8-1995

Water Current, Volume 27, No. 4, August 1995

Water Current

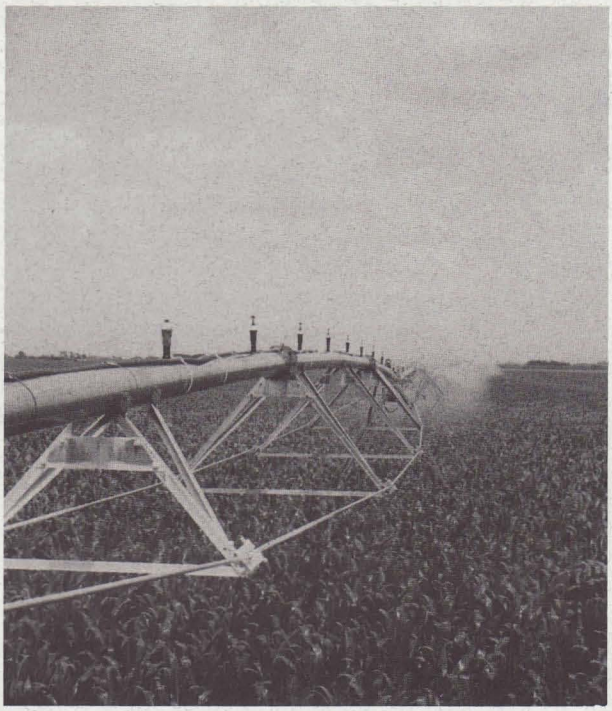
Tour stresses new technology

GRAND ISLAND — About 70 participants in the Nebraska Water Conference Council's annual Water Resources Tour saw the newest in water-related technology July 18-19 in south-central Nebraska.

This year, the tour took place in conjunction with the American Society of Agronomists-North Central Branch regional meeting and the Four States Irrigation Council's tour.

University of Nebraska-Lincoln faculty and administrators had coordinated the occurrence of the ASA meeting, annual water tour and the irrigation council's tour to bring about networking and information exchange. Participants had the chance to visit with other individuals interested in natural resources.

Sen. Bob Kerrey, D-Neb., delivered keynote remarks July 18 via satellite link from Washington, D.C.. The future of federal legislation related to agriculture and natural resources, such as the farm bill, is still uncertain, but the future of Nebraska's agriculture is promising, he said.



A center pivot irrigates an experimental corn plot at the Management Systems Evaluation Area near Shelton.

Nebraska is assuming a national leadership role in pointing the way for national legislation such as the Clean Water Act, according to Kerrey.

"I think we will be leading the country by coming up with strategies" that sustain economically and improve environmental quality at the same time, Kerrey said.

Local partnerships between private citizens and industry and governmental entities are the key to meeting conservation goals, he said.

Conservation doesn't come cheap, he said, adding that if the objective is clean water and improving water quality, time and money will have to be spent. Nebraska's progress in conservation over the last 10 years offers a "tremendous success story," Kerrey said. The success of the Conservation Reserve Program is a story that remains far too often untold and that is often not understood. Nebraskans need to publicize their success story, Kerrey said, by telling "how we're out there and making science work."

The future of Nebraska's agricultural industry is promising because of the increasing global demand for protein, Kerrey said.

Speakers stressed that budget cuts are a priority for Congress.

"The farm bill will certainly be budget-driven," said Dayle Williamson, director of the Nebraska Natural Resources Commission.

See Tour. Continued on Page 3.

VOL. 27 NO. 4
AUGUST 1995

Water Center supports Groundwater Guardian

Bob G. Volk

from the DIRECTOR

"You and your community protecting groundwater through the Groundwater Guardian Program."

Many individuals and communities across the United States are accepting this challenge to enter the Groundwater Guardian program, which is run by the Lincoln-based Groundwater Foundation.

The action program helps communities initiate activities to protect groundwater. The pilot year of the project was very successful, and as a result 47 new communities across the United States (five in Nebraska) have joined the program this year.

The Water Center/Environmental Programs unit has extended a cooperation agreement with the Foundation for Bob Kuzelka, assistant to the director of the Water Center/Environmental Programs unit, to continue serving as a consultant on the program for three more years.

In a relatively new program, Gov. Ben Nelson has asked an interagency working group consisting of all Nebraska state agencies with oversight of water quality and community economic development issues to develop a Nebraska Water Quality Mandate Strategy.

A draft document outlines an "alternative compliance process to help communities more cost-effectively comply with unfunded water quality mandates. The intent of the strategy is to allow communities to prioritize compliance based upon the greatest threats to public health, the environment, and the economic sustainability of the community."

Currently, several pilot communities are using this strategy. If it is determined that the strategy is effective and feasible, broader implementation will occur. University of Nebraska faculty and extension educators will be involved as the program develops.

The 1995 Western Nebraska/Eastern Wyoming Water Policy Conference in Scottsbluff was highly successful in bringing together state and federal agency personnel, faculty and private citizens to discuss water issues in the West. Existing and future water demands were the primary issues discussed. In most years, the Platte water flow does not meet all the needs of both Nebraska and Wyoming.

The 1995 Rocky Mountain Groundwater Conference is on "Science and Policy: Who's Driving Groundwater Management." Conference topics will include conjunctive management, policy options for regulation and cleanup and mathematical modeling. The conference will be Oct. 4-6 in Jackson Hole, Wyo. For more information, call 1-800-448-7801.

Water Current

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Inside the tractor cab, high technology assists farmers in making management decisions.

Tour.
Continued from Page 1.

"Some of the programs we're familiar with will disappear."

Eugene Glock of Kerrey's staff said many call for applied research. "People want a direct return on their investment," Glock said, "but you don't get practical research without some abstract research."

The fate of the farm bill is uncertain. Speakers said it is possible that the farm bill may not be passed this year, that it may turn into a seven-year farm bill, that it may be one of the last few farm bills or that it may be eliminated entirely.

Glock encouraged the audience to let their elected representatives know what the farm bill means to them as individuals. "Details save the day" when bills are discussed and marked up in Washington, D.C., Glock said.

In the afternoon the tour visited experimental and demonstration sites in south-central Nebraska.

At the Variable Rate Application Technology site, scientists use technology to automatically vary the rate of fertilizer applied based on location within a field. High-tech instrumentation including color sensors and ultrasound is used. The goal of the three-year project is to learn how to best use variable rate

Jim Schepers, soil scientist with the USDA - Agricultural Research Service, explains the use of new technology at the Variable Rate Application Technology Site.

nitrogen applications to meet economic and environmental goals.

Participants also saw a Mid-Nebraska Water Quality Project demonstration site and toured the Management Systems Evaluation Area near Shelton. The 320-acre MSEA site has been designed to research and demonstrate agricultural systems that affect groundwater quality. It is one of 5 sites in the Midwest established to evaluate the impact of agricultural practices on groundwater quality.

Lisa Asche, a graduate student, came from New Mexico to take part in the tour. Asche is working toward an M.S. in water resources administration at the University of New Mexico in Albuquerque.

"I'm just beginning my thesis on water policy, so I thought this tour would be beneficial," Asche said. "It definitely has been. I know the water issues surrounding New Mexico and California, but this is all new."

Paul Tebbel of the National Audubon Society's Crane Sanctuary near Gibbon said he joined the tour to learn more about the relationship between agricultural interests and improved environmental situations.

"It gives me a chance to find out

Tour participants Lisa Asche, New Mexico graduate student, and Stephanie Lindberg of the Environmental Protection Agency Region VII office, visit at a field site.

what's the latest and best in technology," Tebbel said.

Networking also is a draw for the tour, whose participants include farmers and environmentalists, scientists, agency representatives, news media representatives, students and private citizens.

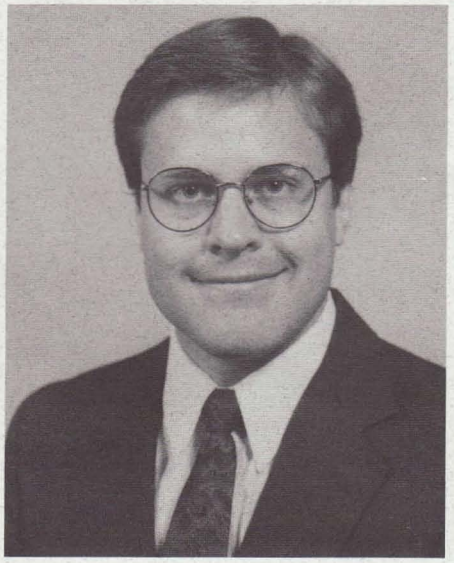
Stephanie Lindberg, who works in the Groundwater Office of the U.S. Environmental Protection Agency Region VII in Kansas City, Kan., said she enjoys the tour because it gives her a chance for local contact.

"I like getting out in the field and meeting the people," Lindberg said.

On July 19, participants toured the Diamond Plastics plant in Grand Island, Pioneer Hi-Bred facilities in Doniphan and Chief Ethanol fuels and T-L Irrigation in Hastings. They also visited the U.S. Meat Animal Research Center at Clay Center.

The tour was sponsored by the Nebraska Water Conference Council, the Nebraska Natural Resources Commission, the Conservation and Survey Division, the Water Center/ Environmental Programs unit and the Institute of Agriculture and Natural Resources, UNL.

Dvorak brings expertise in physical, chemical treatment processes to UNL



Bruce Dvorak

An interest in physical and chemical treatment processes brought Bruce Dvorak, a new faculty member at the University of Nebraska-Lincoln, to his career.

The civil engineer, who has a joint teaching and research appointment, began working at UNL in August 1994.

Physical and chemical treatment processes as applied to drinking water and hazardous wastes are Dvorak's specialty.

For Dvorak, his new position is a return to familiar grounds. He graduated with a bachelor's degree in civil engineering from UNL in 1987. After working for a short time in consulting in Kansas City, he began his graduate studies at the University of Texas-Austin.

He received both his M.S. in environmental engineering and Ph.D. in civil engineering from the University of Texas.

"I was really attracted to the environmental aspects of civil engineering," Dvorak said. An advanced chemistry class in high school sparked his interest with a slide show on UNL research in the area of water and wastewater treatment. He enrolled in an environmental engineering class and decided that he had found his niche.

In his dissertation, Dvorak modeled seven different chemical treatment processes to analyze which would make the most economic sense to treat groundwater contaminated by synthetic organic chemicals.

His current main research project takes a similar approach. It relates to drinking water, specifically, treatment methods to reduce the amount of disinfection by-product formation. Dvorak is examining the use of the Rapid Small Scale Columns Test (RSSCT). It is likely that the RSSCT will be used by major water utilities starting next year to comply with the Information Collection Rule of the U.S. Environmental Protection Agency. In Nebraska, the Omaha and Lincoln water utilities might be affected by the rule.

The RSSCT involves putting a small amount of carbon in a column and letting a small amount of water flow through the carbon. Using this process, researchers can estimate how effective the carbon is in removing natural organic matter. Natural organic matter is of concern because when high amounts are present and water is chlorinated, carcinogenic compounds may be created.

"The EPA is still trying to determine if they should require carbon treatment. They have to estimate how expensive it would be for utilities to use carbon," Dvorak said.

The modeling project will compare currently used and innovative techniques to determine the most cost-effective remediation option.

The project is funded in part by a Kansas City consulting firm. Consulting firms and utilities are interested in his project, Dvorak said, because his research helps to figure out how to apply the RSSCT. Some questions that need to be answered are, for example, where in the utility plant the columns could be placed, and whether it would be more effective to mix or replace the carbon with coagulants.

The project is expected to end this fall, but Dvorak said he hopes to extend research on certain aspects of the project. Of interest to Nebraska is the fact that the carbon column test seems very good at removing pesticides from groundwater, Dvorak said.

Another project Dvorak is leading focuses on the rational selection of a remediation method for underground storage sites. The project will begin this summer and is funded in part by the Water Center/Environmental Programs unit, UNL. Dvorak and graduate student John Schauble will develop and test a methodology for identifying cost-effective remediation technologies.

Soil and groundwater contamination from leaky underground storage tanks, primarily containing petroleum products, is a significant environmental issue in Nebraska and nationally, Dvorak said.

There are 793 active underground storage tank sites in Nebraska undergoing investigation and remediation.

Average remediation cost per site is $125,000. About 400 new sites have been identified per year for the past four years in Nebraska. The modeling project will compare currently used and new techniques to determine the most cost-effective remediation option.

One area of research Dvorak would like to tap eventually is pollution prevention. "I'm particularly interested in working with industries at modifying processes in order to minimize creation of pollutants," he said.

Nebraska Water News

Festival of Color to stress water quality

ITHACA — Visitors to this year's Festival of Color will be able to find out how to incorporate water quality concerns into urban landscaping. The Lawn and Garden Open House is set for Saturday, Sept. 9, at the NU Agricultural Research and Development Center near here.

Sponsored by the UNL Department of Horticulture, the open house will include displays of water-conserving plant materials, children's activities and landscaping activities. The free family event is scheduled for 10 a.m. to 4 p.m.

The festival will feature a residential landscape design seminar. A series of tent talks will address landscape design, flower arranging and fall vegetable gardening.

Festival of Color is supported by the U.S. Environmental Protection Agency Region VII through the Nebraska Department of Environmental Quality, Nebraska Nursery and Landscape Association, Nebraska Turf Foundation, Earl May Seed and Nursery, Limited Partnership, and the Water Center/Environmental Programs unit, Institute of Agriculture and Natural Resources and Agricultural Research and Development Center, UNL.

For more information, contact the UNL Horticulture Department at (402) 472-2854.

Missouri River again on endangered list

For a second year in a row, American Rivers, an environmental group based in Washington, D.C., has included the Missouri River on its list of endangered rivers. The Missouri River is listed in fifth place.

The river is endangered due to the contamination from industrial discharges and agricultural herbicides, according to the group. American Rivers also said the damming and channelization of the river have eliminated or endangered habitat for fish and wildlife.

CNPP&ID honored

The Central Nebraska Public Power and Irrigation District, based in Holdrege, has received a 1995 Leadership in Water Conservation award from the U.S. Bureau of Reclamation.

Crypto video out

In spring 1993, the largest documented waterborne disease outbreak in U.S. history occurred in Milwaukee. It affected more than 400,000 people, killing 100 and leaving hundreds of thousands ill. Cryptosporidium was identified as the cause. Several other outbreaks have occurred since, as widely separated as Georgia and Nevada.

The U.S. Department of Agriculture Working Group on Water Quality has produced a tape, "Cryptosporidium and USDA," featuring Ron Fayer, a research scientist with the USDA-Agricultural Research Services in Washington, D.C. Fayer presents the life cycle of *Cryptosporidium parvum*, the specific species affecting humans. He also discusses geographical distribution, groups at risk from cryptosporidiosis, the infective dose and clinical signs of the disease. The video also discusses methods of detection and chemical and physical disinfection methods.

The 25-minute video (ID number 40-VC-187) is available for loan ($5 charge) or purchase ($8 charge) from the NU Institute of Agriculture and Natural Resources Videocassette Library. Contact Betty Castan at (402) 472-3035 for more information.

ARDC to open house with symposium

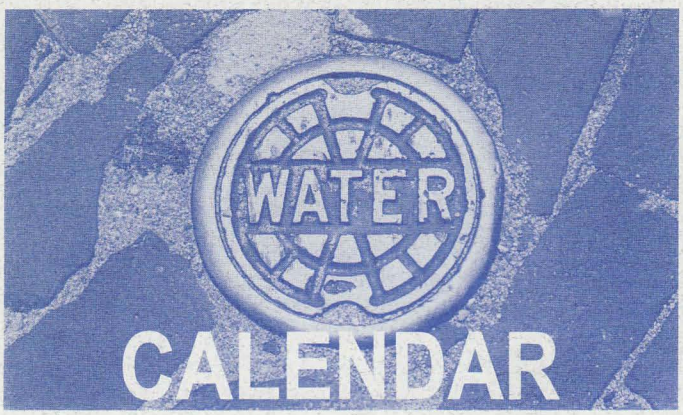
A regional symposium will take place in conjunction with the Research and Education Building dedication Oct. 9-10 at the NU Agricultural Research and Development Center (ARDC) near Ithaca.

Symposium theme is "Agriculture and People ... Building a Shared Environment." The Oct. 9 session will address integrated nutrient management for livestock operations, and the Oct. 10 session will address the integrated systems approach to managing the environment.

Faculty from the University of Nebraska and Cornell University, extension educators and producers will be among the speakers.

Paper topics include agronomic considerations in utilizing animal by-products, ruminant animal nutrient management options, urban landscaping and human-made riparian zones. A tour of ARDC animal waste research including the feedlot, compost yard and field will be part of the symposium.

For more information, contact Dan Duncan at (402) 624-8000.



August

Aug. 25-Sept. 4: Nebraska State Fair, Lincoln.

Aug. 30: Mid-Nebraska Water Quality Demonstration Project Tour, Hamilton County, Joel Anderson Farm. Contact South Central Research and Extension Center at (402) 762-3535.

Aug. 31: Mid-Nebraska Water Quality Demonstration Project Tour, York County. Contact South Central Research and Extension Center at (402) 762-3535.

Aug. 31: Mid-Nebraska Water Quality Demonstration Project Tour, Hamilton County, Deryl Bish & Clayton Higgins Farm. Contact South Central Research and Extension Center at (402) 762-3535.

September

Sept. 7: Mid-Nebraska Water Quality Demonstration Project Tour, 6:30 p.m. Franklin County, livestock waste composting operation. Contact Mick Reynolds at (402) 762-4444.

Sept. 9: Festival of Color, University of Nebraska Agricultural Research and Development Facility, Mead. 9 a.m. to 4 p.m. Contact Connie Backus-Yoder, UNL Department of Horticulture, (402) 472-8616.

Sept. 12-14: Husker Harvest Days, Grand Island.

Sept. 18-19: Nebraska Association of Resources Districts Annual Conference, I-80 Holiday Inn, Grand Island. Contact Sandi Steele at (402) 472-3383.

Sept. 18-20: National Rural Water Association Annual Conference, Atlanta.

Sept. 18-20: "Versatility of Wetlands in the Agricultural Landscape," Tampa, FL. Sponsored by American Society of Agricultural Engineers. Contact John Hiler at (616) 428-6327.

Sept. 22-23: "Priming the Pump: A Water Festival Workshop." Lied Conference Center, Nebraska City. Contact The Groundwater Foundation, 1-800-858-4844.

Sept. 30: Nebraska Water Conference Council Fall Meeting. East Campus Union, University of Nebraska-Lincoln. Contact Water Center/Environmental Programs, (402) 472-3305.

October

Oct. 4-6: 1995 Rocky Mountain Groundwater Conference, "Science and Policy: Who's Driving Groundwater Management," Jackson Hole, WY. Call 1-800-448-7801.

Oct. 8-11: The Annual Underground Injection Control and Ground Water Manager's Forum, sponsored by the Ground Water Protection Council. Adam's Mark Hotel, Kansas City, MO. Contact Ground Water Protection Council, 827 NW 63, Suite 103, Oklahoma City, OK 73116, (405) 848-0690.

Oct. 9-10: Regional Symposium "Agriculture and People … Building a Shared Environment" and Research and Education Building dedication, University of Nebraska Agricultural Research and Development Center, Ithaca. Contact Dan Duncan at (402) 624-8000.

Oct. 16-18: 40th Annual Midwest Groundwater Conference, Columbia, MO.

Oct. 18: Annual Groundwater Symposium of The Groundwater Foundation. "Source Water Protection: Making the Connection from Aquifer to Tap." Ramada Hotel, Lincoln. Contact The Groundwater Foundation, (402) 434-2740.

Oct. 23-27: WEFTEC '96: The Water Environment Federation's 68th Annual Conference and Exposition. Miami. Contact WEF at 1-800-666-0206.

Oct. 28: Nebraska Fish Farmers Association Bi-Annual Meeting.

November

Nov. 5-9: American Water Resources Association's 31st Annual Conference and Symposium, Houston. Contact John S. Grounds, Bechtel, 3000 Post Oak, Houston, TX 77252-2166, (713) 235-4921.

Nov. 12-14: 16th Annual International Irrigation Exposition and Technical Conference, Phoenix Convention Center, Phoenix. Sponsored by The Irrigation Association. Call (703) 573-3551.

Nov. 19-20: Groundwater Guardian Conference. Oak Brook, IL. Contact The Groundwater Foundation, Lincoln, at 1-800-858-4844.

January

Jan. 4-8: CONSERV96, "Responsible Water Stewardship," Orlando, FL. Sponsored by American Society of Civil Engineers, American Water Resources Association and American Water Works Association. Contact American Water Resources Association, 6666 W. Quincy Ave., Denver, CO 80235.

Jan. 15-17: Nebraska Turfgrass Conference.

No new surface water rights

Legislature puts moratorium on water appropriations

No new surface water appropriations will be granted in Nebraska until January 1, 1997 by the Nebraska Department of Water Resources (DWR) director. Included are all applications both new and pending but not granted prior to June 1, 1995.

This moratorium was imposed by LB 871 and enacted by the recently adjourned Nebraska State Legislature. Exemptions allowed by the law are for appropriations for totally nonconsumptive storage uses, temporary public construction uses of less than 5 cfs and applications by public water suppliers for induced groundwater recharge.

This was one of many last-minute significant water-related actions during a state legislative session that initially appeared nonproductive in the water policy area.

The justification cited for the moratorium was a continuing failure by the legislature to pass conjunctive use legislation such as LB 108. That bill will carry over to the 1996 session. During the interim the topic will be further studied by the Legislature's Natural Resources Committee as directed by LR 246.

LB 871 also 1) defines aquaculture as an agricultural water use, 2) authorizes natural resources districts (NRDs) to require water meters on any wells for purposes of acquiring data, 3) makes modifications in the Water Wells Decommissioning Fund and 4) allows transfer of priority dates among water wells that are subject to an induced recharge appropriation and within a single public water supply wellfield. These portions of the bill had an emergency clause and became effective June 1.

Other adopted water-related Nebraska legislation included:

- LB 99 establishes a new procedure to make it easier to transfer surface water rights within irrigation and other special districts.
- LB 251 establishes a method to transfer groundwater for agricultural and certain remediation purposes.
- LB 309 makes changes in the DWR regulation of certain dams to include extending their authority to waste effluent storage dams.
- LB 145 and yet another part of LB 871 revise provisions concerning replacement wells such as definitions, registration and permitting.
- LB 350 and LB 94 changed DWR hearing procedures and their ability to install recording gauges.

All newly enacted laws except for parts as noted of LB 871 become effective on September 9.

In addition to LB 108, two bills still in committee will carry over to the session which begins in January 1996. They are:

- LB 237 which would create a Task Force on River Assessment and
- LB 640, the Drinking Water Source Quality Act.

This was one of many last-minute significant water-related actions during a state legislative session that initially appeared nonproductive in the water policy area.

In appropriation activities the Nebraska Legislature provided two-year general funding of $6.9 million for the Soil and Water Conservation Fund and $4.34 million for the Resources Development Fund. They also authorized $825,000 from a state fee on fertilizer sales to the Natural Resources Enhancement fund in 1997. All of these funds can affect water though they are not available exclusively for that resource.

In addition to approving interim studies on conjunctive use (LR 246) the legislature authorized interim study resolutions related to property tax relief (LR 210 which could have an effect on Nebraska's NRDs), water contamination (LR 247), the organization and functions of Nebraska's state natural resources agencies (LRs 248 and 249) and environmental risk and risk assessment (LR 251).

More information about legislative bills and activities can be obtained from the Unicameral Information Office at (402) 471-2788.

— Robert D. Kuzelka, assistant to the director, Water Center/Environmental Programs, UNL

Mailing List Update

We are updating our mailing list. If you have a change of title, name, and/or address, or would like to have your name added or removed from the Water Current mailing list, please complete this form. If you know of individuals who might be interested in receiving our publications, please submit their names.

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Issues and Alternatives

Two publications analyze federal water legislation

LINCOLN — Two pieces of federal legislation have become lightning rods for pro- and anti-environment forces, which may hinder their passage in the near future, according to Roy Frederick, ag economist at the University of Nebraska-Lincoln.

The Safe Drinking Water Act and the Clean Water Act are still awaiting reauthorization by the U.S. Congress.

"Lots of political values are being expressed in these debates, far beyond the point of the biological, chemical and economic issues involved. The debate has become very politicized," Frederick said.

The main issues involved in the reauthorization of the Clean Water Act are wetlands designation, nonpoint source pollution and private property issues, he said.

To aid others understand the complex issues involved in each of these pieces of legislation, Frederick has authored two publications.

Extension Circular 95-815 A, "Extending the Safe Drinking Water — Issues and Alternatives," reviews the history of the Safe Drinking Water Act, Nebraska's stake in the legislation and the main issues involved in the debate.

Extension Circular 95-816 A, "Extending the Clean Water Act — Issues and Alternatives," reviews the basic issues involved in the debate over reauthorization of the act. The House recently passed the Clean Water Act, but it is unlikely that the Senate will pass it soon, according to Frederick.

Frederick said the House passed the Clean Water Act more "to make a political statement" than to pass legislation. "We're perhaps not any closer to passing it than we were a year ago," he said.

Last year, the congressional debate focused on the Safe Drinking Water Act, and it appeared for a while that the act might be extended that session. This year, the focus switched to the Clean Water Act, but again it seems unlikely that the act will pass, Frederick said.

Extensions of both acts would appear to require additional federal funding to assure full compliance at the state and local levels, Frederick said.

"But with current federal budget pressures, perhaps the best that can be hoped for is an appropriate rationing of available federal funds to meet the most critical objectives of both acts," he said.

Both publications were written in the months immediately prior to the beginning of the 104th Congress in 1995. Although the schedule for reauthorization and the approach to issues may have changed and change again, the publications will remain pertinent because they explore the basic issues and alternatives involved, Frederick said.

Production of the publications was supported by a grant from the Water Center/Environmental Programs Unit, UNL. For a free copy of the publication, contact your local Cooperative Extension office or the Water Center.

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