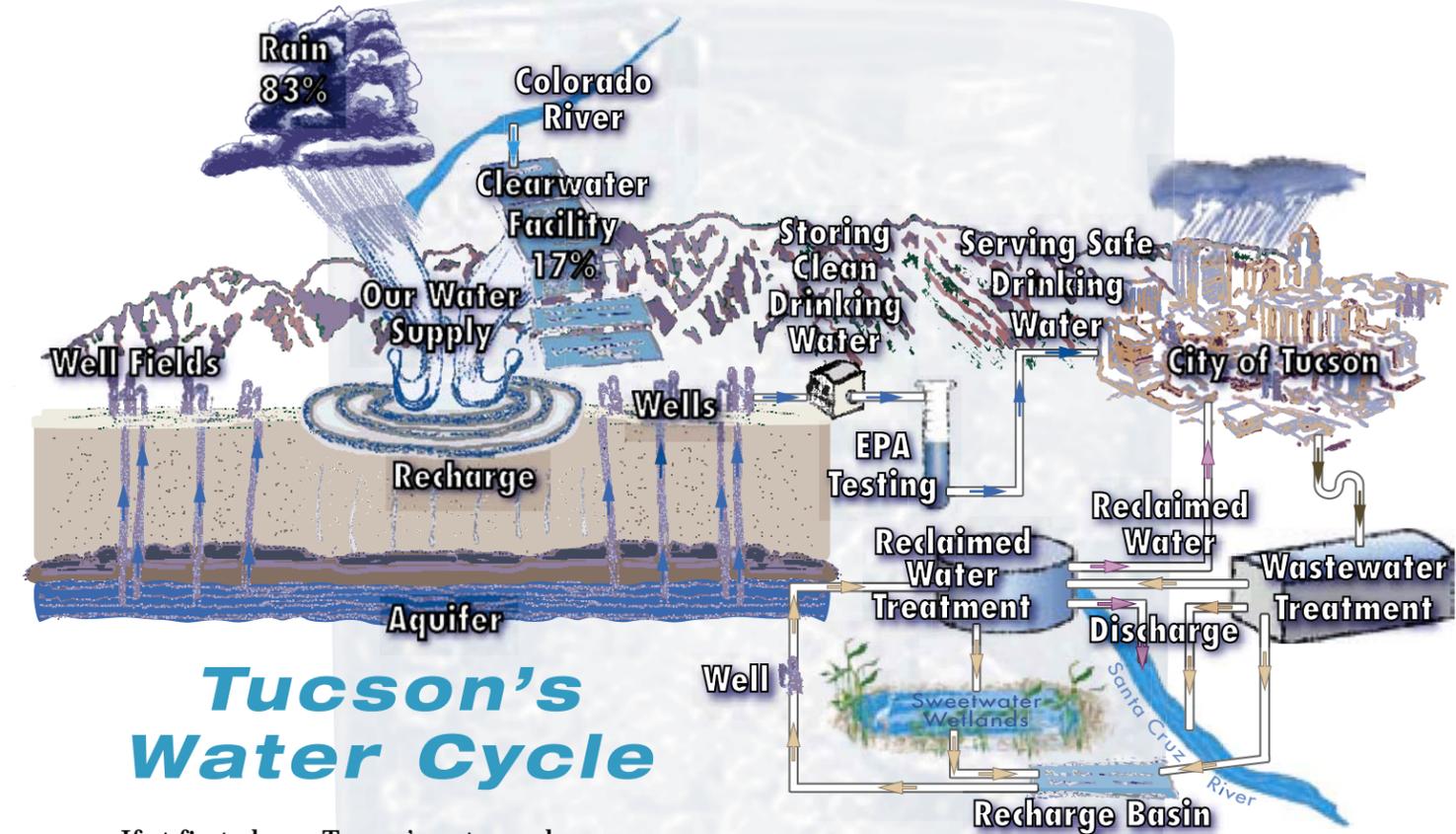
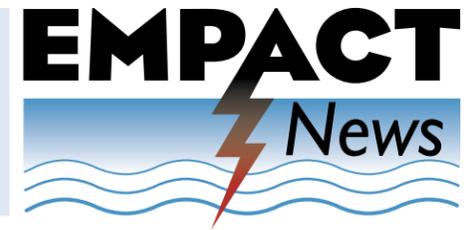




Tucson Water  
P.O. Box 27210  
Tucson, AZ 85726-7210

# WATER INFO NOW

THE LATEST WATER QUALITY INFORMATION FROM TUCSON WATER  
Vol. 3 No. 2 February/ March 2006



## Tucson's Water Cycle

If at first glance Tucson's water cycle seems complicated, you're right. At Tucson Water, water is blended, pumped, stored, recharged, discharged, reclaimed, cleaned, tested and delivered. To begin explaining Tucson's water cycle, we'll start with our drinking water sources: rain and river water.

In Tucson, the water you drink is drawn from our native underground water supply that has accumulated over eons from rain seeping into the ground. Tucson receives only about 12 inches of rain per year, yet those infrequent downpours ultimately make up 83% of Tucson's drinking water supply. The other 17% of our drinking water supply is provided by a blend of Colorado River water and Agua Fría River water that comes from Lake Pleasant, which is recharged and directed from the Clearwater Facility in central Avra Valley. Rain and this blend of river water seeps into the ground and blends with our native underground water supply in an aquifer after passing through several hundred feet of earth.

An aquifer is a natural geologic formation of rock, gravel, and clay that stores and yields water. As this

water flows downward, microbes, sediment, and other substances are trapped in the layers of rock, gravel, and clay in a natural filtration process called Soil Aquifer Treatment (SAT). Adding water to the aquifer in this manner is called recharge.

Tucson Water then pumps this cleansed water through wells to storage facilities or directly into the distribution system from wells known as point-of-entry. Here chlorine is added to remove bacteria that may be present and to protect the water from microbiological contamination between the treatment plant and the customer's tap. Next, the drinking water is tested for many chemicals and bacteria using approved analytical methods and standards set by the Environmental Protection Agency in the field and in our laboratory. Drinking water that meets these standards is then delivered to you.

*In the next issue of EMPACT News, we'll explain Tucson's other water sources: treated wastewater and reclaimed water.*

# EMPACT

## Water Info Now

is published by the EMPACT Team led by Tucson Water and provides up-to-date information about water quality in the greater Tucson area. To be added to the mailing list, please call 791-5080, ext. 1372 or e-mail Dan.Quintanar@tucsonaz.gov.

*Esta información está disponible en español. Por favor llame al 791-5080, ext. 1372.*

For more information about the Environmental Monitoring for Public Access and Community Tracking (EMPACT)



program for Tucson's water quality reporting, visit the Tucson Water Web site at [www.tucsonaz.gov/water](http://www.tucsonaz.gov/water). For more information about the United States Environmental Protection Agency (USEPA) EMPACT programs nationwide, visit the EPA Web site at [www.epa.gov/empact](http://www.epa.gov/empact).



## WRRC 2006 Conference

The 2006 Water Resources Research Center's Annual Statewide Water Conference is scheduled for June 20 and 21, 2006. The conference topic will be "Providing Water to Arizona's Growing Population: How Will We Meet the Obligation?" A full-day program featuring a mix of keynote speakers, panel discussions, and commentary will be followed by a half-day of more in-depth discussion and analysis. The conference will be held at the Hyatt Regency Phoenix at Civic Plaza. Registration options will include only the first day or both days.

Additional information will be provided on the WRRC Web site (<http://cals.arizona.edu/AZWATER/>) and via e-mail. Contact us at [wrrc@cals.arizona.edu](mailto:wrrc@cals.arizona.edu) to have your name added to the conference e-mail list or if you have questions about the conference.

Please mark this on your calendars, post it in your newsletters and/or Web sites, and pass the information along to others.

## Conservation Corner Gray Water

Recycling shower, bath, and laundry water—also known as “gray water”—to irrigate your yard can stretch your monthly water budget and help conserve Tucson’s high quality drinking water for other uses. It’s a great way to conserve water that’s simple and sensible in our dry, desert community.



For example, let’s consider a family of four that produces the Arizona average of 20 to 35 gallons of gray water per person per day—a total of 80 to 140 gallons daily. Using this water to irrigate plants instead of using high quality drinking water would result in a monthly savings of 2400 to 4200 gallons (3 to 5 Ccf\*) per month. If the family’s average monthly usage is 15 Ccf/month or less, reusing their gray water would result in a reduction of about \$3 to \$5 in their monthly water bill.† For families that use a lot of water each month, the savings could reach as high as \$36/month. Your savings will vary depending on your water usage. (Please note that current guidelines limit gray water use to 400 gallons/household per day.)

Recently, Arizona state law has changed to allow households to use gray water without a permit. Below are a few of the new guidelines.

1. Never use gray water for direct consumption, such as drinking or cooking.
2. Gray water should not be used directly on plants that may be eaten, or those that produce fruit and nuts.
3. Use only water from clothes washing, bathing, or the bathroom sink. Water from toilets, a dishwasher, or kitchen sink is not safe to re-use without additional treatment. That water must go into a sanitary sewer or septic system.
4. Do not use water that has come in contact with soiled diapers, meat or poultry, or anyone with an infectious disease.
5. Gray water should not be sprayed, allowed to puddle, or run off your property.

There are 13 guidelines for gray water use. To view them, follow the instructions below to obtain a copy of the Arizona Department of Environmental Quality gray water brochure.

For more details about how to use gray water safely and effectively, visit our Web site at [www.tucsonaz.gov/water](http://www.tucsonaz.gov/water) and click on Conservation, then click on Using Greywater. You’ll find a downloadable brochure from the Arizona Department of Environmental Quality all about gray water use, along with Tucson Water’s *Homeowner’s Guide to Using Water Wisely*. You can also call one of Tucson Water’s Zanjeros (water specialists) at 791-3242 for a free evaluation of your home water use, including ideas for lowering your monthly bill. The Water Conservation Alliance of Southern Arizona (Water CASA) Web site is another great resource for gray water information. Check it out at [www.watercasa.org](http://www.watercasa.org).

\* Ccf = One hundred cubic feet.

† Tucson Water charges residential customers via an inclining block rate structure. As usage increases, the unit price or rate increases. To view the current rate structure, please visit [www.tucsonaz.gov/water/rates](http://www.tucsonaz.gov/water/rates).

## Q&A

**Customer:** Why does my hot water smell like rotten eggs?

**EMPACT Team:** This smell is characteristic of hydrogen sulfide gas that has formed in your hot water heater because bacteria are feeding on the anode rod inside the hot water heater tank. This usually happens when you are away for a while and the water has become stagnant. Most of the time, it can be easily fixed by flushing/running the stagnant water out of the hot water heater and bringing in freshly chlorinated water. This will help eliminate the bacteria causing the problem. Returning to your normal use of hot water will help keep the bacteria in check.

If flushing does not eliminate the smell, you can turn the temperature up to 160°F for 24 hours to kill the bacteria and then turn the temperature down to the normal temperature range you use daily. If you do increase the temperature, you will need to be very aware of the risk of scalding, particularly for children and seniors. If the above actions do not eliminate the odor, replacement of the magnesium anode rod with an aluminum or zinc anode rod will correct this problem.

*E-mail your questions about drinking water quality to [Dan.Quintanar@tucsonaz.gov](mailto:Dan.Quintanar@tucsonaz.gov) or call Dan at 791-5080, ext. 1372.*

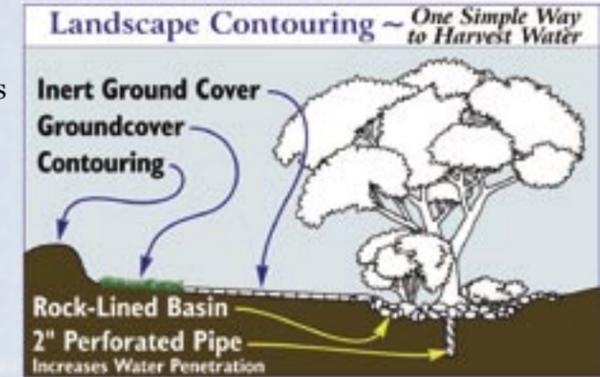


## Rainwater Harvesting

Most of us are so used to turning on the tap when we need to water our yards, that we forget about a natural source that’s available for free—rain.

Rainwater is ideal for irrigating trees, shrubs, and gardens—all it takes is a system to capture and deliver the water to where you need it. This technique, called rainwater harvesting, is simple and convenient. And it’s a great way to help conserve Tucson’s high quality drinking water for other uses. Watering your lawn, garden, and outdoor landscaping with rainwater also helps you save money by using less drinking water, which lowers your monthly water bill.

All you need for a rainwater harvesting system is rain and a place to put it. You’ll also need to designate your “catchment” areas—large surfaces that can capture and/or carry water to where it can be used immediately or stored. Roofs, patios and driveways



make great areas to catch rainwater. You can direct the rainwater from these surfaces to plants, trees, or lawns by using dikes, berms, or contouring. Rain gutters and pipes can move the rainwater

from a roof directly to your landscape, or to storage containers. For more information about rainwater harvesting, contact Tucson Water’s Conservation Office at 791-4331, or visit our Web site at [www.tucsonaz.gov/water/conservation](http://www.tucsonaz.gov/water/conservation), or you can consult your local library or bookstore. Home improvement stores are also great sources of information and materials for rainwater harvesting.

## Tucson Water Tracks Water Quality Chlorine and By-Products

Tucson Water adds chlorine to the city’s drinking water supply to clean it before it is served to our customers. Chlorine eliminates bacteria and makes our water sanitary, free of microbiological contamination, of high quality, and safe to drink from the time it is pumped from the ground until it reaches your tap. Tucson Water adds chlorine to the drinking water at many locations throughout the water distribution system including well sites, reservoirs, and booster sites.

The presence of chlorine can affect the taste and odor of our drinking water. You may have tasted chlorine in your drinking water and thought it tasted like “a swimming pool” or “medicinal” or “metallic.” These odd tastes and odors are formed when chlorine combines with the natural mineral content in our drinking water. The levels of chlorine and mineral content vary around the city. To minimize the chlorine taste and odor, you can add tap water to a clean container and let it set overnight in the refrigerator.

Tucson Water works hard to maintain a balance between adding too much chlorine and not enough. Maintaining the correct amount of chlorine in all the pipes all the time is challenging because we manage a complicated underground network of pipes that total 4,200 miles and range in size from 2 inches to 96 inches in diameter. Two forms of chlorine are used: sodium hypochlorite in a liquid form and calcium hypochlorite in a solid, tablet form. About 0.8 mg/L\* of chlorine is added to the drinking water at all of our sites, but the final chlorine residual can vary between 0.2 mg/L and 1.2 mg/L. The Environmental Protection Agency’s primary standard for the maximum amount of chlorine in drinking water is 4 mg/L. The potential health effects of ingesting chlorine above 4 mg/L are eye and nose irritation and stomach discomfort.

To learn more about chlorine in your drinking water, call our Water Quality Division at 791-5252 or our Customer Liaison at 791-5945 or visit the water quality section on our Web site [www.tucsonaz.gov/water](http://www.tucsonaz.gov/water).

\* One milligram per liter is the same as one part per million, and is equivalent to 1 teaspoon in 1,320 gallons.