



2010 Annual Drinking Water Quality Report Hopkinton Water Department

PWS ID No. 2139000

We are pleased to present to you this year's Annual Quality Water Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to providing you with the best water quality available.

Your Water System

Our water system currently consists of 68 miles of water mains and 3000 service connections. There are a total of 640 fire hydrants on the water system. In 2010 we produced and delivered approximately 366,000,000 gallons of water. To promote water conservation, we are continuing our water device retro-fit program. **Free** water efficient showerheads, aerators and toilet flaps are available at the Water Department.

Our water system uses ground water as its water source, in addition to water purchased from the Howe Street WTF in Ashland. Our groundwater sources include the following six wells.

<i>Source Name</i>	<i>DEP Source ID#</i>	<i>Source Type</i>	<i>Location of Source</i>
Fruit St. Well #1	2139000-01G	Groundwater	Off Fruit Street
Fruit St. Well #2	2139000-02G	Groundwater	Off Fruit Street
Fruit St. Well #3	2139000-03G	Groundwater	Off Fruit Street
Fruit St. Well #4	2139000-04G	Groundwater	Off Donna Pass near Whitehall Reservoir
Fruit St. Well #5	2139000-05G	Groundwater	Off Donna Pass near Whitehall Reservoir
Fruit St. Well #6	2139000-06G	Groundwater	Off Fruit Street

If you have any questions about this report, or have any questions regarding your water utility, please contact **Eric Carty of the Hopkinton Department of Public Works at 508-497-9765**. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. The meetings are usually bi-monthly and held in the Town Hall. Please check the meeting schedule at town hall for dates and times.

Is My Water Treated?

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- We add a disinfectant to protect you against microbial contaminants.
- We chemically treat the water to reduce lead and copper concentrations.

Department Activity

Over 6,000 water meters were read and more than 200 meters were replaced. We have continued with the installation of our new water meter reading system. Over 220 backflow devices were tested as well. Monthly water samples are collected throughout town and tested for bacteria. We are also mandated by the State and Federal government to test for a wide variety of other contaminants in the water.

The department is conducting a system wide leak detection survey with equipment that was purchased through a State grant. The department again ran a rain barrel program that allowed barrels to be purchased by residents at a reduced cost. The free water conservation and hose bibs programs to prevent backflows from outside faucets were also continued.

The department conducted a review and update of the water rules and regulations. Well number one received upgrades to help protect the sanitary seal and the main check valve was replaced. A new, more accurate master meter was also installed to help ensure proper registration.

New water analyzers were installed at all the wells to measure water quality parameters continuously and to notify personnel with any alarms. Upgrades to the SCADA system, which monitors the water system were also conducted.

Substances Found in Your Drinking Water

The Hopkinton Water Department routinely monitors for constituents in your drinking water according to Federal and State regulations. As water travels over the land or underground, it can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances. In 2010 alone, we collected over hundreds of water samples from the system. This table shows the results of our monitoring for the period of January 1st to December 31st, 2009. The state requires us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. A separate table has been provided by the Town of Ashland for monitoring data from the Howe Street Water Treatment Facility (WTF).

Definition of Terms:

Action Level - the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present or is present below current technology.

Massachusetts Office of Research and Standards Guideline (ORSG) - This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is 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.

Maximum Contaminant Level Goal - The “Goal”(MCLG) is 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.

Maximum Residual Disinfectant Level (MRDL) -- The highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) -- The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known or expected risk to health.

MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Millirems per year (mrems/yr) – a measure of radiation

Massachusetts Office of Research and Standards Guideline (ORSG) – This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per liter (pCi/L) – a measure of radiation

RAA – Running Annual Average is a measure of the concentration within the last year and is updated as new data is received.

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

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

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

Secondary Substances								
Contaminant	Date Collected	Range Detected	Average	SMCL	ORSG	Likely Source of Contamination		
Sodium (ppm)	2008	24 – 49	36	---	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process		
Sulfate (ppm)	2008	7.0 - 11	8.6	250	---	Runoff/leaching from natural deposits, industrial wastes		
Iron (ppm)	2010	ND – 4.6	1.44	0.30	---	Leaching from natural deposits, industrial wastes		
Manganese (ppm)	2010	ND - 0.62	0.19	0.05	---	Leaching from natural deposits		
Inorganic Contaminants								
Contaminant	Violation Y/N	Dates Collected	Highest Detected	Range Detected	Highest Average	MCLG	MCL	Likely Source of Contamination
Barium	NO	2009	0.11	N/A	0.11		2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nitrate (ppm)	NO	2010	2.0	0.86 – 2.0	2.0	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Perchlorate (ppb)	NO	2010	ND	ND	ND	2.0	2.0	Oxidizer for fireworks, blasting agents and rocket fuel
Volatile Organic Compounds (VOC)								
Xylenes (Total)	NO	2009	5	ND - 5	NA	0	10,000	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories; discharge from chemical factories
MTBE - Methyl Tertiary Butyl Ether (ppb)	NO	2010	5	ND – 0.72	ORSGL 70	--	--	Fuel additive; leaks and spills from gasoline storage tanks
Radioactive Contaminants								
Beta/Photon emitters (pCi/L))	NO	1999	2.9	2.9	2.9	0	50 ¹	Decay of natural and man-made deposits
Alpha emitters (pCi/L)	NO	1999	0.4	0.4	0.4	0	15	Erosion of natural deposits
Radium 226 & 228 (pCi/L) (combined values)	NO	2010	0.42	0.42	0.42	5	0	Erosion of natural deposits
Gross Alpha (pCi/L)	NO	2010	1.3	1.3	1.3	0	15	Decay of natural and man made deposits

(1) - The EPA’s MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

(2) MassDEP has reduced the monitoring requirements for radioactive contaminants to less often than once per year because the source is not at risk of contamination.

Disinfection By-Products Measured in the System						
Contaminant	Dates Collected	Range Detected	Average	MCL	MCLG	Likely Source of Contamination
Total Trihalomethanes (ppb)	8/18/2009	2.1 –64	36.3	80	---	By-product of drinking water chlorination
Five Haloacetic Acids (ppb)	8/18/2009	ND – 4.2	6.0	60	---	By-product of drinking water chlorination
Bacteria						
Contaminant	Violation Y/N	Highest # Positive in a Month	MCL	MCLG	Likely Source of Contamination	
Total Coliform	NO	0	1	0	Naturally present in the environment	
Fecal Coliform or E. coli	NO	0	0	0	Human and animal fecal waste	

Lead and Copper							
Contaminant	Violation Y/N	Dates Collected	90 th Percentile	Action Level	# of Sites Sampled	# Sites above AL	Likely Source of Contamination
Copper (ppm)	NO	2008	0.82	1.3	20	0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	NO	2008	3.8	15	20	2	Corrosion of household plumbing systems, erosion of natural deposits

Sodium

Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure or congestive heart failure, which drink water containing sodium should be aware of levels where exposures are being carefully controlled.

Manganese

Manganese is a naturally occurring mineral found in rocks, soil and groundwater and surface water. The USEPA and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 0.05 mg/L (50 micrograms per liter (ug/L) or 50 parts per billion (ppb)). At levels, greater than 0.05 mg/L, the water may appear brown, taste unpleasant and may leave black stains on bathroom fixtures and laundry. While manganese is part of a healthy diet, it can be harmful if consumed in large concentrations.

EPA has also set a health guideline for lifetime exposure to manganese in drinking water of 0.3 mg/L (300 ppb). EPA considered this level to be a protective limit for adults from potential neurological effects over a lifetime of exposure. For short-term 10-day exposures, EPA advises that levels in drinking water be below 1 mg/L (100 ppb). Infants and children less than 3 years of age should consume drinking water with manganese levels below 0.3 mg/L (300 ppb), or preferably as low as possible. This recommendation is based on concerns about effects to the nervous system that are more likely to occur in younger children, and because formula-fed infants/children already receive adequate manganese as an added essential nutrient in their formula. Formula fed infants or children may consume more manganese than the rest of the family if the manganese fortified formula is prepared with water that also contains manganese. In addition, young children appear to absorb more but excrete less manganese than older children. See: http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_magnese_dwreport.pdf.

Lead & Copper

The Massachusetts Department of Environmental Protection has reduced the testing frequency for lead and copper to every three years, as the results have been in compliance.

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 Hopkinton 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 <http://www.epa.gov/safewater/lead>.

Natural Source Water Constituents

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. It can pick up substances resulting from the presence of animals or from human activity. Contaminants 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, and wildlife.

Inorganic contaminants -such as salts and metals, which can be naturally-occurring or 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 agricultural, 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 can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants -which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. All 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. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800.426.4791.

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

We're proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water ***IS SAFE*** at these levels.

WATER QUALITY SUMMARY – HOWE STREET WTF							
Secondary Substances							
Contaminant	Date Collected	Amount Detected	Range Detected	ORSG	Likely Source of Contamination		
Color (units)	2010	10	ND-10	15	Naturally occurring organic material		
Manganese ⁽¹⁾ (ppb)	2010	15	2 – 48	50	Leaching from natural deposits		
Iron (ppm)	2010	54	ND - 54	300	Leaching from natural deposits, industrial wastes		
Regulated Substances							
Contaminant	Violation Y/N	Date Collected	Highest Detected	Range Detected	MCLG [MDRL]	MCL [MDRL]	Likely Source of Contamination
Arsenic (ppm)	NO	2006	3	N/A	0	10	Erosion from natural deposits. Runoff from orchards. Runoff from glass and electronics production wastes
Chlorine (ppm)	NO	2010	2.13	0.0.73-2.13	[4]	[4]	Water additive used to control microbes
Nitrate (ppm)	NO	2010	0.35	0.10 – 0.35	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (ppm)	NO	2010	0.08	ND – 0.08	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Tetrachloroethylene (ppb)	NO	2010	0.53	ND – 0.53	0	5	Discharge from factories and dry cleaners

- (1) Average amount detected per calendar year. Secondary drinking water standards are guidelines regulating contaminants that may cause cosmetic or aesthetic effects. The U.S. EPA recommends but does not require systems to comply with secondary MCLs.

Backflow Prevention

With the expanding use of irrigation systems using town water, and other potential backflows present, we are compelled to present information on cross-connections. Examples around the home include: hand held fertilizer applicators, laundry sink spigot below the overflow of the sink, and buried irrigation piping. Leaving your running hose submerged in the pool while filling is also a potential backflow. The water department has instituted a **free** hose bib program while supplies are available. These bibs can be attached to your outside silcock and will prevent the backflow or back-siphonage of potentially dangerous chemicals into your home. Commercially these include: water for an equipment process, filling of hydro-seeding trucks, and fire sprinklers. A sudden loss in water pressure due to a main break could result in non-potable or contaminated water to be introduced into the distribution system. If a person plans to perform these activities a backflow prevention device should be utilized. Commercial applications are already protected and annually inspected by the DPW. We are requesting that each homeowner be aware of the potential danger. For more information please contact our cross control coordinator, Peter Wright.

SWAP: Source Water Assessment Protection: **What Is My System's Ranking?** A susceptibility ranking of **moderate** was assigned to this system using the information collected during the assessment by the DEP. **Where Can I See The SWAP Report?** The complete SWAP report is available at the Hopkinton Water Department and online at the MassDEP website - <http://www.mass.gov/dep/water/drinking/2139000.pdf>. For more information, call Eric Carty 508-497-9765. We ask that you please be cognizant that any pesticides, herbicides or chemical lawn care you use could potentially make their way into your water supply. We ask that you please use organic products that are available at home improvement stores and Weston Nurseries.

We also ask that you refrain from storing oil, gasoline, paints and other potential hazards, in old containers or drums that may leak. If you have these items and need to dispose of them, please contact the DPW at 497-9740. Each spring a hazardous waste collection is held and these products can be disposed of properly. We thank you for your assistance in preserving and protecting our precious water supplies. If you have any questions, please feel free to give me a call.

Important Health Note

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 some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 800.426.4791.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at 800.426.4791.