

ARIZONA WATER RESOURCES NEWS BULLETIN

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JANUARY-FEBRUARY 1975

INFORMATION DISSEMINATION: STATUS REPORT

For the past five years the Water Resources Research Center (WRRC), University of Arizona, has been coordinating a program of Information Dissemination and Technology Transfer. The purpose of the project is to present research and other water-related information and findings to the public, and various governmental agencies and organizations, for practical application and use in planning and decision making.

At the present time three major methods of disseminating information are being utilized:

1. Newsletter and Project Bulletins: The Arizona Water Commission, the Office of Arid Lands Studies, and the WRRC jointly publish the *Arizona Water Resources News Bulletin* bimonthly. The purpose of the publication is to keep Arizonans informed about water-related publications, research, and activities.

The Project Information Bulletin is also published approximately six times a year as research projects are completed. Each Bulletin gives a summary and results of an individual project.

The WRRC is presently trying to update the News Bulletin to better serve our readers. News contacts throughout the State who can supply water-related information from their area, such as water problems, research needs, water-related meetings or conferences, are needed. Anyone having such information is encouraged to contact one of the editors.

2. Personal Contacts: In the past six months the number of Arizonans receiving the Newsletter has expanded to include almost 1,000 readers. This recent expansion has been partly due to personal contacts made through presentations to various organizations and groups regarding the Water Resources Research Center and its capability to supply information concerning water resources in Arizona and the Southwest.

3. Seminars, Workshops, and Conferences: The Water Resources Research Center cosponsors conferences on water-related topics of interest to Arizonans (see Upcoming Events). Future workshops are planned in cooperation with the

Arizona Water Commission to demonstrate computer-aided techniques of groundwater data dissemination to local and State planners having need of such data.

In addition to the above methods of disseminating information, two computer-oriented programs for access to water information and data are available and currently under development.

1. Arizona Water Information System (AWIS): The Arizona Water Information System (AWIS) is a name synonymous with water dissemination activities at the University of Arizona. Initially funded through the Water Resources Research Center, AWIS now enjoys partial funding from Arizona State agencies.

It was developed by the Office of Arid Lands Studies to provide Arizonans a mechanism whereby up-to-date information relating to water activities of the various agencies within the State can be monitored. To accomplish this task a computerized storage-and-retrieval system has been devised to place water projects on call for retrieval by various means: by specifying keywords, counties, river basins, etc., or by requesting water projects by the agency performing the task. To date over 1,000 projects from 60 different agencies are available on computer file. Frequent use of the file results from background information needed prior to proposed new research; routine questions regarding water supply in a region; and a need-to-know of related water activities by other institutions within the State.

The latest development within the AWIS mandate, supported by the Arizona Water Commission (AWC), is a data storage and terminal retrieval system on the University of Arizona DEC-10 computer for AWC test data sets currently residing in AWIS. The DEC-10 system offers a solution to the problem of delay in delivery of output by mail by allowing real-time access to the data sets via a remote terminal hookup to existing telephone lines from Phoenix or from other remote points within the State. The expansion of AWIS capability for remote access of hydrologic data will facilitate the AWC's efforts to evaluate the efficiency of a water information system for State government. Such a development will enable



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anyone with an appropriate terminal, as well as the Commission, to answer on a pilot study basis, routine questions relating to Arizona's water resources, easily, economically, and on short notice.

2. RECON: RECON is a computerized information retrieval system, designed to allow the user to search large files of document citations. Information such as titles, authors, keywords, and abstracts for literature articles and research projects can be accessed from RECON at the University of Arizona, from the Energy Research and Development Administration's Oak Ridge National Laboratory computer facility. Retrievals are made in real-time with a local printing capability for rapid user access to the information. It is anticipated that users of RECON will include the academic community, government agencies, private firms and others.

RECON accesses a variety of information bases including Nuclear Science Abstracts, Energy Data Base, Energy R&D Projects, Power Reactor Dockets, Coal Gasification Research, Water Resources Abstracts, and specific data bases covering Toxic Materials, Heated Effluents, Superconductors, Magneto-hydrodynamics, Thermonuclear, Radioisotopes, Nuclear Isotopes, Ores, and Nuclear Safety Information.

Of particular importance to our readers are the Water Resources Abstracts. This bibliographic data base is prepared and maintained by the Water Resources Scientific Information Center, Department of the Interior. The information covers water-related aspects of the Life, Physical, and Social Sciences, as well as the engineering and legal aspects of the characteristics, conservation, control, use, and management of water resources.

The file of over 80,000 entries beginning in 1968 is available for retrieval by personal author, index terms (keywords), or WRSIC category code. The index terms used come from the Water Resources Thesaurus, Second Edition, and a copy of this thesaurus is available for consultation at the Office of Arid Lands Studies or the Water Resources Research Center.

The University of Arizona facility serves the states of Arizona, California, Colorado, Hawaii, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, and Washington. To date approximately five search requests are being received per day.

UNIVERSITY OF ARIZONA SPONSORS REGIONAL WATER RESOURCES SYMPOSIUM

The University of Arizona has announced plans for a regional Water Resources symposium entitled "Water Requirements for Lower Colorado River Basin Energy Needs." Cosponsors of the symposium include the Arizona State Fuel and Energy Office, and the University of Arizona Water Resources Research Center, Department of Chemical Engineering, Department of Geosciences, Department of Nuclear Engineering, and the Office of Arid Lands Studies.

The objectives of this symposium are to provide the latest technical data on management of water and energy needed to produce new energy sources in the Lower Colorado River Basin and to relate this to the cost of maintaining the present environment. All papers will be published as a proceedings. All

technical sessions will be held at the Braniff Place, 180 W. Broadway, Tucson, on May 8-9, 1975.

Preliminary programs further detailing the symposium and registration instructions have been mailed to our readers.

The following topics and speakers are included in the program:

Session I: Overview of Energy and Water Requirements

Outlook for Lower Colorado Basin Energy Supply and Demand – Mr. Jack Horton, Assistant Secretary for Land and Water Resources, U.S. Department of the Interior, Washington, D.C.

Overview of Water Requirements for Electric Power Generation – Dr. Gordon Jacoby, Lake Powell Research Project, Institute of Geophysics, University of California at Los Angeles.

Water Use As a Factor in Meeting Electric Power Needs – Mr. Dick Durning, Staff Consultant, Salt River Project, Phoenix.

Water for Energy As Related to Water Rights in Colorado River Basin – Mr. Wes Steiner, Executive Director, Arizona Water Commission, Phoenix.

Session II: Water and Energy Required to Develop New Fuel Sources

Water and Energy Requirements for an Oil Shale Industry – Dr. Lynn Rophfeld, Atlantic-Richfield, Los Angeles.

Water and Energy Requirements for Developing Geothermal Energy, Problems of Residual Disposal, Geopressured Zones As Water Resources – Dr. Dennis Norton, Department of Geosciences, University of Arizona, Tucson.

Water and Energy Required to Operate Coal Gasification Facilities and Waste Water Treatment Requirements – Mr. Howard L. Holder, Manager, Chemical Engineering Division, El Paso Natural Gas, El Paso.

Water and Energy Requirements to Mine, Process, and Reprocess Nuclear Fuels – Dr. Robert Seale, Department of Nuclear Energy, University of Arizona, Tucson.

Water and Energy Requirements in the Mining and Processing of Coal, Including Land Reclamation – Mr. Eugene Neihaus, Peabody Coal Company, St. Louis.

Water and Energy Requirements for Solar Energy – Dr. Howard T. Odum and Mr. Mark Brown, University of Florida, Gainesville.

Session III: Treatment, Reuse and Environmental Impact

Environmental Effects of Solar Farms – Drs. Aden B. and Marjorie Meinel, Optical Sciences Center, University of Arizona, Tucson.

Advanced Processes: Water Desalting and Reuse – Dr. Raymond A. Sierka, Department of Civil Engineering, University of Arizona, Tucson.

The Potential for Aquaculture Utilizing Waste Heat from Power Plants – Mr. Neal Hicks, Environmental Research Laboratory, University of Arizona, Tucson.

Water Consumption in Power Plant Heat Reduction – Dr. Rocco Fazzolare, Department of Nuclear Engineering, University of Arizona, Tucson.

Thermal Power Plant Siting in an Arid Region, Environmental Constraints – Dr. Hugo P. Pomrehn, Bechtel Power Corporation, Los Angeles.

City Waste Water Reuse for Nuclear Power Plant Cooling – Mr. A. Carter Rogers, Arizona Nuclear Power Project, Phoenix.

Cost Benefit Analysis for Page Power Plant Environmental Compliance – Mr. G.E. Palomino, Salt River Project, Phoenix.

For additional information contact:

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CENTER OF COMPETENCE DESIGNATION CONTINUED FOR OALS

The University of Arizona's Office of Arid Lands Studies has just been awarded its seventh grant from the Department of Interior's Office of Water Research and Technology as a Center of Competence. During the 1975 calendar year, several hundred additional abstracts of documents relating to water problems in arid lands will be prepared for publication in *Selected Water Resources Abstracts*, and the Arid Lands Resource Information Paper No. 2, "Geothermal Exploration and Exploitation in Arid Lands," published originally in 1973, will be revised and updated. Interested persons with competence in geothermal energy are invited to apply for this particular task to Patricia Paylore, Principal Investigator under the Grant, and Assistant Director of the OALS. A new paper, No. 7, "Impact of Groundwater Development in Arid Developing Countries, Analogies and Alternatives," is already in preparation.

As a Center of Competence for the Water Resources Scientific Information Center (WRSIC), the University of Arizona's Office of Arid Lands Studies contributes abstracts of publications on water-related problems in arid lands to *Selected Water Resources Abstracts* (SWRA). This is accomplished through an annual grant to OALS's Assistant Director, Patricia Paylore. These abstracts—several hundred each year—are also stored in the computerized RECON files for access through the University's terminal.

If any readers of *Arizona Water Resources News Bulletin* would like to see their current publications abstracted by OALS for publication in SWRA and stored for RECON retrieval, please send copies of the publication to Miss Paylore for consideration. WRSIC is particularly interested in unusual publications that fall outside the routine journal-article-type publication. The only other constraint on the subject matter is that such material has not resulted from research funded by the Office of Water Research and Technology, since the agency's view is that it should not have to pay twice for abstracts of publications originating from its own grants or contracts. Outside of these guidelines, material falling within the broad subject of water-related problems in arid lands will be welcomed for consideration.

UPCOMING EVENTS

AWRA and AAS Meeting in April

The fifth joint meeting of the American Water Resources Association, Arizona Section, and the Arizona Academy of Science, Hydrology Section, will be held on April 11 and 12 at the Memorial Union, Arizona State University, Tempe. Papers will be presented in three sessions—two on Friday and one on Saturday morning—and will cover such topics as watershed and landform development, development of a laser rain gage, runoff modeling, salt balance in groundwater, measuring snow cover from ERTS imagery, economic adjustment to a new irrigation water source (CAP), antitranspirants, and water infiltration of desert soils.

For further information contact: Marvin R. Murray, President-elect of the AWRA (Arizona Section), College of Engineering, NAU, Box 15600, Flagstaff 86001 (Phone 523-3287); Charles Avery, Cochairman of Hydrology Section, AAS, School of Forestry, NAU, Box 4098, Flagstaff 86001 (Phone 523-3031); or Peter Ffolliott, School of Renewable Natural Resources, College of Agriculture, University of Arizona, Tucson 85721 (Phone 884-2594).

International Symposium on Thermal Wastes

An International Symposium on Thermal and Chemical Problems of Thermal Waters will be held August 29-September 1, 1975 at the University campus at Grenoble, France. The symposium is sponsored by the International Association of Hydrologic Sciences (IAHS), the International Association of Hydrogeologists (IAH), and the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI).

The symposium program will consist of invited and offered papers on thermal-water distribution patterns, geothermal zones of the earth's crust, geochemistry of thermal waters in various regions, utilization of the heat or components of thermal waters, and thermal pollution.

Those desiring more information on the symposium should contact: Arnold I. Johnson, U.S. National Committee for IAHS, U.S. Geological Survey, National Center, MS 417, Reston, Virginia 22092.

Second Annual Research, Design and Development Conference

The Environmental Engineering Division of the American Society of Civil Engineers is sponsoring the Second Annual Research, Design and Development Conference on July 21-23, 1975.

Session topics include: control of leachate from landfills, costs of pollution control, ecologic modeling, environmental impacts of transportation systems, eutrophication and lake restoration, integrated environmental quality management, land disposal of municipal waste, removal of toxic substances from water and wastewater, stormwater management, and urban and rural wastewater treatment.

For further information contact: Patrick L. Brezonik or James P. Heaney, Department of Environmental Engineering Sciences, University of Florida, Gainesville, Florida 32611.

**Arid Zone Studies Section
to Meet in Los Alamos**

There will be a meeting of the Arid Zone Studies Section of the Southwestern and Rocky Mountain Division of the American Association for the Advancement of Science (AAAS). The meeting will be part of the annual division meeting to be held at the Los Alamos Scientific Laboratory in Los Alamos, New Mexico from April 23 to 26, 1975.

The section meeting will include presentations of the results of arid zone research.

**PUBLICATIONS RELEVANT TO
ARIZONA AVAILABLE**

Water Rights and Water Law, a Bibliography with Abstracts, by Guy E. Habercum Jr., is available through the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia. (NTIS PS-74/099, \$20.00 for paper copy, 163 pp.)

The bibliography contains 147 abstracts of research reports retrieved through the NTIS search system. The reports relate to legal aspects of interstate and intrastate water rights, water quality, and water management.

A Selected Annotated Bibliography on the Analysis of Water Resource Systems, Volume V, by Daniel P. Loucks, contains 265 abstracts of selected publications issued in 1973, pertaining to the application of systems analysis techniques for deriving and evaluating alternative solutions to water resource problems. Both author and subject indexes are provided. The material emphasizes the application of optimization and simulation techniques for assisting in the planning and management of water resource systems. This WRSIC publication (PB-235 336/5WN, \$8.50 for paper copy, 414 pp.) is also available through the National Technical Information Service.

The Documentation Center at the Office of Arid Lands Studies (OALS) has available for public use some of the documents cited in the recently published OALS Resource Information Paper No. 6, *Impact of Energy Development on Water Resources in Arid Lands: A Literature Review and Annotated Bibliography*, by Charles Bowden, 1975. These publications may be used at the Documentation Center or loaned for a short period of time. For further information contact: Kathleen Stanley, OALS, 1201 East Speedway, Tucson, Arizona 85719 (Phone 884-1955).

The College of Agriculture, University of Arizona, has published a *Cropland Atlas of Arizona*. The publication illustrates the location and size and shape of agricultural fields as they appear from high altitude. It updates the *Irrigated Maps in Arizona*, Folders No. 100 and 101, published by the College of Agriculture in November 1963.

For more information contact: Arizona Crop and Livestock Reporting Service, 5400 Federal Building, Phoenix, Arizona 85025.

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

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