ARIZONA WATER RESOURCES NEWS BULLETIN

NEWS BULLETIN 74-5 SEPTEMBER-OCTOBER 1974

### OWRR + OSW = OWRT

The Secretary of the Interior recently approved the establishment of an Office of Water Research and Technology (OWRT) under the Assistant Secretary for Land and Water Resources. Dr. Warren A. Hull, formerly Director of the Office of Water Resources Research, has been appointed Acting Director of OWRT. The functions of the Office of Water Resources Research and the Office of Saline Water will be combined in OWRT. The basic objectives of the former offices, OWRR and OSW, are not changed by this reorganization. However, it will add a new dimension of water resources development to assure the systematic and orderly application of research to our serious water problems. The university community, especially the water research institutes and their cooperating university parties, will continue to be relied upon heavily for the basic research program under the presently authorized allotment, matching grant and Title II programs. Desalination research and development will remain major responsibilities of OWRT. Added to these, however, will be a broader spectrum of development initiatives directed toward the more critical water-related problems.

### SUBDIVISION WATER SUPPLY ADEQUACY

ARS 45-513, enacted May 2, 1973, by House Bill 2100, requires the developer of a subdivision to submit plans for its water supply to the Arizona Water Commission and demonstrate that the supply *is adequate* to meet the future needs of the subdivision. If the Commission finds the subdivision's water supply is inadequate, or if no water is available, all promotional material (including bill boards, radio, and television advertisements) and contracts for the subdivision must contain a summary of the Commission's report. Since the passage of the bill, the Water Commission has reviewed 193 subdivisions through July 1, 1974. The following table lists, by county, the number of adequate and inadequate subdivisions:

| County | Adequate | Inadequate | Total |
|---|---|---|---|
| Cochise | 14 | 0 | 14 |
| Coconino | 6 | 4 | 10 |
| Gila | 2 | 1 | 3 |
| Graham | 0 | 1 | 1 |
| Greenlee | 0 | 1 | 1 |
| Maricopa | 78 | 0 | 78 |
| Mohave | 9 | 2 | 11 |
| Navajo | 8 | 0 | 8 |
| Pima | 15 | 0 | 15 |
| Pinal | 16 | 2 | 18 |
| Santa Cruz | 3 | 0 | 3 |
| Yavapai | 12 | 2 | 14 |
| Yuma | 13 | 4 | 17 |
| | 176 | 17 | 193 |

The basic criteria of the Water Commission for determining what is an adequate water supply are outlined below.

In general, demonstration of adequacy requires the determination of current and future demands for water, the quantification of the supply characteristics, and the evaluation of the impact of the demand on the supply.

The first consideration is whether or not water is even available. Past experience has shown that many developers were only interested in selling the land—not whether a viable water supply could be developed for use by the people who intended to live there. In more extreme cases lots were sold in areas where there was no water available.

The second consideration is the lifetime of the supply. If large scale development takes place in an area with a limited water supply and it is determined that the supply would only last a few years the problem is obvious. Not so obvious is how long a lifetime is adequate. Considering the legal and practical aspects it is not possible to require a supply in perpetuity. To strike a balance between these limits the Commission has selected 100 years as the maximum lifetime.

The third consideration in the determination of adequacy is the legal right to the proposed water supply. If the removal of water intended for use in the subdivision diminishes established water rights, this could precipitate legal action by the person or persons damaged, which, if successful, would force the cessation of the damaging action, i.e., remove the source of the subdivision's water supply. Thus, if it is determined that the use of the proposed source of supply would diminish the supply available to established water rights, the supply is deemed inadequate.

ARIZONA WATER COMMISSION • WATER RESOURCES RESEARCH CENTER
OFFICE OF ARID LANDS STUDIES

The fourth consideration is the quality of the water that makes up the source of supply. If the quality of the supply is not suitable for domestic use the supply is deemed inadequate.

A fifth consideration, in the special case of dry lot subdivisions (lot buyer supplies own water), involves the cost of obtaining a supply, which hinges on the depth to water. If the drilling and equipping of a well would involve a substantial investment, say beyond the cost of the lot, the supply is deemed inadequate.

Subdivisions reviewed to date range in size from less than ten to a few thousand lots and most are a few hundred lots. All of the tabulated inadequate findings were for dry lots and about half were due to inadequate quality. Those in Coconino County simply had no water of any kind. Not shown in the table were those developers who when advised of what it would take to demonstrate adequacy were simply not heard from again. Most developers, when advised of the procedures necessary, agreed that although they hadn't thought of it before they could understand our concern and made a diligent and determined effort to demonstrate the adequacy of the supply. Overall, the program has been well received by the developers.

After more than a year of processing on an individual basis, regulations to establish for developers and their technical consultants what constitutes a satisfactory demonstration of adequacy for subdivisions are now being drafted by the Commission. It is thought that a sufficient cross section of possible conditions and problems have been analyzed to allow a relatively comprehensive set of regulations to be established. In the interim, the developer is urged to contact the Commission at the earliest possible stage in the development and arrange for a preliminary discussion of the water supply plans for the individual subdivision, and the proposed means of demonstrating the accuracy of its water supply.

The only subdivisions exempted from the required demonstration of adequacy are those within areas where the Commission has found an adequate water supply exists. Developers can determine if their subdivision lies within an area so designated by contacting the municipality or water company providing service, the local county planning department, or the Water Commission.

## NATIONAL WATER DATA BANK BEING DEVELOPED

The U.S. Geological Survey (USGS) is coordinating efforts to develop the National Water Data Exchange (NAWDEX), designed as a sophisticated computer link between public planners and developers around the country.

NAWDEX may become operational on a modest scale by next spring; however due to funding delays, the USGS is moving more slowly than the agency had hoped.

PRC System Sciences, a Washington, D.C., subsidiary of the Los Angeles-based Planning Research Corp., has completed its first one-year contract and submitted a report in January 1974 on overall design development. The firm has now begun work under a second contract to help USGS develop detailed operational specifications.

NAWDEX will provide a linkage between cooperating agencies at all levels of government which acquire data and those who can use it.

A major goal of NAWDEX is to eliminate duplication of data collection or the loss of access to previously collected and unduplicatable data.

## SOIL SURVEY FOR LAND USE PLANNING FOR PIMA COUNTY

Two soil survey reports are now available from the USDA Soil Conservation Service (SCS). M.L. Richardson, soil scientist for the SCS, announced that the local Field Office, 3241 North Romero Road, has just received a shipment of the newly printed "Report and Interpretations for the General Soil Map of Pima County, Arizona." As indicated in the title, the report includes a generalized map of the soils in Pima County and a text that briefly describes and classifies the soils. Tables in the report list the limitations and suitabilities of the soils for a number of urban, agricultural, and recreational uses–18 in all. The soils are rated for use as septic tank filter fields, sanitary landfills, dwellings, local roads and streets, irrigation, golf fairways, playgrounds, picnic areas, pond sites and other uses.

Richardson stated that this report should be very useful to people involved in broad land use planning; however, he cautions that on site investigation will still be necessary in most cases. He also noted that an important feature of the publication is an appendix that gives criteria used in rating soils for the various uses and a glossary of soil terms. Although people walk on, or work with, soils every day, few people realize that it is one of the most complex materials in nature.

The second publication available at the SCS office is "The Soil Survey of the Tucson-Avra Valley Area, Arizona." This report is a detailed survey of the agricultural land in the Avra and Santa Cruz valleys in Pima County and contains much valuable information about the use and management of the soils for agriculture as well as urban uses.

Single copies of both publications are free and are available at the Romero Road SCS field office.

## PUBLICATIONS RELEVANT TO ARIZONA AVAILABLE

Wastewater Use in the Production of Food and Fiber – *Proceedings* is an (EPA) report (EPA-660/2-74-041 June 1974) on the proceedings of a conference held at Oklahoma City, Oklahoma, March 5-7, 1974. The report includes 36 papers covering technical and nontechnical restraints, aquacultural and agricultural approaches, and new or integrated experimental systems in food and fiber production using wastewater. A wide range of specific topics is presented.

The report is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 – Price $5.35.

The University of Arizona's Office of Arid Lands Studies will be issuing before year's end the sixth in its series of publications called *Arid Lands Resource Information Papers,* this one entitled "The Impact of Arid Zone Energy Development on Water Resources: A Literature Review and Computerized Annotated Bibliography." The U.S. Department of the Interior's Office of Water Research Technology is funding the research under a grant to Miss Patricia Paylore, Assistant Director OALS, as Principal Investigator. In preparation since last spring, the paper is being researched by Charles C. Bowden, OALS Research Assistant, a 1966 graduate magna cum laude of the University of Arizona, with graduate work subsequently at the University of Wisconsin. He had held both Woodrow Wilson and Ford Foundation fellowships.

The paper will present a 300-item computerized bibliography, plus a supplementary list of additional references, accompanied by a 100-page interpretative text. Bowden spent much of the summer of 1974 travelling through the Rocky Mountain region where the energy developments are taking place or are being planned, discussing with officials and other interested parties the demands made by such developments on the area's limited water resources. We believe this topic to be one of overriding interest currently, and are pleased to be able to announce a publication that will be a useful supportive tool in any consideration of the problem. The cost will be $10.00, and orders are being accepted prior to publication.

The University of Arizona Press recently published a revised edition of *Arizona Climate,* edited by Richard H. Hill and William D. Sellers of the University's Institute of Atmospheric Physics. The 616 page volume contains climatological data for 333 points around the State, a threefold increase over the earlier edition. For each location, total precipitation and average temperature (where available) are tabulated for each month from January 1931 through December 1972. Means and extremes of various climatic variables are listed in a separate table. To break up the monotony of pages and pages of data, more than 50 photographs of our Arizona environment are interspersed among the tables.

*"Evaporation Suppression"* is an addition to the series of bibliographies in water resources compiled from the Water Resources Scientific Information Center, Office of Water Research and Technology. The abstracts are retrieved from the Center's RECON system and cover 319 different investigations of attempts to diminish water loss by evaporation from water sources and soil.

Requests for copies of WRSIC 73-216 should be addressed to the National Technical Information Service, Springfield, Virginia 22151.

## WATER INFORMATION PERSONNEL ADDED

The cooperative Water Information Section of the Water Resources Research Center and Office of Arid Lands Studies, University of Arizona, and the Arizona Commission has acquired two new assistants for water research information activities. Richard A. Herbert will be working half time on various aspects of the information program, such as the DEC-10 Data Terminal System, the new RECON System and water news dissemination. In connection with the latter, he will be in contact with research information users and agencies around the State of Arizona as part of the continuing effort to disseminate water news to those who need it. Jeffery H. Randall has also been retained to work part time on the computerized water data and bibliographic retrieval systems.

## CALL FOR PAPERS

The Joint Annual Meeting of The American Water Resources Association (AWRA) Arizona Section and The Arizona Academy of Science (AAS) Hydrology Section will be held at Arizona State University on April 11-12, 1975.

The following topics are scheduled for discussion: (1) Flood Plain Management; (2) Hydrology of Fractured and Volcanic Rock Terrain; (3) Remote Sensory Techniques for Water Resource Development; (4) Combined Management of Surface and Groundwater Resources; (5) Sediment Transport and Deposition in Streams and Reservoirs; and (6) General (such as water quality, water cycle, water planning).

Each topic will be introduced by an invited speaker and the presentation of each paper will be limited to ten minutes with an additional five minutes for discussion.

Abstracts accepted prior to January 10 will be printed before the meeting. The final cut-off date will be March 1. Abstract forms should be requested from Marvin R. Murray, President-elect of the AWRA (Arizona Section), College of Engineering, NAU, Box 15600, Flagstaff 86001 (Phone 523-3287); Charles Avery, Co-chairman of Hydrology Section, AAS, School of Forestry, NAU, Box 4098, Flagstaff 86001 (Phone 523-3031); or Pete Ffolliott, Watershed Management, College of Agriculture, U of A, Tucson 85721 (Phone 884-2594).

## UPCOMING EVENTS

A one-week short course will be offered at the University of Arizona January 6-10, 1975. The course, entitled *DISTURBED LAND RECLAMATION AND USE IN THE SOUTHWEST,* will be devoted to understanding the constraints and alternatives in the reclamation and use of disturbed lands in arid land systems. For registration information, contact the Director of Conferences and Institutes, University of Arizona, Tucson, Arizona 85721.

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

Phil Briggs, Arizona Water Commission, Suite 800, 222 North Central Avenue, Phoenix, Arizona 85004.

Jim DeCook, Water Resources Research Center, University of Arizona, Tucson, Arizona 85721.

Ken Foster, Office of Arid Lands Studies, University of Arizona, Tucson, Arizona 85719.

Rich Herbert, Water Resources Research Center, University of Arizona, Tucson, Arizona 85721.

Water Information Section
Water Resources Research Center
University of Arizona
Tucson, Arizona 85721