Champlain Water District
Water Quality 2020

Safe Drinking Water
All the Way to Your Tap

First in the Nation
20 Year Excellence in Water Treatment Award!

Twenty-Year Excellence in Water Treatment Award
2019
Champlain Water District
Peter L. Jacob Water Treatment Facility

In recognition for your continuous commitment to superior water quality by maintaining the Partnership for Safe Water Excellence in Water Treatment Award for twenty years.

WHAT ARE THE USEPA REGULATIONS?  
USEPA’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 mg/L.
- **Maximum Contaminant Level Goal (MCLG)** - the highest level of a contaminant that is allowed in drinking water. MCLGs are set by USEPA after extensive research and include:
- **Source Water Quality Characteristics:** 
  - 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.
  - Waterborne pathogens (bacteria, viruses, protozoa) - this level is set to reliably treat poor quality source waters on their own. This disinfection process does create by-products (DBPs) that if you have high quality untreated water going into distribution can pose a health risk. USEPA believes that drinking water, including bottled water, may reasonably be expected to contain at least trace amounts of contaminants. 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 monochloramine residual of at least 0.1 mg/L but not more than 4.0 mg/L (MRDL),  
- median heterotrophic plate count (HPC) of less than 500 cfu/ml, and  
- total coliform absent 95% of the time.

IN PROVIDING A SAFE, HIGH QUALITY WATER CWD has certain mandatory and additional approval requirements to provide a product which is capable of reliably removing a required percentage for a specific possible contaminant.

CWD monitors for these trace chemicals even though they are extremely unlikely to be present in CWD source because of the characteristics of CWD’s 33.3 billion gallon deep well Shelburne Bay source. CWD has monitored 175 trace substances for many years according to the schedules established by the USEPA and has received all non-detect test results for 2019. To receive a listing of these specific undetected contaminants – contact CWD and ask for the latest specific non-detect report.

**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**

**VIOlATIONS THAT OCCURRED DURING THE YEAR:** Champlain Water District had no regulatory violations during the year 2019.

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 100% of the time.

**In 2019, Champlain Water District’s Peter L. Jacob Water Treatment Facility maintained the highest degree of treatment process optimization and was recognized in 1999 to 2019 as the Water Treatment “Excellence in Water Treatment” status for 20 years years under USEPA Excellence in Water Treatment Award. To date, a total of 18 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 our drinking water “from source to tap.” Water Quality 2020 reports data from calendar year 2019.**
Did you know?

- Your water supplier in 2019 was the first in the nation to receive the Twenty 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 was selected as “The Peoples Choice - Best of the Best in North America” in a taste 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 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’S SANITARY QUALITY (continued)**

Protozoon and virus protection is provided through optimized filtration and primary disinfection. When evaluating a water supplier for proper treatment, the combined filtration and post-disinfection processes should remove and destroy 99.5% of Cryptosporidium oocysts, 99.9% of Giardia cysts and 99.9% 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 filters and countercurrent 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 Cryptosporidium Giardia and Cryptosporidium monitoring from April 2008 to December 2010. CWD submitted testing results under USEPA Rules. CWD has also conducted round 2 monitoring as specified by USEPA. This follow up monitoring was completed in September 2018. All CWD inactivation is performed using free chlorine, a primary disinfectant.

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 quality of water into the future. This new “south intake” was constructed in 2007 and placed into service in July 2008.

**CWD’S SOURCEx 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, Potschke Brook, North Brook, Munitore Brook, and Duxbury Brook. As Babcock’s Ledge approaches the Shelburne Bay Deep, a shallow underwater canyon occurs 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 from an area that is called the stream’s "watershed") and the Shelburne Bay Source.
- Build partnerships toward improving the water quality.
- Educate people about Shelburne Bay’s role in providing drinking water.
- Limit degradation of the CWD source 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.

**CWD’S DISINFECTANT-BY-PRODUCT QUALITY**

CWD maintains high quality drinking water, free from pathogenic (dangerous) bacteria, viruses and protozoa while, at the same time, keeping disinfectant-by-products (DBPs) to a minimum. USEPA has established a stringent standard for two groups of compounds – known as total halo-methanes (THMs) and total halo-acetates (HAAs). CWD’s treatment facility is extremely low in levels of bromide in its source water as the brominated DBPs have been impeded as concentrating the most risk. In 2018, USEPA required monitoring of 6 brominated HAAs which showed very low average levels of 2.2 ug/L with a range from 1.8 to 3.3 ug/L.

CWD’s turbidity goal is much stricter and is for each individual filter. CWD’s continued use of state-of-the-art filters and countercurrent 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 PHARMACEUTICAL COMPOUNDS AND PERSONAL CARE PRODUCTS (PPCP’S) TESTING

In 2019, CWD conducted monitoring for 46 of the most common PPCPs, as well as 10% of most commonly detected substances normalized by the total number of detections in PCDs. The results for 47 of these substances were none detected at ppb and pg levels in CWD water. One of the 46 substances monitored was Triclosan (TCS). These results show that CWD’s water is BPA free! Two substances, cotinine and DEET were detected at levels close to the detection limit of the test procedure. Despite careful sampling techniques, CWD has been unable to eliminate low level detections from samples due to natural sources, consumer products, and other environmental substances. Research in 2013 and following tightly controlled “clean room” sampling techniques confirmed previous results of finding trace levels of these PPCPs in CWD water provided by the outside certified testing laboratory for quality assurance (QA) purposes. In 2015, nicotine was detected at 5 ppb in this type of research grade blank water. In 2014, TCPP was detected at 3 ppb in this type of research grade blank water.

**CWD’S AESTHETIC QUALITY**

All of the different types of water quality presented - sanitary, source and DBP – interact and influence another one as well as affecting the aesthetic quality of the water. CWD’s challenge - as 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 the consumer. The following provides information on the CWD aesthetic conditions. These parameters are that based upon human health concerns, but allow as a consumer view their water supply.
ADDITIONAL INFORMATION
CWD contacts: 802-864-7454 • www.champlainwater.org
Joe Duncan – 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 DEC Drinking Water & Groundwater Protection Division 1-802-828-1535
Vermont Dept of Health, Division of Environmental Health 1-802-652-0357

AVAILABLE CWD PUBLICATIONS
Watershed Management Program for Source Protection.


Count Matching In-Situ Particle Counts to Scanning Electron Microscopic Counts for Treatment Facility Control, AWWA, 1998 Water Quality Technology Conference.


Investigating and Controlling HAA5s Within a Complex Transmission System, 2000


Modeling Storage and the Inlet Reconfiguration, AWWA International Retention Time Management Symposium 2002.


CWD Lead Public Information Flyer.


Complying with the Upcoming Stage 2 Disinfection By-product Regulations, 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.


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

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.