



# Annual Water Quality Report

## CITY OF GOLDEN



The City of Golden is pleased to provide you with your 4th Annual Water Quality Report. This report is a summary of the quality of water provided to you in 2001. It contains important information about the quality of the water you drink, where it comes from and how it is treated. In 2001, the Golden Drinking Water Treatment Plant provided its customers with 1.5 billion gallons of high quality drinking water that complied with all standards under the Safe Drinking Water Act.

### What's INSIDE?

*Stormwater Runoff -  
A Source of Water  
Pollution*

*Storm Sewer vs.  
Sanitary Sewer*

*Golden's Water Supply -  
Current and Future.  
Do we have enough?*

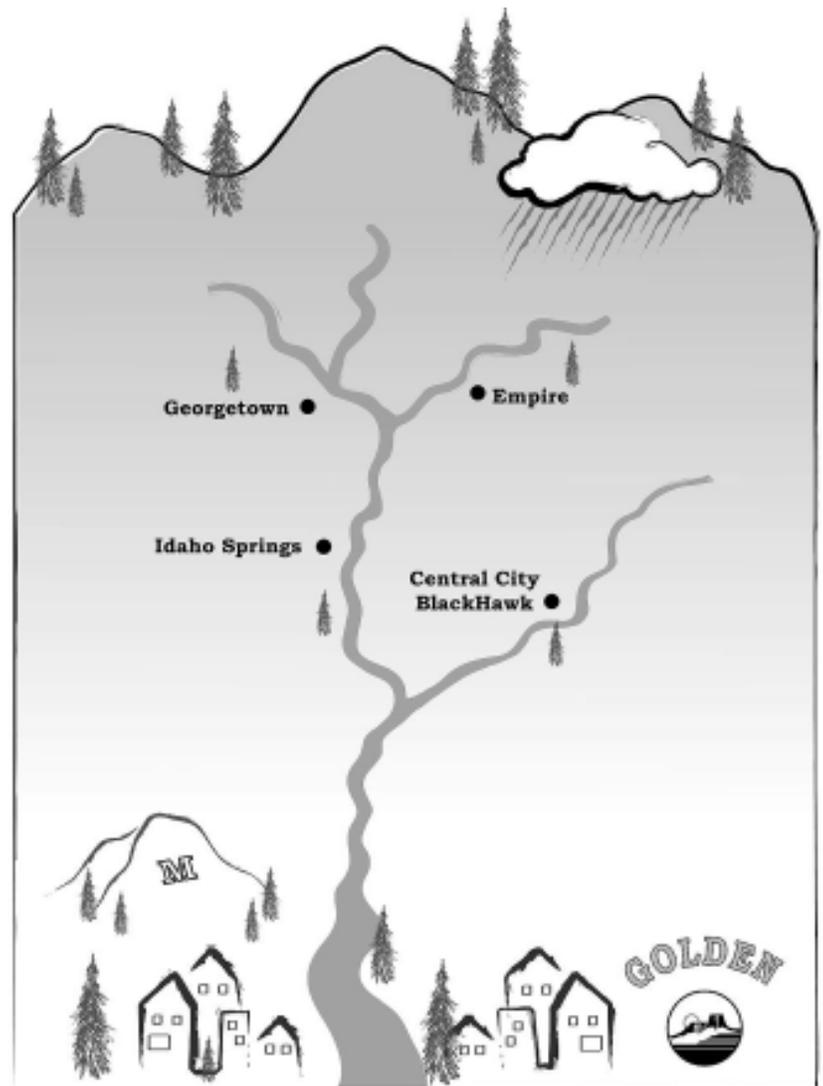
*Water Treatment Update*

*Monitoring Results  
for 2001*

*Informed citizens are the  
best advocates for safe  
drinking water. For  
updates on Colorado's  
Source Water Protection  
Program go to:  
[www.cdphe.state.co.us](http://www.cdphe.state.co.us)  
And search "SWAP".*

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.

A watershed is a river, its tributaries and the landscape through which it flows. The City of Golden's drinking water source is the surface water of the Clear Creek Watershed. It is fed from Loveland Pass, Berthoud Pass and from the North Fork of Clear Creek which flows from Black Hawk/Central City. It continues through Golden flowing eastward where it meets the South Platte River. As water flows over the surface of the land it dissolves naturally occurring minerals and, in some cases, radioactive materials. It can also pick up substances resulting from human activity such as mining, construction and highway maintenance, as well as, stormwater runoff from forested and residential areas. Our water is a finite resource and protection of our watershed has become of increasing concern to City governments and individuals. There is much that each of us can do to protect our source waters.





### What You Can Do to Minimize Urban Runoff

*Fix automotive leaks as soon as they're discovered.*

*Store antifreeze and gasoline in closed containers. Dispose of them properly.*

*Clean up after your pets.*

*Keep lids secure on outside garbage cans.*

*Use chemical alternatives for the lawn and garden.*

*Use chemical alternatives for household cleaners.*

*Wash your car on the lawn or take it to a car wash (it uses less water!).*

*Don't litter!*

## Stormwater Runoff

Picture the grime of city streets: oil and gas from cars and trucks, lawn chemicals and fertilizers, pet waste, and trash. Now picture the same streets after a rainstorm. The streets look cleaner, right? Sure, but the debris and contaminants haven't disappeared — they've been washed down the street, into storm drains, through underground pipes and directly to Clear Creek (or one of its tributaries).

This type of pollution is known as urban runoff. The U.S. Environmental Protection Agency now considers urban runoff the greatest threat to our nation's water quality. The good news is that there are a number of ways you can reduce runoff pollution.

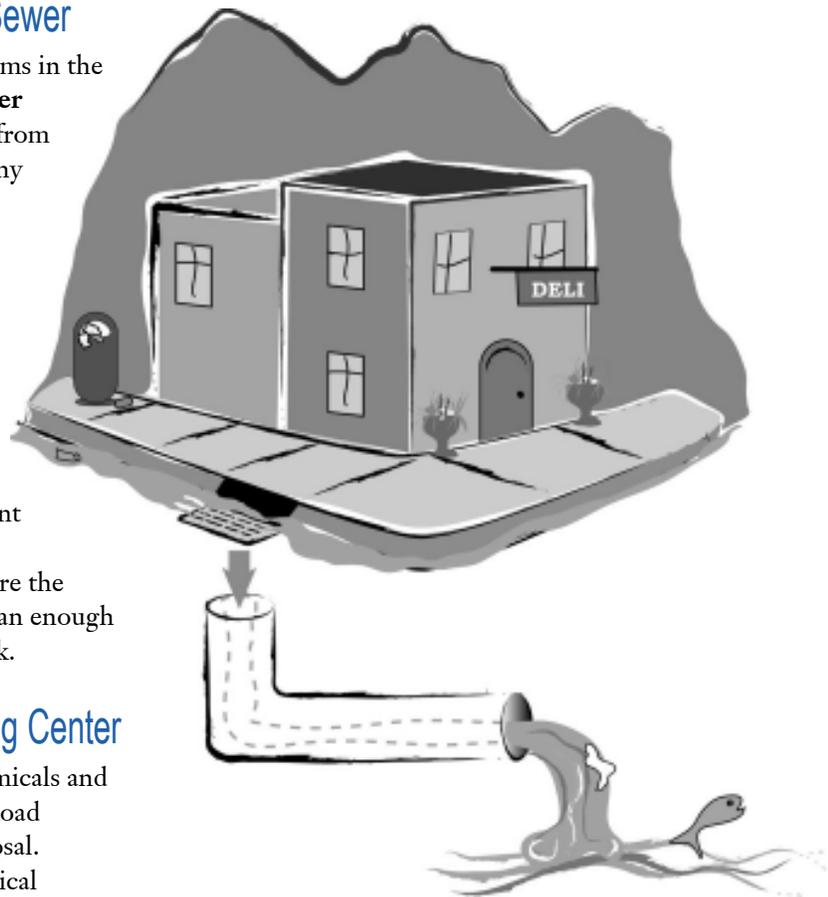
## Storm Sewer vs. Sanitary Sewer

There are two distinct sewer systems in the City of Golden. The **Storm Sewer** system is designed to drain water from the streets to prevent flooding. Any water that flows down gutters and into storm drains goes directly to Clear Creek without any treatment. Storm drain inlets do not remove pollutants.

The **Sanitary Sewer** system transports wastewater from residential and commercial sources to the wastewater treatment plant located north of the Coors Brewing Company complex. There the wastewater is treated until it is clean enough to discharge back into Clear Creek.

## The Rooney Road Recycling Center

Now you can take household chemicals and other recyclables to the Rooney Road Recycling Center for proper disposal. Before you buy a household chemical product, check for its availability at the Center's HazMart. This way you can avoid having to store or dispose of extra chemicals – and it's free! For more information or to schedule an appointment to drop off chemicals call the facility at (303) 316-6262.





### Conservation Tips

*Water lawns in early morning or late evening to avoid evaporation.*

*Keep grass at least two inches high to shade roots.*

*Plant native or drought resistant plants - Xeriscape!*

*Water trees deeply, slowly and infrequently to encourage deep rooting.*

*Aerate your lawn regularly.*

*Use mulch around plants in gardens to reduce evaporation.*

## Our Water Supply - Will We Face Mandatory Restrictions?

Unlike many area communities that have several water sources, Golden has only one year-round source. Historic and more recently acquired water rights provide residents with an adequate supply of water. A portion of Golden's water supply is stored in the Upper and Lower Urad Reservoirs located on Berthoud Pass above Empire. By 2005, Golden will have acquired the rights to an additional 1500-acre feet of water. This supply will be stored in Guanella Reservoir now under construction in Berthoud. This combined storage capacity will ensure a water supply that will meet the future needs of Golden residents.

In order to use our water more efficiently, our new golf course will be watered with untreated water that is collected and stored in ponds located on the course. The City recommends that all residents and businesses be "Water-Wise". More details on how to conserve water can be found at [www.cityofgolden.net](http://www.cityofgolden.net).

## Drinking Water Plant Update

- Throughout 2001, Golden's Drinking Water Plant continued to work with the "Partnership for Safe Water" program. This voluntary program is managed by the American Water Works Association (AWWA) and encourages participants to pursue aesthetically pleasing, high quality water that exceeds regulatory requirements. The program's goals include: professionalism of operations staff; consistent production of high quality water; well defined operational goals and managerial support. For more information on the Partnership and what it means for Golden, go to: <http://www.awwa.org/Science/partnership>.
- The Golden Water Plant was also selected as one of five water plants nationwide to participate in the AWWA Research Foundation's project "A Knowledge Based Approach for Real-Time Water Quality and Reliability Management." Applying new ideas learned from the project, the decision was made to replace the out-dated computer control system. The new state-of-the-art system makes daily data management activities more efficient and streamlines overall plant operations.
- Regulations mandating water quality are becoming more complex and typically, small scale bench top experimentation is used to evaluate various treatment techniques. This bench testing however, is not the best way to determine how a change in treatment strategy will work. In November 2001, Golden's City Council approved formalization of a partnership between Colorado School of Mines (CSM) and the Golden Water Plant. Funding from the City and CSM is being used to build a small "pilot plant" where CSM professors, students and our staff will work together to investigate new water treatment technologies. The pilot plant will be able to more accurately simulate how these techniques will work for full scale treatment. Additionally, plant modifications on the plant will allow "split train" treatment, by which promising treatment technologies can be demonstrated at close to full-scale capacity before implementation. By using the split train, operators can gradually increase from "demonstration scale" to "full scale". You can learn more at <http://www.mines.edu/Academic/envsci/curriculum/ietl.htm>.



The City monitors our drinking water for hundreds of parameters each year. The system operated without a single violation and provided drinking water that not only met but exceeded all Federal and State requirements. This table lists all the substances found in Golden’s drinking water during 2001. 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. More information about contaminants and potential health effects can be obtained by calling the EPA’s Safe Drinking Water Hotline at 1-800-426-4791.

**If You Have Special Health Concerns:**

*Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, as well as the elderly and infants can be particularly at risk from infections. These people should seek advice from their health care providers about food preparation, sanitation and handling of infants or pets. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available at the Safe Drinking Water Hotline toll free at (800) 426-4791 or on the Internet at [www.epa.gov/ogwdw](http://www.epa.gov/ogwdw).*

**Detected Regulated Substances**

	Parameter	Detected Level	Range	MCL	MCLG	Violation? Y/N	Potential Sources
Regulated at the Treatment Plant	Fluoride, ppm	0.83	0.33 - 0.83	4	4	n	Erosion of Natural Deposits
	Nitrate, ppm	0.32	n/a	10	10	n	Wildlife/Fertilizer Run-off
	Turbidity, NTU*	0.69	n/a	TT	none	n	Natural Run-off
	Beta emitters, pCi/L	2.7	n/a	50	0	n	Decay of Natural Deposits
	Barium, ppb	0.04	n/a	2	2	n	Refinery discharge
	Selenium, ppb	0.011	n/a	0.05	0.05	n	Refinery/mine discharge
Regulated in the Distribution System	Total Trihalomethanes, ppb	57.7	26 - 74.5	100	0	n	By-product of Chlorination

\* Highest single measurement for 2001. Monthly averages are required to be less than 0.5 NTU 95% of the time. Golden’s average daily high was 0.065 NTU.

**Detected Unregulated Substances**

	Parameter	Average	Range	MCL	SMCL	Violation? Y/N	Potential Sources
Monitored at the Treatment Plant	Sodium, ppm	30.7	n/a	Not Regulated	None	n/a	Erosion of Natural Deposits
	Chloroform, ppb	13.6	n/a	Not Regulated	None	n/a	By-product of Chlorination
	Bromodichloromethane, ppb	4.8	n/a	Not Regulated	None	n/a	By-product of Chlorination
	Chlorodibromomethane, ppb	2.6	n/a	Not Regulated	None	n/a	By-product of Chlorination
	radon, pCi/L*	11 (+/- 10)	n/a	Not Regulated	None	n/a	Decay of natural deposits
	Manganese, ppm	0.012	n/a	Not Regulated	0.05	n/a	Erosion of Natural Deposits
Monitored in the Distribution System	Total Haloacetic Acids, ppb**	21.6	n/a	60 proposed	None	n/a	By-product of Chlorination

\*The test for radon has a high variability and therefore is reported as 11 pCi/L *plus or minus* 10 pCi/L. Because it is reported with a high margin of error, the result may be insignificant. Consumers should know that radon is a *gas* that you cannot see, taste or smell. Radon can be released into indoor air from showering, washing dishes or other household activities. However, in most cases, radon is not a problem in homes served by a public water supply. Radon is a known human carcinogen and if you have a concern about radon in your home, have the air tested. There are many low cost, easy to use radon test kits available to consumers. For additional information you can call the State of Colorado Radon Program at (303) 692-3040 or EPA’s Radon hotline at 1-800-SOS-RADON.

\*\* Will be regulated effective 1-1-02.

**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 as 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.
- **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.
- **n/a** - not applicable

Need specific information about giardia, sodium, lead, radionuclides and other basic water facts? The EPA has an informative consumer website at [www.epa.gov/safewater](http://www.epa.gov/safewater). This entire report is also available on the city website at [www.cityofgolden.net](http://www.cityofgolden.net). Question or comments? Please call the City of Golden Water Quality Lab at (303) 384-8181.