



2015

CITY OF GOLDEN

Water Quality Report



The City of Golden is committed to providing its customers with safe and dependable drinking water. This is your annual summary of drinking water quality along with updated information about Golden's water treatment plant, water service lines and Clear Creek, our raw water supply. We hope you will find this report useful and welcome any comments you may have. The Environmental Services Division can be reached at 303-384-8181 or to learn more, go to www.cityofgolden.net/DrinkingWater.

Clear Creek - Our Mountain Water Source

Golden's drinking water source is predominantly snowmelt from Clear Creek and its tributaries. As it flows through the watershed, it dissolves naturally occurring minerals and, in some cases, radioactive materials from rock surfaces and the riverbed. Water quality in Clear Creek may also be influenced by rock or landslides, runoff from deciduous and evergreen forested areas, animal activity or by substances that are a result of human activity.

Contaminants that may be present in source waters include:

- Bacteria and viruses from wastewater treatment plants, individual septic systems, livestock operations and wildlife.
- Salts and metals from highway/road maintenance and construction operations, mine

waste piles, active and abandoned mines or mine cleanup sites, oil and gas production, farming and stormwater runoff.

- Organic contaminants, including synthetic and volatile organic chemicals which are by-products of industrial processes and petroleum production. They may also come from petroleum spills from gas stations, traffic accidents or leaking above ground or underground storage tanks.
- Radioactive contaminants that are naturally occurring or can be the result of mining activity or oil and gas production.
- Pesticides, herbicides and nutrients such as nitrogen and phosphorus from residential lawns, agricultural activities or stormwater runoff.

The Colorado Department of Public Health and Environment has provided consumers with a Source Water Assessment Report that is specific to Golden's raw water supply. The report is not an indication of the current quality of our water source but provides a screening level evaluation of potential impacts to Clear Creek and rates the possible susceptibility to those sources. Information from the report is available to Golden to develop and implement water management strategies in order to optimize treatment and protect the quality of our drinking water. The report is available online at <https://wqcdcompliance.com/ccr> or may be obtained by contacting the City of Golden Environmental Services Division at 303-384-8181.

Water Quality and Your Health

Facts on Lead in Drinking Water

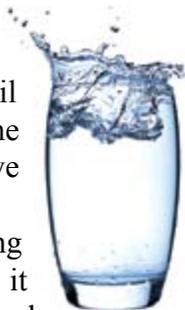
In drinking water, lead comes from lead service lines running from the water main in the street to the home and from plumbing inside the home. In the U.S. lead service lines were installed until the mid-1950's and according to the EPA, homes built before the 1986 ban of lead-use in plumbing materials are more likely to have lead pipes, fixtures and solder.

Lead from these plumbing materials can leach into drinking water when water is corrosive. Corrosive water occurs when it has the wrong pH or when it does not contain enough dissolved solids. The City of Golden has an approved corrosion control program that prevents corrosive water from being sent out into the distribution system. We constantly monitor pH, alkalinity, hardness, temperature and various other water quality characteristics to ensure corrosion control is correctly and consistently implemented. The City also conducts lead and copper monitoring in the water distribution system to validate our corrosion treatment is adequate.

Lead and copper samples are taken at the plant and out in the community at several designated sampling sites. To select these sites, we target homes that are likely to have or have lead plumbing materials. Using build date information and with citizen cooperation, the City currently collects samples from 34 households every three years. Since the Lead and Copper Monitoring Rule went into effect in 1991, the City has not had a single exceedance for lead and copper. Water treated here has been carefully balanced before entering the system.

LEAD - WHAT YOU NEED TO KNOW

Young children and pregnant women are typically more vulnerable to lead in drinking water than the general population. 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. The City of Golden is responsible to provide you with high quality drinking water but cannot control the variety of materials used in water service lines and home plumbing components. You can minimize your exposure by flushing your tap for 30 seconds to 2 minutes before using water for cooking or drinking. If you are concerned about levels of lead in your home, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize your exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at www.epa.gov/safewater/lead.



If You Have Special Health Concerns:

Both public and bottled water supplies 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. However, some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals such as persons undergoing chemotherapy, persons who have undergone organ transplants, those with HIV/AIDS or other immune system disorders and some elderly and infants can be particularly at risk for infection. 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 EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium*, *Giardia* or other microbiological contaminants, call the EPA Safe Drinking Water Hotline toll free at **1-800-426-4791** or visit <http://water.epa.gov/drink/contaminants>.

2015 Water Quality Monitoring Results

The following tables contain the results of all substances that are regulated by State and Federal law that were detected in Golden's water during the 2015 monitoring period. Most of the monitoring performed by Golden's Environmental Services lab results in non detect levels allowing the City to perform reduced monitoring for substances that pose no risk to our system. Some of those results will show dates that may be more than a year old.

Detected Regulated Substances

Monitored leaving the Water Treatment Plant

For more information, call the Water Quality Lab at 303-384-8181.

Or contact Stephanie Crabtree at 303-384-8184.

Organic/Inorganic	Sample Date	Average	Range Found	MCL	MCLG	No Violations	Common Sources
Barium, ppm	Quarterly	0.03	0.034 - 0.038	2	2		Natural Erosion
Fluoride, ppm	Quarterly	0.57	0.27 - 0.73	4	4		Natural Erosion
Nitrate, ppm	Quarterly	0.23	0.13 - 0.4	10	10		Fertilizer Run-off
*Total Organic Carbon (TOC), ratio (TOC, reported as a ratio, must remain above 1.0 for optimal water treatment.)	monthly - RAA	1.34	1.09 - 1.82	TT	TT	Naturally present in the environment	

*Golden uses enhanced treatment to remove the naturally occurring organic compounds that can combine with disinfectants to form Disinfection By-Products. The ratio of TOC removal measures our compliance with this treatment technique.

Radionuclides	Sample Date	Average	Range Found	MCL	MCLG	No Violations	Common Sources
Combined Radium (226 & 228) pCi/L	2-3-2011	0.1	0.1 - 0.1	5	n/a		Erosion of natural deposits
Gross Alpha Particles pCi/L	3-23-2015	0.4	0.4 - 0.4	15	n/a		Erosion of natural deposits
Combined Uranium pCi/L	3-23-2015	<0.7	<0.7 - <0.7	20	n/a	Erosion of natural deposits	

Turbidity	Sample Date	Result	Treatment Requirement	No Violations	Common Sources
Turbidity, NTU (Measure of the cloudiness of water. It is a good indicator of the effectiveness of our filtration system)	6 times per day	highest single reading 0.298 ntu	Maximum of 1.0 ntu at any time		Natural Run-off
Monthly averages must be less than 0.3 NTU for 95% of the time. In Golden, 100% of all monthly averages were less than 0.3 NTU for 2015.					

Monitored at consumer taps

Disinfection By-Products	Sample Date	Highest RAA	Average	Range Found	MCL	MCLG	No Violations	Common Sources
Total Trihalomethanes, ppb	quarterly RAA	72.6	40.55	Total Range 21.7 - 72.6	80	n/a		By-product of Chlorination
Total Haloacetic Acids, ppb	quarterly RAA	21.7	12.75	Total Range 8.31 - 21.7	60	n/a		By-product of Chlorination
Chlorine (free), ppm	throughout the year	n/a	0.77	0.34-1.1	MRDL 4	MRDLG 4	Drinking Water Disinfectant	

Running Annual Average for THM's must be less than 80 ppb. Running Annual Average for HAA's must be less than 60 ppb.

Lead and Copper	Sample Date	Concentration at 90th Percentile	Number of Exceedences at 90th Percentile	AL	No Violations	Common Sources
Lead, ppb	2014	less than 1	0	15		Corrosion of household plumbing
Copper, ppm	2014	0.058	0	1.3		Corrosion of household plumbing

The requirement to monitor for lead and copper at consumer taps has been reduced to once every three years. 30 Golden households were sampled in 2011 and 34 were sampled in 2014.

Other Monitoring Results *Monitored leaving the Water Treatment Plant*

Substance	Sample Date	Average	Range Found	MCL	SMCL	Common Sources
Alkalinity, ppm	weekly	39.25	22-53	n/a	none	Erosion of Natural Deposits
Chloride, ppm	quarterly	26.45	10.4-42.1	n/a	250 ppm	Erosion of Natural Deposits
Hardness, ppm	weekly	108	37-156	n/a	None	Erosion of Natural Deposits
Iron, ppm	quarterly	0.0044	<0.003 - 0.006	n/a	0.3 ppm	Erosion of Natural Deposits
Manganese, ppm	quarterly	0.0028	<0.001-0.005	n/a	0.05 ppm	Treatment
pH, su	weekly	8.39	7.6-8.9	n/a	6.5 - 8.5 su	Treatment
Potassium, ppm	quarterly	2.675	1.7-3.3	n/a	None	Erosion of Natural Deposits
Sodium, ppm	quarterly	24.68	15-31	n/a	None	Erosion of Natural Deposits
Sulfate, ppm	quarterly	80.05	41-103	n/a	250 ppm	Erosion of Natural Deposits
(TDS), ppm	monthly	195.84	95-276	n/a	500 ppm	Erosion and Storm Water Runoff
Zinc, ppm	quarterly	0.094	0.04-0.19	n/a	5 ppm	Erosion of Natural Deposits

Unregulated Contaminants Sampled at the Entry Point and Average Residence in the Distribution System

EPA has implemented the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act. EPA uses the results of UCMR monitoring to learn about the occurrence of unregulated contaminants in drinking water and to decide whether or not these contaminants will be regulated in the future. We performed monitoring and reported the analytical results of the monitoring to EPA in accordance with its Third Unregulated Contaminant Monitoring Rule (UCMR3). Once EPA reviews the submitted results, the results are made available in the EPA's National Contaminant Occurrence Database (NCOD) (<http://www.epa.gov/dwucmr/national-contaminant-occurrence-database-ncod>). Consumers can review UCMR results by accessing the NCOD. Contaminants that were detected during our UCMR3 sampling and the corresponding analytical results are provided below.

Contaminant Name	Year	Average	Range Low - High	Sample Size	Unit of Measure
Chlorate - 300.1	2013-2014	138.75	87 - 190	8	ug/L
Chromium Hexavalent – 218.7	2013-2014	0.139	0.09 - 0.25	8	ug/L
Strontium- 200.8	2013-2014	176.5	81 - 280	8	ug/L
Vanadium	2013-2014	<0.2	<0.2 – 0.7	8	ug/L

***More information about the contaminants that were included in UCMR3 monitoring can be found at: www.drinktap.org/water-info/whats-in-my-water/unregulated-contaminant-monitoring-rule.aspx. Learn more about the EPA UCMR at: www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule or contact the Safe Drinking Water Hotline at 800-426-4791 or <http://water.epa.gov/drink/contact.cfm>.



Glossary of Terms and Definitions

- **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.
- **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 90th 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.

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment (CDPHE) prescribes regulations that limit the amount of certain contaminants in the treated water provided by public water systems such as Golden's. The Food and Drug Administration (FDA) sets similar limits for contaminants in bottled water that must provide the same protection for consumers. However, the regulations and testing requirements are much less stringent than for tap water.



WATER TREATMENT

Trust Your Tap

In today's world with abundant bottled options to get your recommended daily dose of H₂O we may have forgotten about the best option: our tap. The City of Golden Water Treatment Plant would like to take this opportunity to provide you with a few reasons why you should reach for your faucet instead of pre-packaged bottles of water.

First, there is a basic difference between how bottled water and tap water are regulated. Bottled water companies follow rules and guidelines set by the Food and Drug Administration. Public Water Systems that produce tap water follow standards set by the Safe Drinking Water Act, the Surface Water Treatment Rule, and the Colorado Primary Drinking Water Regulations. Additionally, Golden's tap water is treated by plant operators who are licensed by the State of



Colorado and are in good standing. Your municipal water supply has more criteria in place to ensure its quality.

The City of Golden also has the benefit of having fantastic source water. We treat water that comes from Clear Creek, beginning high up in the Rocky Mountains, near the

Continental Divide with fresh snow melt. Bottled water, on the other hand, can come from anywhere and taking a moment to read the label might surprise you.

Another advantage to mention is the City has its own Environmental Services Water Quality Lab. Not only is the Environmental Services Lab State certified to perform specific laboratory testing, but they also provide checks and balances with frequent analysis, quality control, and quality assurance.

Finally, when you choose to drink from your tap you won't have to be concerned with phthalates and BPA's that come from plastics in bottled water. Your Golden Water Treatment Plant operators take pride in knowing they provide safe drinking water. With all these factors you can feel good about choosing your tap as your daily source of H₂O.

If you have any questions, please contact the Water Treatment Plant at 303-384-8187 or online at www.cityofgolden.net/government/departments-divisions/water/water-treatment-plant/.

Are You Polluting Golden's Creeks?

If you don't pick up after your pet, you are.

All untreated water poses potential health risks. In its natural state, Clear Creek contains pathogenic organisms that come from the birds and mammals that live in and near the water. As Clear Creek flows through urbanized areas of the watershed, the contribution of pathogenic organisms comes primarily from domestic animals.

Dog waste can be a significant source of pathogens. It is estimated that the average size dog produces 3 billion fecal coliform bacteria – *in each dog doo* – along with Salmonella and Giardia. Bacteria, viruses, parasites and excess nutrients from pet waste are bad news for water quality.

When dog waste is not properly disposed, pathogenic organisms are washed into waterways with runoff from stormwater and excess landscape irrigation. This can impact recreation use, drinking water treatment and the overall health of our watershed.

While we can't control the contributions of wild animal populations, we can do something to control the pathogens contributed by our pets. The best way to protect drinking water is to prevent contamination from occurring in the first place.

Thank you for picking up after Fido.

Even if your yard or the places where you regularly walk your dog seem far away from Clear Creek, they're not. Rain and snowmelt travel across yards and down streets, into drains and through pipes. Rain and snowmelt carry anything picked up along the way – eventually returning to Clear Creek, untreated. This includes bacteria, viruses, parasites and excess nutrients from pet waste.



For more information, contact:



City of
Golden

PUBLIC WORKS DEPARTMENT
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303-384-8181

WWW.CITYOFGOLDEN.NET/GOVERNMENT/

DEPARTMENTS-DIVISIONS/WATER/DRINKING-WATER/

The City of Golden is an active member of the Upper Clear Creek Watershed Association – a management agency dedicated to protecting the water quality in Clear Creek.

INFORMACIÓN IMPORTANTE ACERCA DE LA CALIDAD DEL AGUA

Para recibir la versión en español del Reporte de Calidad de Agua de 2015 de City of Golden, visite www.cityofgolden.net/links/CalidaddeAgua.

