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Water Current Newsletter

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# Water Current

## Innovative Groundwater Cleanup Technique being Featured in EPA's 'Technology Profiles'

LINCOLN - Researchers at the University of Nebraska call their groundwater clean-up technique innovative, yet simple.

The U.S. Environmental Protection Agency (EPA) agrees.

A two-page description of a spray irrigation technique to remediate volatile organic compounds (or VOC's) from groundwater, that has been successfully field-tested by UNL researchers, will soon be published in the agency's annual "Technology Profiles."

Nearly 25,000 copies of the publication are distributed nationally at conferences and symposiums, as well as to "Environmental decision makers and others interested in innovative technologies," said Paul McCauley of EPA's National Risk Management Research Laboratory in Cincinnati, OH. It also will be listed on EPA's "Superfund Innovative Technology Evaluation (SITE)" Internet site.

"This is a very valuable reference guide and marketing tool for technology developers," said McCauley.

The technique was developed and tested by a team of investigators led by UNL hydrochemist Roy Spalding.

It has proved to significantly reduce trace levels of contaminants, or VOC's, in groundwater by simply pumping the water through common sprinkler irrigation systems. The sprinklers are capped with off-the-shelf nozzles producing a fine spray.

"The fine spray releases contaminants to the atmosphere where they disperse and most of them rapidly degrade in sunlight," said Spalding, director of UNL's Water Sciences Laboratory.

"The nozzle is the heart of the system. It has a very small opening that emits a high velocity stream of water (and) as the water leaves the nozzle, it strikes an impact pad and forms a fine film," he continued.

The technique was successfully tested in 1994 and 1995 in a seed corn field near Hastings that is part of an EPA "Superfund" cleanup site. It was demonstrated to EPA personnel at the same location last summer.



**NU Research Technician Jeff Toavs collects water samples during a demonstration of a spray irrigation technique that releases groundwater contaminants to the air. The technique, demonstrated at an EPA "Superfund" cleanup site near Hastings, is being published by the EPA as an innovative, alternative method to groundwater remediation. Photo - Roy Spalding.**

"This is a very simple, cost-effective and efficient technique that has a wide range of uses for cleaning-up contaminated groundwater," said Spalding.

While the fine spray allows VOC's to be released harmlessly to the atmosphere, the water itself is left to irrigate crops.

Testing at the Hastings site confirmed the technique's ability to significantly reduce trace levels of solvents such as trichloroethylene (TCE), trichloroethane (TCA) and tetrachloroethylene (PCE), as well as trace

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# Funding Sources Explored; Award Recognizes Stewardship

## from the DIRECTOR



Bob G. Volk

As this issue of the *Water Current* goes to press, I have great uncertainty and some reservations as to the future of water sciences research in Nebraska that is supported by the Nebraska Research Initiative, or what we refer to as the NRI. Many of you know that the NRI has provided very significant funding for University of Nebraska faculty across the state to research solutions for many of our problems in the water sciences area.

Water is our state's single most valuable natural resource and my fervent hope is that we make a good case for continued strong support from our university administration for these important research dollars.

There is hope for the future, however. Several very positive developments relating to possible future federal grant programs and the "Nebraska Mandates Management Initiative" have arisen. This initiative helps small and rural governments better cope with and understand public health and environmental protection laws, regulations and issues. Public water systems in our smaller communities are a primary focus of this initiative. The Mandates Initiative is also receiving considerable attention on the national level and has already attracted significant financial resources to Nebraska.

Funding is at the very heart of research committed to meeting our water challenges and the competition for those dollars has become increasingly fierce.

Also, a new federally funded program, called the "Fund for Rural America," will provide up to \$100 million in new competitive grant dollars to states. I believe Nebraska is well positioned to take advantage of this opportunity. Grant proposals will be due in late April and I will keep you informed of where and how some of these funds may come to be utilized here in Nebraska.

\*\*\*\*\*

In late January I was very pleased and honored to accept the annual "Water Guardian" award presented by the Nebraska Fertilizer and Ag-Chemical Institute at their agribusiness exposition in Omaha. With thousands attending it was also a good opportunity to renew old friendships. Our center works very hard to convey the message of good water stewardship to all Nebraskans and I felt the award was some vindication of our efforts in that area. An important example of our commitment to spreading the good stewardship word is that we have a difficult time keeping publications on Nebraska water in stock, due to the high number of requests for them.

Partnerships with the Nebraska Department of Environmental Quality (NDEQ) have helped greatly in funding a large number of these in-demand publications.

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Finally, our Water Center was again chosen to be the lead institute in handling proposals for the North Central region USGS funding. We have mailed a call for proposals and anticipate another excellent chance at receiving funds to support further water research.

## Water Current

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# Prevention Helps Safeguard Drinking Water

Jack Daniel might best be called a zealous and vigilant drinking water sentry. When Nebraskans tap a glass of water from a public system, Daniel and his guardians are at work.

"Regulation is a necessary part of overseeing drinking water quality, but preserving that quality through prevention programs is preferable," Daniel said recently in an interview with the *"Water Current.."* He administers the state health department's environmental health protection section that oversees drinking water quality issues and programs.

The section also regulates well drillers and pump installers, asbestos removal and disposal of low-level radioactive waste.

"We spend a lot of our efforts on prevention," Daniel said from his Lincoln office.

People in his section help in such areas as siting and construction of water wells, regular cycles of public water system inspections and helping train municipal water operators. Those efforts have paid-off handsomely for those who use public water...and of course, that's just about everyone.

"There hasn't been one reported illness attributable to water from a public system anywhere in Nebraska since 1969," he points-out.

But Daniel is also quick to note that the health department hasn't kept that nearly 30-year record without many partners.

"To keep that kind of record going, you have to stay in front of people with educational and preventive programs and to do that as well as we have, we work closely with many partners," he said.

Those partners include the state department of environmental quality, Nebraska Rural Water Association, Nebraska League of Municipalities, state environmental training center, the Nebraska chapter of the American Water Works Association (AWWA), the Nebraska Well Drillers Association, the Lincoln-based Groundwater Foundation and a statewide system of natural resource districts, or NRDs.

"The NRDs are big players in both education and prevention," said Daniel, "And with increasing regulation, they're probably going to get even more involved."

Another big player is University of Nebraska educational and research programs dedicated to water quality, such as those at UNL's Water Center/Environmental Programs unit.

"The university offers help, research data and support that oftentimes isn't available anywhere else," said Daniel. The Conservation and Survey Division is another that has routinely helped smaller communities find reliable sources of clean water and with wellhead protection and well drilling education programs, he said.

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***"There hasn't been one reported illness attributable to water from a public system anywhere in Nebraska since 1969,"***

*- Jack Daniel, State Dept. of Health and Human Services*

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Helping county planning commissions plan future Sanitary Improvement Districts (SIDs) has brought another group of players on board. Another focus is getting communities to share knowledge, expertise and qualified water operators.

County and community leaders have to understand the importance of qualifying operators, ongoing training and system maintenance, since many delivery systems are aging.

"Water delivery systems in the state tend to be rather old, which means that preventive maintenance and qualified, knowledgeable operators become even more important in meeting current standards for safe water," said Daniel.

The challenges of rapidly aging systems and competition for qualified operators loom even larger when factored against the fact that many of the state's municipal systems are relatively small.

"Small systems have to meet the same federal and state mandates as large ones," said Daniel.

Those mandates are ever-changing.

New Safe Drinking Water Amendments of 1996, signed by President Bill Clinton last August, include several new provisions municipalities and other public suppliers must comply with.

One is a law requiring each public water system to mail an annual report to consumers that includes information such as the source of their water, contaminant levels in it and any health concerns that might be associated with a violation of a drinking water standard.

The law also requires the U.S. Environmental Protection Agency (EPA) to study and prepare new risk assessments for radon and arsenic, as well as other potential contaminants.

The amendments also require states to license public water operators, something Nebraska has been doing for many years.

"Concern over safe drinking water is such that we are going to see increasing regulation, but we're also seeing regulation that gives state and federal agencies more flexibility. Things like cost of enforcement and research are being taken into account," said Daniel.

Regulatory issues being discussed on the national level include mandatory filtration and chlorination of drinking water, but for the most part, those issues are being handled state and local levels.

"As far as we are concerned here, preventing problems and maintaining regulatory compliance continue to be our guiding philosophies, with enforcement being a last resort," said Daniel.

*- By Steven W. Ress*



## EPA Features Clean-up Technique

### From Page 1

levels of fumigants carbon tetrachloride (CT) and ethylene dibromide (EDB), among others.

Fumigants at the test site allegedly stemmed from a grain elevator, while the solvents allegedly are attributable to an abandoned landfill and industrial sites located near the elevator.

"The average cleanup cost for such Superfund sites currently can reach \$27 to \$30 million, while using the sprinkler technique could reduce those costs to \$500,000 or less," Spalding estimates.

Much of the savings stem from using off-the-shelf irrigation systems and simple technology.

"They have registered it as an alternative and innovative technique to VOC remediation and that's about as close to full-fledged acceptance by the EPA as it gets," Spalding continued.

"The technology also is being used at the Lindsey Manufacturing CERCLA site in Nebraska and at some U.S. Department of Agriculture (USDA) managed grain elevators being remediated by Argonne Laboratories," said Spalding.

"There are hundreds of carbon tetrachloride contaminated sites associated with grain elevators in this region where this technology could easily be implemented," Spalding said. Carbon tet was

once a commonly used grain fumigant.

Co-principal investigators in the research are Mary Exner Spalding, professor, UNL Conservation and Survey Division; and Dennis Alexander, professor, UNL Electrical Engineering Department. Participating staff from the Water Sciences Laboratory include Mark Burbach, Li Ma and Jeff Toavs.

The project is sponsored by a U.S. Department of Agriculture Cooperative States Research Service grant and the Nebraska Research Initiative through UNL's Water Center/Environmental Programs unit.

- By Steven W. Ress

## Health and Human Services Department Certifies Nebraska Water Operators

It doesn't matter whether you live in Omaha or Alvo, or just get a drink at an I-80 rest stop. If you use public water anywhere in Nebraska, a certified water operator will be at work.

Some 2,500 operators are certified in at least one of six classifications. They work in about 1400 public water systems across the state...systems ranging from metropolitan cities like Omaha to mobile home courts and Sanitary Improvement Districts (or SIDs); even roadside cafes.

JoAnn Wagner, administrative assistant for the State Department of Health and Human Services' Environmental Health Protection Section, keeps the state's water operators informed through a newsletter she writes and edits. The newsletter keeps them up to date on training opportunities, continuing education and changes in regulation.

"It can be a challenge," said Wagner, the only woman in the state to hold both grade one and grade six certifications.

"I wanted to take the training and get certified, so I would better understand what the operators do and what their needs are," she said.

Certification grades are primarily based on the population a system serves and whether or not the water supply is filtered.

Those guidelines apply primarily to grades one through four. Grade five is for operators tending what are termed "Transient" non-community systems. Such systems are those not serving the same population day-in and day-out.

"An example of those are the state rest stops along Interstate 80," Wagner explained. There also are what she termed nontransient, non-community systems that serve the same general users on a daily basis, such as corporations, factories and the like.

Grade six is reserved for operators trained to test and repair backflow prevention devices.

Many times operators serve more than one system, particularly in the state's smaller towns and villages that are close to one another and can't afford their own fulltime operator. The only requirement is that the shared operator be certified to run the largest of his or her multiple systems, said Wagner.

Training and examination are done across the state by the Department of Health and Human Services

and recertification is required every three years. Grade four certificates (systems serving no more than 2,000 and not treating their water) can be earned by taking a two-day course, or through correspondence. Week-long classes are held to train those certifying in grades one, two, three and six, said Wagner.

Certification is currently state regulated and all but Idaho require it.

"They have a voluntary certification program," said Wagner.

Nebraska has been certifying operators since LB821 was enacted as the Safe Drinking Water Act in 1976, Wagner said.

When first enacted, certification was voluntary and community colleges did the training and certification. Some operators were "Grandfathered" after certification became mandatory, though they were required to take continuing training.

"We still have a few of those grandfathered operators," said Wagner.

Fewer than 10 of Nebraska's nearly 1400 public water systems rely wholly, or in part on surface water sourcing. The remainder are groundwater supplied systems.



# "S P L A S H" Is Interactive Intro to Nonpoint Source Pollution Through CD-ROM Game

LINCOLN — Nebraska school children may soon learn about nonpoint source water pollution through a high-tech CD-ROM video game being developed at the University of Nebraska-Lincoln.

The game is called "Splash" and should be ready for pilot testing this year.

"It teaches about nonpoint source pollution in a format that's fast-paced and entertaining," said University of Nebraska cooperative extension educator Diana Allen. "Our objective was to develop a program that could gain and hold the attention of young people and at the same time teach fundamental concepts about nonpoint source pollution," she continued.

"Teachers" in "Splash" are brightly-colored cartoon-type characters and objects that are found in a variety of settings: an urban residential neighborhood, in the city and on the farm.

"Players of the game learn how day-to-day decisions can impact water quality in our lakes and streams," said Allen.

Colorful, point-and-click screens that move and have sound, guide students through examples, such as how simply hosing-off a driveway could carry contaminants into storm drains, or how to keep common home pesticides and fertilizers from ending-up in surface and groundwater.

The game has already been presented at conferences in Chicago, IL, Kansas City MO., Minneapolis, MN and Washington D.C., Allen said.

"Input from students and teachers in the pilot test will be very valuable to us before we distribute the game nationally," which Allen hopes will happen in time to make it available to students by the beginning of the 1997-98 school year.

In developing the game, Allen

joined forces with Dr. Ed Vitzthum, environmental programs coordinator for UNL's Water Center/Environmental Programs unit, after discovering they were working on parallel programs. Both programs had been funded by the U.S. Environmental Protection Agency through the Nebraska Department of Environmental Quality.

"It seemed a natural for us to combine projects, since we were headed in very similar directions and agreed that an interactive video held the promise of reaching a lot of students," said Vitzthum.

Allen had begun work on a nonpoint source pollution project targeted on the Wehrspann Lake Watershed Project, while Vitzthum was developing a nonpoint source pollution educational kiosk when

they combined forces, and resources, to produce "Splash."

Partial project funding came from the Papio-Missouri River Natural Resources District.

The computer game soon to be pilot tested in several schools is targeted for classroom use by sixth through ninth grade students, Vitzthum said.

Helping develop and produce the CD-ROM were Dr. Corey Brubaker, extension educator at the Southeast Research and Extension Center in Lincoln, and Bruce Sandhorst, instructional technology coordinator at UNL's Information Services.

"Several of Bruce's student interns also put a lot of time and effort into this project," said Allen.

Work on Splash began in early 1995.



One of the many colorful and interactive teaching screens in "Splash," a CD-ROM game on nonpoint source pollution. The game will be pilot tested and should be ready for distribution later this year.





# Water News Briefs

## Register for Groundwater University

The Groundwater Foundation and Nebraska Public Power District will present "Groundwater University" at Jeffrey Lodge near Brady June 12-14.

GU is a three-day adventure for junior high and high school students in the Nebraska Sandhills, an area rich in groundwater resources. Students will explore the connections between ground and surface water, conduct water quality experiments and watch a professional well driller practice his trade. They'll see groundwater oozing out of the ground at the headwater of Whitetail Creek and learn about endangered species and what's being done to protect them.

Enrollment deadline is March 14 (students will be notified of selection by April 4). A GU grad school is available to students in grades 7-12 who successfully completed a session of GU between 1994 and 1997. Grad school project development is July 1-Aug. 29.

For more information, contact The Groundwater Foundation, P.O. Box 22558, Lincoln, NE 68542 or e-mail the Water Center/Environmental Programs at UNL at [sress@unlinfo.unl.edu](mailto:sress@unlinfo.unl.edu). GU is spon-

sored by NPPD, with additional support from the USDA Natural Resources Conservation Service, Lincoln and W.C. Foxley and E.P. Taiganides (outstanding project award sponsors).

## "Expedition" Planned for Children's Groundwater Festival

An "Expedition" into the wonders of the Children's Groundwater Festival will greet participants in this year's annual festival in Grand Island, March 24-26.

The Expedition includes a behind-the-scenes tour the day before the festival begins to let participants observe set-up, see training sessions and meet with presenters.

The following day is a tour of the festival and encounters with the more than 3,000 Nebraska children expected to attend the event.

On the final day, participants meet with organizers in a morning seminar. Included in the Expedition package is a dusk visit to the Platte River to view migrating Sandhill cranes and a visit to the historic Mormon Trail.

The Children's Groundwater Festival was organized in 1989. In the last eight years it has introduced more than 22,000 children to groundwater and related topics.

The festival concept has been replicated in nearly 40 states.

Those interested in joining the festival Expedition, or in learning more about the annual event, should call the Groundwater Foundation at 1-800-858-4844.

## Comfort, Morrison Earn Research Awards

Agronomist Steven Comfort and animal scientist Mark Morrison received the University of Nebraska-Lincoln's Agricultural Research Division Junior Faculty for Excellence in Research Award for 1996.

The awards, presented in December, recognize research excellence by junior faculty in NU's Institute of Agriculture and Natural Resources (IANR). Each received a \$3,000 ARD grant to support their research or professional development. Award

nominees are assistant professors with ARD appointments and five or fewer years of UNL employment.

Comfort's recent research has focused on cleanup of munitions-contaminated soil, where he is nationally recognized for work to remediate TNT-contaminated soils (see the December, 1996 issue of the *Water Current* for details).

Morrison's research focuses on rumen microbiology. His work emphasizes the molecular biology, biochemistry and metabolism of rumen microbes important in fiber, starch or high protein.

Both researchers joined UNL's faculty in 1992.

## Volk Presented Water Guardian Award

University of Nebraska Water Center/Environmental Programs Director Dr. Bob G. Volk was presented the Nebraska Fertilizer and Ag-Chemical Institute's "1996 Water Guardian of the Year Award." The presentation was made at the institute's 40th annual agri-business exposition in Omaha last month.

Volk has directed the Water Center/Environmental Programs unit at UNL since 1991, being first appointed director of the Water Center in 1990. The unit oversees water quality research and educational programs, as well as pesticide education programs and pesticide research.

The Institute annually recognizes outstanding individual contributions to Nebraska agriculture in five areas: Industry, Media, Education and Research, Government and Water Guardian.

"The awards are presented to those contributing the utmost to agriculture in Nebraska," Institute Director Bob Anderson said.

## Conference Deadline March 4

Deadline to register for the annual Nebraska Water Conference, "Managing for Drought and Climate Change," is March 4.

A registration flier giving details of the conference, to be held in Lincoln March 10-12, has been mailed to all *Water Current* subscribers. If you did not receive a flier, or need additional information on the conference, contact Tricia Liedle at (402) 472-3305 or e-mail [sress@unlinfo.unl.edu](mailto:sress@unlinfo.unl.edu)

**Free!**



## Tools for Drinking Water Protection

A free satellite videoconference from The League of Women Voters Education Fund and the PBS Adult Learning Service

March 19, 1997 2:30-4 pm ET ☐

For information call 1-800-257-2578

—or visit our Web site! [www.drinkingwater.org](http://www.drinkingwater.org)



THE LEAGUE OF  
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EDUCATION FUND





## FEBRUARY

**19:** Water Resources Seminar Series. "Factors Influencing Future Demand for Water." Ray Supalla, Biological Systems Engineering, UNL.

**18-19:** 1997 Platte River Basin Ecosystem Symposium. Holiday Inn, Kearney. Phone Rachael Herpel (402) 472-0891.

**20:** Water Policy Conference, PHREC, Scottsbluff. Phone Arnold Bateman, (308) 632-1335.

**25-27:** Working with Wetlands and Wildlife. Atlanta, GA. Phone (301) 588-8994.

**26:** Water Resources Seminar Series. "Crop Management: Challenges of Nebraska's Variable Climate." Panel: Norm Klocke, Biological Systems Engineering, UNL; and Joel Schneekloth, NU extension educator, Republican Valley Demonstration Project.

**25-27:** "Working with Wetlands and Wildlife." Atlanta, GA. Phone (301) 588-8994.

## MARCH

**5:** Water Resources Seminar Series. "Drought Management on Range and Pastureland." Pat Reece, NU Panhandle Research and Extension Center.

**8-9:** Fourth National Marina Research Conference. Irving, TX. Phone Rachel Calabra (401) 874-6224.

**10:** Clean Water Celebration. Peoria Civic Center, Peoria, IL. Phone (309) 246-8403.

**10-12:** Annual Nebraska Water Conference and the Great Plains Symposium: The Ogallala Aquifer. "Managing for Drought and Climate Change," Lincoln. Contact Bob Kuzelka at (402) 472-3305 or Steve Ress (402) 472-9549.

**19:** Water Resources Seminar Series. "The Effects of Drought on the Management of Natural Resources." John Turnbull, Upper Big Blue Natural Resources Dis-

trict; and Dayle Williamson, Nebraska Natural Resources Commission.

**19:** "Tools for Drinking Water Protection," a free videoconference sponsored by PBS and the League of Women Voters. Local satellite broadcast 1:30 to 3 p.m. Phone DeLynn Hay (402) 472-1625.

**25:** Children's Groundwater Festival, Grand Island. Sponsored by The Groundwater Foundation, Lincoln. Phone 1-800-858-4844.

**25-26:** Annual Mississippi Water Resources Conference. Ramada Inn Southwest, Jackson, MS. Phone (601) 325-7356.

**27:** Earth Wellness Festival. Southeast Community College, Lincoln. Phone Arlene Hanna or Soni Erickson, (402) 441-7180.

## APRIL

**2:** Water Resources Seminar Series. "Drought Management in the Missouri River Basin: Resolving Conflicts Between Upstream and Downstream Users. Panel: John Ferrell, U.S. Army Corps of Engineers; and John Guhin, South Dakota Attorney General's Office.

**2-4:** National Pollution Prevention Roundtable Spring Conference. Denver Marriott. Phone (202) 466-P2P2. E-mail 75664.3520@compuserve.com

**6-9:** Sixth Multidisciplinary Conference on Sinkholes: Engineering and Environmental. Holiday Inn University Plaza, Springfield, MO. World Wide Web at

<http://www.uakr5on.edu/geology/6th.html>.

**9:** Water Resources Seminar Series. "Can We Mitigate the Effects of Drought?" Don Wilhite, director, National Drought Mitigation Center.

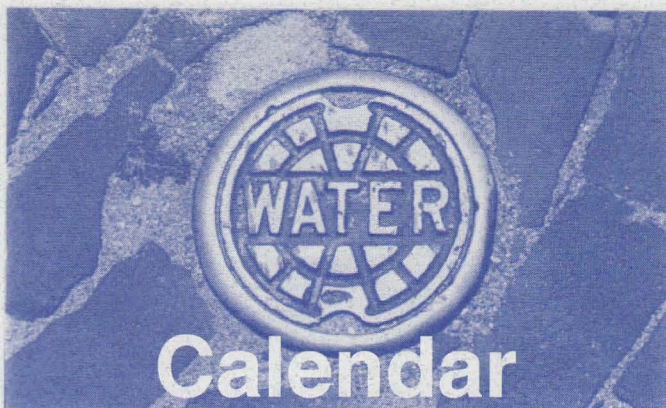
**16:** Water Resources Seminar Series. "Science of Climate Change: Certainties and Uncertainties." Bill Easterling, director, Great Plains Center for Global Environmental Change.

**23:** Water Resources Seminar Series. "The Effects of Weather Cycles and Climate Change on Prairie Wetlandscapes. Carter Johnson, Department of Horticulture, Forestry, Landscape and Parks, South Dakota State University.

**30:** Water Resources Seminar Series. "Planning for an Uncertain Climate: Policy Implications." Rosina Bierbaum, Directorate for Environment, White House Office of Science and Technology Policy, Washington D.C.

## MAY

**7-9:** "Communities Working for Wetlands:"



American Wetlands Month celebration. Radisson Plaza Hotel, Alexandria, VA. Sponsored by U.S. EPA, Terrene Institute and others. Phone 1-800-726-4853. E-mail: [terrene@gnn.com](mailto:terrene@gnn.com)

**18-21:** "Fifth National Watershed Conference: Living in Your Watershed." Nugget Hotel, Reno, NV. Phone John Peterson (703) 455-4387.

**20-22:** 12th Annual Conference on Hazardous Waste Research. Sponsored by the Great Plains/Rocky Mountain Hazardous Substance Research Center. "Building Partnerships for Innovative Technologies." Write: Conference on Hazardous Waste Research, HSRC, 101 Ward Hall, Kansas State University, Manhattan, KS 66506-2502.

**28-31:** IAIA '97 - Reflections on Water: Learning From History and Assessing the Future, New Orleans, LA. International Association for Impact Assessment. FAX (701) 231-1007.

## JUNE

**29-July 3:** Water Resources, Education, Training and Practice: Opportunities for the Next Century. Keystone Resort, CO. Phone (703) 904-1225. E-mail [awrahq@aol.com](mailto:awrahq@aol.com).

## JULY

**23-26:** Soil and Water Conservation Society Annual Conference, Toronto, Ontario, Canada. Contact the Center for Grassland Studies, 222 Keim Hall, UNL, P.O. Box 830953, Lincoln, NE 68583-0953 for information.

### "WHEN THE RAINS DON'T COME" 1997 WATER RESOURCES SEMINAR

Weekly lectures Jan. 15-April 30 (except March 26)  
on Wednesday at 3 p.m., L.W. Chase Hall  
UNL East Campus, Lincoln  
Phone (402) 472-3305 for more information

For satellite downlink locations  
Phone 1-800-755-7765



# Unit Library A Little Known Resource

It may be one of the best kept secrets at the University of Nebraska's Water Center/Environmental Programs.

For the past few years, the unit has been building a library of water and environmental publications and audio-visual materials in a former lab at UNL's Biochemistry Hall.

The collection at Room 107 Biochem won't come close to rivaling the university or Lincoln city libraries, but if you're looking for information on water, the environment and pesticide education, it may be just the ticket.

"It's a resource available to the public and we encourage people to take full advantage of the many materials it has to offer," said Water Center/Environmental Programs Director Dr. Bob G. Volk.

Library materials include symposium proceedings, surveys, thesis and dissertations, slide sets, video tapes and back issues of brochures and periodicals that might be difficult, or impossible to find anywhere else.

Publications have been catalogued and shelved alphabetically, by keyword. A few of the categories include: Best Management Practices, climate, drought and environmental restoration.

There also are sections on groundwater, irrigation, Nebraska

water quality, pesticides, resource directories, rural clean water, turfgrass, waste management, water education/policy and watershed information, to name others.

Back issues of periodicals dealing with water also are available. These include, but are not limited to, *The Water Current*, *Western Water*, *Water Science Reporter* and NU's Conservation and Survey Division's *Resource Notes*.

Among the library's more recent video titles are *Groundwater Protection: Looking at Solutions* (UNL),

*"How to Save Water and Save Money"* (Media International), USDA's *"Water 2000 Roundtable"* and a 45-minute video on Missouri River Basin flooding in 1993.

The library was largely compiled from materials that had been shelved, catalogued or stored in offices at nearby Natural Resources Hall, where the Water Center/Environ-

mental Programs unit is located.

"Pulling these materials together and cataloging them at one location makes them a lot more useable to people," said Volk.

The library is available by appointment to the general public, university faculty, staff and students.

To arrange an appointment, call Tricia Liedle or Steve Ress at (402) 472-3305. Internet users can make arrangements to use the library at [sress@unlinfo.unl.edu](mailto:sress@unlinfo.unl.edu).



Extension Assistant Clyde Ogg and Extension Pesticide Coordinator Larry Schulze (right and center) give an interactive display of their "Pesticide Education Resources" Internet site at UNL's 1996 Research Symposium. Unit staff also displayed at the 40th Annual Nebraska Fertilizer and Ag-Chemical Institute expo in Omaha in late January. Photo - Steve Ress.

## WATER CENTER/ENVIRONMENTAL PROGRAMS

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