



# CONSERVATION

A Newsletter Published by the New Mexico Water Conservation Alliance

## Los Alamos Moving Forward with Water Conservation

Julie Williams-Hill, Public Affairs, Department of Public Utilities • October 30, 2006



Robert Monday donates books on water conservation to the Los Alamos Library. From left to right: Charlie Kalogeros-Chattan, library manager; unidentified library patron; Robert Monday.

Better late than never, so says Robert Monday.

Monday is the Utilities Manager for the Department of Public Utilities, which produces and distributes drinking water to Los Alamos County and the Los Alamos

National Laboratory (LANL). While cities like Albuquerque and Santa Fe have had water conservation plans in place for years, Los Alamos County is just now joining the ranks. "We began the process of formalizing a water conservation program, after our elected officials adopted a Long-Range Water Supply Plan last August," stated Monday.

The plan, developed by Daniel B. Stephens & Associates, looked forward 40 years and assessed the current and future water demands in Los Alamos. It considered available water resources and their longevity, potential risks of contamination, and recommendations on a water conservation program. The plan recommends the department divert its 1,200 acre feet of San Juan/Chama water, and through water conservation measures, reduce the gallons per capita per day by at least 12 percent (approximately 168 million gallons a year).

"Initially there was a perception in our community that Los Alamos had an unlimited

*Moving Forward, continued on page 2*



## Water Education Fun

Katie Babuska

Eight years ago, the first Middle Rio Grande Children's Water Festival showed fourth grade students that learning about water, water quality and water conservation can be fun. Today, those students are 18 and old enough to vote.

Samie, a fourth grader, explained what he learned. "Today at the water festival I learned that mud can kill animals like fish. I learned that you should use less water when you take baths and turn off the water when you're washing your hands. My favorite part was when we got to see how pollution can go into the rivers and oceans. We had a good time."

Fun is top priority for festival presenters. They have 25 minutes to introduce water education to the students, and they work hard to make it count. Their goals are to:

- Serve as an introduction to water education,
- Urge teachers to use materials in their Teacher Resource Kits to follow-up water education, and
- Offer teachers the opportunity for a follow-up classroom visit/outreach.

"When I was young, I learned about water, but I never learned it in a fun way," says Allie Wilson, a Del Norte senior.

*Water Fun, continued on page 3*

## Inside...

Los Alamos Moving Forward with Water Conservation .....	1
Water Education Fun .....	1
Be Watersmart... Because Every Drop Counts! .....	4
Bernalillo County Develops Water Conservation Plan .....	4
Meter Audits in Rio Rancho .....	6
Drought Summit Raises Concerns about New Mexico Climate Change ...	6
Join the Alliance .....	7
Water Conservation Study Has Surprising Results .....	7
Chris Garcia remembered .....	8



Participants of the "Efficient Turfgreen Irrigation Workshop" learn how to do a water audit for irrigating their lawns.

*Los Alamos Moving Forward  
continued from page 1*

amount of groundwater," Monday explained. "The Long-Range Water Supply Plan helped to educate our community that regardless of the amount of water in the aquifer, we are in danger of exceeding the limit of our water rights as permitted by the Office of the State Engineer." Monday says that with an estimated increase in water demands from LANL and the county, it is clear the community needs to make some changes to ensure sufficient water in the future.

The plan provides the community with a path forward, says Monday. "Last September we converted our contract with the U.S. Bureau of Reclamation to a Repayment Contract for our San Juan/Chama Water. This form of contract gives us the security we need to begin lining up funding for construction of a diversion project." He says a feasibility study has already been developed, and the next step is to conduct an environmental assessment/environmental impact statement in accordance with the National Environmental Policy Act.

*Diverting San Juan/Chama water is just part of the solution*

The department is looking to reduce the gpcd by 12 percent or more by expanding the county's effluent reuse capabilities, reducing leaks, and implementing a conser-

vation plan. "We now know how much water we need to conserve. As such, we can tailor a water conservation plan to meet and hopefully exceed that target," Monday confirmed. Through talks with other communities about their water conservation efforts around rebate programs, water wasting ordinances, tiered rates and public education, Monday says his department has formed a committee to determine which measures will work best for Los Alamos. The goal is to have an official conservation plan by the end of March 2007.

To ensure resources were available to water customers who wished implement their own water-wise landscaping, the department donated over 44 books and 5 videos to area libraries.

In the meantime, the department has begun to raise awareness and encourage voluntary water conservation among its customers. "We didn't want to surprise our customers: One day they could use as much water as they liked, and the next, impose water

restrictions. We wanted to ease the citizens into the culture of water conservation."

Even before the Long-Range Water Supply Plan was approved, the department's board adopted a water rule in July 2005 that prohibits water wasting and encourages water conservation through an odd/even watering schedule. Because it is a rule rather than an ordinance, customers are not penalized for noncompliance. Monday says even though there are no fines, the majority of customers have been doing their best to comply.

*Promoting the seven xeriscape principles*

The department also teamed up with the Los Alamos Cooperative Extension Service to create a 2006 wall calendar with color photographs of water-wise Los Alamos properties and water conservation techniques based on the seven xeriscape principles. Last December the calendar was mailed free of charge to every area household and business. Monday says the calendar was very well received, so the department plans to do another one for 2007.

Other outreach efforts included a well-attended summer series of free water conservation workshops with Judith Phillips, Jim Knopf, and various professors from New Mexico State University. Topics were water harvesting, drip irrigation, efficient turf irrigation, plant selection, designing with nature, and xeriscape principles, to name a few. Information was also included with utility bills between March and September, again focusing on water conservation techniques based on the seven xeriscape principles.

To ensure resources were available to water customers who wished implement their own water-wise landscaping, the department donated over 44 books and 5 videos to area libraries on topics such as appropriate plants and turfs for the Los Alamos area, water harvesting, and drip irrigation. Authors included Judith Phillips, Jim Knopf, Robert Kouric, and Sally Wasowski.

*Water Fun, continued from page 1*

Wilson, and other Del Norte Environmental Club members presented an activity called *Water Jeopardy*. She says this game was modeled after the TV game show and tests kids' water-knowledge. She was surprised at how the students challenged themselves. "I was impressed with the festival. It was way bigger than I imagined, and so organized."

This year the two-day festival expanded to the Convention Center west complex to accommodate 100 more students. About 1,100 fourth grade public, private and home school students and teachers attended. Each class participated in five of the 23 hands-on activities. Water professionals presented most of the activities, but Del Norte and Albuquerque Academy students presented three.



There were hands-on activities for everyone.

### Clearly, the demand for water education is growing

There are over 7,000 fourth-grade students in Albuquerque and Rio Rancho public schools. This year a surprising number of teachers applied—150 representing 3,500 students, up from 85 teachers. However, venue and funding can only handle about 1,000 students, so

Festival evaluations show that students still have a tough time with two of the Festival's 6 Big Water Questions. They do not know where their drinking water comes from, and they have no idea how much water their families use in a day.



The Long Haul, one of many fun educational activities at this year's Waterfest.

schools that have never attended are given priority. The event is free and includes bus transportation.

Elizabeth Miller, an Albuquerque Academy junior and presenter of the activity, *Edible Aquifer*, said that the students she met think their drinking water comes from places like the river, sink, rain, even the sewer. She has presented her activity at a number of different festivals. "Every class is different. One class might know everything about aquifers, while another has never heard the word," she says. When asked what the secret is to reaching elementary kids, she says, make learning fun. "Connect with their emotions. Create a game or something they can do, and don't lecture them."

Elementary level water education is well worth the investment to create a livable community. "Water is a big issue in New Mexico," says Elizabeth Miller. "We live in

### Can you answer the 6 Big Water Questions?

1. Why is water so important to life, and how do all living things depend on each other?
2. What is the water cycle?
3. What is a watershed, and where does my drinking water come from?
4. What makes water clean or dirty? How do my actions affect water quality? How do other people's actions affect water quality?
5. How much water does my family use and how do my actions affect that amount?
6. Who are the other water users in our society?

a desert. We need to teach kids about environmental conservation." Allie Wilson agrees. "I was impressed that there is such a large community of water educators that cares enough to do this festival."

And care we do! Major donors and patrons include Albuquerque/Bernalillo County Water Utility Department, U.S. Bureau of Reclamation, Bernalillo County Department of Environmental Health, City of Rio Rancho, Albuquerque Convention Center/SMG, Intel, PNM, SAIC, New Mexico Utilities and Sandia National Laboratories/Lockheed Martin.

*For a complete list of sponsors, or more information about this or other Children's Water Festivals, contact Katie Babuska at 505-975-0036 or visit the festival's new web site at [www.waterfestnm.com](http://www.waterfestnm.com).*

*The site includes water education resources, an essay contest, and online applications for teachers.*

*The essay contest offers cash prizes and year-round communication with teachers about water.*

#### Alliance Scheduling Meeting

January 11, 2007, U.S. Bureau of Reclamation office, 555 Broadway NE, Suite 100, Albuquerque, NM.

#### AWWA Water Conservation Workshop

January 28-30, 2007 in Savannah, GA. Workshop offers information for implementing a conservation program. Topics include: water-use efficiency; ICI water-use sectors; conservation rate structures; cost/benefit analysis, and financial issues.

Information: <http://www.awwa.org/conferences/WC>

## Calendar

If you have an event that would be of interest to readers of the *Conservation Current*, email us at [chas@swcp.com](mailto:chas@swcp.com)

#### 12th Water Conservation and Xeriscape Conference

March 8-9, 2007 at the Albuquerque Convention Center.

Information: [www.xeriscapenm.com](http://www.xeriscapenm.com).

#### NM Rural Water Association 2007 Annual Conference

March 19-22 at Hotel Albuquerque in Old Town. Conference provides water and wastewater professionals the opportunity to learn about new trends, services and industry products. Network with peers, earn certification credits, and take the certification exam for all levels.

Information: <http://www.nmrwa.org/>

# Be Watersmart... Because Every Drop Counts!

*Cece Derringer, Director of Resource Development and Communications, Homewise*

The recent rains may have dampened our fervor about conserving water, but remember: We live in the desert, and the best time to conserve is when we have water from rain and snow. A snowy winter is predicted, so here are 5 easy ways to save water in your home:

1. Purchase low-flow appliances
2. Retrofit or replace fixtures with low-flow fixtures
3. Install a recirculating hot water pump
4. Catch exterior water with rain barrels and cisterns
5. Repair water leaks

## Indoor Water Use

The average person uses 70 gallons of water per day. If you switch to water-efficient appliances and change some of your daily water use habits, you can reduce your usage to under 40 gallons a day.

POTENTIAL SAVINGS:  
30 GALLONS A DAY.

## Clothes Washers

Most top load washing machines use 40 gallons per wash, while a front loader uses less than 20. Front loaders save energy with a fast spin cycle and adjust the amount of water to the load size.

POTENTIAL SAVINGS:  
20 GALLONS A DAY.

# Bernalillo County Develops Water Conservation Plan

*Kerry Bassore, Water and Conservation Planner, Bernalillo County Public Works Division*

Bernalillo County recently completed a water conservation plan that is considered the first step in promoting efficient and responsible water use for unincorporated areas of the county. This plan, designed to protect future water supplies for residents, considered several factors, such as the use of different water sources and new development in the area. Residents in these areas have less access to conservation information and incentives, and they are subject to different restrictions. This plan will serve as a guide for developing and creating a water conservation program to address these and other challenges in the unincorporated area of Bernalillo County.

The county contracted with Weston Solutions to develop this plan. Colleen Logan, who is the project manager for Weston Solutions, is past president of the New Mexico Water Conservation Alliance

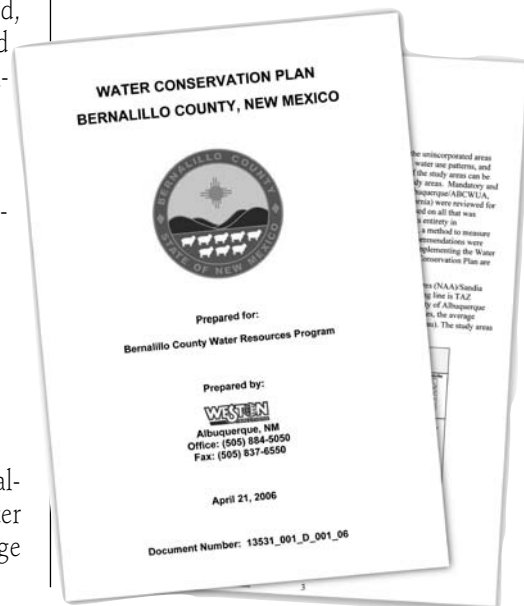
and a former water conservation officer for Rio Rancho, New Mexico.

The county held five public meetings to solicit input and assess public support. Most attendees agreed that water was a precious resource and should be protected, but ideas on how to protect it varied among participants. Most agreed the following should be done:

- Provide education programs
- Provide incentives (discounts on property taxes, rebates, etc.)
- Enforce existing ordinances
- Enforce stricter ordinances and standards for new development
- Provide free water audits

Developing a plan presented many challenges. In addition to different water sources, the unincorporated area has large

and small utility companies, domestic wells, and surface water irrigation. In some areas, residents may use all (or a combination) of these water sources. Data about domestic well and surface water use was



**Toilets**

Toilets made before 1994 use 3.5 to 7 gallons per flush (gpf). Newer toilets use 1.6 gpf or less. On the average, a person flushes five times a day.

POTENTIAL SAVINGS: 108 GALLONS A DAY FOR A FAMILY OF FOUR.

**Showers**

On the average, we shower for 8.2 minutes. Showerheads made before 1980 spray

5 to 8 gallons of water per minute (gpm). Showerheads made today spray 1.5 to 3gpm. Switching to a 2.0gpm showerhead could save you 1,496 gallons a year. A 1.5gpm showerhead could save 3,540 gallons of water a year.

POTENTIAL SAVINGS: UP TO 4 GALLONS A DAY FOR A FAMILY OF FOUR.



**Faucets**

On the average, you run a faucet about 8.1 minutes per day. Older aerators use 2.5gpm or less. Today's aerators use about 1gpm. If you use one of these newer aerators and do not run the faucet needlessly, you can save water.

POTENTIAL SAVINGS: UP TO 49 GALLONS A DAY FOR A FAMILY OF FOUR.

**On Demand Hot Water (Recirculation Pumps)**

Where is that water going while you wait for it to warm up? Down the drain. A recirculating hot water pump reduces waste and saves water.

POTENTIAL SAVINGS: UP TO 40 GALLONS A DAY FOR A FAMILY OF FOUR.

**Outdoor Water Use**

The normal household uses about 31% of its total water use for landscape. A simple solution is one of the oldest methods of water conservation: Collect the rain as it runs off your roof.

POTENTIAL SAVINGS: 550 GALLONS OF RAIN, PER INCH OF RAINFALL, FOR EVERY 1000 SQ. FT. OF ROOF.

**Leaks**

Leaks account for an average loss of 4 to 9 gallons per capita per day, nationally. Do not ignore a leaking or dripping faucet. One drip per second can waste 2,700 gallons per year.



**Be Watersmart!**

In 2005, the city of Santa Fe invested \$200,000 to seed the Watersmart program and match a state grant from Governor Richardson's Water Innovation Fund. Homewise, which provides resources for indoor and outdoor water conservation projects, administers the program. Watersmart offers Santa Fe city and county residents help with basic water conservation. Watersmart provides access to education, licensed contractors, below retail low flow appliances, construction management, and low 4% fixed financing for water conservation projects.

*Watersmart provides a free, customized Water Conservation Action Plan. This project, funded by Governor Richardson's Water Innovation Fund and the City of Santa Fe, is administered by Homewise Inc. Homewise is a Santa Fe based non-profit. For more information on saving water in your home, call Jody at 983-WISE(9473) or visit <http://www.homewise.org/watersmart/index.htm>.*

either not available or questionable in terms of accuracy. Without good water use data, it is difficult to target specific measures and quantify the success of those measures.

*Water use study conducted*

Seven geographic areas were evaluated and data were compiled on demographics, parcel, utility, domestic well, and surface water use. This information was used to estimate gallons per capita per day (gpcd) for each area and to prioritize conservation measures.

Conservation measures from other programs were reviewed to assess potential effectiveness. Sixty-four measures were selected, evaluated, and prioritized based on how effective and easy they would be to implement and on how much water they would likely save.

Next, a communications plan was developed with recommended methods for reaching and educating county residents

When a draft of the plan was completed, five public meetings were held to seek input. A summary of the plan and a list of the 64 measures were presented.

about water conservation. Recommendations included a mass media education and information campaign targeting all geographic areas of Bernalillo County with the intent to inform residents of new incentive programs and water conservation ordinances.

When a draft of the plan was completed, five public meetings were held to seek input. A summary of the plan and a list of the 64 measures were presented. Participants were asked to place green stickers next to their most preferred mea-

asures and red stickers next to their least preferred measures. Results were used to revise the plan and prioritize the measures.

In May 2006, the Bernalillo Water Conservation Plan and a Water Conservation Plan for Bernalillo County Facilities were presented to the Bernalillo County Board of County Commissioner. Both were adopted by a 3-0 vote.

Currently, the county is working on implementing measures recommended in the plan and developing an education outreach program, incentive program, and residential and small commercial audit program. It is also developing a water conservation ordinance.

*The Bernalillo County Water Conservation Plan and Bernalillo County Water Conservation Plan Appendices can be downloaded at: <http://www.bernalillo.gov/live/departments.asp?dept=7242>*



# Meter Audits in Rio Rancho

Marian Wrage, City of Rio Rancho

Although only 25 years old, the City of Rio Rancho is experiencing the wear and tear associated with aging. The effects can be seen in many of the city's large water meters, which are between 25 and 35 years old. To address the problem, the city is performing audits on commercial and irrigation water meters that are two inches or more in diameter. The goal of these audits is to increase the accuracy of water accounting. This not only helps us to better understand water use, but also increases revenue and reduces under-billed water.

Resource Wise, the company performing the audits, is a local water resource consulting firm specializing in resource management and conservation. From the

data collected, recommendations will be made to replace meters that have an accuracy outside of  $\pm 2\%$  of true. To date, a number of meters have proven to be either nonfunctional or running at less than optimal performance. Most of those are turbo meters, which inaccurately reported low water flows. In most cases, they are being replaced with compound meters designed to measure both low and high water flow.

To check meter performance, Resource Wise uses the MUN-1 flow meter for smaller meters and the Controlotron 1010 flow meter for larger ones. The Controlotron 1010 flow meter is one of the most accurate ultrasonic flow meters available and is used by Sandia National



Laboratory, IBM and a number of organizations requiring non-invasive accurate flow measurement.

In addition to the meter checks, the City of Rio Rancho has initiated a meter replacement program, where old residential meters are replaced with new automatic read meters (AMRs). With this new technology, the meter reader is able to drive down neighborhood streets and automatically record meter readings. These AMRs will practically eliminate the miss-reads that can happen with manual meter reading. Plus, it will take less manpower to collect meter data.

# Drought Summit Raises Concerns about New Mexico Climate Change

Cheri Vogel, Water Conservation Program Coordinator, NM Office of the State Engineer

At the Fourth Annual Drought Summit, *Climate Change: What Does it Mean for New Mexico?*, a group of prestigious and diverse experts presented the science, policy issues, and challenges surrounding the greenhouse effect in our state. Approximately 300 people attended this event at the UNM Continuing Education Building on October 18, 2006.

Dr. Jonathon Overpeck and Dr. David Gutzler started the day with a global and local scientific perspective of global warming. The world-wide scientific community overwhelmingly agrees that we humans and our activities are compounding the greenhouse effect, which in turn impacts global warming. One surprising statistic was that 72 percent of Americans now believe that companies can reduce CO<sub>2</sub> emissions without harming the economy, but making that reduction happen is in the hands of the policy makers. Dr. Gutzler outlined what climate change

means for New Mexico's water supply. It is well documented that temperatures will continue to rise and even accelerate, and what this means for precipitation in the southwest, he says, cannot easily be predicted.

However, scientists do predict a 5 percent decrease in precipitation by 2100, but the variability of supply in New Mexico in any given year is already 20 percent. What we know for sure is that with the rise in temperatures, snow will melt earlier in the season and impact stream flows and irrigation. The evaporation rate will rise



while soil moisture declines. This will stress vegetation and make it more susceptible to disease and fire. Episodic droughts are expected to be longer, up to 40 years, and more severe.

To see a complete report on the impacts of climate change in New Mexico, read the OSE Report, New Mexico Impact of Climate Change on New Mexico's Water Supply and Ability to Manage Water Resources at <http://www.ose.state.nm.us/ClimateChangeImpact/completeREPORTfinal.pdf>

## Other reports on climate change:

- The Governor's Stakeholder group report has about 70 recommendations for New Mexico; Western Regional Air Partnership broadened scope to include climate change; report due Dec. 2006.
- *Electrical Generation and Water, Office of Science and Technology Report, 2004 and Energy, Water Report to Congress*, coming soon.
- To see some of Dr. Overpeck's work, go to the University of Arizona, Department of Geoscience website at <http://www.climatehotmap.org/index.html>

You can access all summit presentations at: <http://www.ose.state.nm.us/DroughtTaskForce/summits.html>

# JOIN THE ALLIANCE

Name \_\_\_\_\_ Title \_\_\_\_\_

Organization \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_ E-mail \_\_\_\_\_

## Membership Fee:

\$25 Individuals    \$250 Corporations, Associations & Governmental Agencies

Your name will be added to the Alliance membership and you will be placed on the *Conservation Current* mailing list. You are also welcome to attend Alliance meetings, for which times and locations are posted at <http://wrrri.nmsu.edu>. Please send this form, along with your membership fee, to:

### **New Mexico Water Conservation Alliance**

369 Montezuma Avenue, #149  
Santa Fe, NM 87501 • Phone: 1-800-WATER-NM



## Water Conservation Study Has Surprising Results

*Katherine Yuhas, City of Albuquerque  
Water Utility Department*

On September 14, Val Little of the University of Arizona's Water Casa, presented the Alliance with findings from a water study titled "Evaluation and Cost Benefit Analysis of Municipal Water Conservation Programs." This study evaluated 89 cases from 44 programs in 11 states and presented an "apples to apples" comparison of the water savings that conservation initiatives are actually achieving. Researchers evaluated audits, device giveaways, washing machine rebates, land conversion rebates, toilet rebates, toilet



Toilet rebates came in fourth for water savings, which was a surprise since toilet distribution programs were number one.

distributions, and a category of other initiatives called rates/ordinances/surcharges/classes.

Results showed that the largest water savings was achieved with toilet distribution programs, followed by landscape conversions and audit programs. Toilet rebates came in fourth for water savings, which was a surprise since toilet distribution programs were number one.

Washing machine rebates achieved the fifth largest water savings. Audits and landscape conversions had the highest costs per acre-foot of water saved: \$1,284 and \$1,099, respectively. Toilet distributions had the lowest cost per acre-foot saved at \$181.

The study concluded there is no "one size fits all" conservation program. When developing programs, experts need to evaluate the economic and social factors for each service area under consideration; it is also important to keep good pre- and post-water use records for accurate evaluation purposes.

You can access the study at  
<http://cals.arizona.edu/AZWATER/awr/marapr06/specialprojects.html>

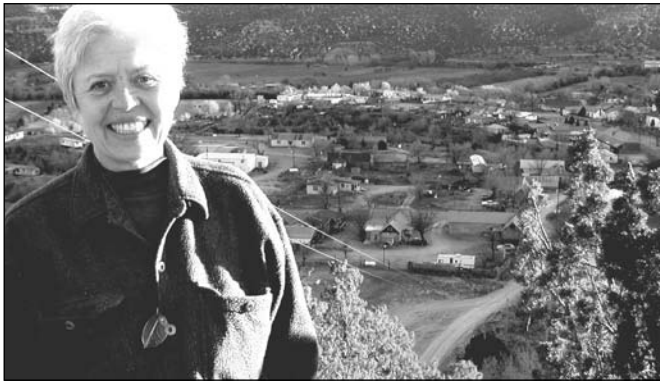
NON PROFIT  
ORGANIZATION  
US POSTAGE PAID  
ABQ., NM  
PERMIT NO. 1322

## New Mexico Water Conservation Alliance

369 Montezuma Avenue, #149  
Santa Fe, NM 87501

The *Conservation Current* is a quarterly publication of the New Mexico Water Conservation Alliance, an organization of municipal and industrial water conservation professionals dedicated to water conservation education and networking. *Current* articles may be reprinted for use in other publications by crediting the *Current* as the source.

Kristina Anderson is editor of the *Conservation Current*. Design is provided by Kenesson Design, Inc. Send article submissions and requests to chas@swcp.com. Production is funded by the U.S. Bureau of Reclamation; printing is by Downtown Printing. Thanks to Katie Babuska, Kerry Bassore, Cece Derringer, Julie Williams-Hill, Cheri Vogel, Marian Wrage, and Katherine Yuhas for their contributions.



## New Mexico Water Loses a Friend

Susan "Chris" Garcia • 1943-2006

Chris Garcia on a mesa overlooking the Pecos River Valley and her Villanueva home.

Chris Nunn Garcia, a longtime New Mexico friend of water died in Albuquerque of lung cancer on July 23. Readers of the *Current* may know Chris as its recent editor, but she was probably most recognized for her work to bring together the often-adversarial community of ranchers, farmers, pueblos, environmentalists, lawyers, scientists, and state and municipal entities. Although a woman of great intellect and a highly regarded academic in her own right, graduating from the University of New Mexico

(B.A. with distinction, 1975) and later receiving a Ph.D in natural resources economics and law from UW Madison, Chris was drawn to community organizing. Over the years, her work focused less on theory and more on the complex issues of New Mexico's water community.

Curious and inquisitive, Chris threw herself into everything she touched. This was true in her professional work as well as her friendships, where she appreciated the value in everyone's unique position.

Her genuine interest in the perspectives of others is why so many people felt that Chris understood them and why her work was often much larger than herself. She worked in academics, public policy research, and community service, all of which she pursued with her characteristic charm and single-minded devotion. Of one project in which she was involved, a colleague stated, "Chris was recorder, institutional memory, and conscience." She will be missed by all who were fortunate enough to know her.

*A scholarship honoring Chris has been established at the UNM Water Resources Program. Contributions to the fund may be made and addressed to: Water Resources Program, MSC05 3110 1 UNM, Albuquerque, NM 87131.*