



THE CITY AND COUNTY OF BROOMFIELD

2023 Annual Drinking Water Quality Report

Public Water Supply ID# CO0107155

Drinking WATER & HEALTH

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that 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 contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the **Environmental Protection Agency Safe Drinking Water Hotline (800-426-4791)**.

Special Health Concerns

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 microbial contaminants are available from the **Safe Drinking Water Hotline (800-426-4791)**.

Lead in Drinking Water and Its Effects on Children

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 and County of Broomfield 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 City and County of Broomfield Water Quality Lab (303-464-5606). 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>.



The City and County of Broomfield is again pleased to provide you with our Annual Water Quality Report, summarizing water quality data collected from January 1 to December 31, 2023. The Colorado Department of Public Health and Environment requires all public water systems to inform consumers about their water sources, water treatment processes, and levels of regulated contaminants in drinking water distributed to consumers during the past calendar year. Much more information about Broomfield's drinking water may be obtained by visiting the Environmental Services page of Broomfield's web site (www.broomfield.org) or by calling the Water Quality Lab at 303-464-5606. Broomfield's water supply, treatment, and delivery professionals are committed to providing you with drinking water that is safe, pleasing and dependable.

You're Invited ...

We welcome your input on any water quality or service issue. Broomfield City Council provides opportunities for public input and regularly meets on the 2nd and 4th Tuesdays of each month at 6:00 pm at the City and County Building, One DesCombes Drive. Meetings may be watched live on Channel 8. Notice of upcoming agendas is published on our website at www.broomfield.org, and is posted at the City and County Building.

En Español

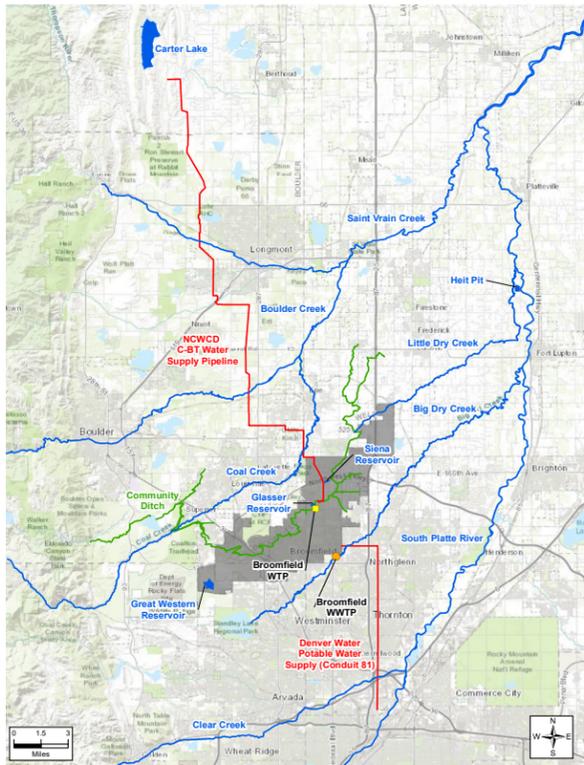
Este informe contiene información muy importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Broomfield's WATER SOURCES

Broomfield is fortunate to have two sources of high-quality drinking water – water treated at our Water Treatment Plant, and treated water purchased from Denver Water. The two sources are allowed to mix in the distribution system. All of Broomfield's drinking water, whether supplied by Broomfield or Denver Water, comes from surface water sources such as rivers, lakes, and reservoirs.

Denver Water may deliver treated water to its municipal customers from any of its three treatment facilities. Water supplying these facilities comes from Denver Water's extensive Moffat and South Platte River collection systems.

The water supply for Broomfield's treatment facility originates in the Colorado and Fraser Rivers west of the Continental Divide, and is delivered through the Northern Colorado Water Conservancy District's Colorado-Big Thompson (C-BT) Project. On the eastern slope, Broomfield's water is stored in Carter Lake near Berthoud. From there, it is transported to Broomfield's Water Treatment Plant via a 33-mile pipeline, and stored in Matthew D. Glasser Reservoir, a small storage reservoir adjacent to the treatment facility.



Drinking Water Treatment Process

Broomfield's Water Treatment Plant was updated in 2020, and expanded to a capacity of 26 million gallons of water per day. Chemicals specially formulated for drinking water treatment are added to the raw water to remove particles, microorganisms and other contaminants. Water is then filtered to remove any remaining particles, and disinfected with chloramines to inactivate bacteria and viruses and prevent harmful organisms from growing in the distribution system. Fluoride is added to help prevent tooth decay, and sodium carbonate is added for corrosion control. Certified Water Treatment Operators monitor the treatment process continuously to ensure consistent quality and safety.

Drinking Water Contaminant Sources

Drinking water contaminants may occur naturally, or result from human activity. Contaminants may be present in the source water, introduced during the treatment process, or develop after the water leaves the treatment facility.

Source Water. 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 land surface or through the ground, it dissolves naturally occurring minerals and other contaminants resulting from the presence of animals or from human activity. For example:

- **Microbial contaminants** such as viruses and bacteria may come from sewage treatment plants, septic systems, agriculture, livestock operations, household pets, and wildlife.
- **Inorganic contaminants** such as salts and metals can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides** may come from sources such as agriculture, urban stormwater runoff, and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, can be byproducts of industrial processes such as petroleum production, or come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** can be naturally occurring or result from oil and gas production and mining activities.

Treatment Process. Some regulated substances are introduced during the water treatment process, or as a result of treatment. Examples include fluoride, disinfectants, and disinfection by-products.

After Treatment. After treatment, the interaction of treated water with water mains and household plumbing may contribute other substances, such as lead and copper, to consumers' tap water.

Source Water Protection

The best place to prevent or minimize contaminants is at the source! The State of Colorado has developed a Source Water Assessment & Protection (SWAP) program to provide information and encourage community-based source water protection and preventive management strategies to keep our water resources safe from future contamination. You may obtain a copy of the report by visiting www.colorado.gov and searching on 'source water assessment,' or by contacting the Water Quality Lab at **303-464-5606**.

The Source Water Assessment Report provides a screening-level evaluation of potential contamination that **could** occur. It does not mean that the contamination **has or will** occur. We can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your home. In addition, the source water assessment results provide a starting point for developing a source water protection plan.

Potential sources of contamination that may exist are: EPA areas of concern; permitted wastewater discharge sites; above ground, underground and leaking storage tank sites; solid waste sites; existing or abandoned mine sites; other facilities; commercial, industrial and transportation activities; residential, urban recreational grasses; quarries, strip mines and gravel pits; agriculture; forests; septic systems; oil and gas wells; and roads.

Water CONSERVATION

In addition to protecting our source water, we can all increase our efforts to use water more wisely. To preserve this limited resource, **Broomfield is asking its customers to closely follow the watering guidelines developed in cooperation with other Front Range communities. The guidelines are available on the Water Resources web page at www.broomfield.org/439/Landscape-Watering-Tips.** These guidelines offer a common sense approach to using water as efficiently as possible. Efforts to use water efficiently help reduce the risk of future drought-driven water shortages and mandatory watering restrictions. Broomfield offers free irrigation audits; incentives for lawn replacement; and rebates for toilets, irrigation controllers, irrigation heads, rain barrels, and whole home water monitoring systems to help residents and businesses achieve long-term water efficiency. Please visit www.broomfield.org/savewater for more information about Broomfield's water efficiency programs.



WATER QUALITY DATA

During 2023, Broomfield's Water Treatment staff and Certified Drinking Water Laboratory performed more than 25,000 tests for about 100 different regulated contaminants. The **Detected Contaminants Table** lists all the detected regulated drinking water contaminants that Broomfield water consumers could have received during the 2023 calendar year. Contaminants not reported in the table were not detected.

What's the bottom line?

Last year, as in years past, your tap water met or surpassed all EPA and Colorado health standards for drinking water. Although some regulated contaminants were detected, the levels were below limits established by EPA.

Other water quality questions?

Our 2023 monitoring results for other parameters that may be of interest are reported in the **Water Quality Characteristics table**. These may affect water's taste, smell or appearance, or how much detergent we use. For more information about water quality concerns or this report, please call the Water Quality Lab at **303-464-5606**, or the Water Treatment Plant at **303-464-5600**.

Terms, Abbreviations, and Symbols Used in This Report

ppm: parts per million, or milligrams per liter (mg/L). In dollars, 1 ppm = 1 cent in \$10,000

ppb: parts per billion, or micrograms per liter (µg/L). In dollars, 1 ppb = 1 cent in \$10,000,000

pCi/L: picocuries per liter, a measure of the radioactivity in water.

Maximum Contaminant Level Goal (MCLG): 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.

Maximum Contaminant Level (MCL): 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.

Violation: A failure to meet a Colorado Primary Drinking Water Regulation.

Range of Individual Samples: The lowest sample result to the highest sample result.

Average of Individual Samples: The sum of all sample results divided by the number of sample results.

Secondary Maximum Contaminant Level (SMCL): A non-enforceable, recommended limit for a substance that affects the taste, odor, color or other aesthetic qualities of drinking water, rather than posing a health risk.

Maximum Residual Disinfectant Level (MRDL): 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.

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 the use of disinfectants to control microbial contamination.

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

Turbidity: Turbidity is a measure of the cloudiness of the water. It is measured in "Nephelometric Turbidity Units," or NTU.

Locational Running Annual Average (LRAA): An average of monitoring results for the previous 12 calendar months at a specific sampling location.

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

N/A: Not Applicable **ND:** Not Detected

BRL: Below the Reportable level

Minimum Reporting Level (MRL): The lowest concentration that can be reliably reported using a particular analytical method.

Secondary and Unregulated Water Quality Characteristics

Constituent	Unit	Recommended Limit (if any)	Range in Distribution System (Minimum - Maximum)
Secondary Constituents (Recommended Limit is the SMCL)			
Aluminum	ppm	0.05 – 0.2	0.011 - 0.054
Chloride	ppm	250	4.3 - 32
Copper	ppm	1	ND - 0.047
Fluoride	ppm	2	0.3 - 1.0
Iron	ppb	300	ND - 46
Manganese	ppb	50	0.23 - 16
Silver	ppm	0.1	ND - 0.00015
Sulfate	ppm	250	18 - 88
Total Dissolved Solids	ppm	500	63 - 240
Zinc	ppm	5	ND - 0.011
Unregulated Constituents			
Hardness (as CaCO ₃)	ppm	<50 = "soft" >150 = "hard"	24 - 140
	grains per gallon	<3 = "soft" >8.8 = "hard"	1.4 - 7.9
Calcium	ppm	N/A	7.8 - 64
Magnesium	ppm	N/A	1.4 - 8.5
Nickel	ppm	0.1	ND - 0.002
Potassium	ppm	N/A	0.72 - 2.3
Sodium	ppm	N/A	15 - 27

DETECTED CONTAMINANTS TABLE

Sampled at the Entry Point to the Distribution System (Broomfield and/or Denver Water)										
Contaminant	Year	CCR Units	EPA Goal (MCLG)	Highest Level Allowed (MCL)	Average	Range of Individual Samples	MCL Violation	Sample Date/Frequency	Typical Sources	
Arsenic	2022	ppb	0	10	0.41	0.41	No	2022 / every 9 years	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production waste	
Barium ¹	2023	ppm	2	2	0.041	0.039 to 0.047	No	Quarterly	Erosion of natural deposits; discharge of drilling waste	
Cadmium	2022	ppb	5	5	0.11	0.11	No	2022 / every 9 years	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	
Chromium	2022	ppb	100	100	0.67	0.67	No	2022 / every 9 years	Erosion of natural deposits, discharge from steel and pulp mills	
Combined Radium (Ra-226 and Ra-228)	2020	pCi/L	0	5	1.3	1.3	No	2020 / every 6 years	Erosion of natural deposits, mine drainage, industrial or manufacturing discharges	
Fluoride ¹	2023	ppm	4	4 (SMCL=2)	0.62	0.54 to 0.74	No	Monthly	Water additive to promote strong teeth, erosion of natural deposits, discharge from fertilizer and aluminum factories	
Gross Alpha ¹ (excluding Uranium)	2023	ppm	4	15	3.4	1.1 to 5.6	No	2023 / every 6-9 years	Erosion of natural deposits, mine drainage; industrial or manufacturing discharges	
Nickel ¹ (monitoring required, but no MCL)	2023	ppb	N/A	N/A	0.94	BRL to 1.5	No	Quarterly	Discharge from industrial uses such as transportation, chemical industry, electrical equipment and construction	
Nitrate, as Nitrogen ¹	2023	ppm	10	10	0.091	BRL to 0.17	No	Monthly	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	
Sodium ¹ (monitoring required, but no MCL)	2023	ppm	N/A	N/A	24	21.5 to 27.0	No	Quarterly	Naturally present in the environment; water additive to prevent premise plumbing corrosion	
Uranium, combined ¹	2023	ppb	0	30	0.5	BRL to 0.8	No	Quarterly	Erosion of natural deposits	
Sampled at Broomfield's Water Treatment Facility										
Disinfection Byproduct Precursor	Year	Unit of Measure	TT Minimum Ratio		Average RAA	Range of Individual Ratio Samples	TT Violation	Number of Samples	Typical Sources	
Total Organic Carbon Ratio	2023	Ratio	1		1.36	1.15 to 1.73	No	12	Naturally present in the environment	
Contaminant	Year	TT Requirement			Results		TT Violation	Sample Date/Frequency	Typical Sources	
Turbidity ²	2023	Maximum of 1 NTU for any single measurement			Highest single measurement: 0.08 NTU		No	September/ Every 4 hours	Soil runoff	
	2023	Each month, at least 95% of samples must be less than 0.3 NTU			Lowest % of samples less than 0.3 NTU: 100 %		No	Jan - Dec Every 4 hours		
Corrosion Control Treatment	Year	TT Requirement	Jan - Jun Daily Averages	Jul - Dec Daily Averages	Excursion Dates		TT Violation	Sample Date/Frequency	Typical Sources	
pH	2023	Daily Average between 8.7 - 9.1	8.7 to 9.0	8.7 to 9.1	None		No	Daily	Water Treatment chemicals used to control pH	
Alkalinity		Daily Average greater than 25 mg/L	29 to 57	38 to 59	None		No	Daily	Water Treatment chemicals used to control Alkalinity	
Sampled in the Distribution System										
Disinfection Byproduct	Year	CCR Units	MCLG	MCL	Highest Compliance Value (LRAA) ⁴	Range of Compliance Values (LRAA)	Range of Individual Samples	MCL Violation	Number of Samples	Typical Sources
Total Trihalomethanes (TTHM)	2023	ppb	0	80	30	21 - 30	11 - 36	No	32	Byproducts of chlorine disinfection of drinking water
Haloacetic acids (HAA5)	2023	ppb	0	60	19	15 - 19	9.5 - 25	No	32	
Disinfectant	Year	CCR Units	EPA Goal (MRDLG)	Highest RAA Allowed	Average RAA		Range of Individual Samples	MRDL Violation	Sample Date/Frequency	Typical Sources
Total Chlorine (chloramine)	2023	ppm	< 4	4.0	2.7		1.3 - 3.2	No	110 per month	Water additive used to control microbes
Disinfectant	Year	TT Requirement			Results		Number of Samples Below Level	TT Violation	Sample Date/Frequency	Typical Sources
Total Chlorine (chloramine)	2023	At least 95% of samples each month must be at least 0.2 ppm.			Lowest monthly percentage of samples meeting TT Requirement: 100%		None (0)	No	110 samples per month	Water additive used to control microbes
Corrosion Control Treatment	Year	TT Requirement			Jan - Jun Daily Averages	Jul - Dec Daily Averages	Excursion Dates	TT Violation	Sample Date/Frequency	Typical Sources
pH	2023	8.5 - 9.1 for each site			8.7 - 9.1	8.5 - 9.0	None	No	Quarterly	Water Treatment chemicals used to control pH
Alkalinity		Greater than 20 mg/L for each site			39 - 73	42 - 62	None	No		Water Treatment chemicals used to control Alkalinity
Sampled at the Consumer's Tap										
<i>Residential lead and copper monitoring is now required every 6 months due to a recent treatment change.</i>										
Contaminant	Year	CCR Units	Action Level (AL) ⁵	90th Percentile	Sample Sites Above AL	Number of Samples	90th Percentile AL Exceedance	Sample Date/Frequency	Typical Sources	
Lead	1st Half	ppb	15	3.1	2	107	No	April - June Every 6 months	Corrosion of household plumbing; erosion of natural deposits	
		ppm	1.3	0.03	0	107	No			
Copper	2nd Half	ppb	15	4.4	2	106	No	October - December Every 6 months	Corrosion of household plumbing; erosion of natural deposits	
		ppm	1.3	0.03	0	106	No			

¹ Denver Water data. We report the maximum detected concentration that Broomfield water customers could have received, from either Broomfield or Denver Water sources.

² Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth.

³ Total Organic Carbon Removal Ratio and Total Chlorine Residual Disinfectant Level are regulated as a running annual average (RAA).

⁴ TTHM and HAA5 are regulated as a locational running annual average (LRAA), not a single value.

⁵ The Action Levels for lead and copper apply to the 90th percentile of all samples collected; 90% of the sample results must be below the Action Level.

DENVER WATER

SIGNIFICANT DEFICIENCIES

Because Denver Water (C00116001) regularly provides finished drinking water to the City and County of Broomfield, we are required to provide you with this information about ongoing mitigation of deficiencies discovered in September 2022.

Public water suppliers are required to notify customers of unresolved deficiencies in design, operation, maintenance, administration, or a failure or malfunction in a system component, including sources, treatment, storage or distribution system that have the potential to cause risks to the reliable delivery of safe drinking water.

What happened?

During a state inspection in September 2022, inspectors found deficiencies related to cross-connection and storage conditions. Denver Water is diligently working with the state health department to make necessary repairs. There is no evidence that the water you drink was affected by these deficiencies.

1. Cross-connection: Denver Water is working with the state health department to install more cross-connection devices at Foothills treatment plant. Denver Water plans to complete installation by May 2025.
2. Storage conditions: State inspectors found that the hatches on the 56th Avenue Tank were installed incorrectly. Denver Water is repairing the hatches according to the corrective action plan; repairs will be completed by December 2024.

How did this impact drinking water quality?

There is no evidence that the water you drink was affected by these deficiencies.

What has been done to correct this situation?

In all instances, Denver Water worked quickly with the state health department to develop a corrective action plan and make necessary repairs.

Unregulated Contaminant Monitoring Round 5 (UCMR5)

EPA implemented the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act. EPA uses the results of UCMR monitoring to learn about the occurrence of unregulated contaminants in drinking water and to decide whether or not these contaminants will be regulated in the future. We performed monitoring and the analytical results were reported to EPA in accordance with UCMR. Once EPA reviews the submitted results, they are made available in the EPA's National Contaminant Occurrence Database (NCOD), which can be accessed by the public at <https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#5>.

No contaminants were detected at Broomfield's Water Treatment Plant during UCMR5 monitoring in 2023.

For Denver Water, two of their water treatment plants detected lithium as shown below. Contact the Water Quality Lab at [303-464-5606](tel:303-464-5606) for more information.

Denver Water Treatment Plant	Foothills	Marston
Parameter	Lithium	Lithium
Year	2023	2023
Average	5.3	9.23
Range	BRL to 10.8	9.0 to 9.4
Unit of Measure	ppb	ppb
MRL	9	9

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