



2018 Water Quality Report *for* **Hartford and Quechee Central Water Systems**

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.

About the HARTFORD WATER SYSTEM

WSID 5319

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 demands utilizing either well. Wilder Well #1 has a current pump capacity of approximately 520 gallons per minute while Wilder Well #2 is capable of pumping approximately 620 gallons per minute. In 2018 we pumped almost 172-million gallons from Wilder Well #1 and over 62-million gallons from Wilder Well #2. This resulted in an average use of 642,000 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 266 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 2016 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. **Plans for the Hartford System:** **Well #1** was placed in service in the mid 1950's. From 1974 to 2004, it was the only water source for the Hartford system. The well has been cleaned and redeveloped a number of times over the past years. While it still provides quality water, the well has reached the point where the yield has decreased and future redeveloping is no longer cost effective. A replacement well is in construction and hope to be completed in 2019.

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 2018 we pumped more than 50-million gallons from this well, which resulted in an average use of 138,500 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.

HAVE QUESTIONS?

Call Jeremy Delisle, Asst. Public Works Director or Rick Kenney, Chief Water System Operator at (802) 295-3622. Visit our office at the Public Works Facility at 173 Airport Road, White River Jct. VT.

The Town of Hartford Board of Selectmen also serves as the Water Commissioners for the Hartford Water Department. Meetings are held on alternating Tuesdays of each month.

Visit our Website at www.hartford-vt.org

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)

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 of 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.
- **95th Percentile:** Ninety-five 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
- **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

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).

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).

Detected Contaminants for 2018 - HARTFORD WATER

Disinfection Residual	RAA	Range	Unit	MRDL	MRDLG	Typical Source	
Chlorine	0.356	0.060 - 0.640	mg/l	4.0	4.0	Water additive to control microbes	
Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Chloromethane	2/01/2017	0.6	0-0.6	ppb	NA	NA	NA
Radionuclides	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Combined Radium	02/26/2015	1.257	1.257 - 1.257	pCi/L	5	0	Erosion of natural deposits
Gross Alpha	02/26/2015	0.596	0.596 - 0.596	pCi/L	15	0	Erosion of natural deposits
Radium-226	02/26/2015	0.972	0.972 - 0.972	pCi/L	5	0	Erosion of natural deposits
Radium-228	02/26/2015	0.285	0.285 - 0.285	pCi/L	5	0	Erosion of natural deposits
Disinfection ByProducts	Monitoring Period	LRAA	Range	Unit	MCL	MCLG	Typical Source
Total Haloacetic Acids (HAA5)	2018	8	8-8	ppb	60	0	By-product of drinking water disinfection
Total Trihalomethanes	2018	27	27-27	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
Copper	2017	0.76	0.16-0.93	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead	2017	3.50	0-6.2	ppb	15	0	Corrosion of household plumbing systems; Erosion of natural deposits

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

During a recent sanitary survey, the State noted a Significant Deficiency for "Test Equipment Unavailable/Inadequate" at the Wilder Treatment Plant. The deficiency has to do with how we monitor the chlorine residual leaving the plant and entering the distribution system. The department had previously received permission from the State for the process in question and has been using it for more than 12 years without issues. We believe we are in compliance with the Vermont Water Supply Rule and the EPA Safe Drinking Water Act and have submitted a written rebuttal to the State. We are awaiting a reply. Please contact Rick Kenney at 802 295-3622 for further information.

Detected Contaminants for 2018 - QUECHEE CENTRAL

Disinfection Residual	RAA	Range	Unit	MRDL	MRDLG	Typical Source	
Chlorine	0.208	0.110-0.280	mg/l	4.0	4.0	Water additive to control microbes	
Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Nitrate	7/09/2018	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	2018	4	4 - 4	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
Copper	2016	0.096	0.039 - 0.11	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead	2016	1	0 - 8	ppb	15	0	Corrosion of household plumbing systems; Erosion of natural deposits

* 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>.

PRSR STD
ECRWSS
US POSTAGE
PAID
Permit No. 97

POSTAL CUSTOMER



TOWN OF HARTFORD WATER DEPARTMENT

2018 WATER QUALITY REPORT

for

**White River Junction, Wilder, Hartford Village, and Quechee
VERMONT**

www.hartford-vt.org

Safe Drinking Water is Everyone's Right...And Everyone's Responsibility!