

*Annual*  
**WATER**  
**QUALITY**  
**REPORT**

*Reporting Year 2013*



*Presented By*  
**Burlington DPW**  
**Water Division**

PWS ID#: VT0005053

## There When You Need Us

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

## Community Participation

Call us at (802) 863-4501 for information about the next opportunity for public participation in discussions about our drinking water. Find out more about Burlington Public Works Water Division on the Internet at [www.burlingtonvt.gov/dpw](http://www.burlingtonvt.gov/dpw).

## Lead in Home Plumbing

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. We are 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 [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## Directional Drill Project

The process called horizontal directional drilling or HDD was used to reconnect a section of City that dead ended at the end of Central Avenue due to a previous water main break in the area of Englesby Ravine. Instead of trying to excavate in the ravine, DPW hired a contractor to use the HDD method. The contractor started the drill under the asphalt on the Central Avenue side, down the bank, under the ravine, under a set of railroad tracks and ended up in a dirt parking area off of Flynn Avenue. The distance covered was 340 lineal feet with fused 8 inch HDPE pipe.



## In The News

We are once again pleased to present our Consumer Confidence Report for reporting year 2013. As in years past, we had no violations of state or federal standards and the plant performed well. More importantly, we met the stricter goals set by the Partnership for Safe Water and were once again awarded the Directors Award for excellence in water quality and process improvements. Receiving the Directors Award has been a source of pride in our water quality for many years.

New in this year's report is a listing of Unregulated Contaminant Monitoring Rule (UCMR) detected contaminants. This is required testing for larger water systems and the purpose is to determine what contaminants may be in the drinking water that may require annual testing by all water systems. So far the vast majority of required contaminate testing have been below detection limits and those that were detected were at low levels. A listing of detected UCMR contaminants can be found in our "Detected Contaminants" section of this report.

During this past year, we have spent considerable time and effort in looking at our treatment process, improving the plant and outlying structures, and planning future upgrades. During the past year, we have had both of the elevated storage tanks inspected inside and out, which resulted in a favorable report. We have cleaned the media in the automatic backwash filter and also replaced the media and repaired the underdrain in one of our rapid sand filters. One of our current projects is the replacement of a finished water pump that is old, oversized, and not energy efficient. A new pump and motor is on site and as soon as the remaining pieces arrive it will be installed, hopefully by early summer. Once installation is complete, we will have two energy-efficient downsized pumps that will meet our future needs. The one large project still in the planning stage is the replacement of the reservoir liners. I have stated in past reports that the liners have outlived their useful lifespans and repairing them is no longer an option. We are in hopes of putting together a bid package in the near future.

As in the past, the Water Division continues to closely monitor aspects of the plant operations, water quality, upcoming regulations, and changing trends in water treatment so we can provide the best quality potable water possible. If you have any questions or comments concerning water quality we encourage you to contact the Water Division at (802) 863-4501.



## Where Does My Water Come From?

The City of Burlington is fortunate to have Lake Champlain as a source for our raw water. Lake Champlain extends from the Canadian border south along the western side of the state for nearly 120 miles. The City of Burlington is located near the widest portion of the lake. Our point of intake is located well beyond the Burlington Harbor, which prevents contaminants that may be present in the harbor from entering our system. The intake line is also located deep enough to prevent most surface contaminants from entering and to ensure a continuous supply of water even during the most severe drought conditions. The water entering our treatment plant is of high quality, which eliminates the need to treat for large numbers of contaminants to meet safe drinking standards.

## QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Tom Dion, Chief Plant Operator, at (802) 863-4501.

## Source Protection Plan

The Burlington Public Works Water Division obtains its raw water from Lake Champlain, a surface water source. Potential sources of contamination include urban and agricultural runoff and wastewater discharges. The Water Division source protection plan was updated on August 11, 2011, as required by the Vermont Water Supply Division. The report details possible sources of contamination as well as the risks associated with each. The completed plan is available for viewing by contacting the Water Division during regular business hours.

## Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

## Important Health Information

We add fluoride to our water supply to promote public health through the prevention of tooth decay. For more information concerning fluoride, infant formula and community water fluoridation go to <http://healthvermont.gov/family/dental/fluoride/formula.aspx>.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) 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, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

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

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses;

**Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Regulation (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if EPA needs to introduce new regulatory standards to improve drinking water quality. Any UCMR3 detections are shown in the data tables in this report. Contact us for more information on this program.

### REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
<b>Fluoride</b> <sup>1</sup> (ppm)	2013	4	4	0.78	0.35–0.89	No	Erosion of natural deposits; Water additive which promotes strong teeth
<b>Haloacetic Acids [HAA]–Stage 1</b> <sup>2</sup> (ppb)	2013	60	NA	44.5	31–66	No	By-product of drinking water disinfection
<b>Haloacetic Acids–Stage 2</b> <sup>3</sup> (ppb)	2013	60	NA	45	6.1–42.9	No	By-product of drinking water disinfection
<b>Nitrate</b> (ppm)	2013	10	10	0.32	0.32–0.32	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
<b>TTHMs [Total Trihalomethanes]–Stage 1</b> <sup>2</sup> (ppb)	2013	80	NA	49.7	28–86	No	By-product of drinking water disinfection
<b>TTHMs [Total Trihalomethanes]–Stage 2</b> <sup>3</sup> (ppb)	2013	80	NA	52.5	47.6–57.5	No	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
<b>Turbidity</b> <sup>4</sup> (NTU)	2013	TT=1 NTU	NA	0.10	0.03–0.10	No	Soil runoff
<b>Turbidity</b> (Lowest monthly percent of samples meeting limit)	2013	TT=95% of samples <0.3 NTU	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community<sup>5</sup>

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
<b>Copper</b> (ppm)	2012	1.3	1.3	0.05	0/30	No	Corrosion of household plumbing systems; erosion of natural deposits
<b>Lead</b> (ppb)	2012	15	0	0	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

### SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
<b>Aluminum</b> (ppm)	2013	200	NA	0.057	0.057–0.057	No	Erosion of natural deposits; Residual from some surface water treatment processes
<b>Chloride</b> (ppm)	2013	250	NA	17	17–17	No	Runoff/leaching from natural deposits
<b>Iron</b> (ppm)	2013	300	NA	<0.020	<0.020–<0.020	No	Leaching from natural deposits; Industrial wastes
<b>Manganese</b> (ppm)	2013	50	NA	<0.020	<0.020–<0.020	No	Leaching from natural deposits
<b>pH</b> (Units)	2013	6.5–8.5	NA	7.37	7.37–7.37	No	Naturally occurring
<b>Silver</b> (ppm)	2013	100	NA	<0.020	<0.020–<0.020	No	Industrial discharges
<b>Sulfate</b> (ppm)	2013	250	NA	12	12–12	No	Runoff/leaching from natural deposits; Industrial wastes
<b>Total Dissolved Solids [TDS]</b> (ppm)	2013	500	NA	108	108–108	No	Runoff/leaching from natural deposits
<b>Zinc</b> (ppm)	2013	5	NA	0.41	0.41–0.41	No	Added for corrosion control

## UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED
Alkalinity as CaCO <sub>3</sub> (ppm)	2014	80
Calcium, Total (ppm)	2014	19
Hardness, Total as CaCO <sub>3</sub> (ppm)	2014	66
Langelier's Corrosivity (Units)	2014	-0.952
Magnesium, Total (ppm)	2014	4.4
Sodium, Total (ppm)	2014	12

## UNREGULATED CONTAMINANT MONITORING REGULATION 3 (UCMR3)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	TYPICAL SOURCE
Chlorate (ppb)	2013	480	Pyrotechnics and rain fall
Hexavalent Chromium (ppb)	2013	0.035	Stainless steel, dyes and wood preservative production
Strontium (ppb)	2013	84	Naturally occurring used to produce cathode ray tubes

<sup>1</sup> Burlington has added fluoride to the water since 1952 to promote public health through the prevention of tooth decay. On January 7, 2011, the U.S. Department of Health and Human Services announced that they were proposing to change the recommended level for community fluoridation from a range of 0.7 to 1.2 ppm to a single value of 0.7 ppm. The Burlington Water Department has reduced our fluoride to 0.7 ppm. For more information concerning fluoride, infant formula, and community water fluoridation go to <http://healthvermont.gov/family/dental/fluoride/formula.aspx>.

<sup>2</sup> The amount detected value is the result of a four quarter running average. DPW conducted an evaluation of our distribution system to identify locations that have elevated disinfection by-product concentrations. As required by the EPA, the last quarter of 2013 we began sampling at the new Stage 2 locations and the average results are based on location, versus system wide.

<sup>3</sup> Stage 2 sampling started the last quarter of 2013 as required. Four Stage 2 sample sites were chosen by the Water Division and approved by the Vermont Water Supply Division based on the detention time of the water in the distribution system. Each site will be evaluated individually unlike Stage 1 sites that were a combined four-quarter average.

<sup>4</sup> Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

<sup>5</sup> Lead and copper samples are required once every three years. Last sampled in 2012.

## Definitions

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

**MCL (Maximum Contaminant Level):** 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.

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

**MRDL (Maximum Residual Disinfectant Level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG (Maximum Residual Disinfectant Level Goal):** 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 the use of disinfectants to control microbial contaminants.

**NA:** Not applicable

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

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