

Champlain Water District

Water Quality 2018

Safe Drinking Water
All the Way to Your Tap



PWS ID#: VT0005092



First Place
American Water Works Association
"Best of the Best" Taste Test
Champlain Water District

In 2017, Champlain Water District's Peter L. Jacob Water Treatment Facility maintained the highest degree of treatment process optimization and was recognized for maintaining the elite "Excellence in Water Treatment" status for 18 years from 1999 to the present day. CWD was the first water utility in the country to receive USEPA's Excellence in Water Treatment Award from the Partnership for Safe Water. To date, a total of 16 water suppliers in the U.S. have attained this pinnacle of public health protection. We invite school and community groups to visit our treatment facility, view this prestigious award, and learn about their drinking water "from source to tap." Water Quality 2018 reports data from calendar year 2017.

The Champlain Water District (CWD) works very hard to assure safe, high quality drinking water is delivered to its customers. We accomplish this by:

- protecting Shelburne Bay as the deep water source that supplies the water,
- treating the water with state-of-the-art filtration, disinfection and corrosion control at the Peter L. Jacob water treatment plant
- assuring corrosion control and disinfection by-product control throughout the county-wide service area.

CWD's water has been named "Best Tasting Drinking Water in New England." CWD's water also received the prestigious "Best of the Best" People's Choice Taste Award for North American water suppliers in a taste competition among North America's regional taste test winning water suppliers.

Please turn to the report cover to view this award

The water that CWD provides throughout Chittenden County - as far North as Milton, as far East as the Village of Jericho, and as far South as Shelburne - is of the highest quality and serves many uses for CWD's 75,000 customers and many of the area's major employers such as Global Foundries and Husky.

Regulatory Corner

Maximum Residual Disinfectant Level (MRDL)

Maximum Contaminant Level (MCL)

Treatment Technique

Regulation of Contaminants



WHAT ARE THE USEPA REGULATIONS?

CWD's philosophy has always been to go beyond Federal and State requirements to protect public health as we continue to meet all present Federal and State water quality standards. In order for our customers to understand these standards, there are some important USEPA definitions to learn:

- ▶ **Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of drinking water disinfectant below which there is no known or expected risk to health. The MRDLG for Monochloramine is 4 mg/L.
- ▶ **Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant allowed in drinking water. Addition of a disinfectant maintains sanitary quality. The MRDL for Monochloramine = annual average of 4.0 mg/L.
- ▶ **Maximum Contaminant Level (MCL)** - the highest level of a contaminant that is allowed in drinking water.
- ▶ **Maximum Contaminant Level Goal (MCLG)** – level of a contaminant in drinking water below which there is no known or expected risk to health.
- ▶ **MCLs and MCLGs are set by USEPA** after extensive research and public comment. MCLs define a safe water supply by setting levels a trace contaminant may not exceed, MCLs are set as close to the MCLG as feasible using the Best Available Technology.
- ▶ **Action level-** the concentration of a contaminant which triggers treatment or other requirements that a water system must follow.
- ▶ **90th Percentile** - Ninety percent of the samples are below the action level. (Nine of ten sites sampled were at or below this level).
- ▶ **Nephelometric Turbidity Unit (NTU)** - NTU is a measure of the clarity of water. Turbidity in excess of 5 NTU is just visually noticeable to the average person.
- ▶ **Parts per million (ppm) or Milligrams per Liter (mg/l)** - one penny in ten thousand dollars or 1 second in 11.6 days.
- ▶ **Parts per billion (ppb) or Micrograms per Liter (ug/l)** - one penny in ten million dollars or 1 second in 32 years.
- ▶ **Picocuries per liter (pCi/l)**- a measure of radioactivity in water.
- ▶ **Treatment Technique-** a USEPA requirement for water suppliers to install and optimize water treatment processes that are intended to reliably remove a required percentage for a specific possible contaminant.
- ▶ **Treatment techniques are set by USEPA** when monitoring technology cannot precisely detect certain contaminants. In these cases, a surrogate measurement is used to determine compliance in a reliably operated treatment facility. An example is the use of turbidity to indicate microbial protozoan removal in a treatment plant. (Turbidity is a good indicator of the effectiveness of the disinfectant, the filtration, and the general quality of the water.)
- ▶ **USEPA wants you to know** that the presence of certain contaminants in drinking water does not necessarily indicate that the drinking water poses a health risk. USEPA and the State of Vermont prescribe regulations which limit the amount of certain contaminants in water provided by the public water system. CWD monitors for all regulated trace contaminants (including naturally occurring radioactivity) on specific schedules as required by USEPA. USEPA never expresses results of water monitoring as "zero". Scientifically, it is impossible to measure "zero". Therefore, USEPA requires every trace substance to be analyzed using an approved method with a required detection limit.
- ▶ **When no trace substance is found**, then it is expressed as "none detected = ND."
- ▶ **CWD monitors for these trace chemicals** even though they are extremely unlikely to be present in CWD's source because of the characteristics of CWD's 33.3 billion gallon deep water Shelburne Bay source. CWD has monitored 157 trace substances for many years according to the schedules established by the USEPA and has received all non-detect test results for 2017.

To receive a listing of these specific undetected contaminants – contact CWD and ask for the latest specific non-detect report.

Water Characteristics

Immuno-compromised persons read this!



USEPA requires all water systems, regardless of the type of source and treatment, to provide this information:

SANITARY QUALITY

SOURCE QUALITY

DISINFECTANT BY-PRODUCT QUALITY

AESTHETIC QUALITY



IN PROVIDING A SAFE, HIGH QUALITY WATER THERE ARE SEVERAL CHARACTERISTICS THAT A WATER SUPPLIER SHOULD MEET:

1. Sanitary quality - bacteriological, viral and protozoan quality that is assured by consistent and efficient filtration, and, by primary free chlorine disinfection and secondary monochloramine disinfection. This is the primary goal of any water supplier as consumers cannot reliably achieve this protection with home treatment devices.

CWD wants immunocompromised persons (ICP's) to know that they may be particularly at risk from infections and should seek advice from their health care providers. ICP's include:

1. Those undergoing chemotherapy or organ transplants.
 2. Those with AIDS / HIV or other immune system disorders.
 3. Some elderly.
 4. Infants.
2. Source quality - the cleaner a water supplier's source, the more effective a water supplier's treatment process is at producing high quality water. Common sense tells us that if you have high quality untreated water going into a facility, then you will have the highest quality finished water leaving that facility. This is important for sanitary and trace chemical considerations. Home owners cannot reliably treat poor quality source waters on their own.

In general, USEPA wants you to know that, depending on the condition of any water source and its watershed area, some untreated source water may be impacted by the following contaminants:

1. Biological (Viruses & Bacteria).
2. Inorganic (Metals & Salts).
3. Synthetic organic chemicals (Pesticides, Herbicides, Volatile Organic Chemicals).
4. Naturally occurring radioactivity.

3. Disinfectant-by-product quality - primary disinfection with free chlorine is essential to assure sanitary water. This disinfection process does create by-products (DBPs) that impact the finished water. All water suppliers must deal with the balancing of sanitary benefits and DBP risks from primary free chlorine disinfection. DBPs may be reduced by the consumer using treatment devices approved by NSF International for TTHM reduction, and only if these devices are installed, used and continually maintained according to manufacturer's instructions.

4. Aesthetic quality - aesthetic considerations also determine the acceptability of a water supply. Distribution system management may impact water taste and odor. Taste/odor is relatively easy to reduce by the consumer using properly installed and maintained NSF approved treatment devices.

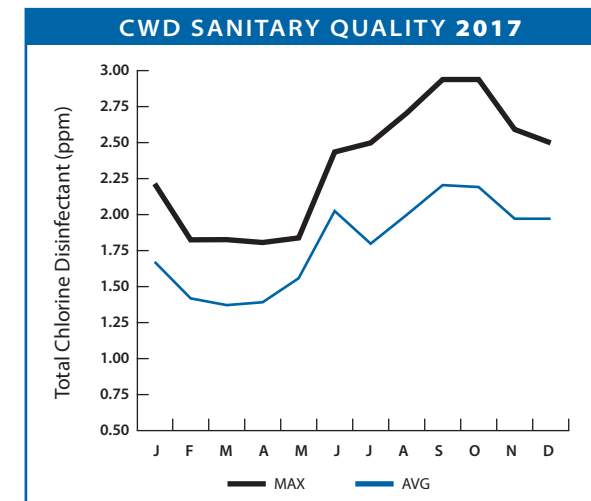
VIOLATIONS THAT OCCURRED DURING THE YEAR: The table on the bottom back cover lists any drinking water violations we incurred during 2017

USEPA believes that drinking water, including bottled water, may reasonably be expected to contain at least trace amounts of contaminants. More information about contaminants and associated health risks can be obtained by calling CWD or the Safe Drinking Water Hotline.

CWD's SANITARY QUALITY

When evaluating a high quality water you should look for:

- a) a monochloramine residual of at least 0.1 mg/L but not more than 4.0 mg/L (MRDL),
- b) median heterotrophic plate count (HPC) of less than 500 cfu/ml, and
- c) total coliform absent 95% of the time.
- d) less than 0.10 ntu turbidity from each filter.



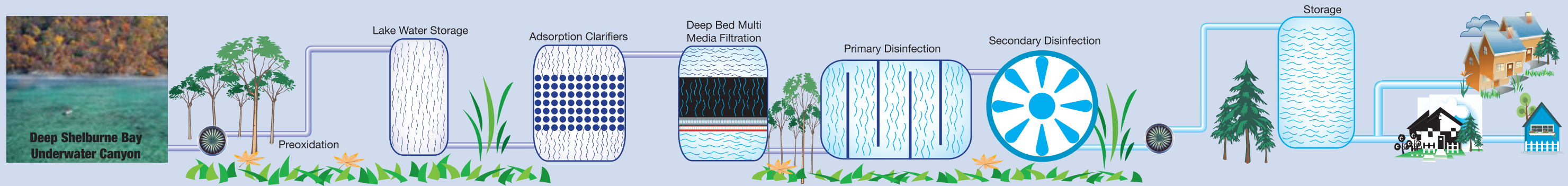
This graph shows that CWD's monochloramine disinfectant residual stays consistent throughout the year and is well below the USEPA allowable level for monochloramine residual of 4.0 mg/L.

The data from the table below shows that, even during warm water conditions experienced during June through October, the sanitary quality of CWD water is excellent with very low HPC levels and total coliforms absent 99.8% of the time.

| 2017 Month | AVG / WATER TEMP / DEG-F | MEDIAN HPC COUNT (STD=<500) | TOTAL COLIFORM (STD ABSENT 95% OF THE MONTH) |
|------------|--------------------------|-----------------------------|--|
| January | 45 | 6 | Absent 100% |
| February | 44 | 3 | Absent 100% |
| March | 44 | 2 | Absent 100% |
| April | 45 | 4 | Absent 100% |
| May | 50 | 4 | Absent 100% |
| June | 56 | 4 | Absent 100% |
| July | 61 | 2 | Absent 98% |
| August | 63 | 4 | Absent 99% |
| September | 63 | 4 | Absent 100% |
| October | 64 | 9 | Absent 100% |
| November | 59 | 8 | Absent 100% |
| December | 51 | 4 | Absent 100% |

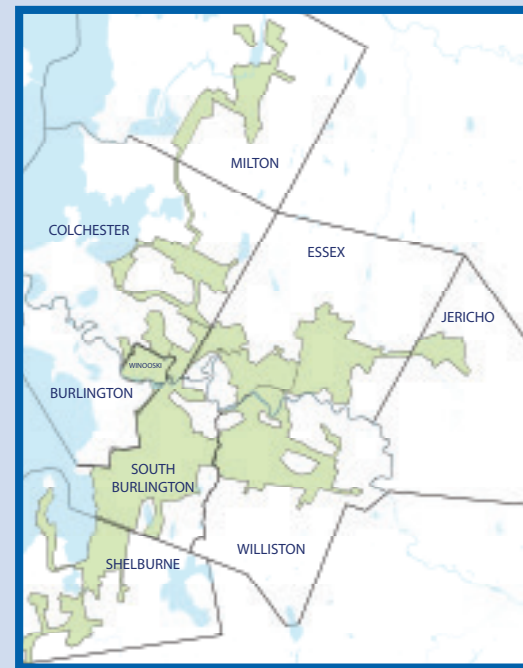
Detected Level/yr 7/17/17 Westbury. 7/18/17 South Burlington. 8/17/17 Mallets Bay Water Company Present in 3 out of 1271 samples. Absent 99.8% of year

CHAMPLAIN WATER DISTRICT WATER PROCESS



Service areas include:

- Shelburne
- South Burlington
- Williston
- Essex Junction
- Essex
- Jericho Village
- Milton
- Winooski
- Mallets Bay Water Company
- Colchester Town
- Colchester Fire District #1
- Colchester Fire District #3



Did you know ?

- ▶ your water, was selected as “The Peoples Choice - Best of the Best in North America” in a taste test competition among 40 regional taste winners in North America.
- ▶ your water, in 2014 was selected as “Best Tasting in New England” in a regional taste competition, and in both 2015 and 2016 won best surface water and best overall at the Vermont Rural Water Association Taste Competition.
- ▶ your water supplier was the first in the nation to receive the Fifteen Year Anniversary Excellence in Treatment Award from the Partnership for Safe Water for demonstrating superior water quality each year in complying with the Safe Drinking Water Act.
- ▶ your water supplier received the 2007 “Utility of the Year Award” and the year 2012 “Utility Service Award” from New England Water Works Association.
- ▶ your water supplier received the Grand Award for Engineering Excellence from the American Council of Engineering Companies for the design and implementation of the secondary disinfection project and for its 2012 Energy Savings Scoping Study.

Public Involvement: CWD is governed by a Board of Commissioners publicly elected from each member community. Public Board meetings are held at 12 noon the second Tuesday of each month.

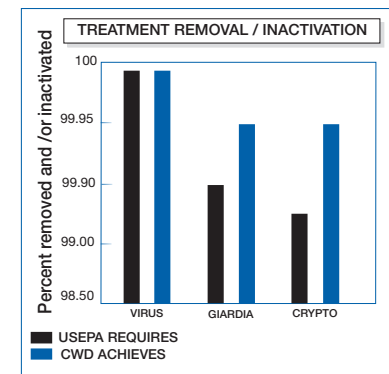
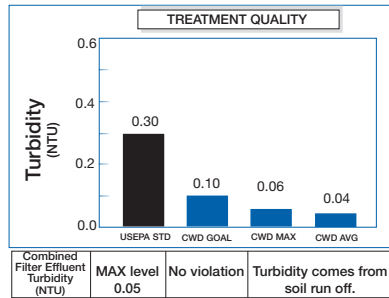
CWD TIMELINE

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|--|---|--|---|---|---|--|--|---|---|--|---|---|--|---|---|--|---|---|--|---|--|--|
| <p>1966 Initial organizational meetings to discuss a regional approach to drinking water supply in Chittenden County</p> | <p>1971 Chartered by the State of Vermont as a Municipal Consolidated Water District</p> | <p>1972 Construction of multiple water transmission main projects completed to link all members of the newly created Water District</p> | <p>1973 Water Treatment Facility online supplying South Burlington, Shelburne, Williston, Essex Junction, Essex Town, Winooski & Colchester</p> | <p>1980 Water Treatment Facility Expansion (3-Deep Bed Filtration Units)</p> | <p>1989 Water Treatment Facility Expansion (2 additional Deep Bed Filtration Units, Retrofit of (2) Adsorption Clarifiers, and a 1MG Disinfection Contact Tank)</p> | <p>1990 CWD 20 Year Master Plan completed by Hamlin Consulting Engineers</p> | <p>1991 Milton & Village of Jericho join CWD</p> | <p>1992 Construction of a second 24" diameter High Service Transmission Main from Treatment Plant to the intersection of Route 15 & Woodside Drive</p> | <p>1993 CWD Treatment Facility dedicated to Peter L. Jacob, who was instrumental in the formation of CWD, and also served as the long-term Chair of the publicly elected CWD Board of Water Commissioners</p> | <p>1995 Initiated zebra mussel treatment for source lake water supply</p> | <p>1999 CWD receives First in the Nation "Excellence in Water Treatment Award" from the Partnership for Safe Water Program</p> | <p>1999 Water Treatment Facility expansion, an additional (third) Adsorption Clarifier is constructed and two additional Deep Bed Filtration Units are added</p> | <p>2002 Water Treatment Facility expansion, and additional (eighth) Deep Bed Filtration Unit is constructed</p> | <p>2002 CWD 20 Year Master Plan completed by Dufresne & Associates, PC</p> | <p>2003 Completed (14) projects recommended in CWD's 20 Year Master Plan related to improved pumping, treatment, electrical and Facility HVAC/Dehumidification</p> | <p>2004 5 Year Anniversary Award for maintaining Partnership for Safe Water "Excellence in Water Treatment" criteria for public health protection</p> | <p>2005 Completed construction of primary and secondary electrical supply reliability upgrades for treatment facility and lake water source pumping station.</p> | <p>2008 Construction completed on a second lake intake pipe for overall reliability and redundancy</p> | <p>2011 Began phased installation of two (2) miles of High Service "Cross-tie" transmission piping for overall reliability purposes</p> | <p>2013 CWD celebrates 40th anniversary of providing safe drinking water and fire protection to (12) served municipal water systems in Chittenden County</p> | <p>2014 15 Year Anniversary Award for maintaining Partnership for Safe Water Treatment "Excellence in Water Treatment" criteria for Public health protection</p> | <p>2014 Water from Peter L. Jacob Water Treatment Facility named "Best Tasting Drinking Water in New England"</p> | <p>2015 2015 Water from Peter L. Jacob Water Treatment Facility named "Peoples Choice Best of the Best in North America"</p> | <p>2016 Construction Completed on upgrade to high service pump discharge piping</p> | <p>2017 2017 Construction completed on new finished water storage tank at the Plant</p> |
|---|---|--|--|---|--|---|---|---|--|--|---|---|--|---|---|--|---|---|--|---|---|--|---|--|--|

CWD's SANITARY QUALITY (continued)

Protozoan and virus protection is provided through optimized filtration and primary disinfection. When evaluating a water supplier for proper protozoan and virus treatment, the combined filtration and post-disinfection processes should remove and destroy 99.5% of *Cryptosporidium* oocysts, 99.9% of *Giardia* cysts and 99.99% of viruses. The treatment removal/inactivation graph below shows that CWD surpasses these treatment requirements.

USEPA believes some people may be more vulnerable to contaminants in drinking water than the general population. *Cryptosporidium* and *Giardia* are microbial parasites that can be found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. This is why CWD continues to upgrade and optimize its water treatment processes. USEPA's turbidity standard is for all the filters combined. CWD's turbidity goal is much stricter and is for each individual filter. CWD's continued use of state of the art laser particle counting technology continues to allow each process filter to be optimized at removing particles larger than 2 microns (about 1/13,000th of an inch) in size.



CWD's GIARDIA AND CRYPTOSPORIDIUM TESTING

CWD completed the required Giardia and Cryptosporidium monitoring from April 2008 to December 2010 as required under USEPA's Rules. CWD is conducting round 2 monitoring as specified by USEPA. This follow up monitoring started in October 2016. All CWD inactivation is performed using free chlorine as primary disinfectant.

| 2017 Month | Giardia* | Crypto* |
|------------|----------|---------|
| January | ND | ND |
| February | 0.093* | ND |
| March | ND | ND |
| April | ND | ND |
| May | ND | ND |
| June | ND | ND |
| July | ND | ND |
| August | ND | ND |
| September | ND | ND |
| October | ND | ND |
| November | ND | ND |
| December | ND | ND |

CWD conducted several studies with Dr. Tom Manley of Middlebury College to determine the best strategic locations for our additional source water intake pipe. Results of these studies showed that CWD's 75 feet deep intake location to the northeast of White's Ridge along the Shelburne Bay Deep underwater canyon was the best location for a redundant intake

pipe to assure adequate quantity and high quality of water into the future. This new 'south intake' was constructed in 2007 and placed into service in July 2008.

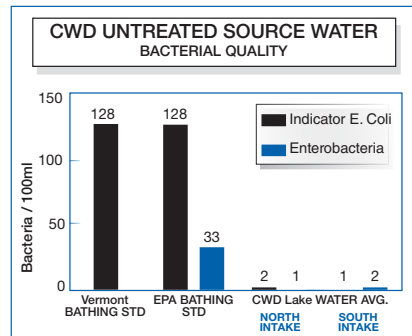
* Monitoring of untreated source water
* 0.093 Is the limit of detection of this test.

CWD's SOURCE QUALITY

Many of the people who live along Shelburne Bay, and the streams flowing into Shelburne Bay, do not realize that their homes, yards, and parks are within an area called the "Shelburne Bay Watershed." By protecting the Shelburne Bay watershed, residents help protect the quality of CWD's deep Shelburne Bay source. The streams that make up this watershed include the Laplatte River, Potash Brook, North Brook, Munroe Brook, McCabes Brook, and Bartlett Brook. CWD's water source is far off shore in Shelburne Bay. CWD invested in this intake source area because it is well away from potential sources of contamination. Shelburne Bay holds 33 billion gallons of water. CWD's Watershed Management Program for Source Protection has the following objectives:

- Characterize watersheds (all the rain and snow melt that enter a specific stream or river come from an area that is called that stream's "watershed") and the Shelburne Bay Source.
- Build partnerships toward improving lake water quality.
- Educate people about Shelburne Bay's role in providing drinking water.
- Limit degradation of the CWD source water.

For more info on stormwater measures go to: www.smartwaterways.org



Add Up to Cleaner Water

This graph shows how CWD untreated source water contains very low numbers of sanitary bacterial indicators even when comparing with levels USEPA says are allowable in bathing beach water. Of course, CWD finished water is free of any bacteriological indicator organisms.

CWD's RADIONUCLIDES MONITORING

CWD monitors for naturally occurring radionuclides according to USEPA requirements. This table shows those monitored and the background levels detected. Radionuclides are at background levels due to erosion of natural deposits.

| RADIONUCLIDE | COLLECTION DATE | DETECTED | UNIT | MCL | TYPICAL SOURCE |
|-----------------|-----------------|----------|-------|-----|-----------------------------|
| Combined Radium | 4/30/15 | 1.1 | pCi/L | 5 | Erosion of Natural Deposits |
| Gross Alpha | 6/6/11 | 0.73 | pCi/L | 15 | Erosion of Natural Deposits |
| Radium-226 | 4/30/15 | 0.4 | pCi/L | 5 | Erosion of Natural Deposits |
| Radium-228 | 4/30/15 | 0.65 | pCi/L | 5 | Erosion of Natural Deposits |

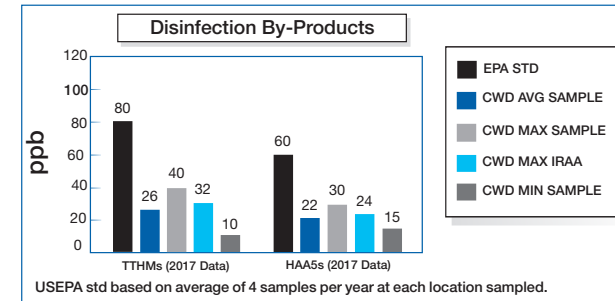
CWD's 2017 PFC MONITORING

| CONTAMINANT | DWG | LEVEL | DETECTION LIMIT OF TEST PROCEDURE | SOURCE OF OCCURRENCE |
|-------------|--------|-------|-----------------------------------|-----------------------|
| PFOA | 20 ppt | ND | 2 ppt | human made/industrial |
| PFOS | N/A | ND | 2 ppt | human made/industrial |
| PFNA | N/A | ND | 2 ppt | human made/industrial |
| PFBS | N/A | ND | 2 ppt | human made/industrial |
| PFHpA | N/A | ND | 2 ppt | human made/industrial |
| PFHxS | N/A | ND | 2 ppt | human made/industrial |

ND = none detected in CWD water.
<http://www.healthvermont.gov/health-environment/drinking-water/perfluorooctanoic-acid-pfoa>
CWD monitors every 4 months for the six (6) PFCs including PFOA and PFOS.
None of the PFCs have been detected in CWD water. CWD began this monitoring in 2014.

CWD's DISINFECTANT BY-PRODUCT QUALITY

CWD maintains high quality drinking water, free from pathogenic (dangerous) bacteria and protozoa while, at the same time, keeping disinfectant by-products (DBPs) to a minimum. USEPA continues to implement a stringent standard for two groups of compounds – known as total trihalomethanes (TTHMs) and total haloacetic acids (HAA5s). CWD is fortunate to have extremely low natural levels of bromide in its source water as the brominated DBPs have been implicated as contributing the most risk.



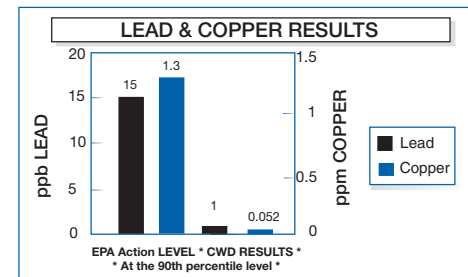
| | MCL | Violation Yes or No | Average Detected | Range Detected | Maximum LRAA | Source |
|-------|--------|---------------------|------------------|----------------|--------------|----------------------------|
| TTHMs | 80 ppb | No | 26 ppb | 10-40 ppb | 32 ppb | By-Product of Disinfection |
| HAA5s | 60 ppb | No | 22 ppb | 15-30 ppb | 24 ppb | By-Product of Disinfection |

CWD uses monochloramine to significantly reduce TTHMs and HAA5s and continues to produce high quality, sanitary water. Locational running annual average (LRAA) - The average of sample analytical results for samples taken at a particular monitoring location during 4 consecutive calendar quarters.

CWD's LEAD & COPPER TREATMENT

CWD adds 0.08 to 0.18 mg/L of zinc and from 0.8 to 1.8 mg/L of phosphate to reduce lead and copper leaching from individual home plumbing. This program has been very effective and allowed CWD to become one of the first systems in Vermont to meet the USEPA action level for lead and copper leaching from home plumbing. CWD is required to extensively monitor 52 high risk sample sites for lead.

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. CWD is responsible for providing high quality drinking water, but cannot control the variety of materials used in home plumbing components. Lead in drinking water is from materials associated with home plumbing installed prior to 1987. 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 your water for drinking or cooking.



In 2016 (monitoring period 2014 to 2016), None (zero) of 52 sample sites exceeded the USEPA action level for lead. The results ranged from 0 to 13

ppb for lead. If your house contains lead solder, flush your tap for 30 seconds to 2 minutes before using the tap water. The next 3 years monitoring cycle begins June 2019. None of the samples exceeded the action level for Copper and ranged from 0 to .017 ppm for Copper.

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](http://www.epa.gov/safewater/lead) or at <http://www.epa.gov/safewater/lead>.

CWD's PHARMACEUTICAL COMPOUNDS AND PERSONAL CARE PRODUCTS (PPCPs) TESTING

In 2017, CWD conducted monitoring for 46 of the most common PPCPs, and 2 of the most common algal substances detected nationwide. The results for 45 of these substances were none detected at ppt and ppqd levels in CWD water. One of the 46 substances monitored was Bisphenol A (BPA). These results show that CWD water is BPA free! Three substances, cotinine, DEET, and TCPD were detected at levels at or close to the detection limit of the test procedure. Despite careful sampling techniques, CWD has been unable to eliminate low level detects from sampler/lab personnel use of nicotine, and other environmental substances. Research in 2013 employing tightly controlled "clean room" sampling techniques confirmed previous results of finding trace low level detects of Cotinine & DEET in research grade blank water provided by the outside certified testing laboratory for quality assurance (QA) purposes. In 2015, nicotine was detected at 5 ppt in this type of research grade blank water. In 2017, TCPD was detected at 2 ppt in this type of research grade blank water.

| PPCP'S DETECTED IN CWD TREATED WATER | DWG | DETECTED IN LAB FROM SAMPLE | DETECTION LIMIT OF TEST PROCEDURE | FACTOR BELOW HEALTH SCREENING LEVEL | SOURCE, OTHER THAN SAMPLE/ANALYTICAL CONTAMINATION |
|--------------------------------------|---------------|-----------------------------|-----------------------------------|-------------------------------------|--|
| Cotinine ¹ | 10,000 ppt | 2 ppt Finished Water | 1 ppt | 3,300 times less than | Metabolite of Nicotine |
| DEET | 3,500,000 ppt | 8 ppt Finished Water | 5 ppt | 700,000 times less than | Insect Repellent |
| TCPD | Not Listed | 10 ppt | 10 ppt | N/A | Insulation/Foam |

ppt = parts per trillion or nanograms per Liter (ng/L) or one penny in 10 billion dollars or 1 second in 32,000 years. ppqd = parts per quadrillion or picograms per Liter (pg/L) or one penny in 10 trillion dollars or 1 second in 32,000,000 years. DWG = Drinking Water Guidance Level

NOTE: The three detected substances were observed in the lab, method & field blanks. The laboratory was unable to tell if their detection was due to the client sample or the lab/sampling process.
¹ 2010 Occurrence of Pharmaceutical and Personal Care Products (PPCPs) in Source Water of the New York City Water Supply, New York City Environmental Protection, August 19, 2012

CWD's AESTHETIC QUALITY

All of the different types of water quality presented - sanitary, source and DBP - interact and influence one another as well as affecting the aesthetic quality of the water, CWD's challenge - as for all water suppliers - is to manage all these aspects to produce high quality water. After CWD produces the water, it is distributed to 12 municipal water systems within nine served communities, the water systems then deliver the water to you, the consumer. The following table lists CWD aesthetic water conditions. These are parameters that are not based upon human health concerns, but affect how a consumer views their water supply.

| AESTHETIC CONDITION | USEPA SECONDARY MCL | CWD TREATED WATER |
|------------------------|---------------------|-----------------------------------|
| ALUMINUM | 0.20 ppm | 0.06 (0.03-0.09) |
| COLOR | 15 UNITS | 2 UNITS |
| ALKALINITY | N/A | 55 ppm (45-67) AS CaCO3 |
| CALCIUM HARDNESS | N/A | 53 ppm (45-64) AS CaCO3 |
| TOTAL HARDNESS | N/A | 65 ppm as CaCO3 (3.6 GRAINS/GAL.) |
| CHLORIDE | 250 ppm | 17 ppm (15-19) |
| FOAMING AGENTS | 0.5 ppm | LESS THAN 0.1 ppm |
| CONDUCTIVITY | N/A | 182 uS (160-190) |
| pH | 6.5-8.5 pH UNITS | 7.63 units (7.53-7.77) |
| TOTAL DISSOLVED SOLIDS | 500 ppm | 113 ppm |
| IRON | 0.3 ppm | LESS THAN 0.10 ppm |
| MANGANESE | .05 ppm | .006 ppm |
| SODIUM | N/A | 14 ppm |
| POTASSIUM | N/A | 1.31 ppm |
| SULFATE | 250 ppm | 13 ppm (12-15) |
| SILVER | 0.1 ppm | LESS THAN 0.005 ppm * |
| SILICA | N/A | 1.4 ppm |
| SILICON | N/A | 0.67 ppm |
| BROMIDE | N/A | LESS THAN 0.010 ppm |
| IODIDE | N/A | LESS THAN 1.00 ppm |
| FLUORIDE *** | 2 ppm | 0.7 ppm (0.6-0.8) |
| AMMONIUM ION | N/A | 0.04 ppm (0-0.24) |

* may leach from consumer purchased carbon pre-filters

NOTE: Except for bacterial testing and process control testing, all CWD test analyses are conducted by independent certified laboratories. Bacteriological testing is conducted by CWD's on-site State and NELAC Certified Laboratory. CWD adds 0.6 ppm to the 0.1 ppm within the lake water to end up with the CDC recommended 0.7 ppm of fluoride in the finished water. Fluoride is added for dental health under the Vermont Department of Health Fluoridation Program.

ADDITIONAL INFORMATION

CWD contacts: 802-864-7454 • www.champlainwater.org
Jim Fay – General Manager
Michael G. Barsotti- Director - Water Quality & Production
mike.barsotti@champlainwater.org

USEPA Safe Drinking Water Hotline
(provides information on potential health effects and how to lessen infection risk from *Cryptosporidium* and other biological contaminants)
1-800-426-4791

Vermont 2-1-1, for health and human services information and referral. 2-1-1

Vermont DEC Drinking Water & Groundwater Protection Division 1-802-828-1535

Vermont Dept of Health, Division of Environmental Health 1-802-652-0357

Municipal water systems served by CWD:

| | | |
|------------|-----------------------------|----------|
| VT 0005087 | Town of Shelburne | 985-5122 |
| VT 0005091 | City of South Burlington | 864-4361 |
| VT 0005098 | Town of Williston | 878-1239 |
| VT 0005066 | Village of Essex Junction | 878-6944 |
| VT 0005065 | Town of Essex | 878-1344 |
| VT 0005058 | Colchester Fire District #1 | 654-2872 |
| VT 0005060 | Colchester Fire District #3 | 878-4337 |
| VT 0005077 | Village of Jericho | 899-2938 |
| VT 0020333 | Mallets Bay Water Co. | 864-7454 |
| VT 0005079 | Town of Milton | 893-6030 |
| VT 0005102 | City of Winooski | 655-6419 |
| VT 0005552 | Colchester Town | 864-7454 |

Champlain Water District

403 Queen City Park Road
South Burlington, VT 05403

AVAILABLE CWD PUBLICATIONS

Surface Water Source Characterization to Overcome Operational Complacency and Aid Source Delineation, 1999 Water Quality Technology Conference, November 1999.
Investigating and Controlling HAA5s Within a Complex Transmission System, 2000 Water Quality Technology Conference, October 2000.
Modeling Storage and the Inlet Reconfiguration, AWWA International Retention Time Management Symposium 2002.
Investigating a Stand Pipe Mixing System as a Tool for Managing Retention Time and DBP Formation, 2003 Water Quality Technology Conference, November 2003.

CWD Lead Public Information Flyer.

Partnering to Advance Source Protection within the Storm Water Arena, 2005 AWWA Source Protection Conference, January 2005.

Secondary Disinfection, 2008 Green Mountain Water Environment Association Spring Meeting, March 2008.

Long Term Experience with Conventional Filtration, 2008 NEWWA Water Quality Symposium, May 2008.

Complying with the Upcoming Stage 2 Disinfection By-product Regulations, 2012 Green Mountain Water Environment Association Spring Meeting, May 2012.

Planning and Maintaining Compliance with the Lead and Copper Rule when Making a Disinfectant Change, 2012 NEWWA Water Quality Symposium, May 2012.

Success Stories from Phase III Self-assessments, 2013 AWWA Annual Conference, June 2013.

Improving Power Efficiency While Meeting the Water Quality Operational Goals of a Complex Transmission and Storage System, 2013 AWWA Water Quality Technology Conference, November 2013.

Case Study: Developing a Blue-Green Algal Surveillance Strategy for a Lake Champlain Utility, 2014 AWWA Water Quality Technology Conference, November 2014.

Achieving and Maintaining the Phase IV Excellence in Water Treatment Award, 2017 AWWA ACE, June 2017

PUBLIC NOTICE - IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER FROM 2017

Quarterly Disinfection by-product (DBP) Monitoring Requirement Not Met for Champlain Water District (CWD)

CWD recently violated a drinking water monitoring requirement for disinfection by-products (DBPs) during the January through March 2017 quarterly monitoring timeframe. Samples were inadvertently collected on February 1, 2017 rather than during January 1 through 31, 2017. Even though this was not an emergency, as our customers, you have a right to know what happened and what we did to correct this situation.

CWD is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During January of 2017, CWD did not monitor or test for Stage 2 Disinfection by-products and therefore cannot be sure of our drinking water quality during that time. Given CWD's change in secondary disinfection in 2006, the District has been meeting the goal levels for disinfection by-products given our optimized water treatment process. Samples taken on February 1, 2017 met federal drinking water standards and therefore, we believe public health is being adequately protected.

CWD collects very detailed data for surrogate parameters that show the Disinfection By-Product formation potential of the water entering the water system (temperature and UV adsorption(UVAS)). After realizing that the DBP samples had been inadvertently collected just after the end of the official monitoring period on February 1st, CWD reviewed our extensive database for temperature and UVAS. CWD's data review showed that the: 1) UVAS (average)for January 2017 and for February 1, 2017 were the same at 0.023, and 2) the temperature (average) for January 2017 was 38 Deg-C and for February 1, 2017 was 37 Deg-C, both very similar. This data review strongly indicated that the DBP results from the samples collected on February 1, 2017 serve as useful, accurate indicators of conditions during the January 2017 timeframe as well.

What should I do? Review the above information. There is nothing you need to do at this time.

The table below lists the contaminants we did not test for during January 2017, how often and when we are supposed to sample, when and how many samples we actually collected.

| CONTAMINANT | REQUIRED SAMPLING PERIOD | ACTUAL SAMPLING PERFORMED ON | NUMBER SAMPLES REQUIRED | NUMBER SAMPLES ACTUALLY COLLECTED |
|----------------------------------|--------------------------|------------------------------|-------------------------|-----------------------------------|
| Stage 2 Disinfection By-Products | January 2017 | February 1, 2017 | 14 | 14 on February 1, 2017 |

For more information, please contact Michael G. Barsotti Director- Water Quality & Production at 802-864-7454 (102) or Champlain Water District, 403 Queen City Park Road, South Burlington, Vermont 05403

Please share this information with all the other people who drink this water, especially those who may have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Please open to find Champlain Water District's latest water quality report.
Employers should provide enclosed information to their employees and landlords to their tenants.

Extra copies are available at no charge by contacting CWD or CWD served systems.