

## BARRE TOWN WATER SYSTEM - VT0005566

### Consumer Confidence Report - 2022

This report is a snapshot of the quality of the water that we provided in 2022. Included are the details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies. This report is designed to inform you about the quality water and services we deliver to you every day. To learn more, please attend any of our regularly scheduled meetings which are held:

6:00 PM on Tuesday nights at Barre Town Municipal Building located at 149 Websterville Road in Websterville, VT.

The person who can answer questions about this report is:

Town Engineer, Josh Martineau Telephone: 802-479-2595 and/or Email: [jmartineau@barretown.org](mailto:jmartineau@barretown.org)

Water System Operator, Jay Hrubovcak Telephone: 802-476-3522 and/or Email: [jhrubovcak@barretown.org](mailto:jhrubovcak@barretown.org)

### Water Source Information

#### Your water comes from:

Source Name	Source Water Type
WELL 1	Groundwater
BARRE CITY - DIX RESERVOIR	Surface Water
GRANITEVILLE SOURCES	Ground Water under the Influence of Surface Water

The State of Vermont Water Supply Rule requires Public Community Water Systems to develop a Source Protection Plan. This 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.

### Drinking Water Contaminants

The sources of drinking water (both tap water and bottled water) include surface water (streams, lakes) and ground water (wells, springs). As water travels over the land's surface or through the ground, it dissolves naturally-occurring minerals. It also picks up substances resulting from the presence of animals and human activity. Some "contaminants" may be harmful. Others, such as iron and sulfur, are not harmful. Public water systems treat water to remove contaminants, if any are present.

In order to ensure that your water 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:

**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 storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

**Pesticides and herbicides**, may come from a variety of sources such as storm water run-off, agriculture, and residential users.

**Radioactive contaminants**, which can be naturally occurring or the result of mining activity

**Organic contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and also come from gas stations, urban storm water run-off, and septic systems.

### Water Quality Data

The table below lists all the drinking water contaminants that we detected during the past year. It also includes the date and results of any contaminants that we detected within the past five years if tested less than once a year. The presence of these contaminants in the water does not necessarily show that the water poses a health risk.

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

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

**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.

**Locational Running Annual Average (LRAA):** The average of sample analytical results for samples taken at a particular monitoring location during four consecutive calendar quarters.

**Maximum Contamination Level (MCL):** The "Maximum Allowed" MCL is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

**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. MCLG's allow for a margin of safety.

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

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

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

**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)

**Parts per trillion (ppt) or Nanograms per liter (ng/l):** (one penny in ten billion dollars)

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

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

**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).

**Per- and polyfluoroalkyl substances (PFAS):** a group of over 4,000 human-made chemicals (they do not occur naturally) that have been used in industry and consumer products worldwide and includes:

(PFNA): Perfluorononanoic Acid

(PFOA): Perfluorooctanoic Acid

(PFOS): Perfluorooctane Sulfonic Acid

(PFHpA): Perfluoroheptanoic Acid

(PFHxS): Perfluorohexane Sulfonic Acid

(11Cl-PF3OUdS): 11-Chloroicosafuoro-3-oxaundecane-1-sulfonic Acid

(9Cl-PF3ONS): 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic Acid

(DONA): 4,8-Dioxa-3H-perfluorononanoic Acid

(HFPO-DA): Hexafluoropropylene Oxide Dimer Acid

(NEtFOSAA): N-ethyl perfluorooctanesulfonamidoacetic Acid

(NMeFOSAA): N-methyl perfluorooctanesulfonamidoacetic Acid

(PFBS): Perfluorobutane Sulfonic Acid

(PFDA): Perfluorodecanoic Acid

(PFDoA): Perfluorododecanoic Acid

(PFHxA): Perfluorohexanoic Acid

(PFTA): Perfluorotetradecanoic Acid

(PFTrDA): Perfluorotridecanoic Acid

(PFUnA): Perfluoroundecanoic Acid

Detected Contaminants BARRE TOWN WATER SYSTEM

Disinfection Residual	RAA	RANGE	Unit	MRDL	MRDLG	Typical Source
Chlorine	0.337	0.020 - 0.820	mg/l	4	4	Water additive to control microbes

Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Barium	02/26/2020	0.026	0.026 - 0.026	ppm	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Iron	02/26/2020	0.038	0.038 - 0.038	ppm	NA	NA	
Nitrate	01/19/2022	1.4	1.4 - 1.4	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
Combined Radium (-226 & -228)	02/26/2020	0.192	0.192 - 0.192	pCi/L	5	0	Erosion of natural deposits
Radium-226	02/26/2020	0.192	0.192 - 0.192	pCi/L	5	0	Erosion of natural deposits

Disinfection ByProducts	Collection Year	Highest LRAA	Range	Unit	MCL	MCLG	Typical Source
Total Trihalomethanes	2022	48	43 - 48	ppb	80	0	By-product of drinking water chlorination
Total Haloacetic Acids (HAA5)	2022	25	21 - 25	ppb	60	0	By-product of drinking water chlorination

Lead and Copper	Collection Year	90th Percentile	Range	Unit	AL*	Sites Over AL	Typical Source
Lead	2020	2.8	0 - 19.4	ppb	15	1	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	2020	0.17	0.023 - 0.17	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

\*The lead and copper AL (Action Level) exceedance is based on the 90th percentile concentration, not the highest detected result.

Health Information Regarding Drinking Water

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).

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 Safe Drinking Water Hotline.

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. BARRE TOWN WATER SYSTEM 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 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 or at <http://www.epa.gov/safewater/lead>.

Distribution Information

Please share this information with all the other people who drink this water, especially those who may not 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 and distributing copies by hand or mail.

## WEBSTERVILLE WATER SYSTEM - VT0005247

### Consumer Confidence Report - 2022

This report is a snapshot of the quality of the water that we provided in 2022. Included are the details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies. This report is designed to inform you about the quality water and services we deliver to you every day. To learn more, please attend any of our regularly scheduled meetings which are held:

6:00 PM on Tuesday nights at Barre Town Municipal Building located at 149 Websterville Road in Websterville, VT.

The person who can answer questions about this report is:

Town Engineer, Josh Martineau Telephone: 802-479-2595 and/or Email: [jmartineau@barretown.org](mailto:jmartineau@barretown.org)

Water System Operator, Jay Hrubovcak Telephone: 802-476-3522 and/or Email: [jhrubovcak@barretown.org](mailto:jhrubovcak@barretown.org)

### Water Source Information

#### Your water comes from:

Source Name	Source Water Type
QUARRY HOLE (BARCLAY QUARRY)	Surface Water
QUARRY HOLE (NO. 1)	Surface Water

The State of Vermont Water Supply Rule requires Public Community Water Systems to develop a Source Protection Plan. This 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.

#### Drinking Water Contaminants

The sources of drinking water (both tap water and bottled water) include surface water (streams, lakes) and ground water (wells, springs). As water travels over the land's surface or through the ground, it dissolves naturally-occurring minerals. It also picks up substances resulting from the presence of animals and human activity. Some "contaminants" may be harmful. Others, such as iron and sulfur, are not harmful. Public water systems treat water to remove contaminants, if any are present.

In order to ensure that your water 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:

**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 storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

**Pesticides and herbicides**, may come from a variety of sources such as storm water run-off, agriculture, and residential users.

**Radioactive contaminants**, which can be naturally occurring or the result of mining activity

**Organic contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and also come from gas stations, urban storm water run-off, and septic systems.

#### Water Quality Data

The table below lists all the drinking water contaminants that we detected during the past year. It also includes the date and results of any contaminants that we detected within the past five years if tested less than once a year. The presence of these contaminants in the water does not necessarily show that the water poses a health risk.

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

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

**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.

**Locational Running Annual Average (LRAA):** The average of sample analytical results for samples taken at a particular monitoring location during four consecutive calendar quarters.

**Maximum Contamination Level (MCL):** The "Maximum Allowed" MCL is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

**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. MCLG's allow for a margin of safety.

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

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

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

**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)

**Parts per trillion (ppt) or Nanograms per liter (ng/l):** (one penny in ten billion dollars)

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

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

**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).

**Per- and polyfluoroalkyl substances (PFAS):** a group of over 4,000 human-made chemicals (they do not occur naturally) that have been used in industry and consumer products worldwide and includes:

(PFNA): Perfluorononanoic Acid

(PFOA): Perfluorooctanoic Acid

(PFOS): Perfluorooctane Sulfonic Acid

(PFHpA): Perfluoroheptanoic Acid

(PFHxS): Perfluorohexane Sulfonic Acid

(11Cl-PF3OUdS): 11-Chloroicosafuoro-3-oxaundecane-1-sulfonic Acid

(9Cl-PF3ONS): 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic Acid

(DONA): 4,8-Dioxa-3H-perfluorononanoic Acid

(HFPO-DA): Hexafluoropropylene Oxide Dimer Acid

(NEtFOSAA): N-ethyl perfluorooctanesulfonamidoacetic Acid

(NMeFOSAA): N-methyl perfluorooctanesulfonamidoacetic Acid

(PFBS): Perfluorobutane Sulfonic Acid

(PFDA): Perfluorodcanoic Acid

(PFDoA): Perfluorododecanoic Acid

(PFHxA): Perfluorohexanoic Acid

(PFTA): Perfluorotetradecanoic Acid

(PFTrDA): Perfluorotridecanoic Acid

(PFUnA): Perfluoroundecanoic Acid

Detected Contaminants WEBSTERVILLE WATER SYSTEM

Disinfection Residual	RAA	RANGE	Unit	MRDL	MRDLG	Typical Source
Chlorine	0.778	0.200 - 1.190	mg/l	4	4	Water additive to control microbes

Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Nitrate	01/19/2022	0.07	0.07 - 0.07	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

PFAS Contaminants	
Typical Source	Belongs to a group of manmade chemicals used widely in manufacturing and consumer products
MCL	20 (individual or sum of the 5 regulated PFAS compounds)
Units	All units in parts per trillion (ppt)

Collection Date	PFHpA	PFNA	PFHxS	PFOA	PFOS	Sum of 5 regulated PFAS compounds
2022-11-08	-	-	-	2.7	-	2.7

\*Additional PFAS, not regulated by the Vermont Water Supply Rule, may also have been detected in the past five years. Please contact us if you would like more information on other unregulated PFAS that may be in your drinking water.

Radionuclides	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
Combined Radium (-226 & -228)	02/18/2019	1.2	1.2 - 1.2	pCi/L	5	0	Erosion of natural deposits
Gross Alpha Particle Activity*	11/08/2022	0.8	0.8 - 0.8	pCi/L	NA	0	Erosion of natural deposits
Radium-226	02/18/2019	0.614	0.614 - 0.614	pCi/L	5	0	Erosion of natural deposits
Radium-228	02/18/2019	0.586	0.586 - 0.586	pCi/L	5	0	Erosion of natural deposits

\*Gross Alpha particle activity results include Uranium activity. However, the EPA has set a maximum contaminant level (MCL) for “adjusted” Gross Alpha particle activity (including radium-226 but excluding Uranium) at 15 pCi/L. To determine compliance with the “adjusted” Gross Alpha MCL, a separate Uranium result is required for the adjustment calculation, and it must be converted from mass (ug/L) to activity (pCi/L). The estimated Uranium activity is then subtracted from the Gross Alpha particle activity lab result to yield the “adjusted” Gross Alpha result in pCi/L.

Disinfection ByProducts	Collection Year	Highest LRAA	Range	Unit	MCL	MCLG	Typical Source
Total Trihalomethanes	2022	22	22 - 22	ppb	80	0	By-product of drinking water chlorination
Total Haloacetic Acids (HAA5)	2022	20	20 - 20	ppb	60	0	By-product of drinking water chlorination

Lead and Copper	Collection Year	90th Percentile	Range	Unit	AL*	Sites Over AL	Typical Source
Lead	2021	0.7	0 - 1.4	ppb	15	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	2021	0.26	0.077 - 0.26	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

\*The lead and copper AL (Action Level) exceedance is based on the 90th percentile concentration, not the highest detected result. Health Information Regarding Drinking Water

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).

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 Safe Drinking Water Hotline.

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. WEBSTERVILLE WATER SYSTEM 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 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 or at <http://www.epa.gov/safewater/lead>.

Violation(s) that occurred during the year

*We are 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. The below table lists any drinking water violations we incurred during 2022. A failure to perform required monitoring means we cannot be sure of the quality of our water during that time.*

Type	Category	Analyte	Compliance Period
STATE MONITORING/REPORTING VIOLATION	Failure to Monitor	Sum of 5 Regulated PFAS	10/01/2020 - 12/31/2020

**To be Completed by the Water System.** List any steps taken to correct the violations listed above:

**Public Notice - Permit to Operate Issued:** 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:

**On or before December 1, 2016,** the permittee shall submit record drawings and an update to the Water System’s Operations and Maintenance Manual which describe the newly installed system controls to the Division.

**To be completed by the Water System:**

*The Operations and Maintenance manual has been submitted to the State of Vermont. .*

Distribution Information

*Please share this information with all the other people who drink this water, especially those who may not 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 and distributing copies by hand or mail.*

## ***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.

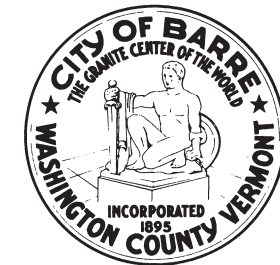
All drinking water, including bottled water, may contain small amounts of contaminants. Their presence does not always mean that water poses a health risk. However, some people may be more vulnerable to contaminants in drinking water than the general public. Immunocompromised persons with cancer who 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.

\*Gross Alpha particle activity results include Uranium activity. However, the EPA has set a maximum containment level (MCL) for "adjusted" Gross Alpha particle activity (including Radium-226 but excluding Uranium) at 15pCi/L. To determine compliance with the "adjusted" Gross Alpha MCL, a separate Uranium result is required for the adjustment calculation, and it must be converted from mass (ug/L) to activity (pCi/L). The estimated Uranium activity is then subtracted from the Gross Alpha particle activity lab result to yield the "adjusted" Gross Alpha result in pCi/L.

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

# **City of Barre Water Quality Report 2022**



**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, and submitted 2021 pending review. 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 2022

1. The Facility produced 523.469 million gallons of drinking water averaging 1.43 MG/Day.

Key maintenance activities include installing a variable speed drive on backwash pump #2, Installed on-site back-up power generation and replaced hydro pneumatic tanks at Cobble Hill Meadows pump station. Divers cleaned and inspected Bailey St 350,000 gallon storage tank.

The water system is monitoring chlorine residuals at the end of the system at four locations three days per week.

2. The water system received a violation for failure to monitor a quarterly disinfection byproduct sample in the month of 4/22 representing a compliance period of 4/1/22 – 6/30/22. The water system collected this sample on 5/3/22.

3. Per and Poly Fluorinated Alkyl Acids were tested for at point of entry to distribution system. NONE were detected.

continued in right column

## WATER QUALITY --- DATA TABLE --- 2022

Chemical Group	Units	MCL	MCLG	Highest Detected	Date	Average	Range	Vt. Health Advisory	Typical Source
<b>Inorganics:</b>									
Nitrate	ppm	10.0	10.0	0.11	1/27/2022	n/a	0.11 - 0.11	n/a	Runoff from fertilizer use; Leaching from septic tanks;sewage;Erosion of natural deposits
Cyanide	ppm	0.2	0.2	<0.010	7/26/2022	n/a	n/a	n/a	Poisons, metal plating & photo processing chemicals; industrial
Zinc	ppm	5.0		0.12	3/3/2003	n/a	n/a	n/a	Added as a corrosion inhibitor; Naturally occurring
Fluoride	ppm	4.0	4.0	0.99	9/11/2022	0.74	0.61 - 0.99	n/a	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Manganese	ppm	n/a	n/a	<0.010	7/26/2022	n/a	<0.010 - <0.010	n/a	Erosion of natural deposits. Vermont Department of Health has established a health advisory of 300 ppb. Manganese equal to or greater than 50ppb can lead to unacceptable taste or staining of fixtures.
Calcium	ppm	n/a	n/a	24.00	11/7/2018	n/a	24-24	n/a	
Hardness (As CaCO3)	ppm	n/a	n/a	67.00	11/7/2018	n/a	67-67	n/a	
Manganese	ppm	n/a	n/a	1.60	11/7/2018	n/a	1.6-1.6	n/a	
<b>Disinfection Byproducts</b>	<b>Units</b>	<b>MCL</b>	<b>MCLG</b>	<b>Collection Year</b>	<b>Range</b>	<b>Highest LRAA</b>	<b>Health Adv</b>	<b>Typical Source</b>	
Total Trihalomethanes	ppb	80.00	0.00	2022	16 - 51	45	n/a	By-product of drinking water chlorination	
Total Haloacetic Acids	ppb	60.00	0.00	2022	13 - 40	28	n/a	By-product of drinking water chlorination	
<b>Pathogens</b>	<b>Date</b>	<b>MCL</b>	<b>MCLG</b>	<b>Highest Detected</b>	<b>Sample Year</b>	<b>Average</b>	<b>Range</b>	<b>Health Adv</b>	<b>Typical Source</b>
E.coli/Total Coliform	Monthly	n/a	n/a	5.2	2018	n/a	0 - 5.2	n/a	Naturally occurring sampled from Orange Reservoir prior to treatment
Cryptosporidium	Monthly	n/a	n/a	0	2018	n/a	0	n/a	Naturally occurring sampled from Orange Reservoir prior to treatment
Giardia	Monthly	n/a	n/a	4.14	2018	0.30	0 - 4.14	n/a	Naturally occurring sampled from Orange Reservoir prior to treatment
<b>Radionuclides:</b>	<b>Units</b>	<b>MCL</b>	<b>MCLG</b>	<b>Highest Detected</b>	<b>Date</b>	<b>Average</b>	<b>Range</b>	<b>Health Adv</b>	<b>Typical Source</b>
Gross Alpha	pci/L	n/a	0	0.581	2/18/2021	n/a	0.581 - 0.581	n/a	Erosion of natural deposits
R226	pci/L	5.0	0	0.104	2/18/2021	n/a	0.104 - 0.104	n/a	Erosion of natural deposits
R228	pci/L	5.0	0	0.818	2/18/2021	n/a	0.818 - 0.818	n/a	Erosion of natural deposits
Combined Radium	pci/L	5.0	0	0.922	2/18/2021	n/a	0.922 - 0.922	n/a	Erosion of natural deposits
<b>Lead &amp; Copper</b>	<b>Units</b>	<b>Action Level</b>	<b>Range</b>	<b>90th Percentile</b>	<b>Sampling Date</b>	<b>Sites over Action level</b>	<b>Total # of Sites Sampled</b>	<b>Health Adv</b>	<b>Typical Source</b>
Lead	ppb	15ppb	0 - 130ppb	1.40	6/1/21 - 9/30/21	2	30	n/a	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	ppm	1.3 ppm	0 - 0.42ppm	0.091	6/1/21 - 9/30/21	0	30	n/a	Corrosion of household plumbing systems; Erosion of natural deposits;leaching from wood preservatives
<b>Contaminant Detected</b>	<b>Units</b>	<b>MCL</b>	<b>MCLG</b>	<b>Lowest Monthly % of samples Meeting MCL</b>	<b>Average</b>	<b>Highest Detected</b>	<b>Date</b>	<b>Health Advisory</b>	<b>Typical Source</b>
Turbidity	ntu	0.30	n/a	100.00	0.050	0.085	11/16/22	n/a	Soil run-off; Turbidity is a measure of cloudiness in the water; It's a good indicator of the quality of water.
<b>Disinfectant</b>	<b>Unit</b>	<b>MRDL</b>	<b>MRDLG</b>	<b>RAA</b>	<b>Range</b>	<b>Sample Year</b>	<b>Health Adv</b>	<b>Typical Source</b>	
Chlorine	mg/L	4.00	4.00	0.60	0.1 - 1.26	2022	n/a	Water additive to control microbes	

This chemical if detected at or above 20 parts per trillion a do not drink notice would have been issued.

• 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>.

## 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

• **LRAA** Long Range Annual Average

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

# GRANITEVILLE FIRE DISTRICT 4 - VT0005248

## Consumer Confidence Report - 2022

This report is a snapshot of the quality of the water that we provided in 2022. Included are the details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies. This report is designed to inform you about the quality water and services we deliver to you every day. To learn more, please attend any of our regularly scheduled meetings which are held:

\_April\_ 12th at 9 Am \_\_\_\_\_ at \_\_\_\_\_ Graniteville, Vt \_\_\_\_\_

The person who can answer questions about this report is: \_\_\_\_\_ Jen Malnati \_\_\_\_\_

Telephone: \_\_\_\_\_ 802 272 8756 \_\_\_\_\_ and/ or Email \_\_\_\_\_ jenmalnati@yahoo.com \_\_\_\_\_

## Water Source Information

Your water comes from:

Source Name	Source Water Type
# 1 WELL (RESERVOIR 1)	Ground Water under the Influence of Surface Water
GALE RES INF GALL 2-1+2-1A (A)	Groundwater
RES 1 NORTH LINE INF GALL 1-1 (A)	Ground Water under the Influence of Surface Water
RES 1 SOUTH LINE INF GALL (A)	Ground Water under the Influence of Surface Water

RESERVOIR 3 COLLECTION BOX	Groundwater
RES 1	Ground Water under the Influence of Surface Water
RES 2	Ground Water under the Influence of Surface Water
WELL 3 (RESERVOIR 2)	Ground Water under the Influence of Surface Water
BARRE TOWN CONNECTION	Surface Water
RES 1 INF GALL 1-17 (B)	Ground Water under the Influence of Surface Water
RES 1 INF GALL 1-18 (C)	Ground Water under the Influence of Surface Water
RES 1 NORTH LINE INF GALL 1-2 (B)	Ground Water under the Influence of Surface Water
RES I NORTH LINE INF GALL (C)	Ground Water under the Influence of Surface Water
RES I NORTH LINE INF GALL 1-4 (D)	Ground Water under the Influence of Surface Water
RES I NORTH LINE INF GALL 1-5 (E)	Ground Water under the Influence of Surface Water
RES I NORTH LINE INF GALL 1-6 (F)	Ground Water under the Influence of Surface Water
RES I NORTH LINE INF GALL 1-7 (G)	Ground Water under the Influence of Surface Water

RES I SOUTH LINE INF GALL (B)	Ground Water under the Influence of Surface Water
RES I SOUTH LINE INF GALL (C)	Ground Water under the Influence of Surface Water
RES 1 SOUTH LINE INF GALL (D)	Ground Water under the Influence of Surface Water
RES 1 SOUTH LINE INF GALL (E)	Ground Water under the Influence of Surface Water
GALE RES INF GALL 2-2 TO 2-9 (B)	Groundwater
GALE RES INF GALL 2-2 TO 2-9 (C)	Groundwater
GALE RES INF GALL 2-2 TO 2-9 (D)	Groundwater
GALE RES INF GALL 2-2 TO 2-9 (E)	Groundwater
GALE RES INF GALL 2-2 TO 2-9 (F)	Groundwater
GALE RES INF GALL 2-2 TO 2-9 (G)	Groundwater
RES 3 SPRING 3-1 (B)	Groundwater
RES 3 SPRING 3-2 (C)	Groundwater
WELL 6	Groundwater

Buyer	Seller
BARRE TOWN WATER SYSTEM	BARRE CITY WATER SYSTEM

The State of Vermont Water Supply Rule requires Public Community Water Systems to develop a Source Protection Plan. This 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.

## Drinking Water Contaminants

The sources of drinking water (both tap water and bottled water) include surface water (streams, lakes) and ground water (wells, springs). As water travels over the land's surface or through the ground, it dissolves naturally-occurring minerals. It also picks up substances resulting from the presence of animals and human activity. Some "contaminants" may be harmful. Others, such as iron and sulfur, are not harmful. Public water systems treat water to remove contaminants, if any are present.

In order to ensure that your water 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:

**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 storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

**Pesticides and herbicides**, may come from a variety of sources such as storm water run-off, agriculture, and residential users.

**Radioactive contaminants**, which can be naturally occurring or the result of mining activity

**Organic contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and also come from gas stations, urban storm water run-off, and septic systems.

## Water Quality Data

The table below lists all the drinking water contaminants that we detected during the past year. It also includes the date and results of any contaminants that we detected within the past five years if tested less than once a year. The presence of these contaminants in the water does not necessarily show that the water poses a health risk.

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

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

**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.

**Locational Running Annual Average (LRAA):** The average of sample analytical results for samples taken at a particular monitoring location during four consecutive calendar quarters.

**Maximum Contamination Level (MCL):** The "Maximum Allowed" MCL is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

**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. MCLG's allow for a margin of safety.



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

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

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

**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)

**Parts per trillion (ppt) or Nanograms per liter (ng/l):** (one penny in ten billion dollars)

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

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

**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).

**Per- and polyfluoroalkyl substances (PFAS):** a group of over 4,000 human-made chemicals (they do not occur naturally) that have been used in industry and consumer products worldwide and includes:

(PFNA): Perfluorononanoic Acid

(PFOA): Perfluorooctanoic Acid

(PFOS): Perfluorooctane Sulfonic Acid

(PFHpA): Perfluoroheptanoic Acid

(PFHxS): Perfluorohexane Sulfonic Acid

(11Cl-PF3OUdS): 11-Chloroicosafuoro-3-oxaundecane-1-sulfonic Acid

(9Cl-PF3ONS): 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic Acid

(DONA): 4,8-Dioxa-3H-perfluorononanoic Acid

(HFPO-DA): Hexafluoropropylene Oxide Dimer Acid

(NETFOSAA): N-ethyl perfluorooctanesulfonamidoacetic Acid

(NMeFOSAA): N-methyl perfluorooctanesulfonamidoacetic Acid

(PFBS): Perfluorobutane Sulfonic Acid

(PFDA): Perfluorodecanoic Acid

(PFDoA): Perfluorododecanoic Acid

(PFHxA): Perfluorohexanoic Acid

(PFTA): Perfluorotetradecanoic Acid

(PFTrDA): Perfluorotridecanoic Acid

(PFUnA): Perfluoroundecanoic Acid

## Detected Contaminants GRANITEVILLE FIRE DISTRICT 4

Disinfection Residual	RAA	RANGE	Unit	MRDL	MRDLG	Typical Source
Chlorine	0.274	0.200 - 0.400	mg/l	4	4	Water additive to control microbes

Chemical Contaminants	Collection Date	Highest Value	Range	Unit	MCL	MCLG	Typical Source
-----------------------	-----------------	---------------	-------	------	-----	------	----------------

Nitrate	06/30/2022	0.37	0.37 - 0.37	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
Combined Radium (-226 & -228)	02/18/2022	0.7	0.7 - 0.7	pCi/L	5	0	Erosion of natural deposits
Radium-228	02/18/2022	0.7	0.7 - 0.7	pCi/L	5	0	Erosion of natural deposits

Disinfection ByProducts	Collection Year	Highest LRAA	Range	Unit	MCL	MCLG	Typical Source
Total Trihalomethanes	2022	42	34 - 42	ppb	80	0	By-product of drinking water chlorination
Total Haloacetic Acids (HAA5)	2022	21	19 - 21	ppb	60	0	By-product of drinking water chlorination

Lead and Copper	Collection Year	90th Percentile	Range	Unit	AL*	Sites Over AL	Typical Source
Lead	2022	3.6	0 - 4.7	ppb	15	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	2022	0.059	0 - 0.11	ppm	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

\*The lead and copper AL (Action Level) exceedance is based on the 90th percentile concentration, not the highest detected result.

## Violation(s) that occurred during the year

We are 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. The below table lists any drinking water violations we incurred during 2022. A failure to perform required monitoring means we cannot be sure of the quality of our water during that time.

Type	Category	Analyte	Compliance Period
CCR REPORT	Failure to Report	CONSUMER CONFIDENCE RULE	07/01/2022 - 08/29/2022
MONITORING, ROUTINE, MAJOR (RTCR)	Failure to Monitor	E. COLI	07/01/2022 - 07/31/2022

To be Completed by the Water System. List any steps taken to correct the violations listed above:

## Health Information Regarding Drinking Water

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).

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 Safe Drinking Water Hotline.

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. GRANITEVILLE FIRE DISTRICT 4 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 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 or at <http://www.epa.gov/safewater/lead>.

## Distribution Information

Please share this information with all the other people who drink this water, especially those who may not 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 and distributing copies by hand or mail.