

## Groundwater Code Upheld

Arizona's Groundwater Management Act has withstood its fifth major court battle. In September 1983 the Ninth U.S. Circuit Court of Appeals agreed with U.S. District Judge Carl A. Muecke's decision in the *Cherry vs. Steiner* suit. The suit was filed by a group of Yavapai County land owners and Shamrock Water Company challenging almost every provision of the Act. The suit alleged that the groundwater law was unconstitutional.

In July 1982, Judge Muecke concluded that the groundwater law is "a permissible exercise of the state's police power and does not offend the constitution." The Ninth Circuit Court affirmed that conclusion.

Arizona's Groundwater Management Code contains a non-severability clause, which means that if any part of the Code is judged unconstitutional, the entire law will be stricken.

The Code's first two victories occurred in the *Chino Valley vs. Prescott* suit. The Arizona Supreme Court found the law unconstitutional and an appeal to the U.S. Supreme Court was dismissed.

Victories number three and five were the *Cherry vs. Steiner* decisions. In August 1983, the fourth victory occurred when a U.S. District Court judgment, in *Little American Refining Company vs. Wesley E. Steiner*, was entered unholding the constitutionality of the Code. This decision was appealed to the Ninth U.S. Circuit Court. —*Groundwater code p. 2*

## New Well Spacing Regulations

Regulations for spacing new water wells in the state's AMAs have been adopted by the Department of Water Resources (DWR). These regulations, required by the 1980 Groundwater Management Act, apply to wells within AMAs that will pump more than 35 gallons per minute (gpm).

Goals of the regulations are to prevent damage to surrounding land and to protect existing wells from unreasonable declines in water levels. They will consider water quality, land subsidence and cones of depression. The regulations were designed to help extend the life of the groundwater basin.

In preparing the rules, DWR surveyed many other states, particularly those with intensive groundwater management practices and/or strict groundwater laws. DWR also reviewed several commonly used well spacing methodologies. Basic elements of the regulations include the following.

- A hydrologic study by the applicant is required for proposed wells having a pumping capacity greater than 500 gpm. DWR will do the study for lower capacity wells.
- Proposed wells that would cause less than 10 feet of additional drawdown at any well of record during a 5-year period may be approved.
- For proposed wells that would cause more than 10 feet of additional drawdown at any well of record during a 5-year period, DWR will consider a series of factors to determine the well spacing. If such a permit application is rejected by DWR, the applicant may obtain consent from the neighboring well owners within 45 days. DWR may approve the new well if the neighboring well owners accept the increased impact on water levels in their wells.
- Replacement wells must be spaced no greater than 660 feet from the original well.

"Additional drawdown," as used in the regulations, refers to lowered water levels around a proposed well that result only from operating the proposed new well. It does not include lowered water levels resulting from regional declines or from other existing area wells.

Copies of these rules are available from DWR's Operations Division, 99 East Virginia Avenue, Phoenix, Arizona 85004.

## Groundwater code

In addition, the plaintiffs in another constitutional challenge, *Ralph C. Cowen Trust vs. Steiner*, have agreed to dismiss the case that was filed in the Phoenix U.S. District Court. The only other constitutional challenge against the Code is included in *Platt vs. Salt River Project*, which was filed in Maricopa County Superior Court.

## Groundwater Withdrawal Fees Explained

The 1980 Groundwater Management Code requires payment of a withdrawal fee for each acre-foot of groundwater pumped from non-exempt wells in active management areas (AMAs). The 1984 groundwater withdrawal fee is \$.50 per acre-foot, the minimum allowed by law.

The fee applies to groundwater withdrawn in AMAs during 1984 and must be submitted to the Department of Water Resources (DWR) with an annual pumpage report by March 31, 1985.

Within the four existing AMAs there are 8,036 non-exempt wells. DWR estimates that total pumpage from these wells during 1984 will be about 3.2 million acre-feet.

In the future, the withdrawal fee can include three components: a) the current charge, which will be collected to administer and enforce the groundwater code. This portion of the withdrawal fee goes into the state's general fund to offset 50 percent of the water management program costs; b) a fee, which would not exceed \$2 per acre-foot, to augment water supply. This fee would be based on specific augmentation schemes and the amount could vary among AMAs; and c) beginning in the year 2006, as much as \$2 per acre-foot may be collected for purchasing and retiring irrigation grandfathered rights. After 2006, the maximum withdrawal fee could be as much as \$5.

As of January 1984 water measurement devices must be used on all non-exempt wells in AMAs and in irrigation non-expansion areas (INAs). The only exception is the Harquahala INA where groundwater withdrawals must be measured after January 1, 1985. The withdrawal fee does not apply to INAs.

## Conferences

### Morrison Institute Water Policy Conference

"Water resource policy for Arizona: Who controls it? Is it working?" is the subject of a two-day conference sponsored by Arizona State University's Morrison Institute for Public Policy and the University of Arizona. The conference will be held May 10-11, 1984, at the Westward Look Resort in Tucson.

Topics related to water policy will address policy process issues, economics, institutional factors, impacts of the judicial system, the federal role, and models for managing water resources.

Featured speakers will be Frank Gregg, Director of the University of Arizona's School of Renewable Natural Resources (speaking about alternatives for managing water resources), Governor Bruce Babbitt (speaking about goals of water resources policy), Congressman John

## ONLINE WATER DATA BASES

If you are seeking information on water resources but don't know how to begin, perhaps the Arid Lands Information Center (ALIC) can help you. ALIC can provide a computerized literature search on a specific topic from any of the following data bases.

**Agricola** provides comprehensive coverage of newly acquired worldwide publications in agriculture and related fields. Agricola is produced by the National Agricultural Library.

**Aquaculture** provides information on growing marine, brackish and freshwater organisms. Abstracts are provided for some citations. Aquaculture is produced by the National Oceanic and Atmospheric Administration, Rockville, Maryland.

**Aqualine** provides worldwide coverage of all aspects of water research including waste water and the aquatic environment. Abstracts are provided for each record. Aqualine is produced by the Water Research Centre, Medmenham, Buckinghamshire, England.

**Aquatic Sciences and Fisheries Abstracts (ASFA)** is a comprehensive data base on the science, technology and management of marine and freshwater environments. ASFA is produced by NOAA/Cambridge Scientific Abstracts, Bethesda, Maryland.

**CAB Abstracts** covers every branch of the agricultural sciences including irrigation, forestry and the environment. It is published by the Commonwealth Agricultural Bureaux, Farnham Royal, Slough, England.

**Water Resources Abstracts (WRA)** offers a comprehensive range of water-related topics such as life, physical and social sciences, engineering, and legal aspects of conservation, control, use and management. WRA is produced by the U.S. Department of the Interior, Washington, D.C.

**Waternet** is a comprehensive index to publications of the American Water Works Association (AWWA) and the AWWA Research Foundation. Brief abstracts are available. The AWWA produces the data base.

For further information write or call Dee Campbell, Arid Lands Information Center, Office of Arid Lands Studies, College of Agriculture, University of Arizona, 845 North Park Avenue, Tucson, Arizona 85719; telephone (602) 621-7897. There is a charge for searches and computer costs.

## Publications

Rhodes (speaking about the changing water resource policymaking process), and Mike Bradley, University of Arizona Associate Professor of Hydrology and Water Resources (speaking about the existing structure of Arizona water policy and trends).

Registration, by invitation only, is \$75 and must be completed before April 25, 1984. For further information contact Debbie Roepke, Morrison Institute, Center for Public Affairs, Arizona State University, Tempe, Arizona 85287; telephone (602) 965-4525.

## Arizona/Nevada Academy of Science

The 28th Annual Meeting of the Arizona/Nevada Academy of Science will take place in April 1984, at the University of Arizona, Tucson. Hydrology Section presentations are scheduled from 8:00 a.m. to 5:00 p.m., April 7 in the University's Harvill Building. The annual business meeting also will be held at 11:30 the same day. Registration is \$10, payable at the door.

For further information contact Kenneth E. Foster, University of Arizona, College of Agriculture, Office of Arid Lands Studies, 845 North Park Avenue, Tucson, Arizona 85719; telephone (602) 621-1955.

### *Geohydrology and Water Use in Southern Apache County, Arizona.*

Water use in southern Apache County is expected to increase nearly 100 percent by the mid-1990s. This is just one of the conclusions of a study released by the Arizona Department of Water Resources (DWR).

The report, prepared cooperatively with the U.S. Geological Survey, documents the occurrence, availability and chemical quality of groundwater and describes the geology of the area. The study covered 4,100 square miles in a ranching and farming area that is experiencing growth in population and industrial water use.

In 1975, surface water supplied 70 percent of the 30,000 acre-feet of water used. By the mid-1980s, water use is expected to increase to 50,000 acre-feet per year. Most of the additional water will come from groundwater since most of the area's surface water is already allocated to local or downstream users.

This report is available for \$3 from: Arizona Department of Water Resources, Basic Data Unit, 2810 South 24th Street, Phoenix, Arizona 85034; telephone (602) 255-1543.

### *Water-Related Technologies for Sustainable Agriculture in U.S. Arid/Semiarid Lands.*

This report, prepared by the Office of

Technology Assessment, assesses existing and emerging water-related technologies for their ability to support long-term productivity of arid and semiarid agricultural plants and animals. Technologies examined in the study include: 1) improving efficiency of water use; 2) improving water management, storage and distribution for agriculture; and 3) augmenting existing supplies with additional water not previously available. The report also identifies a number of options for congressional action.

Copies of the report are available as Document No. OTA-F-212, October 1983, from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

### *Factors of Municipal Water Demand: An Analysis of Residential Uses.*

In November 1983, the University of Arizona's Division of Economic and Business Research released results of its survey of residential water use in the City of Tucson. Several conclusions contradict traditionally held assumptions about water use. Some conclusions are summarized below.

- Indoor usage is determined mainly by demographics and appliances. Peak outdoor usage is more a function of landscaping tastes. However, income is *not* an important factor for determining indoor or peak outdoor use.

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- The type of housing has a substantial effect on water demand.

- The number of persons in the household is a very important factor in determining indoor water use.

- Newcomers to Arizona use substantially less water than "native" Arizonans, both indoors and out. All other factors being equal, a household in Tucson for 20 years will use about 50 gallons per day (gpd) more than a household of newcomers.

- There is some evidence that the price of water is an effective method of reducing demand. Those households that directly pay their water bills consume 61 gpd less indoors than those that do not.

- Lawns and pools are major landscaping factors of outdoor demand. Pools require 5.5 times the 16 gpd typically used to maintain a lawn of equivalent area.

Copies of this issue of *Arizona Economy* (November 1983) are available from the University of Arizona's College of Business and Public Administration, Division of Economic and Business Research, Tucson, Arizona 85721.

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#### *Potential Rainfall and Runoff Utilization in the Tucson Urban Area.*

This report was prepared by the University of Arizona's Water Resources Research Center and Office of Arid Lands Studies for the City of Tucson

project, "Evaluation, Monitoring and Operation of Existing City Water Harvesting System and Expansion Plan for Future Development of Rainfall Utilization."

The study assesses the possibilities for harvesting rainfall in the Tucson urban area. It reviews existing published reports in Tucson and similar urban areas, explores the potential for rainfall harvesting and use, describes the physical designs of rainfall harvesting systems, and recommends areas for further study and site development.

A limited number of copies of this report are available for \$10 from the Office of Arid Lands Studies, College of Agriculture, University of Arizona, 845 North Park Avenue, Tucson, Arizona 85719; telephone (602) 621-7897.

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#### *A Bibliography of Water Harvesting/Runoff and Small Scale Water Management Systems.*

The University of Arizona's Irrigation and Water Management Institute (College of Agriculture) has published a comprehensive bibliography on water harvesting/runoff farming and small-scale water management systems. Topics receiving primary emphasis include water harvesting, runoff farming, evaporation suppression, seepage reduction, pumps and distribution systems, construction methods and materials, small-scale water management, social-political-economic considerations, and hydrology.

This 80-page volume is available from: Irrigation and Water Management Institute, Department of Soils, Water and Engineering, College of Agriculture, University of Arizona, 429 Agricultural Sciences Building #38, Tucson, Arizona 85721; telephone (602) 621-1646.

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*The Arizona Water Resources News Bulletin* is published cooperatively by

Arizona Department of Health Services  
Arizona Department of Water Resources  
Arizona State Land Department  
Office of Arid Land Studies  
Water Resources Research Center

Please address your news items or comments to any of the editors

**Bill Allen**, Arizona State Land Department, 1624 West Adams, Phoenix, Arizona 85007. (602) 255-4629.

**Phil Briggs**, Arizona Department of Water Resources, 99 East Virginia, Phoenix, Arizona 85004. (602) 255-2586.

**Ken Foster**, Office of Arid Lands Studies, University of Arizona, Tucson, Arizona 85719. (602) 621-1955.

**Susan Keith**, Arizona Department of Health Services, Water Quality Control, 1740 West Adams, Phoenix, Arizona 85007. (602) 255-1177.

**L. Gray Wilson**, Water Resources Research Center, University of Arizona, Tucson, Arizona 85721. (602) 621-7608.

ARIZONA  
**Water Resources**  
UNIVERSITY OF ARIZONA  
WATER RESOURCES RESEARCH CENTER  
WATER INFORMATION SECTION  
TUCSON, ARIZONA 85721

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