

# ANNUAL WATER QUALITY REPORT

Reporting Year 2021



***Presented By***  
**Hadley Department of  
Public Works Water Division**



## We've Come a Long Way

Once again, we are proud to present our annual water quality report covering the period between January 1 and December 31, 2021. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at all hours—to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

## 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.

According to the Source Water Assessment Plan, our water system had a susceptibility rating of "high". We also purchased water from Amherst, and their susceptibility is "high". If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

## Where Does My Water Come From?

The Town of Hadley's drinking water supply is groundwater drawn from the Callahan Wells. Our water derives from the Early Mesozoic basin aquifers. These aquifers, covering an area of about 216 square miles, consist of nonporous sandstone. Our groundwater supply is not exposed to the atmosphere and, unlike rivers and reservoirs, is not subject to direct pollution or contamination. Factually, groundwater is the safest and highest-quality water available to meet the public health demand for water intended for human consumption. We provide, on average, 700,000 gallons of quality drinking water to our consumers every day.

Our water supply is part of the Middle Connecticut Watershed, which covers an area of around 1,000 square miles. Most of the watershed is covered by forest growth, with agricultural and urban developments accounting for less than one-third of watershed use. To learn more about our watershed on the Internet, go to the U.S. EPA's Search Your Watershed at [www.epa.gov/surf](http://www.epa.gov/surf).

## Community Participation

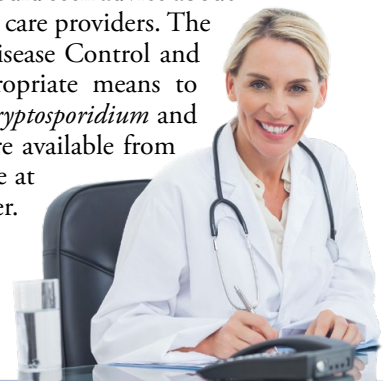
You are invited to participate in our public forum and voice your concerns about your drinking water. Meetings are held on the first and third Wednesday of each month. Please check online at [www.hadleyma.org/select-board](http://www.hadleyma.org/select-board) for meeting times and location.

## 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 we 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 at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## 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>.



**QUESTIONS?** For more information about this report, or for any questions relating to your drinking water, please call Scott McCarthy, Acting DPW Director, at (413) 586-2390.



## Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribes regulations limiting 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 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.

## How Long Can I Store Drinking Water?

The disinfectant in drinking water will eventually dissipate, even in a closed container. If that container housed bacteria prior to filling it up with the tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

## Think Before You Flush!

Flushing unused or expired medicines can be harmful to your drinking water. Properly disposing of unused or expired medication helps protect you and the environment. Keep medications out of our waterways by disposing responsibly. To find a convenient drop-off location near you, please visit <https://bit.ly/3leRyXy>.

## 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 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 have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

## Information on the Internet

The U.S. EPA (<https://goo.gl/TFAMKc>) and the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the DEP has a Web site (<http://bit.ly/2HY4gfO>) that provides complete and current information on water issues in Massachusetts, including valuable information about our watershed.



## Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. And, the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The State recommends monitoring 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
<b>Haloacetic Acids [HAAs]—Stage 2</b> (ppb)	2021	60	NA	1.02	1.02–1.02	No	By-product of drinking water disinfection
<b>Nitrate</b> (ppm)	2021	10	10	0.474	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
<b>TTHMs [Total Trihalomethanes]—Stage 2</b> (ppb)	2021	80	NA	8.84	7.46–8.84	No	By-product of drinking water disinfection
<b>Turbidity<sup>1</sup></b> (NTU)	2021	TT	NA	0.06	0.02–0.06	No	Soil runoff
<b>Turbidity</b> (Lowest monthly percent of samples meeting limit)	2021	TT	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 %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
<b>Copper</b> (ppm)	2019	1.3	1.3	0.215	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits
<b>Lead</b> (ppb)	2019	15	0	2.9	0/20	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
<b>Chloride</b> (ppm)	2021	250	NA	19.5	9.29–19.5	No	Runoff/leaching from natural deposits
<b>Sulfate</b> (ppm)	2021	250	NA	41.6	37.4–41.6	No	Runoff/leaching from natural deposits; Industrial wastes
<b>Total Dissolved Solids [TDS]</b> (ppm)	2021	500	NA	184	152–184	No	Runoff/leaching from natural deposits
<b>pH</b> (Units)	2021	6.5–8.5	NA	7.72	NA	No	Naturally occurring

### OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
<b>Alkalinity</b> (ppm)	2021	90	75–90
<b>Calcium</b> (ppm)	2021	42.3	34.1–42.3
<b>Hardness as calcium carbonate</b> (ppm)	2021	138	118–138
<b>Magnesium</b> (ppm)	2021	0.123	0–0.123
<b>Potassium</b> (ppm)	2021	2.11	1.72–2.11

<sup>1</sup>Footnote for Hadley DPW Water Division: Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

## Definitions

**90th %ile:** Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the Action Level to determine lead and copper compliance.

**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.

**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.

**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.

**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.



## BY THE NUMBERS

The number of Americans who receive water from a public water system.

**300**  
MILLION

**1**  
MILLION

The number of miles of drinking water distribution mains in the U.S.

The number of gallons of water produced daily by public water systems in the U.S.

**34**  
BILLION

**135**  
BILLION

The amount of money spent annually on maintaining the public water infrastructure in the U.S.

The number of active public water systems in the U.S.

**151**  
THOUSAND

**199**  
THOUSAND

The number of highly trained and licensed water professionals serving in the U.S.

The age in years of the world's oldest water, found in a mine at a depth of nearly two miles.

**2**  
BILLION