



2020 Water Quality Report

for

Hartford and Quechee Central Water Systems

WATER - We often take it for granted, but without water life as we know it would not exist. We don't produce water. Every drop has been recycled over and over again. Water is known as nature's solvent. Virtually everything dissolves in it. Because of this, it is easy for it to become contaminated. It's up to all of us to protect this vital resource for future generations.

Remember that what goes on the ground can find its way to a drinking water source. Please dispose of all chemicals properly. (Don't just flush them down the toilet) Better yet, try to find alternatives to using harmful chemicals.

The Hartford Water Department is committed to provide drinking water that meets or exceeds State and Federal Standards for quality and safety. We are pleased to report the results of our testing of your drinking water for 2020, of its high quality, and of the service that we deliver to you every day.

The **HARTFORD AND QUECHEE WATER SYSTEMS** are separate entities that provide over 75% of the Town of Hartford's population with its drinking water. *The Hartford Water Department is responsible for maintaining both municipal water systems.*

We Deliver. - From Source to Tap!

A crew of four personnel operates and maintains both water systems. These Water System Operators must possess a Class 3 VT Water Operator certification to operate a public water system. They must also complete additional education and training "contact hours" to maintain their certifications. In addition, Hartford Water operators keep current with changes in the public water sector through membership in the America Water Works Association (AWWA), New England Water Works Association (NEWWA), Green Mountain Water Association (GMWEA) and the Vermont Rural Water Association (VRWA). A number of the operators are active on the GMWEA board and various training and advisory committees with GMWEA, Vermont Drinking Water Week, and State of Vermont DEC.

In order to ensure that tap water is safe to drink, EPA and the State of Vermont prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. FDA and state regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

WE TEST for over eighty contaminants that 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 or farming.
- **Pesticides and herbicides** that 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, septic systems, and careless disposal of household chemicals.
- **Radioactive contaminants** which can be naturally-occurring or be the result of oil and gas production and mining activities

(Monitoring Schedules are based on system size)

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Safe Drinking Water Hotline (1-800-426-4791).

Two “gravel pack” wells provide drinking water to approximately 7,500 people in White River Junction, Wilder, and Hartford Village. The department is able to meet current system demand utilizing either well. Wilder Well #3 has a current pump capacity of approximately 1000 gallons per minute while Wilder Well #2 is capable of pumping approximately 550 gallons per minute. In 2020 we pumped almost 201-million gallons from Wilder Well #3 and over 21-million gallons from Wilder Well #2. This resulted in an average use of 608,000 gallons per day. Although the water quality from these wells is excellent, they do contain elevated levels of manganese. Manganese is a naturally occurring mineral that is common in ground water. The amount found in groundwater is usually not considered a health risk; however as little as 0.05 ppm can be a nuisance by staining fixtures and laundry. The water from both Wilder Wells is processed through “greensand” filters at the **Wilder Treatment Plant** to consistently remove the manganese to levels below 0.02 ppm before entering the distribution system. The process, known as “catalytic oxidation” uses sodium hypochlorite (chlorine) for both filter regeneration and system disinfection. An alternative method also uses potassium permanganate (KMNO4) to regenerate the filter media. The plant is capable of treating over 2-million gallons of water a day. The water is distributed to over 2000 homes and businesses through an underground network of pipes ranging from 3/4" to 16" in diameter. As required by State and Federal regulations, a small disinfection residual is maintained throughout the distribution system. Two storage reservoirs, totaling 2.5-million gallons, provide pressure and storage during high water usage, such as a fire, and when the pumps are off. Additionally, there are 280 fire hydrants connected to the Hartford system. A 12" water main interconnects Hartford and the City of Lebanon water systems for mutual use in emergency conditions. A **Source Protection Plan** that was approved by the Vermont Drinking Water and Groundwater Division in August 2019 shows the susceptibility of potential contamination to the wells is low; since the isolation zone around the wellheads is either owned or controlled by the Town of Hartford. The complete Source Protection Plan can be reviewed at the Public Works office

Hartford Water System Violations that occurred during 2020

We are required to monitor your drinking water for specific contaminants based on a sampling schedule issued by the State of Vermont. The table lists drinking water violations we incurred during 2020. A failure to perform required monitoring means we cannot be sure of the quality of our water during that time.

Type	Category	Analyte	Compliance Period
MONITORING, ROUTINE MAJOR	Failure to Monitor	Arsenic	10/01/2020 - 12/31/2020

We were required to sample for arsenic quarterly during 2020. While we took samples during the first three quarters, we inadvertently missed the fourth quarter.

Type	Category	Analyte	Compliance Period
STATE MONITORING, REPORTING VIOLATION	Failure to Monitor	Iron, Manganese	10/01/2020 – 12/31/2020

Iron and manganese are considered “secondary contaminants” in that they are not considered a health risk. We were required to sample for iron and manganese quarterly during 2020. While we took samples during the first three quarters, we inadvertently missed the fourth quarter.

We have implemented additional checks and balances to assure that similar violations do not recur. It should be noted that, as per the Vermont Drinking Water and Groundwater Protection Division’s Searchable Drinking Water Database of the Hartford system, there has not been any detection of arsenic, iron or manganese in the drinking water entering the Hartford system in more than fifteen years.

HAVE QUESTIONS? Call Jeremy Delisle, Asst. Public Works Director or Rick Kenney, Chief Water System Operator at (802) 295-3622 or visit our office at the Public Works Facility at 173 Airport Road, White River Jct. VT. FOR EMERGENCIES call Hartford Dispatch at 802 295-9425

Health information regarding drinking water

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 about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from EPA's Safe Drinking Water Hotline (1-800-426-4791).

DEFINITIONS

- **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.
- **Level 2 Assessment:** A Level 2 Assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.
- **Maximum Contamination 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 Contamination 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.
- **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below that there is no known or expected risk to health. MRDLGs do not reflect the benefits of disinfectants in controlling microbial contaminants.
- **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. Addition a disinfectant may help control microbial contaminants.
- **Action Level:** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.
- **90th Percentile:** Ninety percent of the samples are below the action level.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.
- **Parts per million (ppm) or Milligrams per liter (mg/l):** one penny in ten thousand dollars
- **Parts per billion (ppb) or Micrograms per liter (ug/l):** one penny in ten million dollars
- **Parts per trillion (ppt) or Nanograms per liter (ng/l):** one penny in ten billion dollars
- **Picocuries per liter (pCi/L):** a measure of radioactivity in water
- **Nephelometric Turbidity Unit (NTU):** measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- **Locational Running Annual Average (LRAA):** The average of sample analytical results for samples taken at a particular monitoring location during four consecutive calendar quarters.
- **Running Annual Average (RAA):** The average of 4 consecutive quarters (when on quarterly monitoring); values in table represent the highest RAA for the year
- **N/A:** Not applicable
- **Per- and polyfluoroalkyl substances (PFAS):** a group of over 4,000 human-made chemicals (they do not occur naturally) that have been used in industry and consumer products worldwide and includes:

(PFNA): Perfluorononanoic Acid

(PFOA): Perfluorooctanoic Acid

(PFOS): Perfluorooctane Sulfonic Acid

(PFHpA): Perfluoroheptanoic Acid

(PFHxS): Perfluorohexane Sulfonic Acid

(11Cl-PF3OUdS): 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic Acid

(9Cl-PF3ONS): 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic Acid

(DONA): 4,8-Dioxa-3H-perfluorononanoic Acid

(HFPO-DA): Hexafluoropropylene Oxide Dimer Acid

(NEtFOSAA): N-ethyl perfluorooctanesulfonamidoacetic Acid

(NMeFOSAA): N-methyl perfluorooctanesulfonamidoacetic Acid

(PFBS): Perfluorobutane Sulfonic Acid

(PFDA): Perfluorodecanoic Acid

(PFDoA): Perfluorododecanoic Acid

(PFHxA): Perfluorohexanoic Acid

(PFTA): Perfluorotetradecanoic Acid

(PFTrDA): Perfluorotridecanoic Acid

(PFUnA): Perfluoroundecanoic Acid

About the QUECHEE CENTRAL WATER SYSTEM WSID 5320

Since 1973, the water supplied to Quechee has come from one "gravel pack" well with a current pump capacity of 550 gallons per minute. In 2020 we pumped more than 50-million gallons from this well. This resulted in an average use of 137,800 gallons per day. **Over 600** connections to the system provide water to year round residents, vacation homes, and commercial businesses. The water is distributed through an underground network of pipes ranging from 3/4" to 12" in diameter. Also connected to the system are 81 fire hydrants. The water is pumped to three storage tanks totaling 632,000 gallons. These tanks provide pressure and storage during high water usage, such as a fire, and for when the pump is off. An additional 54,000-gallon tank is filled through a booster pump station and serves some higher elevations. As a preventative measure, a small amount of sodium hypochlorite (chlorine) is added for disinfection. This practice is similar to many other public water systems in the United States. A **Source Protection Plan** that was approved by the Vermont Drinking Water and Groundwater Division in February 2018 shows the susceptibility of potential contamination to the well is low to medium since the Town controls the isolation zone around the wellhead. The complete Source Protection Plan can be reviewed at the Public Works office.

Detected Contaminants for 2020 - HARTFORD WATER

Disinfection Residual	RAA	Range	Unit	MRDL	MRDLG	Typical Source
Chlorine	0.336	0.100 - 0.660	mg/l	4	4	Water additive to control microbes

Disinfection ByProducts	Monitoring Period	LRAA	Range	Unit	MCL	MCLG	Typical Source
Total Trihalomethanes	2020	32	32 - 32	ppb	80	0	By-product of drinking water chlorination
Total Haloacetic Acids (HAA5)	2020	11	11-11	ppb	60	0	By-product of drinking water chlorination

Some people who drink water containing trihalomethanes *in excess* of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of getting cancer.

Lead and Copper	Date	90 th Percentile	Range	Unit	AL*	Sites Over AL	Typical Source
Lead	2020	2.60	0 - 11.9	ppb	15	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	2020	0.52	0 - 0.59	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

* The lead and copper AL (Action Level) exceedance is based on the 90th percentile concentration, not the highest detected result.

Detected Contaminants for 2020 - QUECHEE CENTRAL

Disinfection Residual	RAA	Range	Unit	MRDL	MRDLG	Typical Source
Chlorine	0.202	0.120 - 0.320	mg/l	4	4	Water additive to control microbes

Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Nitrate	7/01/2020	1.1	1.1 - 1.1	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Disinfection ByProducts	Monitoring Period	LRAA	Range	Unit	MCL	MCLG	Typical Source
Total Trihalomethanes	2020	5	5-5	ppb	80	0	By-product of drinking water chlorination

Some people who drink water containing trihalomethanes *in excess* of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of getting cancer.

Lead and Copper	Date	90 th Percentile	Range	Unit	AL*	Sites Over AL	Typical Source
Lead	2019	1.4	0 - 3.1	ppb	15	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	2019	0.073	0.043 - 0.085	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

* The lead and copper AL (Action Level) exceedance is based on the 90th percentile concentration, not the highest detected result.

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. While the Water Department is responsible for providing high quality drinking water, 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 drinking 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>.

What are PFAS?

PFAS are a group of over 4,000 human-made chemicals (they do not occur naturally) that have been used in industry and consumer products worldwide since at least the 1950s. These chemicals are used to make household and commercial products that resist heat and chemical reactions and repel oil, stains, grease, and water. Some common products that may contain PFAS include non-stick cookware, water-resistant clothing and materials, cleaning products, cosmetics, food packaging materials, and some personal care products. Due to their resilient chemical nature, they don't readily degrade once they are released into the environment. In addition, the common use of these chemicals in industry and consumer products has led to their widespread impact on the environment. The impact of these chemicals on your drinking water continues to be studied.

Why are PFAS being tested in my drinking water?

In May 2019, Act 21 (S.49), an act relating to the regulation of per- and polyfluoroalkyl substances (PFAS) in drinking and surface waters, was signed by Governor Scott. This Act provides a comprehensive framework to identify PFAS contamination and to issue new rules to regulate PFAS levels in drinking water.

What if PFAS have been detected in my drinking water?

Act 21 set an interim standard for the detected concentration of five PFAS in drinking water, or the combined concentration of any of the 5 PFAS, which should not exceed **20 parts per trillion (ppt)**. The interim standard is based on the Health Advisory established by the Vermont Department of Health. The five PFAS are:

- (PFNA): Perfluorononanoic Acid
- (PFOA): Perfluorooctanoic Acid
- (PFOS): Perfluorooctane Sulfonic Acid
- (PFHpA): Perfluoroheptanoic Acid
- (PFHxS): Perfluorohexane Sulfonic Acid

If your water has been tested and the **sum any of the five PFAS listed above is confirmed to exceed 20 ppt**, a Do Not Drink notice will be issued informing you not to use your water for drinking or cooking, brushing teeth, making ice cubes, making baby formula, washing fruits and vegetables or any other consumptive use. You will be advised to use another source of water for consumption which may include bottled water.

An additional 13 PFAS were required to be tested for, per Act 21. These additional 13 PFAS, listed below, currently do not have an established health-based standard and are not counted toward the combined standard of 20 ppt:

- (11Cl-PF3OUdS): 11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic Acid
- (9Cl-PF3ONS): 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic Acid
- (DONA): 4,8-Dioxa-3H-perfluorononanoic Acid
- (HFPO-DA): Hexafluoropropylene Oxide Dimer Acid
- (NEtFOSAA): N-ethyl perfluorooctanesulfonamidoacetic Acid
- (NMeFOSAA): N-methyl perfluorooctanesulfonamidoacetic Acid
- (PFBS): Perfluorobutane Sulfonic Acid
- (PFDA): Perfluorodecanoic Acid
- (PFDoA): Perfluorododecanoic Acid
- (PFHxA): Perfluorohexanoic Acid
- (PFTA): Perfluorotetradecanoic Acid
- (PFTrDA): Perfluorotridecanoic Acid
- (PFUnA): Perfluoroundecanoic Acid

Test results for both Hartford and Quechee water systems were below detection for all 18 PFAS chemicals.

For information about the health effects of PFAS, please visit www.healthvermont.gov/water/pfas or call the Vermont Department of Health at 1-800-439-8550. If you have specific health concerns, contact your health care provider.

Visit our Website at www.hartford-vt.org

The Town of Hartford Select Board also serves as the Water Commissioners for the water systems.

Meetings are held on alternating Tuesdays of each month.