

Water Quality Report 2003

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*



Water Resources

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

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.

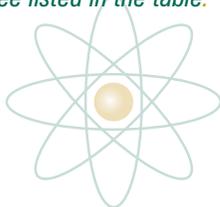
Supplementing the lake supply is an upland man-made impoundment known as Tower Hill Pond, located in the towns of Auburn and Candia.

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
Inorganic Contaminants			
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
Microbiological Contaminants			
Total Coliform	Samples	<5% positive	0
Turbidity	NTU	0.3	0
Total Organic Carbon	mg/l	TT	NA
Volatile Organic Contaminants			
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*

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. ■

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 which, when exceeded, triggers treatment or other requirements which a water system must follow.
- TT:** Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.

Abbreviations

- ppt = parts per trillion
 ppb = parts per billion
 ppm = parts per million
 pCi/l = picocuries per liter, measurement of radiation
 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	

Health Information

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes limits on the amount of certain contaminants in water provided by public water systems. Federal Drug Administration 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. However, the presence of contaminants does not necessarily indicate 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 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 that are present in runoff and as residues from household use; and
- 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.

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 for infections. These people should seek advice about drinking water from their health care 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**. ■

We are pleased to present this summary of your drinking water quality. The Safe Drinking Water Act 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
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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 more information about Manchester Water Works on the Internet at www.ci.manchester.nh.us/water.htm.