2019 Water Quality Report

Town of Holden, Massachusetts 01520
Holden Department of Public Works
Water & Sewer 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 2019. 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 (EPA) and the Massachusetts Department of Environmental Protection (DEP) require the Town to provide this information on an annual basis. The Department takes pride in delivering high quality and safe drinking water to the community.

I. PUBLIC WATER SYSTEM INFORMATION

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

Contact Person: Ryan S. Mouradian, P.E., Water and Sewer Superintendent

Telephone No. (508) 210-5550 Fax No. (508) 829-0252

Internet Address: http://www.holdenma.gov/water-and-sewer-division

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, you may attend a Board of Selectman 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) 210-5550.

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:

Source Name	DEP Source ID #	Source Type	Location of Source
Quinapoxet Wells	2134000-02G 2134000-06G	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 City of Worcester also posts Water Quality Reports on their webpage. The one notable difference with Worcester's water is that Worcester chlorinates their water. Therefore, if you reside within Holden's high service area you may occasionally receive chlorinated water. Worcester does not fluoridate their water, and therefore, the Town of Holden adds Sodium Fluoride at each of our two (2) municipal interconnections. The water quality of our system is constantly monitored by the Holden Water & Sewer 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 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. A susceptibility ranking of high was assigned to the Spring Street Well and a susceptibility ranking of moderate was assigned to the Town's three other wells using the information collected during the assessment by DEP. The complete SWAP report is available at the Town Hall or online at http://www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2134000.pdf. For more information, please call the Water & Sewer Division Office at (508) 210-5550.

III. SUBSTANCES FOUND IN DRINKING WATER

Sources of drinking water (for 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, DEP and 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.

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 Water & Sewer 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 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.

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.

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

Definition of Units-

ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (ug/l)
ppt = parts per trillion, or nanograms per liter
pCi/l = picocuries per liter (a measure of radioactivity)
NTU = Nephelometric Turbidity Units
ND = Not Detected
N/A = Not Applicable
mrem/year = millimrems per year (a measure of radiation absorbed by the body)

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.

Level 1 Assessment – A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

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

V. WATER QUALITY TESTING RESULTS

What Does This Data Represent?

The water quality information presented in the table(s) is from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the table(s).

The Massachusetts Department of Environmental Protection has reduced the monitoring requirements for Nitrate, Gross Alpha Particle Activity, Radio Active Contaminants, and Chloromethane because our sources are not at risk of contamination. The last samples collected for some or all of these contaminants were taken in 2006, 2009, 2010, 2015, and 2019 and were 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.

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants							
Arsenic (ppb)	5/16/2017	4	ND-4	10	N/A	N	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	5/16/2017	0.047	0.007-0.047	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (ppb)	5/16/2017	1.2	ND-1.2	100	100	N	Discharge from pulp mills; erosion of natural deposits
Fluoride (ppm) (1)	Weekly 2019	1.0	0.5-1.0	4	4	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm)	5/21/2019	1.3	0.2-1.3	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Perchlorate (ppb)	8/20/2019	0.14	ND-0.14	2	N/A	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Volatile Organic Contaminants							
cis-1,2-Dichloroethylene (ppb)	Quarterly 2019	0.90	ND-0.90	70	70	N	Breakdown product of trichloroethylene and tetrachloroethylene

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
1,1,1-Trichloroethane (ppb)	Quarterly 2019	1.10	ND-1.10	200	200	N	Discharge from use in septic system cleaners
Trichloroethylene (TCE) (ppb)	Quarterly 2019	1.20	ND-1.20	5	0	N	Discharge from metal degreasing sites and other factories
Radioactive Contaminants							
Gross Alpha (pCi/l)	5/19/2015, 5/27/2015	2.82	ND-2.82	15	0	N	Erosion of natural deposits
Radium 226 & 228 (pCi/L) (combined values)	5/15/2018	1.6	1.0-1.6	5	0	N	Erosion of natural deposits
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb) (2)	Quarterly 2019	33	ND-80	80	-----	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb) (2)	Quarterly 2019	16	ND-30	60	-----	N	Byproduct of drinking water disinfection
Chlorine (ppm)	Monthly 2019	1.08	ND-1.08	4	4	N	Water additive used to control microbes

1) Fluoride also has a secondary contaminant level (SMCL) of 2 ppm.
2) 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 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.

Unregulated and Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Inorganic Contaminants						
Sodium (ppm)	5/16/2017	13.5-34.9	23.84	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	5/21/2019	7.5-15.5	9.40	250	----	Natural sources
Secondary Contaminants						
Iron (ppb)	Quarterly 2019	ND-894	252	300	---	Naturally occurring, corrosion of cast iron pipes
Manganese (ppb) [3]	5/21/2019	ND-96	22	50	Health Advisory of 300 ppb	Erosion of natural deposits
Alkalinity (ppm)	5/21/2019	8-62	23.57		----	
Aluminum (ppb)	5/21/2019	ND-62	27.14	200	---	Naturally Occurring
Calcium (ppm)	5/21/2019	6.5-12.7	8.26	----		
Chloride (ppm)	5/21/2019	25.5-77	44.38	250	---	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage, and seawater intrusion in coastal areas
Copper (ppm)	5/21/2019	ND-0.031	0.007	1	---	Naturally occurring organic material
Hardness (CACO3) (ppm)	5/21/2019	19-39	25.28	----	----	Indicates the mineral content of the water
Magnesium (ppm)	5/21/2019	0.6-1.8	1.16	----	----	Naturally occurring mineral
Potassium (ppm)	5/21/2019	1.1-45	13.14	----	----	A naturally occurring element
Other Unregulated Contaminant Monitoring Rule 4 (UCMR4) Contaminants						
Haa6Br (ppb)	5/22/2019 & 8/27/2019	2.5-8.18	5.12	--	--	
HAA9 (ppb)	5/22/2019 & 8/27/2019	7.3-40.28	27.78	--	--	
Manganese (ppb)	5/22/2019 & 8/27/2019	4.1-87.9	31.82	--	--	Erosion of natural deposits

3) US EPA has established a lifetime health advisory (HA) value of 300 ppb for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1000 ppb for acute exposure.

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 90th 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 & Sewer 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://water.epa.gov/drink/info/lead/index.cfm.

Contaminant	Date(s) Collected	90TH percentile	Action Level	MCLG	No. of sites sampled	No. of sites above Action Level	Possible Source of Contamination
Lead (ppm)	9/18-9/21/17	0.0030	0.015	0	30	1	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	9/18-9/21/17	1.29	1.3	1.3	30	3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

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.

VII. CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

What is a cross-connection?

A cross-connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross-connections exist in piping arrangements or equipment that allow the drinking water to come in contact with non-potable liquids, solids or gases (hazardous to humans) in event of a backflow.

What is a backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by equipment or system such as a boiler or air-conditioning is higher than the water pressure inside the water distribution line (backpressure), or when the pressure in the distribution

line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (backsiphonage). Backflow is a problem that many water consumers are unaware of, a problem that each and every water customer has a responsibility to help prevent.

What can I do to help prevent a cross-connection?

Without the proper protection, something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you as a drinking water user can take to prevent such hazards, they are:

- NEVER submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains or chemicals.
- NEVER attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bib vacuum breaker on any threaded water fixture. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home-improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with a backflow preventer
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.

The Massachusetts Drinking Water Regulations, 310 CMR 22.00, requires all public water systems to have an approved and fully implemented Cross-Connection Control Program (CCCP). The Holden Water & Sewer Division is working diligently to protect the public health of its drinking water customers from the hazards caused by unprotected cross-connections through the implementation of its cross-connection survey program, elimination or properly protection of all identified cross-connections, the registration of all cross-connections protected by a reduced pressure backflow preventers (RPBPs) or a double check valve assemblies (DCVAs), and the implementation of a testing program for all RPBPs and DCVAs.

For more information on this program please call Water & Sewer Division at (508)210-5550.

VIII. 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 should 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.

In accordance with the requirements of the Water Management Act Final Permit issued to the Town of Holden by DEP, the Town is required to enact a Water Use Restriction from May 1st until September 30th, between the hours of 9AM and 5PM. This ban restricts daily "nonessential" outdoor water use from public water sources within that timeframe. If drought conditions return, The Division will increase the water ban level as required. More information can be found on the Town's website at www.holdenma.gov.