



# 2010 Water Quality Report

*Town of Holden, Massachusetts 01520*

*Holden Department of Public Works*

*Water Operations Division*

*Public Water Supply Identification No. 2134000*

*www.Holdenma.gov*

We are pleased to present you with this year's Annual Water Quality Report for the calendar year 2010. The intent of this report is to inform you about your drinking water and to provide you with information on where your water comes from, what is found in the water, and how it compares to state and federal standards. The United States Environmental Protection Agency (USEPA) and the Massachusetts Department of Environmental Protection (MassDEP) require the Town to provide this information on an annual basis.

The accompanying tables and descriptions show that our system met all water quality standards. The Department takes pride in making sure that your drinking water complies with all federal and state requirements.

## **I. PUBLIC WATER SYSTEM INFORMATION**

Address: Town Hall, 1196 Main Street, Holden, Massachusetts 01520

Contact Person: James Shuris, P.E., MBA - Public Works Director

Telephone No. (508) 829-0249

Fax No. (508) 829-0252

Internet Address: [http://www.Holdenma.gov/Pages/HoldenMA\\_DPW/watersewerindex](http://www.Holdenma.gov/Pages/HoldenMA_DPW/watersewerindex)

### ***Opportunities for Public Participation***

If you would like to participate in discussions regarding your water quality, you may attend a quarterly Water & Sewer Advisory Board meeting. If you wish to attend a meeting, please check the Town bulletin board or local access television channel for specific times and dates, or you may call the Holden Department of Public Works Office at (508) 829-0249.

## **II. YOUR DRINKING WATER SOURCE**

### ***Where Does My Drinking Water Come From?***

The Town's water supply comes from five (5) wells and two (2) municipal interconnections with the City of Worcester. Each source is listed below:

<b>Source Name</b>	<b>DEP Source ID #</b>	<b>Source Type</b>	<b>Location of Source</b>
Quinapoxet Wells	2134000-02G	Two (2) Gravel Packed Wells	Adjacent to Wachusett Street
Mill Street Well Field	2134000-03G	Tubular Well Field	Adjacent to Mill Street
Mason Road Well Field	2134000-04G	Tubular Well Field	Adjacent to Mason Road
Spring Street Well	2134000-05G	Gravel Packed Well	Adjacent to Spring Street
Brattle Street Interconnection	2134000-01P	Interconnection with Worcester	Brattle Street
Salisbury Street Interconnection	2134000-02P	Interconnection with Worcester	Salisbury Street

### ***Is My Water Treated?***

Water from our Town wells is treated with Potassium Hydroxide for pH adjustment and Sodium Fluoride for Fluoridation. The groundwater in Holden has a naturally low pH, which means it is somewhat acidic and therefore corrosive. The Potassium Hydroxide raises the pH to just above neutral (7.0) so that it is not acidic and corrosive. The Sodium Fluoride is added to provide cavity protection for infants and children. The water that we buy from Worcester is treated at Worcester's Water Filtration Plant. If you would like to learn more about Worcester's water sources and treatment processes, we invite you to visit the Holden Department of Public Works Office located at the Town Hall where we maintain copies of Worcester's Water Quality Report. The one notable difference with Worcester's water is that they chlorinate their water. Therefore, if you reside within the southerly portion of Holden you may occasionally receive chlorinated water. Worcester does not fluoridate their water, and therefore, we add Sodium Fluoride at each of our two (2) municipal interconnections. The water quality of our system is constantly monitored by the Holden Water Operations Division and the DEP to determine the effectiveness of existing water treatment and to determine if additional treatment is required.

### ***How Are These Sources Protected?***

The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program (SWAP) Report for the Town's water supply sources. The SWAP Report assesses the susceptibility of the supplies to contamination. The complete SWAP report is available at Town Hall or online at <http://www.mass.gov/dep/water/drinking/ceroreps.htm>.

## **III. SUBSTANCES FOUND IN DRINKING WATER**

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.

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, and farming.

**Pesticides and herbicides** – which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

**Organic chemical contaminants** – these include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production. These contaminants 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 Department of Environmental Protection (DEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit 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 also 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.

**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.**

#### **IV. IMPORTANT DEFINITIONS**

**Maximum Contaminant Level (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.

**Maximum Contaminant Level Goal (MCLG)** – 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.

**Action Level (AL)** – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

**90<sup>th</sup> Percentile** – Out of every 10 homes sampled, 9 were at or below this level.

ppm = parts per million, or milligrams per liter (mg/l)  
ppb = parts per billion, or micrograms per liter (ug/l)  
pCi/l = picocuries per liter (a measure of radioactivity)

ND = Not Detected  
N/A = Not Applicable

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

**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.

#### **V. WATER QUALITY TESTING RESULTS**

### **What Does This Data Represent?**

There are over 100 regulated and unregulated contaminants that we test for. The water quality information presented in the tables below are from the most recent round of testing performed in accordance with the regulations. The tables list anything that was detected during testing. It is important to note that no contaminants were detected above the maximum allowable level.

### **Lead and Copper**

Lead and copper are contaminants that have a very specific and unique set of rules for sampling and testing. Unlike other inorganics, which tend to contaminate a water supply at the source, lead and copper generally enter the water after it has flowed to the consumer's home. These metals typically dissolve from the water pipes within your house if the water is corrosive. Lead usually comes from the lead solder used prior to 1986 to connect the copper tubing in a house's water supply lines. The copper comes from the tubing itself. Ingesting large amounts of copper from drinking water can upset your stomach but there are no long-term health effects unless you suffer from Wilson's Disease. Lead, on the other hand, is known to cause learning impairments in young children and may cause delays in mental and physical development. Elevated lead ingestion may also cause kidney problems or high blood pressure in adults. Lead is therefore, strictly regulated in drinking water. In past years, gasoline and paint were major sources of lead in the environment.

Since both lead and copper enter the water at the point of use (near the tap), sampling and testing for these metals must be performed at homes in the Town rather than at the entry point to the distribution system. Samples had to be collected after the water went unused in the home for at least six (6) hours. This permitted the maximum contact between water and the lead and copper. If the 90<sup>th</sup> percentile results exceed the action level, further sampling and possible treatment changes might be necessary.

***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 Holden Water Operations Division 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 3 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>.***

Contaminant	Date(s) Collected	90 <sup>TH</sup> percentile	Action Level	MCLG	No. of sites sampled	No. of sites above Action Level	Possible Source of Contamination
Lead (ppb)	08/05-07/08	0.002	0.015	0	31	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	08/05-07/08	1.19	1.3	1.3	31	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

The Massachusetts Department of Environmental Protection has reduced the monitoring requirements for inorganic contaminants because our sources are not at risk of contamination. The last sample collected for these contaminants was taken in 2008 and was found to meet all applicable EPA and DEP standards.

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 or mg/l) 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 1995. 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.

Regulated Contaminant	Date(s) Collected	Max Detect	Range Detected	High Ave.	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganic Contaminants</b>								
Fluoride (ppm)	Monthly 2010	1.21	0.57 –1.21	1.12	4	4	N	Water additive that promotes strong teeth.
Arsenic	4/24/09	0.004	ND-0.004	NA	0.010	0.010	N	Arsenic can enter the water supply from natural deposits in the earth or from industrial and agricultural pollution.
Nitrate (ppm)	06/02/10	1.6	ND –1.6	NA	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Selenium (ppb)	06/19/08	0.005	0.005 - 0.005	NA	50	50	N	Discharge from metal refineries; erosion of natural deposits; discharge from mines
Barium (ppm)	06/19/08	0.038	0.010-0.038	NA	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
<b>Organic Contaminants</b>								
Trichloroethylene (ppb)	Qrtly 2010	2.2	ND-2.2	0.41	5	0	N	Discharge from metal degreasing sites and other factories
1,1,1-Trichloroethane (ppb)	Qrtly 2010	3.0	ND-3.0	0.92	200	200	N	Discharge from use in septic system cleaners
CIS-1,2-Dichloroethylene (ppb)	Qrtly 2010	1.10	ND-1.10	0.39	70	70	N	Breakdown product of trichloroethylene and tetrachloroethylene
Perchlorate	3 <sup>rd</sup> Qtr 2010	<0.3	ND-<0.3	NA	2.0	NA	N	Naturally occurring and manmade contaminant increasingly found in groundwater, surface water and soil.
<b>Radioactive Contaminants</b>								
Gross Alpha (pCi/l) (minus uranium)	Qrtly 2006	1.7	ND-1.7	NA	15	0	N	Erosion of natural deposits
Radon	06/02/06	820	820	NA	10,000	NA	N	Erosion of natural deposits

Regulated Contaminant	Date(s) Collected	Max Detect	Range Detected	High Ave.	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Disinfection By-Products</b>								
Total Trihalomethanes (TTHMs) (ppb)	Qrtly 2010	48.2	ND-48.2	10.79	80	-----	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Qrtly 2010	22.9	ND-22.9	5.02	60	-----	N	Byproduct of drinking water disinfection
Chlorine (ppm)	Monthly 2010	0.43	0.18-0.43	0.26	4.0	4.0	N	Water additive used to control microbes

(1) **Haloacetic Acids and Trihalomethanes:** The highest-level detected represents the highest running annual average for these contaminants. The range of levels found may have results in excess of the MCL but the running average of all sample locations is used to determine compliance.

Unregulated Contaminant (2)	Date(s) Collected	Range Detected	Average Detected	SMCL	ORSG	Possible Source
<b>Inorganic Contaminants</b>						
Sodium (ppm)	4/29/09	10-17	13	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	2 <sup>nd</sup> Qtr 2009	6.4-14	9.75	250	----	Natural sources
<b>Organic Contaminants</b>						
Chloromethane (ppb)	Qrtly 2009	ND to <0.0005	ND	----	----	Occurs naturally and is also produced in industry

(2) **Unregulated contaminants** are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

Secondary Contaminant	Date(s) Collected	Range Detected	Average Detected	SMCL	Possible Source
Iron (ppm)	2 <sup>nd</sup> Qtr 2010	ND-0.27	0.05	0.3	Naturally occurring, corrosion of cast iron pipes
Manganese (ppm)	2 <sup>nd</sup> Qtr 2010	ND-0.13	0.02	0.05 (3)	Erosion of natural deposits
Alkalinity (ppm)	2 <sup>nd</sup> Qtr 2009	6.4-68	23.66	None	Buffering capacity of water
Aluminum (ppm)	2 <sup>nd</sup> Qtr 2009	ND	ND	0.2	Byproduct of treatment process, naturally occurring
Chloride (ppm)	2 <sup>nd</sup> Qtr 2009	19-37	25.63	250	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage

Magnesium (ppm)	2 <sup>nd</sup> Qtr 2009	0.7-1.6	1.10	None	Naturally occurring mineral
Hardness (ppm)	2 <sup>nd</sup> Qtr 2009	18-32	23	None	Naturally occurring mineral
Potassium (ppm)	2 <sup>nd</sup> Qtr 2009	ND-44	11.68	None	Naturally occurring mineral
Calcium (ppm)	2 <sup>nd</sup> Qtr 2009	5.9-9.8	7.3	None	Naturally occurring mineral
Total Dissolved Solids (TDS) (ppm)	2 <sup>nd</sup> Qtr 2009	58-178	94.38	500	Erosion of natural deposits.

**(3) The EPA** has established a lifetime health advisory (HA) value of 0.3 mg/L for manganese to protect against concerns of potential neurological effects, and a One-day and 10-day HA of 1 mg/L for acute exposure.

## VI. COMPLIANCE WITH DRINKING WATER REGULATIONS

### ***Does My Drinking Water Meet Current Health Standards?***

We are committed to providing you with the best water quality available. We are proud to report that last year all test results met all applicable health standards regulated by the state and federal government. ***We do all of this for less than a penny per gallon!***

## VII. WATER CONSERVATION

We ask that all customers cooperate to conserve water for the purpose of saving money, and importantly, to save our limited and valued natural resources. If you have an irrigation system and it operates on rainy days you might want to consider using a rain sensor, which when connected to your irrigation system will not allow your irrigation system to operate if there has been recent precipitation. These devices are inexpensive and relatively easy to install.