



CITY OF REDDING

PUBLIC WORKS DEPARTMENT

WATER UTILITY

CONSUMER CONFIDENCE REPORT

To our Customers:

The following **2011 Consumer Confidence Report (CCR)** is brought to you by the City of Redding Water Utility. The purpose of this report is to provide our water customers with an up-to-date summary of information on the water quality of the City's water supply sources, the levels of any detected contaminants, and compliance with drinking water regulations. The CCR is prepared and distributed to the City's water customers each year, in accordance with State and Federal regulations. The information contained in this report was taken from water analysis performed through December 2011. We test the drinking water quality for many constituents as required by State and Federal Regulations to ensure that the water supplied to our customers consistently meets both Federal and State Water Quality Standards. Last year your tap water met all U.S. Environmental Protection Agency and State drinking water health standards.

We would like all our customers to have current and factual information about our drinking water. To that end, water customers who receive this report are asked to share this information with any tenant or water user on the premise. The CCR can also be accessed from the Water Utility web page at <http://www.ci.redding.ca.us/water/index.html>.

We welcome public participation in water quality issues. Information that deals with decisions about our water system is addressed during Redding City Council Meetings. These meetings are held the first and third Tuesday of each month at 6:00 p.m. in the City Council Chambers at City Hall. The address is 777 Cypress Avenue, Redding.

We are available to answer questions and provide information if needed. Please see the contact information below.

How to contact us:

Utility Customer Service & Billing:	(530) 339-7200	Leak Reports:	(530) 224-6068
Water Conservation Materials:	(530) 224-6032	Water Quality Concerns:	(530) 224-6068
General Information:	(530) 224-6068	Water Quality Information:	(530) 225-4475

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

Este informe contiene información muy importante sobre su agua potable.

Tradúzcalo ó hable con alguien que lo entienda bien

2011 Consumer Confidence Report

Water Supply Sources

Water sources include surface water from the Sacramento River and Whiskeytown Reservoir which made up 70% of the treated water supply, or approximately 5.59 billion gallons. The groundwater from the Redding Groundwater Basin made up 30% of the treated water supply, or approximately 2.4 billion gallons. The two surface water treatment plants and sixteen groundwater wells supply water to the City of Redding service area. The water system is divided into six pressure zones: Enterprise (east), Cascade (south), Foothill (central), Hilltop-Dana (northeast), Hill 900 (west), and Buckeye (north). The Hill 900 and Foothill zones are supplied with surface water from the Sacramento River via the Foothill Water Treatment Plant (FWTP) and Whiskeytown Reservoir via the Buckeye Water Treatment Plant (BWTP). The Enterprise and Cascade zones are supplied by a blend of well water and water from the Foothill zone. The Buckeye zone is supplied with surface water from Whiskeytown Reservoir via the Buckeye Water Treatment Plant (BWTP) and water from the Foothill Zone. The Hilltop-Dana zone is supplied with water from both the Enterprise and Buckeye zones. City water is considered soft, with low to moderate alkalinity, and comparatively trace levels of disinfection byproducts.

Groundwater Quality

Six of the wells in the Enterprise zone have elevated iron and manganese levels that can form black mineral deposits in the distribution system. A sequestrant/corrosion inhibitor (blend of orthophosphate and polyphosphate) is added at these wells to keep the minerals dissolved and minimize deposits in the piping. Areas supplied by well water are flushed each spring to remove accumulated deposits that can cause "discolored water".

The groundwater source of your drinking water meets the federal and state standards for arsenic, but it does contain low levels of arsenic below the MCL of 10 parts per billion (ppb). The arsenic MCL was reduced from 50 ppb to 10 ppb on January 23, 2006 by the USEPA.

Source Water Assessment

The City of Redding conducted source water assessments for its surface water in July 2001 and groundwater sources in May 2002. The sanitary survey for our surface water sources was updated in December 2010. For more information, please call (530) 224-6068.

The sources of drinking water (both tap water 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 pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water 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 stormwater 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 stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- *Radioactive contaminants* which can be naturally-occurring or be the result of oil and gas production and mining activities.

- **Arsenic.** While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The U.S. Environmental Protection Agency continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.
- **Nitrate** in drinking water at levels above 45 mg/L is a health risk for infants of 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 levels may rise quickly for short periods of time because of rainfall or agricultural activity.

Water Quality Standards and Testing Results

In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) Division of Drinking Water (DDW) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDPH-DDW regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

The City's water supplies must meet stringent water quality standards that are set forth by the USEPA and the CDPH-DDW. The tables on the following pages list all of the drinking water contaminants that were detected during sampling over the past several years. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. *CDPH-DDW allows monitoring for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old.*

Additional General Information on Drinking Water

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

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/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline (1-800-426-4791) or on their website at <http://www.epa.gov/safewater>.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Redding Water Utility is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the USEPA's Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

TERMS USED IN THIS REPORT

To help you better understand these terms, the following definitions are provided:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants. MRDLGs are set by the USEPA.

Primary Drinking Water Standards (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards (SDWS): Secondary Maximum Contaminant Levels (SMCLs) for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the SMCL levels.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Variations and Exemptions: Department permission to exceed an MCL or not comply with a treatment technique under certain conditions.

NA: not applicable

ND: not detectable at testing limit

NTU: Nephelometric Turbidity Units

ppm: parts per million or milligrams per liter (mg/L)*

ppb: parts per billion or micrograms per liter (ug/L)*

ppt: parts per trillion or nanograms per liter (ng/L)

pCi/L: picocuries per liter (a measure of radiation)

**Analogies that may put ppm and ppb into better perspective.*

One ppm is equal to:

- One inch in 16 miles
- One second in 11.5 days
- One minute in two years

One ppb is equal to:

- One second in nearly 32 years
- One pinch of salt in 10 tons of potato chips

Sampling Results

SAMPLING RESULTS SHOWING TREATMENT OF SURFACE WATER SOURCES	
Treatment Technique (Type of approved filtration technology used):	Conventional treatment (coagulation, sedimentation, and filtration) and direct filtration (coagulation and filtration) in combination with chlorination
Turbidity Performance Standards (that must be met through the water treatment process)	Turbidity of the filtered water must: 1 – Be less than or equal to 0.3 NTU in 95% of measurements in a month 2 – Not exceed 1.0 NTU for more than eight consecutive hours 3 – Not exceed 5.0 NTU at any time
Lowest monthly percentage of four-hour samples that met Turbidity Performance Standard No. 1.	Foothill WTP: 99.9% were less than or equal to 0.3 NTU Buckeye WTP: 99.9% were less than or equal to 0.3 NTU
Highest single instantaneous turbidity measurement during the year.	0.28 NTU (0.02 to 5.0 NTU range) for Foothill Water Treatment Plant 0.53 NTU (0.02 to 5.0 NTU range) for Buckeye Water Treatment Plant
Number of violations of any surface water treatment requirements.	None

Note: Turbidity (measured in NTU) is a measurement of the cloudiness of water. Monitoring turbidity is a good indicator of water quality and to verify compliance and effectiveness of our water filtration systems and disinfectants.

SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORM BACTERIA					
Microbiological Contaminants	Highest No. of Detections	No. of Months in Violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria (Total Coliform Rule)	1 (In a month)	0	Greater than 5% of monthly samples positive.	0	Naturally present in the environment
Fecal Coliform or <i>E. coli</i> (Total Coliform Rule)	0 (In the year)	0	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or <i>E. coli</i>	0	Human and animal fecal waste
Fecal Indicators (<i>E. coli</i> , enterococci or coliphage) (Federal Groundwater Rule)	0 (In a month)	0	Treatment Technique (TT) for untreated groundwater	N/A	Human and animal fecal waste

Note: The City of Redding analyzes a minimum of 23 water samples per week throughout the year in the water distribution system for coliform bacteria.

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER						
Lead and Copper	No. of Samples Collected	90 th Percentile Level Detected	No. Sites Exceeding AL	AL	PHG	Typical Source of Contaminant
Lead (ppb) [August 2010]	30	ND	0	15	< 2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppm) [August 2010]	30	0.32	0	1.3	< 0.17	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

SAMPLING RESULTS FOR SODIUM, HARDNESS, AND GENERAL CHEMISTRY						
Contaminant (and reporting units)	Sample Dates	Average Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Sodium (ppm)	1/11 – 12/11	11.4	10.5 to 13.1	N/A	N/A	Generally found in ground & surface water

Contaminant (and reporting units)	Sample Dates	Average Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Hardness (ppm as CaCO ₃)	1/11 – 12/11	64	33 to 110	N/A	N/A	Generally found in ground & surface water
Calcium (ppm)	1/11 – 12/11	15	6 to 24	N/A	N/A	Naturally occurring dissolved mineral
Magnesium (ppm)	1/11 – 12/11	7.2	3 to 13.5	N/A	N/A	Naturally occurring dissolved mineral
pH	1/11 – 12/11	7.5	7.2 to 7.99	N/A	N/A	pH 6.5 to 8.5 is typical for drinking water
Alkalinity (ppm as CaCO ₃)	1/11 – 12/11	79	35 to 129	N/A	N/A	Measures the buffering capacity of the water

DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Contaminant (and reporting units)	Sample Date	Level (or Average) Detected)	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
Chlorine (Distribution System)	1/11 – 12/11	0.84	0.2 to 1.2	4.0	4.0	Disinfectant required by regulation to be added to drinking water
Arsenic (ppb) ⁽¹⁾	1/10 – 12/10	5.8	0 to 9.4	10	0.004	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes. Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer.
Nitrate (ppm as NO ₃) (Wells and Surface Water)	1/11-12/11	7.6	0 to 11.4	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits. Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may affect the oxygen-carrying ability of the blood of pregnant women.
Total Trihalomethanes (ppb) (Distribution system)	Quarterly 2011	25.3	1.0 to 50.9	80	N/A	By-product of drinking water disinfection
Total of Five Haloacetic Acids – HAA5 (ppb) (Distribution system)	Quarterly 2011	32.4	1.0 to 57.1	60	N/A	By-product of drinking water disinfection
Total Organic Carbon (TOC) ⁽²⁾	Quarterly 2011	1.0	0.9 to 1.1	N/A	N/A	Various natural and man made sources

Contaminant (and reporting units)	Sample Date	Level (or Average) Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
Gross Alpha (pCiL)	2010	1.25	1.0 to 1.5	15	(0)	Erosion of natural deposits.
Aluminum (ppm)	2011	0.22	0.087 to 0.358	1	0.6	Erosion of natural deposits; residue from surface water treatment process
Asbestos (MFL)	1/98 to 6/08	0.27	0.2 to 0.4	7	7	Internal corrosion of asbestos cement water mains; erosion of natural deposits
Barium (ppm)	2011	0.13	N/A	1	2	Discharge of oil drilling wastes and from metal refineries; erosion of natural deposits
Nickle (ppb)	2011	11.8	N/A	100	12	Erosion of natural deposits; discharge from metal factories
Fluoride (ppm)	2011	0.1	0.1 to 0.2	2.0	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories

1. Only Enterprise Wells 11 and 13 have had detections above the arsenic standard. These wells blend with other wells in the Enterprise pressure zone and operate on a limited basis during the summer. Blending reduces the arsenic concentration below the MCL in the water distribution system. In 2011, EW-11 and EW-13 were not operated or pumped into the water distribution system. The arsenic MCL was reduced from 50 ppb to 10 ppb on January 23, 2006 by the USEPA.

2. Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to water filtered from the Buckeye Water Treatment Plant and Foothill Water Treatment Plant.

DETECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Contaminant (and reporting units)	Sample Date	Level (or Average) Detected	Range of Detections	SMCL	PHG (MCLG)	Typical Source of Contaminant
Manganese (ppb)*	1/11 - 12/11	15	1 to 54.2	50	N/A	Leaching from natural deposits
Sulfate (ppm)	2011	5.9	N/A	500	N/A	Runoff/leaching from natural deposits; industrial waste
Chloride (ppm)	2011	5.3	N/A	500	N/A	Runoff/leaching from natural deposits; seawater influence
Total Dissolved Solids (ppm)	1/11 - 12/11	120.2	45 to 175	1000	N/A	Runoff/leaching from natural deposits
Specific Conductance	1/11 - 12/11	209	86 to 386	1600	1600	Substances that form ions when in water; seawater influence
Iron (ppb)*	1/11 - 12/11	17.7	3.2 to 50.4	300	N/A	Leaching from natural deposits; industrial wastes

* Several wells in the Enterprise pressure zone have elevated iron and manganese. Polyphosphate is added to sequester these minerals and minimize brown water complaints.

As a division of Public Works, the Water Utility's mission is to provide our customers with a reliable supply of high quality drinking water now and in the future. Towards that end, 25 full time employees maintain approximately 558 miles of water mains, 28,224 metered services, one 24 MGD treatment plant, one 14 MGD treatment plant, 16 groundwater wells, ten pump stations, eleven reservoirs, six pressure zones and serve approximately 90,250 people within a service area of approximately 60 square miles. We are proud of the fact that our water quality not only meets Federal and State Standards each and every day of the year, but in most cases, contaminant levels fall far below published Primary and Secondary Standards. This means you, as the consumer, are assured of the safest water we can deliver to your tap. Water System map on back of page 7.

