For much of the world, drinking water is more valuable than gold

We live in a world of water. The oceans covering the Earth contain most of it. Only three percent is fresh water that can be consumed. Two-thirds of all the fresh water is locked in the polar ice caps. That leaves less than one percent of all the water in the world available as fresh drinking water. Still this would be more fresh water than the world could ever use, except it is virtually all under the ground and it is unevenly distributed on the planet. Some regions have an abundance of fresh water, while many others have very little or no drinking water.

Worldwide, due to population growth and increasing agricultural and commercial demands, available fresh water is becoming more scarce. A recent United Nations report said one-sixth of the world’s population – 1 billion people – lack access to clean water. And that number is expected to double in the next 30 years. By 2020, the number of countries considered to be “water scarce” could increase from 26 to 35 nations.

Riverside discovered and accessed a wealth of water during the past century. Now, Riverside is investing to preserve our natural water assets for the century ahead.
Dear Valued Water Customer

Riverside Public Utilities (RPU) 2001 Annual Water Quality Report showed you where Riverside’s supply of drinking water comes from and how we deliver it to you. Last year, the 2002 Annual Water Quality Report focused on how we test and treat Riverside’s water supply and protect it from contamination. Copies of those reports can be found on our Web site.

This year, our 2003 Annual Water Quality Report explains the tremendous investment we make to maintain and protect our supply of high-quality drinking water. Once again, our water met or exceeded all state and federal drinking water quality standards in 2003.

The Board of Public Utilities and our entire staff work together to continuously provide safe and healthy drinking water at the lowest possible cost. We welcome you to attend our Board of Public Utilities meetings at Riverside City Hall, held at 8:15 a.m. on the first and third Fridays of each month. The public is also invited to attend our Water Committee meetings held on the third Wednesday of each month.

Sincerely,

Thomas P. Evans
City of Riverside Public Utilities Director

California’s water assets – growing competition for reduced supply

Riverside is located in one of the driest and fastest growing regions in the country.

California’s population grows at two percent a year increasing from 34 million presently to an estimated 47.5 million by 2020. The highest rate of growth is expected in the Inland Empire, the fastest growing region in the state.

Like California’s power, education, and transportation systems, the state water system is under increasing stress. Drought, claims for Colorado River water by other states, and the competing needs of agriculture, urban communities, and the environment have rapidly increased demand for water.

While agriculture still consumes 43 percent of all water used in the state, urban water demand is projected to rise from 8.8 million acre-feet in 1995 to 11.4 million acre-feet by 2020. (One acre-foot of water is equal to about 326,000 gallons, enough to cover a one-acre area with one foot of water and to meet the average annual indoor and outdoor needs of one to two urban households.)

State shortfalls of several million acre-feet of water between water supply and water demand are expected annually through 2020.

Riverside pumps virtually all our water from local wells. That is one of the reasons RPU customers historically have enjoyed a monthly “dividend” of lower water bills than neighboring water districts charge. However, Riverside does purchase imported water from the State Water Project to meet seasonal peaking needs and to make up for periodic shortages in local supplies.
RPU ensures water quality from source to customer

We pump most of our groundwater from wells in the Bunker Hill Basin in San Bernardino and the Riverside Basins. In 2003, RPU delivered nearly 80,000 acre-feet of water to our customers. We ensure water quality through:

**Monitoring** - Carefully researching how much pumping the basins can sustain to avoid using more water than is put back in the basins each year.

**Prevention** - RPU tests wells and tracks plumes of contaminants so we can deal with potential problems to our wells. RPU is actively working to eradicate septic tanks that could pollute groundwater.

**Water Treatment** - RPU operates three chlorination stations that inactivate harmful viruses and bacteria, five granular activated carbon (GAC) treatment plants to remove synthetic organic elements including pesticides, herbicides, fertilizers, cleaning solvents, and fuel by-products, and two ion exchange plants to remove perchlorate.

**Security** - In addition to regular patrols, a new Supervisory Control and Data Acquisition System enables us to remotely monitor and control our production, treatment, and distribution facilities. We completed a Water System Security Vulnerability Assessment in 2003 and security improvements were initiated to protect our water supply based on the assessment.
How you can help conserve Riverside’s liquid assets and save money

The best way for RPU water customers to both conserve our limited groundwater and save some money in the process is to simply use less water.

The two major uses of water in urban areas are for landscape irrigation and sanitation. Investing in a few improvements can save water and save money for homeowners and businesses every month.

Invest in low-flow faucets, ultra low-flush toilets (ULFTs), and high efficiency clothes washers (HECWs) for rebates and water savings

ULFTs that use no more than 1.6 gallons of water per flush have been required in all new housing since 1992. There are millions of water-wasting old toilets still in use statewide. The latest redesigned models work better than earlier low-flush versions. Riverside Public Utilities offers up to a $55 rebate per toilet towards purchase of a new ULFT.

Since 1994, federal standards have limited flow rates to 2.5 gallons per minute (gpm) for showerheads, and kitchen and bathroom faucets manufactured in the United States. Fixtures are readily available at homecenters and hardware stores.

Front loading high-efficiency clothes washers use 40 percent less water and 55 percent less energy than standard top loading machines. Riverside Public Utilities offers rebates ranging from $75 to $175 to residential customers towards the purchase of a new HECW. Contact Programs and Services at 826-5485 for details.

Watering your landscape more efficiently costs less

About half of all residential water goes to outdoor landscape irrigation. The efficient operation of the watering system you use will do the most to reduce landscape water use.

There are many steps homeowners can take to reduce landscape water use and costs:

• Start with an assessment of water use and needs. Then develop a plan that meets those needs efficiently.
• Two cost-effective ways to reduce landscape water use are to use mulches and water-conserving soil amendments to keep soil moist and reduce the need for frequent watering.
• Make sure equipment is working properly. Fix broken equipment.
• Calculate watering rates using measured containers and soil-moisture sensors.
• Develop an irrigation schedule based on watering rates and local weather data.
• Set the irrigation controller and change its programming as needed if weather changes.
• Install a rainfall sensor to shut off the system when it rains.

For information on water efficient landscaping, native plants and to create a customized watering schedule for your home, go to http://bewaterwise.com
The City of Riverside Public Utilities is progressive in ensuring that a reliable supply of high-quality water is available for current and future generations through capital investment in our distribution system.

**RIVERSIDE’S WATER IS A GROWTH INDUSTRY**

Water Division Capital Improvements:
- 2000: $8 M
- 2001: $10 M
- 2002: $15 M
- 2003: $17 M
- 2004: $19 M*
  *(2004 projected/proposed)*

Our investments are designed to accommodate future growth, protect our groundwater sources from contamination or overuse, provide treatment and remediation and adopt new technologies to better utilize our water resources. Riverside Public Utilities is definitely “bullish” about investing as much as we possibly can to protect our vital liquid asset – Riverside’s drinking water supply.

Major water investment projects include:

**Water Main Replacement Project** – Since the ongoing Water Main Replacement Project began in 2000, some 22 miles of aging water mains have been replaced within Riverside’s 900 mile distribution system. The new, larger mains will increase water pressure, deliver more water, improve fire fighting capabilities, and avoid potential flood damage to homes, businesses and streets. $3.5 million is spent each year on this project.

**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, will receive an $8.5 million rehabilitation to ready it for 100+ more years of dependable water delivery. $5.2 million will be funded from a state grant.


**Source Water Assessment** – An assessment of the drinking water sources for RPU’s water system was completed in August 2000 for the Riverside Basins and in December 2002 for the Bunker Hill Basin. A copy of the complete report is available by contacting the California Department of Health Services at 1-800-745-7236.
Increasing Use of Recycled Water – Our Public Works wastewater treatment plants output water that is appropriate to reuse for landscaping and other industrial applications. The City is pursuing a strategy of increased use of non-potable water.

Well Monitoring – RPU is reviewing plans for monitoring wells to give early warning of possible contamination.

Septic Tank Eradication – A top priority is removal of septic tanks, primarily located in county areas, that pose a contamination threat to Riverside’s drinking water supply.

Palmyrita Treatment Plant – Three contaminated wells, out of service for over 13 years, are now refurbished and connected to the new Palmyrita Treatment Plant. The wells will supply nearly one-fifth of Riverside’s daily demand for drinking water.

Mockingbird Dam Spillway – A new $2 million spillway was constructed per State of California Water Resources Control Board requirements.

60/91/215 Freeway Interchange Improvement Project – Began construction of $6 million water main relocation improvement projects to accommodate widening of 60/91/215 Freeway Interchange. The total cost of this project will be reimbursed by the state.

Emtman Reservoir and Treatment Plant Expansion – Purchased future Emtman Reservoir site and parcels for expansion of Palmyrita Treatment Plant.

New Booster Stations and Waterman Pipeline Replacement – Planning two new booster stations and Waterman Pipeline Replacement to upgrade transmission system performance and reliability.
### RIVERSIDE PUBLIC UTILITIES 2003 WATER QUALITY REPORT

#### PRIMARY STANDARDS: MANDATORY HEALTH-RELATED STANDARDS

**PERCENT SYSTEM SOURCE - GROUNDWATER 98.4%**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>STATE MCL</th>
<th>STATE PHG MCL</th>
<th>RIVERSIDE</th>
<th>Sources of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microbiological</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Coliform (P/A) (a)</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>0 - 0.3%</td>
</tr>
<tr>
<td><strong>Clarity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbidity</td>
<td>0.5 NTU</td>
<td>NS</td>
<td>0.1 NTU</td>
<td>0 - 0.4 NTU</td>
</tr>
<tr>
<td><strong>Regulated Organic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Trihalomethanes-</td>
<td>80 ppb</td>
<td>NS</td>
<td>3 ppb</td>
<td>ND - 44 ppb</td>
</tr>
<tr>
<td>&quot;THMs&quot; ppb</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Halocetic Acids “HAA5”</td>
<td>60 ppb</td>
<td>NS</td>
<td>0.4 ppb</td>
<td>ND - 6.4 ppb</td>
</tr>
<tr>
<td>Chlorine</td>
<td>4 ppm</td>
<td>4 ppm</td>
<td>0.5 ppm</td>
<td>0.4 - 0.8 ppm</td>
</tr>
<tr>
<td>Control of DBP precursors-</td>
<td>Treatment</td>
<td>Requirement</td>
<td>0.4 ppm</td>
<td>ND - 6.4 ppm</td>
</tr>
<tr>
<td>Total Organic Carbon &quot;TOC&quot; ppm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dibromochloropropane “DBCP”-</td>
<td>200 ppt</td>
<td>1.7 ppt</td>
<td>19 ppt</td>
<td>ND - 39 ppt</td>
</tr>
<tr>
<td>Trichloroethylene (TCE)</td>
<td>5 ppb</td>
<td>0.8 ppb</td>
<td>ND</td>
<td>ND - 0.5 ppb</td>
</tr>
<tr>
<td><strong>Regulated Inorganic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrate (NO₃)</td>
<td>45 ppm</td>
<td>45 ppm</td>
<td>22 ppm</td>
<td>18 - 26 ppm</td>
</tr>
<tr>
<td>Fluoride</td>
<td>2 ppm</td>
<td>1.0 ppm</td>
<td>0.6 ppm</td>
<td>0.4 - 0.8 ppm</td>
</tr>
<tr>
<td>Arsenic</td>
<td>50 ppb</td>
<td>NS</td>
<td>2 ppb</td>
<td>&lt;2 - 4 ppb</td>
</tr>
<tr>
<td><strong>Radiological</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Alpha</td>
<td>15 pCi/L</td>
<td>NS</td>
<td>7 pCi/L</td>
<td>3 - 12 pCi/L</td>
</tr>
<tr>
<td>Uranium</td>
<td>20 pCi/L</td>
<td>0.5</td>
<td>8 pCi/L</td>
<td>4 - 11 pCi/L</td>
</tr>
<tr>
<td><strong>Lead/Copper</strong> (AL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(90% Household Tap)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead (b)</td>
<td>15 ppb</td>
<td>2 ppb</td>
<td>&lt;5 ppb</td>
<td>&lt;5 - 7 ppb</td>
</tr>
<tr>
<td>Copper (b)</td>
<td>1,300 ppb</td>
<td>170 ppb</td>
<td>400 ppb</td>
<td>&lt;50 - 770 ppb</td>
</tr>
<tr>
<td><strong>Additional Monitoring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radon</td>
<td>NS</td>
<td>NS</td>
<td>520 pCi/L</td>
<td>490 - 550 pCi/L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>ACTION LEVEL</th>
<th>STATE PHG or MCL</th>
<th>AVERAGE</th>
<th>RIVERSIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulated contaminants with no MCLs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chromium VI *</td>
<td>NS</td>
<td>NS</td>
<td>2.1 ppb</td>
<td>1.5 - 2.5 ppb</td>
</tr>
<tr>
<td>Perchlorate</td>
<td>AL 4 ppb</td>
<td>NS</td>
<td>2.3 ppb</td>
<td>&lt;4-7.2 ppb</td>
</tr>
<tr>
<td>Vanadium</td>
<td>AL 50 ppb</td>
<td>NS</td>
<td>12 ppb</td>
<td>5-18 ppb</td>
</tr>
<tr>
<td>Boron</td>
<td>AL 1000 ppb</td>
<td>NS</td>
<td>115 ppb</td>
<td>ND-120 ppb</td>
</tr>
</tbody>
</table>

* Most recent sampling compiled in 2002.

---

Naturally present in environment
By-product of drinking water chlorination
Drinking water disinfectant added for treatment
Various natural and man-made sources
Discharge from metal degreasing sites & other factions
Erosion of natural deposits
Erosion of natural deposits
Internal corrosion of home plumbing
Internal corrosion of home plumbing
Naturally present in environment
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.

Provisional Action Level (PAL) The provisional concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

Primary Drinking Water Standard (PDWS) MCLs 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. MRDLGs 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 (µMHOS) 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

Riverside Public Utilities tests for more than 200 contaminants in our water system. This report provides data from sampling conducted in calendar year 2003. Only those contaminants detected in our water system are listed here. For a listing of additional chemical tests, please contact LuCinda Norried at (909) 351-6331.

WATER RESOURCES

Riverside met 98.4 percent of its water needs from groundwater resources, receiving only 1.6 percent from Western Municipal Water District. Water quality information for imported water is available on request.

WATER COMPLIANCE & MONITORING PROGRAM

In 2003, we collected more than 12,000 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 the seven regional treatment plants to ensure water quality from its source to your meter.

RPU 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 and tap. Last year, we spent more than $250,000 on compliance laboratory costs.

*RPU 2003 WATER QUALITY DATA

6,619 - Samples collected to test for bacteria.
3,227 - Samples collected for source and system compliance and monitoring.
2,956 - Samples collected for treatment plant compliance and monitoring.
12,802 - Total samples collected.
### SECONDARY STANDARDS

#### AESTHETIC STANDARDS

<table>
<thead>
<tr>
<th></th>
<th>State MCL</th>
<th>Riverside Average</th>
<th>Sources of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Units</td>
<td>15</td>
<td>&lt;3 &lt;3</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>3</td>
<td>1 &lt;1 - 2</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Chloride</td>
<td>500 ppm</td>
<td>25 ppm</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Sulfate</td>
<td>500 ppm</td>
<td>68 ppm</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Total Dissolved Solids &quot;TDS&quot;</td>
<td>1,000 ppm</td>
<td>333 ppm</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Specific Conductance</td>
<td>1,600 µmho</td>
<td>560 480 - 610</td>
<td>Substances forming ions in water</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Noncorrosive (+0.1)</td>
<td>0 - 0.26</td>
<td>Natural or industrially influenced balance of hydrogen, carbon, and oxygen in the water, affected by temperature and other factors</td>
</tr>
<tr>
<td>pH Units</td>
<td>NS</td>
<td>7.4 7.1 - 7.9</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Hardness (CaCO₃)</td>
<td>NS</td>
<td>205 ppm (12 gpg)</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Sodium</td>
<td>NS</td>
<td>39 ppm</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Calcium</td>
<td>NS</td>
<td>71 ppm</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Potassium</td>
<td>NS</td>
<td>3 ppm</td>
<td>Naturally present in environment</td>
</tr>
<tr>
<td>Magnesium</td>
<td>NS</td>
<td>10 ppm</td>
<td>Naturally present in environment</td>
</tr>
</tbody>
</table>

(Nitrates continued...) advice from your health-care provider. Riverside provides drinking water that on average is at 22 ppm and has a range from 18 ppm to 26 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.

#### PERCHLORATE -

Perchlorate salts were used in solid rocket propellants and other industrial applications. In February 2002, DHS lowered the Provisional Action Limit on perchlorate from 18 ppb to 4 ppb. In response to this regulatory change, Riverside installed two perchlorate treatment plants and lowered the perchlorate levels from 6.4 ppb in 2001 to 2.3 ppb in 2003. 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 Contamination Levels (MCLs) are expected in 2005.

#### 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 351-6331.

#### UNREGULATED CONTAMINANT MONITORING -

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

**NON-ENGLISH TRANSLATIONS**

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

**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.**

Our Mission

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

Protecting and conserving our community’s prized liquid asset