

ANNUAL

# WATER QUALITY REPORT

*Water testing performed in 2008*



WILMINGTON  
WATER DEPARTMENT

PWS ID#: 3342000

## Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

## Where Does My Water Come From?

The Wilmington Water Department provides drinking water to 99 percent of all the residents and businesses in Wilmington. The source of the water is groundwater, pumped from four wells located throughout Wilmington. Since the discovery of NDMA in the five Maple Meadow Brook aquifer wells, the Water Department does not use these wells. From the wells, the source water is pumped to one of two water treatment plants. There, the water is treated using filtration and disinfection to remove or reduce any harmful contaminants from the source water. From the treatment plants, the water is pumped to one of three storage tanks and to the homes and businesses in Wilmington. To provide the highest protection for the source water, Wilmington has established Zoning, Inhabitant and Board of Health bylaws, which include groundwater protection, floor drain regulations, and water use restrictions. The Town maintained interconnections and agreements with North Reading, Burlington Woburn, and the MWRA for additional water supply in the event of an emergency for 2008. To learn more about our watershed on the Internet, go to the U.S. Environmental Protection Agency and Surf Your Watershed at [www.epa.gov/surf](http://www.epa.gov/surf).

## Questions?

For more information about this report, or for any questions relating to your drinking water, please call Michael J. Woods, Water and Sewer Superintendent, at (978) 658-4711 or email questions to [water@townofwilmingtonma.com](mailto:water@townofwilmingtonma.com).

## Community Participation

You are invited to attend our public meetings and to voice your concerns about your drinking water. The Water and Sewer Commission meets the third Thursday of each month, beginning at 5 p.m. at the Town Hall, 121 Glen Road, Wilmington, Mass., unless otherwise posted. Please call in advance if you have a specific issue you would like to discuss, and we will be sure to include your topic on our agenda.

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) 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 and, in some cases, radioactive material, and can pick up 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.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## MANDATORY OUTDOOR WATER USE RESTRICTIONS

NO Outdoor Watering between the hours of 9:00 AM and 5:00 PM

**Sprinkler Systems:** Both above ground or installed underground, can be used **once per week**, subject to the restrictions above. If this is chronically violated, the DEP will require the Town to again ban sprinklers. Please don't let this happen.

Other outside water use is restricted to the use of HAND HELD HOSES ONLY.

**VIOLATION OF THESE WATER USE RESTRICTIONS WILL RESULT IN A MINIMUM \$50.00 PER DAY FINE!**

The Water Department could institute a full outdoor watering ban in the future. Please watch for future notices on WCTV and your local paper.

Thank you for your cooperation.

## How Is My Water Treated and Purified?

**Aeration:** The treatment process begins with aeration, which reduces carbon dioxide levels to lower treatment costs and also improves taste.

**Alum:** Next, aluminum sulfate (alum) is added to the water before it passes into the flocculation basins. The alum prompts small particles to coagulate, or stick together, forming floc particles and removing color from the water. The floc particles continue to grow and stick together, becoming heavier before moving into the settling basins.

**Potassium Permanganate:** Potassium permanganate is added to oxidize and remove iron and manganese because iron and manganese may cause undesirable color, taste, and odor in water.

**Settling Basins:** In the settling basins, the floc particles settle to the bottom, forming a layer of solids, which is removed by a siphon device and discharged to lagoons. The clear water at the top of the settling basin flows into the filter basins.

**Filter Basins:** The filter basins consist of four feet of granular activated carbon (GAC) to remove any remaining fine particles. The GAC filter also removes any remaining taste and odor, volatile organic compounds, and aids in polishing the water as it passes through the filter onto the final process steps.

**Chloramination:** Chloramine is a form of chlorine that is created by adding ammonium sulfate to the water after chlorine is added. We have invested in the use of ammonium sulfate, a food-grade substance that safely transforms chlorine to form chloramines. Like chlorine, chloramine also keeps the water safe by protecting against biological growth throughout the distribution system, but it also produces less disinfection by-products.

The finished water is pumped throughout the town by our vast underground distribution system of 126 miles and is stored in three water tanks for handling peak demand periods. Our top priority is to provide safe, good-tasting, high-quality drinking water for the residents of the Town of Wilmington.

## Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of

food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.

- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

## 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.



## Contamination from Cross-connections

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. Fertilizers, cesspools, or garden chemicals may contaminate garden hoses that are left lying on the ground. 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 on the U.S. EPA's Web site at [www.epa.gov/safewater/crossconnection.htm](http://www.epa.gov/safewater/crossconnection.htm). You can also call the Safe Drinking Water Hotline at (800) 426-4791.

## Lead and Drinking Water

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. The Wilmington Water Department is 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](http://www.epa.gov/safewater/lead).



### SWAP

The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program (SWAP) report for the water supply source serving this water system. The SWAP report assesses the susceptibility of public water supplies in order to improve protection of the water source, and contains information relative to land uses in the water supply areas of our wells, which are highly susceptible to potentially being contaminated. The SWAP report also recommends the education of business owners and residents on proper disposal of hazardous materials and the monitoring of land uses within the Zone II areas. We will be addressing these recommendations by mailing out educational materials on proper disposal of hazardous materials, encouraging people to participate in the household hazardous waste collection day sponsored by the Wilmington Water Department, and encouraging the Town's Community Technical Review Committee to be very aggressive in enforcement of the Aquifer Protection bylaw.

You can help by practicing good septic system maintenance; by not disposing solvents, paints, etc. in your septic system; and by limiting pesticide, herbicide, and fertilizer use.

If you would like to see a copy of the SWAP report, it is available at the Wilmington Water Department and online at [www.mass.gov/dep/water/drinking/3342000.pdf](http://www.mass.gov/dep/water/drinking/3342000.pdf). For more information call the Wilmington Water Department at (978) 658-4711.

## 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 Web site at [www.nrdc.org/water/drinking/bw/exesum.asp](http://www.nrdc.org/water/drinking/bw/exesum.asp).

## 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.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2008	2	2	0.020	0.020–0.020	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	2008	100	100	0.0013	0.0013–0.0013	No	Discharge from steel and pulp mills; Erosion of natural deposits
Haloacetic Acids [HAA] (ppb)	2008	60	NA	28	ND–28	No	By-product of drinking water disinfection
Nitrate (ppm)	2008	10	10	1.7	ND–1.7	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (ppm)	2008	1	1	0.49	ND–0.49	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2008	80	NA	59.44	5.5–82	No	By-product of drinking water chlorination
Total Coliform Bacteria (% positive samples)	2008	5% of monthly samples are positive	0	4.9	NA	No	Naturally present in the environment

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)	2008	1.3	1.3	0.07	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2008	15	0	1.9	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	EXCEEDANCE	TYPICAL SOURCE
pH (Units)	2008	6.5–8.5	NA	9.4	6.5–9.4	No	Naturally occurring

UNREGULATED SUBSTANCES <sup>1</sup>				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2008	21	4.9–21	By-product of drinking water disinfection
Bromoform (ppb)	2008	0.56	ND–0.56	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2008	8.2	2.2–8.2	By-product of drinking water disinfection
Chloroform (ppb)	2008	41	4.4–41	By-product of drinking water disinfection
Sodium (ppm)	2008	100	40–100	Naturally occurring

IDSE RESULTS <sup>2</sup>				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Haloacetic Acids [HAA]–IDSE Results (ppb)	2008	50	ND–50	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–IDSE Results (ppb)	2008	99	ND–99	By-product of drinking water disinfection

<sup>1</sup>Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

<sup>2</sup>We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

## Definitions

**90th Percentile:** Out of every 10 homes sampled, 9 were at or below this level.

**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.

**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).

