

What could we expect to find in our water?

As water travels over the surface of land or through the ground it dissolves naturally occurring minerals and in some cases radioactive material. It can also pick up substances resulting from human activity or from the presence of animals.

Contaminants that may be present in source water include:

Microbial contaminants: such as viruses and bacteria, which may come from septic systems, agricultural livestock operations and wildlife;

Inorganic contaminants: like salts and metals, which can occur naturally or result from domestic waste water discharges and agricultural uses;

Pesticides and Herbicides: that may come from agriculture and residential uses;

Organic chemical contaminants: that include synthetic and volatile compounds coming from septic tanks and careless disposal of household chemicals, and

Radioactive contaminants: that occur naturally.

Who makes the decisions about our water?

Our City Council. We encourage public interest and participation in our community's decisions that affect drinking water.

How is this done?

By attending the Council meetings on **Tuesday evening at 7:00 p.m.**, in City Hall, **Council**

Chambers, at 6 North Main Street, when there are water related issues on the agenda. The Saturday edition of our local newspaper publishes a notice of these meetings.

Health Information

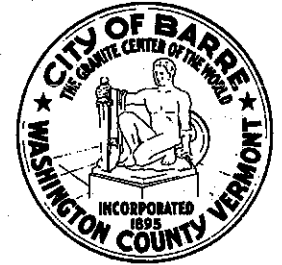
The **EPA (Environmental Protection Agency)** establishes regulations that limit the amount of certain contaminants in drinking water, thus providing the consumer with water that is both palatable and potable (safe). Also, the **FDA (Food & Drug Administration)** promulgates rules and restrictions that limit contaminants in the bottled water industry in order to provide the same protection for the general public.

All drinking water, including bottled water, may contain small amounts of contaminants. Their presence does not always mean that water poses a health risk. However, some people may be more vulnerable to contaminants in drinking water than the general public. Immunocompromised persons with cancer who are undergoing chemotherapy, who have had organ transplants, who suffer from HIV/AIDS or other immune system disorders may be more susceptible to infections. Other groups at greater risk to infections would be the elderly and infant populations. These people should seek advice from their health care provider.

You can contact **EPA's Safe Drinking Water Hotline** at **1-800-426-4791** for more information about contaminants in drinking water and their potential health effects. Their guidelines will provide measures to lessen the risk of infection by *Cryptosporidium*, *Giardia*, and other microbial contaminants.

City of Barre Water Dept.
6 North Main Street, Suite 5
Barre, VT 05641

City of Barre Water Quality Report 2015



We are proud to report that water provided to the greater Barre area meets or exceeds established water quality standards!

Why are we telling you this?

This is an annual report on the quality of water delivered by the City of Barre. It meets the **Federal Safe Drinking Water Act (SDWA)** requirement for "Consumer Confidence Reports" and contains information on the source of our water, what's in the water and the health risks associated with any contaminants that may be present. Safe water is vital to our community. Please read this report carefully. If you have any questions, you may call the **Water Filtration Facility 476-6885**.

Where does our drinking water come from?

The City of Barre's water supply is located in the Town of Orange. The surface water fed by streams and springs is stored in three impoundments known as The Thurman W. Dix Reservoir and the Upper and Lower Reservoirs. The Dix Reservoir, designed in 1950, holds almost all (93%) of the raw untreated water.

To help protect the area around the reservoirs, known as the watershed, Barre has developed a **Source Protection Plan** that was approved by the State of Vermont on Dec. 29, 1997, April 2008, 2011 and December 2015. The area totaling 11.1 square miles is broken down into three zones based on distance from the surface water supply.

The Plan provides a more comprehensive look at the possible sources of contamination within our watershed.

The 6 million gallon per day water treatment facility receives water directly from the Lower Orange Reservoir. Our treatment process reduces or eliminates turbidity, bacteria, viruses, parasites, color, taste, odor and organics.

The finished water is transported from the facility to the distribution system via a 20" cast iron water main. The system is comprised of two different zones known as the high and low pressure areas. These areas provide water for approximately **15,000** customers.

Highlights of 2015

Public Notice - Permit to Operate Issued December 17, 2013: The Water System is required to notify all users of the following compliance schedule contained in the Permit to Operate issued by the State of Vermont Agency of Natural Resources:

1. On or before September 1, 2014, if the Permittee shall: a. Modify all in-home booster pumping systems to meet the Secretary's design standards, including a properly located and sized air gap, and obtain the Secretary's approval for each in-home booster pumping system;

A time extension was requested from the Vermont Water Supply Division. The requested extension to May 31, 2015 was due to two in home booster systems that did not have adequate time to complete the required tank overflow piping.

All privately owned systems have complied. Annual inspections by Facility Operators will be conducted after the spring thaw.

The Facility has three filters that act independently of each other. Filter #3 had extensive maintenance. The \$65,000.00 project involved filter media replacement as well as stainless

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WATER QUALITY --- DATA TABLE --- 2015											
Chemical Group	Units	MCL	MCLG	Highest Detected Level	Date	Avg	Range	VI. Health Advisory	Additional Information	Likely Source of Contaminant	Violation Yes or No
Inorganics:											
Nitrate as Nitrogen	ppm	10.0	10.0	0.10	1/8/2015	n/a	n/a	n/a		Runoff from fertilizer use	No
Strontium	ug/L			89.00						Naturally Occurring	
Barium	ppm	2.0	2.0	0.02	1/12/2015	n/a	n/a	n/a		Poisons, metal plating & photo processing chemicals industrial	No
Cyanide	ppm	0.2	0.2	<0.01	7/29/2013	n/a	n/a	n/a		Naturally Occurring	
Hexavalent Chromium	ug/L			0.09						Naturally Occurring	
Zinc	ppm	5.0		0.12	3/3/2003	n/a	n/a	n/a	Added as a corrosion inhibitor	Naturally Occurring	
Chlorate	ug/L			520.00						Product of chlorination	
Fluoride	ppm	4.0	4.0	0.82	11/5/2015	0.70	.70 - 0.82	n/a	Fluoride is added to promote dental health / Prevention of tooth decay	Erosion of natural deposits	No
Manganese	ppm	0.05		0.02	4/21/2015	n/a	n/a	n/a		discharge from fertilizer	
Organics:											
Bromochloromethane	ppb	n/a	n/a	5.80	10/8/2015	3.48	1.8 - 5.9	None	n/a	By-product of chlorination	No
Bromoform	ppb	n/a	n/a	<0.5	10/8/2015	<0.5	0.0 - 0.5	None			
Dibromochloromethane	ppb	n/a	n/a	<0.5	10/8/2015	<0.5	0.0 - 0.5	None	n/a	By-product of chlorination	No
Chloroform	ppb	n/a	n/a	58.60	7/15/2015	34.14	10.9 - 58.6	None	n/a	By-product of chlorination	No
Monochloroacetic Acid	ppb	n/a	n/a	5.00	10/8/2015	5.00	0.0 - 5.0	n/a	n/a	By-product of chlorination	No
Dichloroacetic Acid	ppb	n/a	n/a	18.40	7/15/2015	8.80	4.0 - 18.4	n/a	n/a	By-product of chlorination	No
Dibromoacetic Acid	ppb	n/a	n/a	3.00	10/8/2015	3.00	0.0 - 3.0	n/a	n/a	By-product of chlorination	No
Monobromoacetic	ppb	n/a	n/a	3.00	10/8/2015	3.00	0.0 - 3.0				
Trichloroacetic Acid	ppb	n/a	300.00	18.50	7/15/2015	11.00	4.8 - 18.5	n/a	n/a	By-product of chlorination	No
Total Trihalomethanes	ppb	80.00	0.00	63.00	1/22/2015	37.63	12.8 - 63.0	n/a	n/a	By-product of chlorination	No
Total Haloacetic Acids	ppb	60.00	n/a	36.90	1/22/2015	20.30	9.8 - 36.9	n/a	n/a	By-product of chlorination	No
Radionuclides:											
Gross Alpha	pci/L	15.0	n/a	0.384 +/- 0.58	1/20/2015	n/a	n/a	n/a	n/a	Erosion of natural deposits	No
U226	pci/L	5.0	n/a	0.327 +/- 0.425	1/22/2015	n/a	n/a	n/a	n/a	Erosion of natural deposits	No
U228	pci/L	5.0	n/a	0.159 +/- 0.308	1/22/2015	n/a	n/a	n/a	n/a	Erosion of natural deposits	No
Chemical Group											
	Contaminant Detected	Action Level	90th Percentile	Sampling Date	# of Sites That Exceeded The Action Level	Total # of Sites Sampled				Likely Source of Detected Contaminant	Violation Yes or No
Lead & copper											
Action Levels	Copper	1.3 mg/L	0.020	June - Oct. 2015	0	31				Corrosion of household plumbing systems	No
	Lead	15 ppb	0.01	June - Oct. 2015	1	31				Corrosion of household plumbing systems	No
Contaminant Detected											
	Units	MCL	MCLG	Lowest Monthly % of Samples Meeting MCL	Highest Measurement Date	Average	Violation Yes or No			Additional Information	Likely Source of Contaminant
	Turbidity	ntu	0.30	n/a	100.00	8/29/2015	0.050	No		Turbidity is a measure of cloudiness in the water. It is a good indicator of the quality of water.	Soil run-off
	Disinfectant	MRDL	MRDLG	FW AVG.							
	Chlorine	ppm	4.00	0.20	0.99						

steel under drain repairs. Filter #1 and Filter #2 are scheduled to be refurbished in 2017 and 2018.

Future maintenance activities will include the over haul of Raw water Pump #1 and #2.

As part of the corrosion control plan 31 house sites were tested for lead and copper. Lead solder was used extensively in house construction and fixtures prior to the lead ban in 1988. The Water Filtration Facility adds a corrosion inhibitor to the water as well as buffering in order to prevent leaching of metals from house hold plumbing. The tested dwellings were below the action levels for lead and copper with the exception of one house that had a high lead level.

- 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. The City of Barre is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water hotline or at <http://www.epa.gov/safewater/lead>.

- Water Production** - The Facility produced 535 million gallons of potable water.

Key to Water Quality Data Table

- Maximum Contaminant level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment.

- Maximum Contaminant level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

- 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 required process intended to reduce the level of a contaminant in drinking water.

- 90th Percentile:** Ninety percent of the samples are below the action level (nine of ten sites sampled were at or below this level).

- Parts per Million (ppm) or Milligrams per Liter (mg/L):** One penny in \$10,000.

- Parts per Billion (ppb) or Micrograms per Liter (ug/L):** One penny in \$10 million dollars.

- Picocuries per Liter (pci/L):** A measure of radioactivity.

- NTUs:** Nephelometric Turbidity Units

- n/a:** Not Applicable

- MRDL** Maximum Residual Disinfectant Level

- MRDLG** Maximum Residual Disinfectant Goal

*The Water System is responsible for the collection of a minimum of 15 bacteriological samples per month.