



Annual Water Quality Report

CITY OF GOLDEN



The City of Golden is pleased to provide you with our Annual Water Quality Report. This report is a summary of the quality of water provided to you in 2002. It contains important information about the water you drink, where it comes from and how it is treated. In 2002, the Golden Drinking Water Treatment Plant provided its customers with 1.4 billion gallons of safe, high quality drinking water. In an effort to conserve water, Golden citizens reduced their total yearly consumption in 2002 by 11.5% for a total of 180 million gallons.

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



Protecting Our Source Water

Golden's drinking water source is exclusively Clear Creek and its tributaries. As it flows through the watershed, it may pick up substances from construction and highway maintenance, mining and remediation projects, land and rock slides, septic systems and pollutants transported by stormwater runoff.

In 2002, public drinking water suppliers were asked to inventory potential contaminant sources within their "area of responsibility". For Golden's supply this included identifying mining activities, fuel and oil storage tanks, landfills, factories/industries and any other activity that could impact our community's water source or any downstream drinking water systems.

It is the first step in assessing impacts to our water supply and is being done in cooperation with the Colorado Department of Public Health and Environment. Information obtained from the Source Water Assessment Program (SWAP) is available to the public.

Informed Golden consumers are the best advocates for safe drinking water.

For additional information here is a list of drinking water related websites:

- EPA's Safe Drinking Water Hotline: <http://www.epa.gov/ogwdw>
- To access the most current SWAP information: <http://www.cdphe.state.co.us/wq/sw/news.html>
- The Colorado Water Protection Project: <http://www.ourwater.org>
- To access current local municipal water restrictions & drought updates: <http://drought.colostate.edu>
- The City of Golden Environmental Services Division: <http://www.cityofgolden.net>



Water Treatment Plant Update

Golden's Water Plant continues to participate in the "Partnership for Safe Water." This voluntary program is managed by the American Water Works Association and encourages participants to go beyond the regulations in pursuit of aesthetically pleasing, high quality water. Participation in the program entails adherence to rigorous goals, including: professionalism of operations staff, consistent production of high quality water, well defined operational goals and managerial support. More information can be found at:

<http://www.awwa.org/Science/partnership/index.cfm?a404=1>

In November 2001, Golden's City Council unanimously approved formalization of a partnership between Colorado School of Mines and the Golden Water Plant. In May of 2003 the results of this partnership led to the formal dedication of a Pilot Plant Laboratory by Golden Mayor Chuck Baroch, and CSM V.P. Nigel Middleton. The Pilot Lab will help CSM students and faculty and Golden staff, investigate innovative technologies which will help Golden meet the challenge of ever more complex water quality regulations. More information can be found at:

<http://www.mines.edu/Academic/envsci/curriculum/ietl.htm>

The City recently completed a "Split Train" project. This upgrade to the plant allows us to apply data from bench tests and the "Pilot Lab," to one of our two full scale treatment trains. Only a portion of the total plant flow is sent through the demonstration half of the split train. If a treatment's results prove promising at demonstration scale, we gradually implement changes at full scale. To accurately monitor differences between the two treatment trains, eight process control instruments were installed. Signals from these instruments are then relayed to the water plant computer system where information can be recorded, trended and evaluated. For a tour of the water treatment plant please call (303) 384-8187.

Chlorine – It's a good thing.

The City's Environmental Services Lab sometimes receives comments about chlorine in drinking water. The comments typically are "I don't like the way my water tastes. It smells like a swimming pool." "I can't drink this." "This can't be good for me." "Why do you have to put so much chlorine in it?" Consider the following.

Chlorination is used in the drinking water treatment process as a disinfectant. Since its first use in the treatment process in the early 1900's, chlorination has continued to be a safe, reliable, cost-effective way to eliminate waterborne diseases such as typhoid fever and cholera, coliforms and other pathogenic organisms. In conjunction with filtration, it contributes to the successful elimination of the naturally occurring giardia parasite found in Clear Creek, our untreated water supply.

New regulations require chlorine levels be less than 4 parts per million (ppm). Golden's water has between 1 and 1.5 ppm as it leaves the plant. Chlorine dissipates as it travels through the distribution lines to your home. Advancements in analytical methods allow disinfection with chlorine to be more closely monitored, more efficient and safer than ever.

The truth about chlorine is that it has no taste. Almost 80 percent of what we think we taste is actually smell. Humans can detect close to 20,000 different odors. Some people are "super sniffers" and have a much keener sense of smell than others. If chlorine odor is a problem for you, it can easily be remedied. Letting a glass of water sit for a few minutes before drinking may be adequate. If not, add a simple, inexpensive point of use charcoal filter at your sink.



Stormwater Quality – Why it matters to drinking water quality and what we're doing about it.

“One of the best ways to protect drinking water from contamination is to prevent contamination from occurring in the first place”.

Stormwater runoff (rain and snowmelt) from urban areas is known to be a significant source of pollution to creeks, rivers, lakes and reservoirs. Pollutants can have harmful effects on drinking water supplies, recreation, and wildlife. The City of Golden's Stormwater Program seeks to minimize polluted runoff in the following ways:

- **Public Education**
Please visit our website, pick up a brochure at a city office or call (303) 384-8188 for more information.
- **Public Involvement**
If you, or your group would like to adopt-a-spot to keep our waterways clean, please contact (303) 384-8155.
- **Illicit Discharges**
It is illegal to discharge anything other than stormwater (rain and snowmelt) into the storm drainage system (streets, gutters, inlets, drainage ways). Look for our storm drain markers throughout the City. Utilize the Rooney Road Recycling Center for disposal of household chemicals. Call the City's Environmental Services Division at (303) 384-8181 to report illegal dumping activity or the Police Department at (303) 384-8045 outside of normal business hours.
- **Construction Sites**
Water quality measures are required during construction because these activities can accelerate erosion and cause sediment to enter the storm drainage system. Sediment is a pollutant that can transport heavy metals to streams. Some measures with which you may be familiar include silt fence and erosion control blankets.
- **Stormwater Management**
Permanent measures that address water quality over the long-term are required to be implemented on new projects. Measures with which you may be familiar include detention ponds, constructed wetlands and the practice of minimizing directly connected impervious areas.
- **Pollution Prevention**
Through practices and procedures, the City seeks to minimize pollution generated, thus minimizing the potential for polluted runoff. Some examples are a city-wide recycling program, a street sweeping program and landscaped medians in the Community Center parking lot.





The City monitors our drinking water for hundreds of parameters each year. This table lists all the substances found in Golden’s drinking water during 2002. The EPA sets regulations that limit the amount of certain contaminants in drinking water supplies. These are contained in the following table. To better understand the terms and abbreviations in the table, we have provided a list of definitions.

Detected Regulated Substances

	Parameter	Detected Level	Range	MCL	MCLG	Sample Date	Violation? Y/N	Potential Sources
Regulated at the Treatment Plant	Fluoride, ppm	0.66	0.47 - 0.79	4	4	8-Mar-02	N	Erosion of Natural Deposits
	Nitrate, ppm	0.55	n/a	10	10	8-Mar-02	N	Fertilizer Run-off
	Turbidity, NTU	0.274*	n/a	TT	none	15-Jul-02	N	Natural Run-off
	Beta emitters, pCi/L	3	n/a	50	0	20-May-02	N	Decay of Natural Deposits
	Radium, pCi/L	0.2	n/a	5	none	20-May-02	N	Decay of Natural Deposits
	Barium, ppm	0.31	n/a	15	0	8-Mar-02	N	Decay of Natural Deposits
	Total Organic Carbon, ppm	1.08	0.90 - 1.25	TT	none	monthly-RAA	N	Naturally Present
Regulated in the Distribution System	Total Trihalomethanes, ppb	31	26.6 - 43.2	100	0	quarterly-RAA	N	By-product of Chlorination
	Total Haloacetic Acids, ppb	12.9	7.2 - 18.7	60	n/a	quarterly-RAA	N	By-product of Chlorination
	Chlorine, ppm	0.95	0.87 - 1.04	MRDL-4	MRDLG-4	quarterly-RAA	N	Drinking water disinfectant

* Highest single measurement for 2002. Monthly averages must be less than 0.5 ntu 95% of the time. 100% of all turbidity measurements were less than 0.5 ntu during 2002.

Detected Unregulated Substances

	Parameter	Average	Range	MCL	SMCL	Sample Date	Violation? Y/N	Potential Sources
Monitored at the Treatment Plant	Sodium, ppm	29	n/a	Not Regulated	None	8-Mar-02	N	Erosion of Natural Deposits
Monitored in the Distribution System	Chloroform, ppb	13.9	7.6 - 45	Not Regulated	None	quarterly	n/a	By-product of chlorination
	Bromodichloromethane, ppb	9	6.8 - 11.3	Not Regulated	None	quarterly	n/a	By-product of chlorination
	Chlorodibromomethane, ppb	4.7	3.3 - 8.8	Not Regulated	None	quarterly	n/a	By-product of chlorination

Other Substances Detected - Unregulated but of Public Interest

	Parameter	Average	Range	MCL	SMCL	Sample Date	Violation? Y/N	Potential Sources
	Manganese, ppm	0.012	0.011 - 0.013	Not Regulated	0.05	28-Jan-02	N	Erosion of Natural Deposits
	Iron, ppm	0.015	0.011 - 0.0155	Not Regulated	0.3	5-Nov-02	N	Erosion of Natural Deposits

Definitions

- **Maximum Contaminant Level Goal (MCLG):** The level of contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set at close to the MCLGs as feasible using the best available treatment technology.
- **Treatment Technique (TT):** A required process intended to reduce the level of contaminant in drinking water instead of a MCL.
- **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.
- **ppm:** parts per million - corresponds to one inch in 16 miles
- **ppb:** parts per billion - corresponds to 1 inch in 16,000 miles
- **NTU:** nephelometric turbidity unit, used to measure water clarity
- **pCi/L:** picocuries per liter, used to measure radioactivity
- **Secondary Maximum Contaminant Level (SMCL):** Non enforceable levels that primarily affect the aesthetic quality of drinking water.
- **Running Annual Average (RAA) -** Annual average based on weekly or quarterly monitoring.
- **n/a** - not applicable

Questions/Comments?

We want our customers to be informed about Golden's water utility. The treatment plant and laboratory are located at 1445 10th Street. If you have questions or comments please contact the City of Golden Environmental Services Division at (303) 384-8181 or at esdiv@ci.golden.co.us.

If You Have Special Health Concerns:

Because not all contaminants can be completely eliminated, 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 on appropriate means 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.