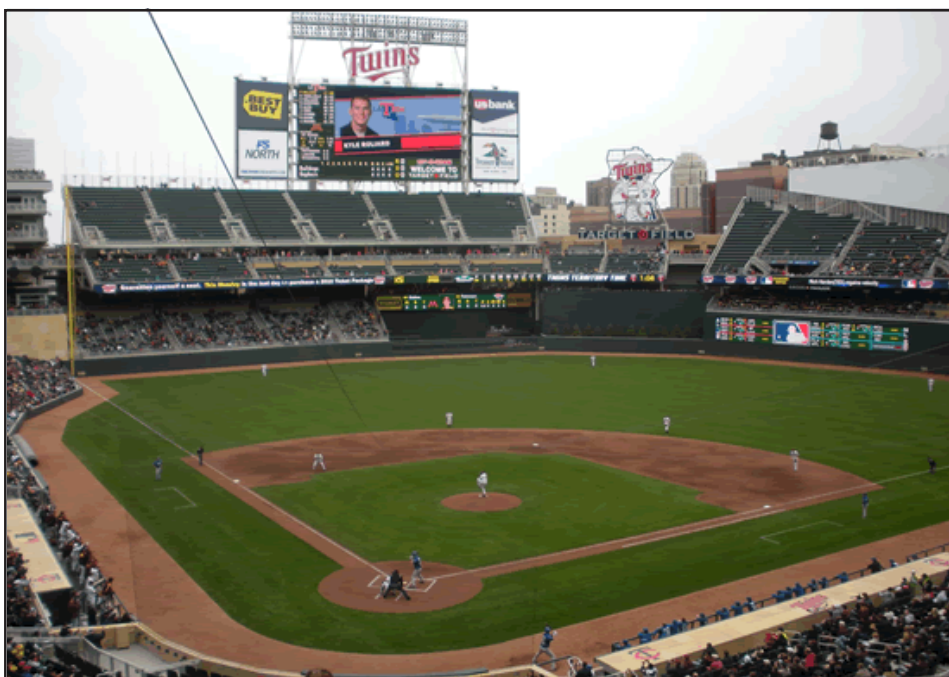




NEWS AND INFORMATION

FOR PUBLIC WATER SUPPLIERS IN MINNESOTA

Minnesota Twins Focus on Water Sustainability at Target Field



T. J. Oakes of the Minnesota Gophers delivers the first pitch at Target Field, which opened with a college game on Saturday, March 27. The grass is not the only green feature of the new ballpark as the primary tenant, the Minnesota Twins, have incorporated sustainability, with an emphasis on water, as a significant component.

The Minnesota Twins' move to Target Field in Minneapolis means baseball with outdoor conditions and real grass after 28 years of an indoor stadium with artificial turf. The change also brings a greater demand for water for irrigation and cleaning.

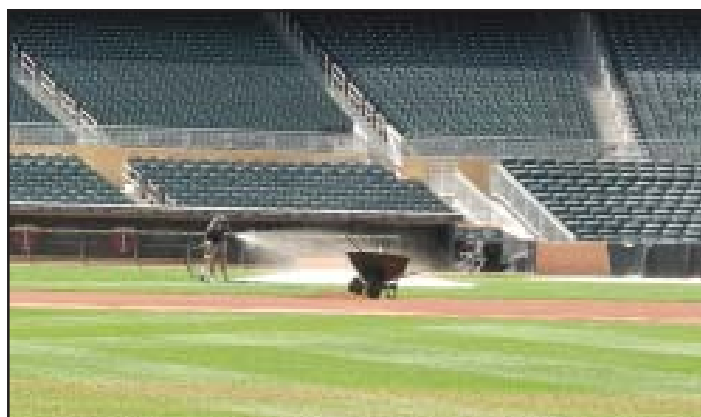
The Twins have entered into a sustainable partnership, unique in sports, to capture, treat, and use rainwater for their needs. Besides reducing municipal water usage by more than 50 percent, saving more than two million gallons of water each year, the arrangement brings attention to the global issue of water, raising awareness of the value of sustainability and the wise use of water. In addition, a variety of water-related educational opportunities will be used at the new ballpark to elevate the public's understanding of water stewardship.

"Jim Pohlad, our owner, felt strongly about setting a good example, providing leadership in that area, knowing that sports provides a tremendously high-profile platform," said Twins president Dave St. Peter.

"We purposely selected water as the resource for sustainability because it's such an important resource to Minnesotans, whether they drink it or fish in it," said Kevin Smith, the executive director of public affairs for the team. "The Twins are taking a stand on sustainability and highlighting water."

St. Peter added, "For us, it became very much of a natural priority based on Minnesota and the strong role water plays with lakes, rivers, as it relates to the brand of Minnesota—a natural play here relative to doing something that nobody else has done."

Working with Pentair, Inc. of Minneapolis, the Twins developed a system to irrigate their field and wash the stands **Continued on page 4**



Rain water at Target Field is captured and used for irrigation and cleaning.

MDH Staffing and Boundary Changes

The Minnesota Department of Health drinking water program has added district engineers and source water protection planners and has also revised some of the boundaries being served by the engineers. Lucas Martin and David Weum have joined the district engineers while Karen Voz, George Minerich, John Freitag, Pat Bailey, and Mark Wettlaufer have joined Art Persons and Beth Kluthe as source water protection planners. The new contact list, which includes changes in the compliance staff, is at <http://www.health.state.mn.us/divs/eh/water/org/contactlst.html>.

Drinking Water Protection Profiles



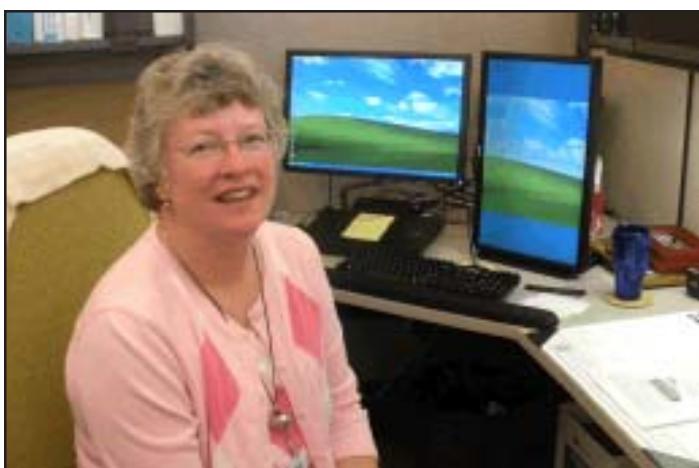
David Weum has joined the Minnesota Department of Health as a district engineer, working out of the Mankato office. David grew up in Maple Grove, Minnesota, attending Osseo schools and then going to college at North Dakota State. During his summer breaks from college, he had internships with the city of Brooklyn Center and Larson Engineering.

David got married earlier in 2010 and enjoys spending time with his wife, Beka, as well as playing frisbee and various games with friends.



Cristina Covalschi is the coordinator for the portion of the Source Water Protection Program that deals with wellhead protection plan auditing, wellhead protection rule enforcement, and administration of a number of small grants to public water supply systems.

Cristina worked as a grants coordinator with St. Catherine University in St. Paul and with World Learning in Bucharest, Romania. Her background includes grants management and water-power engineering. She was born in Bucharest and came to the United States in 2005. She now lives in Hudson, Wisconsin, with her husband. In her free time she enjoys flamenco dancing and travel.



Tannie Eshenaur is a planning director working with Clean Water Legacy activities for the Minnesota Department of Health's Drinking Water Protection and Environmental Surveillance and Assessment sections.

Tannie grew up in the northern suburbs of Pittsburgh and came to Minnesota to attend college. Following graduate school, she and her family (which now consists of one husband, who is a civil engineer working in water resources, and four children ranging in age from 16 to 29) lived for 13 years in Ethiopia, where Tannie provided health education about water and sanitation as part of a village water supply project and later taught the national language, Amharic, to new expatriates.

Tannie came to the Health Department in 2001 and worked in the Site Assessment and Consultation Unit, specializing in risk communication for communities affected by environmental exposures to hazardous substances.

Reminder to All Water Operators

When submitting water samples for analyses, remember to do the following:

- Write the Date Collected, Time Collected, and Collector's Name on the lab form.
- Write the Sample Point on lab forms for bacteriological and fluoride samples.
- Attach label to each bottle (do not attach labels to lab form).
- Include lab forms with submitted samples.

If you have questions, call the Minnesota Department of Health contact on the back of the sample instruction form.

Pearls of Wisdom from Despair.com

Procrastination: Hard work often pays off over time, but laziness always pays off now.

Success: Some people dream of success, while other people live to crush those dreams.

Mediocrity: It takes a lot less time, and most people won't notice the difference until it's too late.

Individuality: Always remember that you are unique. Just like everybody else.

Conformity: When people are free to do as they please, they usually imitate each other.

Doubt: In the battle between you and the world, bet on the world.

Humiliation: The harder you try, the dumber you look.

Trouble: Luck can't last a lifetime unless you die young.

Underachievement: The tallest blade of grass is the first to be cut by the lawnmower.

Fear: Until you have the courage to lose sight of the shore, you will never know the terror of being forever lost at sea.

The Fate of Genes Encoding for Tetracycline Resistance in Anaerobic and Aerobic Digestion

By Dave Diehl
University of Minnesota

Antibiotics are naturally occurring compounds produced by microorganisms that inhibit or kill bacteria. Since their discovery, antibiotics have been used to treat and control many bacterial infections and are partially responsible for the rise in human life expectancy over the last century. However, as soon as antibiotics were used to treat bacterial infections, resistance to antibiotics was observed. An ongoing battle has occurred ever since, with bacteria continuing to develop resistance to each new antibiotic introduced. In recent years, there has been a greater concern with the rapid pace that bacteria are acquiring resistance to new antibiotics. A theory of this research was that a majority of antibiotic-resistant bacteria are generated in the gastrointestinal tracks of humans taking antibiotics. These resistant bacteria are then expelled from the body and treated at a municipal wastewater treatment plant. This suggests that wastewater treatment may possibly be a way to actively fight the spread of resistance and decrease the number of antibiotic-resistant bacteria being released into the environment. One possible method to slow the spread of resistance using wastewater treatment plants is via the treatment of wastewater solids.

The goal of this research was to determine the ability of the anaerobic and aerobic digestion of wastewater solids at different temperatures to reduce the number of antibiotic-resistant bacteria remaining after treatment. The hypothesis of this research was that an increase of the temperature in the treatment process would cause a larger decrease in the number of genes encoding for resistance to tetracycline remaining in the solids. Genes encoding for tetracycline

resistance served as a surrogate for the overall problem of antibiotic-resistant bacteria. To test this hypothesis, wastewater solids were treated in aerobic and anaerobic lab-scale reactors at different temperatures (22, 37, 46, and 55° Celsius).

The results of this study support the hypothesis by showing that an increase of the temperature in the treatment process does cause a larger decrease in the number of genes encoding for resistance to tetracycline remaining in the biosolids. Significant removal of genes encoding for tetracycline resistance were observed in the anaerobic reactors maintained at 37, 46, and 55° C, with the highest removal rates generally observed at 55° C. Lower remaining gene quantities were observed in the 55° C anaerobic reactors after treatment when compared to all other treatment methods. And while significant reductions of gene quantities were observed in the anaerobic reactors, quantities were not significantly reduced in the aerobic reactors. This suggests that, compared to aerobic treatment, anaerobic treatment may provide more consistent and predictable removal of bacteria resistant to other antibiotics.

This research showed that substantial quantities of antibiotic-resistant bacteria can be removed in wastewater solids treatment, and that wastewater treatment can be a tool to fight the spread of antibiotic resistance. In particular, making the removal of antibiotic-resistant bacteria an expressed goal of solids treatment can considerably reduce the number of antibiotic-resistant bacteria released into the environment.



A panoramic view of the Minnesota Twins versus the Detroit Tigers on May 4, 2010, at Target Field.

Continued from page 1

by recycling rainwater that falls on the field and lower grandstand, an area covering seven acres.

The rainwater and irrigation water within the collection area percolates through Target Field’s underground drainage system and travels through a 12-foot-diameter culvert, which runs under the warning track in the outfield, to a wet well beyond the outfield fence in left-center field.

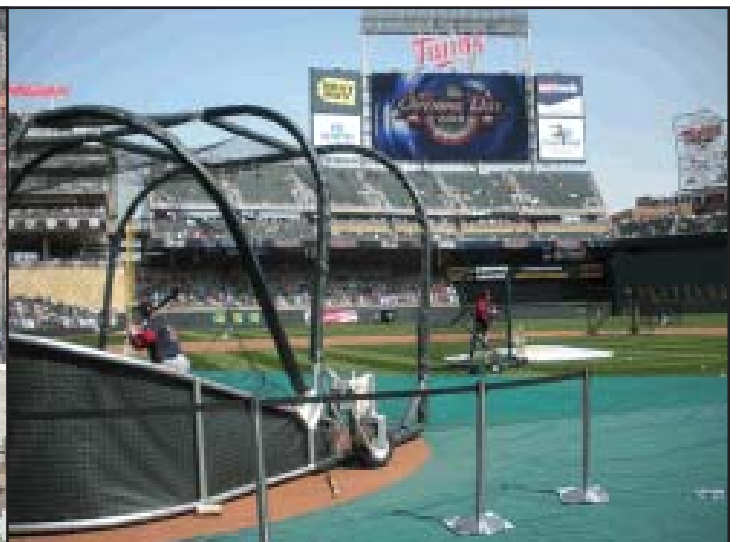
Pretreatment consists of filtration, disinfection with ultraviolet (UV) light, and chlorination.

The water is then filtered to a level of 0.01 micron using a hollow-fiber ultra-filtration (UF) system at a rate of approximately 125 gallons per minute. The feed and back-pulse pumps for this system are integrated into the skid. The UF system is back-pulsed and cleaned at a frequency based on the build up of pressure due to the accumulation of suspended solids removed by the UF system. The backwash from this filter is discharged to the sanitary sewer.

“We are very pleased to have the greenest ballpark ever built in America.”

The water then goes to a holding tank and is re-circulated through another UV disinfection system to maintain water quality. The use of UV with chlorine helps minimize the chlorine needed to maintain the disinfection residual. When there is no demand for water, the treated water accumulates in the holding tank and overflows back to the cistern. When demand exists for water to irrigate the field or wash the grandstand, water booster pumps draw water from the holding tank and supply water at the specified pressure and flow rate.

The rainwater recycle system was designed to meet the ballpark’s irrigation needs with two field zones watered simultaneously for two hours at 250 gallons per minute (gpm) and a single field zone watered for four hours at 125 gpm. The washing of the lower grandstand is performed over eight hours with six nozzles at 5 gpm each, totaling 30 gpm. The performance of the system, along with monitoring of the water quality, will be remotely overseen via a website.





Left: Installation of the culverts under the warning track at Target Field in November 2008. **Middle:** Nationals Park in Washington, which was the greenest ballpark in the country until it was surpassed by Target Field. **Right:** Alexandra Cousteau and her international Blue Planet team toured Target Field and its water treatment system on July 3, 2010, as part of a 100-day, 1,450-mile expedition. The bottle in Cousteau's right hand contains water from the wet well; the bottle in her left hand contains water that has passed through the filtration system.

The website is controlled by Instrument Control Systems of Plymouth, Minnesota, in a partnership with Pentair, Inc.

Target Field uses Minneapolis city water for drinking, and filtration systems have been installed in all suites, clubhouses, training rooms, and offices, setting a “new standard in sports facilities,” according to Twins officials, and further enhancing water quality and reducing the use of bottled water.

On April 8, 2010, Target Field became only the second major professional stadium to become LEED Silver Certified by the U. S. Green Building Council. (LEED, Leadership in

Energy and Environmental Design, is a rating system to promote design and construction practices that reduce the impact on the environment and are more profitable than their conventional counterparts.)

Nationals Park in Washington, D. C., which opened in 2008, was the first stadium to receive LEED Certification. Target Field collected the most certification points ever, surpassing Nationals Park by two points. Said St. Peter, “We are very pleased to have the greenest ballpark ever built in America.”



Left: Molly Gallatin of the Twins Communications Department by the 12-foot-diameter culverts. **Right:** The ultrafiltration system has three skids, each containing two sets of four vessels.



Waterline

Published quarterly by the Drinking Water Protection Section, Minnesota Department of Health

Editor: Stew Thornley

Staff: Karla Peterson, Jeanette Boothe, Noel Hansen

Past issues of the *Waterline* are available at <http://www.health.state.mn.us/water/newsletters.htm>

MDH Efforts on Developing Guidelines on Drinking Water Contaminants

“It is the goal of the state that groundwater be maintained in its natural condition, free from any degradation caused by human activities.”

—Minnesota Groundwater Protection Act, 1989, Chapter 103H

To protect public health, the Minnesota Department of Health (MDH) develops guidance on contaminants found in groundwater that is used for drinking purposes. The guidance specifies the health-protective limit for concentrations of a contaminant in groundwater that is likely to pose little or no risk to human health, including vulnerable subpopulations, based on current scientific knowledge. MDH develops three types of guidance—Health Risk Limits (HRLs), Health Based Values (HBVs), and Risk Assessment Advice (RAA)—to evaluate potential human health risks from exposures to contaminants. The type of guidance developed depends on the availability of scientific data (animal/human toxicity studies, exposure pathways, and duration/time-period exposure data) and the priorities and needs expressed by MDH’s partner state agencies involved in groundwater quality monitoring efforts. MDH’s guidance is one of many factors used by state environmental protection and remediation programs that address groundwater contamination.

Currently, MDH is engaged in the following efforts related to developing guidelines on groundwater contaminants: amending the existing HRL rules on groundwater contaminants by including guidance on additional contaminants and identifying contaminants that have the potential to make their way into our drinking water sources through the Contaminants of Emerging Concern program.

Amending the Health Risk Limit Rules

The 1989 Minnesota Groundwater Protection Act authorizes MDH to develop and review HRLs in cases of groundwater degradation. HRL values are formally adopted through the rulemaking process, which involves multiple steps. First, MDH toxicologists assess the available scientific data on contaminants and derive guidance using the current risk assessment algorithm. MDH then announces its intent to amend/repeal the rules and solicits public input on the derived guidance. The justification for the need and reasonableness of the proposed rules is prepared, the proposed rules are published in the State Register, and written public comments are invited. The comments or issues raised during the public comment period are addressed and the proposed rules are modified, if necessary. The proposed rules and related documents are then reviewed by an administrative law judge before the proposed rules are adopted.

The current HRL rule on groundwater contaminants includes the risk algorithm used to derive HRLs as well as

current HRL values. This year, MDH intends to propose amendments to the existing HRL rules. The proposed amendments will expand the current rules by adding new guidance in the form of HRL values for 14 additional contaminants found in Minnesota groundwater. Examples of contaminants for rulemaking include pesticide and pesticide degradates such as metolachlor, acetochlor ESA, and acetochlor OXA; volatile organic compounds or solvents such as xylenes and toluene; and perfluorinated chemicals such as perfluorobutanoic acid and perfluorobutane sulfonate.

Those wishing to follow the guidance or to provide input and participate in the current HRL rule amendment may contact Nitika Moibi at 651-201-4907 or via e-mail at nitika.moibi@state.mn.us.

Drinking Water Contaminants of Emerging Concern

MDH has established a new initiative called the Drinking Water Contaminants of Emerging Concern (CEC) program (made possible by the Clean Water Fund from the Clean Water, Land, and Legacy Amendment). The CEC program protects drinking water by identifying contaminants of emerging concern that have the potential to occur in Minnesota drinking water sources. The CEC program also investigates the potential for human exposure to these contaminants and develops guidance values, as applicable.

Contaminants evaluated under the CEC effort may include industrial chemicals, pesticides, pharmaceuticals, personal care products, and other contaminants that have been released or detected in Minnesota waters (surface water and groundwater) or that have the potential to migrate to or be detected in Minnesota waters. The CEC program seeks to provide health-based guidance for 10 contaminants during the current biennium and has identified three contaminants—metribuzin degradates, 1,2,3-trichloropropane, and triclosan for evaluation during the current fiscal year.

MDH staff are coordinating outreach efforts regarding the CEC program and have conducted meetings with partners from various state and federal agencies and the University of Minnesota. Additional meetings with various non-profit organizations and industry and stakeholder groups will also be conducted. Those wishing to provide input on the contaminant selection criteria and to participate in upcoming meetings may contact Michele Ross at 651-201-4927 or via e-mail at michele.ross@state.mn.us.

Life's Lessons from Kids

Hannah, age 9: “When your dad is mad and asks you, ‘Do I look stupid?’, don’t answer.”

Kyoyo, age 9: “Never hold a Dustbuster and a cat at the same time.”

Kellie, age 11: “Don’t wear polka-dot underwear under white shorts.”

Alyesha, age 13: “When you get a bad grade in school, show it to your mom when she’s on the phone.”

Emily, age 10: “Don’t pull Dad’s finger when he tells you to.”

REGISTRATION FORM FOR FALL 2010 SCHOOLS

You may combine fees on one check if more than one person is attending a school; however, please make a copy of this form for each person. For questions regarding registration, contact Jeanette Boothe at 651-201-4697.

To request an exam application, contact Noel Hansen at 651-201-4690 or Mark Sloan at 651-201-4652.

Southwest School, October 6, 2010, Community Center, St. Peter. Fee: \$30 (\$35 at the door).

Southeast School, October 15, 2010, Cabela's, Owatonna. Fee: \$25 (\$30 after October 8 or at the door).

Northwest School, November 30-December 2, 2010. Holiday Inn, Detroit Lakes. Fee: \$130 (\$140 after November 19 or at the door).

Name _____ Employer _____

Address _____

City _____ Zip _____ Day Phone _____

E-mail Address _____

Please enclose the appropriate fee. Make check payable to *Minnesota AWWA*. Mail this form and fee to Drinking Water Protection Section, Minnesota Department of Health, P. O. Box 64494, St. Paul, Minnesota 55164-0494.

For the Central School October 20 in Collegeville, registration is \$40 (\$20 for students). Send a check, payable to *AWWA - Minnesota Section*, to Laura Schwantz, St. Cloud Water Department, 400 2nd Street South, St. Cloud, Minnesota 56301.

EPA Offers Recruitment Video for Careers in Water

Issues facing the water profession relate to the aging workforce and availability of potential employees. The U. S. Environmental Protection Agency has produced a 12-minute video on the industry, to be shown to high school and/or vocational school students with emphasis on the value of water, job responsibilities, career successes, and environmental contributions. The video is available at <http://www.epa.gov/safewater/operatorcertification/index.html> (click on the link for "Water You Waiting For? Become a Water Professional!"). The video can be shown from the website or downloaded onto a DVD.

Chris Voeltz of St. Peter Receives Water for People Award

St. Peter water foreman Chris Voeltz, who chairs the Minnesota American Water Works Association (AWWA) Water for People committee, was honored at the AWWA annual convention in Chicago with the Kenneth J. Miller Founders Award, which honors volunteers for their leadership and service in the advancement of the Water for People mission. The award is presented annually to a volunteer selected by each AWWA section.

"I admire the work that Water for People does in remote villages and greatly enjoy volunteering with them," said Voeltz. "I am very flattered to receive such a prestigious award, but we must remember that there



Voeltz (center) flanked by Ned Breslin and Elisa Speranza of Water for People.

is still much more work to do in order to realize the vision of Water for People."

Pete Moulton, Water Utilities Superintendent of the city of St. Peter, nominated Voeltz for the award. "Chris's leadership for the Minnesota Section of Water for People has been steady and meaningful, and he has committed his own time and expertise to make this a successful adventure," said Moulton. "He has worked extremely hard to educate our section on the goals and national activities related to

Water for People, and he has brought section members together for a great cause, one that Kenneth J. Miller would be proud of."



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CALENDAR

Minnesota Section, American Water Works Association

*October 6, Southwest Water Operators School, Community Center, St. Peter, Contact Mark Sweers, 507-389-5561.

*October 15, Southeast Water Operators School, Cabela's, Owatonna, Contact Dennis DuChene, 507-384-0559.

*October 20, Central Water Operators School, St. John's University, Collegeville, Contact Lisa Vollbrecht, 320-255-7225.

*November 30-December 2, Northwest Water Operators School, Holiday Inn, Detroit Lakes, Contact Jeanette Boothe, 651-201-4697.

***Suburban Utility Superintendents Association School**, October 26, Minnetonka Community Center, Contact Dan Helling, 651-450-2566.5y

Information for all district schools, including agendas, is at
<http://health.state.mn.us/divs/eh/water/wateroperator/trng/schoolagendas.html>

Minnesota Rural Water Association, Contact Kyle Kedrowski, 800-367-6792

September 15, Operation & Maintenance, Zumbrota

*October 6-8, Water Certification Refresher Course, St. Cloud

October 26, Winterizing Your Water System, Detroit Lakes

October 27, Winterizing Your Water System, St. Cloud

November 9, Financing Your Community Projects, St. Cloud

*November 17, Operation & Maintenance, Waite Park

November 18, Cross Connection & Backflow Prevention

December 1, Operation & Maintenance, Glenville

December 8, Operation & Maintenance, Biwabik

MRWA Class D and E Training
Class D

October 21, Rochester

Class E

September 9, St. Peter
October 14, Two Harbors
November 23, Stanton
December 15, Cologne

Note: Minnesota Rural Water Association Class D workshops are eight hours, and Class E workshops are four hours. The morning session of a Class D workshop is the same as a stand-alone four-hour workshop for Class E operators; thus, Class E operators may attend either the stand-alone four-hour workshop or the morning session of the Class D workshop.

For an up-to-date list of events, see the training calendar on the MDH web site at:
http://health.state.mn.us/water/wateroperator/trng/wat_op_sched.html

***Includes a water certification exam.**