

# Consumer Confidence Report

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# Redlands' Water Sources

**T**he majority of water, over 40 percent, delivered to the City's consumers in 2008 was from groundwater sources pumped from the Bunker Hill groundwater basin. This water is produced through a system of wells, disinfected, and sent directly into the distribution system or into enclosed reservoirs. Upon demand, water flows by gravity or is pumped from reservoirs into the distribution system. Other sources

of water include the Santa Ana River which is treated at the City's Horace Hinckley surface water treatment plant, and Mill Creek which is treated at Henry Tate surface water treatment plant. These two water treatment plants treat both local surface water and purchased water delivered from Northern California via the California State Water Project to meet customer demands.



## Tours

Groups are welcome to tour our treatment facilities in order to learn how drinking water is treated and delivered to our customers. For information on touring our facilities, please contact Bill Gane, Water Operations Manager, at (909) 798-7588, extension #1.



Please contact us if you have any questions regarding the information presented in this report.

City of Redlands  
Municipal Utilities &  
Engineering Department  
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**THIS REPORT CONTAINS IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER. TRANSLATE IT OR SPEAK WITH SOMEONE WHO UNDERSTANDS IT.**

**ESTE INFORME CONTIENE INFORMACIÓN MUY IMPORTANTE SOBRE SU AGUA POTABLE. TRADÚZCALO O HABLE CON ALGUIEN QUE LO ENTIENDA BIEN.**

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# WATER SOURCE PROTECTION

**R**edlands Municipal Utilities and Engineering Department is committed to protecting our water sources from possible contamination. Source water assessments have been completed for all of our drinking water supplies.

The assessments help to identify the vulnerability of drinking water supplies to contamination from typical human activities.

These assessments are intended to provide basic information necessary for us to develop programs to protect our drinking water supplies.

Possible contaminants can originate from: agricultural drainage, urban runoff, septic systems, sewer collection systems, junk/scrap/salvage operations, crop irrigation, underground storage tanks at automobile gas stations, and illegal dumping.

Anyone interested in receiving a copy of the source water assessment should contact Pat McKasy, Regulatory Compliance Officer-Water at (909) 798-7588 ext. 2.

You can do your part to protect our precious water sources by properly disposing of household hazardous wastes.

To find out how to properly dispose of hazardous waste so it does not contaminate groundwater, please phone our Customer Service Office at (909) 798-7529, or visit [www.redlandssolidwaste.org](http://www.redlandssolidwaste.org)

**We welcome your comments regarding water issues in Redlands at our City Council Meetings held in the Council's Chambers at 35 Cajon Street in Redlands on the first and third Tuesdays of every month.**

## TERMS USED IN THIS REPORT

**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 US Environmental Protection Agency (US EPA).

**Maximum Residual Disinfectant Level (MRDL):** The level of disinfectant added for water treatment that may not be exceeded at the customer's tap.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a disinfectant added for water treatment below which there is no known or expected health risk. MRDLGs are set by the US EPA.

**ND:** Not detectable at testing limit.

**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.

**N/A:** Not applicable

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

**Units of Measure:**

Parts per million (ppm) or milligrams per liter (mg/L).

Parts per billion (ppb) or micrograms per liter (ug/L).

Parts per trillion (ppt) or nanograms per liter (ng/L).

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

Umhos/cm: A measure of conductivity in water.

**Redlands Water:** Water source site average for water supplied to customers.

**Range of Detection:** The range (lowest to highest) of detected contaminants.

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

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

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

From **January 1, 2008** to **December 31, 2008**, the City of Redlands conducted over 14,000 water quality tests from samples taken at various locations throughout the water system in accordance with state and federal laws. The following tables list only those contaminants that were detected. It is important to note, that the presence of these contaminants, as detected in the water, does not necessarily indicate that the water poses a health risk.

## Primary Drinking Water Standards

Chemical / Constituent	MCL, (NL), or [MRDL]	PHG, {MCLG}, (NL),or [MRDLG]	Redlands Water	Range of Detection	Typical Source of Contaminant
<b><u>Microbiological Contaminants</u></b>					
Total Coliform**	5%	0%	<1%	ND - 1%	Found naturally in the environment
<b><u>Inorganic Contaminants</u></b>					
Aluminum (ppm)	1	0.6	0.014	ND - 0.12	Erosion of natural deposits
Barium (ppm)	1	2	0.017	0.014-0.024	Erosion of natural deposits
Chromium (ppb)	50	100	0.09	ND - 1.2	Erosion of natural deposits
Copper (ppm)	1.3	0.3	0.0007	ND - 0.003	Erosion of natural deposits; internal corrosion of household plumbing; leaching from wood preservatives
Fluoride (ppm)	2	1	0.58	0.29 - 0.77	Erosion of natural deposits
Lead (ppb)	15	2	0.11	ND - 0.96	Erosion of natural deposits; internal corrosion of household plumbing; discharges from industrial manufacturers
Nitrate as NO3 (ppm)	45	45	8.5	1.1- 26.0	Runoff and leaching from fertilizer use; leaching from septic tanks and sewers
Nitrate + Nitrite [as N] (ppm)	10	10	1.57	0.26 -3.4	
Nitrate as Nitrogen (ppm)	10	10	2.3	0.3 - 5.9	
Perchlorate (ppb)	6	6	0.82	ND-4.1	A result of environmental contamination from historic aerospace or other industrial operations that used or use, store, or dispose of perchlorate and its salts.
<b><u>Synthetic Organic Contaminants</u></b>					
Dibromochloropropane (DBCP)(ppt)*	200	1.7	1.0	ND-16	Banned nematocide in soils due to leaching from former use on citrus trees
Simazine (ppb)	4	4	0.01	ND - 0.06	Herbicide run-off
<b><u>Disinfection By-Products, Disinfectant Residuals, Disinfection By-Product Precursors</u></b>					
Total Trihalomethanes (ppb)	80	N/A	28.4	ND – 67.8	By-product of drinking water chlorination
Haloacetic Acids (ppb)	60	N/A	15.8	ND – 31.3	By-product of drinking water disinfection
Chlorine (ppm)	4	4	0.36	0.19 - .58	Drinking water disinfectant added for treatment
Total Organic Carbon (ppm)	TT	N/A	1.3	0.4 - 2.8	Various natural and man made sources
<b><u>Radioactive Contaminants</u></b>					
Gross Alpha Activity (pCi/L)	15	N/A	6.1	ND - 11.8	Erosion of natural deposits
Gross Beta Activity (pCi/L)*	50	N/A	3.4	3.4	Erosion of natural deposits
Total Tritium (pCi/L)*	20,000	400	214	190 - 277	Decay of natural and man made deposits
Radium 226 + 228 (pCi/L)*	5	N/A	0.93	0.8 - 1.11	Erosion of natural deposits
Radium 226 (pCi/L)*	5	0.05	0.97	0.25-1.16	Erosion of natural deposits
Radium 228 (pCi/L)	5	0.019	0.7	ND - 0.8	Erosion of natural deposits
Strontium 90 (pCi/L)*	8	0.35	1.7	1.7	Erosion of natural deposits
Uranium (pCi/L)	20	0.43	7.2	3.6 – 12	Erosion of natural deposits
<b><u>Volatile Organic Contaminants</u></b>					
Trichlorotrifluoroethane (ppm)	1.2	4	0.003	ND - 0.023	Discharge from metal degreasing sites and other factories; dry-cleaning solvent; refrigerant

\*\* Results of all samples collected in the distribution system during any month shall be free of total coliforms in 95 percent or more of the monthly samples. In the month of June 2008, there was one total coliform positive sample out of the 100 samples taken that month. Follow-up samples were negative for total coliform.

## Secondary Drinking Water Standards (Aesthetic Standards)

Chemical / Constituent	MCL	Redlands Water	Range of Detection	Typical Source Of Contaminant
Aluminum (ppb)	200	14	ND – 120	Erosion of natural deposits
MBAS (Foaming Agents) (ppb)*	500	30	ND – 50	Municipal and industrial waste discharges
Iron (ppb)	300	30	ND – 200	Leaching from natural deposits; industrial wastes
Odor -Threshold (units)	3	1.3	1 –3	Naturally occurring organic materials
Total Dissolved Solids (TDS) (ppm)	1,000	177	123-276	Runoff/leaching of natural deposits
Specific Conductance (umhos/cm)	1,600	357	250 – 474	Substances that form ions in water
Chloride (ppm)	500	8.8	3.2 – 34	Runoff / leaching of natural deposits
Sulfate (ppm)	500	25	13 – 35	Runoff / leaching of natural deposits
Manganese (ppb)	50	1	ND – 12	Runoff / leaching of natural deposits
Color (units)	15	0.18	ND – 3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Copper (ppm)	1.0	0.0007	ND – 0.003	

## Sampling Results For Sodium and Hardness

Chemical / Constituent	MCL	PHG	Redlands Water	Range of Detection	Typical Source Of Contaminant
Sodium (ppm)	N/A	N/A	14	9 – 20	Generally found in ground and surface water
Hardness (ppm)	N/A	N/A	139	86 – 190	Generally found in ground and surface water

## Additional Monitoring (State Regulated & Unregulated Contaminants with no MCLs)

Chemical/Constituent	Notification Level	Redlands Water	Range of Detection	Information About Radon
Bromide (ppb)*	N/A	50	ND – 120	Radon is a naturally occurring gas formed from the normal radioactive decay of uranium. In testing in 2007, radon was detected in our finished water supply. There are no regulatory limits prescribed for radon levels in drinking water – the pathway to radon exposure occurs primarily through its presence in the air. Exposure over a long period of time to air containing radon may cause adverse health effects. If you are concerned about radon in your home, testing is inexpensive and easy. For more information, call your State radon program at 1-800-745-7236 or call EPA's Radon Hotline at 1-800-SOS-RADON.
Vanadium (ppb)*	50	4.0	ND – 12	
Radon (pCi/L)*	N/A	748	682 - 793	
Calcium (ppm)	N/A	42	26 - 59	
Magnesium (ppm)	N/A	8	5 –11	
Potassium (ppm)	N/A	2.4	1.6 - 3.6	
Bicarbonate (ppm)	N/A	150	110 – 191	
Alkalinity (ppm)	N/A	112	48 - 157	
pH (units)	N/A	7.9	7.7-8.1	
Silica (ppm)*	N/A	17	15 – 23	
Hexavalent Chromium (ppb)	N/A	0.26	0.14 - 0.38	
Langelier Index at 25c°	N/A	0.3	-.01-0.6	
Boron (ppb)	1,000	10	ND – 57	

\* The State allows monitoring for some contaminants less than once per year because these contaminants do not change frequently. Some of these data, though representative, are more than one year old.

## Important Facts From the US EPA About Drinking Water

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 untreated source water may include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that 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, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems.
- Radioactive contaminants, which can be naturally occurring or the result of oil and gas production, and mining activities.

In order to ensure water is safe to drink, the United States Environmental Protection Agency (US EPA) and the California Department of Public Health (DPH) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. DPH regulations also establish limits for contaminants in bottled water to provide the same protection for public health.

### Air Bubbles in the Water

Tap water that appears cloudy could simply have air (bubbles) in the water. Some well sources produce water with dissolved air that remains pressurized in the distribution pipelines until reaching the consumer. When the water flows from the faucet, the air is released and may form tiny air bubbles. After filling a glass, these bubbles will slowly rise and disappear.

## Additional Information About Drinking Water

All 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 US EPA'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 people such as people with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly persons, and infants can be particularly at risk from infections. For these people, advice should be sought about drinking water from their health care providers. US EPA/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 Safe Drinking Water Hotline (1-800-426-4791).*

### CRYPTOSPORIDIUM

Cryptosporidium is a microbial parasite found in surface water throughout the United States. In 2008 we collected 24 samples for Cryptosporidium from our surface water treatment plants. We collected the samples before treatment and only 2 of the 24 samples were found to have any Cryptosporidium organisms present. One sample had one organism present and the other had 2 organisms present, which averages out to 0.043 organisms per liter of water sampled. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Immuno-compromised people are at a greater risk of developing a life threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

## Sampling Results Showing Treatment of Surface Water Sources

Turbidity is a measure of the cloudiness of water. We monitor turbidity because it is a good indicator of the effectiveness of our filtration system. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

Treatment Technique	Conventional Filtration	Turbidity Performance Standard No. 1 (TPS No. 1):
<b>Lowest Monthly % of Samples Meeting TPS No. 1</b>	100%	The turbidity level of the combined filter effluent shall be less than or equal to 0.3 NTU in 95% of the measurements taken each month and shall not exceed 1.0 NTU for more than one hour. Additionally, the turbidity level of the combined filter effluent shall not exceed 1.0 NTU for more than eight consecutive hours while the plant is operating.
<b>Highest single turbidity measurement during 2008</b>	1.0	
<b>Number of Violations to Any Surface Water Treatment Regulations</b>	None	

## Lead and Copper Analysis Results

The Municipal Utilities and Engineering Department performs analysis of lead and copper in the water of residential homes in our service area every three years. The last round of testing was conducted in September of 2008. When water comes into contact with residential plumbing containing lead and/or copper, they can leach into the household water system. Of a random sampling of thirty residences tested, none exceeded the Regulatory Action Level (AL) for lead or copper. The 90th percentile value for lead in the water samples was 5.7 parts per billion as compared to an AL of 15.0 parts per billion, while the 90th percentile for copper samples was 0.27 parts per million, as compared to an AL of 1.3 parts per million.

The next round of voluntary residential testing will take place between June – September 2011. A component of the lead/copper program requires sampling from the same homes year after year, so the same customers that volunteered in 2008 will be sent letters in 2011 asking them to volunteer again to take a sample from their home.



# SEEING IS BELIEVING!

Recently the City adjusted its water rates to cover the increased cost of power, chemicals, and necessary capital improvements. These capital improvements include reservoir coating replacements, rehabilitation of drinking water wells, replacement of an 80 year old reservoir, and replacement of water distribution and transmission pipelines. As seen below, City staff has been working hard to fulfill this promise to its customers.



Shown here is the South Reservoir, currently being recoated. To complete this project the reservoir is drained, sandblasted, and recoated with a special nontoxic epoxy coating system applied in four coats. This reservoir is anticipated to be completed in early July. Also being recoated is the Smiley reservoir which is anticipated to be completed in late July.

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Shown to the right is the removal of a vertical turbine pump from Rees well. Along with Rees, wells 38 and Airport 1 were rehabilitated this year to restore lost capacity which is needed during the summer months and during peak demands. A well rehabilitation requires the pump be removed from the well. After this is completed a well rig is used to brush and clean the well's interior in an attempt to restore the well to its original condition. The well is pump and water quality tested before it is returned to service.

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The department is in the process of starting a 27,000 linear foot pipeline replacement project. This project consists of various sizes ranging from 8 inch to 12 inch diameter pipeline. Over the next several months you will likely drive by one of our project locations as they are scattered throughout the City.

City staff is also in the process of designing a 1 million gallon reservoir to replace an existing reservoir constructed in 1924 at the Country Club facility. The new reservoir will be constructed in tandem with new site piping and booster pumps. These improvements will increase water quality and pumping efficiencies and are scheduled to start construction by the end of summer.



# CALIFORNIA FRIENDLY NIFTY 50 PLANTS

These plants have been selected because they are attractive, often available in retail nurseries, non-invasive, and of course, drought tolerant.

## Shrubs, Perennials, Ornamental Grasses

Agave	Rockrose	Toyon	Common Myrtle	Geraldton Waxflower
Blue Hibiscus	Live Forever	Lavender	Needlegrass	Blue-Eyed Grass
Manzanita	Hens-and-Chickens	Texas Ranger	Penstemon	Grevillea
Sagebrush	California Encelia	Mexican Bush Lobelia	Sumac	Copper Canyon Daisy
California Lilac	Island Bush Snapdragon	Nevin's Barberry	Rosemary	Pink Melaleuca
	Verbena		Sage	

## Trees

Strawberry Tree  
Chitalpa  
Australian Willow  
Afghan Pine  
Chilean Mesquite  
Coast Live Oak  
African Sumac  
Sweet Bay  
Swan Hill Olive

## Vines

Bougainvillea  
Cat's Claw  
California Wild Grape

## Groundcover

Dwarf Prostrate Acacia  
Yarrow  
Coyote Brush  
Bearberry Cotoneaster  
Ice Plant  
Trailing Lantana  
Myoporum  
Stonecrop



Check our website at [www.RedlandsWater.org](http://www.RedlandsWater.org) for more information.

City of  
**REDLANDS**

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