

# **2019 Annual Drinking Water Quality Report**



**Carter Lake Filter Plant**

**Public Water System ID: CO0135476**

**7100 W. County Rd. 8E**

**Berthoud, Colorado 80513**

# SOURCE WATER



*The sun setting above Carter Lake*

## CARTER LAKE

The primary source of Carter Lake Filter Plant is Carter Lake Reservoir. Carter Lake is the second largest reservoir in the Colorado-Big Thompson Project East Slope distribution system. Carter Lake's water originates in the headwaters of the Colorado River.

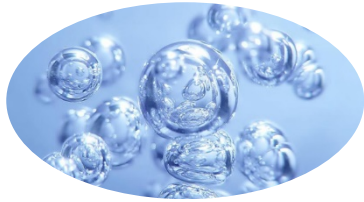
## DRY CREEK RESERVOIR

The secondary source of Carter Lake Filter Plant. Dry Creek Reservoir was constructed for drought protection and to provide operational flexibility.

## Source Water Assessment and Protection (SWAP)

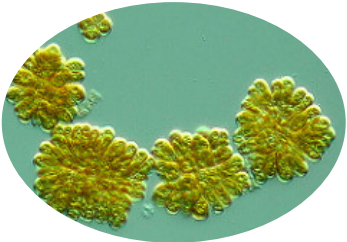
The Colorado Department of Public Health and Environment (CDPHE) has submitted a Source Water Assessment Report to CLFP for our water supply. The Source Water Assessment Report provides a screening-level evaluation of potential contamination that could occur. It does not mean that the contamination has 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. For general information or to obtain a copy of the report please visit [www.colorado.gov/cdphe/ccr](http://www.colorado.gov/cdphe/ccr). The report is located under "Guidance: Source Water Assessment Reports". Search the table using 135476, CARTER LAKE FILTER PLANT. The potential sources of contamination are: 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, Low Intensity Residential, Urban Recreational Grasses, Row Crops, Fallow, Small Grains, Pasture / Hay, Deciduous Forest, Evergreen Forest, Mixed Forest, Septic Systems, Oil / Gas Wells, Road Miles. If you have any questions pertaining to the SWAP program, contact the CDPHE at (303) 692-3592 or visit [www.colorado.gov/pacific/cdphe/swap-assessment-phase](http://www.colorado.gov/pacific/cdphe/swap-assessment-phase).

# WATER TREATMENT PROCESSES



## 1. COAGULATION/FLOCCULATION

Coagulants are added to the water which causes particles in the water to clump together. This process is known as flocculation.



## 2. PRE-DISINFECTION

Chlorine Dioxide is added to the water which helps inactivate algae and other microorganisms.



## 3. FILTRATION

The treated water then flows (depending on the treatment plant) through micro-filtration membranes or mixed-media filter beds, removing impurities and particles from the water column.

## 4. FINAL TREATMENT

To disinfect the water from harmful organisms, Chlorine is added to the water. Fluoride is added to help prevent tooth decay. Soda Ash is added to balance the water pH, and Orthophosphate is added to reduce corrosiveness to downstream plumbing and plumbing fixtures.

## 5. WATER DISTRIBUTION

Finished water is stored in water storage tanks to maintain supply for peak demands and fire flow. The water is delivered through underground pipes to the customers taps.

**DID YOU KNOW?** Chlorine destroys disease-causing germs and helps make water safe to drink. Waterborne diseases once killed thousands of U.S. residents every year. Following its first use in New Jersey in 1908, drinking water chlorination spread rapidly throughout the United States, and helped to virtually eliminate waterborne diseases like typhoid- fever and cholera. Drinking water chlorination played a major role in increasing American's life expectancy in the 20<sup>th</sup> century.

## What's in my 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. 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).

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.

## Detected Contaminants

CARTER LAKE FILTER PLANT routinely monitors for contaminants in your drinking water according to Federal and State laws. 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.

### 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).

### Lead and Copper Sampled at the Consumer's Tap

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	11/18/2019 to 11/20/2019	0.2	63	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	04/29/2019 to 05/01/2019	2.5	61	ppb	15	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	04/29/2019 to 05/01/2019	0.18	61	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	11/18/2019 to 11/20/2019	5.5	63	ppb	15	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

### Disinfection Byproducts Sampled in the Distribution System

Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Chlorite	2019	0.24	0.19 to 0.3	12	ppb	1.0	.8	No	Byproduct of drinking water disinfection

### Disinfectants Sampled at the Entry Point to the Distribution System

Disinfectant Name	Year	Number of Samples Above or Below Level	Sample Size	TT/MRDL Requirement	TT/MRDL Violation	Typical Sources
Chlorine	2019	0	2190	TT = No more than 4 hours with a sample below 0.2 MG/L	No	Water additive used to control microbes
Chlorine Dioxide	2019	0	365	MRDL = 800 ppb	No	Water additive used to control microbes

### Summary of Turbidity Sampled at the Entry Point to the Distribution System

Contaminant Name	Sample Date	Level Found	TT Requirement	TT Violation	Typical Sources
Turbidity	Date/Month: April	<u>Highest single</u> measurement: 0.30 NTU	Maximum 1 NTU for any single measurement	No	Soil Runoff
Turbidity	Month: December	<u>Lowest monthly</u> percentage of samples meeting TT requirement for our technology: 100 %	In any month, at least 95% of samples must be less than 0.1 NTU	No	Soil Runoff



## Secondary Contaminants\*\*

\*\*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.

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	Secondary Standard
Sodium	2019	7.26	7.26 to 7.26	1	ppm	N/A

## Inorganic Contaminants Sampled at the Entry Point to the Distribution System

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources
Barium	2019	.01	0.01 to 0.01	1	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride	2019	0.55	0.55 to 0.55	1	ppm	4	4	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

### Volatile Organic Contaminants Summary

The 21 volatile organic contaminants tested for in January 2019 were all below reporting limits with the exception of Xylenes (Total) which measured 0.62 ug/L.

The maximum contaminant level (MCL) for Xylenes (Total) is 10000 ug/L.

### Synthetic Organic Contaminants Summary

The 32 synthetic organic contaminants tested for in February 2017 were all below reporting limits.

The 32 synthetic organic contaminants tested for in July 2017 were all below reporting limits.

## Violations

No Violations or Formal Enforcement Actions.

## 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.