DIVINING ROD

NEW MEXICO WATER RESOURCES RESEARCH INSTITUTE

Vol. XXIX, No. 1 January 2006

WRRI celebrates 50 years of annual water conferences

The site of the first 25 annual New Mexico water conferences, New Mexico State University, served as the host site for this year's milestone 50th conference. Nearly 300 participants including 50 students met in southern New Mexico to discuss the history of water in New Mexico, our situation today in meeting a myriad of challenges, and the prospects for New Mexico's water future.

A warm autumn day greeted folks who traveled to Elephant Butte Dam for the pre-conference tour. The afternoon tour began in Truth or Consequences with an overview of the Rio Grande Project presented by staff of the Bureau of Reclamation. The group then visited the Dam and viewed it from a couple of lookout points. A sudden cloud burst had the group scattering back to the tour buses just as the tour was coming to an end.

Bureau of Reclamation staff described the Rio Grande Project, which is celebrating its 100th year anniversary, to water participants. The group visited Elephant Butte Dam. Photos by Nathan Myers.

A reception followed the tour that evening at the new Stan Fulton Athletics Center located at the southside of the NMSU football stadium. The reception provided another opportunity for participants to network among friends and colleagues, many of whom have been attending WRRI water conferences for many years.

Several long-time attendees were mentioned the next morning as the conference got underway. WRRI Director Karl Wood noted several participants in the audience who had been to at least 20 WRRI conferences, including John Hernandez, Tom Bahr, Bobby Creel, Fred Hennighausen, and Wayne Cunningham.

Opening remarks were made by NMSU agricultural economist and speaker extraordinaire, Lowell Catlett. Catlett

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50th Annual New Mexico Water Conference

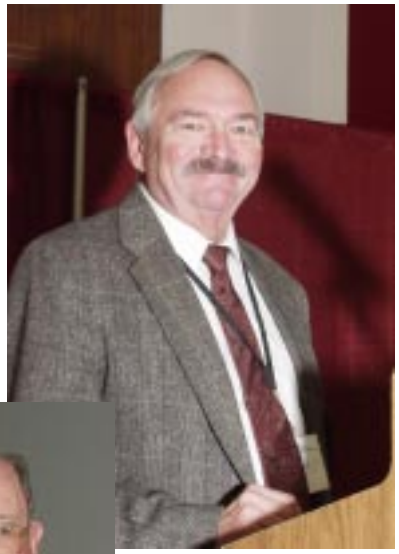
New Mexico Water: Past, Present, and Future or Guns, Lawyers, and Money

NMSU economist, Lowell Catlett, got things rolling the first morning of the conference.

Baxter Black entertained participants at the evening banquet.

Chuck DuMars (left) talked with WRRI Director Karl Wood before giving this year's Utton Memorial Water Lecture.

Former WRRI Director Tom Bahr gave his talk, "My Life and How to Make Wine" at Thursday's luncheon.



Forty-nine years of water conference proceedings were on display at the conference.

Many excellent presentations were given at this year's conference including those by UNM law professor Em Hall (left) and New Mexico Representative Joe Stell.

Water conference participants had many opportunities to chat with friends and colleagues.



















WRRI high school photo contest winners announced

In conjunction with the 50th Annual New Mexico Water Conference, the WRRI sponsored its first high school photo contest. High school students from around the state of New Mexico were invited to submit up to three photographs. Photographs were judged in two categories: *Water in Nature* and *Water at Work*.

First Place winners in each category received a check for $200; Second Place winners received $100, and several honorable mentions were awarded in each category.

The institute received 86 photo entries; 50 in the *Water in Nature* category, and 36 in the *Water at Work* category. Photo entries came from Oñate High School, Las Cruces High School, Del Norte High School, Albuquerque High School, Navajo Prep School, Rio Grande High School, West Mesa High School, McCurdy High School, Eldorado High School, La Cueva High School, Cliff High School, Santa Fe High School, and Sandia High School.

Our thanks to WRRI's student assistant, Sara Ash, for organizing the photo competition. We also appreciate the efforts of this year's judges: Bobby Creel, Victor Espinoza, Don Martin, Darren Phillips, Jud Wright, and Karl Wood.

Winning photos will be displayed via WRRI's homepage at wrri.nmsu.edu.

First place photo contest winner in the Water in Nature category, Shawna Libeau, is congratulated by WRRI student assistant Sara Ash. Sara coordinated the photo contest and displayed all the submitted photos at the 2005 Annual New Mexico Water Conference.

2005 High School Water Photo Contest

Water in Nature

First Place: Shawna Libeau
Oñate HS, senior
Second Place: Martin Burch
Santa Fe HS, senior

Honorable Mention:
Mike Valerio
McCurdy HS, junior
Cynthia Barringer
Rio Grande HS, sophomore
Nichole Valdez
McCurdy HS, junior
Amanda Baca
Rio Grande HS, senior
Jake Pett
Albuquerque HS, senior
Shawna Libeau
Oñate HS, senior
Andrew Pacheco
Rio Grande HS, junior
Britta Mortensen
Sandia HS, senior

Water at Work

First Place: Keila Dominguez
West Mesa HS, senior
Second Place (tie):
Shawna Libeau
Oñate HS, senior
Chad Griffin
Albuquerque HS, junior

Honorable Mention:
Steven Tallas
Navajo Prep, sophomore
Amanda Baca
Rio Grande HS, senior
Sara Eliason
Albuquerque HS, junior
Donnie M. Jones
Navajo Prep, senior
Ivan A. Bencomo
Rio Grande HS, senior
Jaclyn Ortega
McCurdy HS, junior
Esmé O. Vaandrager
Albuquerque HS, senior

2005 High School Water Photo Contest Winners

Water in Nature

First Place:
Shawna Libeau, senior, Oñate High School

Second Place:
Martin Burch, senior, Santa Fe High School

Water at Work

First Place:
Keila Dominguez, senior, West Mesa High School

Second Place (tie):
Chad Griffin, junior, Albuquerque High School

Second Place (tie):
Shawna Libeau, senior, Oñate High School

(continued from page 1)

helped wake up the early morning group with his musings on the aging Baby Boom generation and how agriculture has evolved over the past 50 years.

He was followed by UNM School of Law Professor Emeritus Chuck DuMars who gave the 2005 Utton Memorial Water Lecture, "Prior Appropriation Law and Future Water Allocation: Preserving Water for Future Generations." Chuck began the lecture with some personal recollections of his good friend and former colleague at the UNM School of Law, Albert E. Utton, and their work together over many years. Chuck's lecture will be included in the water conference proceedings, along with all the conference presentations.

This year's conference speakers were particularly excellent according to many who attended the conference. The history of water projects dating back 7,000 years and their impact on today's practices was discussed by New Mexico Representative Joe Stell. UNM law professor Em Hall eloquently described the more recent past and the evolution of Active Water Rights Management (AWRM).

Later in the conference, State Engineer John D'Antonio elaborated on AWRM and the initiatives it encompasses that will take place statewide over the next several years.

Interstate Stream Commission Director Estevan Lopez talked about New Mexico's experience with interstate water compacts and related agreements. Estevan and colleague John Whipple have provided a very interesting paper summarizing, by basin, the history of compact development and administration as well as related litigation and congressional action. The paper is posted on the WRRI website at: http://wrri.nmsu.edu/publish/watcon/proc50/proc50.html.

Everyone seemed to enjoy themselves at the evening banquet where cowboy humorist and poet Baxter Black performed. Baxter stayed after the show to autograph his books and CDs.

The featured luncheon speaker was former WRRI director Tom Bahr. Tom led the institute from 1978 until 1999. In addition to reflecting back on his tenure as director, Tom gave us a quick seminar on one of his retirement activities – how to make good wine.

Each year a highlight of the conference is the panel discussion, moderated again as for the past several years by Bill Hume of the Governor's Office. This year's topic was economic development and land use and its implication for New Mexico's water future. Six panelists representing various stakeholder groups addressed questions posed by the moderator and from audience members on how planning should be done, the conflict between short-term needs and interests of the development community, and the long-term obligations of community water systems. The panel discussion sparked interesting debate. The discussion will also be included in the conference proceedings and on the WRRI website. All conference participants will receive a copy of the proceedings on CD in early 2006.

The 50th Annual New Mexico Water Conference was dedicated to H. Ralph Stucky, the first director of the New Mexico Water Resources Research Institute. New Mexico Governor Bill Richardson declared October 19, 2005 as Dr. H. Ralph Stucky Day. John Hernandez and Bobby Creel paid tribute to Dr. Stucky and presented the proclamation to Dr. Stucky's two children who attended the conference, John and Creta (see article on page 8).

The water conference advisory board members seem anxious to begin planning the next water conference. We wish them well and look forward to another 50 years of New Mexico water conferences.

New Water Science Website

The U.S. National Academies is pleased to announce the launch of its Water Information Center, a portal of more than 100 peer-reviewed reports from the National Academies on water-related issues. The website **(http://water.nationalacademies.org)** aims to assist the work of water scientists, engineers, managers, policy-makers, and students throughout the world. These reports represent independent and objective consensus among experts from academia, industry, and other entities.

The website features the following major topics:
Water Supply and Sanitation
Water and Soil Remediation
Hydrologic Hazards
Water Quality in the Natural Environment
River Basin Systems Management
Environmental Assessment, Management, and Restoration
Water Science and Research

All of the reports can be read for free on-line, and summaries are freely downloadable as PDFs. If you are from a developing country, the full reports can be downloaded for FREE. A large number of reports are also available to free download for residents of other countries.

If you have questions or comments, contact:

Ellen de Guzman
Email: water@nas.edu
202-334-3422

WRRI GIS Technician Receives Research Cluster Mini Grant

By Sara Ash, WRRI

The research site includes Alcalde acequia located north of Española.

Part of the research team visits the Alcalde area in December 2005. From left: Quita Ortiz, Dr. Sam Fernald, and Dr. Chris Brown.

This photo shows the Rio Grande at the point where the Alcalde acequia originates.

Quita Ortiz, a graduate student at New Mexico State University and WRRI's GIS Technician, recently received funding for one of five NMSU Cluster Mini-Grant awards for a proposal entitled "The Impacts of Land Use Change on Water Resources and Traditional Acequia Culture in North Central New Mexico."

Working with her co-investigators Chris Brown, Sam Fernald, Red Baker, and Bobby Creel, Quita will use GIS, remote sensing, and aerial photography to examine and interpret land use changes in the Black Mesa Reach of the Rio Grande in northern New Mexico. The study aims to involve land use images over the past forty years or beyond if older imagery can be obtained, but Quita and her co-investigators will also travel to northern New Mexico to talk to acequia association members and leaders, such as the mayordomos who oversee and resolve conflict in the acequia communities.

"I am going to use GIS to map and interpret land use changes in my study area, but I want to include the environment and people. I am very interested in the human aspect of geography," Quita asserts, "I am concerned with the potential environmental and cultural impacts associated with land use changes." She is looking forward to the fieldwork that is a necessary part of her research.

This research will advance knowledge of land use changes on water resources funded through an NMSU Research Mini-Grant in conjunction with the Water Science and Education Center. The Center is part of the Natural Resource Sustainability and Renewal Cluster, one of five interdisciplinary research clusters at NMSU. The study will also contribute as well to Quita's research for her master's thesis. This project involves the departments of geography and range sciences as well as the Water Resources Research Institute. "I am fortunate to be working with the other investigators because they have been helpful and supportive. We have a nice team," Quita says of her co-researchers.

Once the research has been completed, the investigators expect to produce a series of GIS-based land use maps showing land use changes over time, descriptions of water resources use and management, documented changes in the culture and values of the acequia communities, and suggestions for informed land and water resource management.

Water conference dedicated to Dr. H. Ralph Stucky

The 50th Annual New Mexico Water Conference was dedicated to the man responsible for initiating the annual event in 1956. NMSU Professor Emeritus John Hernandez and WRRI Associate Director Bobby J. Creel paid homage to Dr. Stucky at the water conference this past October.

In 1955, Dr. H. Ralph Stucky was head of the Department of Agricultural Economics at NMSU and teaching a course in water resources economics to 15 students. He decided to ask a number of important water leaders in the state to lecture to the class. Steve Reynolds, New Mexico's longtime state engineer was one of those invited lecturers. People heard about the lectures and wanted to attend. Dr. Stucky decided to invite all the lecturers back for a two-day conference and the event turned out to be the first New Mexico water conference.

The next forty-nine conferences brought together state and federal officials, legislators, governors, US congressman and senators and lots of interested folks. Senator Clinton Anderson attended the 1957 Water Conference. In 1962, Senator Anderson sponsored a bill to create a center for water resources research in every state. In 1965, New Mexico became the first state to have a federally funded center, and Ralph Stucky became the director of the New Mexico Water Resources Research Institute in 1971. He was followed by some notable successors and pioneers in New Mexico water resources: John Clark, Garrey Carruthers, Tom Bahr, Bobby Creel, and Karl Wood.

Dr. John Hernandez gave an eloquent homage to Dr. H. Ralph Stucky at the 50th Annual New Mexico Water Conference.

WRRI Associate Director Dr. Bobby J. Creel presents a proclamation from Governor Richardson to the Stucky family. From left, Gail Stucky, John T. Stucky, Creta Stucky McGuire and Bobby Creel.

If Dr. Stucky had been able to be with us at the 50th Annual New Mexico Water Conference, he would have been celebrating the year of his 100th birthday. It was very fitting that Governor Bill Richardson proclaimed October 19, 2005, Dr. H. Ralph Stucky Day in New Mexico in recognition of the contributions he made to the state of New Mexico, particularly in bringing people together to solve the water problems facing our state. Dr. Stucky's two children were on hand to receive Governor Richardson's proclamation.

The Stucky tribute will be included in its entirety in the water conference proceedings and available online at wrri.nmsu.edu.

(continued from page 11)

Donahe, R., J. Bisping, S. Suttmiller, M. Mitchell, and S. Deng. 2005 (submitted). Adsorption of Perchlorate from Water on Purolite A-530E Resin. *Chemical Engineering Communication*.

R. Kumar, M. Huggahalli, S.G. Deng, and M. Andrecovich. 2003. Trace Impurity Removal from Air. *Adsorption.* 9:3:243-250.

Lin, Y.S. and S.G. Deng. 1998. Sol-Gel Preparation of Nanostructured Adsorbents. In *Adsorption and Its Application in Industry and Environmental Protection.* Ed. A. Dabrowski, Elsevier, 120A:653-686.

Deng, S.G., et al. 2002. Purification of Gases Using Multi-Composite Adsorbent. US Patent, 6,358,302.

Lemcoff, N., S.G. Deng et al. 2002. Atmosphere Control for Perishable Produce. US Patent 6,460,352.

Deng, S.G. et al. 2001. Air Purification Process. US Patent 6,238,460.

Deng, S.G., R. Kumar, and R. Jain. 1999. Air Purification Process with Thermal Regeneration. US Patent, 5,931,022.

Kumar, R., S.G. Deng et al. 1999. Air Purification Process. US Patent 5,980,611

High honor bestowed upon NMSU professor emeritus

John Hernandez, professor emeritus with New Mexico State University, has been named an honorary member of the oldest national engineering society in the U.S., the American Society of Civil Engineers, or ASCE.

Honorary membership is the organization's highest accolade. Only 183 of the society's 137,000 members worldwide have been awarded this honor. Hernandez was honored for his efforts in improving water quality as well as his accomplishments and efforts in consulting, academia, and public office in the areas of water resources and water quality.

"It is very appropriate that Professor Hernandez be recognized by his peers with this prestigious honor," said Steven Castillo, dean of the College of Engineering. "The contributions he has made to his profession and society as a whole are enormous."

John has been associated with the New Mexico Water Resources Research Institute for many years, most recently as a consultant on several projects. Currently, he is working with John Hawley, Phil King, Bobby Creel, John Kennedy, and former New Mexico state engineer Eluid Martinez on determining the feasibility of reducing the transmission losses by Conchas Canal in the Arch Hurley Conservancy District.

Since retiring from the Civil and Geological Engineering Department at New Mexico State University in 1999, John has remained active in water resources management issues particularly those related to water quality. He has produced several recent reports for the Bureau of Reclamation through the WRRI on conveyance alternatives to San Acacia from the Isleta Diversion; Pecos River management alternatives that minimize impacts to endangered species; and a study of institutional considerations for managing water in the Middle Rio Grande.

The WRRI staff congratulate their colleague on his latest honor!

Upcoming Meetings

Jan. 25-26, 2006	CLIMAS, *Climate and Rangelands Workshop*, San Carlos, AZ http://azrangelands.org
Jan. 31-Feb. 2, 2006	FEMA, *National Dam Safety Program*, Las Vegas, NV www.damsafety.org
Feb. 5-8, 2006	American Water Works Association, *2006 Water Sources Conference and Exposition*, Albuquerque, NM www.awwa.org
Feb. 6-7, 2006	National Ground Water Association, *Naturally Occurring Contaminants Conference: Arsenic, Radium, Radon, Uranium, and Microorganisms*, Albuquerque, NM www.ngwa.org
Feb. 23-24, 2006	Rio Grande Basin Initiative, *Symposium on Efficient Water Use in the Urban Landscape*, Las Cruces, NM http://spectre.nmsu.edu/water
Feb. 28-Mar. 2, 2006	New Mexico Riparian Council, *Riparian Restoration in the Southwest, New Mexico Experiences*, Albuquerque, NM www.ripariancouncil.org
Mar. 15-17, 2006	Desalination Conference 2006, *Concentrate on Concentrate*, El Paso, TX www.epwu.org
Jun. 20-21, 2006	Arizona Water Resources Research Center Annual Conference, *Providing Water to Arizona's Growing Population: How Will We Meet the Obligation?* Phoenix, AZ http://cals.arizona.edu/AZWATER/
Jun. 26-28, 2006	American Water Resources Association, *Adaptive Management of Water Resources* (abstracts deadline January 20, 2006), Missoula, MT http://www.awra.org
Jul. 18-20, 2006	**UCOWR/NIWR Annual Conference, *Increasing Freshwater Supplies*, Santa Fe, NM** www.ucowr.siu.edu
Jul. 31-Aug. 2, 2006	American Membrane Technology Association, *Desalting Comes of Age - The Answer for New Supplies*, Anaheim, CA www.membranes-amta.org
Aug. 15, 2006	**New Mexico Water Research Symposium, Socorro, NM** http://wrri.nmsu.edu

New water purification process saves energy and money

By Bob Nosbisch, NMSU University Communications

The shortage of fresh water in the nation is becoming an increasingly important challenge that will significantly affect economic development and the daily lives of people.

The good news is that New Mexico has large amounts of brackish, or salty, water that can be treated. While some new technologies are being invented to deal with this issue, other technologies are being refined. These technologies have the same goal – to help purify New Mexico's saltwater, thus providing a freshwater supply for residential, agricultural, and industrial uses.

Shuguang Deng, an assistant professor of chemical engineering at NMSU, is addressing this issue by combining solar energy, reverse osmosis and a process called membrane distillation to remove salt from water.

"What we are doing is very important because it has large implications for New Mexico as well as the nation," Deng said. "We need fresh water to meet the demands of our increasing population. By combining the abundance of brackish water and solar energy in this state, New Mexico is an ideal place to test the system. By doing so, we will be able to provide fresh water at the lowest possible cost."

While reverse osmosis is more cost-effective than most other current technologies for treating brackish water with low salinity, Deng said it cannot be used to treat water with high salinity because of the extreme high pressure needed to overcome the osmotic pressure.

Another technology, thermal distillation, uses energy to boil water, thus creating water vapor and leaving impurities behind. However, this process requires a lot of energy and is therefore not cost-effective, Deng said.

Deng's process of membrane distillation involves transporting water vapor through a membrane. The membrane is hydrophobic, so it does not let water in its liquid form pass through. On one side of the membrane, the water is heated to create water vapor, which passes through the membrane, leaving the salts behind. As condensation occurs at a cooler temperature on the other side of the membrane, the water then reverts to its liquid form.

By using the advantages of reverse osmosis and thermal distillation, membrane distillation produces high-quality fresh water while cutting back on energy costs.

The pilot testing of Deng's process was scheduled to take place at the Tularosa Basin National Desalination Research Facility near Alamogordo, New Mexico. Groundwater in that area has a high salinity, ranging from 2,000 to over 10,000 parts per million total dissolved solids. Also, the groundwater has an abundance of sodium chloride, carbonate and sulfates, which makes it very challenging to apply the existing desalination technologies of thermal distillation and reverse osmosis.

Dr. Shuguang Deng, NMSU assistant professor of chemical engineering, examines solar panels with Prajwal Vikram, NMSU chemical engineering graduate student. NMSU photo by Darren Phillips.

However, Deng said the research facility is not yet ready to test his membrane distillation process, so the pilot test will take place at NMSU instead. The salinity of NMSU's water - about 1,000 parts per million total dissolved solids - is less brackish than the Tularosa Basin groundwater, but Deng says he will compensate for this by adding enough salt to mimic the Tularosa Basin groundwater.

His current grant will end in May 2006, but he will apply for another one to help fund his work. Sandia National Laboratories has expressed an interest in helping with the new grant, Deng said.

The project is funded by the Water Resources Research Institute and by WERC (NMSU's Consortium for Environmental Education and Technology Development), and Competitive Advantage Consulting Ltd. of Santa Fe. Governor Richardson's Water Innovation Fund provided the original funding.

NMSU students working on the project include Prajwal Vikram, Amlan Chakraborty and Mahesh Dhanushkodi.

Meet the Researcher

Shuguang Deng

Assistant Professor
Department of Chemical Engineering
New Mexico State University
E-mail: sdeng@nmsu.edu
URL: http://cheme.nmsu.edu/~sdeng

Research Focus
nanostructured adsorbents and adsorption processes
fuel cell catalysts and systems
gas separation and purification
hydrogen and methane storage
potable water treatment technology

Education
1996 Ph.D. chemical engineering, University of Cincinnati
1987 M.S. chemical engineering, Zhejiang University, China
1984 B.S. chemical engineering, Zhejiang University, China

Experience
Shuguang Deng joined the faculty at New Mexico State University in 2003. From 1996-2002, he was Lead Research Engineer with The BOC Group, in Murray Hill, New Jersey. From 1987-1992, Dr. Deng was Section Manager, Research Institute of Nanjing Refinery, Nanjing, China.

Courses Taught
Transport Operation II: Heat and Mass Transfer
Process Instrumentation Laboratory
Fuel Cells Technology
Adsorption
Shuguang Deng currently is advising seven graduate students. In addition to his university teaching, he has been an instructor for high school, middle school, and elementary school students during summer programs.

Current Projects
Principal Investigator: *Solar Desalination of Brackish Water Using Membrane Distillation Process*, WRRI
Faculty Advisor for Prajwal Vikram: *Modeling of Mass and Heat Transport in Membrane Distillation Process for Brackish Water Desalination*, WRRI
*Adsorption and Diffusion of Gases in Metal-Organic Frameworks for Proton Exchange Membrane Fuel Cell (*NMSU WERC)
Modeling of Mass and Heat Transport in Membrane Distillation Process (The Ivanhoe Foundation)
Modification of Zeolite Adsorbents for Nitrogen and Methane Separation (Gas Separation Technology LLC)
Nanostructured Adsorbent for Arsenic Removal from Groundwater (Environmental Protection Agency)

NMSU photo by Darren Phillips

Nanostructured Getter Materials for Radionuclides Immobilization (Sandia National Laboratories)
Novel Adsorbents for H_2S Removal from H_2 for PEM Fuel Cell Application (Department of Defense)
Solar Evaporative Desalination Process (Competitive Advantage Consulting Ltd)
Integrated Reverse Osmosis and Membrane Distillation for Brackish Water (NMSU WERC)
Innovative Membranes for Water Treatment and Smart Sensors (Los Alamos National Laboratory)

Recent Publications and Patents
Dr. Deng has 16 peer-reviewed journal articles and 15 patents. Some of the more recent include the following:

Deng, S.G. 2005. Polymeric Adsorbents for Radium Removal from Groundwater. *Adsorption.* 11:805-809.
Deng, S.G. 2005. Sorbent Technology. *Encyclopedia of Chemical Processing.* Ed. by S. Lee, Marcel Dekker, Inc. New York, NY. pp. 2825-2845.
Pingali, K.C., D.A. Rockstraw, and S.G. Deng. 2005. Silver nanoparticles from ultrasonic spray pyrolysis of aqueous silver nitrate. *Aerosol Sci. Technol*. 39:1010-1014.

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FY 2006 USGS National Competitive Grants Program

Proposals due February 10, 2006

The 104G Request for Proposals for the FY 2006 National Competitive Grants Program is available on the WRRI website at http://wrri.nmsu.edu/research/researchprogram.html. The research priorities for FY 2006 differ only slightly from those of last year. Proposals are sought in not only the physical dimensions of supply and demand, but also quality trends in raw water supplies, the role of economics and institutions in water supply and demand, institutional arrangements for tracking and reporting water supply and availability, and institutional arrangements for coping with extreme hydrologic conditions. The amount available for research under this program is estimated to be $920,000 in federal funds. Any investigator at an institution of higher learning in the United States is eligible to apply for a grant through a Water Research Institute or Center. Proposals involving substantial collaboration between the USGS and university scientists are encouraged. Proposals may be for projects of 1 to 3 years in duration and may request up to $250,000 in federal funds. Successful applicants must match each dollar of the federal grant with one dollar from non-federal sources. Proposals must be submitted via the Internet at http://niwr.org/ by 5:00 PM, EST, February 10, 2006 and must be approved for submission to the National Competitive Grants Program by February 24, 2006 by the Institute or Center through which they were submitted.

Researchers interested in submitting a proposal through the New Mexico WRRI are urged to call Associate Director Bobby Creel at 505-646-4337 as soon as possible before submitting a proposal.

The ***Divining Rod*** is published by the New Mexico Water Resources Research Institute.

Staff:
M. Karl Wood, Director
Bobby J. Creel, Associate Director
Kristine Kitchens, Coordinator
Catherine T. Ortega Klett, Editor
Peggy S. Risner, Administrative Secretary
Deborah Allen, Records Specialist

New Mexico WRRI
New Mexico State University
MSC 3167
P.O. Box 30001
Las Cruces, NM 88003-8001

Phone: 505-646-4337
FAX 505-646-6418
Email: nmwrri@wrri.nmsu.edu

Web page: http://wrri.nmsu.edu

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New Mexico Water Resources Research Institute
New Mexico State University, MSC 3167
P.O. Box 30001
Las Cruces NM 88003-8001

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