



2023

# Water Quality Report

INFORME DE CALIDAD DE AGUA

 DENVER WATER



# 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 are the South Platte River and its tributaries, the streams that feed Dillon Reservoir and the creeks and canals above the Fraser River. Denver Water stores its water in five mountain reservoirs: Antero, Eleven Mile Canyon, Cheesman, Dillon and Gross. From these reservoirs, the water is then 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 you.

For general information, or to obtain a copy of the report, please visit [wqcdcompliance.com/ccr](http://wqcdcompliance.com/ccr). The report is located under "Guidance: Source Water Assessment Reports." Search the table using 116001 or 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 2023 de Denver Water, llame a Servicio al cliente al **303-893-2444** o visite [denverwater.org/2023CalidadDeAgua](http://denverwater.org/2023CalidadDeAgua).



Photo 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](https://denverwater.org/TreatedWater).

Reservoir	Capacity (acre-feet)	Percent of Total Capacity
Dillon	257,304	38.7
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
<b>Total</b>	<b>700,707</b>	<b>100</b>

## 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](https://www.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 in drinking water

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 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:

- Increasing the pH level to reduce the risk of lead from getting into drinking water from lead service lines or household plumbing.
- Developing and maintaining 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](https://denverwater.org/Lead).
- 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.
- 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.
- Ongoing communications, outreach and education.

# 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 method 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](https://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](https://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](https://epa.gov/safewater/lead) and at [denverwater.org/Lead](https://denverwater.org/Lead).



# 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 gastrointestinal 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 coatings, 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 show 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 ensuring a clean, safe water supply for our customers. Our water quality experts have been studying the evolving information about the chemicals and have been 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 source water and drinking water as the water comes into and goes out of the treatment plants since 2017 and have not detected anything above the reportable limit.

**Learn more at [denverwater.org/PFAS](https://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 particles become heavy enough to settle to the bottom of a basin from which sediment is removed.

### 3 FILTRATION

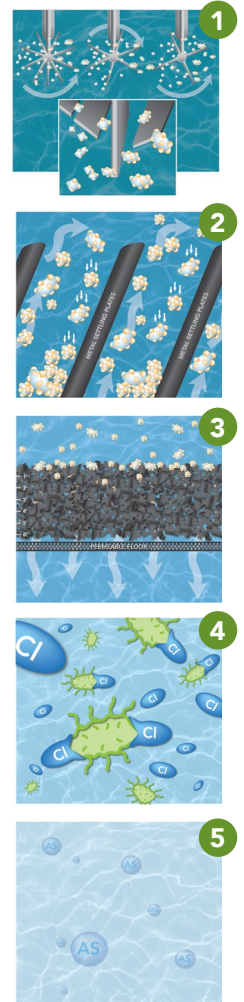
The water is then filtered through layers of filter media made of anthracite coal. As the water moves through the filter media, larger particles get caught in the spaces between the grains of anthracite, and clear water emerges.

### 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 water quality 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.



# 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.

### **health-based violation**

Violation of either a maximum contaminant level or treatment technique.

### **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 the 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 the water system on multiple occasions.

### **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.

### **non-health-based violation**

A violation that is not a result of a treatment technique or an exceedance of an MCL.

### **parts per billion (ppb)**

Equivalent to micrograms per liter. One drop in 1 billion drops of water.

### **parts per million (ppm)**

Equivalent to milligrams per liter. One drop in 1 million drops of water.

### **picocuries per liter (pCi/L)**

Measure of radioactivity in water.

### **range (R)**

Lowest value to the highest value.

### **sample size**

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

### **significant deficiency**

Includes, but are not limited to, defects in design, operation or maintenance, or a failure or malfunction of the sources, treatment, storage or distribution system that has the potential to cause the introduction of contamination into the water delivered to customers.

### **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.

### **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 IS IN THE WATER?

Data collected throughout 2022

Denver Water routinely monitors for contaminants in drinking water according to federal and state laws. The following tables show all detections found between Jan. 1 through Dec. 31, 2022, unless otherwise noted. The state of Colorado requires Denver Water to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Therefore, some of our data, though representative, may be more than 1 year old. Violations and formal enforcement actions, if any, are reported in the next section of this report.

Inorganic Contaminants Sampled at the Entry Point to the Distribution System									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Antimony	2022	Monthly	BRL	BRL	ppb	6	6	No	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder.
Arsenic	2022	Monthly	BRL	BRL	ppb	10	0	No	Erosion of natural deposits; runoff from orchards, runoff from glass and electronics.
Barium	2022	Monthly	33.9	16.9-46.3	ppb	2,000	2,000	No	Erosion of natural deposits; discharge of drilling wastes.
Beryllium	2022	Monthly	BRL	BRL	ppb	4	4	No	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace and defense industries.
Cadmium	2022	Monthly	0.003	BRL-0.1	ppb	5	5	No	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste, batteries and paints.
Chromium	2022	Monthly	0.19	BRL-1.4	ppb	100	100	No	Discharge from steel and pulp mills; erosion of natural deposits.
Mercury	2022	Monthly	BRL	BRL	ppb	2	2	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands.
Selenium	2022	Monthly	BRL	BRL	ppb	50	50	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Thallium	2022	Monthly	BRL	BRL	ppb	2	0.5	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands.
Combined uranium	2022	Monthly	0.006	BRL-0.2	ppb	30	0	No	Erosion of natural deposits; mine drainage.
Fluoride	2022	Monthly	630	550-780	ppb	4,000 (2,000 is SMCL)	4,000	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate as N	2022	Monthly	46	BRL-160	ppb	10,000	10,000	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Nitrite as N	2022	Monthly	BRL	BRL	ppb	1,000	1,000	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Nickel	2022	Monthly	0.18	BRL-1.4	ppb	N/A	N/A	No	Discharge from industrial uses such as transportation, chemical industry, electrical equipment and construction.

Organic Contaminants Sampled at the Entry Point to the Distribution System - Foothills									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
2,4-D	2022	Annually (Foothills WTP)	BRL	BRL	ppb	70	70	No	Runoff from herbicide used on row crops.

Secondary Contaminants Sampled at the Entry Point to the Distribution System*									
Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Sodium	2022	Monthly	19,900	7,900-29,200	ppb	N/A	N/A	No	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**

Chemical Parameters	Year	Sampling Frequency	Level Found	Unit of Measure	Treatment Technique Requirement	Treatment Technique Violation	Typical Sources
Turbidity	2022	Daily	Highest single measurement: 0.276 NTU (August, Moffat Treatment Plant)	NTU	Maximum 1 NTU for any one single measurement.	No	Soil runoff
Turbidity	2022	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.	No	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\*\***

Chemical Parameters	Year	Frequency	Treatment Technique Requirement	Treatment Technique Violation	Typical Sources
Total organic carbon ratio	2022	Twice per month	**Denver Water uses enhanced treatment to remove the required amount of natural organic material and/or demonstrates compliance with alternative criteria.	No	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 Sampled at the Entry Point to the Distribution System**

Chemical Parameters	Year	Sampling Frequency	Average	Range	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Combined radium (Ra-226 and Ra-228)	2021-2022	6-9 years	0.88	BRL-2.1	pCi/L	5	0	No	Erosion of natural deposits; mine drainage, industrial or manufacturing discharges.
Gross alpha (excluding uranium)	2021-2022	6-9 years	0.6	BRL-1	pCi/L	15	0	No	Erosion of natural deposits; mine drainage, industrial or manufacturing discharges.

**Disinfection Byproducts Sampled in the Distribution System**

Chemical Parameters	Year	Sampling Frequency	Highest Locational RAA	Range	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Total trihalomethanes (TTHM)	2022	Quarterly	30.55	14.9-46.9	ppb	80	N/A	No	Byproduct of drinking water disinfection.
Haloacetic acids (HAA5s)	2022	Quarterly	18.65	8.1-30.4	ppb	60	N/A	No	Byproduct of drinking water disinfection.

**Microbial Contaminants Regulated in the Distribution System**

Name	Year	Sampling Frequency	MCL	MCLG	Unit of Measure	Highest Monthly Percentage	Number of Positives	MCL Violation	Typical Sources
Total coliform (T. coli)	2022	Daily	No more than 5% positive per month	0	Present/Absent	0.78% (present T. coli), July 2022	5 out of 4,660 total samples (0.11%); 0 E. coli positive samples	No	Naturally present in the environment.

**Disinfectants Sampled in the Distribution System\***

Name	Year	Results	Number of Samples Below Level	Frequency	Treatment Technique Violation	MRDL	Typical Sources
Disinfectant as total chlorine (Cl <sub>2</sub> )	2022	Lowest period percentage of samples above 0.2 ppm: 100%	0	Daily	No	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.

**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	90th Percentile AL Exceedance	Typical Sources
Copper	1/1/2022-6/30/2022	60	395	ppb	1,300	0	No	Corrosion of household plumbing; erosion of natural deposits.
Lead	1/1/2022-6/30/2022	3.9	395	ppb	15	7	No	Corrosion of household plumbing; erosion of natural deposits.
Copper	7/1/2022-12/31/2022	50	234	ppb	1,300	0	No	Corrosion of household plumbing; erosion of natural deposits.
Lead	7/1/2022-12/31/2022	3.8	329	ppb	15	1	No	Corrosion of household plumbing; erosion of natural deposits.

# SIGNIFICANT DEFICIENCIES

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 sanitary survey in September 2022, inspectors found deficiencies related to cross-connection, storage tanks, operations and storage conditions. 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,

Moffat and Marston treatment plants.

2. Storage tanks: State inspectors noted deficiencies in the backwash tanks at Foothills, Moffat and Marston treatment plants. Denver Water is repairing the hatch and vent at all three sites, outlined in the corrective action plan, as well as repairing the vent and overflow at Marston. The repairs will be completed by December 2023.
3. Operations: The turbidity sampling lines at Foothills Treatment Plant were sampling incorrectly. Denver Water is replumbing the individual filter effluent turbidity lines in order to fix the sampling method. This will be fixed by September 2023.
4. Storage conditions: State inspectors found that the hatches

on Capitol Hill Tank 3, Capitol Hill Reservoir, Lonetree Reservoir and 56th Avenue Tank were installed incorrectly. Denver Water is repairing the hatches according to the corrective action plan. Repairs will be fixed by December, with the exception of the 56th Avenue tank, which will be completed by April 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.

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# WATER QUALITY VIOLATIONS

## CROSS-CONNECTION

In 2022, Denver Water received two violations under state drinking water regulations. One violation was for six failed backflow test assemblies that were not quickly addressed by the customers. The other violation was for six cross-connections that required backflow protection. There is no evidence that the water you drink was affected.

## What should I do?

Although this situation was not an emergency, as our customers, you have a right to know what happened and what we did to correct this situation. There is nothing you need to do. We do not have any evidence that your drinking water was impacted. All of the devices have been repaired and tested. All of the connections are now controlled. If you

have specific health concerns, please contact your health care provider.

## What happened?

On April 26, 2022, and May 5, 2022, Denver Water notified the state health department that in 2020 and 2021, six backflow assemblies with failed tests and six connections without proper protection were not repaired or protected within the required timeframes. Maintaining and protecting these 12 connections is the responsibility of the property owners, and they failed to provide proper documentation that these connections were protected. Under the state health department's regulations, Denver Water is required to ensure compliance with these devices.

Backflow prevention assemblies prevent contaminants from a property's

irrigation or fire suppression lines and certain domestic lines from entering the public drinking water supply. There are more than 44,000 backflow prevention assemblies connected to Denver Water's distribution system. State regulations require property owners who have these connections to have their backflow prevention assemblies inspected and certified annually. Uncontrolled cross-connections can lead to a back pressure or siphonage event that may allow contaminants or disease-causing organisms to enter the drinking water, which can cause diarrhea, nausea, cramps and associated headaches.

For most properties, if the backflow prevention assembly is not meeting requirements, Denver Water will shut off water service to the property





## BACKFLOW PREVENTION

Backflow prevention assemblies prevent contaminants from entering the main drinking water supply shared by you and your neighbors. Installing and maintaining backflow prevention assemblies is the property owner's responsibility.

Denver Water must ensure properties that fall under this regulation are up to the state standards if they are going to be connected to Denver's water system so that we can keep the public water system safe.

For more information about Denver Water's backflow prevention program or these violations, visit [denverwater.org/Backflow](https://denverwater.org/Backflow).

until the backflow prevention device is in compliance. However, the 12 connections that resulted in the violations are owned by "critical customers," a category that includes schools, public housing facilities, hospitals and local government facilities.

Denver Water makes every effort to avoid shutting off water to these important public service locations. The water quality violations resulted when the 12 connections were not protected within the required timelines and these property owners did not correct the issues.

### How did this impact drinking water quality?

Denver Water constantly monitors water quality throughout the Denver metro area, and our records indicate that your drinking water was not impacted as a result of the 12 noncompliant connections.

### What has been done to correct this situation?

Denver Water has notified the property owners that their failure to certify these backflow prevention assemblies and control the identified cross-connections triggered violations of Colorado's drinking water regulations. All of the devices are now working properly, and the cross-connections have been controlled.

Denver Water has reviewed its process with all critical customers to ensure this violation does not occur again. In addition to the multiple notifications already provided to these customers, Denver Water increased the frequency with which it reviews customer compliance data, offers cross-connection control services to noncompliant customers and suspends service for those customers that fail to comply prior to the 120-day regulatory deadline.

For more information about Denver Water's backflow prevention program or these violations, visit [denverwater.org/Backflow](https://denverwater.org/Backflow).

### TURBIDITY

On Sept. 4, 2022, a filter monitoring instrument at the Moffat Water Treatment Plant reported the same turbidity (cloudiness) value for 17 hours rather than actual turbidity values.

The constant value stemmed from a mechanical failure of the instrument. This constituted a monitoring violation for individual filter effluent turbidity. As a result, Denver Water instituted changes to improve monitoring, programming and training to prevent a repeat of this failure in the future. At no time did turbidity in the finished drinking water exceed regulatory standards. Denver Water identified and reported this violation to the state health department.








 **DENVER WATER**


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


For more information on water quality,  
including opportunities for public participation, visit [denverwater.org](http://denverwater.org).

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Denver Water's Public Water System Identification: CO0116001

Photo credit: Denver Water