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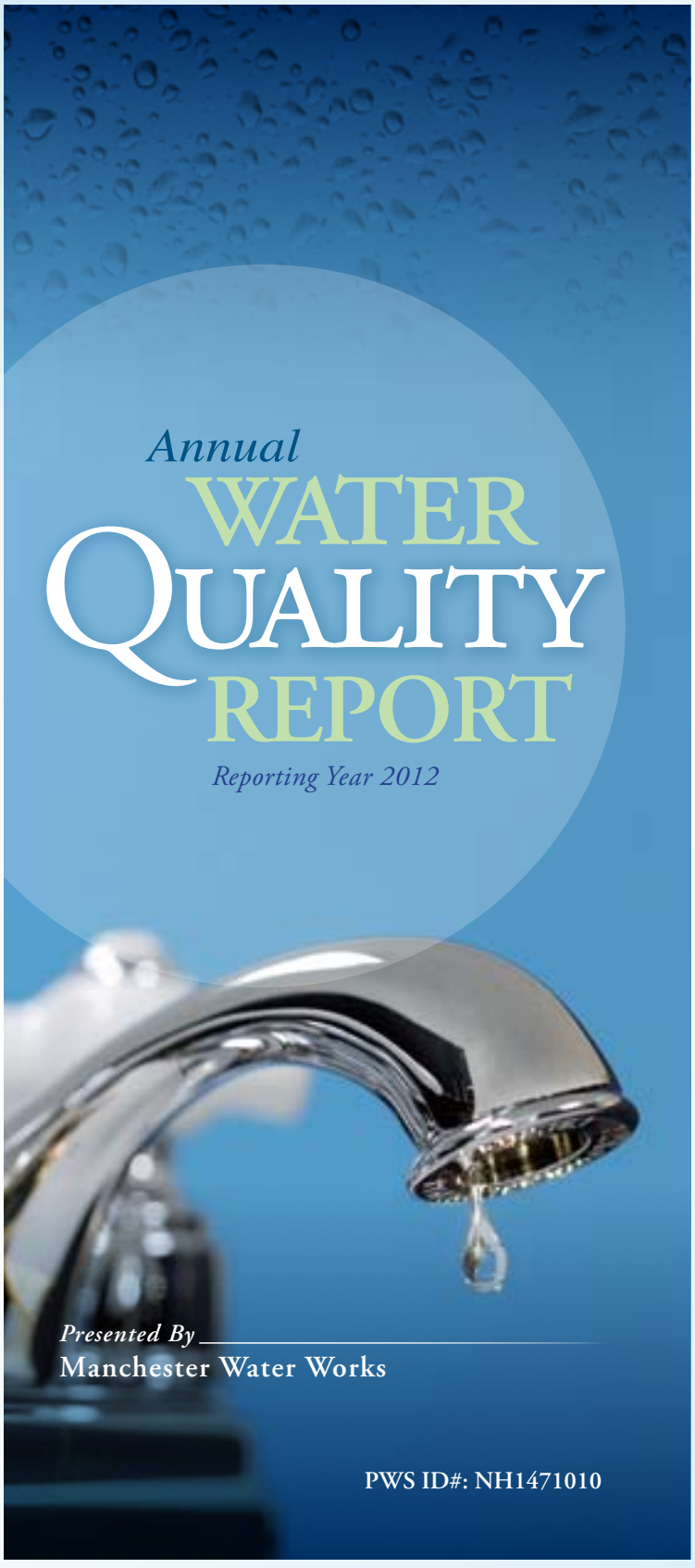
Annual water quality report, reporting year 2012

Manchester Water Works


Annual
WATER
QUALITY
REPORT
Reporting Year 2012
Presented By
Manchester Water Works
PWS ID#: NH1471010

There When You Need Us

We are once again proud to present our annual water quality report, covering all testing performed between January 1 and December 31, 2012. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you, should you ever have any questions or concerns about your water.

Community Participation

You are invited to attend our Water Board meetings and participate in discussions about your drinking water. A schedule of meeting times is posted on our website at www.manchesternh.gov/wtr. Please call our office at (603) 624-6494 to confirm your intent to attend.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Substances That Could Be in 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 dissolves 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 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.

Manchester Water Works Achieves National Partnership for Safe Water Recognition for "Excellence in Water Treatment"

Manchester Water Works' Lake Massabesic Water Treatment Facility supplies drinking water to about 160,000 citizens in the Greater Manchester, New Hampshire, area. Manchester Water Works joined the Partnership for Safe Water in 1996 and in January 2012 became just the 11th utility in the nation to receive the prestigious "Excellence in Water Treatment" award.

The Partnership program challenges drinking water utilities to make improvements in water quality that go well beyond regulatory requirements. The program involves performance data collection and reporting; a comprehensive self-assessment to identify performance limiting factors and development of action plans to improve future performance and water quality; and an optional Phase IV – "Excellence in Water Treatment" designation that can only be achieved by consistently meeting the most rigorous and stringent water quality goals.

The Partnership for Safe Water is comprised of an unprecedented alliance of drinking water organizations at the national level. These organizations include the Environmental Protection Agency (EPA), American Water Works Association (AWWA), Association of Metropolitan Water Agencies (AMWA), National Association of Water Companies (NAWC), Association of State Drinking Water Administrators (ASDWA), and the Water Research Foundation (WRF).

Manchester Water Works takes a great deal of pride in providing the highest quality water at the lowest possible cost to their customers.

Where Does My Water Come From?

For more than 135 years, Lake Massabesic has served as the water supply for Manchester and portions of six surrounding communities. In order to satisfy stringent state and federal drinking water regulations, the lake water is purified at Manchester's Water Treatment Plant. This facility was completed in 1974 and has since been routinely updated with state-of-the-art equipment to improve quality control and operational efficiency and was significantly upgraded in 2003-06. Located adjacent to Lake Massabesic, the plant treats all of the city's water before it is pumped into a 500-mile piping network for distribution to homes and industries.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call David G. Miller, P.E., Water Supply Administrator, at (603) 624-6482.

Source Water Assessment

In compliance with a federal mandate, the NH Department of Environmental Services performed a Source Water Assessment on Lake Massabesic in September of 2002. The assessment looked at the drainage area for the lake and ranked its vulnerability to contamination. Lake Massabesic received four high and four medium vulnerability ratings, while it ranked at low vulnerability for five additional categories. Concern was raised over the detection of MTBE, now prohibited, which came from reformulated gasoline. Concern was also raised over Potential Contamination Sources (PCSs) on the watershed, such as highways. Overall, the report presents a positive picture of Manchester's water source and its condition. While Manchester Water Works has done its best to protect Lake Massabesic, we understand more than ever that we rely heavily upon the standards and practices of each citizen and each community on the watershed for their continued efforts to preserve this precious resource.

The complete Assessment Report is available for review at our website or at the NH DES Drinking Water Source Water Assessment page at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/dwsap.htm.

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 or http://water.epa.gov/drink/hotline.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to $1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their website at www.nrdc.org/water/drinking/bw/exesum.asp.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-connection Control Manual from the U.S. EPA's website at http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

What is the typical per-day water usage?

While usage varies from community to community and person to person, on average, Americans use 183 gallons of water a day for cooking, washing, flushing, and watering purposes. The average family turns on the tap between 70 and 100 times daily. About 74% of home water usage occurs in the bathroom, about 21% in the laundry room, and about 5% in the kitchen.

Why do water pipes tend to break in winter?

Liquids generally contract when frozen and become more dense; however, the unique qualities of water cause it to expand by up to 9% when it freezes. That is why water pipes burst when temperatures reach the freezing mark.

How much water is used to create the food we eat each year?

The average American consumes 1,500 pounds of food each year; 1,000 gallons of water are required to grow and process each pound of that food. Thus, 1.5 million gallons of water is invested in the food eaten annually by just one person! This 200,000-plus cubic feet of water per person is enough to cover a football field four feet deep.

Is it okay to use hot water from the tap for cooking and drinking?

No, ALWAYS use cold water. Hot water is more likely to contain rust, copper, and lead from household plumbing and water heaters. These harmful substances can dissolve into hot water faster than they do into cold water, especially when the faucet has not been used for an extended period of time.

What type of container is best for storing water?

Consumer Reports has consistently advised that glass or BPA-free plastics such as polyethylene are the safest choices. To be on the safe side, do not use any container with markings on the recycle symbol showing 7 PC (which is the code for BPA). You could also consider using stainless steel or aluminum containers that have BPA-free liners.

How much water is used in the shower?

A 10-minute shower can take 25 to 50 gallons of water. High-flow shower heads allow a flow of 6 to 10 gallons a minute. Low-flow shower heads can cut the rate in half without reducing pressure.

Sampling Results

During the past year, we have taken thousands 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. The state allows 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 (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2012	15	0	5.2	ND–5.2	No	Erosion of natural deposits
Barium (ppm)	2012	2	2	0.012	ND–0.012	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chloramines (ppm)	2012	[4]	[4]	2.41	1.63–3.11	No	Water additive used to control microbes
Fluoride (ppm)	2012	4	4	0.66	0.49–1.0	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA]–Stage 2 DDBP (ppb)	2012	60	NA	5.4	1.0–13.5	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–Stage 2 DDBP (ppb)	2012	80	NA	1.6	0.7–2.5	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2012	5% of monthly samples are positive	0	0.83	NA	No	Naturally present in the environment
Total Organic Carbon (ppm)	2012	TT	NA	2.3	1.9–2.6	No	Naturally present in the environment
Turbidity[1] (NTU)	2012	TT=<1 NTU	NA	0.06	0.03–0.06	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2012	TT=95% of samples < 0.3 NTU	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2010	1.3	1.3	0.051	0/55	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2010	15	0	0	0/55	No	Corrosion of household plumbing systems; Erosion of natural deposits

[1] Turbidity is a measure of the cloudiness of the water. It is monitored by surface water systems because it is a good indicator of water quality and thus helps measure the effectiveness of the treatment process. High turbidity can hinder the effectiveness of disinfectants.

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.

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 risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.