

Tap Water Delivers



2007 Annual Drinking Water Report
Massachusetts Water Resources Authority

Massachusetts Water Resources Authority and Your Local Water Department

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This is a "right-to-know" report and contains important information on the quality of your drinking water!

<p>This report contains very important information about your drinking water. Please translate it, or speak with someone who understands it.</p>	<p>Si usted desea obtener una copia de este reporte en español, llámenos al teléfono 617-788-1190.</p>	<p>La relazione contiene importanti informazioni sulla qualità dell'acqua della Comunità. Tra-durlo o parlane con un amico che lo comprenda.</p>	<p>O relatório contém informações importantes sobre a qualidade da água da comunidade. Peça para alguém que o entenda melhor.</p>	<p>Sprawozdanie zawiera ważne informacje na temat jakości wody w Twojej miejscowości. Poproś kogoś o przelumaczenie go lub porozmawiaj z osobą która je dobrze rozumie.</p>	<p>يحتوي هذا التقرير على معلومات هامة عن نوعية ماء الشرب في منطقتك. يرجى ترجمته أو البحث للتقرير مع صديق لك يفهم هذه المعلومات جيداً.</p>	<p>Η κατάσταση του νερού παρουσιάζει σημαντικές πληροφορίες για το ποσάτο νερό που Προσκόλλας να το μεταφράσετε ή να το σχολιάσετε με κάποιον που το καταλαβαίνει απίλητως.</p>	<p>Отчет содержит важную информацию о качестве воды в Вашем районе. Переведите его или попросите друга, хорошо понимающего текст, объяснить Вам его содержание.</p>
<p>Im Bericht steht wichtige Information über die Qualität des Wassers Ihrer Gemeinschaft. Der Bericht soll übersetzt werden, oder sprechen Sie mit einem Freund, der ihn gut versteht.</p>	<p>这份报告中有些重要信息。讲到关于您所在社区的水的品质。请您找人翻译一下，或者请能看懂这份报告的朋友给您解释一下。</p>	<p>この資料には、あなたの飲料水についての大切な情報が載っています。内容をよく理解するために、日本語に翻訳して読むか説明を受けてください。</p>	<p>इस रिपोर्ट में आपके क्षेत्र के पानी के गुणवत्ता पर बहुत जरूरी जानकारी दी गई है। कृपया हमला अनुवाद करें। या किसी जानकार से इस बारे में पूछें।</p>	<p>ამ რეპორტში წყლის ხარისხის შესახებ მნიშვნელოვანი ინფორმაციაა მოცემული. გთხოვთ, თქვენს მეგობარს ან სხვას დაუკავშირდეთ, რომელიც ეს ინფორმაცია გასაგებად გასწავლის.</p>	<p>이 보고서는 매우 귀중한 거주하는 지역의 수질에 관한 중요한 정보가 들어 있습니다. 이것을 번역하거나 충분히 이해 하시는 친구와 상의하십시오.</p>	<p>Bản báo cáo có ghi những chi tiết quan trọng về phẩm chất nước trong cộng đồng quý vị. Hãy nhờ người thông dịch, hoặc hỏi một người bạn biết rõ về vấn đề này.</p>	<p>Le rapport contient des informations concernant la qualité de l'eau de votre communauté. Faites-le traduire, ou parlez-en à un ami qui le comprend bien.</p>

FOR A LARGE PRINT VERSION OF THIS REPORT, CALL (617) 242-5323.



Dear Customer,

The Massachusetts Water Resources Authority is pleased to send you this year's annual report on your drinking water quality. MWRA has great confidence in the water we deliver to your home and we want you to have the same confidence.

MWRA BOARD OF DIRECTORS

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MWRA and your local water department test thousands of water samples each week, under strict federal and state guidelines. The results for 2007 are excellent. MWRA again met every standard for the 120 contaminants we test for.

I am also pleased to report that the lead test results for 2007 and the first half of 2008 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. Please read page 7 to see if your community tested above the Lead Action Level, and page 5 to learn what MWRA is doing to help reduce lead at the tap and what you can do to reduce lead exposure in your home.

In recent months, you may have heard news reports about pharmaceuticals found in drinking water supplies in some parts of the country. The most common sources of pharmaceuticals are wastewater treatment plants that discharge to water bodies that are also used as drinking water sources. Rest assured that the water MWRA delivers comes from protected reservoirs with no wastewater treatment plant in their watersheds. And, just to be sure, recent tests have shown no traces of pharmaceuticals in MWRA water.

Another topic that's frequently in the news is bottled water versus tap water. Sure, bottled water is convenient when you're on the go and is a healthy alternative to soft drinks. But in dozens of taste and quality tests here and across the country, the only area where bottled water and tap water differ significantly is cost. At less than a penny per gallon, tap water is the cleanest, safest and most cost effective choice.

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
Executive Director



THIS REPORT IS REQUIRED UNDER THE FEDERAL SAFE DRINKING WATER ACT AND PROVIDES IMPORTANT INFORMATION ON:


- Where your water comes from _____ 2
- Map of the water system _____ 2
- How your water is treated _____ 3
- Improvements to the system _____ 3
- Test results _____ 4
- Information about lead _____ 5
- Special notice for the immuno-compromised _____ 6
- List of further resources _____ 6
- Information on your local water supply _____ 7

Share your comments.

Call or email us and let us know what you think about this report or your water. For instance, have you noticed a change in the taste of your water? Water quality complaints from our customers are at an all time low since the start of the new ozone treatment plant.

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YOUR PENNY BUYS YOU A GALLON OF SOME OF THE MOST WELL-PROTECTED DRINKING WATER IN THE COUNTRY, DELIVERED STRAIGHT TO YOUR TAP. 

WHERE DOES YOUR WATER COME FROM?

Your drinking water comes from the Quabbin Reservoir, about 65 miles west of Boston, and the Wachusett Reservoir, about 35 miles west of Boston. The water from these reservoirs supply wholesale water to local water departments in 50 communities, 44 in greater Boston and MetroWest, three in Western Massachusetts, and is a back-up supply for three others. The two reservoirs combined supplied about 220 million gallons a day of high quality water to consumers in 2007. Your water also comes from local water supplies. Please see

page 7 for more information.

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 Quabbin and Wachusett watersheds are protected naturally with over 85% of the land 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).

The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program report for the Quabbin and Wachusett Reservoirs. The

How would we know about a problem with the water supply?

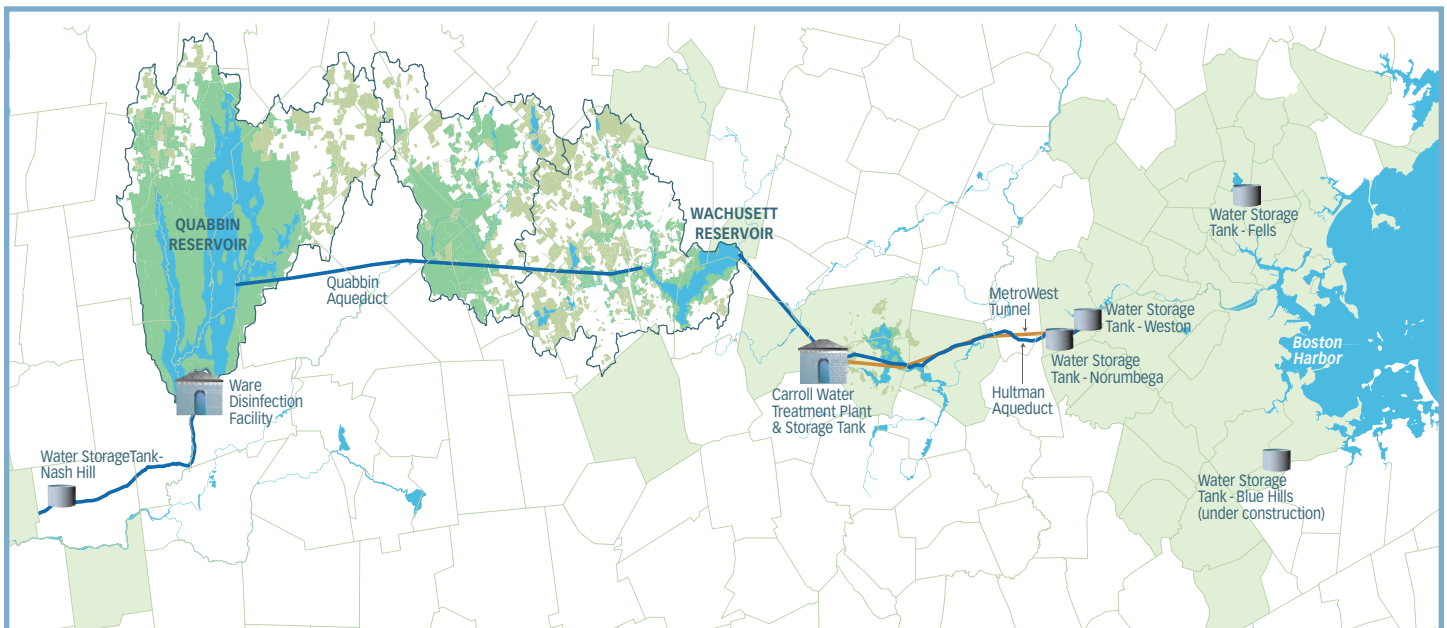
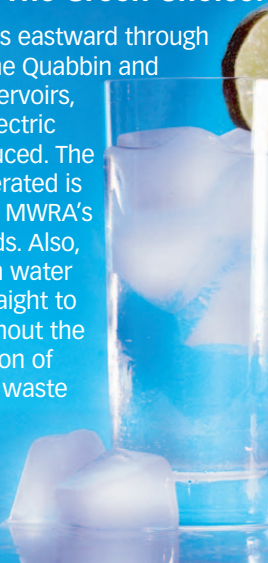


MWRA and your local water department keep close watch on the water supply. If there is a problem with your water, you would get the news by the radio, television and newspapers, from MWRA, and local and state water and health officials.

report notes that wildlife (birds and aquatic animals), agriculture, transportation corridors, transmission lines, and residential land use are the key issues in the watershed. 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

YOUR PENNY BUYS YOU A GALLON OF GREAT-TASTING, CLEAN WATER THAT HAS BEEN TREATED WITH ADVANCED OZONE DISINFECTION. 



Water Treatment Steps - Carroll Water Treatment Plant

Since July 2005, 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 monochloramine, a mild and long lasting disinfectant combining chlorine and ammonia, which protects the water while

it is in the local pipelines. This treatment ensures that MWRA meets current and tougher future state and federal water quality standards. Your local water supply may also have different treatment. Please see page 7 for more information.

MWRA's Improvements to Water Supply


MWRA has nearly completed its \$1.7 billion Integrated Water Supply Improvement Program. These projects are the largest investments made in the water system since the Quabbin Reservoir was constructed in the 1930s. But, MWRA is still working to improve the system. Construction is underway on a covered storage tank in the Blue Hills in Quincy. MWRA and our community partners will continue to make the necessary investments to maintain and upgrade our facilities, so that we can deliver quality water directly to customers' taps 24 hours a day, seven days a week.

Maintaining the Pipe System

MWRA and its customer communities have an extensive pipe network with thousands of miles of pipes. Many of these pipes are over 50 years old, with some over 100 years old. MWRA provides zero-interest loans to help communities replace and improve these older pipes. To date, \$135 million dollars have been loaned to communities, and nearly 300 miles of pipes have been repaired or replaced. But, there are still hundreds of miles that need

Bottled vs. Tap – The Smart Choice!


While tap water costs around 1 penny per gallon, bottled water can range from about \$1 to over \$8 dollars per gallon.



to be replaced over the coming years to ensure drinking water quality, system reliability, and water pressure.

Water Conservation

Want to know how you can save some pennies? Conservation! On average, each person uses about 65 gallons of water each day. There are many simple ways you can conserve water, 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 20 years. But, we must still conserve this precious resource. To find out more, contact the MWRA at 617-242-SAVE or visit www.mwra.com.



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 greatly reduces the amount of potentially harmful chlorine byproducts.



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 32.2 mg/L (about 9 mg per 8 oz. glass). This is considered **VERY LOW SODIUM** by the Food and Drug Administration (FDA).



YOUR PENNY BUYS YOU A GALLON OF SAFE WATER THAT HAS BEEN TESTED EVERY STEP OF THE WAY FROM THE RESERVOIR TO YOUR HOME. 



TESTING YOUR WATER every step of the way

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 water. 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 Wachusett Reservoir are 0.4 NTU (Nephelometric Turbidity Units). In 2007, turbidity was always below both EPA's standard of 5.0 NTU and the stricter Massachusetts standard of 1.0 NTU, with the highest level at 0.78 NTU. 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.



Bottled vs. Tap - What's the testing difference?

Tap and bottled water must meet the same water standards. Tap water must meet more intensive Environmental Protection Agency (EPA) testing requirements in

comparison to bottled water which is regulated by the Food and Drug Administration (FDA). MWRA water meets all federal and state standards, so you are receiving clean, crisp water straight from the tap - no bottles, no extra cash, no costly transport, no trash.

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 generally requires that no more than 5% of the samples in a given 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.

Total Coliform Results

Community	Highest % of positive samples and month	Violations of EPA's 5% limit
NORTHBOROUGH	1 of 19 (June)	No
WESTBOROUGH STATE HOSPITAL	1 of 11 (Oct.)	No
WOBURN	4.4% (Feb.)	Yes*
MWRA TRANSMISSION LINES	1.4% (July)	No



How did we do in 2007? The table above reports test results from 9 communities that receive some, but not all, of their water from MWRA. Total coliform were found in the communities listed above. *Acute violation due to *E.coli*. Residents of Woburn should read their letter on page 7 for more information.

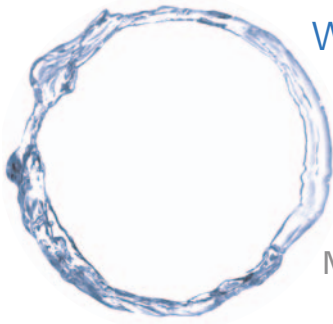
Tests After Treatment

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. The water quality is excellent. All of the levels are below EPA's allowable limits. For a complete list of contaminants, go to www.mwra.com. For results on your local water supplies, please see page 7.

Reservoir Water 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	0.007-0.011	2	No	Common mineral in nature
MONO-CHLORAMINE	ppm	4-MRDL	1.9	0.0-3.7	4-MRDLG	No	Water disinfectant
FLUORIDE	ppm	4	1.14	0.69-1.21	4	No	Additive for dental health
NITRATE^	ppm	10	0.17	0.02-0.17	10	No	Atmospheric deposition
NITRITE^	ppm	1	0.01	0.005-0.01	1	No	Byproduct of water disinfection
TOTAL TRIHALOMETHANES	ppb	80	4.9	1.6-6.6	ns	No	Byproducts of water disinfection
HALOACETIC ACIDS-5	ppb	60	6.3	nd-11.4	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 you need to know about

LEAD IN YOUR 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 WATER. 

Lead can get into tap water through pipes in the home, 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 long time in the pipes before use.

What is MWRA doing to lower 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 plumbings, particularly 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 2007

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).

The following results are for the MWRA system. For lead and copper results for your community, please see page 7. 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. Results for 452 samples taken in September 2007 are shown in the table, with an overall test score meeting the 90% standard. 9 of 10 houses were below 8.3 ppb, which is below the Action Level of 15 ppb.

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

What can I do to reduce exposure to lead in drinking water?



- 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 are lead service pipes leading to your home.
- Test your tap water. Contact MWRA (617-242-5323 or 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.

September 2007 Lead & Copper Results

	Range	90% Value	(Target) Action Level	(Ideal Goal) MCLG	# Homes Above AL/# Homes Tested
LEAD	1.2 - 351 ppb	8.3 ppb	15 ppb	0	26/452
COPPER	0.003-0.51 ppm	0.11 ppm	1.3 ppm	0	0/452

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.

90th Percentile Lead Levels for MWRA Communities: 1992-2007



Important Information from EPA about Lead



Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels in your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap until after it is cold before using tap water.

important information from EPA AND DEP



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.

Research and New 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. MWRA is also participating with Tufts University on a nationally-funded study testing for *Cryptosporidium* and *Giardia*.

Ongoing Research for New Regulations		
Test	Measurement Units	2007 Average
Aeromonas	cfu/100 ml	0.002 (0-0.2)
<i>Cryptosporidium</i>	oocysts per 100L	0.06^
<i>Giardia</i>	cysts per 100L	0.05
NDMA	ng/L	1.4

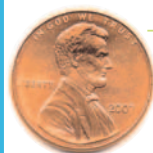
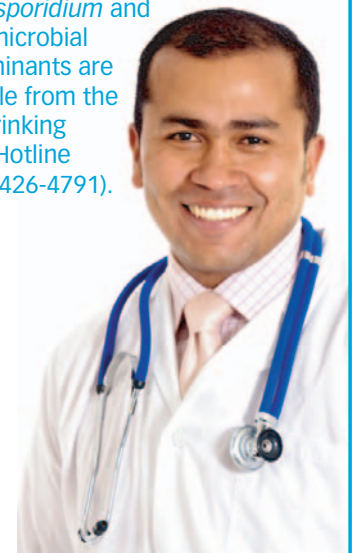
cfu/100 ml=colony forming units per 100 milliliters
ng/L=nanograms per liter (parts per trillion)
^Proposed treatment threshold is 1 oocyst per 100 liters

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 Safe Drinking Water Hotline (1-800-426-4791).



➤ Hopefully, you have enjoyed reading this report and have confidence in your drinking water. If you would like more information on your water quality, a monthly report is available at www.mwra.com or by calling 617-242-5323. Thank you for reading this report.

For further information...

Massachusetts Water Resources Authority (MWRA)	www.mwra.com	617-242-5323
Massachusetts Department of Environmental Protection	www.mass.gov/dep	617-292-5500
Department of Conservation and Recreation	www.mass.gov/dcr/waterSupply.htm	617-626-1250
Massachusetts Department of Public Health (DPH)	www.mass.gov/dph	617-624-6000
US Centers for Disease Control and Prevention (CDC)	www.cdc.gov	1-800-311-3435
List of State Certified Water Quality Testing Labs	www.mwra.com/water/html/qual6.htm	617-242-5323
Source Water Assessment and Protection Report	www.mwra.com/sourcewater.htm www.mass.gov/dep/water/drinking/swap.htm	617-242-5323
➤ Public Meetings		
MWRA Board of Directors	www.mwra.com/02org/html/gov.htm	617-788-1117
MWRA Advisory Board	www.mwraadvisoryboard.com	617-742-7561
Water Supply Citizens Advisory Committee	www.mwra.com/02org/html/wscac.htm	413-586-8861

