment standards.

## TESTS IN COMMUNITY PIPES

MWRA and local water departments test 300 to 500 water samples each week for total coliform bacteria. Total coliform bacteria can come from the intestines of warm-blooded animals, or can be found in soil, plants, or other places. Most of the time, these bacteria are not harmful. However, their presence could signal that harmful bacteria from fecal waste may be there as well. The EPA requires that no more than 5% of the samples in a month may be positive for total coliform. If a water sample tests positive for total coliform, we run more specific tests for *E.coli*. *E.coli* is a bacteria found in human and animal fecal waste and may cause illness.

## TESTS AFTER TREATMENT

EPA and state regulations also require many water quality tests after treatment to check the water you are drinking. MWRA follows – and even goes beyond – these tests. We conduct tens of thousands of tests per year on over 120 contaminants. For a complete list of what we test for, go to [www.mwra.com](http://www.mwra.com).

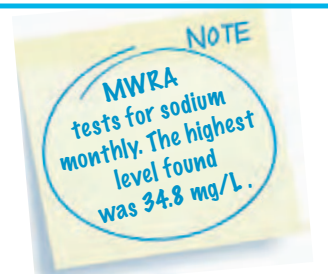
The only contaminants detected are listed below, and all met EPA's standards. The bottom line is that the water quality is excellent.

## TOTAL COLIFORM RESULTS

Community	Highest % of positive samples and month	Violation of EPA's 5% limit
Framingham	1.3% (June)	No
Waltham	1.3 (April)	No
MWRA Transmission Line	0.3% (August)	No

**How did we do in 2008?** The table above reports test results from 30 communities that receive all of their water from MWRA. Total coliforms were found in two communities, though no community exceeded the EPA standard. For more information, please read your community letter.

4



This is about 9 mg per 8 oz. glass which would be considered Very Low Sodium by the Food and Drug Administration (FDA).

## Test Results - After Treatment

Compound	Units	(MCL) Highest Level Allowed	(We found) Detected Level-Average	Range of Detections	(MCLG) Ideal Goal	Violation	How it gets in the water
BARIUM	ppm	2	0.009	0.008-0.011	2	No	Common mineral in nature
MONO-CHLORAMINE	ppm	4-MRDL	2.0	0.0-3.9	4-MRDLG	No	Water disinfectant
FLUORIDE	ppm	4	1.04	0.55-1.22	4	No	Additive for dental health
NITRATE^	ppm	10	0.16	0.02-0.16	10	No	Atmospheric deposition
NITRITE^	ppm	1	0.007	0.005-0.007	1	No	Byproduct of water disinfection
TOTAL TRIHALOMETHANES	ppb	80	3.7	0.7-7.5	ns	No	Byproducts of water disinfection
HALOACETIC ACIDS-5	ppb	60	5.7	nd-10.5	ns	No	Byproducts of water disinfection

**KEY:** **MCL**=Maximum Contaminant Level - The highest level of a contaminant allowed in water. MCLs are set as close to the MCLGs as feasible using the best available technology. **MCLG**=Maximum Contaminant Level Goal - The level of 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 health risk. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination. **ppm**=parts per million **ppb**=parts per billion **nd**=not detected **ns**=no standard ^As required by DEP, the maximum result is reported for nitrate and nitrite, not the average.



# WHAT TO KNOW ABOUT LEAD IN TAP WATER

## WHAT CAN I DO TO REDUCE EXPOSURE TO LEAD IN DRINKING WATER?

Run the tap until after the water feels cold. To save water, fill a pitcher with fresh water and place in the refrigerator for future use.

Never use hot water from the faucet for drinking or cooking – especially when making baby formula or other foods for infants.

Ask your local water department if there are lead service pipes leading to your home.

Test your tap water. Contact MWRA (617-242-5323, [www.mwra.com](http://www.mwra.com)) for more tips and a list of certified labs.



Be careful of places you may find lead in or near your home. Paint, soil, dust, and some pottery may contain lead.

Call the Department of Public Health at 1-800-532-9571 or EPA at 1-800-424-LEAD for health information.

MWRA water is lead-free when it leaves the reservoirs. MWRA and local pipes that carry the water to your community are made mostly of iron and steel, and do not add lead to water. However, lead can get into tap water through pipes in your home, your lead service line, lead solder used in plumbing, and some brass fixtures. Corrosion or wearing away of lead-based materials can add lead to tap water, especially if water sits for a long time in the pipes before it is used.

## WHAT IS MWRA DOING TO LOWER LEAD LEVELS? WHAT CAN I DO?

In 1996, MWRA began adding sodium carbonate and carbon dioxide to adjust the water's pH and buffering capacity. This change has made the water less corrosive, thereby reducing the leaching of lead into drinking water. Lead levels found in sample tests of tap water have dropped by over 80 percent since this treatment change. Local water departments are working to

decrease lead corrosion by replacing existing lead service lines. Also, MWRA is working with city and state governments to get rid of lead in all new household plumbing, in particular faucets. Federal law still allows new faucets to contain as much as 8% lead.

To further decrease your potential exposure, you should always use cold, fresh running water for drinking or cooking and buy plumbing fixtures that have no or low lead levels. Read the labels of any new plumbing fixture closely.

## MWRA MEETS LEAD STANDARD IN 2008

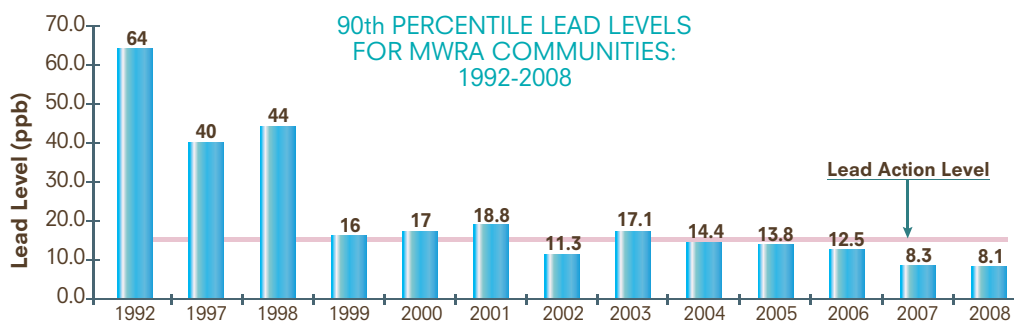
Under EPA rules, each year MWRA and your local water department must test tap water in a sample of homes that are likely to have high lead levels. These are usually homes with lead service lines or lead solder. The EPA rule requires that 9 out of 10, or 90%, of the sampled homes must have lead levels below the Action Level of 15 parts per billion (ppb).

Lead levels in sampled worst case homes have dramatically dropped since 1992. Over the last several years, the results have been below the EPA standard, including the last 10 sampling rounds. Results for September 2008 are shown in the table. 9 of 10 houses were below 8.1 ppb, which is below the Action Level of 15 ppb. Some communities had more than one home test above the Action Level. If you live in one of these communities, your town letter on page 7 will provide you with more information.

### SEPTEMBER 2008 LEAD & COPPER RESULTS

	Range	90% Value	(Target) Action Level	(Ideal Goal) MCLG	# Homes Above AL/ # Homes Tested
<b>Lead</b>	1.2-39.9 ppb	8.1 ppb	15 ppb	0	12/450
<b>Copper</b>	0.003-0.44 ppm	0.11 ppm	1.3 ppm	0	0/450

AL=Action Level – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow. Definition for MCLG available on page 4.



## IMPORTANT INFORMATION FROM EPA ABOUT LEAD

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. MWRA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. If 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 at 1-800-426-4791 or [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

# IMPORTANT EPA & DEP INFORMATION



## ARE THERE DRUGS IN MY DRINKING WATER?

Recently, you may have heard news reports about pharmaceuticals found in drinking water supplies in some parts of the country. Test results have shown no traces of drugs in MWRA's water supply. Pharmaceuticals in drinking water are more of a concern with water supplies that have wastewater discharged into them, but since MWRA's water sources are well protected, this is not a concern.

## CONTAMINANTS IN BOTTLED WATER AND TAP WATER

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 EPA's Safe Drinking Water Hotline (1-800-426-4791) or MWRA.

In order to ensure that tap water is safe to drink, the Massachusetts DEP and EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

## ONGOING RESEARCH FOR NEW REGULATIONS

Test	Measurement Units	2008 Average
Cryptosporidium	oocysts per 100L	0.009 <sup>^</sup>
Giardia	cysts per 100L	0.115
NDMA	ng/L	1.8*

KEY: ng/L=nanograms per liter (parts per trillion)

<sup>^</sup>Proposed treatment threshold is 1 oocyst per 100 liters.

\*The DEP "guidance value" is 10 ng/L



## RESEARCH AND REGULATIONS

MWRA has been working with EPA and other researchers to define new national drinking water standards by testing for contaminants that are not regulated. Our

results will be used with those of other water suppliers to help EPA set regulations if they are necessary. In order to better understand the water supply and treated water, MWRA has voluntarily been testing for *Cryptosporidium* and *Giardia*.



## DRINKING WATER AND PEOPLE WITH WEAKENED IMMUNE SYSTEMS

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, persons who have HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk for 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 microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

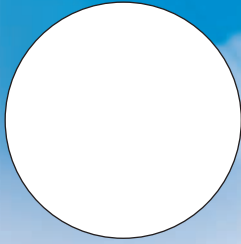
## WHERE TO GO FOR MORE INFORMATION...

Massachusetts Water Resources Authority (MWRA)	<a href="http://www.mwra.com">www.mwra.com</a>	617-242-5323
Massachusetts Department of Environmental Protection	<a href="http://www.mass.gov/dep">www.mass.gov/dep</a>	617-292-5500
Department of Conservation and Recreation	<a href="http://www.mass.gov/dcr/waterSupply.htm">www.mass.gov/dcr/waterSupply.htm</a>	617-626-1250
Massachusetts Department of Public Health (DPH)	<a href="http://www.mass.gov/dph">www.mass.gov/dph</a>	617-624-6000
US Centers for Disease Control and Prevention (CDC)	<a href="http://www.cdc.gov">www.cdc.gov</a>	800-232-4636
List of State Certified Water Quality Testing Labs	<a href="http://www.mwra.com/04water/html/testinglabs.html">www.mwra.com/04water/html/testinglabs.html</a>	617-242-5323
Source Water Assessment and Protection Report	<a href="http://www.mwra.com/sourcewater.htm">www.mwra.com/sourcewater.htm</a>	617-242-5323
Information on Cross Connections	<a href="http://www.mwra.com/04water/html/crossconnection.htm">www.mwra.com/04water/html/crossconnection.htm</a>	617-242-5323

### Public Meetings

MWRA Board of Directors	<a href="http://www.mwra.com/02org/html/boardofdirectors.htm">www.mwra.com/02org/html/boardofdirectors.htm</a>	617-788-1117
MWRA Advisory Board	<a href="http://www.mwraadvisoryboard.com">www.mwraadvisoryboard.com</a>	617-742-7561
Water Supply Citizens Advisory Committee	<a href="http://www.mwra.com/02org/html/wscac.htm">www.mwra.com/02org/html/wscac.htm</a>	413-586-8861

If you would like more in-depth information on your water quality, a monthly report is available at [www.mwra.com](http://www.mwra.com) or by calling 617-242-5323. Thank you for reading this report.



Public Water  
Supply  
# 3178000

## City of Melrose Public Works

**Robert E. Beshara, P.E.**

*City Engineer and Superintendent of Public Works*

**City Hall, 562 Main Street  
Melrose, Massachusetts 02176  
Telephone - 781-979-4170  
Fax - 781-662-6873**

June 2009

Dear Consumer:

This annual report provides detailed information on the MWRA's source water reservoirs and the quality of our water as determined through Federal and State criteria. Water quality test data, as well as definitions of the terms used in the drinking water industry are presented in clear and readily understandable language. We hope that this report provides you with a better understanding regarding your water supply. If you require more information on particular topics, please call the City of Melrose Water Department staff at 781-979-4175. Other informational contacts and phone numbers are provided in the report for the MWRA and the U.S. Environmental Protection Agency (EPA).

Locally, the City of Melrose is continuing an intensive city wide water construction program aimed at upgrading its water infrastructure. The City has completed the construction of two new water pump stations and installed approximately 26,637 linear feet or five (5) miles of new 8" and 12" water mains to increase the ISO insurance fire flow ratings and local area fire flow improvements, and to improve water pressure and water quality of domestic water system since the current program began in 2003. During 2009 the City will continue to replace old cast iron mains with new 8", 12" and 16" ductile iron mains, install new copper water services and install new hydrants and gate valves to replace the aging and inoperable hydrants and gate valves.

In addition to these major water programs, the City is continuing its uni-directional hydrant flushing program, hydrant testing and leak detection programs. These preventive maintenance programs will decrease the build up of iron and mineral deposits in our piping; reduce discoloration of water; reduce the likelihood of water main breaks; improve water accountability, quality and pressure; and identify areas of leakage and areas in need of repair within our system of approximately 90 road miles of water mains. In addition in 2004 the City instituted an in-house meter reading program for our 8,500 water customers which allows better accountability for water usage and less lost or unaccounted for water use. In 2008, our overall water consumption was 769,800,000 gallons. Our success in these endeavors amounts to a 72,768,000 gallon reduction in water consumption from the MWRA during 2007 and a 90,638,000 gallon reduction from 2006.

We receive many inquiries about lead in the drinking water. The simple answer is there is no lead in the water supply; however, lead can enter your tap water through contact with brass fixtures (which contain lead in the alloy), lead solder (which is now outlawed), old lead plumbing in the house or in the service line from the main to your house. Melrose takes samples twice yearly from 15 homes with lead, lead/tin solder and verified lead solder services. In the spring 2008, one of these water service samples tested above the action level of 15 ppb resulting in a community 90th percentile level of 13.6 ppb. In the Fall 2008 testing, two of Melrose's samples tested above the 15 ppb action level with a 90th percentile level of 16 ppb. Consequently, Melrose maintains an aggressive lead service testing program to insure the water being provided to the residents and through the schools is safe. In addition, Melrose administers a lead service replacement program of at least 7% of our known lead service locations each year. To find out if you might have a lead service line and how it can be replaced, please contact the Melrose Water Department at 781-979-4170 and ask to speak to an engineer. For more information about the potential for lead in the tap water and steps you can take to reduce exposure, please see page 5 or contact the Melrose Water Department.

Also, tap water samples are tested weekly for coliform, an indicator bacteria, which may signal the presence of more serious bacteria. Should background coliform be noted in any sample, further testing is done to determine the presence of more hazardous organisms. No background coliform was found in any sample during 2008.

Sincerely,

Robert E. Beshara, P.E.

City Engineer and Superintendent of Public Works