



## In the state

THE ASSOCIATED PRESS

### Firefighters make progress on blaze

TAJIQUE — Fire crews were doing mop-up operations Monday on a 5,580-acre fire that burned six homes and 10 outbuildings in central New Mexico's Manzano Mountains. Residents who had been evacuated last week were allowed to return home Sunday.

"The fact we've secured most of the fire perimeter and this weather ... has allowed them to make a decision to let the evacuees return home," said fire information officer Victoria Fox.

The fire had forced 400 people to evacuate from Tajique, the Inlow Baptist Youth Camp and nearby rural suburbs of Sherwood Forest and Forest Valley.

Cooler weather — along with light wind and high humidity — have aided firefighters battling the Big Spring Fire on the east side of the Manzano Mountains.

### Forest officials welcome campers

SANTA FE — A moist winter and the promise of monsoons are keeping national forests in northern New Mexico open for camping and campfires

# NMSU gets grant for desalination program

BY NMSU STAFF

The Institute for Energy and the Environment through New Mexico State University's College of Engineering and the Water Resources



Research Institute received an award for \$929,000 from the Office of Naval

Research as part of the NMSU Water Security Program (Desalination).

The NMSU proposed research and development project in partnership with General Electric Water and Process Technologies is anticipated to create significant knowledge leading to improvements in current desalination processes and reduced costs, benefiting military and civilian communities. The partners will conduct applied research using a desalination system that will allow parts modification for optimizing material technologies and capital costs.

The project will make use of the Brackish Groundwater National Desalination Research Facility (BGNDRF), located in the Tularosa Basin, in Alamogordo. The basin has extensive brackish (containing 1,000 to 10,000 total dissolved solids

"TDS" more salt than fresh water) and saline water resources (10,000 to 30,000 TDS); within a 5-mile radius, water ranges in salinity from 2,000 to over 100,000 parts per million (PPM) based on TDS.

Information gathered through the course of the project will also enable NMSU to build a Web-based cost/benefit model program, designed to be user friendly and operable without advanced degrees or specialized training. It will recommend site-specific options for desalination technology.

"Water quality and quantity continue to be important issues for inland arid regions of which New Mexico is a prime example," said College of Engineering Dean Steven Castillo. "Development of new, inexpensive technologies to tap into the large underground brackish water reserves in New Mexico is an important part of the strategy in providing safe, inexpensive, clean water for New Mexico's population. The ONR grant will enable us to further push the boundaries of technology in our quest to meet these challenges."

Saline waters constitute approximately 97 percent of the world's 1.4 billion cubic kilometers of water, while the majority of fresh water is hidden underground in aquifers or

frozen in glaciers or ice caps. More than 50 percent of countries in the world will likely face water stress or water shortages by 2025, and by 2050, as much as 75 percent of the world's population could face water scarcity (United Nations, 2003). Supplementing fresh water supplies through cost-effective desalination technologies would provide significant relief to the limited fresh water resources throughout the world. IEE is addressing water quality and quantity issues on several fronts.

IEE's 18th International Environmental Design Contest featured as one of its tasks: Inland Desalination Operation and Disposal in Rural, Isolated Communities. The challenge, sponsored by the American Water Works Association Research Foundation, invited students to develop and demonstrate a low-cost, energy efficient, simple, and reliable system for use in brackish water reclamation. The system had to be able to produce fresh water for various sized communities throughout the Southwest.

The ONR grant will allow NMSU students to benefit from a number of applied-science opportunities. Students will support the deployment of the desalination R&D system, including commissioning, operation, and mainte-

nance. They will become proficient in capturing and analyzing relevant data and providing recommendations for process changes and optimization, as well as implementing recommendations whenever appropriate. Students will also play fundamental roles in the theoretical modeling of desalination processes and in comparative analysis to other methods. Along with NMSU researchers, GE engineering/R&D personnel will be deployed to the site to act as mentors to key students on the project.

Inland desalination has great potential for expanding water reclamation, purification, and renewable energy use and distribution. Saline researchers will work to produce affordable technologies that address growing demands for water, particularly in arid areas like New Mexico.

"The project includes an educational incentive for NMSU students working to develop advanced water treatment technologies to reduce the cost of creating new freshwater sources of water by 25 percent over the next three to five years, as federal funding enables," said Abbas Ghassemi, IEE executive director.

The technology, GE's Aquamite 3 Electrolysis Reversal (EDR) system, has a water recovery of up to 94 percent. It is capable

of desalting up to 12,000 PPM, which will encompass the water chemistries available at the planned test site. Ongoing R&D will consider pros and cons of the myriad of technologies that currently exist for brackish water desalination. Economically efficient equipment that can provide maximum water from limited resources will exponentially increase in importance as water scarcity becomes more prevalent in the United States and around the world.

The NMSU College of Engineering integrated three Centers of Excellence to form the Institute for Energy and the Environment. IEE partners include WERC, a consortium for environmental education and technology development, Southwest Technology Development Institute, a renewable energy research and development group, and Carlsbad Environmental Monitoring and Research Center, a nuclear waste-management and monitoring center.

For more information, contact Abbas Ghassemi, IEE Director at (800) 523-5996 or (575) 646-2038, or visit <http://iee.nmsu.edu> or [www.werc.net](http://www.werc.net).

"Eye on Research" is provided by New Mexico State University. This week's feature was written by M. Therese Shakra.