



2016 Water Quality Report *for* Hartford and Quechee Central Water Systems

Without water, all life--as we know it--could not exist.

All water is recycled, not produced. The same water we use today has been used over and over since the creation of the earth. Although "Nature" has ways to clean our water, it can't do it all alone. The earth cannot filter out many chemicals produced today. Also, some drinking water sources are being over used, allowing contaminants to infiltrate the water source.

Remember that what goes on the ground can find its way to a drinking water source. Please dispose of all chemicals properly. Better yet, try to find alternatives to using harmful chemicals.

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

Some Facts a bout Lead in Drinking Water

The most common source of lead in drinking water is household plumbing. Lead can enter drinking water when service pipes that contain lead corrode, especially where the water has high acidity or low mineral content that corrodes pipes and fixtures. (*Hartford's water sources are less apt to cause excessive corrosion.*) The most common problem is with brass or chrome-plated brass faucets and fixtures with lead solder, from which significant amounts of lead can enter into the water, especially hot water.

Measures You Can Do to Reduce Lead in Your Drinking Water at Home

- **Flush your pipes before drinking:** It takes time for lead in plumbing to leach into the water. The more time water has been sitting in the pipes in your home, the more lead it may contain. 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.
- **Only use cold water for eating and drinking:** Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead. Run cold water until it becomes as cold as it can get.
- **Note that boiling water will NOT get rid of lead contamination.**

HAVE QUESTIONS?

WANT MORE INFORMATION?

Call Everett Hammond, 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.

Visit our Website at www.hartford-vt.org

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.

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.*

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 575 gallons per minute while Wilder Well #2 is capable of pumping approximately 650 gallons per minute. In 2016 we pumped more than 234-million gallons from Wilder Well #1 and over 26-million gallons from Wilder Well #2. This resulted in an average use of 710,000 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 Water Supply Division in August 2016 shows the susceptibility of potential contamination to the wells is low; since 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 **We have begun the process to replace Well #1.** 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 scheduled to be constructed during 2017.

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 600 gallons per minute. In 2016 we pumped almost 53-million gallons from this well, which resulted in an average use of 145,000 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 262,000 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 Water Supply Division in April 2015 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.

Plans for the Quechee System **Construction of a new storage tank began in the summer of 2016.** The new 400,000-gallon tank that replaced the 30,000-gallon tank located off of Quechee Hartland Rd was placed into service in January, 2017. This increased potential water storage to 632,000 gallons. The entire project, which included some water main replacement, is on schedule to be completed in 2017.

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 2016, of its high quality, and of the service that we deliver to you every day.

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)

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.

Detected Contaminants HARTFORD WATER DEPT for 2016

Disinfection Residual	RAA	Range	Unit	MRDL	MRDLG	Typical Source
Chlorine	0.348	0.110 - 0.590	mg/l	4.0	4.0	Water additive to control microbes
Microbiological	Result	MCL *			MCLG	Typical Source
No Detected Results were Found in the Calendar Year of 2016						

*As of April 1, 2016, there is no MCL for total coliform. Instead more than 1 positive monthly sample requires a treatment technique.

Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Hardness (As CaCO3)	01/05/2012	90.4	90.4- 90.4	ppm			

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)	2016	8	8 - 8	ppb	60	0	By-product of drinking water disinfection
Total Trihalomethanes	2016	32.7	32.7 - 32.7	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	2012 to 2014	0.45	0 - 0.7	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead	2012 to 2014	4	1 - 26	ppb	15	1	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.

Detected Contaminants QUECHEE CENTRAL for 2016

Disinfection Residual	RAA	Range	Unit	MRDL	MRDLG	Typical Source
Chlorine	0.231	0.120 - 0.340	mg/l	4.0	4.0	Water additive to control microbes

Microbiological	Result	MCL *	MCLG	Typical Source
No Detected Results were Found in the Calendar Year of 2016				

*As of April 1, 2016, there is no MCL for total coliform. Instead more than 1 positive monthly sample requires a treatment technique.

Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Nitrate	07/06/2016	1.2	1.2 - 1.2	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Radionuclides	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
No Detected Results were Found							

Disinfection ByProducts	Monitoring Period	LRAA	Range	Unit	MCL	MCLG	Typical Source
Total Trihalomethanes	2016	4.8	4.8 - 4.8	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.



We are pleased to report there were no Water System Violations that occurred during 2016 for either system

IMPORTANT HEALTH INFORMATION

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).

Infants and children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. It's always advisable to flush your tap for 30 seconds to 2 minutes before using the water. If you are concerned about elevated lead levels in your home's water, you can have it tested. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

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.
- **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

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 **EPA Safe Drinking Water Hotline at (800) 426-4791.**

Drinking water sources (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.

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 American 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.

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TOWN OF HARTFORD WATER DEPARTMENT

2016 WATER QUALITY REPORT

for

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

www.hartford-vt.org

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