



# RECLAIMED WATER

## Saving Groundwater for Drinking

Winter 2005

### REUSE OF OUR EFFLUENT IS CRITICAL TO TUCSON'S WATER FUTURE

Recently, Tucson Water presented its Long-Range Water Resources Plan, *Water Plan 2000-2050*, to the community. The primary goals are to determine what our water needs will be in the future and how best to use our available resources and other supplies that will meet those needs. Our available resources include groundwater, renewable Colorado River water, and treated wastewater effluent. For this newsletter, we'll focus on our effluent supplies.

Wastewater effluent is an excellent resource for Tucson's future. Effluent is the only source of water that increases as population rises. Also, because the City of Tucson owns most of the effluent that flows from Pima County's two municipal wastewater treatment plants along the Santa Cruz River, Tucson Water does not have to purchase this alternate water resource.

Currently, Tucson Water has access to about 11 billion gallons of effluent each year. A portion of it is taken by Tucson Water to 'reclaim' for other uses. Reclaimed water is created through a multi-stage advanced treatment process that cleans wastewater to a standard good enough for turf and landscape irrigation, and suitable for some industrial uses such as cooling towers.

Using reclaimed water for irrigation saves our precious drinking water. In 2003, reclaimed water use saved 3.7 billion gallons of drinking water. That's enough to serve more than 30,000 Tucson families for a year.

In order to provide reclaimed water to irrigation customers, Tucson Water must construct an independent set of pipelines, pumps,



reservoirs and other facilities. We've already brought the majority of our irrigated park acreage and 80% of the golf courses in our service area onto reclaimed water. As a result, we anticipate that the reclaimed system will grow at a relatively slow but steady pace in the future.

Another use for our wastewater is to secure it in long-term storage for some future use, or use it to augment our water supplies through recharge or other means. Reusing our effluent to add to our groundwater supplies mimics what naturally occurs today. Effluent released into the Santa Cruz riverbed sinks through the earth and becomes groundwater for communities and users downstream from Tucson. *Water Plan 2000-2050* looks at the potential to capture our effluent, treat it to drinking water standards, and recharge it in an area where this renewable resource will augment our groundwater supplies. Using effluent to add to groundwater and thus to drinking water supplies is not a new idea. It is already in use in other communities, including Scottsdale, AZ and Orange County, CA.

How we use our effluent supplies must be preceded by much community discussion and input. Because our first priority is to maximize our use of Colorado River water, *Water Plan 2000-2050* anticipates that critical decisions will be made in about 10 years. Using our effluent to provide additional reclaimed water, as well as treating it and adding it to our groundwater supplies, makes good sense in our desert region. Making the most of this growing resource will ensure that we have the water resources to meet our needs for many decades to come.



*Our Speakers' Bureau provides information for our upcoming Bond Election. If you would be interested in a presentation to learn more about the Water Bonds, call 791-4331.*

# RECLAIMED WATER QUALITY 2004

## Inorganic Constituents

Alkalinity (as CaCO <sub>3</sub> )	258 mg/l
Arsenic	0.01 mg/l
Boron	0.29 mg/l
Cadmium <sup>1</sup>	< 0.004 mg/l
Calcium	76 mg/l
Chloride	105.5 mg/l
Copper <sup>1</sup>	< 0.02 mg/l
Hardness (as CaCO <sub>3</sub> )	245 mg/l
Magnesium	13.4 mg/l
Phosphate (as P)	1.09 mg/l
Sodium	132 mg/l
Sulfate	129.2 mg/l

## Nitrogen Forms

Ammonia Nitrogen	4.27 mg/l
Nitrate (as N)	4.23 mg/l
Nitrite (as N)	0.17 mg/l
Organic Nitrogen (Calculated)	2.72 mg/l
Total (Calculated)	11.39 mg/l

## Reuse Permit

Turbidity	3.5 NTU
Fecal Coliform <sup>1</sup>	< 2.0 cfu
pH	7.54 S.U.

## Salt Level

Total Dissolved Solids	664 mg/l
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Electrical Conductivity	1089 µS/cm
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Residual Sodium Carbonate	0.26 meq/l
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## Other

Sodium Adsorption Ratio(SAR)	3.67 meq/l
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Annual Average. Source: Tucson Water's Water Quality Laboratory

<sup>1</sup> Average is less than the detection limit.



## CITY OF TUCSON

TUCSON WATER DEPARTMENT  
310 W. ALAMEDA  
P.O. BOX 27210  
TUCSON, AZ 85726-7210



I'm saving  
groundwater  
by watering  
my yard with  
reclaimed water.

DO NOT DRINK FROM THE IRRIGATION SYSTEM  
NO TOME AGUA DEL SISTEMA DE RIEGO



## FOLLOW THE RULES

When you signed up for reclaimed water service, you (the person responsible for paying the water bill) signed a Reclaimed Water User Agreement. By signing this document, you agreed to do comply with any state, Federal, and local laws, regulations and standards that may apply to your use of reclaimed water.

The Arizona Department of Environmental Quality's (ADEQ) Rules prohibit the runoff of reclaimed water or reclaimed water mixed with stormwater from the site (Arizona Administrative Code Title 18, Chapter 9, Article 6, R18-9-704). If reclaimed water runs off of your site for any reason, including breakage or malfunction of the irrigation system, you may be required to report this runoff to ADEQ.

If you have questions about reporting reclaimed water runoff, contact ADEQ at 520-628-5651.