Important information about your drinking water

Este informe contiene informaicon muy importante sobre la calidad de su agua beber. Traduscalo o hable con alguien que lo entienda bien.

TOWN OF FRONT ROYAL

2022 ANNUAL WATER QUALITY REPORT

PROUDLY PRESENTED BY TOWN OF FRONT ROYAL DEPARTMENT OF PUBLIC WORKS PWS ID # 2187406

www.frontroyalva.com

So Let's Talk Water

Testing Results

Last year your tap water met all U.S. Environmental Protection Agency and state drinking water health standards. The Town vigilantly safeguards its water supplies and we are proud to report that our system has not violated a maximum contaminant level or any other water quality standard.

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration remove cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immune-compromised people are at greater risk of developing life threatening illness. We encourage immune-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

Lead in Drinking Water

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 components associated with service lines and home plumbing. The Town of Front Royal 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.

Source Water Assessments

Source water assessments for the Town of Front Royal were completed by the Virginia Department of Health (VDH) on March 2, 2018. These assessments determined that the Town's three water sources may be susceptible to contamination because they are surface waters exposed to a wide array of contaminants at varying concentrations. Changing hydrologic, hydraulic, and atmospheric conditions promote migration of these contaminants from land use activities on concern within the assessment areas. More specific information can be obtained by contacting the Town Water Treatment Plant (540) 636-7474.

Important Health Information

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, organ transplant patients, HIV/AIDS or other immune system disorder patients, some elderly, and infants may be particularly at risk from infections and should seek advice about drinking water from their health care providers. The US EPA/CDC (Centers for Disease Control & 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.

Continuing Our Commitment to You

Once again, the Town of Front Royal provides you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2022. We are pleased to inform you that our compliance with all state and federal drinking water laws remains exemplary. As always, we are committed to delivering the best quality drinking water to you. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

Where does our water come from?

The Town draws surface water from three sources: the South Fork of the Shenandoah River, Happy Creek, and Sloan Creek. Our Treatment facility produces drinking water that is supplied to you through the Town's water distribution system.

How is our water treated?

Treatment begins with oxidation with addition of sodium permanganate of the raw water, followed by coagulation through the addition of Poly Aluminum Chloride, which causes the small particles in the water to adhere to one another and grow in size. Flocculation occurs next to slowly mix the water causing the particles to grow even larger. The water then passes into settling basins where the larger particles settle to the bottom of the basins. Sand and anthracite filters finish the removal of the particles not removed by settling. Before distribution, water is disinfected by UV, chlorine and lime is added for corrosion control. Finally, fluoride is added to the water for dental protection.

How is our water tested?

Our Water Treatment Plant (WTP) operators conduct approximately 100 tests each day to ensure the quality of our drinking water. The water is tested for chlorine, pH, turbidity, alkalinity, hardness, and fluoride. Thank you for your interest in our water. If you have any questions about your drinking water, please contact:

Michael Kisner, WTP Manager, at (540) 636-7474 or *mkisner@frontroyalva.com*

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. MCLG's 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 Unit): A measure of the clarity of water; Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

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 contaminants in drinking water.

During 2022, we have taken numerous samples in order to determine the presence of several substances. The table below shows a summary of these test results where contaminant levels were detected. Many contaminants have been analyzed, but were not present or below detectible limits. We feel it is important that you know exactly what and how much of a contaminant was present in the water.

The state allows 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.

Maximum Contaminant Levels (MCLs) are set at very stringent levels by the US Environmental Protection Agency. In developing the standards, EPA assumes that the average adult drinks 2 liters of water each day over a 70-year life span. EPA generally sets MCLs at levels that will result in no adverse effects for some contaminants or a one-in-ten-thousand to one-in-one-million chance of having the described health effect for other contaminants.

SUBSTANCE (UNIT OF MEASURE)	MCL (MRDL)	MCLG (MRDLG)	AMOUNT DETECTED	DATE OF SAMPLE	VIOLATION (YES/NO)	TYPICAL SOURCE
MICROBIOLOGICAL CONTAMINANTS						
TOTAL COLIFORM BACTERIA[1] (presence or absence)	PRESENCE OF COLIFORM BACTERIA IN > 1 SAMPLE PER MONTH	0	1	2022 SEPTEMBER	NO NO	NATURALLY PRESENT IN THE ENVIRONMENT
TURBIDITY[2] (ntu)	TT	N/A	0.18	JULY 2022 DAILY	NO	SOIL RUNOFF
RADIOACTIVE CONTAMINANTS						
ALPHA EMITTERS (pCi/L)	15	0	11.6	DECEMBER 2021	NO	EROSION OF NATURAL DEPOSITS
BETA/PHOTON EMITTERS (pCi/L)	50	0	4.80	DECEMBER 2021	NO	DECAY OF NATURAL OR MAN MADE DEPOSITS
COMBINED RADIUM (pCi/L)	5	0	.913	DECEMBER 2021	NO	EROSION OF NATURAL DEOPSITS
INORGANIC CONTAMINANTS						
FLUORIDE (ppm)	4	4	0.55	MAY 2022	NO	EROSION OF NATURAL DEPOSITS; DISCHARGE FROM FERTILIZER AND ALUMINUM FACTORIES; WATER ADDITIVE WHICH PROMOTES STRONG TEETH
NITRATE PLUS NITRITE (as NITROGEN) (ppm)	10	10	1.08	DECEMBER 2022 ANNUALLY	NO	RUNOFF FROM FERTILIZER USE; LEACHING FROM SEPTIC TANKS, SEWAGE; EROSION OF NATURAL DEPOSITS
BARIUM (ppm)	2	2	0.017	MAY 2022 ANNUALLY	NO	DISCHARGE OF DRILLING WASTES; DISCHARGE FROM METAL REFINERIES; EROSION OF
SODIUM (ppm)	N/A	N/A	15.4	MAY 2022 ANNUALLY	NO	EROSION OF NATURAL DEPOSITS; RUNOFF FROM ROAD DEICING CHEMICALS
TOTAL ORGANIC CARBON (TOC)						
TOTAL ORGANIC CARBON[3] (ratio of actual to required removals)	TT	NA	1.80 RANGE 1.00 to 1.9	2022 QUARTERLY	NO	NATURALLY PRESENT IN ENVIRONMENT
DISINFECTION RESIDUAL CONTAMINANTS						
CHLORINE (mg/l)	4	4	1.72 RANGE 0.6 - 2.50	2022 MONTHLY	NO	WATER ADDITIVE TO CONTROL MICROBES
DISINFECTANT BYPRODUCT CONTAMINANTS						
TTHMs TRIHALOMETHANES[4] (ppb)	80	0	69 RANGE 8.0 TO 130	2022 QUARTERLY	NO	BY-PRODUCT OF DRINKING WATER CHLORINATION
HAA5 HALOACETIC ACID[5] (ppb)	60	0	37.0 RANGE 11.0 TO 58.0	2022 QUARTERLY	NO	BY-PRODUCT OF DRINKING WATER CHLORINATION
LEAD & COPPER (MOST RECENT MONITORING PERIOD)						
LEAD (ppb)	AL=15	0	.001 NO SAMPLES > AL	JULY 2021	NO	CORROSION OF HOUSEHOLD PLUMBING SYSTEMS; EROSION OF NATURAL DEPOSITS
COPPER (ppb)	AL=1.3	1.3	0.015 NO SAMPLES > AL	JULY 2021	NO	CORROSION OF HOUSEHOLD PLUMBING SYSTEMS; EROSION OF NATURAL DEPOSITS; LEACHING FROM WOOD PRESERVATIVES

1—TOTAL COLIFORM—COLIFORMS ARE BACTERIA THAT ARE NATURALLY PRESENT IN THE ENVIRONMENT AND ARE USED AS AN INDICATOR THAT OTHER, POTENTIALLY HARMFUL, BACTERIA MAY BE PRESENT.

2—TURBIDITY IS A MEASURE OF THE CLOUDINESS OF THE WATER. WE MONITOR IT BECAUSE IT IS A GOOD INDICATOR OF WATER QUALITY AND THE EFFECTIVENESS OF OUR FILTRATION PROCESSES. TURBIDITY TREATMENT TECHNIQUE (TT) HAS A MAXIMUM CONTAMINANT LEVEL OF 1 NTU WITH ≤ 0.3 NTU LEVEL IN AT LEAST 95% OF ALL SAMPLES TESTED.

3—TOTAL ORGANIC CARBON (TOC) HAS NO HEALTH EFFECTS BUT PROVIDES FORMATION MEDIUM FOR DISINFECTION BY-PRODUCTS. THESE BY-PRODUCTS INCLUDE TRIHALOMETHANES (TTHM) AND HALOACETIC ACIDS (HAA5).

4—SOME PEOPLE WHO DRINK WATER CONTAINING TOTAL TRIHALOMETHANES IN EXCESS OF MCL OVER MANY YEARS COULD EXPERIENCE PROBLEMS WITH THEIR LIVER, KIDNEYS, OR CENTRAL, NERVOUS SYSTEMS, AND MAY HAVE INCREASED RISK OF GETTING CANCER.

5—SOME PEOPLE WHO DRINK WATER CONTAINING HALOACETIC ACIDS IN EXCESS OF THE MCL OVER MANY YEARS MAY HAVE INCREASED RISK OF GETTING CANCER.

VIOLATION INFORMATION

Water Quality, Monitoring and Reporting Violations: The Town of Front Royal is in full compliance with all water quality, monitoring and reporting requirements and no violations occurred during the 2022 calendar year.