

# ARIZONA WATER RESOURCES NEWS BULLETIN

NEWS BULLETIN NO. 81-1

JANUARY-MARCH 1981

## U.S. INTERIOR SUBCOMMITTEE HOLDS TUCSON AQUEDUCT HEARING.

An oversight hearing on the Central Arizona Project (CAP) Tucson Aqueduct was held March 13 in Tucson by a subcommittee of the U.S. House of Representatives Committee on Interior and Insular Affairs, the Subcommittee on Water and Power Resources. Testimony was received concerning the size and the terminus location of the aqueduct and on the Papago Indian water entitlement. About 30 witnesses were heard, including Governor Bruce Babbitt, U.S. Senator Dennis DeConcini, Tucson Mayor Lew Murphy, and a broad range of water users in the area.

U.S. Representative Morris Udall, Interior Committee Chairman, is drafting legislation to resolve differences that have threatened to delay construction of the Tucson Aqueduct. Most of the testimony supported Representative Udall's proposal to transport Colorado River water to the southern boundary of the San Xavier Indian Reservation and increase the capacity of the aqueduct. However, conflict remains over efforts to quantify the Papago Indian claims to water for their reservation. Papago Tribal Council members objected to Representative Udall's suggestion that part of their water allocation be met by treated effluent.

## GROUNDWATER ACTIVE MANAGEMENT AREA ADVISORY COUNCIL MEMBERS APPOINTED

Governor Bruce Babbitt today announced the appointment of twenty members to the Groundwater Active Management Area (AMA) Advisory Councils. The Councils will advise the area directors of each active management area and make recommendations on groundwater management policies and programs.

Appointed to the Maricopa AMA Advisory Council was Sue Lofgren, a Tempe consultant with extensive background in water related issues. Her term expires in 1986. Marvin Andrews, Phoenix City Manager, and J.S. Francis, Jr., chairman of the Board of Valley Industries were appointed to terms ending in 1984. Glendale City Manager Stanley F. Van de Putte and Salt River Project Vice-President John R. Lassen were appointed to one-year terms ending in 1982.

George Rosenburg, an administrator at St. Gregory High School in Tucson, was appointed to a term ending in 1986,

for the Pima AMA Advisory Council. Also appointed to the Pima Council were Avra Valley farmer and businessman, Brad DeSpain and Anamax Mining Company chief counsel John Frankovitch. Their terms run until 1984. Appointed to terms ending in 1982 were Tucson investor Sam Sneller and William Ealy, deputy city manager for Tucson.

Appointed to the Pinal AMA Advisory Council for terms ending in 1982 were Dewey Powell, a Casa Grande businessman and Dalton Cole, a Coolidge farmer. Porfino Pantoja, the mayor of Eloy, and Casa Grande farmer Harold Arp were appointed to terms ending in 1984. Phillip Nason, a Casa Grande geologist, was appointed to the term ending in 1986.

Five Yavapai County residents were appointed to the AMA Advisory Council for that area. Jerri Wagner, a Prescott community leader and Jim Lewis, a Prescott businessman, were appointed to one-year terms ending in 1982. Appointed to terms ending in 1984 were Humboldt rancher Rink Goswick and Marshall Hartman, a Chino Valley rancher. Donald Head, a Prescott lawyer and developer was appointed to the term ending in 1986.

## COORDINATED EFFORT TO PROTECT GROUNDWATER

The Arizona Department of Health Services (ADHS) is finalizing the development of a comprehensive groundwater quality protection program. The \$1.3 million EPA grant will fund a two-year cooperative effort among several agencies — ADHS, Pima Association of Governments, SouthEastern Arizona Council of Governments, and Maricopa Association of Governments. The project will link all groundwater protection programs into an integrated package.

The most important aspect of this project is the creation of standards for Arizona's groundwater quality. Management of groundwater quality in the Upper Santa Cruz and Salt River Basins is a major thrust of the program.

Another aspect of the program is cooperation with the Department of Water Resources (DWR) with regard to groundwater protection issues: 1) the participation of ADHS staff on DWR committees devoted to developing well-construction regulations; 2) the participation of ADHS staff with DWR in raising critical groundwater quality planning issues for the designated management areas in the state; 3) the development of a statewide data system and groundwater monitoring strategy in combina-



tion with DWR and the statewide Water Data Management Task Force; and 4) the development of strategies for ADHS in regulating sources of groundwater pollution. (Reprinted from ADHS Environmental Health Services Division Newsletter)

## **ANNUAL AWRA-ANAS MEETING HELD IN TUCSON**

The Annual Joint Meeting of the Hydrology Section, Arizona-Nevada Academy of Science and the Arizona Section, American Water Resources Association was held May 1-2 at the University of Arizona in Tucson. Thirty-five papers were presented at the joint session, dealing with many aspects of hydrology and water resources administration.

Proceedings of this conference will be published this summer as Volume 11 of *Hydrology and Water Resources in Arizona and the Southwest*. An announcement of the availability of the Proceedings will be in a forthcoming issue of the *Arizona Water Resources News Bulletin*.

Newly elected officers of the Arizona Section are Ed Swanson, Arizona Department of Health Services, president and Herb Osborn, USDA Science and Education Administration, vice-president. The newly appointed executive secretary is Ken Foster, University of Arizona Office of Arid Lands Studies. Jim DeCook, University of Arizona Water Resources Research Center, was appointed chairman of the Hydrology Section of the Arizona-Nevada Academy of Science.

Members of the Arizona Section-AWRA are reminded to renew their memberships for the current year, and all persons with an active interest in hydrology or water resources are invited to join the section. Application and renewal forms are available from Ken Foster, executive secretary, at the address given on the back of this *Bulletin*. in the list of editors.

The objectives of the AWRA are: 1) to provide a common forum for engineers, hydrologists, legislators, lawyers, planners, and physical, biological, and social scientists concerned with water resources; 2) to advance water resources research, planning, development, management, and education; and 3) to collect, organize, and disseminate ideas and information concerning all aspects of water resources. The Arizona Section works to fulfill these goals by co-sponsoring with the Hydrology Section of the Arizona-Nevada Academy of Science an annual two-day meeting of those concerned with water resources in the Southwest and by publishing the proceedings of this meeting.

## **OPEN DUMP INVENTORY UPDATE**

The Bureau of Waste Control, Arizona Department of Health Services, has been conducting a statewide Open Dump Inventory (ODI). To date, 60 landfills receiving municipal wastes have been inventoried and classified on the basis of the ODI criteria. Of these, 37 landfills, or 62 percent, have been classified as "open dumps" because they violated one or more of the established criteria, including posing a threat to groundwater or the presence of open burning. The names and locations of these "open dump" facilities will appear shortly in the *Federal Register*. The Bureau will initiate negotiations with the owners/operators of each of these non-compliant facilities

in an effort to ensure that they are either properly upgraded or closed.

The ODI will require five years to complete. During FY 81, the inventory project will be expanded to include industrial surface impoundments (facility containing liquid wastes from industrial processes) and sludge land-spreading (tilling sludge into the soil) facilities. Contact James Angell at 255-1162 for information on the status of Arizona's ODI.

(Reprinted from ADHS Environmental Health Services Division Newsletter)

## **PLANNING FOR WATER QUALITY ON THE SAN PEDRO**

Heavy rainstorms during the winter of 1978-79 flooded the tailings pond at a large copper mine in Cananea, Mexico, sending heavily polluted acid mine runoff into Arizona in the northward-flowing San Pedro River. High acidity and high levels of iron, zinc and copper severely damaged the ecology of the river system, especially in the upper portion from the Mexico-Arizona border to Benson. The runoff was coupled with a break in the wastewater treatment ponds at Naco, Sonora, that sent raw sewage across the border into Greenbush Draw and then into the San Pedro. The latter spill was considered to be a potential threat to Bisbee's drinking water.

As a consequence of these spills, and after consultation with the Arizona Game and Fish Department, the International Boundary and Water Commission, and affected mining and municipal interests, the SouthEastern Arizona Governments Organization (SEAGO) and Arizona Department of Health Services have designed and initiated a monitoring program to ensure that San Pedro water quality is being adequately protected. Eighteen sites have been monitored monthly since February 1980. Initial results confirm a general improvement in water quality along the San Pedro, but surface water quality indicators are among the fastest changing indices in the semi-arid Southwest. After last winter's floods subsided, large amounts of heavy metals settled in the sediments and river banks; renewed heavy rains would therefore be expected to increase metal concentrations until the sediments are "flushed out." The effect of heavy metals on shallow groundwater remains an ongoing concern.

SEAGO Coordinating Council and planning staff intend to evaluate a full year's data before definitive statements are made regarding the restoration of environmental quality.

(adapted from an article by Richard Francaviglia, Senior Planner with SEAGO, in the ADHS Environmental Health Services Division Newsletter.)

## **HYDROLOGICAL EFFECTS OF RANGELAND RENOVATION**

The newsletter of the Hereford and Whitewater Draw Natural Resource Conservation Districts, Douglas, Arizona, reports that recent research of the Walnut Gulch Experimental Watershed has demonstrated significant benefits in terms of erosion control. Studies were conducted on two treatment areas. One was rootplowed and seeded; one was ripped. Rootplowing and seeding increased carrying capacity over 10 times the pretreatment carrying capacity. Runoff was not reduced until four

years after treatment. Then a slow but significant reduction in runoff (80%) occurred. Associated with the reduction in runoff after treatment was a 60% reduction in sediment yield.

Ripping is another range renovation practice popular in the Douglas area. Walnut Gulch studies indicate ripping reduces runoff, but only for five years. The ripped furrows were slowly leveled by the erosive force of precipitation so that after five years the treatment had lost its effectiveness. One Elfrida rancher experimented with ripping and increased production 25% the first year, indicating that ripping as an alternative practice may be worthwhile.

## **NATIONAL CENTER FOR GROUND WATER RESEARCH**

The U.S. Environmental Protection Agency (EPA) in September 1979 established the National Center for Ground Water Research (NCGWR), a consortium consisting of the University of Oklahoma, Oklahoma State University, and Rice University. The overall purpose of the Center is to establish methods, collect scientific and engineering data, and identify principles applicable to the protection and management of the nation's groundwater as an important natural resource. The Center is engaged in research on pollutants, characterization of sub-surface rate-determining factors, and the development of methods for groundwater sampling, analysis, and evaluation. Fifty-two research reports resulting from these studies are now available. The reports cover a wide range of topics on groundwater and groundwater pollutants and are part of an on-going publication series that summarizes research projects as they are completed at the Center. Anyone desiring additional information about the Center or about receiving copies of the research reports may contact Dr. Larry Canter, Professor of Civil Engineering and Environmental Science, University of Oklahoma, 202 West Boyd, Rm. 443, Norman, Oklahoma 73019, (405)325-5202.

## **ALLEN AND BENNETT ADDED AS NEWS BULLETIN EDITORS**

Two additional technical editors, representing two Arizona state government departments, are now contributing items to the *Arizona Water Resources News Bulletin* and the *Project Bulletin* and acting as technical reviewers: Bill Allen, Arizona State Land Department, and Marc Bennett, Arizona Department of Health Services. This brings to five the number of *News Bulletin* and *Project Bulletin* technical editors and will help to increase the scope and maintain the high level of technical accuracy of these publications. Phil Briggs, Arizona Department of Water Resources; Jim DeCook, University of Arizona Water Resources Research Center; and Ken Foster, University of Arizona Office of Arid Lands Studies have been editors of the bulletins since their initial publication in 1973.

Jean Mills, University of Arizona Office of Arid Lands Studies, is working with all five technical editors in collecting news items and is acting as general editor and production coordinator.

## **HARQUAHALA PLAINS HYDROLOGIC MAPS COMPLETED**

The Arizona Department of Water Resources (DWR) has

completed the first of a series of hydrologic maps designed to monitor groundwater conditions around the state. The completed maps examine the Harquahala Plains area in southwestern Arizona, where the water table has dropped 300 feet since the early 1950s. That decline makes the depth-to-water 450 to 600 feet, and represents one of the largest water-table declines in the state.

The public is welcome to view the maps in Phoenix at the Department of Water Resources, 99 E. Virginia, or at the U.S. Geological Survey, 1st Avenue and Van Buren in the Federal Building, or in Tucson at 301 W. Congress Street.

## **PUBLICATIONS**

**"Water Use and Water Conservation by the Copper Mining Industry"** by Adrian H. Griffen, William E. Martin, and James C. Wade is a recently published paper that examines the use of water by copper mines for treating low grade ores. The froth flotation process for treating sulphide ore and the heap leaching process for treating oxide ore are described. The authors discuss ways of reducing the amount of water used in these processes and give estimates of the costs of reducing water consumption. Also discussed are the circumstances in which it would be desirable for a copper mine to reduce its level of water consumption. This is Paper No. 80130, published in the February 1981 issue of the *American Water Resources Association Water Resources Bulletin*.

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**Water Resources Data for Arizona, Water Year 1979**, a compilation of surface water, chemical quality, and groundwater data prepared by the U.S. Geological Survey has just been released. The annual report was prepared in cooperation with the state of Arizona and with other agencies.

The water resources data report contains discharge records for 237 gaging stations, annual peaks for 77 crest-stage partial-record stations, and discharge measurements at 79 miscellaneous sites; contents only records for 8 lakes and reservoirs; stage and contents for 1 lake; elevation and discharge for 1 streamflow station; elevation only for 1 streamflow station; gage height only for 1 head over a dam; 16 supplementary records, included with gaging-station records, consisting of monthend or monthly stage, contents, and evaporation of lakes and reservoirs, diversions, and return flows; water quality records for 87 continuous-record stations and 22 miscellaneous sites; water levels for 95 observation wells; and water quality data for water from 648 wells.

The report, identified as U.S. Geological Survey Water-Data Report AZ-79-1 is for sale to the public from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161. In Arizona, copies of the report are available for examination at U.S. Geological Survey offices in: Room 5A Federal Building, 301 West Congress Street, Tucson; Suite 1880, Valley Center, Phoenix; Building 3, 2255 North Gemini Drive, Flagstaff; and 1940 South Third Avenue, Yuma.

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The report entitled **Study Plan for the Regional**

**Aquifer-System Analysis of Alluvial Basins in South-Central Arizona and Adjacent States** by T.W. Anderson has been released as U.S. Geological Survey Open-File Report 80-1197. Copies may be purchased from the U.S. Geological Survey, Open-File Services Section, Branch of Distribution, Box 25425, Federal Center, Denver, Colorado 80225.

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**Water Quality Issues and Energy Assessments** is a 59-page report published in November, 1980. It was prepared by Michael J. Davis and Shen-yann Chiu for the U.S. Department of Energy. The report identifies and evaluates significant water quality issues in regional and national energy development. It is available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. Printed copy, \$7.00; Microfiche copy, \$3.50

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**Groundwater Protection** is one of an ongoing series of water quality management reports published by the Water Planning Division of the U.S. Environmental Protection Agency. This 36-page report, published in November, 1980, identifies the most significant threats to groundwater and some of the major tools for meeting these threats. Reports are available upon request from the Mailing List Manager, WQM Reports, (WH-554), Environmental Protection Agency, 401 M Street, SW, Washington, DC, 20460.

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Proceedings of the AWRA Special Symposium on Water Quality Monitoring and Management held in Tucson October 24, 1980 are now available. Copies can be ordered from Kenneth Foster, executive secretary of the Arizona Section — America Water Resources Association, at the

University of Arizona Office of Arid Lands Studies, 845 North Park, Tucson, Arizona 85719. Price: \$7.00 per copy.

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## SHORT COURSES:

### **Modeling Pollutant Movement in Groundwater**

June 8-12, 1981. Department of Engineering and Applied Science, University of Wisconsin — Extension, 432 North Lake Street, Madison, Wisconsin 53706. Program Director: Philip R. O'Leary (608) 262-0493.

### **Design of Water Quality Monitoring Networks**

June 15-19, 1981 Research Institute of Colorado in cooperation with Colorado State University, Fort Collins, Colorado.

Please address your news items or comments on the Project Bulletin to any of the editors:

**Phil Briggs**, Arizona Department of Water Resources, 99 East Virginia, Phoenix, Arizona 85004 (602) 255-1586.

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

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

**Jim DeCook**, Water Resources Research Center, University of Arizona, Tucson, Arizona 85721. (602) 626-1009.

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