

# ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020

*Amended*

*Presented By*







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

We are pleased to present you with this year's water quality report. This report covers the 2020 calendar year and provides important information about the quality of your drinking water. Our primary goal is to consistently provide our residents and other water users with a safe and dependable supply of drinking water. We want to ensure your confidence in us by providing information about where your water comes from, what it contains, and how it compares to strict state and federal water quality standards. Please take the time to read it, and contact us with any questions you may have.

If you own or operate a facility that provides water to customers, employees, or tenants who do not receive a water bill directly, please post this link or provide copies of this report where it will be accessible to all. Paper copies of the report are available upon request by contacting Water Quality at (720) 898-7800.

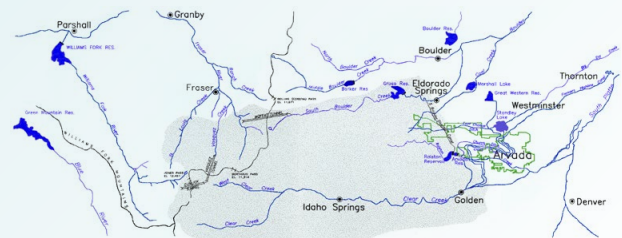
Thank you for allowing us to serve you!

Sincerely,  
Evelyn Rhodes, Water Quality Administrator  
[www.arvada.org](http://www.arvada.org), search Water Quality Report

## General Information

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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 from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).



Arvada's water source.

## Where Does My Water Come From?

Arvada's drinking water comes from two surface water sources: the Denver Water's Moffat System and Clear Creek. The Moffat water system is our year-round source and is diverted from Denver Water's Ralston Reservoir. The majority of this water is high-country snowmelt, collected from the Fraser River and South Boulder Creek basins, transported to Gross Reservoir, then to Ralston Reservoir. Approximately 25% of the city's water supply is diverted from Clear Creek through a series of canals to the Arvada Reservoir and is used as needed or for peak demand.

## Success During COVID

Even with a global pandemic, Arvada's Utility Department teams didn't miss a beat! Skeleton crews, reduced schedules, hybrid work-from-home situations, social distancing, and masks were part of daily work life in 2020 while we continued to provide essential services and superior customer service. Consistently providing high-quality drinking water remains a top priority for our staff, no matter the circumstance.



## Public Meetings

City of Arvada encourages public involvement and participation! City Council business meetings are generally held on the first and third Mondays of each month at 6 p.m. All Council meetings are held at City Hall, 8101 Ralston Road, in the Council Chambers. Go to [www.Arvida.org](http://www.Arvida.org) for more information.

## Possible Sources of Contaminants

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations which limit 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.

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, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban storm-water runoff, and residential uses; Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban storm-water runoff, and septic systems; Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Cross-Connection Control and Backflow Prevention

Backflow is the reversed flow of potentially contaminated water into the city's distribution system through a cross-connection, and is prohibited under State regulation. We ensure properly placed and functioning backflow prevention devices are located at any cross-connection in the city, excluding single-family residential connections. City- or commercial-owned backflow assemblies must be inspected and tested annually by a certified technician. For more information about Arvada's backflow prevention and cross-connection control program, call (720) 898-7793.



## Source Water Assessment

The Colorado Department of Public Health and Environment completed a Source Water Assessment for our system in 2007 ([www.colorado.gov/cdphe/swap-assessment-phase](http://www.colorado.gov/cdphe/swap-assessment-phase), search "Arvada"). The purpose of the assessment is to determine the susceptibility of our water sources to potential contamination. The assessment provides a screening-level evaluation of potential contamination that could occur; it does not mean that contamination has or will occur. We can use this information to improve our water treatment capabilities and prepare for future contamination threats. We also used this information in developing the city's Source Water Protection Plan, prepared in 2020. For more information or a copy of the SWPP, please feel free to contact us during regular business hours.

CDPHE has identified the following potential sources of contaminants for the city: EPA Superfund Sites, EPA Abandoned Contaminated Sites, 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, Solid Waste Sites, Existing/Abandoned Mine Sites, Other Facilities, Commercial/Industrial/Transportation, High Intensity Residential, Low Intensity Residential, Urban Recreational Grasses, Quarries/Strip Mines/Gravel Pits, Row Crops, Fallow, Pasture/Hay, Deciduous Forest, Evergreen Forest, Mixed Forest, Septic Systems, Oil/Gas Wells, Road Miles.

## CONTACTS

Water Quality -- Business Hours: (720) 898-7800

Water Quality -- After Hours: (720) 898-7820

City of Arvada Main Line: (720) 898-7000



2020 Detected Contaminants

Our water is monitored for many different regulated substances on a strict sampling schedule, and the water we deliver must meet stringent health standards. The following tables show detections found in our treated water from January 1 to December 31, 2020. If a parameter does not appear in the following tables, then it was not detected during our annual monitoring. Remember that detecting a substance does not mean that the water is unsafe to drink; our goal is to keep any detections below their maximum allowed levels. Please see final page of this report for an important public notification.

REGULATED SUBSTANCES										
Finished Water Treatment Facilities					Ralston Water Treatment Plant		Arvada Water Treatment Plant			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AVERAGE RESULT	RANGE LOW-HIGH	AVERAGE RESULT	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE	
Alpha Emitters (pCi/L)	2020	15	0	0.45	0–0.9	0.85	0.5–1.3	No	Erosion of natural deposits	
Barium (ppm)	2020	2	2	0.02	0.01–0.02	0.03	0.03–0.03	No	Erosion of natural deposits	
Combined Radium (pCi/L)	2020	5	0	1.61	0.5–3.0	1.22	0–2.5	No	Erosion of natural deposits	
Fluoride (ppm)	2020	4	4	0.12	0.10–0.14	0.25	0.24–0.26	No	Erosion of natural deposits; Water additive, which promotes strong teeth	
Total Organic Carbon [TOC] <sup>1</sup> (removal ratio)	2020	TT	NA	1.42	1.24–1.63	1.47	0.79–1.95	No	Naturally present in the environment	
Turbidity (NTU)	2020	TT	NA	0.06	0.03–0.28	0.07	0.03–0.20	No	Soil runoff	
Turbidity (lowest monthly percent of samples meeting limit)	2020	TT	NA	100	NA	100	NA	No	Soil runoff	
Drinking Water Distribution System										
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AVERAGE RESULT [LRAA]	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE			
Chlorine (ppm)	2020	[4]	[4]	0.99	0.80–1.13	No	Water additive used to control microbes; minimum required residual is 0.2 ppm			
Haloacetic Acids [HAA5s] (ppb)	2020	60	NA	[27.5]	11.0–32.3	No	By-product of drinking water disinfection			
Total Trihalomethanes (TTHMs) (ppb)	2020	80	NA	[34.6]	17.3–46.9	No	By-product of drinking water disinfection			
Tap Water Samples Collected for Copper and Lead Analyses from Sample Sites throughout the Community										
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AVERAGE RESULT (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE			
Copper (ppm)	2020	1.3	1.3	0.2	0/61	No	Corrosion of household plumbing; Erosion of natural deposits			
Lead (ppb)	2020	15	0	5	3/61	No	Lead services lines; Corrosion of household plumbing, including fittings and fixtures; Erosion of natural deposits			
SECONDARY SUBSTANCES									UNREGULATED SUBSTANCES	
					Ralston Water Treatment Plant		Arvada Water Treatment Plant			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AVERAGE RESULT	RANGE LOW-HIGH	AVERAGE RESULT	RANGE LOW-HIGH	VIOLATION		
Aluminum (ppb)	2020	200	NA	20	0–40	20	0–30	No	<sup>1</sup> The value reported under Amount Detected for TOC is the lowest ratio between the percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one indicates that the water system is in compliance with TOC removal requirements. A value of less than one indicates a violation of the TOC removal requirements. <sup>2</sup> Guidance from EPA recommends a level of 20 mg/L in drinking water for individuals restricted to a total sodium intake of 500 mg/day.	
Chloride (ppm)	2020	250	NA	5.7	3.6–9.0	26	25–27	No		
Manganese (ppb)	2020	50	NA	0	0–2	10	0–26	No		
Sulfate (ppm)	2020	250	NA	18	15–21	42	39–45	No		
Total Dissolved Solids [TDS] (ppm)	2020	500	NA	72	45–140	176	113–236	No		
					Ralston Water Treatment Plant		Arvada Water Treatment Plant			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED			AVERAGE RESULT	RANGE LOW-HIGH	AVERAGE RESULT	RANGE LOW-HIGH	VIOLATION		
Sodium <sup>2</sup> (ppm)	2020			4.6	4.1–5.6	20.7	20–22			

## Definitions

**90th %ile:** The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

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

**Alpha Emitters:** Gross alpha particle activity. Includes Radium-226, but excludes Radon-222 and Uranium.

**LRAA:** Locational Running Annual Average. Average results for samples taken at one particular location, for the previous four calendar quarters. Compliance for TTHMs and HAA5s are based on LRAA. Values shown for TTHMs and HAA5s are the highest LRAA detected

**MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**MRDL (Maximum Residual Disinfectant Level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG (Maximum Residual Disinfectant Level Goal):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**NA:** Not applicable.

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**percentage:** The percentage of samples that meet the TT requirement. In any month, at least 95% of Turbidity samples must be less than 0.3 NTU.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter [ $\mu\text{g/L}$ ]). Equivalent to one penny in \$10,000,000.

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter [ $\text{mg/L}$ ]). Equivalent to one penny in \$10,000.

**Removal Ratio:** The ratio between the percentage of a substance actually removed (from raw to finished water) and the percentage of the substance required to be removed; a value of greater than 1 indicates the system is in compliance.

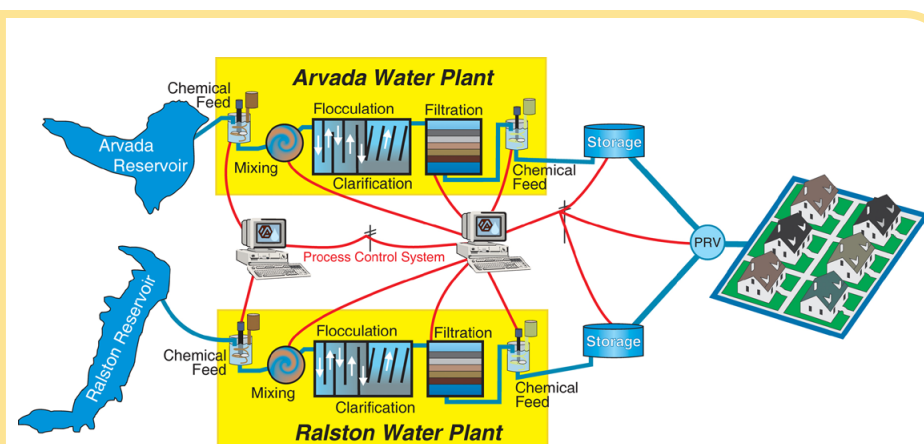
**SMCL (Secondary Maximum Contaminant Level):** These standards are developed to protect aesthetic qualities of drinking water and are not health based and not enforced.

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

**Turbidity:** The clarity or cloudiness of water. Typically measured in NTUs.

## Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. 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. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).



## Water System Information

Arvada's water is processed through one of two Water Treatment Plants (WTP) for purification and disinfection before it is delivered to our customers. There are more than 632 miles of drinking water distribution pipes and 10 water storage tanks that transport almost 6 billion gallons of drinking water to our customers annually. Extensive monitoring of the process takes place from source to tap to ensure high-quality drinking water. This diagram shows how the treatment process for each of the facilities works.

## Monitoring, Recordkeeping, and Data Verification Violation Public Notification

This is a Public Notification for a Monitoring, Recordkeeping, and Data Verification violation that occurred at our Ralston Water Treatment Plant, issued 4/29/21 by the Colorado Department of Public Health and Environment (CDPHE) after a routine Sanitary Survey inspection.

Please share this information with all the 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 a public place or distributing copies by hand or mail.

1. During our most recent inspection, the CDPHE inspector found that the City of Arvada Water Treatment Division had failed to properly calibrate the inline turbidimeters at the Ralston Water Treatment Plant during the 3rd Quarter 2020. The manufacturer (Hach) recommends instrument recalibration “at least once every three months during normal operation.” Quarterly calibrations are the standard practice at Arvada, and all calibrations have been completed in every other quarter previously and subsequently.

Turbidimeters are instruments that determine the turbidity, or clarity, of water. Turbidities at the combined filter effluent must be below 0.3 NTU (Nephelometric Turbidity Units) at least 95% of the time, and can never be above 1.0 NTU. Arvada’s results for our finished water were all below 0.3 NTU in 2020. High turbidity can interfere with disinfection and provide a medium for microbial growth.

2. The violation occurred in the 3rd Quarter (July-September) of 2020.
3. Turbidity itself has no health effects.
4. The situation was already corrected at the time of inspection. No populations are at risk.
5. There is no need for alternative water supplies.
6. There are no actions the consumers need to take.
7. The system has already corrected the problem, and has taken additional steps to ensure it does not happen again. The most likely reason for the oversight was modified schedules due to Covid-19. Schedules have since returned to normal. A new procedure for logging calibrations has also been put in place, as well as a quarterly work-order tracking report generator.
8. The system returned to compliance in the 4th Quarter of 2020.
9. Public Water System contact information:

City of Arvada  
8101 Ralston Road, Arvada, CO 80002  
Water Treatment Manager: Brad Wyant, 720-898-7822

