





# Where Does Your Water Come From?

Dear Customer,

This report contains the 2010 test results on your drinking water. Hundreds of thousands of tests confirmed that the quality of your water is excellent. For 2010, MWRA met every federal and state drinking water standard. System-wide, we have been below the Lead Action Level for the past seven years. Please see your community's letter for more information on your local system.

Two upcoming projects will enhance the quality and safe delivery of our water. Soon, we will begin building ultraviolet disinfection facilities at our Carroll Water Treatment Plant. Together with ozone, this will give us two forms of powerful disinfection. Then, we will be constructing a water tank and pumping station in Stoneham to provide storage for six communities, and redundancy for 21 communities in case of an emergency.

You may have heard press reports about a chemical called Hexavalent Chromium, or Chromium 6. Although there are no federal standards for this substance, MWRA has begun voluntary testing for it as recommended by the EPA. In response to the Japanese earthquake, we have also tested for and found no traces of radioactive iodine or cesium. As more information becomes available, we will share it with you at [www.mwra.com](http://www.mwra.com).

Please take a moment to read the important information in this report. We want you to share our confidence in your drinking water.

Sincerely,

Frederick A. Laskey  
Executive Director



MWRA Board Of Directors

Richard K. Sullivan, Jr., Chairman, John J. Carroll, Vice-Chair, Joseph C. Foti, Secretary, Joel A. Barrera, Kevin L. Cotter, Michael S. Gove, James W. Hunt III, Vincent G. Mannering, Andrew M. Pappastergion, Marie T. Turner, John J. Walsh

**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 51 communities. The two reservoirs combined supplied about 200 million gallons a day of high quality water to consumers in 2010.

The Quabbin and Wachusett watersheds are protected naturally with over 85% of the watersheds covered in forest and wetlands. To ensure safety, the streams and reservoirs are tested often and patrolled daily by the Department of Conservation and Recreation (DCR).

Rain and snow falling on 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 residents, farmers, and other interested parties to maintain the pristine watershed areas.



PHOTO BY ALAN JAMES, THE METROWEST HILL NEWS

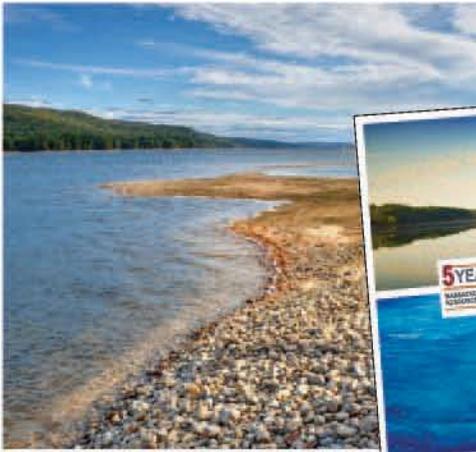
## The Green Choice

As water travels eastward directly to your faucet, clean hydro-energy is produced. MWRA also has wind turbines and solar panels at our Deer Island Plant and solar panels at our Carroll Treatment Plant. Tap water is delivered straight to your home without trucking or plastic waste. Drink tap water and be green!





# From the Reservoir to Your Home



**Water Treatment** 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, produced from pure oxygen gas, 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. 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.

**MWRA's Improvements To The Water Supply** 2010 marked the 25th anniversary of the MWRA. In that time, MWRA and our community partners have made improvements to the entire water system: from the watersheds, to the aqueducts and tunnels, to treatment plants, and to MWRA and local pipelines. These are the largest investments in the water system since the 1930s. MWRA and our community partners continue to make the necessary investments to maintain and upgrade our facilities. Take a look at our 25th anniversary report at [www.mwra.com](http://www.mwra.com).

**Testing Your Water – Every Step Of The Way** Test results show few contaminants are found in the reservoir water. The few that are found are in very small amounts, well below EPA's standards. Turbidity (or cloudiness of the water) is one measure of overall water quality. There are two standards for turbidity: all water must be below 5 NTU (Nephelometric Turbidity Units), and can only be above 1 NTU if it does not interfere with effective disinfection. MWRA met both of these standards. Typical levels at the Wachusett Reservoir are 0.4 NTU and were below the 1 NTU over 99.99% of the time. The highest level was 1.69 NTU, but this did not interfere with effective disinfection. MWRA also tests reservoir water for pathogens such as fecal coliform, bacteria, viruses, and the parasites *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.

**Test Results – After Treatment** EPA and State regulations require many water quality tests after treatment to check the water you are drinking. MWRA conducts tens of thousands of tests per year on over 120 contaminants (for a complete list visit [www.mwra.com](http://www.mwra.com)). The only contaminants found are listed below, and all levels met EPA's standards. The bottom line is that the water quality is excellent.

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	0.009-0.01	2	No	Common mineral in nature
Mono-chloramine	ppm	4-MRDL	1.8	0-3.6	4-MRDLG	No	Water disinfectant
Fluoride	ppm	4	1.05	0.75-1.15	4	No	Additive for dental health
Nitrate <sup>^</sup>	ppm	10	0.14	0.03-0.14	10	No	Atmospheric deposition
Nitrite <sup>^</sup>	ppm	1	0.01	0.01	1	No	Byproduct of water disinfection
Perchlorate	ppb	2	0.06	0.05-0.07	ns	No	Byproduct of water disinfection
Total Trihalomethanes	ppb	80	14	1.9-20.4	ns	No	Byproduct of water disinfection
Haloacetic Acids-5	ppb	60	12.4	0-18	ns	No	Byproduct 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 ns=no standard <sup>^</sup>As required by DEP, the maximum result is reported for nitrate and nitrite, not the average.



## Information About Cross Connections

Massachusetts DEP recommends the installation of backflow prevention devices for inside and outside hose connections to help protect the water in your home as well as the drinking water system in your town. For more information on cross connections, please call 617-242-5323 or visit [www.mwra.com/crosscon.html](http://www.mwra.com/crosscon.html).

## NOTICE

### Information on the May 1st Boil Water Order

On May 1st of 2010, a major pipe break caused a disruption in water service, and the activation of a back-up water supply. MWRA has several back-up supplies throughout the service area for emergencies. This back-up supply did not meet the high standards of our normal reservoir, and therefore a precautionary boil water order was needed. After repairs and many tests, normal water service was back within 72 hours. If MWRA were to have another emergency, you would be notified via radio, television, newspapers, state and local government, health officials, and by MWRA.



# 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, they 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 be positive. If a water sample does test positive, we run more specific tests for *E.coli*, which is a bacteria found in human and animal fecal waste and may cause illness.



MWRA has been working with EPA and other researchers to define new national drinking water standards by testing for unregulated contaminants. To better understand the drinking water, MWRA has voluntarily been testing for *Cryptosporidium* and *Giardia* prior to treatment. No *Cryptosporidium* was detected in 2010.

Test	Measurement Units	Average
<i>Giardia</i>	cysts per 100L	9.1

MWRA's disinfection is designed and operated to kill *Giardia*.

NDMA	nanograms per liter	0.54*
------	---------------------	-------

\*The result is from 2009. The DEP guidance value for NDMA is 10 ng/L.



## 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 undergone organ transplants, people with HIV/AIDS 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 EPA's Safe Drinking Water Hotline (1-800-426-4791).

## 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 Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water which must provide the same protection for public health.



Community	Highest % of positive samples and month	Violation of EPA's 5% limit
Arlington	2.5% (May)	No
Belmont	4.3% (Aug)	No
Boston	0.7% (May)	No
Brookline	1.1% (Aug)	No
Chelsea	1.9% (Mar)	No
Framingham	2.6% (Nov)	No
Saugus	1.7% (May)	No
Somerville	7.0% (Nov)	Yes*
Stoneham	3.1% (Oct)	No
MWRA	0.8% (Aug)	No

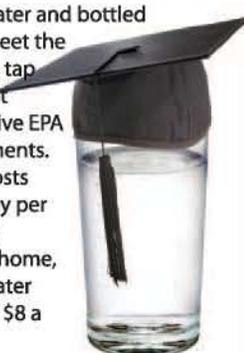
## How Did We Do In 2010?

The table reports test results from 30 communities that receive all of their water from MWRA. No *E.coli* was found in any MWRA community in 2010. \*Residents of Somerville should read their community letter for more information.



## Tap Water- The Smart Choice!

Although tap water and bottled water have to meet the same standards, tap water must meet the more intensive EPA testing requirements. Yet, tap water costs less than a penny per gallon delivered straight to your home, while bottled water costs from \$1 to \$8 a gallon.



## Facts About Sodium

Sodium in water contributes only a small fraction of a person's overall sodium intake (less than 10%). MWRA tests for sodium monthly and the highest level found was 35.3 mg/l (about 9 mg per 8 oz. glass). This would be considered very low sodium by the Food and Drug Administration.



City of Chelsea  
DEPARTMENT OF PUBLIC WORKS

Public Water Supply  
# 3155000

The Chelsea Department of Public Works is pleased to provide this annual newsletter to keep you informed about your water system. We would like to provide a recap of the major points for any new customers or residents who may not have seen last year's newsletter.

**Our Distribution System**

The City of Chelsea purchases all of its water directly from the MWRA. The water is delivered through five MWRA master meters into the city's distribution system. The distribution system consists of the network of pipes, valves, hydrants and service lines. The system delivers water to homes, businesses and other facilities for drinking and other uses. The system is also used for fire protection.

Chelsea's distribution system is comprised of approximately sixty miles of water mains ranging from six-inch to twenty-inch diameter. There are five hundred and thirty-nine hydrants that are owned and maintained by the city. There are approximately one thousand gate valves that allow isolated portions of the system to be shut down for repairs and maintenance. Seventy percent of the pipes in the system all over fifty years old with approximately forty-seven percent unlined cast iron pipe. Unlined pipe allows tuberculation (rust) to grow on the inside surfaces of the pipe. While not a health problem, these tubercles can affect the ability of the pipe to carry flows for fire fighting purposes and can affect the appearance of the water, such as yellow and red water problems.

**Capital Improvement Plan**

Through the Capital Improvement Plan, the City of Chelsea is committed to making improvements to the distribution system. In 2010 the water main on Chester Avenue was replaced. Also, on Reynolds Avenue, the city abandoned the cast iron main and connected home services to the existing ductile iron water main. In the Fiscal Year 2012 Capital Improvement Plan the DPW has requested funds to replace the water mains on the following streets: Washington Avenue from Revere Beach Parkway to Herd Street, Broadway from Williams Street to Commandants Way, and Garfield Avenue from Washington Avenue to Clyde Street.

Our engineers have other areas under design that will be constructed in future years. This expenditure represents a substantial commitment from the City Council, the City Manager and the Department of Public Works to continue to improve the quality of your drinking water and to provide improved flows to aid the Fire Department in their mission.

The Chelsea DPW tests for lead in 15 homes twice a year. In 2010 Chelsea met the Lead Action Level of 15 ppb, with results of 4.04 and 5.06 ppb. Chelsea has a lead service line replacement program and has identified all the remaining lead service lines. This year the city will replace 7% of the estimated 300 remaining lead service lines. To find out more about the program, please contact the phone number listed below. For more information about the potential presence of lead in tap water and steps that may be taken to reduce exposure, please see page 5.

**If you have any questions or comments about your water, or on meetings, please call us at the following numbers:**

Water Bills	(617) 466-4240	Water Operations	(617) 466-4310
Water Meters	(617) 466-4302	MWRA	(617) 242-5323

Joseph C. Foti, Director of Public Works



# What You Need to Know About Lead In Tap Water

**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 the 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.

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 almost 90 percent since this treatment change.

**MWRA Meets Lead Standards In 2010** 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).

All 14 sampling rounds over the past seven years have been below the EPA standard. Results for the 450 samples taken in September 2010 are shown in the table. 9 out of 10 houses were below 7.03 ppb, which is below the Action Level of 15 ppb. Some individual communities had more than one home test above the Action Level for lead. If you live in one of these communities, your town letter will provide you with more information.

September 2010 Lead & Copper Results

	Range	90% Value	(Target) Action Level	(Ideal Goal) MCLG	# Homes Above AL/ # Homes Tested
Lead	0.07-57.5	7	15	0	10/450
Copper	0.003-0.3	0.1	1.3	0	0/450

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

90% Lead Levels in MWRA Fully Served Communities 1992 - 2010

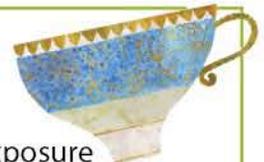


## Important Lead Information from EPA

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

## 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 food for infants.
- ▶ Ask your local water department if there is a lead service line leading to your home.
- ▶ **Check your plumbing fixtures to see if they are lead-free.** Read the labels closely.
- ▶ Test your tap water. Call the MWRA Drinking Water Hotline (617-242-5323) or visit our website for more tips and a list of **DEP certified labs that can test your water.**
- ▶ **Be careful of places where you may find lead** in or near your home. Paint, soil, dust and some pottery may contain lead.
- ▶ Call the MA Department of Public Health at 1-800-532-9571 or EPA at 1-800-424-LEAD for health information.