

ANNUAL
WATER REPORT

*Water testing
performed in 2010*

Presented By _____
Haverhill Water Department

Dear Valued Customer:

Once again we are proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2010. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all of our water users. We are also proud of our efforts to maintain user rates that are among the lowest in the area. Thank you for allowing us to continue providing you and your family with quality drinking water.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you. Please call my office at (978) 374-2300 or call Mary D'Aoust with questions about results or specific content at the Water Treatment Plant at (978) 374-2385.

You can also find a copy of this report on the city's water treatment website at http://www.ci.haverhill.ma.us/departments/water/water_system/treatment.htm.

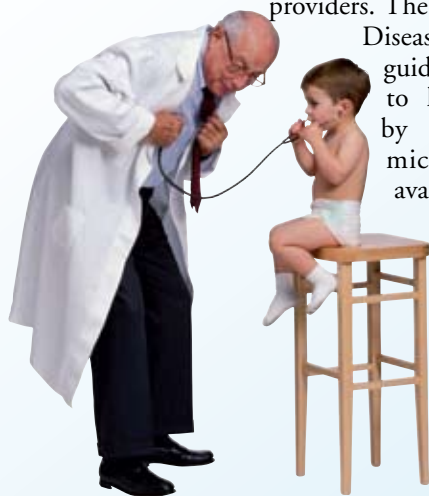
Sincerely,

James Fiorentini
Mayor

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>.



A Year in Review

The city completed the design and replacement of the Silver Hill Pump Station on Washington Street. The original station was meant to be a temporary structure but was kept in use for over twenty years. The new station is now equipped with a back-up generator and more efficient pumps. The improvements also included new landscaping and a small playground for the community to enjoy.

The city has completed a comprehensive water system master plan that will evaluate the city's entire water supply system from source to distribution. The last major water system evaluation was performed in 1996. Many changes to the water system have happened since that time to improve the level of service. This comprehensive water system master plan will incorporate all of the past improvements and assess the water system needs of the city for the next twenty years.

Replacement for the water treatment plant's existing finished water pumps was completed. Work began in the summer of 2010, replacing the current thirty-year-old pumps with new, more electrically efficient models. This has resulted in significant savings in electricity costs for the water treatment plant.

A project to rehabilitate and replace the old water main on South Main Street completed the final design phase and will be ready for the Massachusetts Department of Transportation's scheduled reconstruction of the South Main Street roadway in spring of 2011.

The City of Haverhill Water Department began upgrading the water meter reading system and older water meters for a portion of the city. There is no charge for this upgrade. This work is being performed by Easton Winwater Services. If you are selected for an upgrade, you will be notified by mail. Not every customer will qualify for an upgrade at this time. Should you be selected for an upgrade, you will be able to book an appointment through our contractor. All installers will have photo identification badges and company shirts and will be driving clearly marked vehicles. If you receive notification, but would like to verify authenticity, you may contact the Water Meter Department at (978) 373-8487.

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.

Information on the Internet

The U.S. EPA Office of Water (www.epa.gov/watrhme) and the Centers for Disease Control and Prevention (www.cdc.gov) websites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the DEP has a website (www.mass.gov/dep) that provides complete and current information on water issues in Massachusetts, including valuable information about our watershed.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Mary D'Aoust, Water Treatment Chemist, at (978) 374-2385.

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 are actively surveying 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.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (Department) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. 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.

Where Does My Water Come From?

The City of Haverhill Water Department customers are fortunate because we enjoy a water supply from three well-protected sources. Our drinking water comes from a combined water source, all of which are surface water. Water is pumped from Millvale Reservoir and Crystal Lake into Kenoza Lake, where the Water Treatment Plant is located. Round Pond and Winnekenni Basin overflow into Kenoza Lake.

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system, the fluoride level is adjusted to an optimal level averaging one part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. Our water system has been providing this treatment since 1972. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the United States who receive the health and economic benefits of fluoridation.

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.

Water Treatment Process

At the Water Treatment Plant, the water goes through a conventional filtration plant, which includes coagulation, flocculation, and sedimentation. Coagulation is the first process where aluminum sulfate mixes with the water, which causes the microscopic particles to want to clump together. This makes them easier to remove. Flocculation is a continuation of the coagulation process where the water is stirred, encouraging the particles to become bigger.

Then the water flow is slowed down and enters the sedimentation basins. Here, most of the larger particles are now heavy enough to settle to the bottom of the basin, and the clearer water is collected and routed toward the filters.

Haverhill has a two-stage filtration process. Water will go through a dual-media (sand and anthracite) filter and then is directed into an activated carbon filter. After filtration, the water is disinfected and fluoride is added. As the finished product is pumped out of the plant, zinc orthophosphate is added for corrosion control, and then the clean water enters the distribution system. Last year, the Water Treatment Plant processed 2.0 billion gallons of water.

The distribution system is made up of three storage tanks with a capacity of 17 million gallons, twelve pumping stations, and approximately 300 miles of water main.



Source Water Assessment

A Source Water Assessment Plan (SWAP) is now available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area and a determination of the water supply's susceptibility to contamination by the identified potential sources.

This report assesses activities on our watersheds and identifies potential pollution hazards. These potential hazards, if handled properly, would not pose a threat to our water supplies. These hazards fall into the following categories: fertilizer storage, livestock operations, manure storage/spreading, nurseries, pesticide storage/use, auto repair and body shops, bus and truck terminals, cemeteries, golf courses, junk/salvage yards, nursing homes, repair shops, sand and gravel mining/washing, fuel oil storage, lawn care/gardening, septic systems, aquatic wildlife, combined sewer overflows, composting facilities, fishing/boating, land application of sewage sludge, schools, colleges/universities, snow dump, stormwater drains/retention basins, underground storage tanks. One or all of these hazards can be found on all of Haverhill's water sources. Water Department personnel conduct an annual survey of these watershed areas to evaluate any potential hazards. A water department employee checks these areas every week to identify any violations.

If you would like to view this report, please contact the Water Treatment Plant at (978) 374-2385.

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. 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 (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2003	15	0	1.0 (+/- 2.0)	NA	No	Erosion of natural deposits
Barium (ppm)	2010	2	2	0.0057	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beta/Photon Emitters (mrem/yr)	2003	50	0	4.6 (+/- 3.3)	NA	No	Decay of natural and man-made deposits
Chromium (ppb)	2010	100	100	1.1	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2003	5	0	0.6 (+/- 0.6)	NA	No	Erosion of natural deposits
Fluoride (ppm)	2010	4	4	0.93	0.46–1.43	No	Water additive which promotes strong teeth
Haloacetic Acids [HAA] (ppb)	2010	60	NA	17.5	3.9–25.5	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2010	80	NA	38.05	16.0–47.9	No	By-product of drinking water disinfection
Turbidity (NTU)	2010	TT	NA	0.09	0.04–0.32	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2010	TT=95% of samples<0.3	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)	2008	1.3	1.3	0.036	0/32	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2008	15	0	4	1/32	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	VIOLATION	TYPICAL SOURCE
Sulfate (ppm)	2007	250	NA	21.0	NA	No	Runoff/leaching from natural deposits; Industrial wastes

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. Secondary MCLs (SMCL) are set for the control of taste and odor.

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.

mrem/yr (millirems per year): A measure of radiation absorbed by the body.

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.