2024

Water Quality Report

INFORME DE CALIDAD DE AGUA

DENVER WATER

Photo credit: iStock/LorenzoPatoia.

WHAT IS THIS REPORT?

The Environmental Protection Agency requires public water suppliers that serve the same people year-round (community water systems) to provide consumer confidence reports to their customers. These reports are also known as annual water quality reports. This report summarizes information regarding water sources used, any detected contaminants, compliance and educational information.

Where does your water come from?

Denver's drinking water comes from rivers, lakes, streams, reservoirs and springs fed by high-quality mountain snowmelt. Denver Water's supply is 100% surface water that covers about 4,000 square miles of watersheds on both sides of the Continental Divide.

Mountain water sources

Denver Water's water sources include the upper South Platte River, the upper Blue River, Bear Creek, South Boulder Creek, Ralston Creek, tributaries to the Fraser River, and the upper Williams Fork River. Denver Water stores its water in five mountain reservoirs: Antero, Eleven Mile Canyon, Cheesman, Dillon and Gross. From these reservoirs, the water is sent to the metro area through a complex system of streams, canals and pipes to be treated.

After treatment, drinking water is fed by both gravity and pumps to a system of underground, clean-water reservoirs before continuing to your home or business. More than 3,000 miles of water mains — enough to stretch from Los Angeles to New York — carry water to Denver Water customers.

Source water assessment

The Colorado Department of Public Health and Environment has completed a source water assessment of the potential for contaminants reaching any of Denver Water's three terminal reservoirs at Strontia Springs, Marston and Ralston, the last stop for water before it is treated. The 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.

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 high-quality drinking water is delivered to your home.

For general information, or to obtain a copy of the report, please visit **wqcdcompliance.com/ccr.** The report is located under "Guidance: Source Water Assessment Reports." Search the table using 116001, Denver Water Board, or call Denver Water Customer Care at **303-893-2444.**

Información importante acerca de la calidad del agua

Para recibir la versión en español del Informe de Calidad de Agua de 2024 de Denver Water, llame a Servicio al cliente al **303-893-2444** o visite **denverwater.org/2024CalidadDeAgua.**

Image credit: Denver Water.

DENVER WATER'S SYSTEM

Devoted to water quality

Denver Water proudly serves high-quality water to 1.5 million people in the city of Denver and many surrounding suburbs. Since 1918, we have expertly planned, developed and operated a complex system that provides clean, safe, great-tasting water. Denver Water is a public agency funded by water rates, new tap fees and the sale of hydropower, not taxes. We are Colorado's oldest and largest water utility — Denver Water has a total water service area of approximately 300 square miles.

Denver Water serves 25% of the state's population with less than 2% of all the water used in the state. The natural environment is our lifeline, and we help protect it by promoting wise water use. We take our water quality very seriously. Last year we collected more than 55,000 samples and conducted more than 200,000 tests to ensure our water is as clean and safe as possible. Denver Water is required by state and federal law to monitor for — and provide this report on — regulated contaminants in drinking water.

Denver Water also goes above and beyond these requirements to monitor for additional compounds in drinking water. This information is available on our website at **denverwater.org/TreatedWater.**

Reservoir	Capacity (acre-feet)	Percent of Total Capacity
Dillon	257,304	36.7
Eleven Mile Canyon	97,779	14.0
Williams Fork	96,822	13.8
Cheesman	79,064	11.3
Gross	41,811	6.0
Chatfield (Denver's portion)	28,709	4.1
Wolford Mountain (Denver's portion)	25,610	3.7
Antero	20,122	2.9
Marston	19,108	2.7
Ralston	10,776	1.5
Strontia Springs	7,864	1.1
Meadow Creek	5,370	0.8
South Complex	3,561	0.5
North Complex (current gravity storage)	3,495	0.5
Long Lakes	1,787	0.3
Platte Canyon	910	0.1
Soda Lakes (Denver Water's portion)	615	0.1
Total	**700,707**	**100**

SOURCES OF DRINKING WATER

Photo credit: Denver Water

Sources of drinking 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 and, in some cases, radioactive material. It can also pick up substances resulting from human activity and the presence of animals. Contaminants may include the following:

Microbial contaminants

Viruses, bacteria and other microbes that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants

Salts and metals, which can naturally occur or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides and herbicides

Chemical substances resulting from a variety of sources, such as agricultural and urban stormwater runoff, and residential uses.

Organic chemical contaminants

Substances including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban stormwater runoff and septic systems.

Radioactive contaminants

Substances that can be naturally occurring or be the result of oil and gas production, and mining activities.

Photo credit: Denver Water.

WATER AT A GLANCE

All 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. In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment's regulations set limits on the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration sets limits for contaminants in bottled water to provide the same protection for public health.

More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at **800-426-4791** or by visiting **epa.gov/ground-water-and-drinking-water.**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people, such as people with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants, can be particularly at risk of infections.

Those at risk should seek advice about drinking water from their health care providers. Guidelines from the EPA and the Centers for Disease Control and Prevention 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 REDUCTION PROGRAM

Denver Water is committed to delivering safe water to our customers. The water we provide to homes and businesses is lead-free, but lead can get into the water as it moves through customer-owned water service lines and household plumbing that contain lead.

Service lines bring water into a home or building from Denver Water's main delivery pipe in the street. In Denver Water's experience, homes built prior to 1951 are more likely to have lead service lines. Homes built before 1987 may have lead solder connecting copper pipes in their plumbing. Faucets and fixtures made before 2014 do not meet today's "lead-free" requirements.

Lead exposure can cause serious health problems for all age groups, especially pregnant people and young children.

To address this issue, Denver Water has launched the Lead Reduction Program, which was approved in December 2019 by the Environmental Protection Agency and Colorado Department of Public Health and Environment.

The Lead Reduction Program has five main components:

- Managing our system's water chemistry, including an increased pH level to reduce the risk of lead getting into drinking water from lead service lines or household plumbing.
- Maintaining (and updating) a publicly accessible inventory of all customer-owned lead service lines in Denver Water's service area. This interactive map is available at **denverwater.org/Lead.** An interactive map of current construction is also available at **denverwater.org/Pipes.**
- Providing a free water pitcher and filters that are certified to remove lead to all customers suspected of having a lead service line until their line is replaced, and for six months after.
- Replacing the entire inventory of lead service lines within our service area with copper lines at no direct charge to the customer. All lead service lines are

slated to be removed by 2035. In late 2022, newly awarded federal funding has accelerated the Lead Reduction Program. For every 4,500 of additional lead service lines replaced using these funds, the overall length of the program can be shortened by one year.

- Ongoing communication, outreach and education to reach and engage with the diverse communities we serve.

How the program came to be

Since 1992, as part of the EPA's Lead and Copper Rule, Denver Water has monitored water quality in homes that have service lines or plumbing that contain lead.

Only once, in 2012, did test results from those homes indicate additional action was needed to protect public health, and Denver Water remains in compliance today. However, Denver Water is still required to implement the best plan to reduce the risk of lead in tap water in homes with lead-containing plumbing or service lines.

That plan is the Lead Reduction Program, which is now underway. Learn more about this effort and the program at **denverwater.org/Lead.**

If you are concerned about lead, you can request to have your water tested. Denver Water customers can request a free lead test kit at **denverwater.org/Leadtest.**

Information on lead in drinking water, testing and steps to minimize exposure is available from the Safe Drinking Water Hotline at **800-426-4791**, at **epa.gov/safewater/lead** and at **denverwater.org/Lead.**

Photo credit: Denver Water.

IS THERE A PRESENCE OF CRYPTOSPORIDIUM AND GIARDIA?

Denver Water has tested for *Cryptosporidium* (crypto) and giardia in both raw and treated water since the 1980s. Since that time, Denver Water has never detected a viable indication of either in the drinking water.

Crypto and giardia are microscopic organisms that, when ingested, can cause diarrhea, cramps, fever and other gastro-intestinal symptoms. Crypto and giardia are usually spread through means other than drinking water.

While most people readily recover from the symptoms, crypto and giardia can cause more serious illness in people with compromised immune systems. The organisms are in many of Colorado's rivers and streams and are a result of animal wastes in the watershed. At the treatment plants, Denver Water removes crypto and giardia through effective filtration, and giardia is also killed by disinfection.

WHAT ARE PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES (PFAS)?

PFAS, short for perfluoroalkyl and polyfluoroalkyl substances, are chemical compounds manufactured and used for decades to repel water, grease and oil. They can be found in many common products, including firefighting foam, carpets, clothing, nonstick cookware, food packaging, plastic coating, dental floss and some high-end ski waxes.

The chemicals don't easily break down, earning themselves the nickname "forever chemicals." Research by the Centers for Disease Control and Prevention shows most people in the United States have been exposed to some PFAS. Research suggests exposure to high levels of certain PFAS may lead to health impacts.

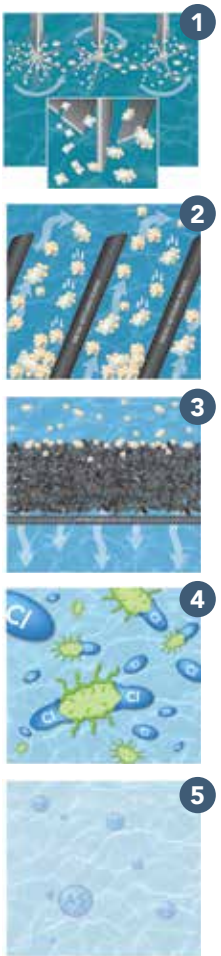
Denver Water is committed to providing a clean, safe water supply for our customers that meets or goes beyond state and federal drinking water standards. Our water quality experts have been studying the evolving information about these chemicals and are involved in discussions with legislators, state and local regulators and other utilities on how to best find, control, remove and prevent PFAS contamination in water.

We also have tested for PFAS-related compounds in the source water that comes into our treatment plants and the drinking water that leaves our treatment plants since 2017 and have not detected anything above the Environmental Protection Agency's new regulatory limits.

To learn more about PFAS monitoring in Denver Water's collection system, visit **denverwater.org/PFAS.**

THE TREATMENT PROCESS

The treatment process consists of five steps:.



1 COAGULATION/ FLOCCULATION

Raw water is drawn into mixing basins at our treatment plants where we add positively charged coagulant and polymer to bond with the negatively charged particles that are suspended in the water that we want to remove. As the negatively charged particles and the positively charged coagulants are joined together, they form larger particles called floc.

2 SEDIMENTATION

Over time, the now larger floc particles become heavy enough to settle to the bottom of a basin from which sediment is removed.

3 FILTRATION

The water is then filtered through layers of filter media made of anthracite coal. As the water moves through the filter media, larger particles get caught in the spaces between the grains of anthracite, and clear water emerges.

4 DISINFECTION

As protection against any bacteria, viruses and other microbes that might remain, disinfectant is added before the water flows into underground reservoirs throughout the distribution system and into your home or business. Denver Water carefully monitors the amount of disinfectant added to maintain quality of the water at the farthest reaches of the system. Fluoride occurs naturally in our water but is also added to treated water, when needed, to achieve public health levels.

5 CORROSION CONTROL

Treatment operators maintain the water's pH by adding alkaline substances to reduce corrosion in the distribution system and the plumbing in your home or business.

Photo credit: iStock/PeopleImages.

SIGNIFICANT DEFICIENCIES

Public water suppliers are required to notify customers of unresolved deficiencies in design, operation, maintenance or 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 working diligently 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 with the state health department to develop a corrective action plan and make necessary repairs.

REGULATED WATER CONTAMINANTS: WHAT IS IN THE WATER?

TERMS, ABBREVIATIONS AND SYMBOLS

Some of the terms, abbreviations and symbols contained in this report are unique to the water industry and might not be familiar to all customers. Terms used in the table are explained below.

action level (AL)
Concentration of a contaminant that if exceeded triggers treatment or other requirements that a water system must follow.

average
Typical value.

below reporting level (BRL)
Below the reportable level for an analysis or below the lowest reliable level that can be measured.

compliance value
Single or calculated value used to determine if a regulatory contaminant level is met. Examples of calculated values include average, 90th percentile, running annual average, locational running annual average.

contaminant
Potentially harmful physical, biological, chemical or radiological substance.

formal enforcement action
Escalated action taken by the state (due to the risk to public health, or number or severity of violations) to bring a noncompliant water system back into compliance.

gross alpha
Gross alpha particle activity compliance value. It includes radium-226, but excludes radon 222 and uranium.

Level 1 assessment
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 very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli maximum contaminant level 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 results for samples collected at a particular monitoring location during the most recent four calendar quarters.

maximum contaminant level (MCL)
Highest level of a contaminant allowed in drinking water. MCLs are set as close to the maximum contaminant level goal as feasible using the best available treatment technology.

maximum contaminant level goal (MCLG)
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 residual disinfection level (MRDL)
Highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of disinfectant is necessary to control microbial contaminants.

maximum residual disinfection 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 contaminants.

nephelometric turbidity unit (NTU)
Measure of the clarity or cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the typical person.

not applicable (N/A)
Does not apply or not available.

parts per billion (ppb)
Parts per billion = Micrograms per liter (ppb = ug/L). One part per billion corresponds to one minute in 2,000 years or a single penny in $10 million.

parts per million (ppm)
Parts per million = Milligrams per liter (ppm = mg/L). One part per million corresponds to one minute in two years or a single penny in $10,000.

picocuries per liter (pCi/L)
Measure of radioactivity in water.

range (R)
Lowest value to the highest value.

running annual average (RAA)
The average of sample results for samples collected during the most recent four calendar quarters.

sample size
Number or count of values. (i.e., number of water samples collected).

secondary maximum contaminant level (SMCL)
Non-enforceable, recommended limits for substances that may affect the taste, odor, color, or other aesthetic qualities of drinking water.

treatment technique (TT)
Required process intended to reduce the level of a contaminant in drinking water.

turbidity
Measure of suspended material in water. In the water field, a turbidity measurement, expressed in nephelometric turbidity units (NTU), is used to indicate clarity of water.

unregulated contaminant monitoring rule five (UCMR5)
The fifth list of unregulated contaminants, created by the Environmental Protection Agency, to be monitored by public water systems. A new list is determined every five years.

variance and exemptions
Department permission not to meet maximum contaminant level or treatment technique under certain conditions.

violation
Failure to meet a Colorado primary drinking water regulation.

REGULATED WATER CONTAMINANTS: WHAT WE TEST FOR

Data collected throughout 2023

Denver Water monitors for the list of regulated parameters below in our treated drinking water. Sample points include entry points to the distribution system from our three treatment plants: Foothills, Marston and Moffat, and sites throughout Denver Water's distribution system.

Inorganic Chemicals		**Volatile Organic Chemicals**		
Antimony	Thallium	Benzene	1,2-Dichloropropane	Trichloroethylene
Arsenic	Sodium	Carbon Tetrachloride	Ethylbenzene	Xylenes (total)
Barium	Total Chlorine	1,2-Dichloroethane	Monochlorobenzene	Vinyl Chloride
Beryllium	Fluoride	o-Dichlorobenzene	Styrene	
Cadmium	Nitrate	p-Dichlorobenzene	Tetrachloroethylene	
Chromium	Nitrite	1,1-Dichloroethylene	Toluene	
Mercury	Lead	cis-1,2-Dichloroethylene	1,2,4-Trichlorobenzene	
Nickel	Copper	trans-1,2-Dichloroethylene	1,1,1-Trichloroethane	
Selenium		Dichloromethane	1,1,2-Trichloroethane	

Synthetic Organic Chemicals		**Disinfection Byproducts**	
1,2-Dibromo-3-chloropropane	Endothall	Haloacetic Acids (HAA5) are regulated as the sum of the five contaminants listed below:	Total Trihalomethanes (TTHM) are regulated as the sum of the four contaminants listed below:
2,4,5-TP	Endrin	Dibromoacetic Acid	Chloroform
2,4-D	Ethylene dibromide	Dichloroacetic Acid	Bromodichloromethane
Aldicarb	Heptachlor	Monobromoacetic Acid	Dibromochloromethane
Aldicarb sulfone	Heptachlor Epoxide	Monochloroacetic Acid	Bromoform
Aldicarb sulfoxide	Hexachlorobenzene	Trichloroacetic Acid	
Atrazine	Hexachlorocyclopentadiene	**Radiological Contaminants**	
Benzo(a)pyrene	Lasso (Alachlor)	Gross Alpha Emitters excluding Uranium	
BHC-Gamma	Methoxychlor	Combined Radium	
Carbofuran	Oxamyl	Uranium	
Chlordane	Pentachlorophenol	**Microbiological Contaminants**	
Dalapon	Picloram	Total Coliform	
Di(2-ethylhexyl) adipate	Polychlorinated Biphenyls	*E.coli*	
Di(2-ethylhexyl) phthalate	Simazine	**Other Regulated Contaminants**	
Dinoseb	Toxaphene	Total Organic Carbon	
Diquat		Turbidity	

The data tables below include regulated contaminants from page 7 that were monitored for and detected at Foothills Treatment Plant, one entry point to the Denver Water distribution system, in 2023. If a contaminant from page 7 is not displayed in these tables, then it was not detected above the reporting limit at the sample location.

Inorganic Contaminants Detected at the Entry Point to the Distribution System — Foothills									
Chemical Parameters	**Year**	**Sampling Frequency**	**Average**	**Range**	**Unit of Measure**	**MCL**	**MCLG**	**Standard Met**	**Typical Sources**
Barium	2023	Quarterly	39.4	36-42.5	ppb	2,000	2,000	✓	Erosion of natural deposits, discharge of drilling wastes.
Fluoride	2023	Monthly	618	540-740	ppb	4,000 (2,000 is SMCL)*	4,000	✓	Erosion of natural deposits, water additive that promotes strong teeth, discharge from fertilizer and aluminum factories.
Nitrate as N	2023	Monthly	91	BRL-170	ppb	10,000	10,000	✓	Runoff from fertilizer use, leaching from septic tanks and sewage, erosion of natural deposits.
Nickel	2023	Quarterly	0.94	BRL-1.5	ppb	NA	NA	✓	Discharge from industrial uses such as transportation, chemical industry, electrical equipment and construction.
Sodium	2023	Quarterly	24,000	21,500-27,000	ppb	NA	NA	✓	Naturally occurring.

*Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Summary of Turbidity Sampled at the Entry Point to the Distribution System — Foothills						
Chemical Parameters	**Year**	**Sampling Frequency**	**Level Found**	**Unit of Measure**	**Treatment Technique Requirement**	**Standard Met**	**Typical Sources**
Turbidity	2023	Daily	Highest single measurement: 0.148 NTU (November)	NTU	Maximum 1 NTU for any one single measurement.	✓	Soil runoff
Turbidity	2023	Daily	Lowest monthly percentage of samples meeting TT requirement for our technology: 100%	NTU	In any month, at least 95% of samples must be less than 0.3 NTU.	✓	Soil runoff

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Total Organic Carbon (Disinfection Byproducts Precursor) Removal Ratio of Raw and Finished Water — Foothills					
Chemical Parameters	**Year**	**Frequency**	**Treatment Technique Requirement**	**Standard Met**	**Typical Sources**
Total Organic Carbon Ratio	2023	Once per month	Denver Water uses enhanced treatment to remove the required amount of natural organic material and/or demonstrates compliance with alternative criteria.	✓	Natural organic matter present in the environment.

Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts including trihalomethanes (TTHMs) and haloacetic acids (HAA5s). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Radiologicals Detected at the Entry Point to the Distribution System — Foothills									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	Standard Met	Typical Sources
Combined Radium (Ra-226 and Ra-228)	2021	6-9 years	0.75	BRL-1.5	pCi/L	5	0	✓	Erosion of natural deposits, mine drainage, industrial or manufacturing discharges.
Gross Alpha (excluding Uranium)	2023	6-9 years	3.4	1.1-5.6	pCi/L	15	0	✓	Erosion of natural deposits, mine drainage, industrial or manufacturing discharges.
Uranium	2023	Quarterly	0.2	BRL-0.5	ppb	30	0	✓	Erosion of natural deposits, mine drainage.

The data tables below include regulated contaminants from page 7 that were monitored for and detected at Marston Treatment Plant, one entry point to the Denver Water distribution system, in 2023. If a contaminant from page 7 is not displayed in these tables, then it was not detected above the reporting limit at the sample location.

Inorganic Contaminants Detected at the Entry Point to the Distribution System — Marston									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	Standard Met	Typical Sources
Barium	2023	Quarterly	41.3	38.5-47.4	ppb	2,000	2,000	✓	Erosion of natural deposits, discharge of drilling wastes.
Fluoride	2023	Monthly	584	480-680	ppb	4,000 (2,000 is SMCL)*	4,000	✓	Erosion of natural deposits, water additive that promotes strong teeth, discharge from fertilizer and aluminum factories
Nitrate as N	2023	Monthly	45	BRL-190	ppb	10,000	10,000	✓	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Nickel	2023	Quarterly	0.17	BRL-1.0	ppb	NA	NA	✓	Discharge from industrial uses such as transportation, chemical industry, electrical equipment and construction.
Sodium	2023	Quarterly	22,633	21,400-24,100	ppb	NA	NA	✓	Naturally occurring.

*Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Summary of Turbidity Sampled at the Entry Point to the Distribution System — Marston							
Chemical Parameters	Year	Sampling Frequency	Level Found	Unit of Measure	Treatment Technique Requirement	Standard Met	Typical Sources
Turbidity	2023	Daily	Highest single measurement: 0.090 NTU (June)	NTU	Maximum 1 NTU for any one single measurement.	✓	Soil runoff
Turbidity	2023	Daily	Lowest monthly percentage of samples meeting TT requirement for our technology: 100%	NTU	In any month, at least 95% of samples must be less than 0.3 NTU.	✓	Soil runoff

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

Total Organic Carbon (Disinfection Byproducts Precursor) Removal Ratio of Raw and Finished Water — Marston					
Chemical Parameters	Year	Frequency	Treatment Technique Requirement	Standard Met	Typical Sources
Total Organic Carbon Ratio	2023	Once per month	Denver Water uses enhanced treatment to remove the required amount of natural organic material and/or demonstrates compliance with alternative criteria.	✓	Natural organic matter present in the environment.

Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts including trihalomethanes (TTHMs) and haloacetic acids (HAA5s). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Radiologicals Detected at the Entry Point to the Distribution System — Marston									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	Standard Met	Typical Sources
Combined Radium (Ra-226 and Ra-228)	2021	6-9 years	0.95	BRL-1.9	pCi/L	5	0	✓	Erosion of natural deposits, mine drainage, industrial or manufacturing discharges.
Gross Alpha (excluding Uranium)	2023	6-9 years	0.8	0.5-1.1	pCi/L	15	0	✓	Erosion of natural deposits, mine drainage, industrial or manufacturing discharges.
Uranium	2023	Quarterly	0.5	BRL-0.8	ppb	30	0	✓	Erosion of natural deposits, mine drainage.

The data tables below include regulated contaminants from page 7 that were monitored for and detected at Moffat Treatment Plant, one entry point to the Denver Water distribution system, in 2023. If a contaminant from page 7 is not displayed in these tables, then it was not detected above the reporting limit at the sample location.

Inorganic Contaminants Detected at the Entry Point to the Distribution System — Moffat									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	Standard Met	Typical Sources
Barium	2023	Quarterly	20.6	19.3-22.4	ppb	2,000	2,000	✓	Erosion of natural deposits, discharge of drilling wastes.
Fluoride	2023	Monthly	598	260-710	ppb	4,000 (2,000 is SMCL)*	4,000	✓	Erosion of natural deposits, water additive that promotes strong teeth, discharge from fertilizer and aluminum factories.
Nitrate as N	2023	Monthly	38	BRL-130	ppb	10,000	10,000	✓	Runoff from fertilizer use, leaching from septic tanks and sewage, erosion of natural deposits.
Sodium	2023	Quarterly	11,317	9,800-13,500	ppb	NA	NA	✓	Naturally occurring.

*Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Summary of Turbidity Sampled at the Entry Point to the Distribution System — Moffat							
Chemical Parameters	Year	Sampling Frequency	Level Found	Unit of Measure	Treatment Technique Requirement	Standard Met	Typical Sources
Turbidity	2023	Daily	Highest single measurement: 0.203 NTU (July)	NTU	Maximum 1 NTU for any one single measurement	✓	Soil runoff
Turbidity	2023	Daily	Lowest monthly percentage of samples meeting TT requirement for our technology: 100%	NTU	In any month, at least 95% of samples must be less than 0.3 NTU	✓	Soil runoff

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

Total Organic Carbon (Disinfection Byproducts Precursor) Removal Ratio of Raw and Finished Water — Moffat					
Chemical Parameters	Year	Frequency	Treatment Technique Requirement	Standard Met	Typical Sources
Total Organic Carbon Ratio	2023	Once per month	Denver Water uses enhanced treatment to remove the required amount of natural organic material and/or demonstrates compliance with alternative criteria	✓	Natural organic matter present in the environment

Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts including trihalomethanes (TTHMs) and haloacetic acids (HAA5s). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Radiologicals Detected at the Entry Point to the Distribution System — Moffat									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	Standard Met	Typical Sources
Combined Radium (Ra-226 and Ra-228)	2021	6-9 years	1.1	BRL-2.1	pCi/L	5	0	✓	Erosion of natural deposits, mine drainage, industrial or manufacturing discharges.
Gross Alpha (excluding Uranium)	2023	6-9 years	3	1.1-4.8	pCi/L	15	0	✓	Erosion of natural deposits, mine drainage, industrial or manufacturing discharges.
Uranium	2023	Quarterly	BRL	BRL	ppb	30	0	✓	Erosion of natural deposits, mine drainage.

The following data tables provide regulated contaminants in Denver Water's distribution system.

Lead and Copper Sampled in the Distribution System								
Contaminant Name	Period	90th Percentile	Sample Size	Unit of Measure	90th Percentile Action Level	Sample Sites Above Action Limit	Standard Met	Typical Sources
Copper	1/1/2023 - 6/30/2023	50	113	ppb	1,300	0	✓	Corrosion of household plumbing; erosion of natural deposits.
Lead	1/1/2023 - 6/30/2023	3.5	370	ppb	15	3	✓	Corrosion of household plumbing; erosion of natural deposits.
Copper	7/1/2023 - 12/31/2023	60	343	ppb	1,300	0	✓	Corrosion of household plumbing; erosion of natural deposits.
Lead	7/1/2023 - 12/31/2023	3.9	438	ppb	15	7	✓	Corrosion of household plumbing; erosion of natural deposits.

Microbial Contaminants Regulated in the Distribution System									
Name	Year	Sampling Frequency	MCL	MCLG	Unit of Measure	Highest Monthly Percentage	Number of Positives	Standard Met	Typical Sources
Total Coliform (T. coli)	2023	Daily	No more than 5% positive per month	0	Present/ Absent	0.51% (present T. coli), August 2023	2 out of 4,534 total samples (0.04%); 0 *E. coli* positive samples	✓	Naturally present in the environment.

Disinfectants Sampled in the Distribution System*							
Name	Year	Results	Number of Samples Below Level	Frequency	MRDL	Standard Met	Typical Sources
Disinfectant as Total Cl2	2023	Lowest period percentage of samples above 0.2 ppm: 100%	0	Daily	4.0 ppm	✓	Drinking water disinfectant used to control microbial growth.

*Treatment technique requirement: at least 95% of samples per period (month or quarter) must be at least 0.2 ppm.

Disinfection Byproducts Sampled in the Distribution System								
Name	Year	Sampling Frequency	Highest Locational RAA	Range	Unit of Measure	MCL	MCLG	Standard Met	Typical Sources
Total Trihalo -methanes (TTHM)	2023	Quarterly	38.5	23.9-73.5	ppb	80	N/A	✓	Byproduct of drinking water disinfection.
Haloacetic Acids (HAA5s)	2023	Quarterly	21.9	14.3-40.5	ppb	60	N/A	✓	Byproduct of drinking water disinfection.

The data tables below provide information on unregulated parameters that were detected in the Denver Water distribution system.

Water Quality Parameters with Secondary Maximum Contaminant Levels Sampled in the Distribution System									
Name	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	SMCL*	Standard Met	Typical Sources
Aluminum	2023	Quarterly	32.8	15-126	ppb	N/A	50-200	✓	Erosion of natural deposits.
Chloride	2023	Quarterly	20,450	5,000-28,800	ppb	N/A	250,000	✓	Naturally occurring; road salt.
Copper	2023	Quarterly	3.2	BRL-18.9	ppb	N/A	1,000	✓	Corrosion of household plumbing; erosion of natural deposits.
Iron	2023	Quarterly	3	BRL-300	ppb	N/A	300	✓	Naturally occurring.
Manganese	2023	Quarterly	4	BRL-18.4	ppb	N/A	50	✓	Naturally occurring.
Sulfate	2023	Quarterly	58,800	19,000-94,000	ppb	N/A	250,000	✓	Naturally occurring.
Zinc	2023	Quarterly	4.3	BRL-17	ppb	N/A	5,000	✓	Naturally occurring.

*Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Additional Water Quality Parameters Sampled in the Distribution System						
Name	Year	Sampling Frequency	Average	Range	Unit of Measure	Typical Sources
Alkalinity	2023	Monthly	59,900	43,000-80,000	ppb	Erosion of natural deposits.
Total Hardness	2023	Quarterly	91,800	50,000-110,000	ppb	Erosion of natural deposits.
Conductivity	2023	Quarterly	306	150-440	µs/cm	Naturally occurring.
Potassium	2023	Quarterly	2,100	810-2,700	ppb	Erosion of natural deposits.
Calcium	2023	Quarterly	27,100	15,900-31,600	ppb	Erosion of natural deposits.
Magnesium	2023	Quarterly	6,900	2,320-10,100	ppb	Erosion of natural deposits.
Boron	2023	Quarterly	15.2	BRL-30.6	ppb	Erosion of natural deposits.

These parameters do not have an EPA MCL or SMCL, but can be helpful in understanding the buffering capacity and mineral content of the water. Some applications of these parameters include understanding scale build-up on water fixtures, caring for a home aquarium or brewing beer.

TESTING FOR UNREGULATED CONTAMINANTS

Since 1996, the Environmental Protection Agency, through its Unregulated Contaminant Monitoring Rule, every five years requires water utilities across the country to test for a list of substances that are suspected of being in drinking water but are not currently regulated under the Safe Drinking Water Act. Utilities report their test results to the EPA, which uses the information to learn more about the presence of these substances and decide whether they should be regulated in the future to protect public health.

Denver Water's 2023 test results were reported to the EPA as required. The data tables below include substances that were detected during Denver Water's tests and the levels at which they were found.

The American Water Works Association has more information about the rule and the process on its website: **drinktap.org/Water-Info/Whats-in-My-Water/Unregulated-Contaminant-Monitoring-Rule-UCMR**. Information about the rule also can be found on the EPA's website at **www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule** or you can contact the Safe Drinking Water Hotline at **800-426-4791** or **water.epa.gov/drink/contact.cfm.**

UCMR5: PFAS Contaminants Sampled at Entry Point to the Distribution System — All Treatment Plants					
Chemical Parameters	**Year**	**Average**	**Range**	**Unit of Measure**	**Minimum Reporting Level**
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2023	BRL	BRL	ppb	0.005
1H,1H, 2H, 2H-perfluorohexane sulfonic acid (4:2FTS)	2023	BRL	BRL	ppb	0.003
1H,1H, 2H, 2H-perfluorooctane sulfonic acid (6:2FTS)	2023	BRL	BRL	ppb	0.005
1H,1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	2023	BRL	BRL	ppb	0.005
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	2023	BRL	BRL	ppb	0.002
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	2023	BRL	BRL	ppb	0.003
Hexafluoropropylene oxide dimer acid (HFPO DA)	2023	BRL	BRL	ppb	0.005
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2023	BRL	BRL	ppb	0.02
Perfluorobutanoic acid (PFBA)	2023	BRL	BRL	ppb	0.005
Perfluorobutanesulfonic acid (PFBS)	2023	BRL	BRL	ppb	0.003
Perfluorodecanoic Acid (PFDA)	2023	BRL	BRL	ppb	0.003
Perfluorododecanoic Acid (PFDoA)	2023	BRL	BRL	ppb	0.003
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2023	BRL	BRL	ppb	0.003
Perfluoroheptanesulfonic acid (PFHpS)	2023	BRL	BRL	ppb	0.003
Perfluoroheptanoic acid (PFHpA)	2023	BRL	BRL	ppb	0.003
Perfluorohexanoic Acid (PFHxA)	2023	BRL	BRL	ppb	0.003
Perfluorohexanesulfonic acid (PFHxS)	2023	BRL	BRL	ppb	0.003
Perfluoro-4-methoxybutanoic acid (PFMBA)	2023	BRL	BRL	ppb	0.003
Perfluoro-3-methoxypropanoic acid (PFMPA)	2023	BRL	BRL	ppb	0.004
Perfluorononanoic Acid (PFNA)	2023	BRL	BRL	ppb	0.004
Perfluorooctanoic Acid (PFOA)	2023	BRL	BRL	ppb	0.004
Perfluorooctanesulfonic acid (PFOS)	2023	BRL	BRL	ppb	0.004
Perfluoropentanoic acid (PFPeA)	2023	BRL	BRL	ppb	0.003
Perfluoropentanesulfonic acid (PFPeS)	2023	BRL	BRL	ppb	0.004
Perfluoroundecanoic acid (PFUnA)	2023	BRL	BRL	ppb	0.002
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2023	BRL	BRL	ppb	0.005
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2023	BRL	BRL	ppb	0.006
Perfluorotetradecanoic acid (PFTA)	2023	BRL	BRL	ppb	0.008
Perfluorotridecanoic acid (PFTrDA)	2023	BRL	BRL	ppb	0.007

Water at all three treatment plant entry points (Foothills, Marston and Moffat) tested below the minimum reporting levels for per- and polyfluoroalkyl substances (PFAS).

UCMR5 Lithium Contaminant Sampled at Entry Point to the Distribution System — Foothills Treatment Plant					
Chemical Parameters	**Year**	**Average**	**Range**	**Unit of Measure**	**Minimum Reporting Level**
Lithium	2023	5.30	BRL-10.8	ppb	9

UCMR5 Lithium Contaminant Sampled at Entry Point to the Distribution System — Marston Treatment Plant					
Chemical Parameters	**Year**	**Average**	**Range**	**Unit of Measure**	**Minimum Reporting Level**
Lithium	2023	9.23	9- 9.4	ppb	9

UCMR5 Lithium Contaminant Sampled at Entry Point to the Distribution System — Moffat Treatment Plant					
Chemical Parameters	**Year**	**Average**	**Range**	**Unit of Measure**	**Minimum Reporting Level**
Lithium	2023	BRL	BRL	ppb	9

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DENVER WATER

1600 W. 12th Ave., Denver, CO 80204-3412
303-893-2444

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