

## Director's Message

Greeley Water is now implementing the water master plan adopted by City Council and the Water and Sewer Board in 2003. The master plan is a vision to assure that Greeley citizens have a pure water supply adequate to their needs, both now and in the future. Greeley has always been progressive in developing the water supplies needed to create the lifestyle desired by the people who make this city our home. Those visionaries were pioneers like Nathaniel Meeker and B.H. Eaton who created the first irrigation ditches; as well as those who built the drinking water system on that legacy: Milton Seaman, Charlie Hansen, W.D. Farr. And of course, tremendous vision was shown by the ordinary citizens of Greeley who were willing to pay to create a secure water supply in a semi-arid environment. We have been handed a legacy of a robust, reliable system that provides us some of the best water in the country. We intend to pass that legacy on, so future generations can enjoy the benefits of pure plentiful water for our Colorado lifestyle.



Jon Monson  
Water & Sewer Director

## 2006 Watering Restrictions



Greeley allows 3-days-per-week watering. Residents must follow the mandatory schedule and refrain from watering during the heat of the day. The Water Department is allowing 3 days for flexibility, although we encourage you to water one or two days in the spring and fall depending on precipitation and temperature.

### No Lawn Watering: Noon - 5 p.m.

Single Family Even Addresses 0, 2, 4, 6, 8	Single Family Odd Addresses 1, 3, 5, 7, 9	Commercial Multi-Family Non-Profit
Tuesday Thursday Sunday	Monday Wednesday Saturday	Tuesday Friday Sunday

For more information call 336-4134 or visit [www.greeleygov.com/wc](http://www.greeleygov.com/wc)

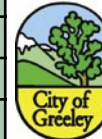
## Where Can I Get More Information?

If you would like more information about the material covered in this report, you can contact Angela Miles, Regulatory Compliance Coordinator, at 350-9209. If you'd like to view the report online, visit [www.greeleygov.com/ccr](http://www.greeleygov.com/ccr). You can also access information about drinking water in general on EPA's drinking water website at [www.epa.gov/safewater](http://www.epa.gov/safewater). Additionally, the public is welcome to attend meetings of Greeley's Water and Sewer Board, which are held on the third Wednesday afternoon of every month at City Hall, located at 1000 10th Street. For more information on times, dates and locations of the Board meetings, please contact Frank Brooks at 350-9817.



## Important Contact Information

<b>Water &amp; Sewer Department</b> <a href="http://www.greeleygov.com/water">www.greeleygov.com/water</a>	<b>350-9811</b>
<b>Conservation/Restrictions</b> <a href="http://www.greeleygov.com/wc">www.greeleygov.com/wc</a>	<b>336-4134</b>
<b>Water Emergencies (Daytime)</b>	<b>350-9811</b>
<b>Water Emergencies (After Hours)</b>	<b>350-9600</b>
<b>Taste and Odor Concerns</b>	<b>350-9324</b>
<b>Utility Billing</b>	<b>350-9720</b>



## 2006 Taste and Odor Concerns

In the spring, you may have noticed an unusual taste and odor in the water coming from your tap. In response to increased lawn watering, Greeley turns on our secondary water treatment plant at Boyd Lake to meet increased water demands. The Boyd Lake Treatment Plant takes raw water for treatment from Boyd Lake and Lake Loveland. This year, Lake Loveland experienced unusual quality problems which resulted in taste and odor problems after treatment. In order to correct the taste and odor problems coming from this drinking water source, we flushed the old water from the system and added activated carbon to the new water. Be assured that although the tastes and odors you experienced may have been unpleasant, it was in no way a reflection of the health and safety of our drinking water. Continuous testing and monitoring assures us that the water meets every state and federal health and safety standard. If you ever experience taste and odor problems, or if you have further questions or concerns, please do not hesitate to contact us at 350-9324.

# City of Greeley

## Annual Drinking Water Report

June 2006, Issue #8



# 2005

Welcome to the City of Greeley's eighth annual Drinking Water Quality Report. The information in this report covers drinking water information from the City of Greeley public water system for calendar year 2005.

The report provides an excellent opportunity for our customers to learn about where their drinking water comes from and the quality of the water they consume.

*Greeley's water system is identified by the State of Colorado by number CO-0162321*

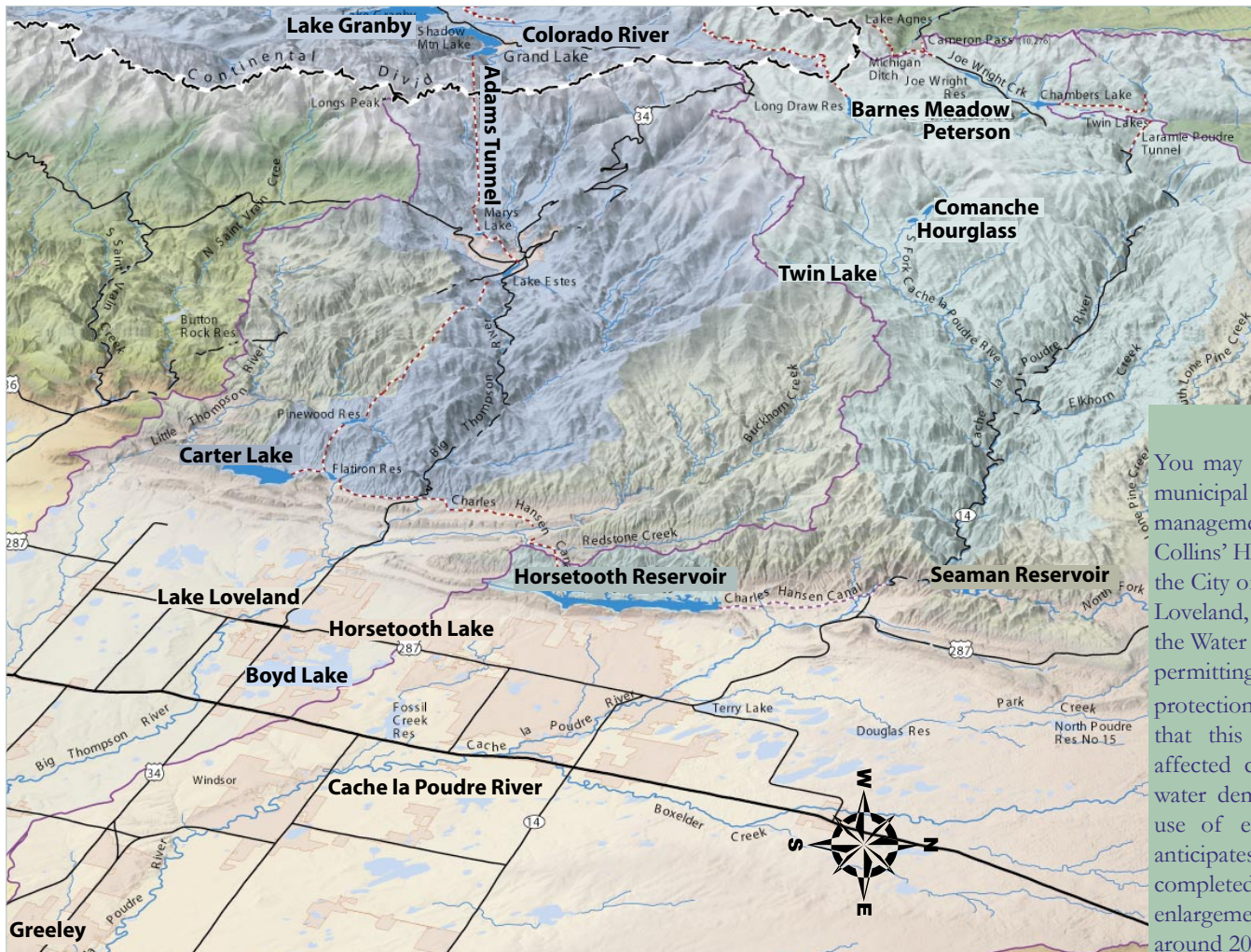
Esta informacion es importante. Si usted necesita ayuda por favor llamenos y le ayudaremos con gusto. Si tiene alguna pregunta llame al telefono 350-9811.

## Greeley's Drinking Water Sources



Greeley's drinking water comes from surface waters located in three major river basins: the Cache la Poudre, the Big Thompson, the Colorado and the Laramie River. Greeley also uses six high-mountain reservoirs in the Cache la Poudre River basin (Barnes Meadow, Comanche, Hourglass, Peterson, Milton Seaman, and Twin Lake) within the Roosevelt National Forest. These reservoirs retain water from spring snowmelt for redistribution during the summer and fall when there is high water demand, but low-river flows. In addition, Greeley uses a plains reservoir system (Boyd Lake, Lake Loveland, and Horseshoe Lake) to provide storage for peak summer demands. Finally, Greeley owns a portion of the Colorado-Big Thompson (C-BT) Project. We store our portion of the water from the C-BT Project in Lake Granby, Horsetooth Reservoir, and Carter Lake, which can deliver water to either the Cache la Poudre or Big Thompson River Basins to meet Greeley's water demands. You can get more information on Greeley's Water Resources by visiting: [www.greeleygov.com/wr](http://www.greeleygov.com/wr).

Greeley treats raw water from its various sources at either the Boyd Lake Water Treatment Plant near Loveland, or at the Bellvue Water Treatment Plant north of Fort Collins. The Boyd Lake facility generally operates April through October to accommodate increased demand from lawn watering. The Bellvue facility operates year-round. The treated water is then piped to Greeley where it is distributed to you, the customer; or stored in one of three finished water reservoirs prior to distribution.



## Protecting Watersheds & Source Waters

Source water is untreated water from streams, rivers, lakes or underground aquifers, which is used to supply public drinking water.

The Colorado Source Water Assessment and Protection (SWAP) Program is designed to provide the public consumer information about the sources of drinking water and provide the community a way to get involved in protecting the quality of drinking water. The program encourages community-based protection and preventive management strategies to ensure that all drinking water resources are kept safe from future contamination. The SWAP Program has completed its assessment of Colorado's source waters and has made some SWAP reports available online. At this time, our Source Water Assessment Report is in the process of being corrected. When it is finalized, it will be available by contacting the Colorado Source Water Assessment Program (SWAP) at 303-692-3592 or by visiting the SWAP website at [www.cdphe.state.co.us/wq/sw/SWAP/swapreports.html](http://www.cdphe.state.co.us/wq/sw/SWAP/swapreports.html).

Greeley has been a member of the Big Thompson Watershed Forum since 1997 and has collaborated with other communities and organizations to monitor and analyze water quality as it flows through the Big Thompson Watershed. The information gathered through the monitoring program is used to inform customers about source water quality and to bring improved protection for this watershed. For more information about how you can become involved, contact the Big Thompson Watershed Forum at 613-6160 or visit [www.btwatershed.org](http://www.btwatershed.org).

## Halligan-Seaman Project

You may have heard that the City of Greeley is partnering with other area municipal and agricultural water providers to develop a regional water management project involving Greeley's Milton Seaman Reservoir and Fort Collins' Halligan Reservoir. Joining Greeley and Fort Collins in the project are the City of Evans and the water districts of North Weld County, Fort Collins-Loveland, East Larimer County, the North Poudre Irrigation Company and the Water Supply and Storage Company. The project, which is currently in the permitting stage, will provide additional water to satisfy future demand and protection during dry years. City leaders expect that this regional partnership will help the affected communities meet anticipated future water demand as well as make more efficient use of existing water supplies. Fort Collins anticipates that enlargement of Halligan will be completed around 2010, while Milton Seaman enlargement will occur five to ten years later, around 2020.



For more information on the Halligan-Seaman Water Management Project, visit [www.halligan-seaman.com](http://www.halligan-seaman.com)

## Drinking Water Quality

The Safe Drinking Water Act establishes the standards for most drinking water systems in the country, including Greeley's. In 2005, the Greeley drinking water system operated without exemption (i.e., state or federal permission not to meet a standard under certain conditions). However, our water system did receive a waiver (permission not to test for specific contaminants) from the State of Colorado for cyanide, asbestos, dioxin and glyphosate. A waiver was provided because it is unlikely that these contaminants would be found in our drinking water.

The City routinely monitors for a long list of contaminants in our drinking water according to state and federal laws. The tables identify drinking water contaminants that Greeley detected in the water, the levels detected, and the maximum allowable contaminant levels. As you peruse the tables, you will see that Greeley met all drinking water standards.

In order to ensure that tap water in Colorado is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations that limit the amount of certain contaminants in drinking water provided by Colorado public water systems. Similarly, the United States Food and Drug Administration ("FDA") regulations establish limits for contaminants in bottled water that must provide the same protection for public health. 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 Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791.

## Vulnerable Populations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as those 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 from infections. These people should seek advice about drinking water from their health care providers. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline 800-426-4791.



## Key to the Tables

**AL:** Action level. The concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must follow.

**MCL:** Maximum contaminant level. The highest level of a contaminant allowed in drinking water below which there are no known health effects. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**MCLG:** Maximum contaminant level goal. The level of a contaminant in drinking water below which there are no known or expected risks to health. MCLGs allow for a margin of safety.

**MRDLG:** Maximum residual disinfectant level goal. The level of a drinking water disinfectant, below which there are no known or expected risks to health.

**MRDLGs** do not reflect the benefits of the use of disinfectants to control microbial contaminants.

# 2005 Drinking Water Quality Results

(Sampling was performed from January 1, 2005 through December 31st, 2005 unless otherwise indicated.)

## Microbiological Contaminants

Contaminant, Units	MCLG	MCL	Percentage of Measurements Below the Limit	Highest Single Value	Violation?	Source of Contaminant in Drinking Water
Turbidity, NTU	N/A	TT ≤ 0.3	100%	0.29	No	Soil Runoff
		TT ≤ 1.0	100%			

There are two treatment technique standards for turbidity. To meet the treatment technique standard of 0.3 NTU, the reported turbidity must be less than or equal to this value at least 95% of the time. To meet the treatment technique standard of 1.0 NTU, turbidity must never be greater than 1.0 NTU.

Contaminant	MCLG	MCL	Percentage of Samples That Were Positive	Violation?	Source of Contaminant in Drinking Water
Total Coliform Bacteria	0	5% of the Samples Test Positive	0%	No	Naturally Present in the Environment

Each month, 90 samples are taken in the distribution system. Of the 90 taken each month, none were found positive for Coliform bacteria.

Contaminant, Units	MCLG	MCL	Annual Removal Ratio	Violation?	Source of Contaminant in Drinking Water
Total Organic Carbon (TOC)	N/A	TT ≥ 1.0	1.22 – 1.83	No	Naturally Present in the Environment

Compliance with the TOC standard is based on how much organic carbon is removed from the raw water. If the annual removal ratio is greater than or equal to 1.0, the water system is in compliance with the TOC treatment technique (TT) standard

## Inorganic Contaminants

Contaminant, Units	MCLG	MCL	Range of Levels Detected and Highest Value Detected	Violation?	Source of Contaminant in Drinking Water	
Barium, ppm	2	2	Range : 0.14 – 0.34 Highest: 0.34	No	Erosion of Natural Deposits	
Fluoride, ppm	4	4	Range: 0.93 – 0.96 Highest: 0.96	No	Water Additive That Promotes Strong Teeth	
Selenium, ppb	50	50	Range: not detected – 4 Highest: 4	No	Erosion of Natural Deposits	
Contaminant, Units	MCLG	MCL	90th Percentile Value	# of Homes Exceeding Action Level	Violation?	Source of Contaminant in Drinking Water
Lead, ppb	0	AL=15	5	0	No	Corrosion of Household Plumbing Systems
Copper, ppm	1.3	AL=1.3	0.34	0	No	

The 90th percentile value represents the highest concentration that is exceeded by 10% of the taps sampled.

## A Word About Cryptosporidium

Cryptosporidium is a micro-organism that is found in rivers and lakes across Colorado. It can cause a severe intestinal disorder in people, and consequently, is receiving increasing attention by drinking water professionals. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people face a greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to ask their doctor about appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread by means other than drinking water. In 2005, Cryptosporidium was detected in untreated water samples taken from source water supplied by the C-BT system and the Cache la Poudre River. Current test methods do not allow us to determine whether the organisms were dead or capable of causing disease. Cryptosporidium is eliminated from drinking water by an effective treatment combination, including coagulation, sedimentation, filtration, and disinfection (all of which Greeley does). The City did not detect the organism in its treated water supplies.



## Common Drinking Water Contaminants

The sources of drinking water (both from the tap 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 accumulate substances resulting from the presence of animals or from human activity. Contaminants that may be present in the sources of our drinking water include:

*Microbiological Contaminants:* such as viruses and bacteria, which may come from sewage treatment plants, septic systems, livestock operations and wildlife.

*Inorganic Contaminants:* such as 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:* which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.

*Organic Chemical Contaminants:* including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff and septic systems.

*Radioactive Contaminants:* which can be naturally-occurring or be the result of oil and gas production or mining activities.

**N/A:** Not applicable.

**ND:** Not detected. Lab analysis indicates that contaminant is not present.

**NTU:** Nephelometric turbidity unit is the measurement of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**pCi/l:** Pico curies per liter, a measure of radioactivity.

**ppm:** Parts per million, or milligrams per liter (mg/l).

**ppb:** Parts per billion or micrograms per liter (ug/l).

**TOC:** Total organic carbon. A measure of the total amount of carbon in the water, present as organic molecules.

**TT:** Treatment technique. A required process intended to reduce the level of a contaminant in drinking water.

Contaminant, Units	MCLG	MCL	Range of Levels Detected and Highest Value Detected	Violation?	Source of Contaminant in Drinking Water
Gross alpha, pCi/L	0	15	Range: Not detected – 2 Highest: 2	No	Erosion of Natural Deposits
Gross beta, pCi/l	0	50	Range: not detected – 3 Highest: 3	No	Decay of Natural Deposits

The data presented for radionuclides are from the most recent testing performed in 2004.

## Disinfectants and Disinfection Byproducts

Contaminant, Units	MCLG	MCL	Range and Average Levels Detected	Violation?	Source of Contaminant in Drinking Water
Chlorine Dioxide, ppb	800 (MRDLG)	800 (MRDL)	Range: not detected – 57 Highest Monthly Average: 6	No	Water Additive Used to Control Microbes
Chlorine Residual, ppm	4 (MRDLG)	4.0 (MRDL)	Range: 0.55 - 1.7 Highest Annual Average: 1.4	No	Water Additive Used to Control Microbes
Chlorite, ppm	0.8	1.0	Range: 0.12 – 0.45 Highest Monthly Average: 0.32	No	By-Product of Disinfection
Haloacetic Acids, (HAA5), ppb	N/A	60	Range: 15 - 35 Highest Annual Average: 27	No	By-Product of Disinfection
Total Trihalomethanes, (TTHM), ppb	N/A	80	Range: 21- 80 Highest Annual Average: 43	No	By-Product of Disinfection

Compliance with the TTHM and HAA5 standards are based on an annual average of samples taken throughout the distribution system.

## Additional Monitoring

Every three years, Greeley monitors a long list of other regulated volatile organic, pesticide, and herbicide contaminants. Greeley last tested for them in 2003 and none were detected in your drinking water. For a list of the contaminants for

which we tested but did not detect, please contact the Regulatory Compliance Coordinator at 350-9209. In addition, the EPA requires water systems to monitor for certain unregulated (that have no MCL) contaminants. Of the unregulated contaminants, Greeley detected sodium at 17 ppm at the Boyd Lake Water Treatment Plant and 9 ppm at the Bellvue Water Treatment Plant.



## Treatment Process

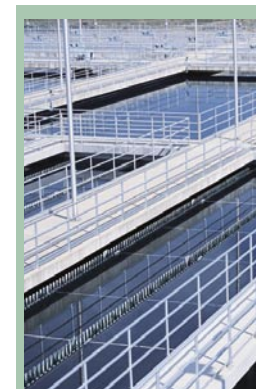
Greeley treats raw water at the Boyd Lake Plant near Loveland or at the Bellvue Plant north of Fort Collins. The treated water is then piped to Greeley and distributed to our customers.

1. *Flocculation-* Chemical enhancers are mixed into raw water to allow mud, algae and other particles to stick together.

2. *Sedimentation-* The “floc” (mud, algae, etc) sinks to the bottom of sedimentation basins, where it is disposed of later.

3. *Filtration-* The water passes through a series of filters. This stops most impurities.

4. *Disinfection-* Chlorine gas kills any remaining viruses and bacteria.



The Flocculation Process at a Treatment Plant