



2003
drinking
water
test results

drinking water

what you should know about your



MASSACHUSETTS WATER RESOURCES AUTHORITY



Massachusetts
Water Resources
Authority
and Your Local
Water Department

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This is a "right-to-know" report required to be sent to you under the U.S. environmental protection laws. It 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 parlarne con un amico che lo comprenda.</p>	<p>O relatório contém informações importantes sobre a qualidade da água da comunidade. Tra-duza-o ou peça a alguém que o ajude a entendê-lo melhor.</p>	<p>Sprawozdanie zawiera ważne informacje na temat jakości wody w Twojej miejscowości. Poproś kogoś o przełożenie go lub porozmawiaj z osobą która je dobrze rozumie.</p>	<p>يحتوي هذا التقرير على معلومات هامة عن نوعية مياه الشرب في منطقتك. يرجى ترجمته أو إحدث الخبر مع من يدرك لغة هذه المنطقة جيداً.</p>	<p>Этот отчет содержит важную информацию о качестве воды в Вашем районе. Переведите его или попросите друга, хорошо понимающего текст, объяснить Вам его содержание.</p>	<p>Стат отчет съдържа важна информация за качеството на водата в Вашия район. Преведете го или попросете друг да Ви обясни съдържанието на текста.</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的信息，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書かれています。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要してください。</p>	<p>एक रिपोर्ट में "पीने के पानी" के विषय पर बहुत महत्वपूर्ण जानकारी दी गई है। इसका अर्थ समझने के लिए या किसी को समझाने के लिए इसे पढ़ें।</p>	<p>આ અહેવાલમાં પીવાના પાણીની ગુણવત્તા વિશેની મહત્વની માહિતી આપવામાં આવી છે. આ માહિતી સમજવા માટે અથવા અન્યને સમજાવવા માટે તે વાંચવું જરૂરી છે.</p>	<p>이 보고서는 귀하가 거주하는 지역의 수질에 관한 중요한 정보가 들어 있습니다. 이것을 번역하거나 충분히 이해하시는 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 thạo, 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>

A LARGE PRINT VERSION OF THIS REPORT IS AVAILABLE. PLEASE CALL US AT 617-242-5323 FOR A COPY.

a letter from the EXECUTIVE DIRECTOR



MASSACHUSETTS WATER RESOURCES AUTHORITY
CHARLESTOWN NAVY YARD • 100 FIRST AVENUE • BOSTON, MA 02129

Dear Customer:

June, 2004

Once again, I am pleased to send you this annual report on your drinking water quality. The report describes how we treat, test, and deliver tap water to your home. The Massachusetts Water Resources Authority (MWRA) and your local water department test up to 500 samples each week and for over 120 contaminants each year. This report includes the results of those tests for 2003. The results show that the source water is excellent.

After a decade of planning, design, and construction, the new water tunnel and the major covered storage facilities are complete. For the first time in the history of our region's great water system, there are no open distribution reservoirs in service within the metropolitan area. Once the water leaves the Wachusett Reservoir, it does not see the light of day until it comes out of the tap in your home. And when the new treatment plant is completed early next year, water quality will be even better.

I hope you will take a few moments to read this important report on your water. MWRA has great confidence in the water we deliver to over 2 million customers and we hope that this report will give you the same confidence. Please contact us if you have any questions or comments about your water quality, or any of MWRA's programs.

Sincerely,

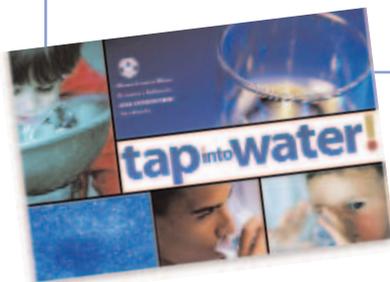
Frederick A. Laskey
Executive Director

share your THOUGHTS

Your comments on all of our reports help us improve them. We have continued to keep costs down on this report. Each copy costs only 31 cents to print and mail. Give us a call, send a letter or e-mail, and let us know what you think.

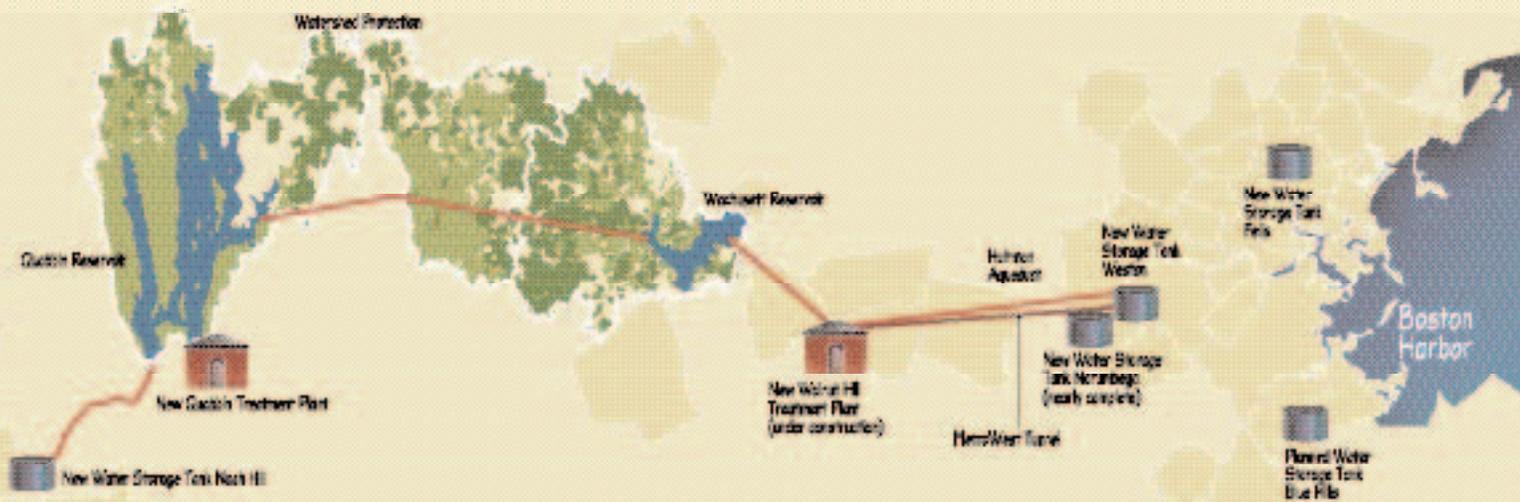
MASSACHUSETTS WATER RESOURCES AUTHORITY
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ESPAÑOL 617-788-1190

THIS REPORT IS REQUIRED UNDER THE FEDERAL SAFE
DRINKING WATER ACT PUBLIC LAW 104-12, SECTION 1414(C)(4)
PWS ID #6000000



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Where does your WATER come from?

The MWRA supplies wholesale water to local water departments in 40 cities and towns of greater Boston and MetroWest and three in Western Massachusetts. This water comes from Quabbin Reservoir, about 65 miles west of Boston, and Wachusett Reservoir, about 35 miles west of Boston. The reservoirs combined provide about 250 million gallons of high quality water to consumers each day. Your water also comes from local water supplies. Please see page 7 for more information about them.

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 nature's path to the reservoirs. While this process helps clean the water, it can also dissolve and carry very small amounts of material into the reservoir. Minerals from soil and rock, including low levels of natural radioactive materials, do not usually cause problems in the water. But water can also transport contaminants from human and animal activity. These can include bacteria, viruses, pesticides, and fertilizers - some of which can cause illness. The test data in this report show that these are not a problem in your reservoirs' watersheds.

Quabbin and Wachusett watersheds are protected naturally, as over 85% of the watersheds are 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).

MAJOR IMPROVEMENTS UNDERWAY

MWRA's Integrated Water Supply Improvement Program is a 10-year, \$1.7 billion series of projects designed to improve system reliability and security with new water treatment and transmission facilities. The major components are:

METROWEST WATER SUPPLY TUNNEL

The new 17.6-mile tunnel is the backbone of the MWRA's new water system. The tunnel began operating in November 2003. It will connect the new treatment plant at Walnut Hill in Marlborough to the greater Boston area. The new tunnel greatly improves dependability, capacity, and safety. This is now the main transmission line with the old Hultman Aqueduct as the back-up.

WATER STORAGE TANKS

The last of MWRA's open distribution reservoirs was replaced with a covered storage tank in March 2004. Five new tanks now provide better water quality control and security for water on the way to your tap. The Norumbega Storage Tank in Weston is the largest covered storage tank in the country and holds 115 million gallons. Other new covered storage tanks are in Weston, Ludlow, Stoneham, and Marlborough. Future tanks are planned for the Quincy and Stoneham regions.

WALNUT HILL WATER TREATMENT PLANT

This new plant will provide state-of-the-art treatment to drinking water. It will consolidate all treatment steps into one plant, and will use ozone rather than chlorine for primary disinfection. Ozone will provide stronger disinfectant for pathogens, such as *Cryptosporidium*, and will reduce levels of disinfection byproducts. The plant is scheduled to be up and running in early 2005.

PIPELINE REHABILITATION

MWRA and local water departments continue to work to replace, clean, and reline both MWRA and locally-owned older pipes to maintain the water's high quality.

from RESERVOIR to your HOME

Your water is tested each step of the way – from the reservoir to the tap to ensure that the water you receive is top-quality.

How does MWRA protect my water?

DCR rangers, in partnership with MWRA, patrol the Quabbin and Wachusett Reservoirs and incoming streams within the watershed every day. The water is tested daily for many parameters, and many more tests are performed weekly and monthly.



Operators monitor the water that comes to your community 24 hours a day, 365 days a year. Also, in response to any heightened alerts from the Department of Homeland Security, MWRA has taken extra security steps including locking down operational facilities, added facility checks, increased water quality monitoring, and many other security measures.

TESTS BEFORE TREATMENT

We test the water as it leaves the reservoir to see how well our watershed protection is working. 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 0.3 NTU (Nephelometric Turbidity Units). In 2003, turbidity was always below EPA's standard of 5.0 NTU. It was below the stricter Massachusetts standard of 1.0 NTU over 99.99% of the time, with the highest level at 1.55 NTU. 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.

WATER TREATMENT

MWRA's licensed treatment operators treat water at several places in the system. The first treatment step is the primary disinfection of reservoir water. We carefully add measured doses of chlorine to the water to kill any pathogens (germs) that may be present in the water. Next, the water chemistry is adjusted to



reduce corrosion of lead and copper from home plumbing (see page 5). Fluoride is then added to reduce cavities. Last, we add chloramine, a mild and long-lasting disinfectant combining chlorine and ammonia, which protects the water while it is in the local pipelines.

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 thousands of tests per year. This allows us to better monitor your water.

WHAT DOES THIS TABLE TELL ME?

EPA requires that we test for over 120 contaminants. MWRA found no contaminants above EPA standards. For results on your local water supply, please see page 7.

WATER TEST RESULTS - AFTER TREATMENT

compound	units	(MCL) highest level allowed	(we found) detected level	range of detections	(MCLG) ideal goal	violations	how it gets in the water
Barium	ppm	2	0.012	0.007-0.012	2	No	Common mineral in nature
Fluoride	ppm	4	1.34	0.04-1.34	4	No	Additive for dental health
Nitrate	ppm	10	0.17	0.02-0.17	10	No	Natural deposits, stormwater/fertilizer runoff
Nitrite	ppm	1	0.01	0.01	1	No	Natural deposits, stormwater/fertilizer runoff
Alpha Emitters	pCi/l	15	0.9	0.1-0.9	0	No	Erosion of natural mineral deposits
Beta Particles	pCi/l	50*	3.3	0.4-3.3	0	No	Erosion of natural mineral deposits
Combined radium	pCi/l	5	0.9	0.1-0.9	0	No	Erosion of natural mineral deposits
Total Trihalomethanes	ppb	Avg=80	Avg=66.2	32.7-88.4	0	No	Byproducts of water disinfection
Halooxetic Acids-5	ppb	Avg=60	Avg=26.8	1.6-54.9	0	No	Byproducts of water disinfection

KEY: MCL = Maximum Contaminant Level - The highest level of a contaminant that is 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 an margin of safety. ppm = parts per million; ppb = parts per billion; pCi/l = picocuries per liter. *EPA considers 50 pCi/L to be the level of concern for beta particles. Avg = Average

QUESTION

My water is cloudy or discolored once in a while. Can I drink it?

You can safely drink, cook with, or bathe in this water. If you have a concern, call the MWRA or your local water department.

Water is piped under pressure throughout the system. Sometimes air can become trapped in the water causing cloudiness. This happens more often in cold weather. This cloudiness is only temporary, and the water clears up in a short time.



Rust from old iron pipes can cause a red, brown, or yellow color in water. Changes in water speed or direction in your local pipes cause rust to be carried along. This can happen when the valves are being repaired, the system is being flushed or tested, or fire hydrants are in use. Wait until the water is clear before doing laundry to avoid staining clothes.



TESTS IN COMMUNITY PIPES

MWRA and local water departments work together to test water all the way to the tap. We test 300 to 500 samples of water in the city and town systems each week for total coliform bacteria. Total coliform bacteria can come from the intestines of warm-blooded animals, and they also can be found in soil, on plants, and other places. Most of the time, these bacteria are not harmful to humans. 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 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 pathogen found in human and animal fecal waste that can cause illness.

HOW DID WE DO IN 2003?

The table reports test results from 9 communities that receive some, but not all, of their water from MWRA.

Total Coliform Results - Partially Supplied

community	highest % of positive samples and month	violations of EPA's 5% limit
Marborough	3.4% (September)	No
MWRA transmission lines	0.6% (April)	No

Total coliform was found in only 1 community, and the level did not exceed the EPA standard.

NEW EPA REGULATIONS

MWRA has been working with EPA and other researchers to define new national drinking water rules by testing for compounds which are not regulated. Our results will be used with those of other water suppliers to help EPA set regulations for these compounds 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

tests	measurement units	2003 average
Radon	pCi/L	1.3 (range 3-25)
Virus	MPN/L	0.002
Cryptosporidium	ocysts per 100L	0.01
Giardia	cysts per 100L	0.01
Aeromonas	MPN/100 ml	72

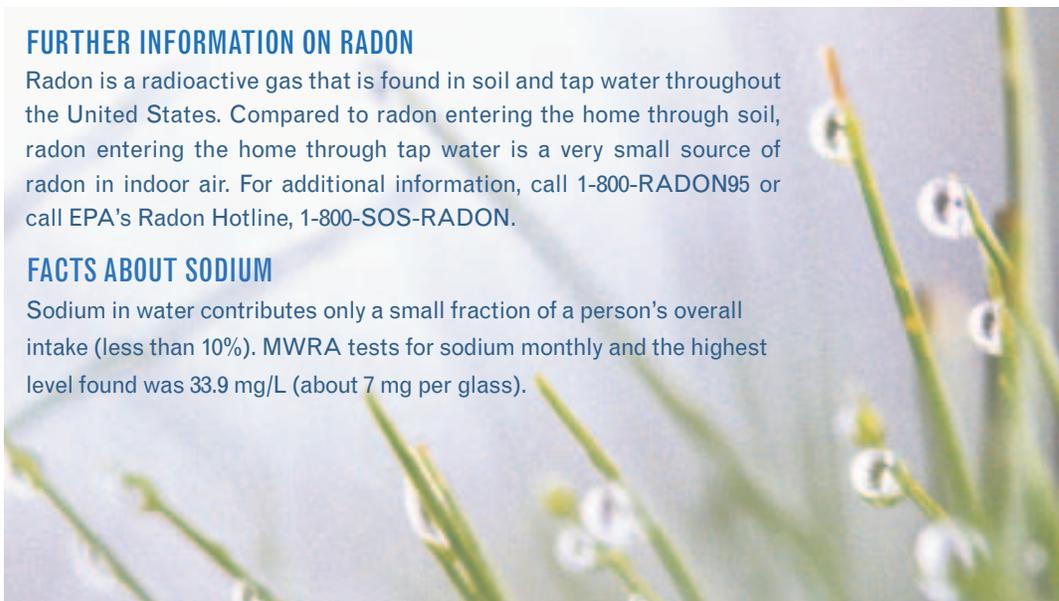
KEY: pCi/L=picocuries per liter; MPN= most probable number

FURTHER INFORMATION ON RADON

Radon is a radioactive gas that is found in soil and tap water throughout the United States. Compared to radon entering the home through soil, radon entering the home through tap water is a very small source of radon in indoor air. For additional information, call 1-800-RADON95 or call EPA's Radon Hotline, 1-800-SOS-RADON.

FACTS ABOUT SODIUM

Sodium in water contributes only a small fraction of a person's overall intake (less than 10%). MWRA tests for sodium monthly and the highest level found was 33.9 mg/L (about 7 mg per glass).



LEADⁱⁿ TAP WATER

MWRA's source water and the water in distribution pipes in your town is lead free. However, water left in contact with lead pipes or fixtures for a long time can leach out lead pipes, lead solder, and some brass fixtures, or the service line that connects the distribution main to your home plumbing, if it is made of lead.

WHAT IS BEING DONE TO REDUCE LEAD IN TAP WATER

MWRA has been taking steps to make its water less corrosive, thereby reducing the leaching of lead into drinking water. In 1996, MWRA began operating a new facility in Marlborough where sodium carbonate and carbon dioxide are added to adjust the water's pH and buffering capacity. This change has made the water less likely to leach lead from the pipes. Lead levels found in sample tests of tap water have dropped significantly since this treatment change. Also, local water departments are working to decrease lead corrosion by replacing existing lead service lines.

LEAD RESULTS

Each year, all MWRA communities 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. Under the Lead and Copper Rule, if more than 10% of tap water



samples exceed the Action Level of 15 parts per billion (ppb), water systems must take additional steps, including changes to treatment.

For lead and copper results for your local community, see page 7. All nine communities which supply part of their own water supply passed the lead and copper rule. For those results, the **Action Level (AL)** is defined as the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

What should I do about lead in tap water?

- Be careful of other places you may find lead in or near your home. Paint, soil, dust, and some pottery may contain lead.
- Run the tap until after the water feels cold. Then fill a pitcher with water and place in refrigerator for future use.



- Never use hot water from the faucet for drinking or cooking especially when making baby formula.
- Never boil water to remove lead. Boiling water for an extended time may make the lead more concentrated.
- Get your water tested for lead. Call (617)-242-5323 or go to www.mwra.com for a list of laboratories and more information on lead.
- Ask your local water department if there are lead service pipes leading to your home.

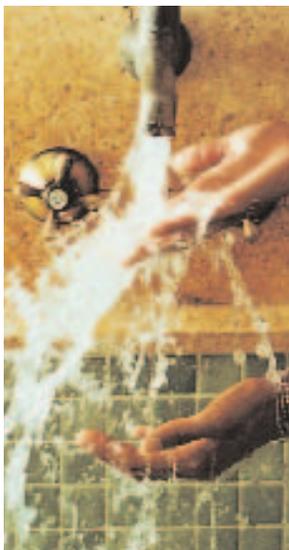


Important Information From EPA About Lead

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. 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 for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

QUESTION

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



MWRA and your local water department keep a close watch on the water supply. The law requires that you be told if there is a problem with your water. You would get the news by radio, television and newspapers, from MWRA, your local water and health departments, and the state Departments of Public Health (DPH) and Environmental Protection (DEP).

IMPORTANT information FROM EPA & 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 EPA's Safe Drinking Water Hotline (1-800-426-4791) or your local water supplier.

In order to ensure that tap water is safe to drink, Massachusetts DEP and EPA prescribe regulations that 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.

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).



WHERE TO GO FOR FURTHER INFORMATION

HEALTH ISSUES

HEALTH ISSUES	WEBSITES	PHONE
Massachusetts Department of Public Health (DPH)	www.mass.gov/dph	617-624-6000
US Centers for Disease Control & Prevention (CDC)	www.cdc.gov	800-311-3435
List of State Certified Water Quality Testing Labs	www.mwra.com/water/html/qual6.htm	617-242-5323

WATER SYSTEM & REGULATIONS

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 & Recreation	www.mass.gov/dcr	617-626-1250
Source Water Assessment and Protection Report	www.mwra.com/sourcewater.htm	617-242-5323

PUBLIC MEETINGS

MWRA Board of Directors	www.mwra.com/02org/html/gov.htm	617-788-1117
MWRA Advisory Board	www.mwra.com/adbrd/html/hpadbd.htm	617-742-7561
Water Supply Citizens Advisory Committee	www.mwra.com/02org/html/wscac.htm	413-586-8861