

divining rod

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New Mexico Water Resources Research Institute

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Set for November 10

Water Policy Focus of Meeting

The Water Resources Research Institute will sponsor a symposium Nov. 10, 1982, in Albuquerque on the general theme of state responses to changing federal water policies. The one-day symposium will be held at the Albuquerque Convention Center.

According to George O'Connor, WRRRI acting director, the need for a symposium was evident from the many questions raised at the annual water conference last April. "Foremost in many people's minds were the repercussions of the administration's stated goal to turn more financial responsibility for water projects over to the states," he said.

The future of water research also was under question. O'Connor explained that the demise of the Office of Water Research and Technology (OWRT) has clouded the outlook for federal funding for water resources projects in general and for the institute's research program in particular.

O'Connor said the symposium's specific aims will be to examine what impacts new federal water policies will have on New Mexico and to examine ways the state can respond to those impacts. "The consensus of the advisory committee was that symposium participants should have the opportunity to produce a series of alternative actions for the state legislators, along with an assessment of the consequences of those alternatives," O'Connor said.

Although details of the symposium program are still being drawn up, the general format has been decided. The morning session will include speakers representing both the state and federal government and the afternoon will be devoted to workshops.

Federal water policy development is one of the responsibilities of the newly created Office of Water Policy headed by Tom Bahr. Bahr and Garrey Caruthers, assistant secretary for land and water resources in the Interior Department, will be on the morning program. Both will discuss changes in federal water policy.

Mexico and the state's potential responses to those policies.

The afternoon session will feature four workshops. The workshops, which will be divided by area of interest, will allow participants to draft alternatives for dealing with evolving federal policies.

Alternatives from each workshop will be presented at the closing session.

O'Connor stressed that the symposium supplements, but does not replace the annual water conference held each spring. The symposium is an effort to address immediate issues. "The sooner we can get a clear understanding of federal policies, the better off

SYMPOSIUM

*State Responses to Changing Federal Water Policies
Nov. 10, 1982*

*Albuquerque Convention Center
Albuquerque, New Mexico*

Then, State Engineer Steve Reynolds and State Rep. Hoyt Pattison will address these changes from a state viewpoint. They will cover the possible impacts of federal policies on New

New Mexico will be in deciding its own course of water resources."

More information on the symposium will be available in September.

Fake Rain Helps Scientists Learn about Road Erosion



Tim Ward, an NMSU civil engineer, keeps track of runoff caused by simulated rainfall pouring from overhead sprinklers.

It's called a rainfall simulator, but the contraption looks more like traveling shower stalls. Four researchers, intent on securing the oversized shower curtains against the wind, seem oblivious to the scene they've created on a logging road in the middle of the Sacramento Mountains.

They are going to all this trouble to measure the effect of rainfall on erosion on various types of logging roads. "New Mexico forest roads produce 75 to 90 percent of the erosion on forested land," said Tim Ward, an NMSU civil engineer and head of the research team.

Ward said most eroded soil is deposited in the forest, but some sediment makes its way into streams. "If the fate of road material is as runoff into the woods, that's okay. But if that material reaches streams, that's

another matter," he said.

Erosion is classified as non-point water pollution because it comes from widely dispersed sources. Even though erosion may be minor in the beginning, Ward said it can create larger problems.

For example, one reason Abiquiu and Cochiti reservoirs in northern New Mexico were built was to keep sediment out of the Rio Grande. "Sedimentation actually has caused so much buildup in the Rio Grande flowing through Albuquerque that the river bed is higher than parts of the city," he said.

Ward keeps track of the data while the other researchers, graduate students in geological and civil engineering, finish setting up the experiment. Once the draped simulators are in place above the dirt road, "rain" is

released from overhead sprinklers. The simulators produce a rainfall intensity of 9.5 inches in half an hour, the equivalent of a heavy summer downpour.

Each measurement, from the amount of rainfall to the amount of sediment in the runoff, is carefully recorded. Ward said even the shower curtains have a scientific purpose — they serve as wind screens.

Results of simulations in the Lincoln, Carson, Cibola, Santa Fe and Gila national forests will be used to construct a mathematical model which will predict the infiltration and erodibility of soils in each forest. Ward plans to go a second step and compare the costs of preventing erosion with the benefits gained from the preventative measures. The project, now in its first year, is funded in part by the WRRRI.

Ward said in areas such as the Lincoln National Forest where the rocky terrain helps prevent erosion, the minimal amount of erosion may not warrant the cost of surfacing the roads. In other forests where the soil is finer and erosion greater, surfacing the roads may pay off.

Ward said the U.S. Forest Service requires logging operators to maintain the logging roads in a way that causes the least erosion. "Our study will help the Forest Service determine what that means. For example, the erodibility of a road may require nothing more than grading, or it could mean more expensive requirements such as oiling or graveling," he said.

After the simulation is finished, the research crew will pack up their portable rainmaker and truck it to the next site. Ward said four sites in each forest will receive a dry simulation and then 24 hours later, a "wet" simulation. A wet simulation, he explained, is rainfall on wet soil and creates conditions similar to a two-day rain.

He said the crew worked nearly seven days a week during June to run simulations in all five forests. "Our main worry was that we wouldn't finish before the real rains began."

Research Projects Receive Funds

The institute's Program Development and Review Board had the tough job this year of selecting projects to fund without the benefit of federal dollars. They chose 11 projects from 29 proposals submitted. The total value of the granted proposals reached \$226,991 for the 1982-83 fiscal year with a project average value of \$20,635.

The totals represent increases over the 1981-82 fiscal year in proposals submitted and project average value. Last year, 12 proposals were granted from 22 applications for a total value of \$236,650. The 12 were funded from both federal and state monies with an average value of \$19,721.

"The federal funding picture is still undecided, so projects this year were funded without federal monies," said George O'Connor, institute acting director. For now, he said water resources research must depend on state and private funds for support.

New Projects

Pecan Nut Yield and Tree

Growth as Influenced by Irrigation. Theodore W. Sammis, agricultural engineering, NMSU.

Genetic Improvement of Salt Tolerance in Chile Pepper. Steven D. Tanksley and Gregory C. Phillips, horticulture, NMSU.

An Isotopic Investigation of Ground-Water Resources in the Tertiary Sediments of the San Juan Basin, New Mexico. Fred M. Phillips, geoscience, New Mexico Institute of Mining and Technology.

Institutional Preferences for Managing New Mexico Water. Timothy J. De Young, public administration, UNM.

Numerical Simulation of the Lower Rio Grande River Basin, New Mexico. Raz Khaleel, geoscience, New Mexico Institute of Mining and Technology and John W. Hawley, New Mexico Bureau of Mines and Mineral Resources.

New Approaches for On-Line Stripping Analysis of Trace Metals in Natural Waters. Joseph Wang, chemistry, NMSU.

Afghan Pine Irrigation Strategies Derived from Non-Weighing Lysimetry Studies and

ET Models. James T. Fisher and Richard W. White, horticulture, NMSU.

Renewals

Environmental Modeling of Chlorinated Organic Compounds in Rivers. Gary A. Eiceman, chemistry, NMSU and Fernando Cadena, civil engineering, NMSU.

Agronomic Evaluation of Salt Grass as a Potential Forage Crop in Pastures Irrigated with Saline Water. David G. Lugg, agronomy, NMSU.

Field Demonstration and Evaluation of A Methane Producing Two-Stage Anaerobic Digester Used for Complete Treatment of Municipal Wastewater. Willie P. Isaacs and Aleksander Drohobyczer, civil engineering, NMSU.

Disinfection of Wastewater. Robert T. O'Brien, biology, NMSU.

Positions Open In Two States

The University of Nevada Desert Research Institute is seeking an Executive Director for its Water Resources Center. Candidates must have a Ph.D in a water resource field and experience in research management and program development. Apply by Nov. 1, 1982, to: Water Resources Center, Desert Research Institute, University of Nevada System, P.O. Box 60220, Reno, NV 89506.

The Wyoming Water Research Center is newly established and looking for a director to administer research and to service extension and education programs. Candidates must have a Ph.D and experience in water resources research. Apply by Oct. 1, 1982, to: Dr. J.L. Smith, Dept. of Agricultural Engineering, 152 Vocational Annex Bldg., The University of Wyoming, Laramie, WY 82071.

WRRI publications

#139 Isolation and Control of Membrane Filter Degrading Microorganisms - Lindemann, W.C. - December 1981

#140 Biological Processes for Concentrating Trace Elements from Uranium Mine Waters - Brierley, C.L. and Brierley, J.A. - December 1981

#141 Water Treatment for Small Public Supplies - Wilson, D.B. and Duran, R.M. - February 1982

#142 The Carbonate Aquifer of the Central Roswell Basin: Recharge Estimation by Numerical Modeling - Rehfeldt, K.R. and Gross, G.W. - February 1982

#143 A Comparison of the Effects of Salinity on Photosynthetic Physiology of a Salt Sensitive Grass, *Panicum obtusum*, and a Salt Tolerant Grass, *Distichlis spicata* - Kemp, P.R. and Cunningham, G.L. - March 1982

#144 A Baseline Study of Oxygen 18 and Deuterium in the Roswell, N.M., Groundwater Basin - Hoy, R.N. and Gross, G.W. - May 1982

#145 Proceedings of the Twenty-Seventh Annual New Mexico Water Conference, "Hope for the High Plains" (Copy charge: \$5) - May 1982

Decision May Affect NM, Texas

New Mexico will get a second chance to argue its case to ban the export of its ground water to El Paso in light of the recent Supreme Court decision involving Nebraska and Colorado. In a 7-2 decision, the court ruled that ground water is an article of commerce and that states are therefore limited in their power to ban its export.

Because the ruling may affect the New Mexico-El Paso case, U.S. District Judge Howard Bratton offered both sides in the lawsuit the opportunity for a second hearing. The hearing is scheduled for Sept. 13 in Albuquerque. Bratton presided over a three-day hearing on the case in January.

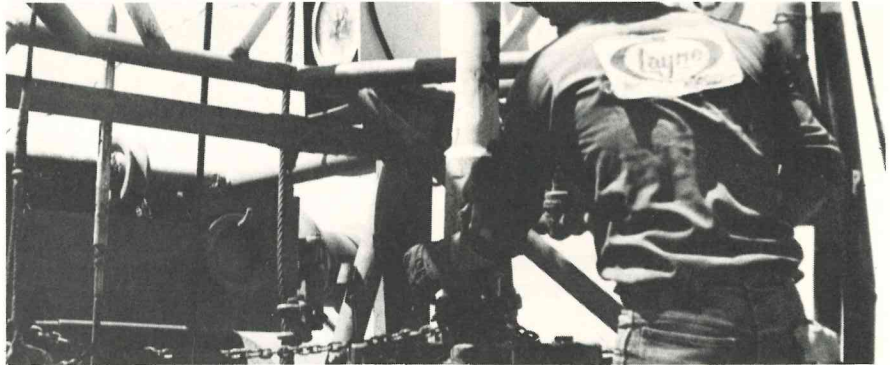
The Nebraska decision, although welcomed by El Paso as supporting their contention that the export ban violates interstate commerce, is not all bad news for New Mexico. In the Nebraska case, the court's majority opinion also acknowledged the state's interest in preserving scarce water resources in the arid Western states. New Mexico's lawyers stressed that the decision recognized the right of states to

regulate water use for conservation.

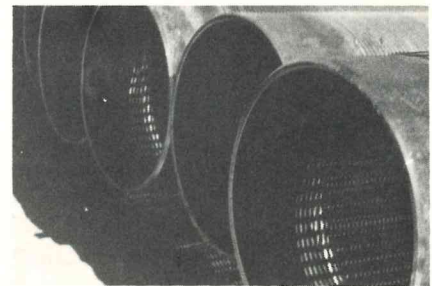
The New Mexico Lawyers cited wording in the decision stating that a "demonstrably arid state" might be able to use the conservation argument to justify a ground water export ban. Attorneys for the state say the statement backs their argument that the export ban

is vital to the state's conservation responsibility.

In the Nebraska case, two Colorado farmers who owned farmland straddling the Nebraska-Colorado border challenged a Nebraska law that would prevent them from using water from a well on their Nebraska land to irrigate their land in Colorado.



The court battle over New Mexico's water has limited well drilling in the Mesilla Valley to emergency permits for wells like the one above. Well screen (right) will filter sand and gravel from ground water as it is pumped to the surface.



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(Address correction requested)

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