



**2008**  
**CITY OF GOLDEN**

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**Water Quality Report**

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The City of Golden is pleased to provide you with your Annual Water Quality Report. This report summarizes information about the quality of the drinking water provided to Golden customers in 2008. It contains important data and facts about your drinking water, where it comes from and how it is treated. This report also contains information on our water distribution system and an update on what's new at the water treatment plant. Informed Golden consumers are the best advocates for safe drinking water and we welcome your input and feedback. The Environmental Services Division can be reached at 303-384-8181 or [esdiv@cityofgolden.net](mailto:esdiv@cityofgolden.net). Learn more online at [www.cityofgolden.net](http://www.cityofgolden.net).



## Clear Creek - Our Drinking Water Source

Golden's drinking water source is exclusively Clear Creek and its tributaries. As it flows through the watershed, it dissolves naturally occurring minerals and, in some cases, radioactive material from rock surfaces and the riverbed. Water quality in Clear Creek may also be influenced by rock or landslides, run-off from deciduous and evergreen forested areas, animal activity or by substances that are a result of human activity such as construction and highway operations, mining and remediation projects and quarry/gravel pit operations.

Potential contaminants that may be present in our raw water source in Clear Creek include:

- Bacteria and viruses from wastewater treatment plants, individual septic systems and wildlife
- Salts and metals from highway/road maintenance and construction operations, mine waste piles, active and abandoned mines or mine clean up sites and storm water runoff
- Organic contaminants from petroleum spills from gas stations or leaking aboveground or underground storage tanks
- Radioactive contaminants that are

naturally occurring or the result of mining activity

- Biological contaminants from residential lawns and agricultural activities

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment has set regulations that limit the amount of certain contaminants in the treated water provided by public water systems such as Golden's.

CDPHE also provides 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 these potential impacts to Clear Creek and rates the possible susceptibility to those sources. Information from the report can help Golden in developing and implementing water management strategies in order to optimize treatment and protect the quality of our drinking water.

The report is available online at [www.cdphe.state.co.us/wq/sw/swaphom.html](http://www.cdphe.state.co.us/wq/sw/swaphom.html) or may be obtained by contacting the City of Golden Environmental Services Division at 303-384-8181.

# Water Rights 2009

**T**he City of Golden continues to protect our valuable water resources.

Golden's leaders and employees, past and present, continue to optimize the water rights that we've accumulated through the years. While being ahead of the curve on securing sources of supply Golden has also been enhancing storage facilities, developing in-house expertise, and working closely with other Clear Creek entities to ensure a sustainable water supply system.

As the City eventually builds out to its maximum capacity, it's nice to know that Golden has acquired adequate water rights to comfortably accommodate all of the citizen's needs. During years of average or above average precipitation and snow-pack Golden's water supply exceeds their demand, even as the population grows to its fullest capacity.

With this in mind, years ago Golden began developing storage and diversion facilities to ensure an ample supply of water during drier years and extended droughts. Today, with Upper Urad Reservoir, Lower



Urad reservoir, Guanella Reservoir, and the Vidler Tunnel, Golden can continue to provide its citizen's all of their water needs even through a severe extended drought.

But the City didn't stop at securing supply and developing facilities. Golden has also developed pro-active programs and policies directed at water conservation such as:

- Developing a Water Conservation Plan focused on long term sustainability
- Conservation oriented specifications and recommendations in the building and planning department
- Establishment of a non-potable irrigation system for parks and other uses

- Advanced treatment methods in the Water Treatment Plant
- Reduction and elimination of waste and leaks in the Utility department
- Advanced turf management at Fossil Trace Golf Course and other parks
- Offering free sprinkler system audits
- Public education and consumer tips for saving water

Golden has, at the same time, been actively working with other Clear Creek water users and the State of Colorado to reduce adversarial relationships and costly legal disputes. Golden is raising the bar through example on cooperation and transparency which in the end helps everyone on the river be effective with their use of water.

Golden has long known the value of water in Colorado and actively sought to protect and enhance its future water supply. Through secured water supply, developed storage and handling facilities, and sustainable water management, Golden is protecting its citizen's water supply far into the future.

# 2008 Water Quality Monitoring Results

## Detected Regulated Substances

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

Monitored leaving the Water Treatment Plant

Substance	Sample Date	Average	Range Found	MCL	MCLG	No Violations	Common Sources
Barium, ppm	5-14-08	0.029	n/a	2	2		Natural Erosion
Fluoride, ppm	monthly	0.82	0.44 - 0.88	4	4		Natural Erosion
Nitrate, ppm	4-14-08	0.16	n/a	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	1.45	1.14 - 1.78	TT	TT		Naturally present in the environment

Substance	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)	1-31-08	highest single 0.269ntu  Monthly averages must be less than 0.3 NTU for 95% of the time. In Golden, 100% of all turbidity measurements were less than 0.3 NTU for 2007.	Maximum of 1.0 ntu at any time		

Substance	Sample Date	Average	Range Found	Highest RAA	MCL	MCLG	No Violations	Common Sources
Total Trihalomethanes, ppb	quarterly - RAA	41.8	29.1 - 57.7	47.6	80	n/a		By-product of Chlorination
Total Haloacetic Acids, ppb	quarterly - RAA	15.5	3.3 - 28.6	18.1	60	n/a		By-product of Chlorination
Chlorine (free), ppm	quarterly - RAA	1.03	0.82 - 1.31	n/a	MRDL - 4	MRDLG - 4		Drinking Water Disinfectant

Monitored at consumer taps

Substance	Sample Date	Concentration at 90th Percentile	Number of Exceedences at 90th Percentile	AL	No Violations	Common Sources
Lead, ppb	2008-2010	< 2	0	15		Corrosion of household plumbing
Copper, ppm	2008-2010	0.039	0	1.3		Corrosion of household plumbing

The requirement to monitor for lead and copper at consumer taps has been reduced to once every 3 years. 32 Golden households sampled in 2008.

## What About Lead?

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.

## Detected Unregulated Substances

*Monitored leaving the treatment plant*

Substance	Sample Date	Average	Range Found	MCL	SMCL	Common Sources
Hardness, ppm	weekly	91	n/a	n/a	None	Erosion of Natural Deposits
Potassium	4-14-2008	3.3	n/a	n/a	None	Erosion of Natural Deposits
Zinc	5-14-2008	0.174	n/a	n/a	5	Erosion of Natural Deposits
Sodium, ppm	4-14-2008	28	n/a	n/a	None	Erosion of Natural Deposits
Chloride	4-14-2008	9.6	n/a	n/a	250	Erosion of Natural Deposits
Sulfate	4-14-2008	37.4	n/a	n/a	250	Erosion of Natural Deposits
pH, su	daily	8.4	n/a	n/a	6.5 - 8.5	Treatment

## Other Substances Detected (unregulated but of public interest)

*Monitored in the distribution system*

Substance	Sample Date	Average	Range Found	MCL	SMCL	Common Sources
Manganese, ppm	monthly	0.009	0.0015 - 0.21	n/a	0.05	Erosion of Natural Deposits
Iron, ppm	monthly	0.03	0.007 - 0.018	n/a	0.3	Erosion of Natural Deposits

## Glossary of Terms and Definitions

**90th Percentile:** The point at which 90% of all values fall at or below this level.

**Action Limit (AL):** The concentration, which if exceeded, triggers a treatment modification. 90% of households tested must be below the AL.

**Maximum Contaminant Level (MCL):** 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.

**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 (MRDL):** The highest level of a disinfectant allowed in drinking water.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of drinking water disinfectant below which there is no known health risk.

**n/a:** - not applicable

**NTU:** nephelometric turbidity unit, used to measure water clarity

**pCi/L:** picocuries per liter, used to measure radioactivity

**ppb:** part per billion - corresponds to 1 inch in 16,000 miles

**ppm:** part per million - corresponds to one inch in 16 miles

**Running Annual Average (RAA):** Annual average based on weekly, monthly or quarterly monitoring.

**Secondary Maximum Contaminant Level (SMCL):** Non-enforceable levels that primarily affect the aesthetic quality of drinking water.

**Secondary Maximum Contaminant Level Goal (SMCLG):** The desirable goal, but not enforceable.

**su:** standard units

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

*We continuously monitor for various substances in our water supply in order to meet all our regulatory requirements. During 2008 there were no violations in the levels of substances detected in the drinking water we supply to Golden residents.*

# If You Have Special Health Concerns:

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 water poses a health risk.

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 to lessen the risk of infection by Cryptosporidium and other microbiological contaminants, contact the EPA Safe Drinking Water Hotline toll free at 1-800-426-4791.

## Drinking Water Distribution and Storage...

The City of Goldens Utility Division is responsible for ensuring that treated water from the City of Goldens Water Treatment Plant is distributed to our customers. Our goal is to ensure that fresh potable water is available in all areas of the system at all times. To accomplish this we flush mains and fire hydrants on a predetermined schedule, set tank levels to account for varying seasonal demand and clean tanks on a rotating schedule. Our personnel repair and maintain a system that includes 70 miles of distribution piping, 827 fire hydrants, 2967 valves and numerous tanks, pump stations and monitoring stations. Other responsibilities include reading meters, ensuring that raw water is available to the Water Treatment Plant and maintaining a 100 year old tunnel. We are available 24/7/365 to respond to emergencies or customer inquiries.



## Non-Potable Water for Irrigation

The City of Golden has established a non-potable irrigation system for several of its parks and Fossil Trace Golf Course. Golden will continue expansion of non-potable irrigation because it is very environmentally and financially sustainable.

Golden's non-potable irrigation is not recycled water like some cities' but rather water from Clear Creek that is not treated at all. The treatment process removes virtually all impurities from creek water making it safe to drink, but some of those impurities are actually very beneficial to plants and soils. By not treating the water, Golden can actually provide a better product for irrigation of parks and gardens. Plus a small amount of water is lost for every gallon of water that is treated which can be saved by using non-potable water whenever possible. During peak irrigation times last year Golden used over a million gallons of non-potable water per day...it really adds up.

But saving water isn't the only environmental benefit of using non-potable water. The impurities removed from treated water are reduced to sludge which has to be hauled off and disposed of. There are also chemicals and energy used in the treatment process.

Even with the environmental advantages of non-potable irrigation it has to be financially viable to work, and it is. The cost of the treatment process could be enough of an incentive to use non-potable water but the resulting reduced load on the water treatment plant can save hundreds of thousands of dollars over time. By reducing the amount of water Golden has to treat, we may never need to expand or upgrade the water treatment plant solely to increase capacity. If, for another reason, we need a new plant in the future, the capacity and cost can be reduced due to the expanded use of non-potable water.

Non-potable irrigation is a very sustainable practice. Done well, it can provide environmental benefits ranging from greener grass to fewer landfills. Financially it's hard to argue against the long term positive benefit to the City and consequently the overall benefit of the citizens.

## Are You Polluting Golden's Local Creeks?



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

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

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.

It's not just unsightly; it's unhealthy.  
Please pick up after your pet.



## ESPAÑOL

Este informe contiene información importante sobre su agua de beber. Si no puede leer, por favor busque la ayuda de alguien que lo puede traducir.

The USEPA and the State of Colorado are the regulatory authority for drinking water systems. The FDA regulates bottled water manufacturers who are required to provide the same protection for public health.

For more information,  
contact:



City of  
Golden

PUBLIC WORKS DEPARTMENT  
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