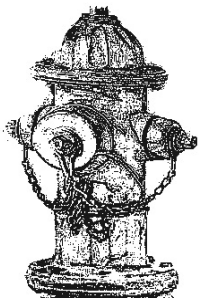
Town of Cavendish Municipal Water System

P.O. Box 126, 37 High Street
Cavendish, Vermont 05142-0126
(802) 226-7291



Consumer Confidence Report
June 2011

Information about this report

The staff and Board of Water Commissioners of the Town of Cavendish Municipal Water System are pleased to provide you with this consumer confidence report which offers a snapshot of Cavendish's drinking water quality last year from January through December 2010. Providing users with a safe and dependable supply of drinking water is our primary goal. We hope that the information provided within this booklet will be of interest and value to you in understanding what the system presently does in the way of quality control and safety, what the nature of the local water supply is, what the current status of the system is and what we plan to do in the future.

We are presenting the information to you in a manner which we hope will prove to be an easy read. It is one of our objectives for the report to give you the essential information without an overload of technical details. We would, of course, be happy to try to supply any interested customer with further technical detail if requested. Please call the office if you need assistance in this way.

The U.S. Congress passed the Safe Water Drinking Act 34 years ago and gave the U.S. Environmental Protection Agency (EPA) the job of making rules. These rules are the National Primary Drinking Water Regulations (NPDWR) and their purpose is to ensure that drinking water in the U.S. is safe. In 1996, Congress passed amendments which, in part, require that drinking water systems make available to their customers important information about the water they supply including where it comes from, what is in the water and how the water supplied compares with federal standards.

This report is prepared for you in accordance with the EPA's 40 Code of Federal Regulations, NPDWR parts 141 and 142. Please note that some of the text included in this report is "mandatory text" related to water systems in general and that it is required to be included. Due to the mandatory text requirements, a small portion of the text in this report may not seem to have direct bearing on our system.

Water System General Information

Public Water System Name: Cavendish Municipal Water System WSID #: 5317

Town: Cavendish, Vermont (including the Cavendish and Proctorsville village areas)

Owner: Town of Cavendish, Vermont
P.O. Box 126, 37 High Street
Cavendish, VT 05142-0126
Phone: (802) 226-7292

Operator: David Duquette
Cavendish Municipal Water System
P.O. Box 126
Cavendish, VT 05142-0126
Phone: (802) 226-7743

Manager: Richard Svec, Town Manager
P.O. Box 126, 37 High Street
Cavendish, Vermont 05142-0126
Phone: (802) 226-7291

Board: Cavendish Board of Water Commissioners
P.O. Box 126, 37 High Street
Cavendish, VT 05142-0126
(802) 226-7291

Commissioners	Term	Term Expiration	Village
Richard Svec (Chair)	1 Year	March 2012	N/A
James Ballantine	3 Year	March 2012	Cavendish
Leon Woods	3 Year	March 2012	Proctorsville
Gerry Martel	3 Year	March 2014	Proctorsville
Howard Pixley	3 Year	March 2013	Cavendish

Regular meetings of the Board of Water Commissioners normally take place on the fourth Monday of the months of: February, April, June, August, October and December with additional meetings called if circumstances so warrant. Such circumstances may include work on special projects, system emergencies, by-law revision work sessions, budget development, personnel matters, or any other matter deemed appropriate by the Board where it would be prudent to meet in advance of a regularly scheduled meeting.

Meetings take place at the meeting room of the Cavendish Town Office unless otherwise posted. The regular Meeting time is established at 5:00 pm. Meeting agendas and notices are posted in the Town Clerk's Office and on the two, outdoor, Town posting-boards which are located on the village greens of Cavendish and Proctorsville.

The Cavendish Board of Water Commissioners is an unpaid citizen board. It is policy that commissioners hold staggered three-year terms and must be users of the water system with the exception of a one year position which is filled by the incumbent Town Manager who need not be a system user. Both village areas are equally represented on the Board.

Persons having questions about this report or the Cavendish Municipal Water System may contact the office or parties listed above.

Water Source Information

Vermont Source type: Gravel Well
EPA Source Type: Groundwater, non-purchased
Source Name: **MAIN WELL** - Primary Source
Status: **ACTIVE**
Location: Off Mill Street, Cavendish

Vermont Source type: Gravel Well
EPA Source Type: Groundwater, non-purchased
Source Name: Proctorsville #1 - EWS
Status: INACTIVE - Inadequate Protection - Elevated saline - Emergency Source Only
Location: Off Main Street, Proctorsville

The State of Vermont Water Supply Rule requires Public Community Water Systems to develop a Source Protection Plan. The Cavendish Municipal Water Source Protection Plan delineates a source protection area for our system and identifies potential and actual sources of contamination. Please contact us if you are interested in reviewing the plan.

Security

We are certain that most users are generally already aware of the importance of security for our water systems. The events of September 2001 and potential for terrorist activities have certainly brought the importance of security to the front burner for many of us. Security breaches in municipal water systems right here in Vermont have occurred in the past few years and made these concerns even more pronounced. The Cavendish Municipal Water System is vigilant to security threats and vandalism, but we most definitely need citizens' help. **If you observe or become otherwise aware of any suspicious activities related to our water system whether property, equipment or facility, please contact us immediately.** *Maintaining a safe community is a responsibility that we **all** share.*

General Information About Sources of Drinking Water and Contaminants

The sources of drinking water (both tap and bottled) 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. In some cases, the water may also pick up substances resulting from the presence of animals or human activity or even naturally-occurring radioactive materials. Drinking water, including store-bought bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily mean that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

In order to ensure that the water we supply is safe to drink, we test it regularly according to regulations established by the U.S. Environmental Protection Agency and the State of Vermont. These regulations limit the amount of various contaminants. Types of contaminants that may be present in any raw or source water (public or private) before treatment include:

**Microbial contaminants,* such as viruses and bacteria, which may come from septic systems, sewage treatment plants, agricultural livestock operations, and wildlife.

**Inorganic contaminants,* such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Pesticides and herbicides,* which may come from a variety of sources such as agriculture, urban storm water 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 storm water 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.

Some people may be more vulnerable to drinking water contaminants than the general population. Immuno-compromised persons, such as people 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/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800) 426-4791.

Infants and young 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 own home's plumbing. Older homes with old plumbing may have pipes and fittings with lead content. If you are concerned about possible elevated levels of lead in your home's water, you may wish to have your water tested and you may wish to flush your tap for 30 seconds to 2 minutes before using your tap water for drinking or cooking especially if the tap has not been used very recently. Additional information on this topic is available from the Safe Drinking Water Hotline at 1-800-426-4791.

In order to ensure that tap water is safe to drink, EPA and the State of Vermont prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA and state regulations also establish limits for contaminants in bottled water which must provide the same protection for public health. **The Cavendish system provides all required testing**.

Cavendish Water Quality Data

The Cavendish Municipal Water System performs hundreds of tests each year to check for any detectable level of contaminants and to monitor the levels of additives. We also periodically perform microscopic particulate analysis. The length of the full listing of potential contaminants and other substances that we test for well exceeds the amount of space available in this brief report. The list contains many substances that most users wouldn't even suspect we were testing for and a number of chemical substances which many users may have never even heard of. In total, the testing of our water costs several thousands of dollars each and every year and each year the list of substances to be tested for and the frequency of required tests seems to grow. A comprehensive list of substances tested for is available for inspection at the office if you are interested.

As a summary of testing activities, you should be aware that:

- **Bacteriological tests** were performed and met standards
- **Inorganic chemical testing** was performed and met standards
- **Nitrates testing** was performed and met standards
- **Synthetic organic chemical testing** was performed and met standards
- **Volatile organic chemical testing** was performed and met standards for all chemicals.
- **Radionuclides tests** were performed and met standards
- **Lead and Copper testing** was performed and, while the municipal water system itself has no problem with lead and copper content, a few homes with older, vulnerable plumbing which is not up to modern standards have historically had some levels which may need to be addressed by the owners. More information on lead and copper in drinking water is readily available from a number of sources and some pamphlets are available at the Town Office.
- **Microscopic particulate analysis** was performed for groundwater under the direct influence of surface water and the system water passed by a comfortable margin.

The table on the next page lists all of the drinking water contaminants that we detected during the 2010 calendar year. Please note that the presence of mere trace amounts of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done during the period January 1st through December 31st, 2010. There is a much, much longer list of potential contaminants which we tested for but which were simply not detected.

Terms and abbreviations - In the table you may find terms you might not be familiar with. To help you better understand these terms we have provided the following definitions:

Maximum Contamination Level Goal (MCLG): The "Goal" is the level of a contaminant in drinking water below which there is no known or expected risk to human health. MCLGs allow for a significant margin of safety. An MCLG is a desirable goal but not a regulatory health requirement.

Maximum Contamination Level (MCL): The "Maximum Allowed" MCL is 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 technology.

Maximum Residual Disinfection Level Goal (MRDLG): The level of drinking water disinfection below which there is no known risk to health. MRDLGs do not reflect the benefits of disinfectants in controlling microbial contaminants.

Maximum Residual Disinfection Level (MRDL): The highest level of disinfection allowed in drinking water. Addition of a disinfectant may help to control microbial contaminants.

Action Level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT): A process aimed to reduce the level of a contaminant in drinking water.

90th Percentile: Ninety percent of samples are below the action level.

95th Percentile: Ninety-five percent of samples are below the action level.

Picocuries per liter (pCi/L): a measure of trace radioactivity in water

ppm = parts per million or milligrams per liter (mg/l)

ppb = parts per billion or micrograms per liter (µg/l)

Note: As an illustration, the amounts of a contaminant allowed in drinking water are so small they are measured in ppm (parts per *million*) - equivalent to one penny in $10,000.00; or ppb (parts per *billion*) - equivalent to one penny in $10,000,000.00!

Nephelometric Turbidity Unit (NTU): NTU is a measure of clarity of water. Turbidity in excess of 5NTU is just noticeable to the average person.

Running Annual Average (RAA): The average of 4 consecutive quarters(when on quarterly monitoring); values in table represent the highest RAA for the year.

Water Quality Data - Detected Contaminants CAVENDISH MUNICIPAL WATER SYSTEM

The table below lists all of the drinking water contaminants we detected during the 2010 calendar year. It also includes the date and results of any contaminants that we detected within the past five years for those tested less than once a year. Please note that the presence of these contaminants in the water at these very minute levels do not necessarily show that the water poses a health risk. There were no contaminant violations in 2010.

MICROBIOLOGICAL	Result	MCL	MCLG	Typical Source
Coliform (TCR)	NONE DETECTED	MCL: Systems that collect less than 40 samples per month - No more than 1 positive monthly sample	0	Naturally present in the environment

REGULATED CONTAMINANTS	Highest value/ Units	Range/ Units	MCL	MCLG	Sample Date	Violation Y or No	System or Individual	Likely source of detected contaminant
Arsenic	5.0 ppb	5.0 ppb	10.0	N/A	3/20/08	NO	System	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	0.056 ppm	0.056 ppm	2.0	2.0	3/20/08	NO	System	Erosion of natural deposits; discharge of drilling wastes; discharge from metal refineries.
Nitrate	0.72 ppm	0.72 ppm	10.0	10.0	1/20/10	NO	System	Runoff from fertilizer use; leaching from septic tanks, sewage, erosion of natural deposits
RADIONUCLIDES	**Highest Value**	**Range/ Units**	**MCL**	**MCLG**	**Sample Date**	**Violation Y or No**	**System or Individual**	**Likely source of detected contaminant**
No Detected Results Found in Calendar Year 2010			10.0	0		NO	System	Erosion of natural deposits

DISINFECTION BYPRODUCTS	Monitoring Period	RAA	Range	Unit	MCL	MCLG	Typical Source
No Detected Results Found in Calendar 2010							

Lead and Copper	Action Level	90th Percentile	95th Percentile	Range	Sampling Date	# of sites that exceeded the Action Level	Total # of sites sampled	Likely source of detected contaminant
Copper, free	1.3 mg/L	0.26	0.3	<0.12 - 0.42 mg/l	2010	0	10	Corrosion of household plumbing systems; erosion of natural deposits.; Leaching from wood preservatives

Violation(s) that occurred during the year
We are required to monitor your drinking water for a wide range of specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not treatment is effective and our drinking water meets health standards. **THE CAVENDISH MUNICIPAL WATER SYSTEM HAD NO DRINKING WATER VIOLATIONS INCURRED DURING 2010.**

System Improvements Update as of June 2011:

Back in 2009 we saw the completion of the water filtration building and the installation of the iron and manganese removal equipment. The iron removal process kicked up to full effectiveness in about a week and the manganese removal really took off after about 14 weeks and reached full effectiveness at about 16 weeks. The filtration plant continues to operate smoothly and has proven to be ***very effective in the removal of both iron and manganese*** in our well water. The levels of removal have proven to be even better than our "target" or "goal" values. Test samples taken at various points in the distribution system indicate that we now consistently have levels of manganese reduced to less than 0.03 mg per liter in all portions of our distribution system. This means that the water we distribute is significantly below both the Vermont Advisory Level (State Advisory Level = 0.3 mg per liter of manganese) and the Federal MCL Standard (0.05 mg/l). The levels of iron are reduced by the filtration process to negligible amounts (<0.1 mg/l) - much below State Advisory Level and the Federal iron MCL of 0.3 mg/l. Put another way, these numbers mean that we are removing about 99.7% of the iron and about 99.15% of the manganese that occur naturally in the well water that we draw - extremely good results.

The spring hydrant flushing program was recently completed and we once again noted that the amount of discolored water evidenced during the flushing continues to be very significantly less than had been seen in Cavendish in pre-filtration years. The flushing results indicate that the distribution piping network seems to be mostly rid of any build-up of residual iron and manganese. These positive indicators are most pleasing to system operators as well as our consumers. This said, it is noted that system process operations continue to be refined and adjusted to obtain peak performance while improving efficiency in energy use, chemical use and general operations. We are very happy with system performance data and the observed characteristics of the finish water. Our filtration system has proven itself to be quite effective notably without the use of the oxidizing chemical agents typically used in large volumes in other, more traditional, iron and manganese removal installations. Our choice of the biological removal system by Degremont, despite it having taken longer to design, permit, procure and install, has proved to be a great decision.

Feedback Received:

The Vermont Water Supply Division and the Vermont Rural Water Association have both visited our site and have remarked positively on the outstanding progress that our system has made. The Vermont Department of Health and even the laboratory testing service we use have also complimented us on having achieved effective and reliable resolution of the iron and manganese problems.

We have also received positive feedback from fellow users indicating good results in a number of areas of consumer interest including:

- general aesthetic qualities of the water including much improved appearance and taste
- elimination of staining on clothes, appliances and fixtures
- ability to use laundry, washing and cleaning products with chlorine bleach
- ability to use the water without special pre-treatment for swimming pools, baths, hot tubs and spas

There are also reports of consumer money savings due to:

- not having to buy Iron-Out, Glisten and similar products used to deal with the former mineral staining
- not buying bottled water
- less expense and less attention needed in replacing in-house water filter cartridges, etc.

What's Next?

An engineering plan has been developed to significantly reduce or eliminate the excess air which is sometimes observed in the water as it first leaves the tap. Although the sometimes milky appearance is caused by harmless air microbubbles which generally dissipate in a matter of seconds, it is not a desired characteristic and we are working to eliminate it. The water is noted to be crystal clear as soon as the microbubbles dissipate. The application for the permit to implement the engineering plans for a fix to the excess entrained air has already been submitted to the Water Supply Division and approved. We await funding opportunities to help fund the air removal project so we can proceed with the proposed modifications to the system without causing another significant increase in consumer rates. Once funding is arranged, it should take only a couple of months to complete the physical work. We also hope to get the final permit for use of the drilled well (well#2) in 2011.

The Municipal Water System staff and Board of Water Commissioners hope that consumers are continuing to enjoy the benefits of the system improvements. Thanks to everyone for their patience and support during the course of the corrective planning and work. It has taken years, but the results are very good.

Let Us Know...

☞ As mentioned earlier in this document, one of our objectives is to present the annual Consumer Confidence Report in a readable, easy to understand format. This is not easy given the amount of information offered and some of the technical data we are required to supply. Your suggestions in this regard would be most welcome. Please let us know if there is some way in which we can present this required information which would be easier to use.

Thank you for taking the time to read this important report. We hope it is of value to you.

Remember to use water wisely - it is a precious resource. Contact the Town Office if you would like to receive a flyer of tips on saving water. Not only will you help to conserve this valuable resource, but it may help to save money on your water bill.