

**INVERNESS WSD 2020 Drinking Water Quality Report  
Covering Data For Calendar Year 2019**

*Public Water System ID: CO0203012*

**Esta es información importante. Si no la pueden leer, necesitan que alguien se la traduzca.**

**This report is available through our website at [www.invernesswater.org](http://www.invernesswater.org) and [www.denverwater.org](http://www.denverwater.org) or by calling the District office at 303-649-9857.**

**This report will NOT be distributed via mailing.**

We are pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water. Please contact KELLY CONOVER at 303-649-9857; 303-414-0671 with any questions or for public participation opportunities that may affect water quality. **Please see the water quality data from our wholesale system(s) (either attached or included in this report) for additional information about your drinking water.**

**General Information**

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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791) or by visiting [epa.gov/ground-water-and-drinking-water](http://epa.gov/ground-water-and-drinking-water).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and microbiological contaminants call the EPA Safe Drinking Water Hotline at (1-800-426-4791).

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 surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

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

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.

**Lead in Drinking Water**

If present, elevated levels of lead can cause serious health problems (especially for pregnant women and young children). It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home's plumbing. If you are concerned about lead in your water, you may wish to have your water tested. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at [epa.gov/safewater/lead](http://epa.gov/safewater/lead).

**Source Water Assessment and Protection (SWAP)**

The Colorado Department of Public Health and Environment may have provided us with a Source Water Assessment Report for our water supply. 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 203012, INVERNESS WSD, or by contacting KELLY CONOVER at 303-649-9857; 303-414-0671. 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 homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan. Potential sources of contamination in our source water area are listed on the next page.

Please contact us to learn more about what you can do to help protect your drinking water sources, any questions about the Drinking Water Quality Report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

**Our Water Sources**

<b><u>Sources (Water Type - Source Type)</u></b>	<b><u>Potential Source(s) of Contamination</u></b>
WELL 3R (Groundwater-Well) PURCHASED FROM DENVER (Surface Water-Consecutive Connection) WELL 1R (Groundwater-Well) WELL 4R (Groundwater-Well) PURCHASED FROM WISE CO0103843 (Surface Water-Consecutive Connection) WELL 2 (Groundwater-Well)	EPA Hazardous Waste Generators, EPA Chemical Inventory/Storage Sites, EPA Toxic Release Inventory Sites, Permitted Wastewater Discharge Sites, Aboveground, Underground and Leaking Storage Tank Sites, Existing/Abandoned Mine Sites, Other Facilities, Commercial/Industrial/Transportation, High Intensity Residential, Low Intensity Residential, Urban Recreational Grasses, Row Crops, Fallow, Small Grains, Pasture / Hay, Evergreen Forest, Septic Systems, Road Miles

**Terms and Abbreviations**

- **Maximum Contaminant Level (MCL)** – The highest level of a contaminant allowed in drinking water.
- **Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.
- **Health-Based** – A violation of either a MCL or TT.
- **Non-Health-Based** – A violation that is not a MCL or TT.
- **Action Level (AL)** – The concentration of a contaminant which, if exceeded, triggers treatment and other regulatory requirements.
- **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 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 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 contaminants.
- **Violation (No Abbreviation)** – Failure to meet a Colorado Primary Drinking Water Regulation.
- **Formal Enforcement Action (No Abbreviation)** – Escalated action taken by the State (due to the risk to public health, or number or severity of violations) to bring a non-compliant water system back into compliance.
- **Variance and Exemptions (V/E)** – Department permission not to meet a MCL or treatment technique under certain conditions.
- **Gross Alpha (No Abbreviation)** – Gross alpha particle activity compliance value. It includes radium-226, but excludes radon 222, and uranium.
- **Picocuries per liter (pCi/L)** – Measure of the radioactivity in water.
- **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.
- **Compliance Value (No Abbreviation)** – Single or calculated value used to determine if regulatory contaminant level (e.g. MCL) is met. Examples of calculated values are the 90<sup>th</sup> Percentile, Running Annual Average (RAA) and Locational Running Annual Average (LRAA).
- **Average (x-bar)** – Typical value.
- **Range (R)** – Lowest value to the highest value.
- **Sample Size (n)** – Number or count of values (i.e. number of water samples collected).
- **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.
- **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 \$10,000,000.
- **Not Applicable (N/A)** – Does not apply or not available.

- **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 MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

### Detected Contaminants

INVERNESS WSD routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table(s) show all detections found in the period of January 1 to December 31, 2019 unless otherwise noted. The State of Colorado requires us 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 one year old. Violations and Formal Enforcement Actions, if any, are reported in the next section of this report.

**Note:** Only detected contaminants sampled within the last 5 years appear in this report. If no tables appear in this section then no contaminants were detected in the last round of monitoring.

<b>Lead and Copper Sampled in the Distribution System</b>									
Contaminant Name	Time Period	90 <sup>th</sup> Percentile	Sample Size	Unit of Measure	90 <sup>th</sup> Percentile AL	Sample Sites Above AL	90 <sup>th</sup> Percentile AL Exceedance	Typical Sources	
Copper	08/23/2019 to 12/04/2019	0.45	53	ppm	1.3	1	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Lead	02/26/2019 to 04/18/2019	6.9	50	ppb	15	3	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Copper	02/26/2019 to 04/18/2019	0.46	50	ppm	1.3	2	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Lead	08/23/2019 to 12/04/2019	7.3	53	ppb	15	3	No	Corrosion of household plumbing systems; Erosion of natural deposits	
<b>Disinfection Byproducts Sampled in the Distribution System</b>									
Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Total Haloacetic Acids (HAA5)	2019	9.85	0 to 19.7	2	ppb	60	N/A	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHM)	2019	14.23	0.53 to 27.92	2	ppb	80	N/A	No	Byproduct of drinking water disinfection
<b>Radionuclides Sampled at the Entry Point to the Distribution System</b>									
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Gross Alpha	2019	2.55	0 to 5.1	2	pCi/L	15	0	No	Erosion of natural deposits
<b>Inorganic Contaminants Sampled at the Entry Point to the Distribution System</b>									
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Barium	2019	0.14	0.13 to 0.14	2	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride	2019	1.08	0.97 to 1.2	2	ppm	4	4	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
<b>Synthetic Organic Contaminants Sampled at the Entry Point to the Distribution System</b>									
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Endrin	2019	0	0 to 0.01	5	ppb	2	2	No	Residue of banned insecticide
<b>Secondary Contaminants**</b>									
**Secondary standards are <u>non-enforceable</u> 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.									
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	Secondary Standard			
Sodium	2019	27.5	26 to 29	2	ppm	N/A			

### Violations, Significant Deficiencies, and Formal Enforcement Actions

<b>No Violations or Formal Enforcement Actions</b>
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# 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 snow runoff. Denver Water's supply is 100% surface water that originates in sources throughout 3,100 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.



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 pipe carry water to Denver Water customers.

## Source water assessment



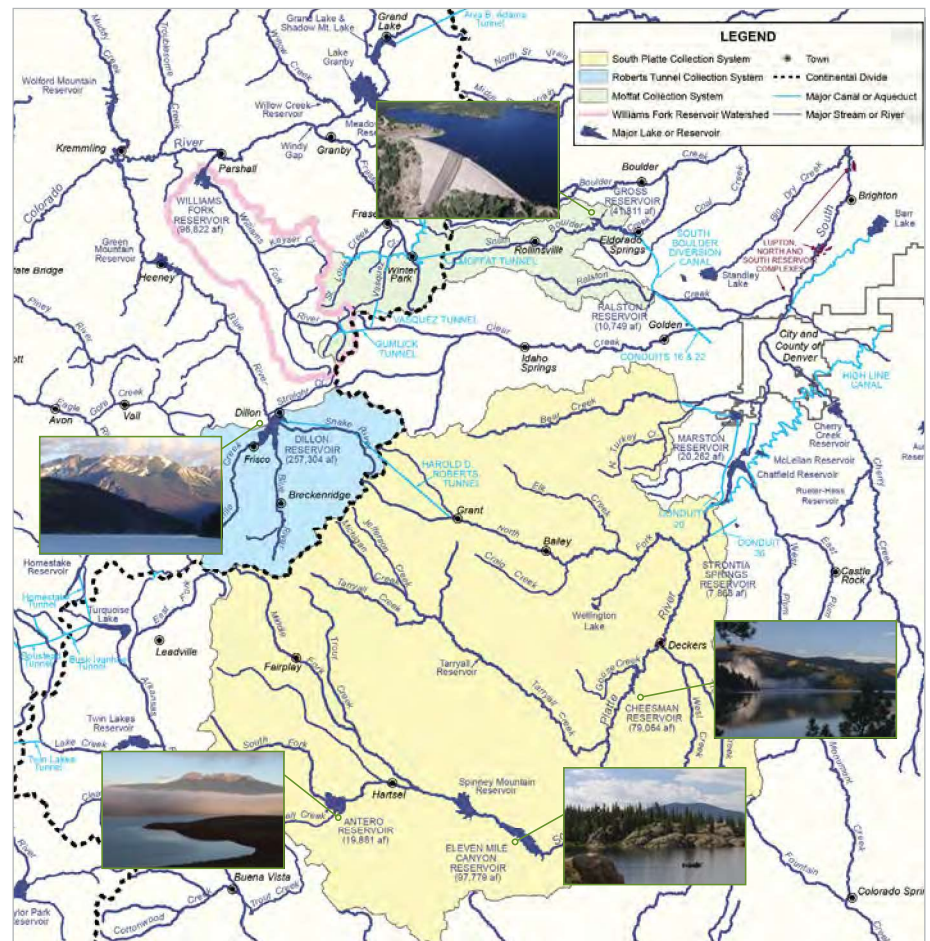
The Colorado Department of Public Health and Environment has completed

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 the 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.

For more information on the report, contact the Colorado Department of Public Health and Environment by calling **303-692-2000** or visit [Colorado.gov/cdphe/ccr](http://Colorado.gov/cdphe/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 2020 de Denver Water, llame a Servicio al cliente al **303-893-2444** o visite [denverwater.org/CalidadDeAgua](http://denverwater.org/CalidadDeAgua).



# SOURCES OF DRINKING 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 be naturally occurring 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, that 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.

# 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 35,000 samples and conducted more than 70,000 tests to ensure our water is as clean and safe as possible. Denver Water vigilantly safeguards our mountain water supplies, and the water is carefully treated before it reaches your tap. This brochure provides data collected throughout 2019.

Reservoir	Capacity (acre-feet)	Percent of Total Capacity
Dillon	257,304	37.1
Eleven Mile Canyon	97,779	14.1
Williams Fork	96,822	14.0
Cheesman	79,064	11.4
Gross	41,811	6.0
Chatfield (Denver's portion)	27,076	4.0
Wolford Mountain (Denver's portion)	25,610	3.7
Antero	19,881	2.9
Marston	19,796	2.9
Ralston	10,776	1.5
Strontia Springs	7,863	1.1
Meadow Creek	5,370	0.8
Long Lakes	1,787	0.3
Platte Canyon	910	0.1
Soda Lakes	645	0.1
<b>Total</b>	<b>692,846</b>	<b>100</b>



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 similar protection for public health.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at [800-426-4791](tel:800-426-4791) or by visiting [epa.gov/ground-water-and-drinking-water](https://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. These people 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](tel: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, especially for pregnant women and young children.

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

### The Lead Reduction Program has five main components:

- Increasing the pH level of the water to reduce the risk of lead from getting into drinking water from lead service lines or household plumbing. This change is being done to reduce the corrosivity of the water, which will help protect customers who have plumbing in their home that contains lead, such as customer-owned water service lines that connect their home to Denver Water's main delivery pipe

in the street, solder that connects sections of pipe in their home, and faucet parts.

- 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 all lead service lines over 15 years at no direct charge to the customer.
- Providing a free water pitcher and filters that are certified to remove lead to all customers suspected of having a lead service line, for use until six months after their service line is replaced.
- Ongoing communication, 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 lead service lines or plumbing that contains lead.

In 2012, water quality sample results from homes with known lead service lines and plumbing exceeded the level the EPA requires for taking action. The action level is an indicator that additional steps may need to be taken to “optimize corrosion control treatment.” That means a utility may need to adjust its

water treatment to minimize the risk of lead getting into drinking water from lead pipes and plumbing. Denver Water studied multiple treatment options from 2012 to 2017. Based on the results, the Colorado Department of Public Health and Environment in March 2018 required Denver Water to begin adding orthophosphate to the water it delivers in March 2020.

Orthophosphate is a food additive commonly added to water to minimize corrosion and reduce the amount of lead released from pipes and fixtures. It has been safely and successfully used across the country. Orthophosphate can impact wastewater treatment plants and the downstream environment.

Denver Water proposed a holistic, alternative approach to orthophosphate that removes lead at its source. The approach focuses on replacing all lead service lines in the service area and avoids the potential impacts of orthophosphate to wastewater treatment plants and downstream reservoirs, streams and rivers.

That proposal became 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. Information on lead in drinking water,

testing and steps to minimize exposure is available from the Safe Drinking Water Hotline at **1-800-426-4791**, at [epa.gov/safewater/lead](https://epa.gov/safewater/lead) and at [denverwater.org/Lead](https://denverwater.org/Lead).

Lead may exist in other areas of your home. For a complete list and more information, visit [colorado.gov/cdphe/lead-what-are-common-sources](https://colorado.gov/cdphe/lead-what-are-common-sources).

### Is there a presence of cryptosporidium and giardia?

Denver Water has tested for cryptosporidium (crypto) and giardia in both source 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.

## HOW TO MINIMIZE YOUR EXPOSURE TO LEAD

### Flush

If water has not been used in the home for a few hours, such as first thing in the morning or when getting home from work, run the kitchen or any bathroom faucet for five minutes. You also can run the dishwasher, take a shower, or do a load of laundry to help flush water in your home’s plumbing before drinking or cooking.

Use only cold water for drinking, cooking and making infant formula. Boiling the water does not remove lead.



### Filter

Use filtered water for drinking (including making tea and coffee), cooking (particularly when making foods like rice, beans and soup) and preparing infant formula. Be sure the filter is NSF certified to remove lead. Visit [nsf.org](https://nsf.org) for filter options.



### Maintain

Regularly clean your faucet’s screen, also known as an aerator. You can find an instructional video at [denverwater.org/Lead](https://denverwater.org/Lead).



Replace filters at the manufacturer’s recommended schedule.

# WATER QUALITY MONITORING VIOLATION

Findings from the Colorado Department of Public Health and Environment's 2019 Sanitary Survey resulted in notification to Denver Water on Sept. 19, 2019, of two violations of Regulation 11.

## What happened?

Regarding the first violation, inspectors noted that Denver Water regularly conducts tank inspections and has some written standard operating procedures regarding its storage tank inspections. However, Denver Water's standard operating procedures were not comprehensive enough to meet all the state's requirements for storage tank inspections. The incomplete procedures did not allow Denver Water to successfully and consistently implement its storage tank inspection plan for all its storage tanks.

In the second violation, Denver Water was monitoring and reporting the combined filter effluent turbidity for the Foothills Water Treatment Plant using a sample line from the treatment plant's clear well. However, Denver Water should have been reporting the combined filter effluent turbidity from our monitoring location nearer to the combined filter effluent. Turbidity values at each of these locations were similar, but this reporting error violates drinking water requirements.

## How did this impact water quality?

Denver Water monitors water quality throughout the Denver-metro area 24/7/365, to ensure the water meets drinking water standards, which verifies that the drinking water system was not compromised as a result of these violations.

## What is being done (corrective action)?

Your water is safe to drink, and water quality was never compromised. With regard to the first violation, Denver Water is updating its storage tank inspection plan this year to reflect the recommendations made by the health department. The second violation was corrected in 2019 by switching sample sites per health department recommendations.

For more information, contact Denver Water Customer Care at [303-893-2444](tel:303-893-2444). You can read more about our extensive treatment process at [denverwaterTAP.org](http://denverwaterTAP.org).

Please share this information with all other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in public places or by distributing copies by hand.

## Technical description of violations

### 1. F330 — Management:

Storage Tank Inspection Plan (T3): Supplier has not developed or maintained a finished water storage tank inspection plan. This is a violation of Regulation 11, Section 11.28(4)(a).

At the time of the sanitary survey, the department found that the supplier appears to regularly conduct tank inspections and has some written standard operating procedures (SOPs) regarding its storage tank inspections. However, the supplier's SOPs are not comprehensive and complete to meet all the required elements of the written plan for storage tank inspections as specified in Section 11.28(2) of Regulation 11 and to allow the supplier to successfully and consistently implement its storage tank inspection plan for all its storage tanks.

### 2. R529 — Monitoring, Recordkeeping and Data Verification:

Monitoring Turbidity (T3): Supplier was not properly monitoring and/or recording turbidity values. This is a violation of Regulation 11, Section 11.8(1)(2).

At the time of the sanitary survey, the supplier was monitoring and reporting the combined filter effluent (CFE) turbidity for the Foothills Water Treatment Plant using a sample line from the treatment plant's clear well. However, the supplier has the ability to monitor CFE turbidity at a common header for all individual filter effluents prior to entering the clear well.

These violations do not pose a safety risk to customers and do not require consumers to take action, but you have a right to know what happened and what we have done to correct this situation.

# 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 alum and polymer. This process causes small particles to stick to one another, forming larger particles.

## 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 fine, granulated materials — either sand, or sand and coal, depending on the treatment plant. As smaller, suspended particles are removed, turbidity diminishes 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

pH is maintained 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?

Data collected throughout 2019

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	2019	Monthly	BRL	BRL	ppb	6	6	No	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder.
Arsenic	2019	Monthly	BRL	BRL	ppb	10	0	No	Erosion of natural deposits, runoff from orchards, runoff from glass and electronics, solder.
Barium	2019	Monthly	30.7	16.7-50.0	ppb	2000	2000	No	Erosion of natural deposits, discharge of drilling wastes.
Beryllium	2019	Monthly	BRL	BRL	ppb	4	4	No	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
Cadmium	2019	Monthly	BRL	BRL	ppb	5	5	No	Corrosion of galvanized pipes, erosion of natural deposits, discharge from metal refineries, runoff from waste batteries and paints.
Chromium	2019	Monthly	BRL	BRL	ppb	100	100	No	Discharge from steel and pulp mills, erosion of natural deposits.
Copper	2019	Monthly	0.79	BRL-2.3	ppb	1300 (AL)	1300	No	Erosion of natural deposits.
Mercury	2019	Monthly	BRL	BRL	ppb	2	2	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands.
Selenium	2019	Monthly	BRL	BRL	ppb	50	50	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Thallium	2019	Monthly	BRL	BRL	ppb	2	0.5	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands.
Uranium	2019	Monthly	BRL	BRL	ppb	30	zero	No	Erosion of natural deposits, mine drainage.
Fluoride	2019	Monthly	0.54	0.13-0.76	ppm	4.0 (2.0 is SMCL)	4	No	Erosion of natural deposits, water additive that promotes strong teeth, discharge from fertilizer and aluminum factories.
Nitrate as N	2019	Monthly	0.02	BRL-0.13	ppm	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Nitrite as N	2019	Monthly	BRL	BRL	ppm	1	1	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
2,4-D	2019	Annually (Foothills WTP)	BRL	BRL	ppb	70	70	No	Runoff from herbicide used on row crops.

## TERMS, ABBREVIATIONS, AND SYMBOLS

Some of the terms, abbreviation and symbols 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)

The concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must comply with.

**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 are the Average, 90th Percentile, Running Annual Average, Location Running Annual Average.

### Contaminant

A potentially harmful biological, chemical, or radiological substance.

**Formal Enforcement Action** Escalated action taken by the stat to bring a noncompliant water system back into compliance.

### Health-Based

Violation of either an MCL or TT.

### 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 MCL 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 monitoring location during the most recent four calendar quarters.

### Maximum Contaminant Level (MCL)

Maximum level of a contaminant allowed in drinking 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 Residual Disinfection Level (MRDL)

The highest level of a disinfection allowed in drinking water. There is convincing evidence that addition of a disinfection is necessary for control of 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

A violation that is not an MCL or TT.

### Not Applicable (N/A)

Does not apply or not available.

### Parts per billion = Micrograms per liter (ppb = µg/L)

Equivalent to micrograms per liter. One ppb is comparable to one drop of water in 55,000 gallons.

### Parts per million = Milligram per liter (ppm = mg/L)

Equivalent to milligrams per liter. One ppm is comparable to one drop of water in 55 gallons.

### Picocuries per liter (pCi/L)

Measure of the radio activity in water.

### Range

The 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.

### Secondary Maximum Contaminant Level (SMCL)

Nonenforceable, recommended limits for substances that may affect the taste, odor, color or other aesthetic qualities of drinking water.

### Treatment Technique

A required process intended to reduce the level of a contaminant in drinking water.

### Variance and Exemptions

Department permission not to meet an MCL or TT under certain conditions.

### Violation

Failure to meet a Colorado Primary Drinking Water regulation.

### Water Treatment Plant (WTP)

Water Treatment Plant



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
Aluminum	2019	Monthly	24.3	10.9-40.4	ppb	50 - 200 (SMCL)	N/A	No	Erosion of natural deposits, water treatment chemical.
Sodium	2019	Monthly	14.8	5.1-24.7	ppm	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	2019	Daily	Highest single measurement: 0.135 NTU (March, Moffat Treatment Plant)	NTU	Maximum 1 NTU for any one single measurement.	No	Soil runoff
Turbidity	2019	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	2019	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 (THMs) 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.

Disinfection Byproducts Sampled in the Distribution System									
Name	Year	Sampling Frequency	Highest Locational RAA	Range	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Total Trihalomethanes (TTHM)	2019	Monthly	24.6	11.9-33.1	ppb	80	N/A	No	Byproduct of drinking water disinfection.
Haloacetic Acids (HAA5s)	2019	Monthly	15	7.5-22.9	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)	2019	Daily	No more than 5% positive per month	Zero	Present/Absent	0.5% (present T. coli), July 2019	2 out of 4,524 total samples (0.04%); 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 Cl2	2019	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	1-6/2019	0.31	614	ppm	1.3	2	No	Corrosion of household plumbing; erosion of natural deposits.
Lead	1-6/2019	10	614	ppb	15	26	No	Corrosion of household plumbing; erosion of natural deposits.
Copper	7-12/2019	0.25	753	ppm	1.3	1	No	Corrosion of household plumbing; erosion of natural deposits.
Lead	7-12/2019	11.7	753	ppb	15	48	No	Corrosion of household plumbing; erosion of natural deposits.

# TESTING FOR UNREGULATED CONTAMINANTS

Since 1996, the EPA, 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 2019 test results were reported to the EPA as required. Below are the 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](https://www.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 [epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule](https://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](https://www.water.epa.gov/drink/contact.cfm).



Unregulated Contaminants Monitoring Rule 4					
Chemical Parameters	Year	Sample site	Average	Range	Units of measure
Bromochloroacetic acid (BCAA)	2019	Distribution System	2.45	0.75-3.69	ppb
Bromodichloroacetic acid (BDCAA)	2019	Distribution System	1.57	0.74-2.25	ppb
Chlorodibromoacetic acid (CDBAA)	2019	Distribution System	0.33	BRL-0.67	ppb
Tribromoacetic acid (TBAA)	2019	Distribution System	BRL	BRL	ppb
1-butanol	2019	Treatment Plant Treated Water	BRL	BRL	ppb
2-methoxyethanol	2019	Treatment Plant Treated Water	BRL	BRL	ppb
2-propen-1-ol	2019	Treatment Plant Treated Water	BRL	BRL	ppb
a-hexachlorocyclohexane	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Butylated hydroxyanisole	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Chlorpyrifos	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Dimenthipin	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Ethoprop	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Germanium	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Manganese	2019	Treatment Plant Treated Water	4.88	BRL-26	ppb
o-toluidine	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Oxyfluorfen	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Profenofos	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Quinoline	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Tebuconazole	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Total permethrin (cis- & trans-)	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Tribufos	2019	Treatment Plant Treated Water	BRL	BRL	ppb
Bromide	2019	Treatment Plant Source Water (raw water)	BRL	BRL-0.05	ppm
Total Organic Carbon (TOC)	2019	Treatment Plant Source Water (raw water)	2.98	2.13-4.6	ppm