

CITY OF REDDING

Water Quality Update - 1999

THE CITY OF REDDING WATER UTILITY IS PROUD TO REPORT THAT IT PROVIDED A SIGNIFICANTLY HIGHER QUALITY WATER THAN REQUIRED BY THE VERY STRINGENT FEDERAL AND STATE WATER QUALITY STANDARDS DURING 1999.

CONSUMER CONFIDENCE REPORT

The water quality information in this report was taken from water analysis performed during calendar year 1999. The summarized statements in this report on water quality are required by the United States Environmental Protection Agency even though the water is of high quality.

WHERE DOES THE WATER COME FROM AND HOW IS IT TREATED?

City of Redding water system sources include surface water from Whiskeytown Lake and the Sacramento River and ground water pumped from 14 wells in the southeast areas of the City.

The surface water makes up 72 percent of the principal water supply, or approximately 5.75 billion gallons each year. The treatment process consists of chemical coagulation, flocculation, sedimentation, filtration and disinfection.

The capacity of the groundwater wells is 28 percent of the total supply capacity, or 2.22 billion gallons each year. Wells pump water from an underground storage area called the Redding Groundwater Basin - an aquifer which is recharged (or refilled) naturally by rainfall. Water from our wells is of good quality and is treated with chlorine as a disinfectant and an ortho-polyphosphate blend to sequester iron and manganese that cause taste and odor problems. The wells are operated mainly in the summer months when demand is high, but longer during drought years.

WATER QUALITY CONTROL

Before the water reaches your tap, samples from the water distribution system, ground water 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.

Eight State-certified water plant operators assure that water treatment operations provide excellent quality water three hundred sixty-five days a year.

The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

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.

OTHER MEASURES TAKEN TO ASSURE SAFE DRINKING WATER

The Cross Connection Control Program ensures against possible backflow of unsafe water supply. The City requires backflow control devices on residences or businesses with wells or special chemical use. These special devices protect the City's water system from potential contamination.

The Water Main Flushing Program helps reduce problems that may be experienced with taste, odor, and discoloration of the water.

INFORMATION

Water customers who receive this report are asked to share information with any tenant or water user on their premises. We think it is important for you, our customer, to have current and factual information about your water supply. The City of Redding Water Utility staff is available to answer your questions and provide further information to those who want it. You are welcome to call us at 225-4475, 225-4192 or 224-6040.

Information that deals with decisions about our water system is announced during the Redding City Council meetings.

The Redding City Council meets on the first and third Tuesday of every month. The regular meetings are held at 7:00 P.M. in the City Council Chambers at the new Civic Center, 777 Cypress Avenue.

CONTAMINANTS MAY BE EXPECTED TO BE PRESENT IN DRINKING WATER, INCLUDING BOTTLED WATER

Surface and Groundwater provide the source water for tap water and bottled water. 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.

CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE THE FOLLOWING:

1. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
2. 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.
3. 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.

4. Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

5. 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 prescribes regulations which limit the level of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

ADDITIONAL HEALTH INFORMATION

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* are available from the Safe Drinking Water Hotline (800) 426-4791.

USEPA is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally-occurring mineral known to cause cancer in humans at high concentrations.

The use pa has determined that a nitrate level in drinking water above 10 mg/l is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you may want to ask the advice of a health care provider.

The use pa is working to resolve several scientific issues that will allow it to set *Cryptosporidium* safety standards. *Cryptosporidium* was tested for annually in both the source water and treated water from Whiskeytown Lake and the Sacramento River. No evidence of *Cryptosporidium* was detected.

A sanitary survey of the City's source water has been completed and is available to the public for review. Please contact 225-4475 for further information.

MICROBIOLOGICAL CONTAMINANTS

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.

INORGANIC CONTAMINANTS

Copper - Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short period of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

NITRATE

A nitrate level in drinking water at above 45 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. High nitrate levels can also increase the risk of a particular kind of anemia in pregnant women. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant or you are pregnant, you should ask for advice from your health care provider.

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 from 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).

LEGEND

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.
CDHS-DDW	California Department of Health Services -Division of Drinking Water.
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.
Mg/l	Milligrams per liter - measurement of a weight of a chemical dissolved in a volume of water.
NAR	No Analysis Required - CDHS has determined that analysis is not required at this time.
ND	Not detected - in the analysis of the sample.
NSE	No Standard Established - USEPA has not set a standard.
NTU	Nephelometric Turbidity Unit - measurement of the cloudiness of the water.
pCi/L	Picocurie per liter - measurement of radiation in water.
PDWS	Primary Drinking Water Standard - MCLs for contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.
ppm	Parts per million, or milligrams per liter.
ppb	Parts per billion, or micrograms per liter.
ppt	Parts per trillion, or nanograms per liter.
TT	Treatment Technique - a required process intended to reduce the level of a contaminant in drinking water.
>	Symbol for Greater Than.
<	Symbol for Less Than.
USEPA	United States Environmental Protection Agency

THE FOLLOWING COMPARISONS PUT DETECTABLE NUMBERS IN BETTER PERSPECTIVE:

One Part Per Million as:	One Part Per Billion as:
1 inch in 16 miles	1 inch in 16,000 miles
1 cent in \$10,000	1 cent in \$10,000,000
1 minute in two years	1 second in 32 years

PRIMARY STANDARDS

Health-related standards established by the California Department of Health Services-Division of Drinking Water and the United States Environmental Protection Agency.

WATER QUALITY ANALYSIS PERFORMED IN 1999										
Contaminant (Units)	MCL	PHG (MCLG)	Sample Date	Violation	Sacramento River Analysis		Whiskeytown Lake Analysis		Groundwater Analysis	
Microbiological Contaminants					Highest detected	Range detected	Highest detected	Range detected	Highest detected	Range detected
1. Total Coliform Bacteria	>5% of samples	—	Monthly		0.0		0.0		1%	0-1%
2. Turbidity (NTU)	0.3	N/A	Daily		0.27	0.27-0.03	0.21	0.21-0.03	0.45	0.04-0.45
Radioactive Contaminants										
3. Alpha Emitters (pCi/L)	15	(0)	12-99		<1		<1		<1	
3a. Radon (pCi/L)	4000	300	10-99		NAR		NAR		970	690-970
Inorganic Contaminants										
4. Aluminum (ppb)	1000	N/A	4-99		55	ND-55	ND		ND	
5. Antimony (ppb)	6	20	4-99		ND		ND		ND	
6. Arsenic (ppb)	50	N/A	4-99		ND		3	ND-3	10	ND-10
7. Beryllium (ppb)	4	(4)	4-99		ND		ND		ND	
8. Cadmium (ppb)	5	0.07	Monthly		0.34	ND-0.34	0.47	ND-0.47	ND	
9. Chromium (ppb)	50	2.5	Monthly		6.8	ND-6.8	0.69	ND-0.69	ND	
10. Copper (ppm)	AL-1.3	0.17	Monthly		ND		ND		ND	
11. Fluoride (ppm)	2	1	9-98		ND		ND		0.1	ND-0.1
12. Lead (ppb)	AL-15	2	Monthly		5.28	ND-5.28	6.32	ND-6.32	9.2	ND-9.2
13. Nickel (ppb)	100	N/A	Monthly		3.26	ND-3.26	1.97	ND-1.97	ND	
14. Silver (ppb)	100	N/A	Monthly		ND		ND		ND	
15. Thallium (ppb)	2	0.1	4-99		ND		ND		ND	
16. Nitrate [N03] (ppm)	45	45	5-99		ND		ND		24.1	ND-24.1
Volatile Organic Contaminants										
17. Haloacetic Acid [HAA5] (ppb)	60	N/A	1-96		35	16-35	31	15-31	35	ND-35
18. MTBE (ppb) (gasoline additive)	35	N/A	7-99		ND		ND		ND	
19. TTHM's (ppb) (Total trihalomethanes)	100	N/A	Quarterly		35.6	8.8-35.6	32.9	17.8-32.9	20.4	Max potential

SECONDARY STANDARDS

Aesthetic standards, established by California Department of Health Services-Division of Drinking Water

20. Iron (ppb)	300	N/A	Monthly		18.3	ND-18.3	29.3	1.3-29.3	49.2	1.1-49.2
21. Manganese (ppb)	50	N/A	Monthly		2.4	ND-2.4	5	0.3-5	51.2	ND-51.2
22. Zinc (ppm)	5	N/A	Monthly		0.02	ND-0.02	0.03	ND-0.03	0.04	ND-0.04
23. TDS (ppm)	1,000	N/A	Monthly		129	129-72.5	61.8	61.8-49	NAR	
24. Odor (TON)	3	N/A	4-95		<1		<1		<1	

WATER QUALITY ANALYSIS PERFORMED IN 1999

Contaminant (Units)	MCL	PHG (MCLG)	Sample Date	Violation	Sacramento River Analysis		Whiskeytown Lake Analysis		Groundwater Analysis	
Microbiological Contaminants					Highest detected	Range detected	Highest detected	Range detected	Highest detected	Range detected

ADDITIONAL CONSTITUENTS ANALYZED No standard established

25. Alkalinity (CAC03)(ppm)	NSE	---	Monthly	---	49.6	49.6-45.8	47.7	47.7-29.7	106	69.7-106
26. Calcium (ppm)	NSE	---	Monthly	---	19.2	19.2-8.4	16.4	16.4-14.4	20.8	10-20.8
27. Ortho Phosphate (ppb)	NSE	---	Monthly	---	85	ND-85	153	ND-153	261	15-261
28. pH (in units)	NSE	---	Daily	---	7.57	7.57-7.17	7.31	7.31-7.02	7.69	6.79-7.69
29. Chlorine (ppb)	NSE	---	Daily	---	490		470		400	
30. Hardness (Grains per gallon)	NSE	---	Monthly	---	2.8	2.39-2.8	2.46	2.22-2.46	2.45	2.45-2.28
31. Specific Conductance (uS)	NSE	---	Monthly	---	150	115-150	130	85-130	355	120-355

TABLE OF DETECTED CONTAMINANTS

Contaminant (Units)	PHG (MCLG)	MCL	Major Source in Drinking Water
Microbiological Contaminants			
1. Total Coliform Bacteria	0	>5% of monthly samples	Naturally present in the environment.
2. Turbidity (NTU)	N/A	TT	Soil runoff.
Radioactive Contaminants			
3. Radon (pCi/L)	300	4000	Naturally present in the environment.
Inorganic Contaminants			
4. Aluminum (ppb)	N/A	1000	Erosion of natural deposits; residue from some surface water treatment processes.
6. Arsenic (ppb)	N/A	50	Erosion of natural deposits; runoff from glass and electronics production waste.
8. Cadmium (ppb)	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints.
9. Chromium (ppb)	2.5	50	Discharge from steel and pulp mills; erosion of natural deposits.
10. Copper (ppm)	0.17	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
11. Fluoride (ppm)	1	2	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
12. Lead (ppb)	2	AL=15	Corrosion of household plumbing systems; erosion of natural deposits.
13. Nickel (ppb)	100	N/A	Erosion of natural deposits; discharge from metal.
16. Nitrate [NO3] (ppm)	45	45	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Volatile Organic Contaminants			
17. Haloacetic acid [HAA5](ppb)	60	N/A	By-product of drinking water chlorination.
19. TTHMs [Total trihalomethanes] (ppb)	N/A	100	By-product of drinking water chlorination.

