

2021 Annual Drinking Water Quality Report

Harvard DPW Water Division

47 Depot Rd. Harvard, MA 01451

PWS ID # 2125000



Prepared by:

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A NEWSLETTER FROM THE HARVARD DEPARTMENT OF PUBLIC WORKS WATER DIVISION

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This report is a snapshot of the quality of the drinking water we provided the past year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies. We are pleased to report that the Harvard Water System is currently in compliance with all state and federal drinking water regulations. A copy of this report can be found on the Town of Harvard website (www.harvard.ma.us).

I. PUBLIC WATER SYSTEM INFORMATION

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Water System Management and Improvements

To ensure that we provide the highest quality of water available, your water system is operated by Massachusetts Certified Operators who oversee the routine operation of our system. Oversight is also provided by three Sewer and Water Commissioners and by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP inspects our system for its technical, financial and managerial capacity to provide safe drinking water to you.

Our public water system was built in 1923 to serve 25 customers. We have grown to over 100 customers and are pleased to report that our entire water distribution system has been upgraded to current industry standards.

The water distribution system is flushed annually to remove sediment from the system. All hydrants were exercised and repairs made to them as necessary.

Opportunities for Public Participation

If you would like to participate in discussions regarding your drinking water, you are welcome to attend all public meetings of the Sewer and Water Commissioners. The Harvard Water and Sewer Commission meet on Wednesday mornings. Agendas and Minutes of the meetings can be found on the Town of Harvard website (www.harvard.ma.us). Your participation is welcomed and encouraged.

II. YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?

Your water is produced from groundwater wells and located as stated below:

Source Name	DEP Source ID#	Source Type	Location of Source
Well # 2 (Primary Well)	2125000-02G	Bedrock	Pond Road
Well # 5	2125000-05G	Bedrock	Pond Road

The town also has an emergency well on Bolton Road (Well #3) which can only be used in the event of a major failure of our primary wells. This well may only be used as a non-potable source of water.

Is My Water Treated?

YES

Our water system makes every effort to provide you with safe and pure drinking water. We treat the water with a liquid 12.5% sodium hypochlorite solution prior to distribution into the water system. The sodium hypochlorite is used for disinfection purposes as required by MassDEP. The water quality of our system is constantly monitored by us and the DEP to determine if any future treatment may be required.

How Are These Sources Protected?

These sources are protected by implementing recommendations received from MassDEP. In 2001 MassDEP prepared a Source Water Assessment and Protection (SWAP) Report for the water supply sources serving this water system. The SWAP Report assessed the susceptibility of contamination to public water supplies and recommends monitoring and reducing activity within the Wellhead Protection Zones.

What is My System's Ranking?

A susceptibility ranking of **high** was assigned to our sources using the information collected during the assessment by the MassDEP.

Where Can I See The SWAP Report?

The complete SWAP report is available at the Harvard DPW office @ 47 Depot Road and online at <http://www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2125000.pdf> For more information, call Timothy B. Kilhart, Harvard DPW @ 978-456-4130

What Are the Key Issues For Our Water Supply?

The SWAP report notes the key issue is that of inappropriate activities in the Zone I (the area within a 345-foot radius of Well # 2 and 304-foot radius of Well # 5). The inappropriate activities or land uses include roads, parking areas, buildings, stormwater drains, aquatic wildlife, and landscaping. The report also notes the presence of an underground fuel source and hazardous materials storage and use within the Interim Wellhead Protection Area (IWPA - 1,360 foot radius of Well #2 and 924 foot radius of Well #5).

What Can Be Done To Improve Protection?

The SWAP report recommends:

- *Removing or reducing all non-water supply activities from the Zone I.*
- *Storing fertilizers, pesticide, and road salt outside of the Zone I*
- *Inspecting and cleaning catch basins on a regular basis; also sweeping the street and parking lot*
- *Prohibiting the feeding of ducks and wildlife at the pond*

Residents can help protect sources by:

- *Practicing good septic system maintenance*
- *Supporting water supply protection initiatives at the next town meeting*
- *Taking hazardous household chemicals to hazardous materials collection days*
- *Contacting the Harvard Water Department or Harvard Board of Health to volunteer for monitoring or education outreach to schools*
- *Limiting pesticide and fertilizer use in or near the Zone I.*

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 -this 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 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) and the MassDEP prescribe regulations that limit 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 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 (800-426-4791) or by going to www.epa.gov.

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 (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.

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.

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

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 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?

The water quality information presented in the tables are from the most recent round of testing done in accordance with the regulations. The Harvard Water Department tests for over 100 contaminants on a regularly scheduled program developed by DEP. The following list represents contaminants found in detectable amounts. All other contaminants were not detected in our sampling.

	Date Collected	90 th Percentile	Action Level	MCLG	# of Sites Sampled	# of Sites above AL	Possible Source of Contamination
Lead (ppb)	9/12/19	5	15	0	10	0	Corrosion of household plumbing systems
Copper (ppb)	9/12/19	109	1,300	1,300	10	0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

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 Harvard Water Department is responsible for providing high quality 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 the 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>.

For the Calendar Year 2021, the Harvard Water Department performed four tests per month for January through December (48 in-total). Seven of those tests were positive for Total Coliform, a naturally present, generally harmless bacteria. Three of those tests were positive for E. Coli. Well 02G was immediately taken off-line per order of MassDEP and the remaining water supply system was chlorinated and well 05G began emergency chlorination procedures on July 22, 2021 per order of MassDEP. Thirty follow-up tests were negative for Total Coliforms and E. Coli. The general public was never in any danger from using the public water supply.

	Highest # Positive in a month	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination
Total Coliform	7	1	0	Y	Naturally present in the environment
Fecal Coliform or E.coli	3	1	0	Y	Human and animal fecal waste

*Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing

Regulated Contaminant	Date(s) Collected	Highest Detect	Range Detected	MCL	MCLG	Violation (Y/N)	Possible Sources of Contamination
Inorganic Contaminants							
Barium (ppb)	4/14/20	0.04	0.032-0.04	2	2	N	Discharge from drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (ppb)	4/14/20	ND	ND	0.1	0.1	N	Discharge from pulp[mills; erosion of natural deposits
Nitrate (ppb)	4/8/21	0.97	0.54-0.97	10	10	N	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
Perchlorate (ppb)	8/11/20	0.15	0.15	2	-	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Radioactive Contaminants							
Gross Beta (pCi/l)	4/21/21	1.5	1.5	15	0	N	Decay of natural and man-made deposits

Unregulated Contaminants and Secondary Contaminants	Date Collected	Highest Detected	Average Detected	SMCL	ORSG	Possible Source of Contamination
Inorganic Contaminants						
Sodium (ppm)	4/14/20	54.4	53.5	-	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Nickel (ppm)	4/14/20	ND	ND	-	.1	Discharge from industrial processes
Sulfate (ppm)	11/16/20	16.4	16.4	250	-	Natural Sources
Iron (ppm)	4/8/21	0.007	0.0035	.3	-	Naturally occurring, corrosion of cast iron pipes
Calcium (ppm)	11/17/20	96.2	96.2	-	-	Natural Sources
Chloride (ppm)	11/16/20	207	207	250	-	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage
Magnesium (ppm)	11/17/20	10.7	10.7	-	-	Natural Sources
Total Dissolved Solids (ppm)	11/20/20	650	650	500	-	Erosion of natural deposits
Zinc (ppm)	11/17/20	0.058	0.058	5	-	Erosion of natural deposits, leaching from plumbing materials

Unregulated Contaminants and Secondary Contaminants	Date(s) Collected	Range Detected	Average Detected	MCL	Possible Source of Contamination
PFAS6 Combined PFOS, PFOA, PFHxS PFNA, PFHpA, PFDA (ppt)	8/24/21 and 10/5/21 and 1/3/22	ND-10.0	5.43	20	Man-made chemicals used as surfactants to make products stain or water resistant, in firefighting foam, for industrial purposes and as a pesticide. Used in flouropolymers (such as Teflon), cosmetics, greases and lubricants, paints, adhesives and photographic films.
Perflourobutane Sulfonic Acis (PFBS) (ppt)	8/24/21 and 10/5/21 and 1/3/22	ND	ND	---	Man-made chemical used in products to make them stain, grease, heat and water resistant.
Perflourohexanoic Acid (PFHxA) (ppt)	8/24/21 and 10/5/21 and 1/3/22	ND-3.28	1.74	---	Directly emitted to the environment or are formed indirectly from the environmental degradation or metabolism of precursor substances. Some are or have been used in a wide variety of industrial and consumer applications.

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 your drinking water met all applicable health standards regulated by state and federal government.

Monitoring and Reporting Requirements:

The Harvard Water Department has met all required monitoring and has had one required reporting requirement to MassDEP in 2021.

The Harvard Water Department was ordered to take well 02G off-line on July 22, 2021 per order of MassDEP due to an E. Coli positive test result. MassDEP instructed the town to begin emergency chlorination on well 05G on July 22, 2021. Currently the town continues to operate well 05G under emergency chlorination and well 02G remains off-line while we make upgrades to the chlorination treatment system to allow us to get well 02G back on-line.

The Harvard Public Water System was never in any danger during this incident.

VII. EDUCATIONAL INFORMATION

Do I Need To Be Concerned About Certain Contaminants Detected In My Water?

If present, elevated levels of lead can cause serious health problems, especially for pregnant woman and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Harvard 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>.

Sodium sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled. The Town of Harvard's Sodium results can be found under the Unregulated Contaminant chart.

VIII. ADDITIONAL INFORMATION

Is My Water Treated? YES

Our water system makes every effort to provide you with safe and pure drinking water. We treat the water with a liquid 12.5% sodium hypochlorite solution prior to distribution into the water system. The sodium hypochlorite is used for disinfection purposes as required by MassDEP. The water quality of our system is constantly monitored by us and MassDEP to determine if future treatment may be needed.

Cross Connection Control Program

The Town of Harvard has a cross connection control program. All commercial, industrial, residential and municipal buildings are inspected for cross connections. A cross connection is a connection between a non-potable "non- drinkable" water source and a potable "drinkable" water source. If such a connection exists, it must be protected with a backflow prevention device. Currently Harvard has 34 backflow devices installed on municipal and commercial properties.

A cross connection is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For example, your going to spray fertilizer on your lawn. You hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops at the same time you turn on the hose the fertilizer may be sucked back into the drinking water pipes through the hose. This problem can be prevented by using an attachment on your hose called a backflow-prevention device.

The Harvard Water Department recommends that residential customers install appropriate devices to isolate non-potable water uses such as irrigation systems, outdoor hoses and swimming pools to protect them from contaminating their drinking water. The Harvard Water Department recommends the installation of a backflow prevention device, such as a low cost hose bib vacuum breaker, for all inside and outside hose connections. You can purchase this at any hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in Harvard. For additional information on cross connections and call the Harvard DPW at 978-456-4130.

Conservation Tips

Allow grass to grow slightly higher than normal. This promotes deep root growth & requires less watering. Only wash clothes when a full load can be done. This saves approximately 25 gallons per washing cycle.

Message from your Certified Operator

We work hard to provide you, the residents of Harvard, with the best quality water possible. We test each and every month for coliforms and E.coli as well as test for over 100 other contaminants on a regularly scheduled basis to make sure the water is safe to drink. If you have any questions regarding your public water supply, please feel free to contact the DPW office and speak with DPW Director, Timothy B. Kilhart (978-456-4130).