



ARIZONA WATER RESOURCES NEWS BULLETIN

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PRESIDENT SIGNS WATER RESEARCH AND DEVELOPMENT ACT OF 1978

President Carter signed into law the Water Research and Development Act (P.L. 95-467) on October 17, 1978. The Act repeals the Water Resources Research Act of 1964 (P.L. 88-379) and the Saline Water Conversion Act of 1971 (P.L. 92-60), and amends the Water Research and Conversion Act of 1977 (P.L. 95-84).

Most of the statement made by President Carter when he signed the Act is reproduced below.

STATEMENT BY THE PRESIDENT

"Today I am signing S. 2704, the Water Research and Development Act of 1978. This legislation brings together two important concerns of mine: greater support for basic research and vigorous search for practical ways to solve the increasing problems of water quality and quantity in various parts of the nation. The national water policy announced earlier this year will be strengthened by the water research program enacted by this bill, which is based on legislation I requested in 1977.

"The Office of Water Research and Technology in the Department of the Interior will be the agency responsible for putting this legislation into action. It will provide for new research in saline water conversion, water problems of urbanizing areas, and other water-efficient technologies. It will support 54 water research institutes throughout the nation. It will assist in the training of water scientists and engineers, the transfer of water research results to water managers at the local and State levels, and the demonstration of technology to solve critical water problems wherever they exist."

In a prepared statement Secretary of the Interior Cecil D. Andrus welcomed enactment of the Act as a "new opportunity for Federal and State cooperation in water resources research management.

"The thrust of the President's national water policy is the conservation of our vital water resources and the development of fresh new ideas for solving problems of water quality and quantity wherever they exist," Andrus said. "The strong research, development, and demonstration program authorized in this law will go a long way toward helping us to reach those goals," he added.

Gary Cobb, director of the Office of Water Research and Technology (OWRT), also made a statement about the broadened scope of the OWRT mandate brought about by the enactment of P.L. 95-467.

"We can begin to make real progress toward accomplishing the objectives set down for us by the President and the Congress," Cobb said.

"This new law will directly affect our relationship with the 54 water resources research institutes. It increases their opportunities through two new competitive grant programs for development projects and technology transfer. It really makes them participating partners in the decision-making and funding processes," Cobb explained.

According to a news release from Andrus' office, P.L. 95-467 combines two previous laws under one authorization and expands the authority and responsibility of the Secretary to assure adequate water of good quality to meet regional and national needs.

"The legislation includes funds for research institutes at land grant universities in each state, the District of Columbia, the Virgin Islands, Guam, Puerto Rico, American Samoa, the Northern Mariana Islands, and the Trust Territories of the Pacific Islands," according to the release.

"It (the Act) provides for a variety of research and development projects through grants and contracts open to universities, private researchers, and local and state governments.

"It also authorizes funds for technology transfer at both the local and national levels to disseminate research results to water officials and engineers for use in solving water problems," according to the release.

"A key element in the legislation is expanded support for research, development, and demonstration of the conversion of saline or impaired waters to usable waters. Five major water conversion plants are authorized and will be constructed during the next few years to demonstrate innovative processes of the promising technology," Andrus said.

Essential elements of Titles I, II and III as outlined by the Department of the Interior are presented in the following discussion.



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



**TITLE I
WATER RESOURCES RESEARCH AND DEVELOPMENT**

The 54 Water Resources Research and Technology Institutes Shall:

- Plan, conduct or arrange for research, development and information dissemination;
- Arrange and conduct training for water scientists and engineers;
- Cooperate with other academic institutions to develop statewide research and development programs for solving state and regional problems;
- Consult with state and regional water officials;
- Provide the Secretary of the Interior with reports and help develop five-year research goals and priorities; and
- Receive, comment on and transmit academic community proposals to the Secretary.

The Secretary Shall:

- Ascertain institute competency and capability and allocate appropriated funds shares to each institute on a basis of two federal dollars for one non-federal dollar;
 - Prescribe procedures, rules and policies, assist and advise institutes, and participate in research coordination; and
 - Develop five-year research goals, priorities and funding requirements with assistance from the institutes and other water agencies.
- Two-Year Authorization Levels: FY 1979, \$150,000 per institute
FY 1980, \$175,000 per institute

Research, Development, Demonstration and Technology Programs

Institute Technology Transfer: Competitive grants will be funded on the basis of two federal dollars for one non-federal dollar for programs focusing on state and regional water problems.

Two-Year Authorization Levels: FY 1979, \$ 750,000
FY 1980, \$1,350,000

Institute Research and Development: Competitive grants will be funded on a dollar-for-dollar basis. The non-federal share may be in-kind.

Two-Year Authorization Levels: FY 1979, \$6 million
FY 1980, \$8.5 million

Research and Development: Competitive grants and contracts for projects deemed to be in the national interest will be supported by up to 100 percent federal funding and are open to educational institutions, private foundations, private firms and individuals, and local, state and federal agencies.

Two-Year Authorization Levels: FY 1979, \$5.2 million
FY 1980, \$8 million

Water Resources Demonstrations: The study, design, implementation, operation and maintenance of water-related technology demonstrations and research and development result applications will be funded on a cost-sharing basis to be determined by the Secretary.

One-Year Authorization Level: FY 1980, \$1 million

**TITLE II
WATER RESEARCH AND DEVELOPMENT FOR SALINE
AND OTHER IMPAIRED WATERS**

Public Law 95-84 is amended to authorize design, construction, operation and maintenance of five Desalination Demonstration Plants. Authorized expenditure is \$50 million.

The Secretary Is Authorized to:

- Conduct and promote research to develop processes and equipment for converting impaired water into waters suitable for beneficial use;
 - Pursue research findings which have practical applications;
 - Design, construct, test and operate processes, systems and pilot plants;
 - Study recovery, beneficial uses, residuals disposal and by-products marketing;
 - Undertake economic studies to determine present and future costs; and
 - Conduct preliminary studies on design, construction, operation and maintenance of demonstration and prototype plants.
- Two-Year Authorization Levels: FY 1979, \$12 million
FY 1980, \$14 million

**TITLE III
TECHNOLOGY TRANSFER AND INFORMATION
DISSEMINATION**

The Secretary Is Authorized to:

- Assess research and transfer technology to organizations and individuals;
 - Publish material, conduct seminars, conferences and training sessions, and use other techniques to disseminate information;
 - Maintain a national center for acquiring, processing and disseminating information related to water resources research, technology development demonstration; and
 - Make available abstracts and other summary information.
- Two-Year General Authorization for all Sections
FY 1979, \$4,464,000
FY 1980, \$5.1 million

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CALL FOR PAPERS

A Joint Session of the Arizona Section, American Water Resources Association, and the Hydrology Section, Arizona-Nevada Academy of Science will be held April 13-14, 1979, during the 23rd Annual Meeting of the Academy at Arizona State University, Tempe.

Papers are invited which discuss watershed hydrology, groundwater, water quality, water reuse, land use planning, Indian water rights and the economic, sociopolitical technology transfer aspects of water resources. General hydrology papers also are solicited.

As announced earlier through other media, abstracts of 200 words or less should be submitted to Dr. Tika Verma, Editor, School of Renewable Natural Resources, Room 204, Biological Sciences East, University of Arizona, Tucson 85721. His telephone number is (602) 626-1326 or 3548.

Further instructions about abstract submittal, format and deadlines are available from Dr. Verma or from Dr. K. J. DeCook, Water Resources Research Center, Room 102, Old Psychology Building, University of Arizona, Tucson 85721. Dr. DeCook's telephone number is (602) 626-1009 or 2144.

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CONDENSATION

Study Predicts Increased Energy Demand for Water Supply and Treatment by 2000

Energy demand for supplying water, treating waste water and irrigating crops will become an increasingly important factor in decision making relevant to water resources by the year 2000, according to University of Chicago researchers.

"If this energy requirement rises at a rate significantly faster than the overall domestic demands for energy, the amount of energy that will be needed to supply and treat water will play an increasingly important role in the allocation of limited energy," the researchers reported.

"There is reason to believe that these energy requirements will increase significantly," the study team concluded, because of:

1. Environmental Protection Agency standards governing domestic water supplies and sewage effluent;
2. The rapid lowering of a number of water tables which will make it necessary to expend increasing amounts of energy to lift groundwater to the surface; and
3. The population shift to the arid Southwest where water already is becoming scarce.

While the Southwest will have only "noncritical short-term increases" of total energy requirements through the year 2000 to supply irrigation water, the region does face "an extremely difficult choice in balancing its resources of energy, water, and agricultural land" beyond 2000, according to study findings.

For selected Southwestern study areas the University of Chicago research team forecast that:

1. In Kern County, California, agricultural production increases and water table declines caused by withdrawing groundwater in excess of natural recharge between 1975 and 2000 will produce a 63 percent jump in the total primary energy demands for supplying irrigation water;
2. In the Texas High Plains where all irrigation water is pumped from the Ogallala Aquifer improved pumping efficiencies will offset decreasing water supplies during the short term, but "eventual depletion of the aquifer seems likely in the next century even with a general transition to dryland farming," accelerating the demand for energy-intensive water importation; and
3. At the San Carlos Project, Arizona, groundwater levels will decline which will demand additional energy for lifting groundwater to the surface resulting in a 40 percent increase in total energy consumption.

Copies of the report, "Resource Analysis: Water and Energy as Linked Resources," are available from the Water Resources Center, 2535 Hydrosystems Laboratory, University of Illinois, Urbana, Illinois 61801.

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WR SIC RESEARCH SUMMARIES COMPUTERIZED

Summaries of active water resources research projects now are available through those remote computer terminals linked to the U.S. Department of Energy RECON information system at Oak Ridge, Tennessee.

The new file complements information contained in *Selected Water Resources Abstracts* published by the Water Resources Scientific Information Center (WR SIC), Office of Water Research and Technology, U.S. Department of the Interior.

More than 12,000 project descriptions currently are on file. Updating the file will be undertaken quarterly. Project summaries previously had been published in *Water Resources Re-*

search Catalog, publication of which ceased with the release of Volume 11.

The western regional terminal for accessing RECON water files is at the University of Arizona Office of Arid Lands Studies. Inquiries should be addressed to Mrs. Mercy Valencia.

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AK CHIN COMMUNITY WATER GUARANTEE

Enough water to irrigate approximately 18,500 acres of Ak Chin Community farmlands has been guaranteed by the federal government following enactment of H.R. 8099. Ak Chin is northwest of Casa Grande and south of Maricopa in Arizona.

The bill authorizes and directs the Secretary of the Interior to deliver annually not less than 60,000 acre-feet of groundwater nor more than 85,000 acre-feet from nearby federal lands. Groundwater deliveries will continue until a permanent annual supply of surface water is made available to the Community.

In return for the guaranteed annual deliveries, the legislation requires that the Ak Chin Community agrees to waive all claims against the United States for failure to protect or assert its water rights.

Irrigation water is vital to the Community because agriculture provides employment for nearly all of the Community's residents. Profits from agriculture support Ak Chin's pre-school, primary school and housing programs, none of which have received government assistance.

Today the Community accepts no funds from the U.S. Bureau of Indian Affairs. But the residents of Ak Chin feared that they would be forced onto welfare rolls by 1980 because the aquifers from which irrigation water is pumped are falling at a rate of 20 feet annually.

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INDIAN WATER RIGHTS

As part of President Carter's water program which stresses federal-state cooperation, federal agencies have been instructed to work expeditiously to inventory and quantify federally reserved and Indian water rights.

"In several areas of the country," the President said, "states have been unable to allocate water because these rights have not been determined. This quantification effort should focus first on high priority areas, should involve close consultation with the States and water users and should emphasize negotiations rather than litigation whenever possible."

It was noted in a background report prepared for the President that some states in the West voiced concern about exercise of federal reserved and Indian water rights. These states, according to the report, have expressed a strong need to have the water rights quantified and adjudicated before taking the first steps toward resolving these issues.

"Indian water rights are an important component of the long-term resolution of water problems in the West," according to the report. "There have been several important court decisions—*Winters v. United States* and *Cappaert v. United States* in particular—which have established that there were water rights attached to Indian reservations upon their creation," the report stated.

"The priority and quantity of these rights present a question, however, because the quantification of the rights must be determined by examining the documents establishing each reservation," the report continued.

“These issues can, of course, be resolved through judicial proceedings. This is a time consuming and costly process. The President strongly favors a negotiation process instead. Where negotiation is unsuccessful, the rights should be adjudicated in the federal courts,” the report concluded.

The White House has directed the Bureau of Indian Affairs, through the Department of the Interior, to facilitate the negotiation process by developing and submitting a plan for reviewing Indian water claims during the next 10 years. The plan is to include development of technical criteria for classifying Indian lands to reflect and make allowance for water use associated with maintaining permanent tribal homelands.

In addition, all federal water development agencies were directed to develop project evaluation procedures for developing Indian water resources and for increasing Indian water development in conjunction with quantifying rights. These procedures will be consistent with existing laws, principles, standards and procedures governing water resources development.

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URBAN FLOOD FLOW ESTIMATIONS REQUESTED

Publications of estimates of urban area flood flows have been requested by the Hydrology Committee of the U.S. Water Resources Council.

The Committee has initiated a study of techniques used to determine flood flow frequency estimates at ungauged urban sites.

A review of literature describing techniques and applicability of research results is being undertaken by the Committee to develop a set of guidelines that ultimately will provide some uniformity in estimating flood flows in urban areas.

“The Committee would like to have as much input as possible from anyone involved in making flood flow estimates at (ungauged) urban locations, and thus is soliciting both published and unpublished reports that describe such techniques,” according to an announcement from the Water Resources Council.

Persons who have urban flood flow estimate reports are asked to forward them as soon as possible to Dr. Walter J. Rawls, Hydrologist, USDA-SEA-FR, Room 139, Building 007, BARC-West, Beltsville, Maryland 20705.

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FOUR USGS-AWC WATER RESOURCES SERIES MAPS AVAILABLE

The U.S. Geological Survey (USGS) and the Arizona Water Commission (AWC) recently have published four maps in the Water-Resources Investigations Open-File Reports series.

Maps showing groundwater conditions in the Willcox, Yuma, eastern Salt River Valley and western Salt River Valley areas are available for distribution.

The maps locate wells from which data were collected including water levels, depth to water, depth of well, specific conductance in micromhos and fluoride concentrations in each area.

A limited number of copies of these maps are available from AWC, 222 N. Central Avenue, Suite 800, Phoenix, Arizona 85004. Copies are available for perusal at USGS offices in Room 5-A, Federal Building, 301 W. Congress, Tucson, Arizona; Suite 1880, Valley Center, Phoenix, Arizona; 2255 N. Gemini Drive, Building 3, Flagstaff, Arizona; 1940 S. 3rd Avenue, Yuma, Arizona; and Room 5312, National Center, 12201 Sunrise Valley Drive, Reston, Virginia.

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

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