



WISE WATER WORDS

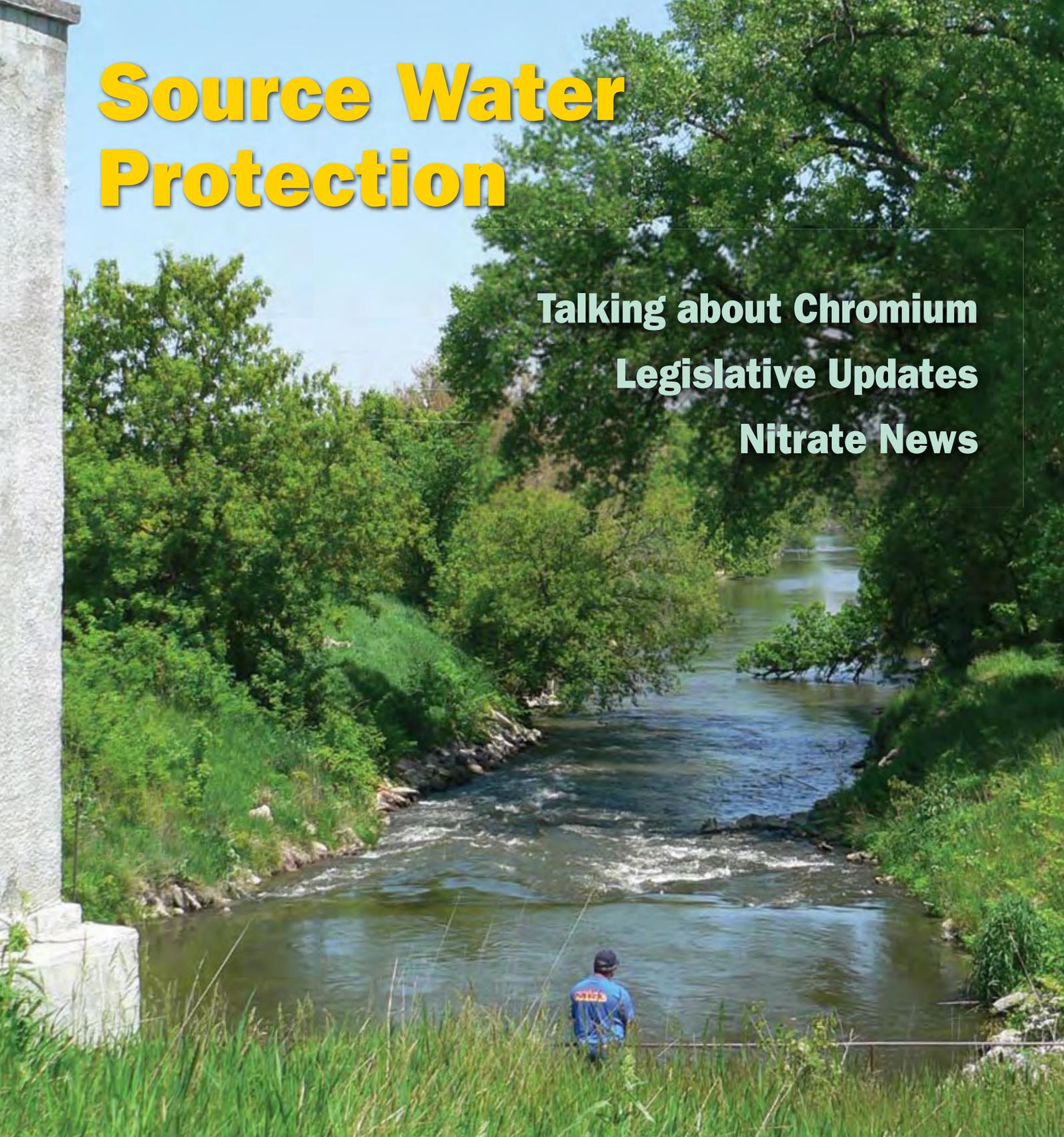
The Newsletter of
the Nebraska Section

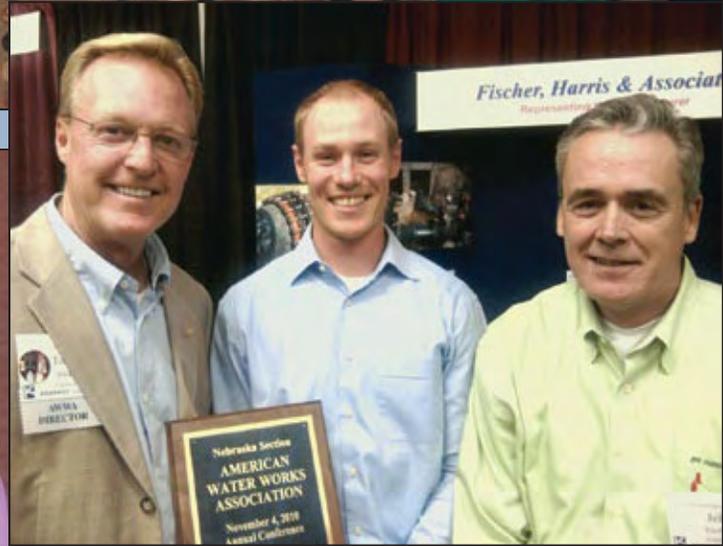
 American Water Works Association

SPRING 2011

Source Water Protection

**Talking about Chromium
Legislative Updates
Nitrate News**





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WISE WATER WORDS

American Water Works Association

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On the cover: Looking east toward the tailrace at the Spalding Power Plant and Dam complex in Spalding. The complex is listed in the National Register of Historic Places.

Chair's Corner



After a Successful 2010, Big Plans for 2011

by Teresa Konda, HDR

Here we are at the beginning of another new year — one that I hope is fulfilling for all of us. I am grateful to have the opportunity to serve as the Chair of the Nebraska Section of AWWA in 2011, and I am inspired by the extremely high level of dedication to the public and to the water industry exhibited by the members of this organization on a daily basis.

This newsletter is the first published under the new format. With this new layout, we have the opportunity for new and expanded features, which may include facility spotlights, reports on committee activities, and information on the NS-AWWA mentors in upcoming issues. We intend to make the best use of the new format, and we look forward to receiving your feedback and suggestions.

Under John Olsson's leadership over the past year, the Nebraska Section has worked hard to continue to improve our service both to the public and to our members. In 2010, the Nebraska Section:

- Formed the ad hoc Nitrate Initiatives Committee
- Completed draft versions of Standard Operating Procedures for all

committees and officer positions

- Established a permanent mailing address and phone number for the Section
- Achieved the third-highest membership retention rate of any AWWA section
- Signed contracts to reserve the new convention center facilities in Kearney for the 2012, 2013, and 2014 Fall Conferences

Thank you, John, for your vision and leadership!

At the Section Retreat in August 2010, we developed plans for new initiatives focused around three major themes:

- 1. Sustaining member education and training.** The Section has a strong history of offering training opportunities. We will continue the current events, and we will investigate ideas for additional one-day training sessions and workshops. We will also look at ways to re-energize the NS-AWWA mentorship program.
- 2. Increasing water industry advocacy in Nebraska.** The Section can play an important role in advocacy by further advancing the ad hoc Nitrate Initiatives Committee, in addition to continuing

to send representatives from our Section to the Washington Fly-In every year.

- 3. Strengthening Section committees.** The Section committees are where the work gets done. Some of the committees may need new ideas and members to stay energized. We will be considering methods for evaluating the effectiveness of the committees, and we also expect to finalize the SOPs for each committee.

AWWA provides great opportunities for our members to get involved and expand their leadership skills and professional networks. Please consider contributing your talents to the industry and to the Section by becoming active in one or more of the committees. The Archive and History committee and the Fall Conference Planning committee are two that especially need members and input. Contact the chairperson of the committee you are interested in, or any of the board members, for more information.

Thank you again for this opportunity to fill the Chair position. I look forward to working with all of you and to a great 2011.

HOW TO JOIN THE COMMITTEES MENTIONED IN THIS COLUMN

To achieve even more this year, the Nebraska Section needs your help. Contact these people to help contribute your time, skills, and talents to Section committees in 2011:

Nitrate Initiatives committee:

Ben Day, Olsson Associates, day@oaconsulting.com, 402-458-5693
Bruce Dvorak, UNL, bdvorak@unl.edu, 402-472-3431

Archive and History committee:

John Miriovsky, Lincoln Water System, jmiriovsky@lincoln.ne.gov, 402-441-5932

Fall Conference Planning committee:

Rob Pierce, League of Nebraska Municipalities, robp@lonm.org, 402-476-2829

Section Chair:

Teresa Konda, HDR, teresa.konda@hdrinc.com, 402-926-7063



American Water Works
Association

Director's Report



Our New Look, and AWWA Reaches Out by Tony Bilek, Mc2, Inc.

Greetings AWWA members and fellow water professionals. I'm sure you've noticed the new format in which the *Wise Water Words* are being delivered. This is the inaugural edition of this newsletter being published through national AWWA publishing. As you may know, Mari Matulka has stepped down as Nebraska section publications chair after many years of successful leadership. Brian Gongol has graciously accepted the publication chair position and has done an outstanding job coordinating efforts with AWWA publishing to develop a new format for our newsletter. Many thanks go to Mari and Brian for jobs well done.

ANNUAL FALL CONFERENCE

The time between our fall and winter issues of *Wise Water Words* is always significant. Hopefully most of you were able to attend our annual fall conference in Kearney last November. The conference was prepared and delivered in fine fashion thanks to Program Planning Chair, and current Section Chair, Teresa Konda. Congratulations to all of the individuals and utilities that received awards at the annual conference. AWWA Vice President Debra Kaye of the Cal-Nevada Section provided very timely and poignant addresses at the conference and provided complimentary feedback on the skills and talents of our board and membership.

WINTER BOARD MEETING

At the time of this writing, I have just returned from the National Board of Directors Winter Board Meeting. Charlie Anderson of the Texas Section (visiting dignitary in 2009) was elected President, Dan Hood (Indiana), Dennis Kelleher (New York), Gene Koontz (Pennsylvania) and Wayne Stiver (Ontario) were all elected to Vice-President positions. Allissa Lockett, project engineer at the San Antonio Water District was elected Director-at-Large, as was Rosemary Smud, sales

engineer at ACIPCO-Sacramento.

Executive Director David LaFrance detailed the 2011 AWWA staff business plan, posted on our section website for your reference. The plan lays a solid groundwork to address current issues and forge a successful business plan for 2011 and beyond.

The 2011 budget was approved with revenue forecasted at \$28,776,800, expenses at \$27,957,800 leaving a net revenue surplus of \$819,000.

The Joint AWWA-Water Environment Federation Resolution was approved. Efforts continue in working with WEF; this year's Washington Fly-In will have WEF dignitaries joining our Water Utility

representatives to discuss issues with members of the US House and Senate.

The special session on Saturday included a presentation on facilitating partnerships. We'll certainly be hearing more about alliances with other agencies that have synergistic potential.

AWWA-ACE 2011

Efforts are in place to coordinate Senate and House of Representatives visits during AWWA-ACE in Washington, D.C., June 12-16. AWWA Deputy Executive Director Tom Curtis will be providing guidance on logistics and assistance in arranging visits. Hopefully we'll have a healthy Nebraska contingent attending ACE.

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Water Reflections



How to Address Chromium Worries in a Way Customers Will Appreciate by Brian Gongol, DJ Gongol & Associates

Water quality issues are at the forefront of the public's attention right now. The Environmental Working Group is getting national media attention by raising questions about the public-health risk posed by chromium in drinking water, and attention continues to be paid to the proposed oil pipeline across the Sandhills. But the big headlines about those issues dwarf the much smaller headlines about issues most municipalities face from day to day — namely, finding ways to deliver high-quality drinking water safely and reliably in a time when nobody wants to pay more for their basic utility services.

While the prospect of an oil spill contaminating the Ogallala Aquifer makes for dramatic news coverage, water utilities face real and continuing challenges every day, trying to maintain aging service mains and water towers, manage rising energy costs and attract new workers to replace a growing number of retirees.

However, in that news coverage about possible disasters lies an opportunity to attract attention to the day-to-day issues we already face. One simple step utilities can take is to respond to news coverage via letters to the editor, press releases and stories on their own websites. A simple example might look like this:

“As attention is focused on the possible risks of chromium in municipal water supplies, the Huskertown Water Utility takes this opportunity to remind our customers that municipal tap water remains the safest, most carefully regulated and most environmentally friendly option for quenching your thirst. Our water quality exceeds the standards required of any bottled water available in stores, and is delivered to you 24 hours a day, 7 days a week for just pennies a day. (And we provide fire protection, too!) If new treatment methods are required to meet rising regulatory standards, we trust that you'll support our efforts

to continue delivering you the world's best drinking water.”

As new issues arise and attract public attention, utilities need to ride the wave and remind consumers that costlier treatment methods require higher rates. It's easy for people to mentally disconnect their demands for tougher standards from their responsibility to pay for what it takes to meet those standards. And if their utilities don't remind them, who will?

If you choose to engage the news media or the public directly about these emerging issues, here are a few suggestions:

- Reinforce whenever possible (if applicable) that your utility is municipally owned. The more ratepayers are reminded that they own the utility, the easier it is to dismiss the silly but common argument that rates are rising to accommodate “fat cats” out to make a profit. Ratepayers who take ownership in their utility are more likely to take ownership of the solutions needed to make those utilities better.
- Let people know that some possibilities (like an oil spill contaminating the Ogallala) are scary but not very likely — but that we face very real issues every day when aging mains break or when



Advancing



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careless users bypass backflow prevention systems and risk contaminating their neighbors' water with hazardous chemicals.

- Don't overlook the chance to invite people to become part of the solution to the water problems they perceive, by serving on utility boards, installing water-efficient faucets and appliances, or even by looking for jobs in the public water sector.

It's important not to carelessly dismiss people's worries — chromium could, in fact, turn out to be a serious overlooked issue, and there's no doubt that a major contamination of the Ogallala Aquifer would be catastrophic for many of Nebraska's public and private water supplies. But it's also important to place these risks into perspective: Shark attacks and fatal plane crashes are dramatic and scary, but they're also exceedingly rare. Yet tens of thousands of people are killed in the United States each year in car accidents. So while it's fair to acknowledge that the dramatic could happen, it's only responsible to remind people about the routine and avoidable. Just like reminding people to wear seat belts, utilities need to remind their ratepayers of the routine but insidious risks that can be avoided with good planning and cooperative customers.

Remember, people care (and worry) most about the things they put in or on their bodies, so it's natural for them to worry — perhaps even irrationally — about the news they hear regarding water quality. If you can serve as a reliable source of calm, reasonable information about their water safety and quality, then you won't appear to be on the defensive should something go wrong. And, if you're consistent enough about it, you may even find that your next rate increase or bond issue meets a more receptive audience.

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Nebraska News and Events

Norfolk Endures the Floods of 2010

by Chad Roberts, City of Norfolk Water Division, and Brian Gongol, DJ Gongol & Associates

Norfolk was hit by a record-setting flood last June. The Elkhorn River crested at 16.85 feet on June 16th — more than four feet above flood stage, and more than a full foot above its previous record, set in 1949.

In addition to mandatory evacuations and at least one bridge collapse, the municipal water and wastewater infrastructure were hit hard as well. By their nature, water treatment plants (especially well fields) are often found in low-lying areas. Norfolk's two water treatment plants are no exception.

When the sudden flooding hit Norfolk, the chief priority of the water department was to protect the source wells. The water division staff promptly went into action to ensure that the system could continue to serve the community. Their priorities:

- protect the affected wells
- inform the mayor
- coordinate with public safety officials

Wells 12 and 13 were the affected wells. Well 13 was built well above flood stage, so the water division disconnected power and closed the valves at the well site. Well 12 was built

at a lower elevation, so water division employees disconnected power and installed sandbags around the well site.

After the two threatened wells were protected, water division employees were largely at the mercy of the flood. Employees monitored river levels regularly and stayed in close contact with city officials about developments related to the flood. Despite the serious threat to the system, Norfolk never lost its water service.

Looking back upon the flood of 2010, the staff at Norfolk recommends that other water systems take precautions of their own, including:

- having an emergency plan
- having backup power generators
- having portable pumps available on site
- practicing an emergency plant shutdown

Most importantly, though, the Norfolk water division found that employee communication on all levels was the most vital factor in their response to the flood and the threat it posed to the community. While nature can be unpredictable, a coordinated response by a well-informed team can keep essential services working.

TIPS FOR EMERGENCY COMMUNICATIONS:

- Have a readily available staff phone tree and revisit it at least twice a year, or whenever someone joins or leaves the organization. As people rely more than ever on cell phones, their numbers change more often than in the days when everyone relied on home numbers and rarely moved.
- Know how to reach staff online in case phone service is lost. Can you reach your municipal e-mail accounts from home, or do you have to be at the plant to use them? Does everyone know how to access their city e-mail from home? If you can't get your city messages from home, have a list of backup e-mail addresses for everyone on staff, in case they can't get in.
- Phone trees and e-mail lists are a "push" method of getting information out to people; have a "pull" method, too (one where they can reach out to get information on their own initiative). Have a telephone number that everyone on staff can call for emergency instructions, in case they're separated from their home lines or their cell phone coverage is lost. Be sure that someone can update the message on that number remotely in case the plant becomes inaccessible. That number could be a landline at the plant or city hall, or it could be a cell phone number.
- Have a backup plan for reaching staff online that everyone knows how to use. Set up (and practice using, at least once a month) a dedicated account on a service like Twitter or Blogger, or a staff group or fan page on Facebook. Professional networking sites like LinkedIn allow you to create groups as well. Whatever the tool, make sure your backup system comes from a third party — not the city or your local Internet service provider. You don't want to be marooned in case the building that hosts the servers is damaged.
- Keep your regular communications tools in good repair, too. Make sure that portable radios work and always have a supply of fresh batteries nearby.
- Don't forget to include other stakeholders in your communications plan: Designate somebody to stay in touch with elected officials, other municipal departments, neighboring communities, NEWARN, NDEQ, Nebraska DHHS, EPA, and your local media. Better to have a complete list developed and be able to skip those you don't need than to realize you forgot someone important in the middle of an emergency.
- Make sure everyone involved has a copy of the plan and knows their role. Keep backup copies wherever you might need them — at home, in service trucks, at the plant, at city hall and at outlying storage facilities and pump stations. You should also keep a copy somewhere online where you can get it, even if you're on vacation or sitting in on an AWWA committee meeting.
- Above all else, don't be overwhelmed —just start somewhere and refine the plan as you go along. For more resources or help, contact Brian Gongol at (515) 97-WATER or brian@djgongol.com.

The Trouble with Nitrates

by Ben Day, Olsson Associates, with Brian Gongol, DJ Gongol & Associates

We welcome some of the first signs of spring: robins chirping, flowers emerging from the ground, and children taking their ball gloves out of storage. But one spring ritual that municipal water utilities could live without is the annual risk of high nitrate levels.

High nitrate levels are primarily a threat to the health of infants, leading to “blue baby syndrome.” When drinking water contains high levels of nitrates, the body converts the nitrates to nitrites, which react with the hemoglobin in red blood cells to keep the cells from carrying the amount of oxygen they should. The result is a low blood-oxygen level, which can cause the child’s mouth, hands, and feet to turn blue.

Healthy adults are ordinarily under no such threat; our bodies typically absorb comparatively large amounts of nitrates just from dietary vegetable consumption, and safely excrete them. Formula-fed infants are most at risk from exposure to high nitrate levels because water composes such a large portion of their diet, but some adults are susceptible, too, including dialysis patients, people with peptic ulcers and those with some genetic predisposition to the health risk.

The name “blue baby syndrome” is enough just on its own to terrorize water customers. Even worse is the fact that they can’t boil the nitrates out of the water — in fact, boiling simply concentrates the nitrates even more. This can give water customers a feeling of helplessness, since boiling is the only approach to water decontamination that many know how to conduct on their own.

The water industry, though, isn’t quite as helpless — even if the sources of nitrates are largely beyond our control. Nitrates are known to come from several sources:

- runoff from fertilized agricultural cropland and pastures
- runoff from livestock feedlots
- runoff from fertilized lawns around homes and businesses
- septic systems
- municipal wastewater treatment discharges
- natural leaching from nitrogen-fixing plants like legumes
- lightning (which naturally fixes atmospheric nitrogen into the soil)

All of these sources appear to contribute to the nitrogen pollution that leads to nitrates in the water, and the debate over source management can be contentious. Nobody wants to be blamed for causing something like blue baby syndrome. However, nitrates are highly mobile and can leach into groundwater wherever decaying plants, fertilizers, waste or other organic materials break down. There is also some evidence to suggest that nitrates can be highly persistent in groundwater, lingering for many years beyond the time of their initial introduction.



Agricultural runoff is one— but not the only— contributor to nitrates in groundwater.

Nitrates can be mitigated directly by limiting the land application of fertilizers (both natural and synthetic). From a regulatory standpoint, natural resource districts (NRDs) have some ability to create groundwater management areas to control the volume of nitrates introduced into the soil, which ultimately find their way into the groundwater. Regulations on wastewater discharge help minimize the impact as well. The Nebraska AWWA cooperates with agencies and organizations like local NRDs, the NDEQ, Nebraska DHHS, the Nebraska Department of Natural Resources, and the Nebraska Groundwater Foundation to develop these source-mitigation techniques.

Where regulations fail, though, public education can help farmers, homeowners and business owners alike realize that any excess nitrogen fertilizer they apply to their land not only contributes to water pollution, but represents a waste of their own expenditures. In a sense, all of that excess fertilizer that washes away and contributes to the nitrate problem is “money down the drain” to whomever paid for the fertilizer.

The EPA’s drinking water standard for nitrate is 10 mg/L (measured as N), and when a public system fails to stay below this maximum contaminant level, it is required to take corrective action. The standard was chosen because methemoglobinemia hasn’t been reported where levels have remained below 10 mg/L. It’s possible, though, that there could be chronic effects from long-term exposure to lower levels.

Many of our neighbors who rely on private wells fail to recognize the health risks from nitrates — which is especially unfortunate, since their wells are twice as likely to exceed the nitrate standard as community wells, according to the EPA. Moreover, it costs far more per gallon to provide treatment for nitrates on a private well than it does to treat for a community water system. We will address those treatment options for meeting the federal health standard in the next article in this series, appearing in the summer issue of *Wise Water Words*.

Nebraska News and Events

Taste-Testing the Best Drinking Water in Nebraska

by Mary Poe, Nebraska Department of Health and Human Services

“I would be very happy to accept this as my everyday drinking water.” This was the top rating possible for the municipal water supply samples submitted in the Best Drinking Water in Nebraska taste test held during the Nebraska Section AWWA 2010 Fall Conference last November. The seven official tasters thought that the submission from the City of Fremont was the closest to this distinction. None of the tasters gave Fremont’s water the lowest rating (“I can’t stand this water”). In fact, none of the water samples received the lowest rating.

Fremont officials, who did not submit a sample for last year’s contest, were humbled by the honor. Water Superintendent Larry Andreasen said, “It’s just good water, with no iron and very little manganese.” Fremont’s drinking water comes from groundwater wells and is then treated with chlorine and fluoride. A polyphosphate is also added for corrosion control. The city now plans to submit a sample in the “Best of the Best” taste test competition at the AWWA Annual Conference & Exposition (ACE) in Washington, D.C., June 12–16.

The second annual competition, organized by the Public Information Committee, is a fun way to promote the work of Nebraska’s public water systems, who work hard every day to provide safe drinking water. The other submissions were from the Dismal River Golf Club (Mullen), the City of Lincoln, Metropolitan Utilities District (Omaha), the City of Papillion, and the City of Seward. The City of Lincoln won the 2009 competition and went on to tie for 3rd place in the national competition at ACE.

While onlookers in the audience conversed over refreshments, the tasters took their duty seriously. They included a



mayor, a drinking water program administrator, an NRD manager, an engineering firm vice president, a utilities training officer, a public works project manager and the association’s national vice president.

A cameraman from ABC affiliate NTV was on hand to cover the event in Kearney, and John Olsson and Brian Gongol were interviewed for live newscasts. Brian also emceed the friendly competition, which was accompanied by a humorous and informative slide presentation on the theme “Great Moments in Water History.” Undoubtedly, the contest’s water samples have come a long way since 4000 BCE, when the Greeks first used charcoal filtration to improve the taste of their drinking water.

WATER OPERATOR TRAINING CALENDAR

Water operator training events will be held throughout the state over the coming 12 months. For more details on any event, visit www.awwaneb.org or contact our training partners at the League of Nebraska Municipalities at 402-476-2829.

- April** 13: Stuart
6: Lexington
7: North Platte
- September** 6: Ogallala (backflow)
20: Grand Island (backflow)
21: Wayne (backflow)
22: Beatrice (backflow)

- October** 4: St. Paul
5: David City
6: Norfolk
- November** 2-3: Kearney (Nebraska Section annual fall conference)
29: Bridgeport
- December** 1: Fairbury
13: South Sioux City
14: Fremont
15: Lincoln
- January** 4, 2012: Crete
5, 2012: Plattsmouth
24, 2012: Kearney



2011 Section Budget

Lynn Wegehaupt Retires from M.U.D. after 40 years

Lynn A. Wegehaupt of the Metropolitan Utilities District retired March 1 with 40 years of service to M.U.D. customers.



A native of Mitchell, S.D., Lynn earned a bachelor of science degree in mechanical engineering from South Dakota State in 1971, and a master's degree in business administration from UNO in 1980.

He joined M.U.D. in 1971 as an Engineer II, advancing to assistant design engineer, assistant superintendent of the Florence Water Treatment Plant, water supply engineer and administrative assistant to the President. He was promoted to superintendent of transportation in 1986 and to superintendent of maintenance in 1988.

Lynn is a Grade 1 water operator. He chaired the Nebraska Section AWWA in 1994, and was named a George Warren Fuller Award recipient in 1996. Lynn also served as chair of the Section's publication and scholarship committees.

Lynn and his wife, Marilyn, have a son and two daughters. Lynn plans to travel and play some golf.



INCOME	2010 BUDGET	2010 ACTUAL	2011 BUDGET
Section Allotment	\$11,050.00	\$11,050.00	\$11,050.00
Association Allotment	\$3,950.00	\$3,950.00	\$3,950.00
Multi-Section Allotment	\$650.00	\$504.90	\$650.00
Annual Meeting	\$10,800.00	\$14,623.21	\$43,000.00
Interest on Accounts	\$1,500.00	\$772.51	\$900.00
Advertising Income	\$6,550.00	\$900.00	\$0.00
Education: Pipe Workshop	\$3,000.00	\$3,285.88	\$0.00
Education: Preconference	\$0.00	\$0.00	\$1,800.00
Miscellaneous	\$0.00	\$0.00	\$0.00
Preconference	\$0.00	\$0.00	\$0.00
Safety Committee	\$0.00	\$0.00	\$1,300.00
Small Systems	\$250.00	\$0.00	\$250.00
Special Project Funding	\$0.00	\$0.00	\$0.00
SRF	\$0.00	\$0.00	\$15,000.00
WARN	\$0.00	\$0.00	\$0.00
Water for People: Golf Event	\$8,000.00	\$9,665.41	\$8,000.00
Water for People: Raffle - Fall Conference	\$1,500.00	\$1,961.00	\$1,500.00
Water for People: Trap Event	\$2,000.00	\$0.00	\$2,000.00
TOTAL INCOME	\$49,250.00	\$46,712.91	\$89,400.00
EXPENSES	2010 BUDGET	2010 ACTUAL	2011 BUDGET
Annual Fall Conference	\$0.00	\$0.00	\$30,000.00
Annual Meeting at Fall Conference	\$1,500.00	\$828.19	\$1,500.00
Audit	\$2,100.00	\$2,500.00	\$0.00
Awards	\$600.00	\$467.76	\$600.00
Bi-Annual Preconference	\$0.00	\$0.00	\$0.00
Board Conference Calls	\$500.00	\$557.58	\$500.00
Bonds for treasurers	\$250.00	\$100.00	\$150.00
Cross Connection Workshop	\$2,100.00	\$2,120.00	\$2,470.00
Director's Spouse (Meeting Expense)	\$250.00	\$258.90	\$300.00
Education: Education Committee	\$750.00	\$0.00	\$750.00
Education: LONM/NSAWWA Seminars	\$5,000.00	\$5,000.00	\$5,000.00
Education: Pipe Workshop	\$2,500.00	\$2,301.76	\$0.00
Education: Preconference	\$0.00	\$0.00	\$1,800.00
MAC Council	\$0.00	\$0.00	\$0.00
Membership	\$150.00	\$72.00	\$300.00
Miscellaneous (pens, postage, envelopes)	\$650.00	\$366.72	\$400.00
Officer Training: Membership Summit	\$0.00	\$0.00	\$0.00
Officer Training: Summer Leadership Workshop	\$1,500.00	\$340.76	\$1,500.00
Officer Training: WFP Workshop	\$0.00	\$0.00	\$0.00
PO Box	\$50.00	\$46.00	\$50.00
Public Information Committee	\$750.00	\$72.39	\$750.00
Publications: Advertising	\$0.00	\$0.00	\$0.00
Publications: Membership Directory	\$0.00	\$0.00	\$0.00
Publications: Wise Water Words	\$9,667.65	\$10,707.57	\$0.00
Regional Officer Meetings	\$1,000.00	\$1,270.35	\$1,500.00
Research Foundation	\$1,000.00	\$1,000.00	\$1,000.00
Retreat (Annual)	\$0.00	\$0.00	\$250.00
Safety Committee	\$200.00	\$0.00	\$1,525.00
Scholarships: Abel Wolman	\$1,000.00	\$1,000.00	\$1,000.00
Scholarships: Conference	\$0.00	\$0.00	\$0.00
Scholarships: Poster Board Competition	\$0.00	\$0.00	\$1,000.00
Scholarships: Stockholm Water Prize	\$500.00	\$500.00	\$500.00
Scholarships: Students	\$3,000.00	\$3,000.00	\$3,000.00
Scholarships: Top Ops	\$3,000.00	\$1,165.00	\$3,000.00
Secretary of State	\$0.00	\$0.00	\$35.00
Small Systems Committee	\$850.00	\$0.00	\$1,000.00
SRF	\$0.00	\$0.00	\$15,000.00
Student Activity	\$250.00	\$165.58	\$350.00
Tax Preparation (Annual)	\$500.00	\$520.00	\$550.00
WARN Conference	\$250.00	\$0.00	\$750.00
Washington Fly-In	\$1,500.00	\$0.00	\$2,250.00
Water for People (Event Expenses): Golf Event	\$4,000.00	\$5,454.37	\$4,000.00
Water for People (Event Expenses): Raffle - Fall Conference	\$700.00	\$753.72	\$700.00
Water for People (Event Expenses): Trap Event	\$200.00	\$0.00	\$200.00
Water for People (Payments to WFP): Golf Event	\$4,000.00	\$4,211.04	\$4,000.00
Water for People (Payments to WFP): Raffle - Fall Conference	\$800.00	\$1,961.00	\$800.00
Water for People (Payments to WFP): Sustaining Membership	\$0.00	\$0.00	\$0.00
Water for People (Payments to WFP): Trap Event	\$1,800.00	\$0.00	\$1,800.00
Water Utility Council	\$750.00	\$750.00	\$750.00
Website: Hosting	\$0.00	\$0.00	\$0.00
Website: Registration	\$0.00	\$0.00	\$100.00
Young Professionals	\$50.00	\$0.00	\$50.00
TOTAL EXPENSE	\$53,667.65	\$47,490.69	\$91,180.00
NET INCOME	-\$4,417.65	-\$777.78	-\$1,780.00

Nebraska Legislative Report

2010 Legislative Update by Jerry Obrist, Lincoln Water System, and Mari Matulka, M.U.D.

The Nebraska 102nd Legislature convened its 90-day session January 5; with adjournment scheduled for June 8. The Nebraska Section AWWA is following the proposals listed below. To see the entire bill proposal, go to the Unicameral's website: <http://nebraskalegislature.gov>.

LB 189 (COUNCIL):

Prohibits public employers from asking about a criminal record in a job application. A criminal record could not be an automatic bar to employment. The bill allows the employer to consider a criminal record when an applicant is a finalist for a position.

A public employer may refuse to hire an applicant:

1. If the applicant's record involves a misdemeanor involving moral turpitude or a felony if either conviction "directly relates to the particular employment"; or
2. If the applicant's criminal record involves a misdemeanor involving moral turpitude or a felony not directly related to the particular employment and the employer determines after investigation that the applicant has not been sufficiently rehabilitated to warrant public trust.

Completion of all aspects of a sentence would be regarded as a presumption that the applicant is rehabilitated.

Status: *Business & Labor, hearing held 1/24.*

LB 230 (SULLIVAN):

Exempts certain utility maps, records and drawings from the Freedom of Information Act.

Status: *General File, 2/22.*

LB 266 (SULLIVAN):

Amends the Open Meetings Act to allow a closed session to evaluate the job performance of a nonelected official or employee.

Status: *Government, Military & Veterans Affairs, hearing held 1/26.*

LB 484 (HADLEY):

Excludes certain soil sampling from the One-Call Notification Act.

Status: *Transportation & Telecommunications Committee, hearing held 2/7.*

LB 564 (FULTON):

Amends the Industrial Relations Act to provide that a public entity and labor organization can establish a procedure for the settlement of industrial disputes. If a procedure is not established, the amendment establishes a procedure that requires a mediator. An attempt to reach an agreement on a procedure



is required to establish a finding of a duty to bargain in good faith, which is a prerequisite to proceeding to the Commission of Industrial Relations (CIR).

Status: *Business & Labor Committee, no hearing scheduled.*

LB 674 (HARR):

Regulates the use of electronic monitoring of employees by employers. An employer engaged in electronic monitoring must provide prior written and signed notice to employees. An employer need not give notice when monitoring an employee engaged in a violation of law, a violation of legal rights of the employer or another employee, creating a hostile work environment or a criminal investigation.

Status: *Business & Labor Committee, hearing held 3/7.*

LB 682 (MELLO):

Creates the Major Gas, Water and Sewer Infrastructure Improvement and Replacement Assistance Act. Under the Act, beginning July 1, 2012, the sales tax levied upon all increases in gas or water utility charges for water or gas infrastructure programs will be placed in a separate state fund which will be available to such gas and water utilities for the funding of infrastructure replacement programs. The bill provides a similar benefit relating to sewer use fees for the City of Omaha.

Status: *Revenue Committee, hearing held, 2/24.*

LB 683 (MELLO):

Creates the Storm Water Management Commission. The Commission is required to study various aspects of storm water regulation, including the adequacy of storm water regulation, financing of storm water management and options for user-charge revenue mechanisms. The Commission must issue its findings and recommendations to the Legislature and Governor by November 1, whereupon the Commission ceases to exist.

Status: *Natural Resources Committee, hearing held, 3/10.*

Washington Report

Big Changes in the Offing on Fluoride

USEPA and the US Department of Health and Human Services (which includes the Centers for Disease Control) released a joint statement reaffirming the health benefits of water fluoridation, while also taking steps to ensure that no American gets unsafe levels of fluoride. HHS announced that it will take comment on lowering the recommended level for the addition of fluoride from the current range of 0.7–1.2 mg/L to a single value of 0.7 mg/L. At the same time, USEPA announced that it intends to consider tightening the Maximum Contaminant Level for fluoride.

HHS – ADDITION OF FLUORIDE

HHS reiterated its view that water fluoridation at 0.7 mg/L offers substantial benefits to public health. It moved away from a range for fluoridation to a single number in recognition of at least two factors: that we now get fluoride from other sources (such as toothpaste), and that regional differences in water consumption have evened out in recent decades. The first means that many of us already get some fluoride even before its added to the water, and the second means people in some parts of the country no longer drink appreciably more water than those in other regions, so the total recommended dosage can be achieved with a single number instead of a range.

It should be noted that utilities wishing to reduce the amount of fluoride they add to water may need to consult with and get approval from their state regulatory agency. USEPA regulations (specifically the Lead and Copper Rule) require that the primacy agency review and approve long-term treatment changes to ensure they don't interfere with corrosion control. While some experts believe that reducing the fluoride dose will not have a significant effect on corrosion control, review by the state may still be required in many instances. USEPA is working with state drinking water authorities to develop guidance and direction on this point. Furthermore, some states require the addition of fluoride unless a community opts out, and/or require that a utility choosing to fluoridate do so at a prescribed dose. Close consultation with the state is recommended in all cases.

USEPA – MAXIMUM CONTAMINANT LEVEL

As recommended by the National Research Council in 2006, USEPA will reconsider the MCL for fluoride, currently 4.0 mg/L. Today the agency released two peer-reviewed studies it will rely on in that reconsideration: an exposure assessment and a dose-response assessment. As reiterated by both HHS and USEPA, when fluoride is present at the proper amount, it offers significant public health benefits in the form of protection against dental cavities. But it also occurs naturally, and at higher levels, may be associated with severe pitting of the teeth, a condition called severe dental fluorosis.



The dose response assessment concludes that the safe level of fluoride for a child still growing permanent teeth (up to age 8) is 0.08 mg/k/day. AWWA has done some math around this number and believes that, depending on the assumptions used, this could translate into a Maximum Contaminant Level Goal (MCLG) in the range of 1 mg/L. USEPA is required to set an MCL as close to the MCLG as is feasible, taking various things into consideration, including cost. In particular, the agency can set an MCL at a level at which the costs are justified by the benefits.

It is likely that a revision in the MCL would fall most heavily on groundwater systems, and a significantly lower MCL could be expensive. According to USEPA there are approximately 200 public water systems, primarily very small utilities using groundwater, that do not comply with the current MCL of 4 mg/L.

You can find the HHS and USEPA announcements at

- http://water.USEPA.gov/action/advisories/drinking/fluoride_index.cfm
- <http://www.hhs.gov/news/press/2011pres/01/20110107a.html>

Also, be advised that AWWA is adding a session to the Utility Management Conference (to be held Feb. 8–11 in Denver), where we expect senior HHS and USEPA officials to present on this issue. AWWA will also soon host a webcast on this topic. Please check our website for upcoming details on these events.

As always, please contact your AWWA Washington Office if you have questions or comments.

Section Conference Awards

WISA Award-Winners for 2011 by Mari Matulka, M.U.D.

The Section presented six WISA (Water Industry Service Award) awards at the fall conference, recognizing members who have been continuous AWWA members for at least five years and served the water works industry a minimum of 20 years.

DANIEL L. FREESE

Daniel L. Freese earned his Bachelor of Science degree in business and economics from Kearney State College in 1977. He joined Layne & Bowler, Inc. as a district manager in 1974. The company became Layne Christensen in 1985. Dan is a sale engineer/account manager in the Kearney office. Dan holds a Grade 1 water operator license as well as a Nebraska well driller/pump installer license.

DENNIS C. HIRSCHBRUNNER

Dennis C. Hirschbrunner retired in 2010 as executive vice-president and national director of marketing at HDR Inc. with 24 years of service. Dennis earned a Bachelor of Science degree in civil engineering from UNL in 1970. He is a registered engineer in Nebraska, Iowa and Minnesota. He worked for the Nebraska Department of Environmental Quality, Nebraska Department of Roads and Gilmore Associates before moving to HDR Inc. in 1986. He chaired the Nebraska Section in 1993 and later served as the director. He was responsible for establishing the Section's Colonel Theodore A. Leisen Memorial and Training Endowment Fund in 1993. Dennis received the George Warren Fuller Award in 1994.

HOWARD P. ISAACS

Howard P. Isaacs began his career with Nebraska Health & Human Services in 1972 and held various positions at the laboratory prior to his promotion to supervisor in 1981. As supervisor he was responsible for the integrity of the water testing procedures and made sure procedures used were within the parameters set in the Safe Drinking Water Act. After staff cuts at the laboratory, Howard joined the Public Drinking Water Program as a Health Program Manager II where he supervises the Monitoring & Compliance Section staff.

TIMOTHY LINEWEBER

Timothy Lineweber joined the Beatrice Board of Public Works in 1981 and was promoted to utility maintenance worker III in 1991. He is responsible for the Beatrice backflow program. As a crew leader for 20 years, Tim helps with water main construction, water main and water service leaks. He also serves as backup foreman. Tim holds Grades 3 and 6 water operator licenses.

JEFFREY G. LOLL

Jeffrey G. Loll joined the Metropolitan Utilities District 40 years ago as an engineer, advancing to assistant superintendent of the Florence Water Treatment Plant in 1985. He was named director of Engineering Design in 1998. Jeff supervises 34 employees and his division is responsible for the design of more than 2,818 miles of water mains and 2,645 miles of gas mains. Prior to joining M.U.D., he earned a Bachelor of Science degree in mechanical engineering from South Dakota School of Mines in 1970. He has been a Grade 1 water operator since 1986.

DENNIS WATTS

Dennis Watts, water and sewer director, City of Norfolk, began his career in the water industry in 1988 as a water operator and was promoted to his current position in 1995. Dennis was instrumental in the development of a wellhead protection plan for the city, and has been involved with the design and construction of numerous projects over the years. He chaired the Nebraska Section AWWA in 2003 and was one of the key members in getting the Nebraska WARN system up and running. Dennis is a Grade 1 water operator.



Award winners, from left, front: Jeff Loll, M.U.D., and Howard Isaacs, Nebraska Health & Human Services, Water Industry Service Awards; Larry Andreasen, City of Fremont, George Warren Fuller Award; Dennis Watts, City of Norfolk, and Tim Lineweber, Beatrice Board of Public Works, Water Industry Service Awards. Back: Mari Matulka, M.U.D., Outstanding Volunteer Award; Merlin Lindahl, City of Columbus, and Jim Condon, Olsson Associates, Lifetime Member Awards, and Chad Roberts, City of Norfolk, Operator Meritorious Service Award.

Fuller Award by Mari Matulka, M.U.D.

Larry Andreasen, Fremont Department of Utilities, was named the George Warren Fuller Award recipient at the annual fall conference in Kearney. This is the highest honor given by AWWA, and is presented for outstanding service to the water industry. The award will be presented to Larry at the National AWWA Conference in Washington D.C., June 12-16. A native of Fremont, Neb., Larry graduated from Fremont High School in 1971 and joined the Fremont Department of Utilities as a weedeater. He was promoted to water and wastewater superintendent in 1996. He received the Water Industry Service Award in 2003, served as Section chair in 2005 and received the Lifetime Member Award in 2009. Larry and his spouse, Janice, have a son, daughter and two grandchildren. He enjoys Husker football, traveling and playing in snow and dirt.

Ken Miller Award

National AWWA Vice-President Debra Kaye presented Craig Reinsch, Olsson Associates, with the Ken Miller Award for his work as chair of the Water for People Committee. Craig has served as Water for People chair since 2007. In 2010, the committee raised a record \$12,000 for the organization.



From left: Reinsch, Kaye and Past Chair John S. Olsson.

Safety Awards



From left, front: Tom Menke, City of Chadron; Tim Lineweber, Beatrice Board of Public Works; Larry Andreasen, Fremont Utilities Department. Back: Jack Satur, City of Scottsbluff; Tim Mailahn, Metropolitan Utilities District; Bob Smith, Grand Island Utilities; and Gerardo Martinez, City of Lincoln. Unavailable for photo: representatives from the Cities of Gering, Gordon and Norfolk.



Larry Andreasen receives the Fuller Award from National AWWA Vice-President Debra Kaye, president, Kayeability of California.

Meritorious Operator Award

Chad Roberts, water plant supervisor for the City of Norfolk, was presented with the Nebraska Section's Meritorious Operator Award. The year 2010 was the second year in which the Section presented this award at the 2010 Annual Fall Conference in Kearney.



Chad began his career in the water industry in 1997 as a water plant operator. He transferred to the water distribution division in 2000 and returned to the water plant as an operator II in 2002. He was promoted to his current position in 2009.

Chad's duties include training and assisting plant operators in the operation of two water treatment plants. He also is responsible for the city's backflow prevention program. In addition to his everyday duties, Chad works very closely with an engineering group to complete the water and sewer master plans for improvement projects.

Some of Chad's accomplishments include programming the RS logic for the SCADA computers, conducting vulnerability assessments for the water system, and developing a lock-out/tag-out safety program and a wellhead protection program. Chad also gives educational lectures to area schools on water-related topics.

Chad holds Grades 1 and 6 water operator licenses. He also serves on the Section's board of directors and on the Awards, Cross Connection, Nitrates Source Protection and Young Professionals committees.

Drinking Water Week

Drinking Water Week, May 1-7, 2011

CELEBRATE THE ESSENTIAL!

For more than 30 years, the American Water Works Association and its members have celebrated Drinking Water Week—a unique opportunity for both water professionals and the communities they serve to join together to recognize the vital role water plays in our daily lives. Join AWWA in celebrating the essential by celebrating water.

For more information, or to download any of these materials, check out the Government and Public Affairs page at www.awwa.org.

YOUTUBE VIDEO CONTEST

Show us your celebration and win \$1000 from the AWWA bookstore! Film a creative video highlighting how you celebrated Drinking Water Week, post it to YouTube, and send a copy of the link to dmueller@awwa.org. The deadline to enter is May 30.

Don't forget to post the video to your own website as well! This is a great way for your utility to generate additional awareness both about Drinking Water Week and the important work you do everyday.

Videos do not need to be professional quality—in fact, the more personal, the better!

We recommend that you have anyone appearing in your video fill out a release form. A sample form is available at www.awwa.org/files/Advocacy/DDW/TalentRelease_unpaid.DOC.

PRESS RELEASES

AWWA will send out press releases each weekday of Drinking Water Week. The schedule of releases is below. You're encouraged to add quotes from your spokesperson or local examples that help illustrate the point of each press release if you have them. *Press releases will be posted closer to publication date, due to their time-sensitive nature.*

- May 2 – DWW Announcement
- May 3 – Future of Water
- May 4 – Infrastructure/Economy
- May 5 – Working in the Water Industry
- May 6 – Source Water Protection

CHILDREN'S ACTIVITY PAGES

AWWA offers activity pages for kids, to be used for school presentations or at any community event. The materials are samples from AWWA's *Water Wonderful* and *Story of Drinking Water* activity books. The full books are available for purchase in the AWWA bookstore.

ADVERTISEMENTS AND POSTERS

This PDF artwork can be placed as an ad in your local paper or



newsletter, or can be used for consumer items such as posters and handouts. This year we've also included art for a banner ad, which can be placed on your website.

The "Let it Flow" flash ad is also available for purchase in the AWWA bookstore for those utilities interested in something a bit different.

RADIO PUBLIC SERVICE ANNOUNCEMENTS (PSAS)

The PSAs encompass the theme of Drinking Water Week 2011, and the essential nature of water in our daily lives. AWWA members can also find tips on placing a radio PSA.

DRINKING WATER WEEK LOGOS

AWWA offers high-resolution logos to make banners or in any Drinking Water Week materials you create.

DRINKING WATER WEEK PROCLAMATIONS

Sample proclamations for mayors and governors are available for download.

PERSONALIZED POSTAGE

There are two ways to personalize postage, depending on how your organization posts its mailings. For utilities and large organizations that use postage metering machines, there is often an option to "load an advertisement slogan or mini die" where you can insert a graphic and/or a message of your choosing. If your organization does not use a postage machine, or the postage machine does not offer this option, you can also have personalized postage stamps created with the Drinking Water Week logo.

For more information about Drinking Water Week, please contact AWWA Public Affairs Manager Deirdre Mueller at dmueller@awwa.org or 303-347-6140. You can also visit the Government and Public Affairs page at www.awwa.org.

Have fun!

Industry Interview

Mentoring Q&A with Milo Rust

Milo Rust is the public works director at Chadron and serves as a Nebraska Section AWWA mentor.

Wise Water Words: *Milo, you're designated as a Nebraska AWWA mentor for several different areas — small systems, planning, security, source water protection, and water production, among others. Which do you think is the most challenging to learn without some help from a mentor?*

Milo Rust: The most challenging water issue we discuss with other communities would be compliance with water regulations for small systems. Sometimes, just knowing who to talk to at the state level helps.

WWW: *It is easy to get bogged down with paperwork and regulatory issues, isn't it? Do you have any tips or tricks that have made your own compliance work easier?*

MR: Having the ability to monitor most of our water treatment process with computer programs, we can merge new information on a monthly basis. With the continuous and daily reading we can make changes to stay in compliance before a problem develops. Our reports are generated within hours of the end of the month and e-mailed to the state. Backup records are retained on the computer and at City Hall with an inexpensive backup flash drive.

WWW: *It sounds like the up-front investment in monitoring systems and computers ends up saving you time and money. Could you suggest any words of advice for small systems trying to justify the initial expense to boards and councilmembers?*

MR: If we were working with a small system, just purchasing a computer would be the first step. Your operating systems could be the same word processing and spreadsheets used by the city clerk's office. Check to make sure you can communicate with the state so you don't have to rewrite your programs and information. With today's budgets and time management, it's cheaper to e-mail information than to spend the time typing and faxing or mailing reports.

WWW: *Have you found any online resources to be helpful with keeping up on regulations and other changes to the industry?*

MR: AWWA's *Opflow* has been a good resource with the new rule changes that are proposed and when they come into

effect. We try to attend any local training that is water-related, and the League of Nebraska Municipalities also keeps us updated.

WWW: *Do you have any special advice you'd offer as a mentor to small systems in the spring months?*

MR: With spring around the corner, I would recommend checking out your water system now so that you can have the maintenance or rehab done before your needs for higher water capacity change. If you have any water expansion projects planned for this summer, try to get the new plans to the state for review as early as possible.

Editor's note: *Milo answered these last two questions on the day temperatures in Chadron dropped to -27°. We can only imagine what it takes to even type the word "summer" on a day it gets that cold, and we thank him sincerely for sharing his expertise.*



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**AWWA's finest water-operator training series—
newly revised to meet
today's water challenges.**

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AWWA American Water Works Association
The Authoritative Resource on Safe Water®

Diana Lane, managing scientist, and John Cromwell, managing economist, are with Stratus Consulting (www.stratusconsulting.com), Boulder, Colo., and Washington, D.C., respectively. Elizabeth Strange is a senior technical specialist with ICF International (www.icfi.com), Washington, D.C.

Source Water Protection

When major watershed events affect vegetation, drinking water supplies can be placed in peril. Forward-thinking utilities are assessing and managing such events to minimize risks to their drinking water supplies.

BY DIANA LANE, JOHN CROMWELL, AND ELIZABETH STRANGE

RISK MANAGEMENT PREPARE FOR WATERSHED EVENTS TO ENHANCE WATER TREATMENT

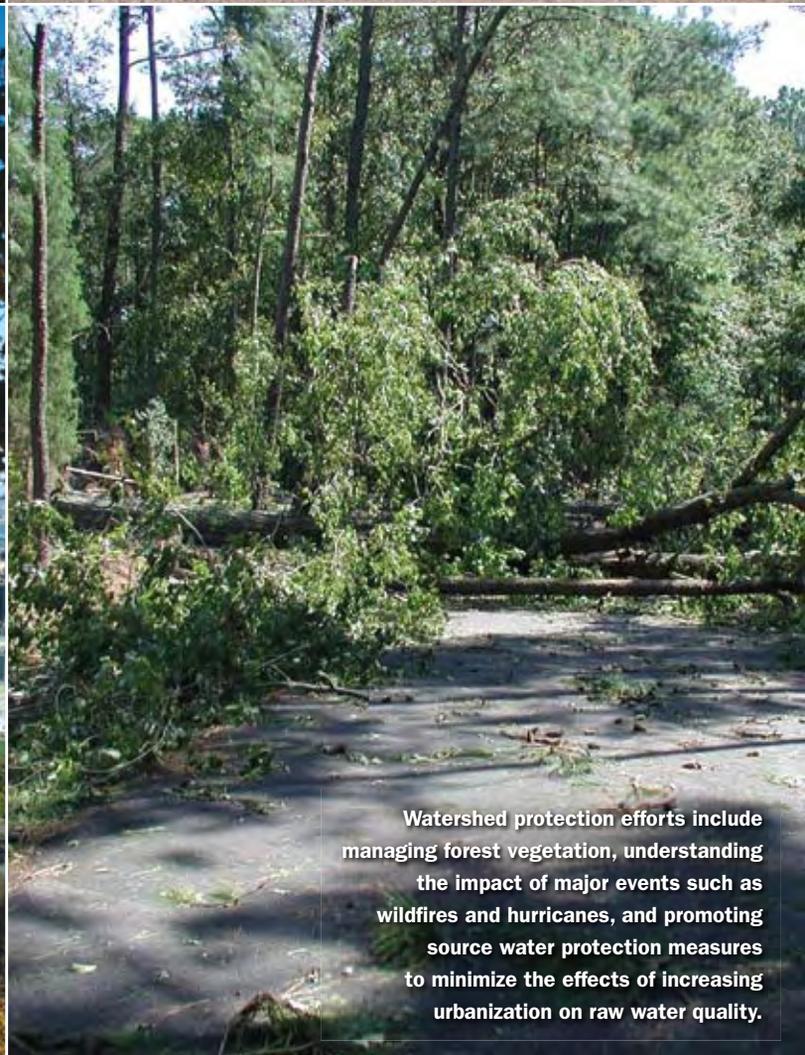
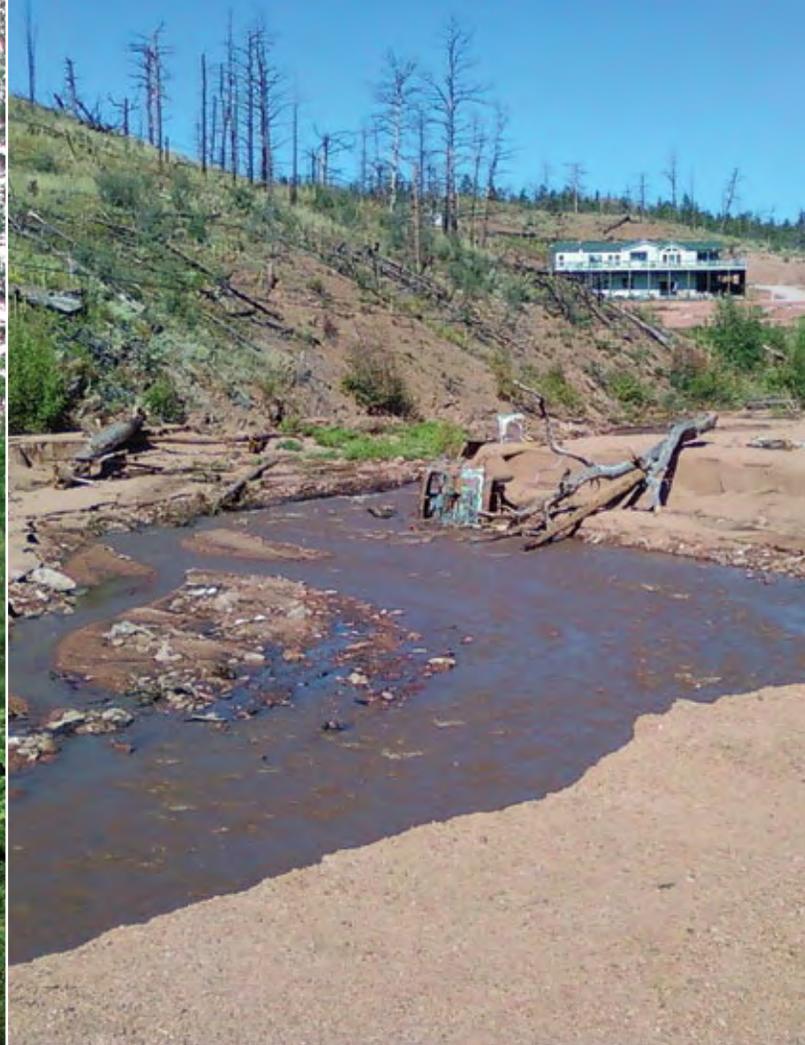
UTILITIES DEPENDING ON surface water face risks from a variety of natural and human-caused events that affect vegetation and disrupt source water quality or quantity. After major events such as a wildfire, hurricane, flood, or mudslide, utilities may have to shift to emergency operations because of water quality variables outside the range of normal treatment processes.

The risks depend on the ecological and sociological characteristics of a utility's watershed and the utility's collection, storage, treatment, and distribution systems. A utility in a sparsely developed forested area could face a high risk of wildfire and little risk of urbanization. A utility in a fast-growing coastal region might face a high risk of

urbanization and hurricane or flood damage. A direct filtration plant faces risks different from those of a conventional filtration plant.

Utility managers can proactively manage potential watershed disruptions by

- assessing specific risks with respect to large-scale vegetation changes.
- understanding the impact of fire, storm, and urbanization events on water quality and quantity.
- understanding potential management strategies that can help reduce risks of large-scale vegetation changes or mitigate the effects of these changes.
- learning from experiences of other water utilities that have coped with major events and their aftermath.



Watershed protection efforts include managing forest vegetation, understanding the impact of major events such as wildfires and hurricanes, and promoting source water protection measures to minimize the effects of increasing urbanization on raw water quality.

Source Water Protection

ASSESS RISKS

Water utilities should understand which large-scale watershed events can produce water quality variables outside the range for which their treatment facilities were designed. Natural events include wildfires; storm events such as hurricanes, tornadoes, and floods; mudslides; insect and pathogen infestation; and drought. Impacts of human-caused events, many of which occur gradually and often aren't readily apparent, include invasive species, timber harvesting, and land-use conversion such as agricultural development or urbanization. Events may occur singly or as event cascades in which one event, such as a wildfire, triggers subsequent events, such as mudslides or exotic species invasions.

To assess risks, utilities can

- identify the types of large-scale events that may occur in their watersheds; historical information can provide a starting point.
- survey and map areas of existing damage, if any, and areas likely to be sensitive to future events.
- assess the relative risks of particular events, considering the likelihood of occurrence and relative magnitude.
- compile sources of real-time information, such as updated drought and wildfire predictions and urbanization maps, to assess ongoing risk.
- identify potential event cascades.
- identify key vulnerabilities and treatment concerns for each type of event.

UNDERSTAND IMPACTS

Large-scale vegetation losses lead to soil changes, which can increase water volume, surface runoff, and erosion, as well as decrease water quality and water infiltration. The figure on page 13 compares runoff and sedimentation for intact forests with runoff and sedimentation in forests affected by fire or agricultural conversion. After major fire and storm events, increased erosion and sediment loads can affect water quality within hours and persist for more than a decade.

Large-scale vegetation changes can mobilize organic matter, organic and inorganic chemicals, and microorganisms carried downstream in runoff or bound to eroding sediments. Large-scale vegetation change typically affects several categories of water quality parameters, including

- Suspended solids
- Dissolved organic and inorganic chemicals (e.g., cyanide, hydrocarbons, manganese, fertilizers, pesticides, and salt)
- Total organic carbon
- Microbial contaminants

The type and quantity of sediments and contaminants deposited or dissolved in drinking water sources dictate treatment needs. Persistent or severe changes in these parameters can necessitate additional pretreatment processes; filtration technologies; disinfectants; advanced technologies; and, in some cases, changes to treatment facilities requiring significant capital and operating expenditures. Slow-sand filtration beds, for example, can be clogged by source water with high clay content. Direct filtration and conventional treatment plants can be disrupted by source water with high turbidity, requiring additional chemicals and coagulation time to achieve desired end points.

Large-scale vegetation change also can affect the quantity and timing of water availability. The total volume of water obtained from a watershed can increase if vegetation cover is removed. In addition, decreased vegetation cover can lead to increased "flashiness" in streams, with large, faster streamflows following rainfall or snowmelt. These changes can make capturing and storing water more difficult or necessitate larger reservoirs. In contrast, the replacement of native vegetation by nonnative species may result in decreased water yields if introduced species have higher biomass and transpiration rates than native species.

UNDERSTAND STRATEGIES

Various strategies can help water utilities prevent or reduce the risk from large-scale

watershed vegetation changes. Some events, such as catastrophic wildfire and insect infestations, can be prevented or minimized by watershed management strategies to reduce fuel loads, increase species and age-class diversity, and promote watershed health. Negative effects of human activities such as timber harvest, urbanization, and agriculture can be avoided or minimized if a utility can purchase the vulnerable land, obtain restrictive conservation easements, or work with landowners. Risks from these events also can be minimized through best management practices to reduce soil erosion and sediment loadings.

When events occur, management strategies can minimize source water harm. For example, sediment traps, sediment management plans, and aggressive revegetation efforts can minimize turbidity increases after major fires or storm events. Protecting buffer areas around streams can minimize the effects of land-use changes, such as a timber harvest or agriculture. Minimizing algal growth in reservoirs also can benefit influent water quality.

LEARN FROM OTHERS

Utilities can learn from the experiences of other utilities. A Water Research Foundation report—*Utility Guidance for Mitigating Catastrophic Vegetation Change in Watersheds*—provides 18 brief case studies about water utilities that have responded to catastrophic events or the risk of future events. The case studies include the following watershed management practices:

- The Massachusetts Department of Conservation and Recreation, Division of Water Supply Protection, manages its watershed forests to increase structural and species diversity to minimize the effects of natural disturbances and provide high-quality surface water for the unfiltered Massachusetts Water Resources Authority's regional water system.
- Fairfax (Va.) Water participates in a voluntary, regional-based partnership of water utilities and government partners

The best strategies consider the speed at which a triggering event occurs, an event's predictability and likelihood, and the magnitude of immediate and cumulative impacts to water supply and treatment needs.

where water supplies cross state boundaries to give water utilities a stronger voice in watershed protection efforts.

- Asheville (N.C.) Water Resources Department experimented with biological control agents to reduce the threat of an insect outbreak that threatens a large stand of mature hemlock trees, but there was no strong evidence of benefit.
- Bend (Ore.) Water Division has a high-quality drinking water supply that originates in an old-growth forest at high risk of wildfire. The city supports fire prevention efforts and completed a feasibility study for a water treatment facility that could be modified to accommodate high-turbidity water after a wildfire.
- Denver Water has experienced several major wildfires that caused large, expensive disruptions to normal operations. The utility has responded with proactive revegetation, construction of sediment traps, and forest management efforts.
- Newport News (Va.) Waterworks receives water from six watersheds that are threatened by hurricanes, floods, drought, and urbanization. The utility works cooperatively with state government agencies to protect the watersheds and engages in heightened forest management after large storm events.

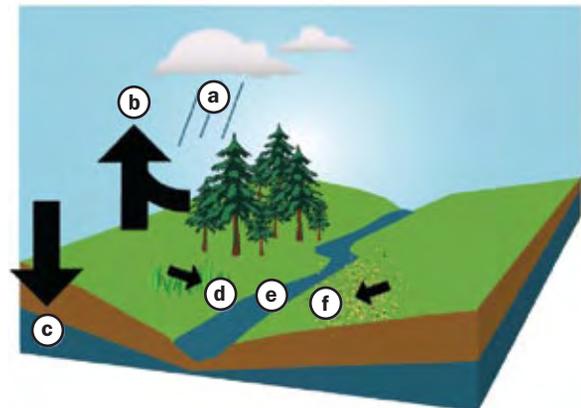
DEVELOP AN OVERALL STRATEGY

To minimize negative effects of large-scale watershed events on drinking water quantity and quality, utilities can respond with a variety of strategies. The best strategies consider the speed at which a triggering event occurs, an event's predictability and likelihood, and the magnitude of immediate and cumulative impacts to water supply and treatment needs. Developing effective strategies requires good communication among water treatment plant operators and watershed managers. A utility can analyze which preparation or response strategies are environmentally appropriate and cost-effective. Such planning can minimize water supply disruptions or costly additional treatment.

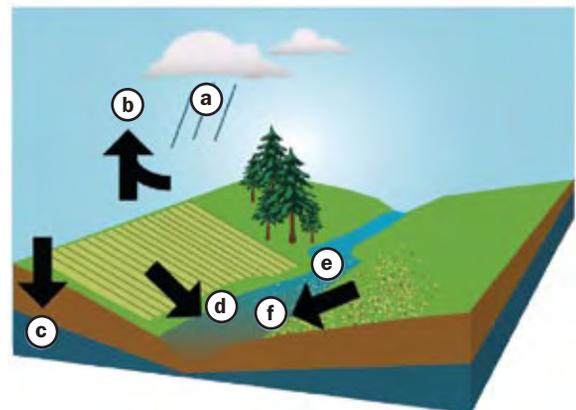
Key Hydrological Processes

Arrow size indicates the magnitude of flux in (1) intact forests, (2) intensive agriculture, and (3) forests after wildfire.

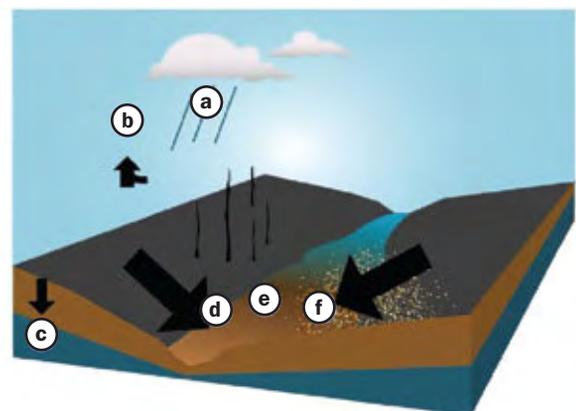
1. In intact forests, evapotranspiration and infiltration rates are high, leading to low runoff and sedimentation.



2. Conversion to agriculture is associated with periodic disturbance of vegetation and soil compaction, reducing evapotranspiration and infiltration and increasing runoff and sedimentation.



3. Fire removes vegetation and makes soil surfaces impermeable, dramatically reducing evapotranspiration and infiltration and increasing runoff and sedimentation.



LEGEND

- | | | |
|------------------------|------------------|-------------------|
| (a) Precipitation | (c) Infiltration | (e) Stream Volume |
| (b) Evapotranspiration | (d) Runoff | (f) Sediment |

SOURCE: STRANGE, E.M.; LANE, D.R.; AND HERRICK, C.N. UTILITY GUIDANCE FOR MITIGATING CATASTROPHIC VEGETATION CHANGE IN WATERSHEDS. ©2009 WATER RESEARCH FOUNDATION. REPRINTED WITH PERMISSION.

Certification Corner

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WATER

- 1. A watercourse that flows continuously at all times of the year is called a(n)**
 - a. intermittent stream.
 - b. ephemeral stream.
 - c. perennial stream.
 - d. natural stream.
- 2. What's the most common use today for a positive-displacement pump?**
 - a. Raw water intake pump
 - b. System booster pump
 - c. Chemical feed pump
 - d. Filter feed pump
- 3. In conventional flocculation, the average time to develop heavy floc particles is**
 - a. 1 min.
 - b. 10 min.
 - c. 30 min.
 - d. 60 min.

WASTEWATER

- 1. A shock load of toxic wastes coming into a plant can be treated or controlled with**
 - a. coagulants only.
 - b. coagulants and lime.
 - c. coagulants and coagulant aid.
 - d. coagulants or chlorine.
- 2. In general, what's the percentage of suspended solids in the total amount of solids?**
 - a. 30 percent
 - b. 35 percent
 - c. 45 percent
 - d. 55 percent
- 3. Grit washers are used to**
 - a. remove some of the organic matter.
 - b. remove large pieces of wood.
 - c. remove rags and eggshells.
 - d. remove odors.

ANSWERS: 1. d, 2. a, 3. a
Water: 1. c, 2. c, 3. c
Wastewater: 1. d, 2. a, 3. a



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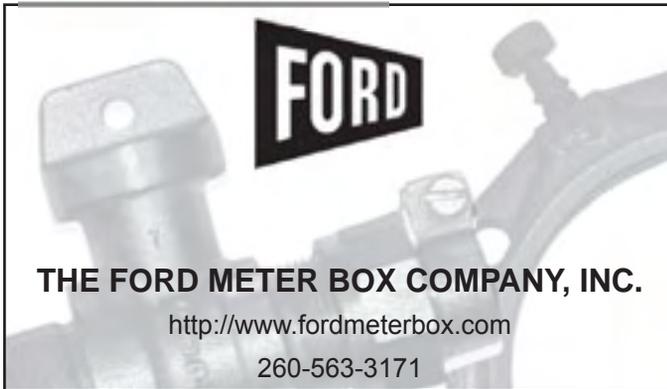
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