Water Quality Report 2001

City of Redding Water Utility

This report is brought to you by the City of Redding Water Utility. The information contained in this report was taken from water analysis performed through December 2001. The summarized statements on water quality are required by the United States Environmental Protection Agency even though the water is of high quality.

REDDING MUNICIPAL UTILITIES

A Message from the Manager

Your health and the health of the Redding community is important to us. We are proud of the fact that your water utility not only meets Federal and State Water Quality Standards each and every day of the year, but in most cases, contaminant levels fall far below published Primary and Secondary Standards. This means that you, the consumer, are assured of the safest water we can deliver to your home or business.

Through careful management of our resources and prudent business decisions, we will continue to bring you the highest quality water at the lowest possible cost, now, and in the future.

Water customers who receive this report are asked to share this information with any tenant or water user on their premises. We would like all our customers to have current and factual information about our water supply. We are available to answer your questions and provide more information if needed. Please call (530) 225-4475, (530) 225-4192, or (530) 224-6040.

Your Opinion Matters

We welcome public participation in water quality issues. Information that deals with decisions about our water system are addressed during Redding City Council Meetings. These meetings are held the first and third Tuesday of each month at 7:00 pm in the City Council Chambers at the Civic Center, 777 Cypress Avenue, Redding.

Este informe contiene información muy importante sobe su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

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Water Sources

The City of Redding has two major sources of drinking water, surface water and groundwater. The Sacramento River and Whiskeytown Lake provide our customers with 71% of the water they use. This translates into approximately 5.61 billion gallons per year. The remaining 29%, or 2.32 billion gallons per year, is groundwater which comes from 14 wells. The people of Redding are fortunate in that we have a substantial water right diversion from the Sacramento River that dates back to 1886. Currently, our contract with the Bureau of Reclamation (USBR) allows a maximum annual diversion of 21,000 acre feet (af) or 18.7 million gallons per day (mgd). In addition, the City also has a smaller contract with the USBR for water to serve the Buckeye area - the northwest portion of our service area. Currently, this contract allows for a maximum annual diversion of 6,140 af, or 5.4 mgd, from Whiskeytown Lake. All surface water is treated at one of the two conventional water treatment facilities owned by the City of Redding.

Sacramento River

The Sacramento River is the surface water source for the City's Foothill Water Treatment Plant - a 24-million-gallon-per-day (mgd) plant with expansion capabilities of 42 mgd. Two water lines - 30 inches and 18 inches in diameter - convey water from the river to the Foothill Plant. The Foothill Water Treatment Plant is considered a conventional treatment facility. Conventional treatment includes: pre-treatment, coagulation and flocculation, sedimentation, filtration and chlorination. These steps remove impurities from the water and ensure potable water for the citizens of Redding.

Whiskeytown Lake

Whiskeytown Lake is the surface water source for the City's Buckeye Water Treatment Plant - a 7-million-gallon-per-day (mgd) plant with expansion capabilities of 28 mgd. A 36 inch diameter water line carries water from the lake to the Buckeye Plant. This is a gravity-fed system, hence there is no need for a pumping facility. Constructed between 1993 and 1995, the plant became operational in May 1995. As a conventional treatment facility, the Buckeye Water Treatment Plant includes disinfection, flocculation, sedimentation, and filtration. In addition, the Buckeye Treatment Plant houses state of the art system and process controls which allow remote operation from the City's Foothill Treatment facility. The construction of this gravity- fed treatment plant eliminated the need to pump water from the Foothill plant into the northwest portion of the City's service area.

Groundwater

The City's 14 wells are located in the southwest and southeast portion of our service area - the Cascade and Enterprise zones. These wells pump water from an underground aquifer - rock formations through which water filters slowly. These wells are used primarily during the summer when demand is high. We utilize vertical turbine or submersible turbine pumps, both designed to pump water from deeper wells. Wells range from a depth of 170 feet to a depth of 600 feet below the surface. Water pumped from our groundwater basin is of excellent quality and only minimal disinfection and treatment is necessary before the water enters our distribution system.

Source Assessment

A drinking water source assessment includes: a delineation of the area around a drinking water source through which contaminants might move and reach that drinking water supply; an inventory of possible contaminating activities that might lead to the release of microbiological or chemical contaminants within the area; and a determination of the activities to which the drinking water source is most vulnerable. A source assessment for the City of Redding has been conducted: groundwater in March 2000 and surface water in March 2001. This assessment is available for review at the City of Redding Water Treatment Plant at 3100 Foothill Blvd. in Redding. The City's water supply is considered most vulnerable to the following activities associated with contaminants detected in the water supply: fueling areas, septic systems, bio-solids application, and petroleum pipelines. In addition, the sources are considered most vulnerable to these activities: recreational use, agricultural drainage and grazing. Please call (530) 225-4475 for more information.

Water Quality Control

As required by the Federal Safe Drinking Water Act, the City's water supplies must meet stringent water quality standards set by the State Department of Health Services - Division of Drinking Water (CDHS-DDW), the United States Environmental Protection Agency (USEPA) and the Food and Drug Administration (FDA). These three organizations set standards that are very protective of public health.

In California, drinking water standards (also called Maximum Contaminant Levels, or MCL's) are set in two categories: Primary Standards relative to public health and Secondary Standards relating to aesthetic qualities such as taste, odor and color. You will find a complete listing of both types of standards along with the analysis results of your water supply in this report.

Sampling

Before the water reaches your tap, samples from the water distribution system, groundwater wells and the water treatment plants are collected and tested in State-certified laboratories. The City of Redding Water Utility has a regular program of water analysis and system inspection which assures safe water for you and your family. We employ eight State-certified water plant operators who assure that water treatment operations provide excellent quality water three hundred sixty-five days a year.

Monitoring

The state allows monitoring for some contaminants less than once per year since the concentrations of these contaminants do not change frequently. Some of the tests, though representative, are more than one year old.

The sources of drinking water, tap water and bottled water, include both surface water such as rivers, or lakes and groundwater 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 pick up substances resulting from the presence of animals or from human activity.

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Contaminants that might be present in drinking water prior to treatment include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural 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.
- 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.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA and the California Department of Health Services prescribes regulations which limit the level of certain contaminants in water provided by public water systems. Department of Food and Drug regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Vulnerability

The presence of contaminants in drinking water does not necessarily indicate that drinking water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA Safe Drinking Water Hotline (800) 426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons 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. USEPA and Centers for Disease Control (CDC) guidelines on appropriate means to decrease the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Additional Health Information

What You Should Know About...

Arsenic - While your drinking water meets the current standard for arsenic, it does contain low levels of arsenic. The standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The California Department of Health Services continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentration and is linked to other health effects such as skin damage and circulatory problems.

Nitrate - Nitrate in drinking water at levels above 45 mg/L is a health risk for infants less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider. Nitrate has been detected in groundwater but at levels which fall below 45 mg/L. Please see the water quality tables in this report for more information.

Radon - Radon is a radioactive gas that you can't see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water while showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will, in most cases, be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. It is recommended that you fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call your State Radon Program or call EPA's Radon Hotline (800-SOS-RADON). The Maximum Contaminant Level for Radon is set at 4000 pCi/L. Radon has been detected in groundwater but at levels far below this standard. Please see the water quality tables in this report for more information.

Total Coliform - Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

Turbidity - Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. For disinfection to be effective, turbidity must be reduced to the greatest extent possible by treatment methods such as coagulation, flocculation, and filtration.

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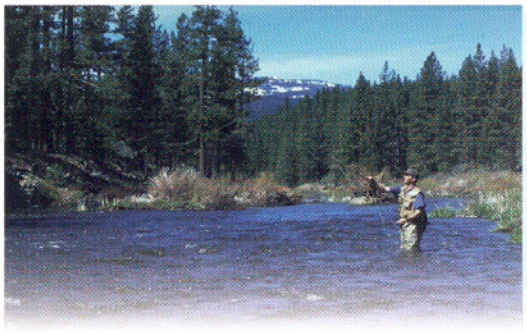
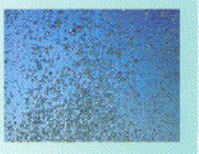
Contaminant	MCL	PHG MCLG	Sample Date	Distribution System Monitoring		Sacrame Ana
				Highest Detected	Range Detected	Highest Detected
Primary Standards:	**Mandatory health-related standards established by the California De**					
Microbiological						
Total Coliform Bacteria	> 5% of Samples	0	Monthly	1.10%	0 - 1.1%	N/A
Turbidity (NTU)	TT=5 NTU	N/A	Daily	N/A	N/A	0.99
	TT percentage of samples<0.5 NTU			N/A	N/A	99%
Radioactive						
Radon (pCi/L)	4000	300	Oct-99	N/A	N/A	ND
Inorganic						
Aluminum (ppb)	1000	600	Dec-97	N/A	N/A	55
			Apr-99	N/A	N/A	ND
Arsenic (ppb)	50	N/A	Jul-00	N/A	N/A	ND
Nitrate (NO3) (ppm)	45	45	May-01	N/A	N/A	ND
Nickel (ppb)	100	12	Apr-97	N/A	N/A	ND
Copper (ppm) 0 Sites above AL out of 60 sampled	AL-1.3	0.17	Aug-92	0.641 = 90th percentile	0.014 - 1.244	ND
Lead (ppb) 0 Sites above AL out of 60 sampled	AL-15	2	Aug-92	6 = 90th percentile	1.0 - 7.0	ND
Volatile Organic						
Haloacetic Acid (HAA5) (ppb)	60	N/A	Jan-96	35	ND - 35	N/A
Total Trihalomethanes (TTHMs) (ppb)	100	N/A	Quarterly	57.6	1.9 - 57.6	N/A
Secondary Standards:	**Aesthetic standards established**					
Inorganic						
Iron (ppb)	300	N/A	Monthly	322	ND - 322	9.36
Manganese (ppb)	50	N/A	Monthly	58.6	ND - 58.6	1.98
Unregulated						
Inorganic						
Boron (ppb)	AL = 1000	N/A	Aug-01	ND	ND	ND
Vanadium (ppm)	AL = 50	N/A	Aug-01	ND	ND	4





City of Redding Water Utility

Other Measures Taken to Assure Safe Drinking Water

The Water Utility's Cross Connection Control program is designed to maintain the safety and potability of the water in the distribution system by preventing the backflow of any foreign liquids, gases, or other substances into the water distribution system. A cross connection is a connection between a contaminated source and your drinking water system. Backflow occurs when the water flow is reversed, due to a change in pressure, and water flows backwards, into and through the system. This creates a potentially hazardous situation. A backflow preventer, or cross connection control device, is required under any circumstance where contamination may occur and all new water permits are reviewed to determine whether a backflow device is needed. The standard device required by the City of Redding is a Reduced Pressure Principle (RPP) assembly. Buildings that have fire sprinklers installed, or photolabs which use hazardous chemicals, are required to have an RPP installed. The Water Utility has implemented a Water Main Flushing Program which helps reduce problems that may be experienced with taste, and odor, or discoloration of the water.

Definitions and Abbreviations

AL :	Action Level - concentration of a contaminant which triggers a treatment technique or other requirement which a water system must follow.
BAT :	Best Available Technology - used to achieve compliance with MCL's.
CDC :	Centers for Disease Control.
Detection Level:	Lowest level that a contaminant can be analyzed.
MCL:	Maximum Contaminant Level - the highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs as is economically and technologically feasible. Secondary MCLs are set to protect against odor, taste, and appearance of drinking water.
PHG :	Public Health Goal - the level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by California Environmental Protection Agency.
MCLG:	Maximum Contaminant Level Goal - the level of a contaminant in drinking water below which there is known or expected risk to health.
ND:	Not detected - in the analysis of the sample.
NTU:	Nephelometric Turbidity Unit - measurement of the cloudiness of the water.
pCI/L:	Picocurie per liter - measurement of radiation in water.
ppm :	Parts per million, or milligrams per liter.
ppb:	Parts per billion, or micrograms per liter.
TT:	Treatment Technique -a required process intended to reduce the level of a contaminant in drinking water.
> :	Symbol for Greater Than.
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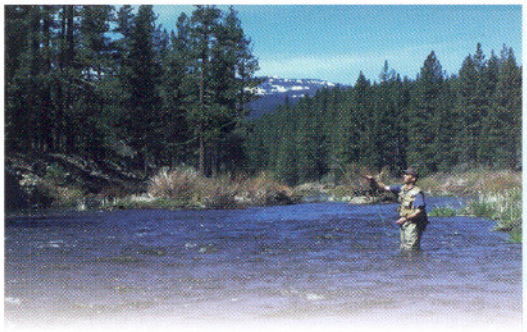
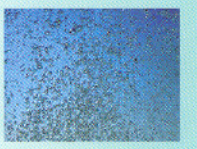
USEPA :	United States Environmental Protection Agency.





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Conservation

Our domestic water supply is a manufactured product whose raw material is limited. Environmental and financial restrictions also limit the supply available at any given time. This means that our water supply has to go a long way towards satisfying all the competing interests: residential - including drinking and sanitation, manufacturing, environmental, agricultural, and recreational. Philosophically, conserving water makes good sense for those reasons stated above. Practically speaking, conserving water makes sense for the following reasons. Conserving water conserves energy - gas, electric, or both. Conserving water can reduce our monthly water and sewer bills now. Finally, conserving water can postpone the construction of or eliminate the need to build expensive capital projects such as wastewater or water treatment plants that will need future maintenance. Most of us have come to realize that efficient management of our natural resources is a necessity if we are to ensure an adequate supply of water for our future needs. The Water Utility's Water Conservation Program is a public outreach program and community education has been our primary focus. Our goal is to increase awareness about our water supply and water quality while encouraging conservation of this precious resource. Conservation materials and tours of our treatment plants are available. Program information, including scheduling presentations or speakers, can be obtained by calling (530) 224-6032.

Water Utility Facts

Service Area Population: 80,000

Service Connections: 25,000

Service Area Size: 57 sq. miles

Miles of Water Mains: 465

Number of Fire Hydrants: 4,000

Enterprise and Cascade Well Field Capacity:

15 mgd (million gallons/day)

Foothill Water Treatment Plant Capacity: 24 mgd

Buckeye Water Treatment Plant Capacity: 7 mgd

Average Day Demand: 22 mgd

Peak Day Demand: 44 mgd

HOW TO CONTACT US:

Water Quality Information

(530) 225-4475

Utility Customer Service & Billing

(530) 339-7200

Water Conservation Materials

(530) 224-6032

Cross Connection Control/Backflow

(530) 224-6031

General Information

(530) 224-6068

http://www.ci.redding.ca.us/water/index.html