

**Dear Valued Customer:**



I am pleased to present you with this important information about your tap water. Our goal is to keep you abreast of the latest test results performed on your tap water and provide a list of those elements regulated by the Safe Drinking Water Act that were detected. We are happy to report that your tap water has been in full compliance with all federal and state regulations for 2003, as it has been in the past.

I would also like to take this opportunity to bring you up to date on the progress of our treatment plant improvements. In May of 2003 Manchester Water Works entered into a contract with Pizzagalli Construction of Burlington Vermont to fully renovate the 30-year old Water Treatment Plant. A significant part of this renovation includes the replacement of all the water filters in the plant and the installation of an ozone disinfection system. This state of the art equipment will be situated in a new building adjacent to the existing plant.

Cost of this project is about 28 million dollars. You have already seen an increase in your water bill and additional increases will become effective over this year and next. However, the overall impact of this project will translate to an increase in your water bill of only about \$25 per year to an eventual average of about \$240 per year in 2005. At that level, your bill will still be well below the typical water bill of \$305 for a single family home in New Hampshire. These required improvements and resulting rate increases are necessary to ensure the quality and safety of your drinking water.

On behalf of everyone at Manchester Water Works, I thank you for your support throughout this project and look forward to continuing to provide you with the best possible water service.

Sincerely,

*Thomas M. Bowen*

Thomas M. Bowen, P.E.  
Director

**MBS EXHIBIT 2**

This report contains a summary of your drinking water quality. The Safe Drinking Water Act (SDWA) requires that utilities issue an annual "Water Quality" report to customers in addition to other notices that may be required by law.

This report details where our water comes from, what it contains, and the risks our water testing and treatment are designed to prevent.

Le rapport contient information concernant la qualité de l'eau de votre communauté. Faites-le traduire, ou parlez-en à un ami qui le comprend bien.

El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.

Manchester Water Works invites its customers to become involved with their water supplier. Your Board of Water Commissioners meets monthly at our offices. Please feel free to call us for information about dates and times. Additionally, you can find out more about Manchester Water Works on the internet at [www.ci.manchester.nh.us/citygov/wtr/](http://www.ci.manchester.nh.us/citygov/wtr/).

**Manchester Water Works**

281 Lincoln Street  
Manchester, NH 03103  
603-624-6494

**MANCHESTER WATER WORKS**

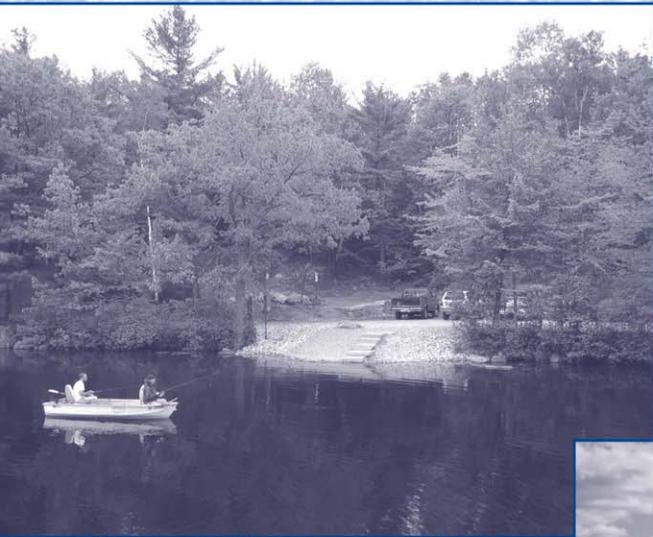
2004

**Water Quality Report**

A guide to understanding  
your drinking water  
and helpful water  
conservation tips.

## The Water Source

Every glass of tap water starts its journey to your faucet from Lake Massabesic. Located in Manchester and Auburn, the lake is a remnant from the last ice age. It was carved out by a glacier and, as a result, is generally shallow with a heavily silted bottom. These characteristics limit the system's ability to assimilate nutrients and dilute contaminants. Manchester Water Works recognizes the lake's fragile character and closely controls the use of it. We acquired nearly 8,000 acres of the most sensitive drainage and shoreline areas of the lake to protect the water supply from the detrimental effects of development. Additionally, our staff of patrol officers continually monitors all activity on the watershed and enforces the watershed protection regulations pertaining to Lake Massabesic.



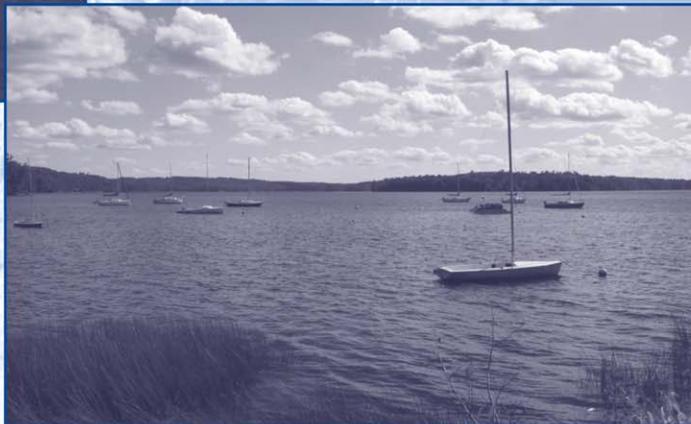
Deer Neck Boat Launch

## Source Water Assessment

In compliance with federal mandates, the New Hampshire Department of Environmental Services (DES) performed a Source Water Assessment of Lake Massabesic in September of 2002. This assessment looked at the entire drainage area for the lake and ranked its vulnerability to contamination. It did not, however, consider the protection measures that Manchester Water Works has in place to protect your drinking water. You may view this assessment at DES or at the following site: <http://www.des.state.nh.us/dwspp/report/MANCHESTER.pdf>

This report gave the Lake Massabesic watershed four high and four medium vulnerability ratings, while ranking it at low vulnerability for five additional categories. The report also raised concerns over the detection of MTBE, a gasoline additive that comes from motor boats, known Potential Contamination Sources (PCSs) located within 4000 feet of the plant intakes, and potential contamination from highways and wild animals. (Animals have been shown to have pathogens that may cause gastrointestinal illness in humans if the water is not purified and disinfected.)

Overall the report presented a positive picture of Manchester's source water and its condition. While Manchester Water Works has done much to protect the purity of Lake Massabesic, we understand more than ever that we must rely upon the assistance and practices of each citizen and each community in the watershed. Working together we can ensure the long term quality of this precious resource.



Lake Massabesic Water Supply

## CONSERVATION TIPS

1. *Check faucets for leaks. One faucet can waste up to 6000 gallons per year.*
2. *Water lawns early in the morning and at dusk. Stay away from watering during the day.*
3. *Do not wash your sidewalk or driveway.*
4. *Install water saving water fixtures and toilets.*
5. *Take 5 minute showers or fill bath with 5 inches of water.*
6. *Consider buying a water saver washing machine.*
7. *When you wash your car, rinse once, wash with a bucket of soapy water, and rinse right away.*
8. *Use swimming pool covers to minimize evaporation.*
9. *Dishwashers use about 10 gallons of water, while hand washing uses about twice as much.*
10. *Change wasteful habits. Use water wisely.*

## Health Information

To ensure that tap water is safe to drink, the EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled 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.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it can dissolve many natural minerals and, especially in the case of ground water, radioactive material. Water is also subject to contaminants resulting from the presence of animals or human activity. The wide variety of contaminants that may be present in source water include:

- A) Microbiological contaminants, such as viruses and bacteria originating from sewage, septic systems, agricultural livestock and wildlife;
- B) Inorganic contaminants, such as road salt, metals, industrial or domestic wastewater discharge, oil and gas production, mining or farming;
- C) Synthetic organic chemicals, such as petroleum products from gasoline and oils, or pesticides and herbicides and are present in runoff and as residues from household use;
- D) Radioactive contaminants, either natural or man-made. Radon is one such natural, radioactive contaminant currently being regulated by the EPA. Manchester's water does not contain radon.

## MBS EXHIBIT 2

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as people with cancer undergoing chemotherapy, people who have undergone organ transplants, people with 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 provider. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the Safe Drinking Water Hotline at 1-800-426-4791.

“ It is the goal of the Manchester Water Works to reach and educate our customers about the importance of clean safe drinking water and the environment. To do this we promote a public outreach program directed at the elementary schools in our area. With their cooperation, we educate tomorrow's consumers through classroom presentations, poster contests, water science fairs, and career days to name a few. It is our sincerest hope that these future water users will respect and conserve all forms of water, starting at their tap. ”

## Renovations Underway!

The Manchester Water Works is making numerous changes to its Water Treatment Plant that will have a direct impact upon you, our customer. When the system is finished in 2005, these improvements to treatment and filtration will result in cleaner, more appealing tap water. Other changes will be made specifically to reduce or eliminate unwanted by-products of chlorination to make your water safer. When complete the new water purification system will use ozone and chloramines in place of chlorine to disinfect the tap water.

*Ozone* has been used for nearly a century to purify water and is a much safer alternative to chlorine. This method has proven to be much more effective at purifying and improving the aesthetic quality of tap water.

Manchester Water Works will make every effort to notify our customers on the progress of this important project until the final completion in 2005.



*Water Treatment Plant Filter-Ozone additions*

# Water Quality Table

The table to the right provides information about those contaminants that were detected in Manchester's water in 2003. During the year, Manchester had multiple analyses run by the New Hampshire Department of Environmental Services for well over 100 individual contaminants. At the same time, Manchester Water Works' laboratories perform approximately 40 daily tests on the water to assure that it is safe to drink. Please feel free to call us at 624-6482 for additional information about your water quality.

## KEY TO TABLES

### Definitions

- MCLG:** Maximum Contaminant Level Goal, or the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- MCL:** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- MRDLG:** Maximum Residual Disinfection Level Goal. The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- 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.
- AL:** Action Level, or the concentration of a contaminant that, when exceeded, triggers treatment or other requirements which a water system must follow.
- TT:** Treatment Technique is the required process intended to reduce the level of a contaminant in drinking water.

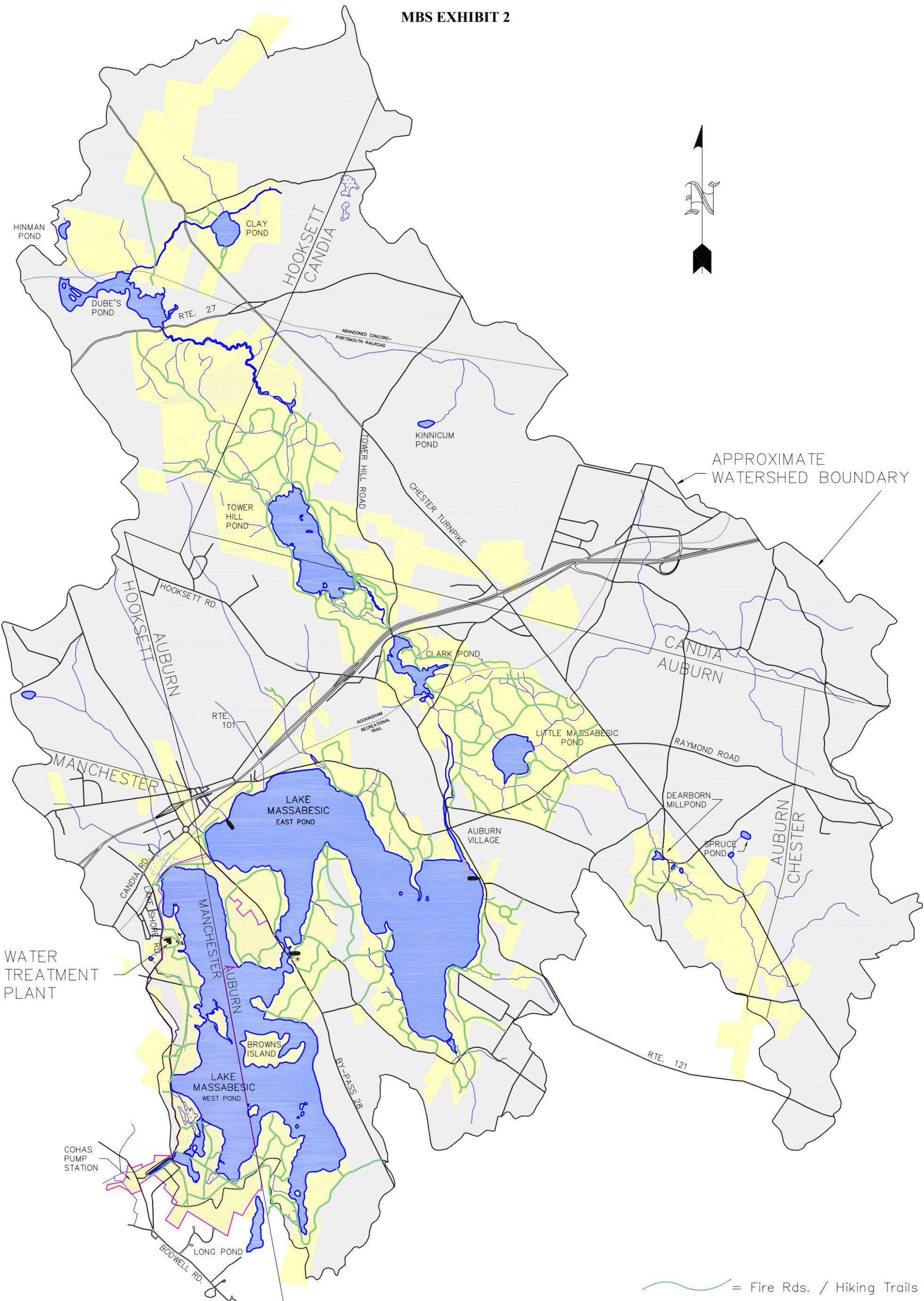
### Abbreviations

- ppb = parts per billion
- ppm = parts per million
- pCi/l = picocuries per liter, measurement of radiation
- NA = not applicable
- NTU = Nephelometric Turbidity Unit
- ND = not detected
- < = less than
- mg/l = milligrams per liter
- BDL = below detection limit
- P = presence of bacteria

## 2003 CONTAMINANT RESULTS

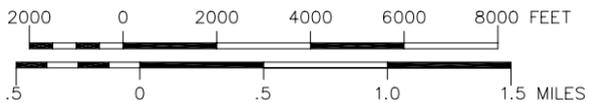
CONTAMINANT	UNIT	MCL	MCLG	AVERAGE LEVEL	RANGE	VIOLATION	MAJOR SOURCE
<b>Inorganic Contaminants</b>							
Lead	ppb	15 (AL)	0.0	10.0 90 <sup>th</sup> Percentile	0 – 22.0	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	ppm	1.3 (AL)	1.3	0.034 90 <sup>th</sup> Percentile	0 – 0.47	NO	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Barium	ppm	2.0	2.0	0.0127	0.0111–0.144	NO	Erosion of natural deposits; Discharge from drilling wastes and metal refineries
Fluoride	ppm	4.0	4.0	1.02	0.67 – 1.66	NO	Water additive which promotes strong teeth; Erosion of natural deposits
Chlorine	ppm	4.0 (MRDL)	NA	0.51	0.02 – 1.98	NO	Drinking water disinfectant
Nitrate-N	ppm	10.0	10.0	0.035	0 – 0.09	NO	Erosion of natural deposits; Runoff from fertilizer; Sewage leaching from septic tanks
<b>Microbiological Contaminants</b>							
Total Coliform	P	<5%	0%	<1%	0 – 1%	NO	Naturally present in the environment
Turbidity	NTU	0.3	0.0	0.0575	0.04 – 0.09	NO	Soil runoff
Total Organic Carbon	mg/l	TT	NA	2.3	1.8 – 3.1	NO	Naturally present in the environment
<b>Volatile Organic Contaminants</b>							
TTHMs (Total Trihalomethanes)	ppb	80	NA	57.4	20 – 89	NO	By-product of drinking water chlorination
Total Haloacetic Acids (5)	ppb	60	NA	23.9	11 – 38	NO	By-product of drinking water disinfection
<b>Radiological Contaminants</b>							
Gross Beta Picocurie/L	pCi/l	50.0	0.0	2.09	2.09	NO	Decay of natural and man made deposits

MBS EXHIBIT 2



APPROXIMATE WATERSHED BOUNDARY

WATER TREATMENT PLANT



MANCHESTER WATER WORKS WATERSHED LAND

MANCHESTER, CANDIA, AUBURN, HOOKSETT, AND CHESTER

-  = Fire Rds. / Hiking Trails
-  = Public Boat Launch
-  \* = No Trailers Car Top Only
-  = Restricted MWW Land
-  = MWW Land
-  = Restricted Lake Area

# Water Quality Report 2003

MBS EXHIBIT 2

## Dear Customer...

Manchester Water Works is pleased to present this summary of our water quality.

The Health Information enclosed relates to the contaminants that are tested for in accordance with State and Federal regulations. A table showing the specific contaminants detected in Manchester's water is included.

In addition, we have assembled some timely and pertinent information regarding Water Resources and Future Water Supply.

This report should help you to better understand and have confidence in your water supply. Manchester is fortunate to have an excellent water supply source in Lake Massabesic, which is well protected from contamination by an aggressive Watershed Management Program.

Our Treatment Plant and Distribution Systems are maintained in top operating condition to further ensure the quality of your water.

Your water system is continuously being improved and upgraded to maintain the high quality of water you receive. Through increased conservation efforts, our goal is to secure the future quantity and quality of your water supply.

## Changes Are Coming!

This Report provides important information about your water supply. This year we have focused on an explanation of planned improvements to your system and how they will impact you, our customer.

The first thing you will probably notice is that your water bills will increase. While no one likes to see their water bills go up, please let us offer this explanation.

A large part of your water bill pays for operations at the Water Treatment Plant. This plant, located on the shore of Lake Massabesic, has run continuously for the past 28 years purifying and delivering water to Manchester, Derry, Londonderry, Hooksett, Bedford, Auburn and Grassmere. 28 years is a long time for machinery to operate. You may remember 1974 as the year the Vietnam war ended, and the Safe Drinking Water Act was signed. Suffice it to say that after all this time, some key components of the plant need to be replaced, and a purification process which was way ahead of its time in 1974

now needs to be improved. This work will cost about \$40 million.

On the positive side, your water quality will improve with the construction of new, deep bed filters. These filters will capture a greater amount of suspended solids and be of the most advanced design. Coupled to these filters will be an ozone system which will replace a significant amount of the chlorine we now use.

The combination of ozone and deep bed optimized filtration will result in cleaner, fresher water at your tap. Additionally, the water will be healthier with fewer chlorine by-products.

While your rates will increase about \$20 per year over the next three years, they will still be less than the average water bill in New Hampshire, as shown in the graph below. We ask your understanding in the knowledge that the changes and improvements are necessary and will be well worth the expense. ■



Average Annual Water Rates *New Hampshire Communities*



## Lake Massabesic

Today, as for the past 130 years, the city of Manchester derives its supply of drinking water from Lake Massabesic. In addition to Manchester, this supply also feeds Derry, Londonderry, Bedford, Grassmere, Hooksett's Central Water Precinct, parts of Goffstown and Auburn.

Lake Massabesic, a name derived from the Indians meaning "the place of much water," has a surface area of about 2,500 acres and a gross storage capacity of nearly 15 billion gallons.

Two large ponds joined at Deer Neck Bridge on Route 28 Bypass comprise the entire lake. The so-called front pond, located on the eastern side of the bridge, is within the town of Auburn, while the back pond located on the western side is divided north and south by the Auburn-Manchester town lines. Together they encompass about

## MBS EXHIBIT 2

28 miles of shoreline and, when filled to the crest of the main outlet dam, the lake surface elevation is 250.43 feet above mean sea level.

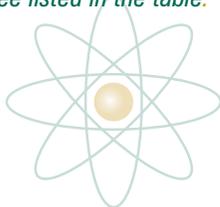
Supplementing the lake supply is an upland man-made impoundment known as Tower Hill Pond, located in the towns of Auburn and Candia.

The land area or watershed which drains into Lake Massabesic is approximately 42 square miles in area and includes the 12.5 square miles which drains into Tower Hill Pond. To protect water quality, the Manchester Water Works owns and controls slightly more than 8,000 acres of land. As added protection, it also employs a staff of watershed patrol officers which monitors all activity on the watershed and enforces the regulations pertaining to Lake Massabesic. ■



## Water Quality Table

The table to the right provides information about those contaminants which were detected in Manchester's water in 2002. During the year, Manchester had multiple analyses run by the New Hampshire Department of Environmental Services for well over 100 individual contaminants. At the same time, Manchester Water Works' laboratories perform approximately 40 daily tests on the water to assure that it is safe to drink. Please feel free to call us at 624-6482 for information about any chemicals or contaminants which you do not see listed in the table.



Contaminant	Unit	MCL	MCLG
<b>Inorganic Contaminants</b>			
Lead (2002)	ppb	15.0-AL	0
Copper (2002)	ppm	1.3-AL	1.3
Barium	ppm	2.0	2.0
Nitrate	ppm	10.0	10.0
Fluoride	ppm	4.0	4.0
Chlorine	ppm	4.0-MRDL	4.0-MRDLG
<b>Microbiological Contaminants</b>			
Total Coliform	Samples	<5% positive	0
Turbidity	NTU	0.3	0
Total Organic Carbon	mg/l	TT	NA
<b>Volatile Organic Contaminants</b>			
TTHMs [Total Trihalomethanes]	ppb	80	NA
Total Haloacetic Acids (5)	ppb	60	NA
Methyl tertiary Butyl Ether (MtBE)	ppb	13.0	0
Trichloroethelene	ppb	5.0	0
Methylene Chloride	ppb	5.0	0
Acetone	ppb	NA	NA
Trichlorofluero Methane	ppb	NA	NA

# Future Water Supply

## MBS EXHIBIT 2

Unfortunately Lake Massabesic will not be sufficient to sustain the water needs of our growing community. While experts debate the exact point where Lake Massabesic will be unable to supply our community, Manchester Water Works is actively pursuing alternative resources for that time. It is prudent and responsible to develop these plans and resources now, before Lake Massabesic suffers ecologic or hydrological damage due to overdrafting.

Our plans involve tapping the Merrimack River to supplement supply. The plans to tap the river have

evolved over the past 20 years in keeping with the direction of environmental and legislative initiatives that encourage the limited withdrawal and treatment of river water during favorable periods. Withdrawals would not include low flow periods or involve the transfer of river waters to the Massabesic watershed, where ecological compatibility may be a concern.

Your support for this effort is important. If you have any questions, concerns or suggestions about the future of this project, please contact us directly. ■

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- NA = not applicable
- NTU = Nephelometric Turbidity Unit
- MFL = million fibers per liter
- ND = not detected
- NR = not regulated
- < = less than
- mg/l = milligrams per liter

Level	Range	Violation	Major Source
10.6 90th Percentile	0 – 49.5	NO	Corrosion of household plumbing systems; Erosion of natural deposits
0.035 90th Percentile	0 – 0.085	NO	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
0.01	0 – 0.0124	NO	Erosion of natural deposits; Discharge from drilling wastes and metal refineries
0.08	0 – 0.08	NO	Erosion of natural deposits; Runoff from fertilizer; Sewage leaching from septic tanks
1.0	0 – 1.2	NO	Water additive which promotes strong teeth; Erosion of natural deposits
0.5	0.1 – 1.5	NO	Drinking water disinfectant
<1%	0 – 1%	NO	Naturally present in the environment
0.06	0.03 – 0.12	NO	Soil runoff
2.0	1.8 – 2.2	NO	Naturally present in the environment
52	24 – 80	NO	By-product of drinking water chlorination
16.7	7.4 – 27	NO	By-product of drinking water disinfection
0.90	0 – 0.9	NO	Residual from gasoline spill or leakage
0.9	0.0 – 1.9	NO	Discharge from metal degreasing sites and other factories
1.6	0.0 – 1.6	NO	
11.0	0.0 – 11	NO	
2.4	0.0 – 2.4	NO	

## MBS EXHIBIT 2

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El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.

**Manchester Water Works**  
281 Lincoln Street  
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## Dear customer:

To maintain reliable service, meet new regulations for water quality, and satisfy increasing demand for water, the Manchester Water Works is upgrading and expanding the Lake Massabesic water treatment plant.

This pamphlet explains:

- *Why the improvements are needed*
- *What improvements will be made*
- *How the improvements will affect your water rates*

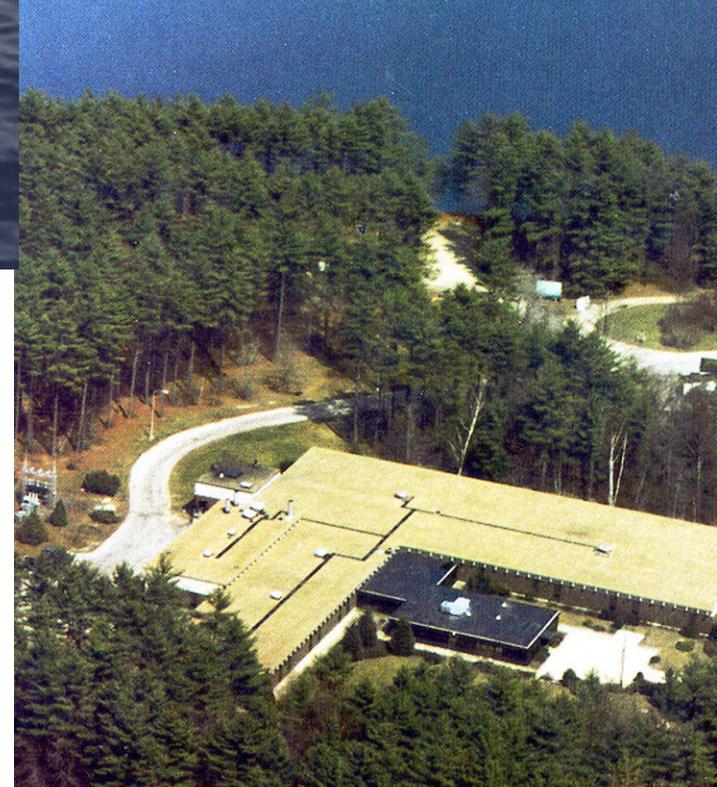
MWW is pleased to provide this information about upcoming water treatment plant improvements and the impact on water rates. We will keep you informed as these changes unfold.

*Cette brochure contient des informations importantes concernant les propositions d'amélioration de votre eau et les changements de tarif correspondant. Si vous avez des questions concernant cette information, veuillez la faire traduire ou contacter le Département des Eaux de Manchester (Manchester Water Works).*

*Este pamfletto contiene información importante sobre mejoramientos propuestos para su sistema de agua así como cambios anticipados a su tarifa de agua. Si usted tiene alguna pregunta respecto a esta información, tradúzcala o comuníquese con la oficina de la Empresa de Agua Potable de Manchester (Manchester Water Works).*

*Manchester Water Works  
281 Lincoln Street  
Manchester, NH 03103  
603-624-6494*

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**Fall 2002**

**Manchester Water Works**

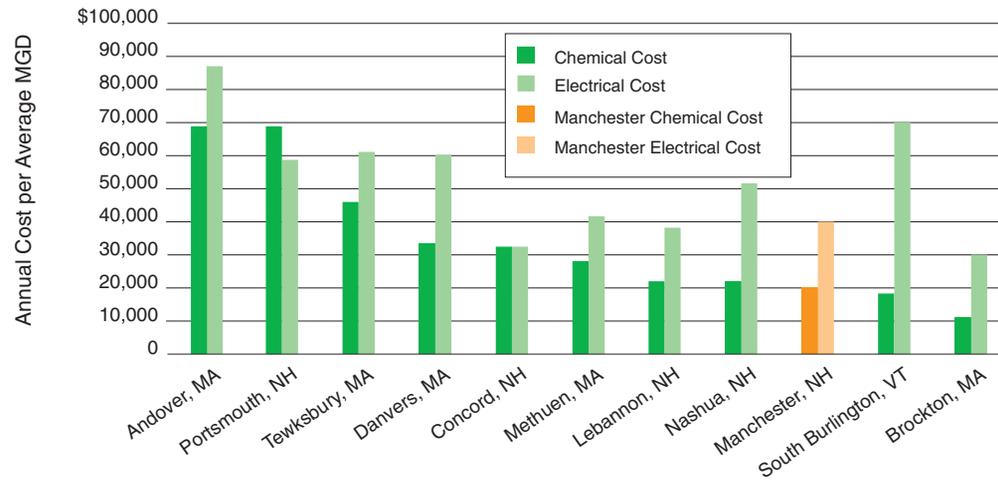
***An update on our  
water treatment plant  
improvement project***

# Lake Massabesic Plant History

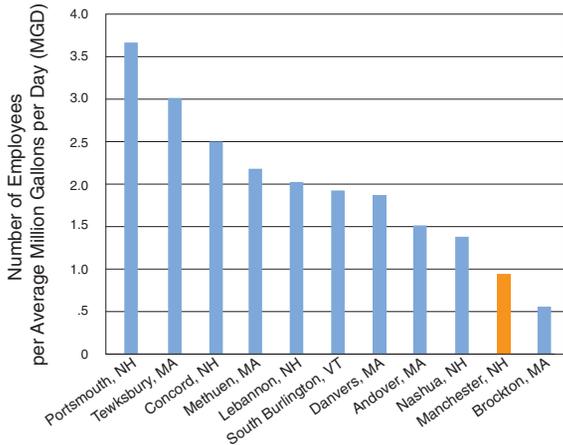
The Manchester Water Works (MWW) is the largest water provider in New Hampshire. MWW serves 140,000 customers — about 12% of the state’s population — in Auburn, Bedford, Derry, Goffstown, Hooksett, and Londonderry, as well as Manchester itself.

Manchester’s water supply is drawn from Lake Massabesic, located in East Manchester and Auburn. The Lake Massabesic water treatment plant purifies water from the lake by removing algae, color, tastes, and odors. Since its construction in 1974, the plant has processed over 150 billion gallons of water without any disruption in service or any violation of water quality standards.

## MBS EXHIBIT 2 Low MWW Chemical and Electrical Costs



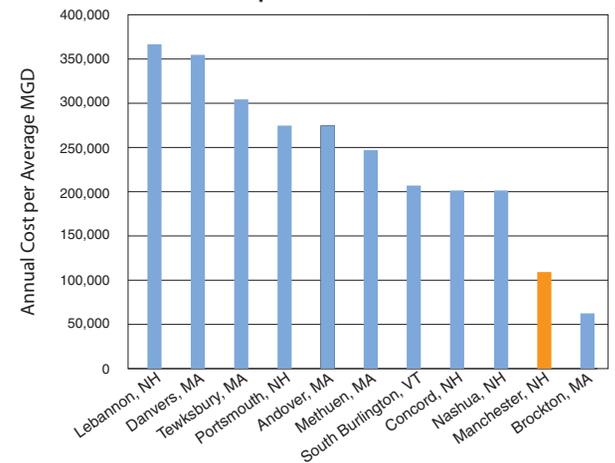
### Low MWW Personnel Costs



Despite a significant increase in unscheduled downtime experienced with the MWW aging filters and mechanical equipment, the plant’s management and operations have been highly efficient. MWW costs for operations and maintenance, electrical use, chemicals, and personnel are substantially lower than those of comparable water providers.

MWW rates are among the lowest in the state — consumers pay \$167 per year compared to a statewide average of \$279 and there have been no rate increases in 12 years.

### Low MWW Operations and Maintenance Costs



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*Proudly Presented By:*



PORTSMOUTH  
WATER  
DIVISION

ANNUAL  
WATER QUALITY  
REPORT

*Water testing performed in 2004*

[www.cityofportsmouth.com](http://www.cityofportsmouth.com)



PWS ID#: NH1951010000

## MBS EXHIBIT 2



### Continuing Our Commitment

Once again we proudly present our annual water quality report. This edition covers all testing completed from January through December 2004. We are pleased to tell you that our compliance with all state and federal drinking water laws remains exemplary. As in the past, we are committed to delivering the best quality drinking water. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

For more information about this report, or for any questions relating to your drinking water, please call the City Engineer for the Water/Sewer Divisions, Peter Rice, P.E., at (603) 427-1530. New Castle Water Works Customers please call Brad Meade at 431-6710.

### Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.



### Water Conservation Tips

Water conservation measures are an important first step in protecting our water supply. Such measures not only save the supply of our source water, but also can save you money by reducing your water bill. Here are a few suggestions:

#### *Conservation measures you can use inside your home:*

- Fix leaking faucets, pipes, toilets, etc.
- Replace old fixtures; install water-saving devices in faucets, toilets and appliances.
- Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.
- Do not let the water run while shaving or brushing teeth.
- Soak dishes before washing.
- Run the dishwasher only when full.

#### *You can conserve outdoors as well:*

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.
- Use water-saving nozzles.
- Use water from a bucket to wash your car, and save the hose for rinsing.

Information on other ways that you can help conserve water can be found at [www.epa.gov/safewater/publicoutreach/index.html](http://www.epa.gov/safewater/publicoutreach/index.html).



## MBS EXHIBIT 2

### Where Does My Water Come From?

The main source of Portsmouth's water is the Bellamy Reservoir located in Madbury and Dover. The water is piped to the water treatment plant in Madbury, where it is treated, filtered and disinfected. This location is also the site of the city's Madbury Wells #2, #3, and #4. From this site water is pumped under pressure to consumers in Madbury, Dover and Durham and then to the Booster Pumping Station in Newington, where the pressure is boosted up to city pressure. It is then pumped to consumers in Newington, Portsmouth, Greenland, Rye, New Castle and the New Castle Water Works. Many consumers are also served by additional groundwater sources, which include the Collins Well and the Portsmouth Well in Portsmouth and the Greenland Well in Greenland. The Pease International Tradeport is served by the Haven and Smith Wells exclusively.

The Source Water Assessment has been performed by the New Hampshire Department of Environmental Services (NHDES). A copy is available for viewing at the Portsmouth Water Division's office at 680 Peverly Hill Road. Please call 766-1413 for an appointment to view the report.



### Working Hard for You

Under the Safe Drinking Water Act (SDWA), the U.S. Environmental Protection Agency (U.S. EPA) is responsible for setting national limits for hundreds of substances in drinking water and also specifies various treatments that water systems must use to remove these substances. Each water system continually monitors for these substances and reports their findings to the U.S. EPA. The U.S. EPA uses these data to ensure that consumers are receiving clean water.

This publication conforms to the regulation under SDWA requiring water utilities to provide detailed water quality information to each of their customers annually. This report includes the New Castle Water Works as well as all the water customers in the Portsmouth Water System. We are committed to providing you with this information about your water supply because customers who are well informed are our best allies in supporting improvements necessary to maintain the highest drinking water standards.

### How Is My Water Treated and Purified?

The treatment process consists of a series of steps. First, raw water is drawn from the Bellamy Reservoir. The water then goes to a mixing tank where polyaluminum chloride and sodium hydroxide are added. The addition of these substances causes small particles in the water to adhere to one another (called floc), making them heavy enough to settle out of the water. Powdered activated carbon is added (seasonally) to control taste and odors. The water is then filtered through layers of fine sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges. Sodium hypochlorite (bleach) is added at this point for disinfection. (We carefully monitor the amount of sodium hypochlorite, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally sodium hydroxide (used to adjust the final pH and alkalinity), fluoride (used to prevent tooth decay), and a corrosion inhibitor (used to protect distribution system pipes and reduce the corrosion of lead solder and copper pipes in homes) are added before the water is pumped to sanitized underground reservoirs, water towers and into your home or business.

### Information on the Internet

The U.S. EPA Office of Water ([www.epa.gov/watrhme](http://www.epa.gov/watrhme)) and the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the New Hampshire Department of Environmental Services has a Web site ([www.des.state.nh.us/waterdiv.htm](http://www.des.state.nh.us/waterdiv.htm)) that provides complete and current information on water issues in our state. The City of Portsmouth also has a Web site ([www.cityofportsmouth.com](http://www.cityofportsmouth.com)) that has useful information on water issues.

## MBS EXHIBIT 2

### Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNITS)	YEAR SAMPLED	MCL	MCLG	AMOUNT DETECTED	RANGE LOW HIGH	VIOLATION	TYPICAL SOURCE
1, 2-Dichlorobenzene (ppb)	2004	600	600	1.3	ND-1.3	No	Discharge from industrial chemical factories
Alpha emitters (pCi/L)	2001	15	0	2	ND-2	No	Erosion of natural deposits
Arsenic (ppb)	2004	10 <sup>1</sup>	0 <sup>1</sup>	2.1	ND-2.1	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2004	2	2	0.0122	0.0083-0.0183	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Haloacetic Acids [HAAs] (ppb)	2003	60	NA	33	ND-73.8	No	By-product of drinking water disinfection
Nitrate (ppm)	2004	10	10	1.49	0.1-3	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2004	80	NA	45	3.3-112.3	No	By-product of drinking water disinfection

### Tap water samples were collected for lead and copper analyses from customers throughout the service areas

SUBSTANCE (UNITS)	YEAR SAMPLED	Portsmouth				Pease International Tradeport		New Castle Waterworks Customers		VIOLATION	TYPICAL SOURCE
		AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES		
Copper (ppm)	2004	1.3	1.3	0.261	0/60	0.466	0/10	0.266	1/10	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2004	15	0	ND	2/60	ND	0/10	11	1/10	No	Corrosion of household plumbing systems; Erosion of natural deposits

### Table Definitions

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

**MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**NA:** Not applicable

**ND:** Not detected

**pCi/L (picocuries per liter):** A measure of radioactivity.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

## OTHER SUBSTANCES

### MBS EXHIBIT 2

SUBSTANCE (UNITS)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW HIGH	TYPICAL SOURCE
<b>Bromodichloromethane</b> (ppb)	2004	4.1	ND-4.1	By-product of drinking water disinfection
<b>Chloroform</b> (ppb)	2004	36	ND-36	By-product of drinking water disinfection
<b>2-Methoxy-2-methylbutane [TAME]</b> (ppb)	2004	0.6	ND-0.6	Gasoline additive
<b>Carbon disulfide</b> (ppb)	2004	0.5	ND-0.5	Used in industrial processes
<b>Methyl-t-Butyl Ether [MTBE]</b> (ppb)	2004	2.7	ND-7.8	Gasoline additive

<sup>1</sup>These arsenic values are effective January 23, 2006. Until then, the MCL is 50 ppb and there is no MCLG.

## Substances That Might Be in Drinking Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it can acquire naturally occurring minerals, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

**Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

**Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

**Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which may also come from gas stations, urban stormwater runoff, and septic systems;

**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.



## New Arsenic Regulation

Arsenic contamination of drinking water sources may result from either natural or human activities. Volcanic activity, erosion of rocks and minerals, and forest fires are natural sources that can release arsenic into the environment. Although about 90% of the arsenic used by industry is for wood preservatives, it is also used in paints, drugs, dyes, soaps, metals, and semiconductors. Agricultural applications, mining, and smelting also contribute to arsenic releases. Arsenic is usually found in the environment combined with other elements such as oxygen, chlorine, and sulfur (inorganic arsenic); or combined with carbon and hydrogen (organic arsenic). Organic forms are usually less harmful than inorganic forms.

Low levels of arsenic are naturally present in water—about 2 parts arsenic per billion parts of water (ppb). Thus, you normally take in small amounts of arsenic in the water you drink. Some areas of the country have unusually high natural levels of arsenic in rock, which can lead to unusually high levels of arsenic in water.

In January 2001, the U.S. EPA lowered the arsenic Maximum Contaminant Level (MCL) from 50 to 10 ppb

in response to new and compelling research linking high arsenic levels in drinking water with certain forms of cancer. All water utilities are required to implement this new MCL starting in 2006.

Removing arsenic from drinking water is a costly procedure but well worth the expenditure considering the health benefits. For a more complete discussion visit the U.S. EPA's arsenic Web site at [www.epa.gov/safewater/arsenic.html](http://www.epa.gov/safewater/arsenic.html).

## Community Participation

All water system customers are invited to participate in our public forum and voice your concerns about your drinking water at any regularly scheduled city council meeting. Meetings are scheduled twice each month on Monday evenings starting at 7:00 p.m. at the Portsmouth City Hall, 1 Junkins Avenue. Call (603) 431-2000 for the date of the next meeting. New Castle Water Works Customers should call 431-6710 for meeting dates and times.

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### Radon

Radon is a radioactive gas that occurs naturally in some groundwater. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Radon is released into homes and groundwater from soil. Samples taken at our water source indicate radon concentrations ranging from none detected to 1,600 picocuries per liter (pCi/L). Inhalation of radon gas has been linked to lung cancer; however, the effects of radon ingested in drinking water are not yet clear. If you are concerned about radon in your home, tests are available to determine the total exposure level. For additional information on how to have your home tested, call (800) SOS-RADON.

### MTBE in the News

MTBE (methyl-t-butyl ether) belongs to a group of chemicals commonly known as fuel oxygenates. Oxygenates are added to gasoline to reduce carbon monoxide and ozone levels in the air caused by auto emissions.

MTBE contamination of drinking water sources may result from leaking fuel storage tanks, pipelines, refueling spills, consumer disposal of "old" gasoline, emissions from older marine engines, and to a lesser degree, stormwater runoff and precipitation mixed with MTBE in the air. Currently, the primary concern about MTBE in drinking water is that it causes taste and odor problems. There are no data showing significant health risks of MTBE at low-exposure levels in drinking water; however, it is a potential human carcinogen at high doses. In December 1997, the U.S. EPA issued a drinking water advisory stating that it is unlikely that MTBE in drinking water at concentrations of 20 to 40 ppb will cause adverse health effects. Continuing research by the U.S. EPA and others is expected to help determine more precisely the potential for adverse health effects from MTBE in drinking water.

In an effort to better balance the air-quality benefits and water-quality concerns associated with oxygenates in gasoline, the U.S. EPA now requires reducing or eliminating MTBE as a fuel oxygenate. Also, the agency is considering setting health standards for MTBE and is currently gathering information from utilities across the country on the occurrence of MTBE. For a more complete discussion, visit the U.S. EPA's MTBE Web site at [www.epa.gov/mtbe/faq.htm](http://www.epa.gov/mtbe/faq.htm).

