

Important information
about your drinking water

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portante sobre la calidad de su agua beber. Tra-
duscalo o hable con alguien que lo entienda bien.

TOWN OF FRONT ROYAL

2024
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

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, 2024.

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 151 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: Matthew McDunn, Manager of Water Treatment, at (540) 636-7474 or mmcdunn@frontroyalva.com**

Testing Results

While three violations occurred in the year 2024, subsequent testing confirmed that 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 any maximum contaminant level.

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

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 Town of Front Royal is responsible for providing high quality drinking water and removing lead pipes, but cannot control the variety of materials used in plumbing components in your home. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. If you are concerned about lead in your water and wish to have your water tested, contact the Town of Front Royal Water Treatment Plant at 540-636-7474. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available 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.

This report will not be mailed, copies are available upon request by contacting Matthew McDunn at 540-636-7474 or emailing mmcdunn@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 2024, 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.

TABLE OF REGULATED CONTAMINANTS						
SUBSTANCE (UNIT OF MEASURE)	MCL	MCLG	AMOUNT DETECTED	DATE OF SAMPLE	VIOLATION (YES/NO)	TYPICAL SOURCE
TURBIDITY						
TURBIDITY ^{1, 2} (ntu)	TT	N/A	0.3	SEPTEMBER 2024	NO	SOIL RUNOFF
RADIOACTIVE CONTAMINANTS						
ALPHA EMITTERS (pCi/L)	15	0	11.6	MAY 2021	NO	EROSION OF NATURAL DEPOSITS
BETA/PHOTON EMITTERS (pCi/L)	50	0	4.80	MAY 2021	NO	DECAY OF NATURAL OR MAN MADE DEPOSITS
COMBINED RADIUM (pCi/L)	5	0	.913	MAY 2021	NO	EROSION OF NATURAL DEPOSITS
INORGANIC CONTAMINANTS						
FLUORIDE (ppm)	4	4	0.58	APRIL 2024	NO	EROSION OF NATURAL DEPOSITS; DISCHARGE FROM FERTILIZER AND ALUMINUM FACTORIES; WATER ADDITIVE WHICH PRO- MOTES STRONG TEETH
NITRATE (ppm)	10	10	0.53	APRIL 2024	NO	RUNOFF FROM FERTILIZER USE; LEACHING FROM SEPTIC TANKS, SEWAGE; EROSION OF NATURAL DEPOSITS
BARIUM (ppm)	2	2	0.015	APRIL 2024	NO	DISCHARGE OF DRILLING WASTES; DISCHARGE FROM METAL REFIN- ERIES; EROSION OF NATURAL DEPOSITS
TOTAL ORGANIC CARBON (TOC)						
TOTAL ORGANIC CARBON ³ (ratio of actual to required removals)	TT	NA	11.00 RANGE 1.00 to 2.73	2024 QUARTERLY	NO	NATURALLY PRESENT IN ENVIRONMENT
DISINFECTION RESIDUAL CONTAMINANTS						
CHLORINE (ppm)	4 (MRDL)	4 (MRDLG)	1.46 RANGE 0.4- 2.80	2024 MONTHLY	NO	WATER ADDITIVE TO CONTROL MICROBES
DISINFECTANT BYPRODUCT CONTAMINANTS						
TTHMs TRIHALOMETHANES (ppb)	80	0	67.0 RANGE 11.0 TO 75.8	2024 QUARTERLY	NO	BY-PRODUCT OF DRINKING WATER CHLORINATION
HAA5 HALOACETIC ACID (ppb)	60	0	39.0 RANGE 11.6 TO 49.4	2024 QUARTERLY	NO	BY-PRODUCT OF DRINKING WATER CHLORINATION
LEAD & COPPER (MOST RECENT MONITORING PERIOD)						
LEAD (ppm)	AL=15	0	<2.5 RANGE <2.5-57.4 1 SAMPLE > AL	SEPTEMBER 2024	NO	CORROSION OF HOUSEHOLD PLUMBING SYSTEMS; EROSION OF NATURAL DEPOSITS
COPPER (ppm)	AL=1.3	1.3	0.0299 RANGE <0.005- 0.1980 NO SAMPLES > AL	SEPTEMBER 2024	NO	CORROSION OF HOUSEHOLD PLUMBING SYSTEMS; EROSION OF NATURAL DEPOSITS; LEACHING FROM WOOD PRESERVATIVES
UNREGULATED CONTAMINANT						
SODIUM (ppm)	N/A	N/A	16.0	APRIL 2024	NO	EROSION OF NATURAL DEPOSITS; RUNOFF FROM ROAD DEICING CHEMICALS
¹ —TURBIDITY IS A MEASURE OF THE CLOUDINESS OF THE WATER. WE MONITOR IT BECAUSE IT IS A GOOD INDICATOR OF OUR WATER QUALITY AND THE EFFECTIVENESS OF FILTRATION PROCESS.						
² —TURBIDITY TREATMENT TECHNIQUE (TT) MCL: 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).						

VIOLATION INFORMATION

Monitoring and Reporting Violations: During the January 2024 monitoring period, due to a laboratory error, we did not complete all monitoring for coliform bacteria and chlorine residual concentrations. The Town of Front Royal completed all required sampling and received complete results for the monitoring in February of 2024. All samples showed the absence of total coliform bacteria. At that time, we returned to full compliance with the *Waterworks Regulations*. During the third quarter 2024 monitoring period, we did not collect routine samples for disinfection byproducts during the month approved in our Disinfectants, Disinfection Byproducts Monitoring Plan. We were required to collect samples during August 2024 and instead collected them during September 2024. We returned to compliance with the *Waterworks Regulations* during the fourth quarter 2024 monitoring period. During the third quarter 2024 monitoring period, we did not collect routine samples for disinfection byproduct precursors. Therefore, the Town of Front Royal could not be certain of the quality of drinking water at that time. Disinfection byproducts and disinfection byproducts precursor samples were collected during the fourth quarter 2024 monitoring period, at which time we returned to full compliance with the *Waterworks Regulation*.