

ARIZONA WATER RESOURCES NEWS BULLETIN

NEWS BULLETIN 74-3

MAY-JUNE 1974

NEW WATER RESEARCH PROJECTS

Seven new water resources research projects have been approved for funding during FY1974-75 by the Office of Water Resources Research, U.S. Department of the Interior, according to Director Sol Resnick of the University of Arizona Water Resources Research Center. Two other projects, previously approved, have received funding under a supplemental appropriation for the last quarter of FY1973-74. These projects are all part of the OWRR Annual Allotment Program. In addition, six Allotment projects funded during the past year have been granted continuing support for further research during the coming year.

Each year a listing of water-related research-need statements, prepared by representatives of several State agencies in Arizona, is distributed with the announcement to the three State Universities calling for research proposals to be funded under the Annual Allotment Grant. After the proposals are drafted, they are evaluated by the WRRC State Advisory Committee as part of the review process before being submitted to OWRR with recommendation for funding. In this way, it is believed that this water research program has become increasingly responsive to the needs of the State.

The newly activated projects, along with the Principal Investigators and their departmental affiliation, at the University of Arizona unless otherwise indicated, are as follows:

Extended Use of Treated Municipal Wastewater by the Buckeye Irrigation Company: A Documentation of Effects (A-050-ARIZ): A.D. Day, Agronomy and Plant Genetics; T.C. Tucker, Soils, Water and Engineering; and C.B. Cluff, Water Resources Research Center.

Water Quality Transformations and Groundwater Recharge of Sewage Effluent (A-051-ARIZ): S. Ince, Hydrology and Water Resources; R.A. Phillips, Civil Engineering; and L.G. Wilson, Water Resources Research Center.

Sand Filtration of Oxidation Pond Effluent for Reuse in Park Irrigation (A-052-ARIZ): D.R. Kasper, R.A. Phillips and R.A. Sierka, Civil Engineering.

Investigation of Bacteriological Pollution of Recreational Waters in Arizona (A-053-ARIZ): G.S. Lehman and M.M.

Fogel, Watershed Management; and R. Gale, Tonto National Forest.

Geothermal Water Resources in Arizona: Feasibility Study (A-054-ARIZ): K.J. DeCook, Water Resources Research Center; D. Norton and J.S. Sumner, Geosciences.

Prediction of Seepage Through Clay Soil Linings in Real Estate Lakes (A-055-ARIZ): G. Sposito, Water Resources Research Center.

Feasibility of Modeling the Influences of Pit Recharge on Groundwater Levels and Quality in Alluvial Basins (A-056-ARIZ): L.G. Wilson, Water Resources Research Center; and W.O. Rasmussen, Watershed Management

The continuing projects are the following:

Continuation of the Arizona Water Information System (A-031-ARIZ): K. Foster, Office of Arid Lands Studies; and K.J. DeCook, Water Resources Research Center.

Use of Amendments to Reduce Water Requirement for Stand Establishment of Small-Seeded Crops (A-034-ARIZ): R.E. Dennis, Agronomy and Plant Genetics.

Development of a Bibliographic Information System for Water Yield Improvement Practices - Phase III (A-042-ARIZ): D.B. Thorud, P.F. Ffolliott and L.M. White, Watershed Management.

An Assessment of Snowpack Depletion-Surface Runoff Relationships on Forested Watersheds (A-045-ARIZ): P.F. Ffolliott and D.B. Thorud, Watershed Management.

Utilization of Clear-Water Sewage Effluent in Mineral Processing (A-046-ARIZ): W.W. Fisher and D.D. Rabb, Arizona Bureau of Mines.

Evaluation of Agricultural Adjustment to Irrigation Water Salinity: A Case Study for Pinal County, Arizona (A-048-ARIZ): W.E. Martin, Agricultural Economics.

REPORT ON WATER IN AN OIL SHALE AREA

U.S. Geological Survey hydrologists have summarized data on the relation between oil shale development and the quantity and quality of surface and groundwater in the Piceance Basin of northwest Colorado which contains the largest known deposits of high-grade oil shale in the United States.



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



The information is available in a 246-page report which includes 80 illustrations and 91 tables. The report presents fundamental hydrologic data needed by those who must plan for water supplies to support development of oil shale, for those who must devise plans for dewatering oil shale so that it can be safely mined, and for those who must protect the Colorado River system from discharges of saline water.

Copies of the publication may be obtained for \$2 from the Colorado Geological Survey or the Colorado Water Conservation Board, 1845 Sherman Street, Denver, Colorado.

EPA ISSUES REPORT ON ECONOMICS OF CLEAN WATER

Environmental Protection Agency Administrator Russell E. Train, in a letter submitting a recent report to Congress, said: "For the first time, economic factors – essential to a broad assessment of (water pollution) control programs and policies – are examined."

In EPA's view, Train said, the economic factors should not retard the accelerated program launched by the 1972 Amendments to the Federal Water Pollution Control Act to control pollution from municipal and industrial sources. More specifically:

- Local governments, with few exceptions, will have adequate capability to finance their share of building sewerage systems.
- An overview of 23 industries discharging directly into the Nation's water indicates that in most cases they will be able to recover the costs of wastewater treatment through increases in prices.
- The results of an econometric study indicate that the construction industry should be able to build the required facilities with price increases of less than one percent attributable solely to EPA-stimulated demand.
- The potential profits available to the pollution abatement equipment industry are attractive enough to encourage growth and development of a long-term supply of such equipment.

Train cautioned that unforeseen events such as the energy crisis or the devaluation of the dollar may lead to basic changes in the economic system, resulting in outcomes different from those predicted.

Train said the quality of the Nation's water can be discussed in only approximate and qualitative terms, since no set of truly representative water quality monitoring stations exists. An EPA study, however, provides preliminary information on the status and trends in water quality for 22 major river basins. The study indicates that bacteria and oxygen demand, the pollutants receiving the most widespread attention, showed general improvements in the past five years.

A survey made by EPA in mid-1973 estimates that the costs of municipal treatment collection facilities eligible for Federal funding will be \$60 billion. This total is roughly comparable to the total investment made in all the Nation's sewerage systems since 1855.

Industry will be required to invest about \$12 billion in treatment facilities within the next few years to meet the

1977 standards which call for the installation of the best practicable treatment control technology. This total does not include the cost of controlling thermal pollution which is expected to range from \$2 to \$9 billion, depending primarily upon the number of plants exempted from thermal standards.

(Copies of the entire report will be available from the U.S. Government Printing Office within two months.)

WASTEWATER REPORT

The Environmental Protection Agency has issued a new report entitled "Wastewater Treatment and Reuse by Land Application – Volume I – Summary." The report gives a summary of wastewater reuse for three major land application approaches: irrigation, overland flow and infiltration-percolation. Evaluations of public health considerations, environmental effects and costs were also made.

The report (EPA-6600/a-73-006a, Aug. 1973) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for \$1.10.

STATES URGE SALINITY CONTROL

All seven Colorado River Basin states joined together at recent hearings in Washington, D.C., in strongly urging a Congressional subcommittee to approve a bill establishing a *salinity control program* for the river, including measures specifically sought by Administration to improve quality of water delivered to Mexico. Wesley E. Steiner, chairman of the Committee of Fourteen, consisting of two representatives appointed by governors of each state, asked the House Subcommittee on Water and Power to take a "total approach" to salinity control on the river with passage of HR 12165. Steiner, who is also Executive Director of the Arizona Water Commission, said other legislation proposed by the Administration, aimed only at alleviating complaints of water users in Mexico in recent years, "fails to recognize that the salt problem is a basin-wide problem and that the control program must also be basin-wide if present salinities in the river are to be maintained...." The level is currently 850 parts per million at Imperial Dam in the lower stem of the river. "Economic detriments in the United States, both direct and indirect, will be increased by about \$80 million a year," Steiner said.

- (From Colorado River Association Newsletter)

INTERIOR RELEASES ENVIRONMENTAL STATEMENT ON NEW COAL LEASING PROGRAM

Secretary of the Interior Rogers C.B. Morton announced today that the Department's draft environmental impact statement concerning public land coal leasing is ready for public review.

"Coal is one of the Nation's most abundant energy resources," Morton said. "Most of the low-sulfur coal reserves in the United States – about 85 percent – are located on lands in the West subject to the jurisdiction of the Interior Department. This impact statement will help us decide whether we can make increasing use of this resource without unacceptable environmental damage. Public land coal resources will be required if coal is to

play an important role in meeting the energy needs of the nation."

Secretary Morton said that any coal leasing program will operate in conformity with the Department's overriding goals:

- to assure environmental protection and the reclamation of mined lands.
- to provide for orderly and timely resource development based on comprehensive land use planning.
- to assure a fair market value return for the resources sold.

After publication of this statement, the Department plans to involve the public further in the process of deciding upon a coal leasing policy by requesting indications of interest and concern in potential leasing areas.

Morton stressed that the programmatic environmental statement addresses not only the various nationwide energy source options available, but also covers the range of administrative leasing procedures that can provide coal from Federal reserves. He said that the Department hopes and believes that surface protection and land use planning regulations can allow mining in an environmentally acceptable manner.

The draft was prepared by an interagency team composed of representatives from the Department of Agriculture's Forest Service, and from Interior's Bureau of Land Management, the U.S. Geological Survey and the Bureau of Mines.

A limited number of copies of the Statement will be available at the BLM State offices in Anchorage, Alaska; Phoenix, Arizona; Sacramento, California; Denver, Colorado; Boise, Idaho; Billings, Montana; Reno, Nevada; Santa Fe, New Mexico; Portland, Oregon; Salt Lake City, Utah; and Cheyenne, Wyoming, plus BLM's Washington Office.

BIBLIOGRAPHY ON WATER MANAGEMENT

The Agricultural and Irrigation Engineering Department at Utah State University has released a publication entitled "On-Farm Water Management Bibliography." The book contains 12,000 titles covering on-farm water management and interrelated subject areas including engineering, water law, irrigation, drainage and soils. The materials listed in the book may be obtained from Utah State University.

Please send all inquiries to: On-Farm Management Project, Agricultural and Irrigation Engineering Department, UMC41, Utah State University, Logan, Utah 84322.

ANNUAL REPORT ON GROUND WATER IN ARIZONA AVAILABLE

The report "Annual Report on Ground Water in Arizona, Spring 1972 to Spring 1973," prepared under the direction of H.M. Babcock, District Chief of the U.S. Geological Survey in Arizona, is now available. The report was prepared by the Geological Survey in cooperation with the Arizona Water Commission and is a summary and analysis of the hydrologic data collected under the statewide ground-water program during the period of spring 1972 to spring 1973.

If you wish to receive a copy of this report, write: Water Resources Division, Room 5-A, Federal Building, 301 W. Congress Street, Tucson, AZ 85701 or Arizona Water Commission, Suite 800, 222 N. Central, Phoenix, AZ 85004.

NEW GROUND WATER FILM COMPLETED

Unsanitary landfills, leaking buried nuclear wastes, chemical effluents - these pose constant assaults on ground water, America's most precious hidden resource. Often, shortsighted planning and regulations have allowed our ground water supply, which makes up over ninety-five percent of the world's fresh water, to be abused.

Through its new film, "Ground Water - America's Buried Treasure," the Ground Water Council hopes to counteract such shortsightedness and get Americans to give as much attention to ground water as they give to other vital resources. This 13½ minute film was produced for distribution to television stations and interested groups.

Requiring little or no treatment, ground water is an economical water supply alternative to dams, lakes and streams, the film points out. Ground water is usually safe and clear because it has been naturally filtered through layers of soil and rock.

In addition, the film notes, we cannot just rely on civil engineers to plan and manage our water supplies - but geologists and hydrologists should also help fashion such water use plans. The film gives a bird's eye view of the uses of ground water and stresses pollution hazards with suggestions on how citizens can help.

To rent or buy this film write the Ground Water Council, 221 North La Salle Street, Chicago, Illinois 60601.

ENVIRONMENTAL EFFECTS OF DRY COOLING TOWERS

According to a report prepared for the U.S. Atomic Energy Commission, dry cooling towers on power generating plants will receive more consideration in the future because of energy requirements and limited water resources. The study concentrated on the hot air plume behavior and possible effects on the environment of the waste heat rejected from 1000-MW(e) plants by dry cooling systems.

Several questions have been raised on environmental effects such as: land usage requirements, noise levels, appearances, increased lightning strikes, ecological damages, dangers to light aircraft and weather modification.

The report, entitled "Plume Behavior and Potential Environmental Effects of Large Dry Cooling Towers," has been published by Gulf General Atomic Company, San Diego, California 92138.

THE SKY AND HOT UNDERGROUND AS SOURCES OF "NEW WATER"

"We are looking for other sources of additional water, and we believe we've found one in the sky," said Bureau of Reclamation Commissioner Gilbert G. Stamm, at a recent meeting of the Colorado River Water Users Association in Las Vegas. He predicted that *Project Skywater*

would be capable ultimately of delivering an additional two million acre-feet of water to the Colorado River.

Edward A. Lundberg, a regional director of the Bureau, emphasized the water benefit from geothermal steam development, with *heat underlying the Imperial Valley* used for both electricity and water desalting. "The river's prehistoric floods have saturated its delta with water, estimated at over a billion acre-feet." Lundberg said that he foresees operation of a prototype desalting plant producing up to three million gallons of fresh water daily. Only 10% of the geothermal energy capable of development in the region would be needed in the production of potable water. The rest would be available to produce electricity.

NEW RULES FOR WEATHER MODIFICATION PROGRAMS

The National Oceanic and Atmospheric Administration (NOAA) has proposed new rules for weather modification programs whereby all reports on such programs must include information on safety and environmental precautions.

Under a 1971 law (P.L. 92-2-5) all non-federal weather modification activities must be reported to NOAA. However, because of a Presidential directive, the additional information on precautions taken to protect persons, property and the environment is being required. The proposed changes in reporting rules were published in the November 6 issue of the *Federal Register*.

INSTITUTE OF ENVIRONMENTAL SCIENCES HOLDS ANNUAL MEETING

Proceedings for the IES Annual Meeting, held April 28-May 1, 1974, are now available by writing to 940 East Northwest Highway, Mt. Prospect, Illinois 60056. Several papers relating to water resources and geothermal energy were presented.

The IES objectives are (1) to promote and encourage the acquisition and dissemination of knowledge pertaining

to environmental sciences, environmental engineering, and related areas of interest for industry, science, and government; (2) to develop and promote standards, research, simulation, testing and design criteria in the environmental field; (3) to sponsor or otherwise encourage courses or curricula in the environmental sciences in institutions of higher education; and (4) to encourage and recognize outstanding achievement in the environmental sciences, environmental engineering, and related areas of interest.

"ENERGY, ENVIRONMENT AND WATER RESOURCES"

1974 UCOWR ANNUAL MEETING

UTAH STATE UNIVERSITY, LOGAN, UTAH

July 28 - 31, 1974

Topics for discussion include:

- the energy question
- the question of various types of centers such as:
water resources, environment, energy
- the OWRR Title II program - 1976 deadline

It's not too early to mark your calendar now!

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.

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

NON-PROFIT ORG.
**U.S. POSTAGE
PAID**
PERMIT NO. 190
TUCSON, ARIZONA