

2018 City of Boulder Water Quality Report



The City of Boulder 2018 Drinking Water Quality Report summarizes water quality testing results from the 2017 calendar year. The city's goal is to provide customers with safe and high-quality drinking water.

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

LEARN MORE ABOUT BOULDER'S WATER

If you have any questions about this report, please contact the city's Drinking Water Program at 303-413-7400 or the Colorado Department of Public Health and Environment (CDPHE) at 303-692-3500. For more information about Boulder's water, visit BoulderColorado.gov/water/drinking-water-quality or submit a question to InquireBoulder.com.

The City of Boulder's Water Resources Advisory Board meetings are additional opportunities for the public to learn about drinking water. Board meetings are usually held the third Monday of each month at 6 p.m. in the city's Municipal Services Center at 5050 Pearl St. For more information about the board, call 303-413-3233 or visit BoulderColorado.gov/boards-commissions.

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CITY OF BOULDER WATER SOURCES

The City of Boulder gets its water from Barker Reservoir, Lakewood Reservoir, Boulder Reservoir and Carter Lake (via the Boulder Feeder Canal). Water used at your home or business may come from any of these sources, depending on the season or availability.

The CDPHE provided the City of Boulder with a Source Water Assessment Report for Boulder's water supplies. To access this report, visit Colorado.gov/cdphe/swap-assessment-phase. Type "Boulder" in the search box and select "107152Boulder_city_of_SW_REVISED.pdf".

GENERAL INFORMATION ABOUT DRINKING WATER

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. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, have HIV-AIDS or other immune system disorders, some elderly, and infants can be particularly at risk of infections. These people should seek drinking water advice from their health care providers. To receive a copy of the Environmental Protection Agency (EPA) and U.S. Centers for Disease Control guidelines on appropriate means to lessen the risk of infection, call the EPA Safe Drinking Water Hotline at 1-800-426-4791.

The sources of 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 humans. Contaminants that may be present in source water include:



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 stormwater runoff and septic systems.



Inorganic contaminants such as 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 that may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.



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



Microbial contaminants such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

To ensure that tap water is safe to drink, the CDPHE prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

WATER QUALITY DATA TERMS AND ABBREVIATIONS

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

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.

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.

MRDLG = Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant, below which there is no known or expected risk to health.

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.

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

RAA = Running Annual Average: An average of monitoring results for the previous 12 calendar months or previous four quarters.

LRAA = Locational Running Annual Average: The average of sample results for samples collected at a particular monitoring location during the most recent four calendar quarters.

NE = Not Established

NTU = Nephelometric Turbidity Units

ppm = parts per million, or milligrams per liter (mg/l)

ppb = parts per billion, or micrograms per liter (µg/l)

**How do you protect
and conserve water?**

• To learn about events, tips and ways you can help protect our streams, visit: www.KeepItCleanPartnership.org

• To learn about ways you can save water and money with water conservation, visit: www.BoulderSavesWater.net

WATER QUALITY DATA

The City of Boulder routinely monitors for constituents in drinking water according to federal and state laws. The data presented in this report are the result of monitoring for the period of Jan. 1 to Dec. 31, 2017 or from the most recent testing done in accordance with regulations. The CDPHE does not require the City of Boulder to monitor all constituents each year because the concentrations of some constituents are not expected to vary significantly from year to year or because the City of Boulder's system is not considered vulnerable to that type of constituent. Therefore, some of the data, though representative, may be more than one year old.

CONSTITUENTS DETECTED

Constituent	Units	MCL	MCLG	Result	Violation (Yes / No)	Sample Date	Typical Source of Constituent
Barium	ppm	2	2	0.01 average 0.005 - 0.015 range	No	2017	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chlorine	ppm	MRDL = 4	MRDLG = 4	0.81 average 0.06 - 1.24 range	No	At least 120 samples per month in 2017	Water additive used to control microbes
Fluoride	ppm	4	4	0.62 average 0.22 - 1.30 range	No	Daily 2017	Erosion of natural deposits; water additive which promotes strong teeth
Sodium (not regulated)	ppm	NE	NE	4.4 average 2.6 - 6.2 range	No	2017	Erosion of natural deposits

Total Coliform Bacteria	Absent or Present	No more than 5% of at least 120 samples can be positive	0	0.81% (1 sample) of 124 samples were positive	No	May 2017	Naturally present in the environment
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Constituent	Units	TT Requirement	Result	Violation (Yes / No)	Sample Date	Typical Source of Constituent
Turbidity	NTU	Not to exceed 1 NTU for any single measurement	Highest single measurement: 0.27 0.1 - 0.27 range	No	Daily 2017	Soil Runoff
	NTU	At least 95% of month's samples must be ≤ 0.3 NTU	Lowest monthly percentage of samples meeting TT standard: 100%	No	Monthly 2017	
Chlorine	ppm	At least 95% of month's samples must be at least 0.2 ppm	Lowest monthly percentage of samples meeting TT standard: 98.4%	No	November 2017	Water additive used to control microbes

Constituent	Units	AL	90th Percentile	Number of Sites over AL	Violation (Yes / No)	Sample Date	Typical Source of Constituent
Copper	ppm	1.3	0.205	0	No	2017	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead	ppb	15	2	0	No	2017	Corrosion of household plumbing systems, erosion of natural deposits

Constituent	Units	MCL	MCLG	Average	Range of All Samples	Highest LRAA	Violation** (Yes / No)	Sample Date	Typical Source of Constituent
Haloacetic Acids	ppb	60	NE	38.0	15.6 - 186	60.8	Yes	Quarterly 2017	Byproduct of drinking water disinfection
Total Trihalomethanes	ppb	80	NE	40.8	19.1 - 137	60.6	No	Quarterly 2017	Byproduct of drinking water disinfection

**Compliance based on LRAA

DISINFECTION BYPRODUCT PRECURSOR - Total Organic Carbon Removal Ratio

Water Treatment Plant	Compliance Factor (minimum RAA)	RAA	Violation (Yes / No)	Sample Date	Typical Source of Constituent
Betasso Water Treatment Plant	1.0	1.34	No	2017	Naturally present in the environment
Boulder Reservoir Water Treatment Plant	1.0	1.37	No	2017	Naturally present in the environment

LEAD TESTING INFORMATION

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials and components associated with service lines and home plumbing. The City of Boulder is responsible for providing high-quality drinking water, but cannot control the variety of materials used in private plumbing components. Boulder implements a Corrosion Control Program that treats tap water to make it less corrosive and reduce lead exposure from home plumbing.

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 two 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 1-800-426-4791 or at Epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water and at BoulderColorado.gov/water/lead-in-water.

BETASSO WATER TREATMENT PLANT IMPROVEMENT PROJECT

In 2017, the city started a \$35 million project at the Betasso Water Treatment Plant to replace aging equipment, upgrade treatment processes and provide more efficient waste disposal. The project is expected to be completed late in 2018. More information is available at BoulderWater.net.



Water from Barker Reservoir is treated at the Betasso Water Treatment Plant.

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

The City of Boulder violated two drinking water requirements in 2017. These were not emergencies, but you have a right to know what happened and how we corrected the situation. **The city distributed the required notice of the first violation in the 2017 annual water quality report and notice of the second violation in letters to customers.**

- **January 23-24, 2017 – The city did not complete all chlorine disinfectant residual monitoring.**

During a scheduled shutdown at the Betasso Water Treatment Plant (WTP) the Boulder Reservoir WTP supplied the city's drinking water. However, a small flow from the Betasso WTP drinking water storage tank continued into the system during the plant shutdown. Continuous chlorine monitoring was offline, and the city did not measure chlorine at the Betasso WTP on Jan. 23-24. The lowest chlorine residual measured in the Betasso WTP drinking water storage tank during the shutdown period was 0.9 ppm, indicating chlorine levels were never below the required minimum chlorine level (0.2 ppm).

Disinfectant residual serves as one of the final barriers to protect public health. Lack of an adequate disinfectant residual may increase the likelihood that disease-causing organisms are present. The city resolved proper monitoring and corrected standard operating procedures to ensure the proper chlorine monitoring is completed during WTP shutdowns.

- **June (2nd quarter) and September (3rd quarter) 2017 – The city exceeded the haloacetic acid drinking water standard.**

Haloacetic acids form when chlorine, a necessary part of the water disinfection process, reacts with natural organic matter in the water. Construction at the Betasso WTP required a change to the disinfection process. This change, combined with high levels of organic matter during spring snowmelt runoff, created higher levels of haloacetic acids in late May and early June 2017. The drinking water standard (MCL) of 60 ppb is based on a running annual average reported quarterly, and the higher levels in late May and early June resulted in a running annual average of 60.8 ppb at one of eight sampling sites in June (second quarter) and 60.6 ppb at one of the sampling sites in September (third quarter).

Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. The level of haloacetic acids exceeded the MCL for less than 30 days and has been below the MCL at all sampling sites since June 2017. After the high levels of haloacetic acids were measured in June 2017, city staff adjusted water treatment operations, which lowered the level of haloacetic acids. Staff also modified sampling routines and data analysis to identify potential problems earlier in the treatment process.

Digital copies of this report can be found by scanning this QR code to the right or by visiting BoulderColorado.gov/water/water-report. Federal regulations require that this report be distributed to all City of Boulder water customers. The city no longer mails printed copies of the report to all customers, but if you wish to request a printed copy or if you have any questions about this report, please contact the Drinking Water Program at 303-413-7400 or via InquireBoulder.com.

