HOLYOKE WATER WORKS

2021 Annual Water System Report

HWW Water Quality Standards in 2021

The Holyoke Water Works (HWW) presents its 2021 Annual Water System Report. The report is designed to inform you about the quality water and services that we deliver each and every day. The HWW is committed to providing you with a safe and dependable drinking water supply. We want you to understand our continuing effort to protect and preserve our water resources. In 2021, the HWW violated a drinking water standard to notify MassDEP of an elevated turbidity event between the dates of October 28th and November 7th. This also required HWW to conduct extra source water fecal coliform monitoring over weekends and required bacteria monitoring in the distribution system nearest our 1st customer. During this period HWW failed to meet the approved treatment level for cryptosporidium with the Ultraviolet light due to the elevated turbidity levels but increased the use of chlorine to ensure destruction or inactivation of all pathogens and viruses. This violation was not an emergency, and at no point was your water unsafe to drink or use for everyday purposes, but as our customers, you have a right to know what happened, and what we did to correct this situation. Water quality results are listed on pages 3 and 4 of this report. If you have any questions about this report or issues concerning water quality, please contact Matthew Smith, Treatment Facility Superintendent at (413) 532-6778. For questions concerning billing or other matters related to HWW, please call the main office at (413) 536-0442. Additional information can be obtained by attending the Holyoke Board of Water Commissioners regularly scheduled monthly public meetings. Meeting dates, times, and locations are posted on the bulletin board at the City Hall, 536 Dwight Street, Holyoke and on the City of Holyoke's website (www.holyoke.org). We want you to be informed about HWW and our commitment to ensuring the quality of your drinking water.

HWW Maintains Filtration Waiver While Providing Consumers with High Quality Water

Holyoke's drinking water comes primarily from the Tighe-Carmody Reservoir in Southampton via a 6.6 mile Pre-stressed Concrete Cylinder Pipe constructed in 1997 to the Water Treatment Facility located in Holyoke. The water supply is augmented by the McLean Reservoir by means of a transfer pump station located in the watershed of the Ashley Reservoir. The "blending" of these two water sources helps ensure the highest quality of water available throughout the year. Holyoke's water is treated at the Water Treatment Facility located at 600 Westfield Road adjacent to the McLean Reservoir.

In 2021, the Massachusetts Department of Environmental Protection (MassDEP) issued Holyoke Water Works (HWW) approval to avoid filtration of the surface water sources which are subject to annual review. HWW continued to meet the criteria for avoiding filtration of the Tighe-Carmody and McLean Reservoirs. One method used to accomplish this goal was blending the sources to reduce the formation of trihalomethanes (THMs) and halocetic acids (HAAs), which are regulated under the Disinfection Byproduct Rule. To meet this objective, HWW blended 35,070,000 gallons of water or 1.78% from the McLean Reservoir to satisfy the City's annual water supply needs of 1,972,882,000 gallons. Utilizing these practices to date, Holyoke and MWRA (Quabbin Reservoir) are the only two remaining unfiltered water sources in Massachusetts.

HWW Maintains One of the Lowest Water Rates in Massachusetts

Holyoke's water rate is regarded as one of the lowest in Massachusetts. In 2021, HWW was able to maintain its current water rate of $.4709/100 gallons with a minimum charge of $47.09 per 100 gallons. HWW has not raised its water rates since 2018 which was necessary to fund the new Ultraviolet Light Secondary Disinfection Facility constructed in 2016. HWW continues its commitment to providing high-quality water and professional services to our customer at competitive prices.

Maintenance Fee Saves Residential Homeowners Thousands in Replacement Costs

HWW established a Maintenance Fee for Residential Homeowners which includes a Water Service Protection Program that provides coverage for any repairs and/or replacement of the water service from the public water main up to and including the controlling valve. The Protection Program includes pipe breaks, leaking pipe, leaks due to corrosion, normal wear and tear, excavation, labor, materials, road/lawn repair, permits and traffic control. The replacement of the water meter under the Protection Program is also included.

In 2021, HWW continues the program at the current rates acknowledging the success in saving residential homeowners thousands of dollars in replacement costs. For as little as $16 per year, all the expenses associated with the repair, maintenance and replacement of the water service for residential homeowners is covered under the program. HWW advises residential homeowners to avoid third party providers claiming they can provide similar coverage for a monthly or annual fee. Please contact HWW if you have been contacted by any of these organization or providers to better understand the full coverage the department's program provides and avoid contracting with third party providers offering limited, costly coverage programs.

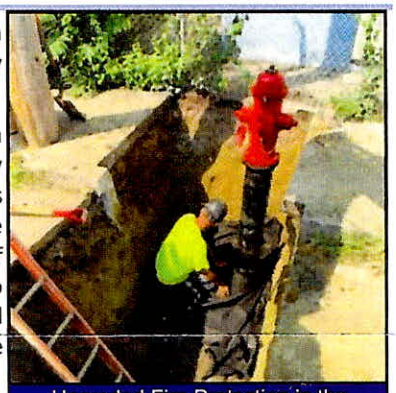
Bonding Project's Timeline Met and on Schedule

The $13.39 and $6.54 million bonds authorized by the Holyoke City Council will be used to fund a series of System-Wide Capital Improvement Projects that will address deficiencies identified in the municipal water system. HWW identified specific parts of the water system infrastructure that requires upgrade or replacement due to unsatisfactory conditions or to address capacity limitations. The projects were selected out of a series of categories which ranged from the critical level/high priority to low priority. The projects selected include the re-painting of five (5) steel water storage tanks, the replacement of the Whiting Street Reservoir Spillway and Discharge Channel, upgrades to the McLean Reservoir Gate House, the construction of a new 500,000 Water Storage Tank for the West Holyoke area, and the Water Main Replacement Projects. The Water Main Replacement Project will upgrade approximately 32,000 feet of old, undersized water pipe with new 8" and 12" water pipe along with the installation of 2,100 feet of new 16" water pipe to improve fire flow, system reliability and water quality in critical areas of the City. The Replacement Project will be conducted in three (3) phases, with Phase I and the MassWorks Water Main Replacement Projects completed in the fall of 2020. The Phase 2A Water Main Replacement Project, the McLean Gate House Improvements Project and the construction of the new 500,000 West Holyoke Water Storage Tank were initiated in 2021 with completion in 2022. The Phase 2B Water Main Replacement Project and Reconstruction of the Whiting Street Spillway and Discharge Area are scheduled in Summer/Fall of 2022 and Spring/Summer of 2023 respectively. The remaining Phase 3A & 3B Water Main Replacement Projects are anticipated to be underway in the Summer/Fall of 2024 to 2025.

HWW Contracts Phase 2A Water Main Replacement Project

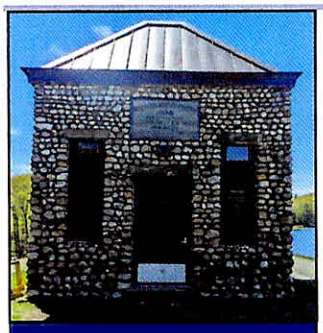
HWW continued its commitment to consumers by replacing sections of the water distribution system with new, higher capacity water mains for the purpose of enhancing fire protection, system reliability and improving water quality.

In 2021, HWW contracted with Caracas Construction Corporation for the Phase 2A Water Main Replacement Project at the estimated cost of $2,658,000. These improvements were authorized by the Holyoke City Council under the System-Wide Capital Improvement Projects to address deficiencies identified in the municipal water system. The project qualified for funding under the State Revolving Fund Program (SRF) at a fixed loan interest rate of 2.0% and a loan forgiveness of 19.8% or an estimated $519,000. The Phase 2A Water Main Replacement Project was designed to significantly improve fire protection, system reliability and water quality in the areas of Fairfield Avenue, Morgan Street, Pearl Street, Nonotuck Street, Pleasant Street and Loomis Avenue. The improvements were initiated in 2021 and scheduled for completion in the summer of 2022.



Upgraded Fire Protection in the Highlands

HWW Initiates Renovations to McLean Gate House



Renovations to McLean Gate House

HWW continued its commitment to consumers by upgrading existing facilities used to adequately supply the municipal water system.

In 2021, HWW contracted with Delray Contracting Inc. to perform building improvements on the McLean Gate House at an estimated cost of $494,000. The improvements included the replacement of the existing screening system to increase the flow capacity of the gatehouse and a new sluice gate for controlling flow from the reservoir. Structural repairs and a new electrical service provides for easier and safer operation and maintenance. The improvements were initiated in 2021 and scheduled for completion in the summer of 2022.

HWW Undertake Construction of New 500,000 gallon West Holyoke Water Storage Tank

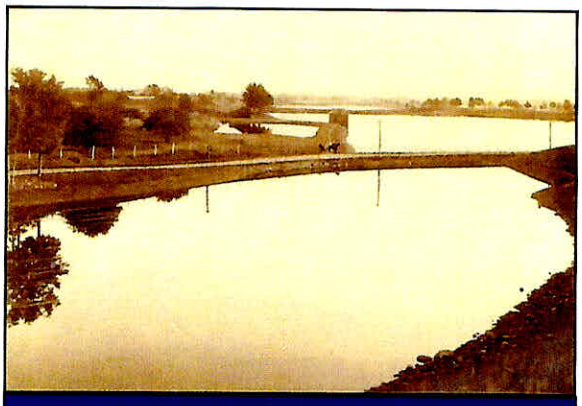
HWW continued its commitment to consumers by augmenting the current water supply capacity of the West Holyoke Water System by constructing a second water storage tank.

In 2021, HWW contracted with DN Tanks LLC to construct a new 500,000 reinforced concrete water storage tank and additional water piping at an estimated cost of $3,516,000. The new water tank will not only provide for additional water capacity and improve water circulation with the existing steel water storage tank but also reduce operational costs associated with annual tank maintenance. The project was initiated in 2021 and scheduled for completion in the summer of 2022.

New Water Storage Tank Under Construction

Watershed Resource Protection Plan

The Watershed Resource Protection Plan (WRPP) demonstrates our continuing effort to ensure a safe drinking water supply. The HWW uses the WRPP as a tool to: 1) identify potential threats to the drinking water supply sources; 2) shield the watersheds from identified threats; and 3) develop a plan to protect water quality from future threats.



Ashley Reservoir Constructed in 1873

In 2021, HWW contracted with the Massachusetts Environmental Police and the Hampden County Sheriff's Department to patrol the drinking water supplies to control illegal activities and issue fines and/or citations which are documented and reported to MassDEP. HWW also updated its WRPP to maintain compliance with MassDEP, Massachusetts Department of Conservation & Recreation (DCR), and the department's Forest Management Program (FMP). HWW contracts with Wigmore Forest Resource Management out of Williamsburg, MA, to manage annual timber harvests and to ensure the FMP meets current compliance regulations.

If you have any questions about the WRPP or FMP and want to learn more about what you can do to help protect the watershed of your drinking water supply, please contact Matthew Smith, Reservoir Division Supervisor at (413) 532-6778 or visit MADEP's website at http://www.state.ma.us/dep/ or the Massachusetts Drinking Water Education Partnership website at http://www.madwep.org.

Cross Connection Inspection/Backflow Prevention Program

A cross connection is an actual or potential connection between a drinking water distribution system pipe and any waste pipe, soil pipe, sewer, drain, or other non-potable sources. The purpose of the program is to protect the public water supply from potential contamination by non-potable sources which could backflow into the water system via a cross connection.

In 2021, HWW contracted with Water Safety Services for the testing of approximately 702 cross connection devices. Over 1139 tests were conducted in accordance with MassDEP regulations. Of the tests conducted, 38 devices failed, 11 devices were replaced, and 36 were retested and reinstalled after repairs were made to ensure the protection of the public's drinking water supply. Two devices were removed from service and the cross connection was eliminated. As an adopted policy, HWW continues to provide commercial water users with hose bibb backflow preventers as necessary to help ensure the highest protection of Holyoke's drinking water.

Currently, HWW is not required to survey residential properties for cross connections, although the potential for cross connections can exist between outside faucets, lawn irrigation systems, swimming pools, and hot tubs. If you have any questions or concerns about the potential for cross connections in your home, please contact John Lachat, Cross Connection Coordinator at (413) 536-3392. For more information regarding cross connections or to obtain a copy of the regulations governing cross connections (310 CMR 22.22), please contact the MassDEP at its Western Region Office at (413) 784-1100.

Lead and Copper

Due to continue compliance with Lead and Copper Rule, HWW was not required to collect lead and copper samples in 2021. The lead and copper results presented below are based on 30 customer taps in the distribution system in July 2020. The basis for lead and copper compliance is the 90th percentile value, which is the highest level found in 9 out of every 10 homes sampled.

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. Holyoke Water Works 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.

Lead and Copper Contaminant (Units)	90th Percentile	Action Level (AL)	# Sites Above AL	Possible Source of Contamination
Copper (ppm)	0.39	1.3	0	Corrosion of household plumbing systems
Lead (ppb)	7.8	15	3	Corrosion of household plumbing systems

2021 Water Quality Testing Results

The Holyoke Water Works (PWS ID# 1137000) conducts over 6,000 individual tests every year on your drinking water to ensure that it meets all Federal and State standards. The table below shows the water quality monitoring results from January 1, 2021-December 31, 2021. The contaminants listed are the **only** contaminants that were detected in your drinking water. Drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contamination. 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 EPA's Safe Drinking Water Hotline at 1-800-426-4791. Definitions of the terms and abbreviations used in the tables are given below.

MCL: *Maximum Contaminant Level*—the highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology. MCLs are enforceable standards.

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 and are non-enforceable public health goals.

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 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.

TT: *Treatment Technique*—a required process intended to reduce the level of a contaminant in drinking water.

AL: *Action Level*—the concentration of a contaminant which, if exceeded, triggers treatment or other requirements.

NTU: *nephelemetric turbidity unit*—a measure of water clarity. Turbidity greater than 5 NTU is just noticeable to the average person.

ppm: *parts per million*—corresponds to one minute in two years or 1 cent in $10,000. 1 ppm = 1 mg/L

ppb: *parts per billion*—corresponds to one minute in 2,000 years or 1 cent in $10,000,000. 1 ppb = 1 ug/L

SMCL: *Secondary Maximum Contaminant Level*—standards developed to protect the aesthetic qualities of drinking water; not health based.

OSRG: *Office of Research and Standards Guideline*—chemical concentration in drinking water, at or below which adverse health effects are unlikely to occur after lifetime exposure. If exceeded, it serves as an indicator of the potential need for further action.

Regulated Contaminants Contaminant (Units)	Highest Level Detected	Range Detected	MCL/MRDL	MCLG/MRDLG	Violation (Yes/No)	Possible Source of Contamination
Turbidity (NTU)	2.91	0.30—2.91	TT	N/A	No	Soil runoff
Chlorine (ppm)	2.7	1.9—2.7	4	4	No	Water additive used to control microbes
Fluoride (ppm)[1]	0.80	0.10—0.80	4	4	No	Water additive that promotes strong teeth
Nitrate (ppm)	0.3020	0.001—0.302	10	10	No	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
Total Trihalomethanes (ppb)	41.7[2]	25.6—71.2	80	N/A	No	By-product of drinking water chlorination
Haloacetic Acids (ppb)	50.5[2]	6.1—78.1	60	N/A	No	By-product of drinking water chlorination

[1] Fluoride is added to help prevent tooth decay and cavities. In 2015, the Massachusetts Department of Public Health updated their recommendations for optimal water fluoridation from a range of 0.7 to 1.2 ppm to a standard of 0.7 ppm. In July 2015, HWW began targeting a fluoride dose of 0.7 ppm.

[2] HWW is required to measure total trihalomethanes and haloacetic acids at four distribution system sites, and compliance with the MCLs is based on quarterly running annual averages at each of the four sites. The highest quarterly running annual averages for the year are reported here. The range presents the high and low for samples at individual sites over the course of the year.

Unregulated Contaminants Contaminant (Units)	Highest Level Detected	Range Detected	SMCL	OSRG	Possible Source of Contamination
Sodium (ppm)	13.8	11.7—13.8	N/A	20	Natural sources; runoff from road salt
Sulfate (ppm)	<5.0	<5.0	250	N/A	Natural sources

Potential Contaminants

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 through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and picks up substances resulting from the presence of animals or from human activity. The following is a list of potential contaminants that may be present in source water:

Microbial contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, 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 may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants 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, MassDEP and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Massachusetts Department of Public Health and the Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Special Concerns

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 infants can be particularly at risk from infections. These people should seek advice from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Act Hotline (800-426-4791).

* Español—Este informe contiene información importante sobre su agua potable. Si desea una copia en español contacte por favor el numero (413) 532-6778 o visite nuestras instalactiones depuradoras en 600 Westfield Road.

* French—Ce rapport contient des informations importantes sur votre eau potable. Traduisez-le ou parlez en avec quelqu'un un qui le comprend bien.

If you have any questions about this report or issues concerning water quality, please contact Matthew Smith, Reservoir Division Supervisor at (413) 532-6778. Questions concerning billing or other matters related to HWW, please call the main office at (413) 536-0442.

HOLYOKE WATER WORKS

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