

**Riverside Public Utilities
Water Quality Annual Report
2004**

reliability



Dear Riverside Water Customer,

I am pleased to report that once again, our water met or exceeded all state and federal drinking water quality standards in 2004.

The Board of Public Utilities and our entire staff work together to continuously provide safe and healthy drinking water at the lowest possible cost to Riverside residents, businesses and visitors.

This year's 2004 Water Quality Annual Report features the many components it takes to make a reliable water delivery system - Riverside's water supply, water system, water storage and water security.

Riverside has invested millions and millions of dollars over the past century to build our present water system. It may surprise you to learn that it would take nearly \$1 BILLION to replace our water system at today's cost.

Is it worth it?

Considering the value of a reliable water system just in terms of protecting our public health, assuring a high quality of life, providing fire protection, and promoting economic development, the answer is most definitely "YES!" The Board is developing a variety of programs and projects to ensure our water system remains sound.

We welcome you to attend our Board of Public Utilities meetings at Riverside City Hall at 8:15 a.m. on the first and third Fridays of each month and our Water Committee meetings on the third Friday of each month immediately following the Board meeting.

Sincerely,

David H. Wright

David H. Wright
Riverside Public Utilities Director



Reliability

What makes a water system reliable?

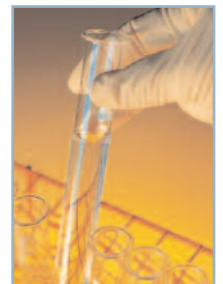
It requires much more than simply making sure water comes out when you turn on a faucet. System Reliability means:

- Delivering water with enough pressure to quickly douse a blaze when a fire hydrant is opened
- Maintaining sufficient sources of water for present and future needs



- Building treatment plants to filter out harmful chemicals and to protect our water from biological contamination

- Constructing emergency and operational water storage capacity in reservoirs
- Continuously testing and treating your water supply
- Finding ways to conserve and recycle water to ensure adequate supplies for future generations
- Planning ahead to anticipate future water needs
- Protecting water supplies from potential contamination
- Establishing rates sufficient to pay for current operations plus necessary repairs and improvements to the system
- Systematically replacing aging water mains to prevent major problems



Supply

Preparing for the future

Potable means water you can drink. There is growing competition regionally and locally for the limited potable water resources available. At some point in the near future, we may need to increase our use of imported water, which will be more expensive than local water sources.

The Utility is actively pursuing the newest treatment technologies to enhance our ability to use local, non-potable underground water supplies. Plans are also underway to use recycled, tertiary treated water from our wastewater plant to replace potable water used for irrigation.

To minimize the need to buy more high-priced water, we also plan to increase available water from various water conservation measures over the next few years. We are counting on Riverside residents and businesses to Be Waterwise and use less water indoors and especially outdoors. *Half the water used by single family homes is for outdoor watering.* And most southern Californians use double the water needed to keep plants healthy.

By working together to Be Waterwise, Riverside can conserve our underground water supplies that we depend on and lower the amount of high-priced state water we import.



Caretakers of water resources

Most of our water (typically over 95%) comes from wells in groundwater basins in San Bernardino and Riverside. In 2004, Riverside Public Utilities delivered nearly 83,490 acre-feet of water to our customers from all sources.

We have an obligation to be caretakers of our water resources now and for the generations who follow.

As caretakers of our limited water supplies, Riverside Public Utilities:



- Works in coordination with other local water utilities and agencies to actively track how much pumping the groundwater basins can sustain to avoid using more water than is put back in the basins each year
- Regularly tests our wells and tracks plumes of contaminants so we can anticipate and deal with potential problems
- Works to eliminate the use of septic tanks that could pollute groundwater basins
- Manages chlorination stations to inactivate harmful bacteria and viruses
- Operates granular activated carbon treatment plants to remove organic elements including pesticides, herbicides, fertilizers, fuel by-products and cleaning solvents, and ion exchange plants to remove perchlorate

System

Investing in a reliable water system for our future

Water main replacement project

Riverside is a beautiful, historic community. But there's nothing beautiful about aging water mains - some between 50 to 75 years old. The Water Main Replacement Project is an on-going program to replace five miles of older, failing pipelines per year. The 25 miles of new, larger water mains installed over the last five years improve fire fighting capabilities, increase water pressure, deliver more water, and avoid potential flood damage to homes, businesses and streets.



Riverside Canal rehabilitation

After 134 years of service, the Riverside Canal, that stretches 12 miles from Colton to Jefferson Street near the Riverside Auto Center has been rehabilitated. The City of Riverside received a \$5.25 million grant from the California Water Resources Control Board (CWRCB) towards its \$8.5 million rehabilitation. It's now ready for another century of dependable irrigation water delivery.

Protecting Riverside's water from perchlorate

Treating for perchlorate has been a focus for several years. In March 2004, California EPA adopted a public health goal of 6 parts per billion (ppb) and the California Department of Health Services adopted an Action Level of 6 ppb for perchlorate.

When perchlorate was first detected in some of Riverside's wells, federal and state regulators had no set standard. But, Riverside Public Utilities took action then to protect your water supply. We installed four state-of-the-art, ion-exchange treatment plants by 2004 with one more to be installed in 2005.

Riverside continues to develop treatment options to meet changing water quality regulations.

Through treatment, Riverside has reduced perchlorate levels annually.

Riverside's Yearly Average Perchlorate Level

2002 – 4.6 ppb
2003 – 2.3 ppb
2004 – 1.7 ppb

Storage



Piedmont Reservoir



Stewart Intake Reservoir

Emergency reserves and readiness

Riverside Public Utilities is proactive when it comes to emergency water storage facilities and pipeline protection.

We have 16 reservoirs in town with a combined capacity of over 100 million gallons. This should be enough, in the event of an emergency, to provide residents with three to five days of water.

Several additional reservoirs to increase emergency water storage to an even greater level are part of our long-range facilities plan.

In addition, we have emergency connections with other utilities should a major water supply source be interrupted.

Drinking Water...

Riverside and most public water systems have safely used chlorine and/or chloramines (a combination of chlorine and ammonia) to disinfect potentially harmful bacteria that may enter drinking water. Chlorine disinfection of water supplies has been hailed as one of the greatest inventions of the 20th Century. It has been instrumental in controlling many potential waterborne diseases, such as cholera, diphtheria, and dysentery.

Drinking water treated with chlorine or chloramines is safe for everyone to use for drinking, bathing, cooking and all other daily uses. This includes: pregnant women, children and infants, people on kidney dialysis, people on low-sodium diets, people with diabetes and pets.

Chlorine and chloramines must be removed from the water used in kidney dialysis machines. Although it is safe for dialysis patients to drink water with chlorine and chloramines, it is not safe to have it directly enter their bloodstream.

Water for fish - after special treatment

Chlorine and chloramines are both toxic to fish. Before using drinking water in a fish tank, aquarium or pond, it should first be treated to remove BOTH chloramines and chlorine. Contact your local pet supply store for the best methods to remove both chlorine and chloramines.



Security

A reliable water system is the backbone of fire protection

Among Water Division priorities, protecting lives and property from fire is second only to providing clean water to sustain life.

Fully one third of all funds the Water Division spends on capital improvements is related to providing adequate fire protection for the people, homes and businesses of Riverside. That involves 39 booster stations to ensure sufficient water supply and water pressure reaches all neighborhoods; 16 reservoirs to store emergency supplies of water in case of disaster, and replacement of miles of aging 4-inch water main each year with new, 8-inch water mains. The larger water mains deliver four times more water and increase water pressure.



Protecting the water system that protects the community

Several levels of security are employed to protect our water supply. In addition to security patrols, a Supervisory Control and Data Acquisition (SCADA) System enables staff to remotely monitor and control our production, treatment, and distribution facilities.

Other security measures are being added as a result of a Water System Security Vulnerability Assessment, such as remote video systems, additional fencing, and real-time remote monitoring of water quality throughout the system.

Riverside Public Utilities 2004 Water Quality Report

Primary Standards: Mandatory Health-Related Standards

Percent system source - Groundwater 95%

CONTAMINANT	STATE MCL	STATE PHG	RIVERSIDE PUBLIC UTILITIES		SOURCES IN DRINKING WATER
			AVERAGE	RANGE	
Microbiological					
Total Coliform (P/A) (a) -----	5%	0%	0%	0 - 1.1%	Naturally present in environment
Clarity					
Turbidity-----	0.5 NTU	NS	0.1 NTU	0 - 0.4 NTU	Naturally present in environment
Regulated Organic					
Total Trihalomethanes----- "TTHMs"	80 ppb	NS	7 ppb	ND - 54 ppb	By-product of drinking water chlorination
Halocetic Acids "HAA5"-----	60 ppb	NS	1.0 ppb	ND - 10.0 ppb	By-product of drinking water chlorination
Chlorine-----	4 ppm	4 ppm	0.6 ppm	0.4 - 0.9 ppm	Drinking water disinfectant added for treatment
Control of DBP precursors ----- Total Organic Carbon "TOC"	Treatment Requirement	NS	0.2 ppm	ND - 1.8 ppm	Various natural and man-made sources
Dibromochloropropane "DBCP" ----	200 ppt	1.7 ppt	11 ppt	ND - 23 ppt	Banned nemotacide still present due to past agricultural activities
Trichloroethylene (TCE)-----	5 ppb	0.8 ppb	ND	< 0.5 ppb	Discharge from metal degreasing sites & other factions
Regulated Inorganic					
Nitrate (NO ₃)-----	45 ppm	45 ppm	24 ppm	21 - 25 ppm	Naturally present in environment
Fluoride-----	2 ppm	1.0 ppm	0.6 ppm	0.4 - 0.8 ppm	Naturally present in environment
Arsenic-----	50 ppb	4 ppt	2 ppb	<2 - 4 ppb	Erosion of natural deposits
Radiological					
Gross Alpha -----	15 pCi/L	NS	5 pCi/L	3 - 9 pCi/L	Erosion of natural deposits
Uranium -----	20 pCi/L	0.5 pCi/L	9 pCi/L	6 - 12 pCi/L	Erosion of natural deposits
Lead/Copper (AL) (90% Household Tap)					
Lead (b)-----	15 ppb	2 ppb	<5 ppb	<5 - 7 ppb	Internal corrosion of home plumbing
Copper (b)-----	1,300 ppb	170 ppb	560 ppb	<50 - 710 ppb	Internal corrosion of home plumbing
Additional Monitoring					
Radon* -----	NS	NS	520 pCi/L	490 - 550 pCi/L	Naturally present in environment
Regulated contaminants with no MCLs	ACTION LEVEL	STATE PHG OR MCLG	RIVERSIDE		
			AVERAGE	RANGE	
Chromium VI -----	NS	NS	2.3 ppb	1.5 - 2.7 ppb	
Perchlorate -----	AL 6 ppb	6 ppb	1.7 ppb	<4 - 4.8 ppb	
Vanadium -----	AL 50 ppb	NS	8 ppb	5-12 ppb	
Boron -----	AL 1000 ppb	NS	110 ppb	ND-120 ppb	

* Most recent sampling compiled in 2003

Definitions

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 (EPA).

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

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

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

Maximum Residual Disinfectant Level (MRDL) The level of disinfectant added for water treatment that may not be exceeded at the consumer'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 risk to health. MRDLs are set by the US EPA.

Parts Per Million (ppm) One part per million corresponds to one minute in two years or one penny in \$10,000.

Parts Per Billion (ppb) One part per billion corresponds to one minute in 2,000 years or one penny in \$10,000,000.

Parts Per Trillion (ppt) One part per trillion corresponds to one minute in two million years or one penny in \$10,000,000,000.

Picocuries Per Liter (pCi/L) A measure of the radioactivity in water.

Nephelometric Turbidity Units (NTU) A measure of suspended material in water.

Micromhos (μ MHOS) A measure of conductivity (electric current) in water.

ND Not detected at the detection limit for reporting.

NS No standard.

GPG Grains per gallon of hardness (1 gpg = 17.1 ppm).

< Less than the detectable levels.

(a) Results of all samples collected from the distribution system during any month shall be free of total coliforms in 95 percent or more of the monthly samples.

(b) The Lead and Copper Rule requires that 90 percent of samples taken from drinking water taps in program homes must be below the action levels.

Monitoring Report 2004

Riverside Public Utilities tests for more than 200 possible contaminants in our water system. This report provides data from sampling conducted in calendar year 2004. Only those contaminants detected in our water system are listed here. For a listing of additional chemical tests, please contact Water Quality Supervisor LuCinda Norried at (951) 351-6331.

Water Resources

Riverside met 95 percent of its water needs from groundwater resources, receiving only 5 percent from Western Municipal Water District. Water quality information for imported water is available on request from Western.

Water Compliance & Monitoring Program

In 2004, we collected more than 14,000 water samples to test for a variety of potential contaminants. Samples were collected at water sources, along transmission pipelines, throughout the distribution system, including reservoirs and booster stations, and treatment plants to ensure water quality from its source to your meter.

Riverside Public Utilities uses state certified independent laboratories to perform water tests. This ensures that an independent set of experts test your water from the source to your meter. Last year, we spent more than \$350,000 on compliance laboratory costs.

Riverside Public Utilities 2004 Water Sampling Data

- 6,675 - Samples collected to test for bacteria.
- 3,649 - Samples collected for source and system compliance and monitoring.
- 4,120 - Samples collected for treatment plant compliance and monitoring.
- 14,444 - Total samples collected.

SECONDARY STANDARDS AESTHETIC STANDARDS

	State MCL	Riverside Average	Public Utilities Range	Sources in Drinking Water
Color Units	15	<3	<3	Naturally present in environment
Odor Threshold . . .	3	1	<1 - 2	Naturally present in environment
Chloride	500 ppm	28 ppm	20 - 30 ppm	Naturally present in environment
Sulfate	500 ppm	64 ppm	62 - 71 ppm	Naturally present in environment
Total Dissolved Solids "TDS"	1,000 ppm	373 ppm	270 - 400 ppm	Naturally present in environment
Specific Conductance	1,600 µmho	586	495 - 619	Substances form ions in water
Corrosivity	Noncorrosive	0.1	0 - 0.27	Natural or industrially influenced balance of hydrogen, carbon, and oxygen in the water; affected by temperature and other factors
pH Units	NS	7.6	7.3 - 7.9	Naturally present in environment
Hardness (CaCO ₃)	NS	213 ppm (12 gpg)	180 - 240 ppm	Naturally present in environment
Sodium	NS	43 ppm	39 - 46 ppm	Naturally present in environment
Calcium	NS	73 ppm	68 - 79 ppm	Naturally present in environment
Potassium	NS	3 ppm	1 - 4 ppm	Naturally present in environment
Magnesium	NS	11 ppm	10 - 12 ppm	Naturally present in environment

Nitrate - In drinking water at levels above 45 ppm 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 an 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 ppm 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 about nitrate levels from your health care provider.

Riverside provides drinking water that on average is at 24 ppm and has a range from 21 ppm to 25 ppm during the year. DHS has set the MCL for nitrate at 45 ppm. Riverside has 49 wells that are blended to comply with drinking water standards. The city conducts extensive monitoring of the blend operations. Seasonal variation in demand and flow, in addition to system maintenance and repair, impact the nitrate levels during the year.

Radon - Radon is a naturally occurring gas formed from the normal radioactive decay of uranium. It is a colorless, odorless, tasteless, chemically inert, and radioactive gas found virtually everywhere on earth. The US EPA recommends that homeowners take remedial action if the indoor air radon level in their home exceeds 4.0 picocuries. The radon in indoor air attributable to water is minor compared to contributions from the soil, or even the outdoor air. For information on radon, call the California Department of Health Services Radon Information Line at 1(800) 745-7236 or contact LuCinda Norried at (951) 351-6331.

Monitoring Unregulated Contaminants
This monitoring helps US EPA to determine where certain contaminants occur and whether the contaminants need to be regulated. Data is available at www.epa.gov/ogwd/urmr.html.

Additional Regulatory Information

Fluoride - The California Department of Health Services (DHS) has established an "optimal" fluoride level for water at 1 ppm. Riverside has naturally occurring fluoride levels at 0.6 ppm and is not planning to add fluoride to its water by artificial means.

Perchlorate - Perchlorate salts were used in solid rocket propellants and other industrial applications. In December 2002, California EPA issued a draft Public Health Goal of 2 to 6 ppb.

In March 2004, California EPA adopted a public health goal of 6 ppb and the DHS adopted an action level of 6 ppb.

Riverside is continuing to develop additional treatment options to meet the changing regulations. Final regulations specifying definitive Maximum Contaminant Level (MCL) is expected in 2005.

An important message about drinking water sources from the US EPA

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 land or through the ground, it dissolves naturally occurring minerals, and in some cases radioactive materials, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water 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 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 by-products of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff, and septic systems.

RADIOACTIVE CONTAMINANTS, which can be naturally occurring or be the result of oil and gas production and mining activities.

REGULATIONS: In order to ensure that tap water is safe to drink, US EPA and the California Department of Health Services prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

IMPORTANT HEALTH INFORMATION: Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 people, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the EPA's Safe Drinking Water Hot Line. 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 visiting the EPA's website at www.epa.gov/safewater/ or by calling the EPA's Safe Drinking Water Hot line at 1(800) 426-4791.

Non-English Translations

This report contains important information about your drinking water. Translate it or speak with someone who understands it.

يحتوي هذا التقرير على معلومات هامة
عن مياه الشرب. ترجم هذه المعلومات أو تكلم
مع شخص يفهمها.

សេចក្តីរាយការនេះមានផ្នែកព័ត៌មានសំខាន់អំពីទឹក
ដែលលោកអ្នកទទួលបាន បកប្រែឬនិយាយពីភាសា
ជាមួយនរណាម្នាក់ដែលយល់អំពីសេចក្តីនេះ

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ຕິດຕໍ່ສອບຖາມ

Este reporte contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

이 보고서에는 여러분이 마시는 물에
대한 정보가 드러 있습니다. 이것을 번역
하든 지 또는 이것을 이해 하는 사람과 이야기
해 주십시오

このレポートには皆さんが飲む水
に関する情報が入っています。これを
翻訳するが、又はだれかこれを理解する
人と話して下さい

Báo cáo này có những chi tiết quan trọng về nước uống của quý vị. Hãy dịch ra, hoặc nói chuyện với người nào hiểu biết về vấn đề này.



Your Water It's more than a product, it's part of a system

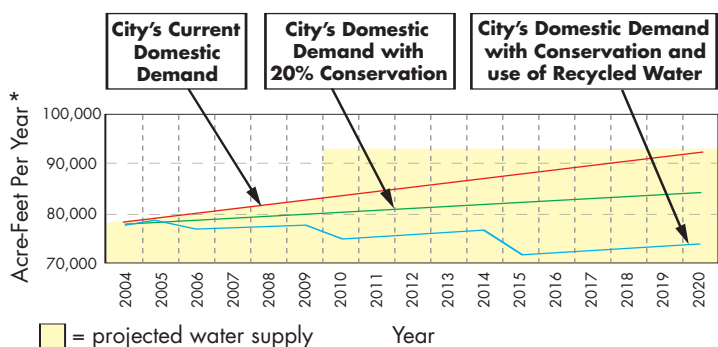
A standard swimming pool holds about the same amount of water as the average residential customer uses each month – 20,000 gallons.

Riverside Public Utilities “water system” delivers that amount of water to you, our customer, for less than \$27 a month. If you bought that same amount of water as a “product” in pint-sized bottles from the market on sale at \$4 per case, you would pay over \$27,000 every month and have to store and recycle 160,000 plastic bottles.

Besides being one thousand times less expensive than bottled water, Riverside Public Utilities water system pumps, treats, monitors, stores, secures, and delivers your water directly to your home.

So, when you receive your water bill, we hope you will be doubly pleased that you are getting a very high quality product – your water – at a huge bargain and that you are helping to maintain and operate a billion dollar water system that reliably protects the public health and safety of Riverside.

Riverside is counting on you to Be Waterwise



This chart shows how much of our projected water supply (noted in yellow shading) could be conserved if Riverside would use 20 percent less water.

Additional amounts of water could be conserved if we use reclaimed water for irrigation.

* An acre-foot of water is equal to about 326,000 gallons of water



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Our Mission

Riverside Public Utilities is committed to the highest quality water and electric services at the lowest possible rates to benefit the community.

Visit our Web site at www.riversidepublicutilities.com.