Breeze

Issue 160 • Winter 2014

The Official Publication of the Minnesota Section of the American Water Works Association

Inside:
Can Parasitic Worms Get Into Drinking Water Tanks?
Hidden Microbes in Your Water Distribution System

Haiti Outreach
Promotes Water Independence
CASE STUDY

Winona's Wincrest Water Tank Continues to Perform Well

Installed: 2008
Tank Type: Composite Elevated Tank
Storage Capacity: 400,000 Gallons
Engineer: Short Elliott Hendrickson
Contractor: Engineering America

PROJECT OVERVIEW:
Engineering America crews completed the Wincrest water tower in August 2008 for the city of Winona, Minnesota. The 143-foot-tall structure has a capacity of 400,000 gallons and serves the far southwest quadrant of the city.

A life cycle maintenance analysis studied the cost of painting a welded steel water tower over a 50-year life cycle. City officials awarded the project based on a present worth analysis that showed a substantial savings by using Engineering America’s Aquastore composite glass-fused-to-steel elevated tank.

In 1980 we made an innovative promise that Aquastore tanks would never have to be sandblasted or painted. No Aquastore tank has required sandblasting or painting since!

THINK TANK 100% Employee-Owned
When It Comes To Waterworks, There Can Be A Lot Of Pressure.

To succeed, you need a partner that makes your job easier. With Dakota Supply Group, you get more than just pipe and products:

A Wider Distribution Network – With waterworks warehouse locations in Fargo, Sioux Falls, Rapid City and Bismarck, we can provide products where and when you need them.

The Most Experienced Waterworks Team In The Midwest – Our crew specializes in combining experience and innovation to offer you solutions for your challenging projects.

Whatever Your Situation, We Make Water Work – From water systems to industrial pumping applications, from storm water to metering, we’re experienced and ready to make your job easier.

Contact us today to learn more about how we can help you.
Minnesota Pipe & Equipment is celebrating providing 25 years of superior service to our Municipal and Contractor customers!

FARMINGTON
5145 211th St. W.
Farmington, MN 55024
Ph. 651-463-6090
Toll Free. 800-325-5636

ROCHESTER
2913 County Rd. 16 S.W.
Rochester, MN 55902
Ph. 507-285-5389
Toll Free. 877-207-6191

ST CLOUD COMING SPRING 2015!

New location!
Features

The Community Engineering Corps Needs MNAWWA 13

Annual Conference Awards Recap 17

Haiti Outreach Promotes Water Independence 19

Can Parasitic Worms Get Into Drinking Water Tanks? 23

Hidden Microbes Activated in Your Water Distribution System 30

Departments

Message from the Chair 6
Message from the Director 8
Message from the Editor 10
Member Update 37
Industry News 42
Professional Directory 44
Ad Index 45

Visit us at www.mnawwa.org
Continued efforts toward our mission are encouraging

Looking at my desk trying to figure out how to keep Post-It notes from breeding, there lays a program from this year’s annual conference in Duluth. Once again, the conference was a success.

This was my seventh consecutive year attending. It’s great running into friends at this event, many of whom are only seen once a year. We often throw around the words membership and volunteerism. Involvement in Minnesota AWWA also means friendship.

This year, two of Marshall’s water operators also attended. On the drive home they commented how nice and open the attendees were compared with other schools and conferences they’ve attended. Having never bought into the whole “Minnesota Nice” concept, I have to admit they are right.

The Minnesota Section mission is to provide information, education, and networking opportunities to the drinking water community to promote public health, safety, and welfare. After having the opportunity to attend the Water Utility Council, Young Professional Committee, and Scholarship Committee meetings, it’s encouraging to know there are continued efforts toward our mission. The new website and scholarships for those seeking a water/wastewater degree are also exciting developments.

Chances are this year will be over before it starts and we’ll be seeing one another next September 15-18 in Duluth. It’s an honor being a part of AWWA. Thank you to all who participate and to those who will be joining us.

Eliminate Ice In Your Tank
Even During a Polar Vortex

Introducing the new PAX Water Mixer (PWM100) – the most powerful mixer for small tanks

Learn how the Town of Atwater, MN, used PAX Water Mixers to keep their tank ice-free during the “polar vortex”. For full case study go to paxwater.com

“I’m very impressed with the mixer’s performance, there’s no ice in the tank. There’s no better test than the last week we had.” – Operator, Atwater

For more information on the PWM100 or the PAX Water Mixer Family, call 1.866.729.6493
www.paxwater.com

Eliminate Ice In Your Tank
Even During a Polar Vortex

Introducing the new PAX Water Mixer (PWM100) – the most powerful mixer for small tanks

Learn how the Town of Atwater, MN, used PAX Water Mixers to keep their tank ice-free during the “polar vortex”. For full case study go to paxwater.com

“I’m very impressed with the mixer’s performance, there’s no ice in the tank. There’s no better test than the last week we had.” – Operator, Atwater

For more information on the PWM100 or the PAX Water Mixer Family, call 1.866.729.6493
www.paxwater.com
Because you're not just managing water treatment, you're protecting a community.

Rely on Calgon Carbon to provide the products, services and expertise you need to help keep small communities safe.

Supplying clean, safe community water is no easy task. It is often difficult for communities to comply with current and future regulations. To make matters worse, new pollutants seemingly arise every day.

At Calgon Carbon, we make your job a little bit easier. We have developed a variety of affordable treatment options — from activated carbon to ion exchange systems — for communities of any size and operating budget. Additionally, we provide expert service, technical support and training at no extra cost.

To find out how Calgon Carbon can help you protect what’s most important, contact us today.

Because your plant back to factory specifications with Guaranteed Results!

Filter Refurbishment Services Include:
- Experienced technicians for plant assessments
- Removal and installation of filter media
- Replacement of any aging internals
- Commissioning of plant to full operation.
- Operator or refresher training

Thousands of quality water treatment installations since 1956.

TONKA WATER™
Trusted systems. Resourceful thinking.

Main 1.800.530.1887
Email service@tonkawater.com
WWW.TONKAWATER.COM

Giving you the value you deserve

We just wrapped up our 98th Annual Conference in Duluth and what a remarkable success. After tallying and comparing the numbers from previous years, it looks like we are consistently maintaining the conference attendance for the past five years. Congratulations to all of the committees who made this year’s conference a success. Special congratulations to all the award winners and Jim Sadler for being elected as the Chair-Elect for our Minnesota Section.

Our Minnesota Section is going to roll out a new website. We are trying to make this website user-friendly and help our members find the Section-related information as seamlessly as possible. We hope you like the new website. We are looking forward to receiving your feedback. A special thanks to all the volunteers that spent number of hours of their personal time to make the website effort a success.

Important news that matters to our Section: Jon Eaton has requested, and received the support of the Section to run for Vice President on the AWWA Board. Jon’s nomination will be reviewed by the Nominating Committee and if selected, he will run in the elections at the AWWA Winter Board Meeting in January. Let’s wish him the best.

In our previous report, Jon and I mentioned that AWWA is set to open an office in India under the AWWA-India Initiative to become an integral source of information, training, and membership support in the Indian Water Industry. The plan is to open an office in Mumbai and hire a staff person locally by the end of this year that will help us to achieve the mission under this initiative. As a part of this initiative, AWWA is planning on having a presence at the Indian Water Works Association (IWWA) Conference, which will be held in January-February, 2015 in Kolkata, India. David LaFrance (AWWA Chief Executive Officer), John Donohue (AWWA President) and Nilaksh Kothari (AWWA Past President) will be representing AWWA at the IWWA Conference. Coincidentally, I am taking a family vacation around that time in India and will be taking some time to attend the IWWA Conference. I am excited to be a part of the AWWA Delegation and for the opportunity to give couple of technical presentations at the Conference. I will report on our trip in the next issue of the Breeze.

AWWA’s new philanthropic initiative has been in an implementation stage since the AWWA Board adopted the Philanthropic Business Plan at ACE 2014 in June. The purpose of this initiative is to produce funding for enhanced and new programs, provide expanded educational opportunities and create new partnerships and collaborations. More information on this initiative will be forthcoming.

Hope some of you had an opportunity to meet Lindsey Geiger from AWWA, who gave a presentation on Community Engineering Corps (CE Corps) at our Conference in September. CE Corps is looking for volunteers to use their skills and expertise to work on project teams, serve on program committees or mentor student project teams. These projects are geared towards assisting underserved communities in the United States and ensure that their infrastructure meet their community’s needs. If you are interested in volunteering for a project, please let Jon or I know. We will provide you with additional details. CE Corps is an alliance between AWWA, American Society of Civil Engineers (ASCE) and Engineers Without Borders-USA (EWB-USA).

Where did 2014 go? As the leaves fall (soon…) and the white stuff drops, we are now in the last quarter of the year. The time has gone by quickly because there is so much going on!! As we approach the holiday season, remember, the Section and the Association are constantly at work to give you (the member) the value that you deserve. Jon and I hope everyone has a Happy Holiday season!! Until next time.

“Engineering Corps is looking for volunteers to use their skills and expertise to work on project teams, serve on program committees or mentor student project teams.”
Pollardwater offers the most complete line of pumps and pump accessories for Water and Wastewater.
Dave’s thoughts

Following up on Stew’s Thoughts from the Fall Breeze, please welcome guest columnist David “McLovin” Rindal with Dave’s Thoughts:

Somebody should make a portable bottling station that could be driven around to taps in participating cities . . . maybe add those home carbonation kits, too.

Clayton Kershaw won’t win the Most Valuable Player award because some voters won’t vote for a pitcher.

I prefer floaters to sinkers.

It shouldn’t be legal to throw a breaking ball if there is any chance of crying after said pitch is hit out of the park.

Make safety your sixth sense. (Said in the wake of Lavern Littlewind Sr.’s death from a collision with a moose in North Dakota while not wearing a seat belt.)

The Bong Bridge in Duluth may be the highest bridge in the state.

And Dave’s favorite thoughts from others:

- Water is the driving force of all nature.
  —Leonardo da Vinci

- I never drink water because of the disgusting things that fish do in it.
  —W. C. Fields

Thoughts from others are always welcome. Send them to stew.thornley@state.mn.us.

---

A Powerful Resource
EXPERTS IN LIQUID/SOLID SEPARATION

Great Northern Environmental | (651) 289-9100 | mfritze@gnenv.com

SOLUTIONS FOR
SCREENING
GRIT
SLUDGE
HUBERFORUM.NET

---

Pump Sales
Pump Systems
Blowers

Over 55 Years of “Reliable” Sales and Service
1-800-767-5151 • www.generalrepair.com • 651-766-0874
Better Equipment for Better Water

WesTech now offers General Filter and Microfloc equipment to give you better process solutions in water treatment plant design. Better equipment, better solutions, better water!

Contact Your Local WesTech Representative

Tel. 952.941.2678
8217 Upland Circle
Chanhassen, Minnesota 55317
www.vessco.com
PROVEN POWER SOLUTIONS
Sales. Service. Rental.

- Prime, standby and emergency power
- Diesel, natural gas and low BTU gas
- Mobile and stationary units
- Fuel analysis and switchgear maintenance
- Emergency services available 24/7/365
- Preventive maintenance programs available on all makes

Shakopee, MN
8050 County Road 101 East
888.320.4292
www.zieglercat.com/power

Hawkins Water Treatment Group has been meeting the requirements of commercial, industrial, municipal and institutional organizations since 1938.

Minneapolis
612-331-6910
Fargo, ND
701-293-9618
Sioux Falls, SD
605-368-5793
Superior, WI
715-392-5121

clean water is everybody’s business.

HR Green has tackled water challenges for over 100 years with a careful business approach at every step of the journey: design, construction, ownership and operation.

2550 University Ave W, Suite 400N
St. Paul, MN 55115
Phone 651.644.4389
Learn more at HRGreen.com
The American Water Works Association is proud to have members like you - you value hard work, dedication, and above all, passion for the water industry. Your enthusiasm never wavers and you never shy away from a challenge, especially when you can lend a helping hand. And now, we're asking for your help in making our newest initiative great. With your help and the help of the AWWA Sections, we know the Community Engineering Corps has the power to change lives and make an impact here at home in the United States.

The Community Engineering Corps (CE Corps) was formed through an alliance between AWWA, the American Society of Civil Engineers (ASCE) and Engineers Without Borders USA (EWB-USA). The alliance combines the

Cross-Connection Control

Surveys/Inspections
Hazard Classification
Compliance & Reporting
Program Administration

We conduct over 20,000 on site Cross-Connection Control Surveys annually. Call to see how we can assist your community.

Wisconsin Office
2665 S. Moorland Rd., Ste. 209
New Berlin, WI 53151
800.315.4305

hydrodesignsinc.com
backflownews.com
Serving over 200 Communities Since 1983

Training
strengths of the three organizations to provide technical expertise to underserved US communities to ensure that the local infrastructure meets their community’s needs. The CE Corps mission is to bring underserved US communities and volunteer engineering leaders together to advance local infrastructure solutions. Our vision is a country where all communities have access to the technical expertise required for ensuring the infrastructure capacity meets their needs.

It may surprise you to hear that many communities across the United States have deficient infrastructure systems and struggle with regulatory compliance issues. Through the CE Corps, volunteers will work on projects to assist such communities. Project types will range according to varied community requirements, and volunteers will be providing planning and engineering services.

Get Involved!
AWWA members will have many opportunities to engage in this program. Volunteers with a range of experience and expertise are needed to serve on program committees, mentor student project teams, work on project teams, or participate in fundraising.

Individual members may serve on one of two operational committees, the Domestic Application Review Committee (DARC) or the Technical Review Committee (TRC).

Members of the DARC ensure each project is compatible with the program’s mission and vision by reviewing detailed project applications. In an application review, the DARC considers the community’s commitment and needs as well as the project scope. Further, the application review also takes into account the potential for competition with local engineering firms as the CE Corps is intended to fill the gap for communities that do not have the financial resources to access engineering expertise in a traditional manner and should not increase competition to consulting firms. The DARC plays a critical role in accepting projects that will be well served by the CE Corps.

When a project application has been accepted by the DARC and matched with an appropriate project team, the TRC members provide the project team quality assurance/quality control. The TRC reviews the project team’s work plan and delivers to confirm the plan upholds the standard of care applied to similar projects, as each project is intended to preserve and protect the welfare of the public.

Additionally, through this program, AWWA’s outstanding stable of experienced professionals have the unique opportunity to mentor student project teams. University-based student chapter members may serve on project teams along with their faculty advisors and professional mentors. Professional mentors will be able to lead the technical aspects of the community projects.

Beyond these opportunities for individual members, Sections also are encouraged to review the Open Projects page on the CE Corps website, form project teams and apply to work on projects that they find meaningful. Depending on community needs, project teams will likely need to include expertise beyond engineering, such as finance, treatment plant operations, and distribution systems and collection systems operations. Project teams will have access to quality assurance/quality control systems and educational resources to ensure the projects they work on are done in a manner appropriate to the US regulatory environment.

Sections are also encouraged to fundraise to support the projects their teams have adopted. The capital costs of community projects may be funded through traditional sources such as the State Revolving Loan Funds (SRFs) and Rural Utilities Service (RUS) or through community funds. Project teams may require additional funding to cover travel expenses, design support costs, and project fees. Fundraising activities through a project team’s Section could support these additional costs.
Make an Impact!
CE Corps projects are informational in nature. Project teams offer engineering services, write reports, draft conceptual designs, or conduct assessments. A community then uses the information the project team has provided to hire the appropriate contractors to carry out or build the improvements.

Our current list of domestic projects ranges geographically and across all sectors of infrastructure. For example, the Black Mesa community of the Navajo Nation in Arizona has applied for technical assistance in site development. Part of this project is planning for the distribution of safe water to community residents.

In Louisiana, the New Orleans Professional Chapter of EWB-USA is working with the Louisiana Urban Stormwater Coalition to reduce flooding and improve stormwater management in a low-income region.

Perhaps the most unique is the following project request from Minnesota.

Open Project Highlight: White Earth and Red Lake Reservations, Northern Minnesota
The 34,000 members of the Red Lake and White Earth tribes value the culture, dedication and strength in their community. The tribes recognize and cherish the resources available on the reservations: a land of 47 lakes and 500 bodies of water full of fish and medicinal plants, as well as a bountiful wild rice crop. Tribal members continue a way of life that is based on the land through continued harvesting, cultural practices, and ceremonies.

Despite their rich cultural heritage, the residents are experiencing increasing levels of poverty. The tribes are dedicated to restoring and strengthening their economy, and they are collaborating with other community organizations to enhance their efforts. As a part of this work, they have approached the CE Corps to request technical assistance.

The White Earth and Red Lake Reservations in Northern Minnesota have applied for technical assistance in designing a fish emulsion factory. Traditionally, residents have used raw by-products from their fish farm to fertilize their crops. The community has researched other available technologies, including visiting three facilities in the fish emulsion industry, and are interested in refining the waste to create a more efficient product. Fish fertilizer is used to address nutrient deficiencies and to enhance the soil with nitrogen, phosphorus and potash. A fish emulsion factory would optimize the by-products of the fish farm and create a fertilizer that is more effective and safer to use while continuing to divert these wastes from landfill.

The residents of the reservations have reviewed several factory designs, and now need assistance designing a facility that incorporates existing local facilities and considers the specific biology of their fish. With the appropriate design, Red Lake could produce up to 70,000 gallons of organic liquid fish fertilizer per year. Beyond bolstering the local agriculture and economy, this product could be made commercially available for a rapidly growing organic market.

The needs are vast and the options are limitless, but this is just the beginning! The common thread and the crux of all these projects is the community. Each community that submits an application has identified its most critical needs and is committed to the path forward. Community commitment and involvement are key components of this program.

We need you, MNAWWA!
This program starts with the community, but will only move forward with help from our Sections. Because the Community Engineering Corps is still a new program, many communities may not be aware of the opportunities that exist. AWWA Sections and project teams may serve as the catalyst for engaging new communities and helping them understand the available opportunities. Whether they are providing engineering services or navigating the maze of funding options, project teams can make an impact.

Now that you have some ideas on how to get involved, take the next steps. Visit www.communityengineeringcorps.org for more information or to submit an application today!
Over 30 years of providing superior products & field service support to the Waterworks Industry...  
- Periodic Maintenance  
- Start-up Assistance  
- Diagnostic Services  
- Valve Repairs  
- Field Retrofits  
- Field and/or Classroom Training  

NORTHWESTERN POWER EQUIPMENT CO., INC.  
P.O. Box 131180 • 2740 Patton Road  
Roseville, MN 55113 • Phone: 651.628.0683  
Fax: 651.628.0753 • www.nwpco.com  
djkluck@nwpco.com  

Interstate Companies  
24 Hour Emergency Service  
- Water Main Repair  
- Sewer Systems Repair  
- Water Pumping  
- Earthwork Restoration  
- Storm Debris Removal  
- Flood Control  
- Hazardous Material  
- Spill and Containment  

651-765-0765  
interstatepm.com
Annual Conference awards recap

Awards

National

2014 George Warren Fuller – Tony Belden
Life Members – Douglas Mandy, Albert Libke, Duane Meliza

Silver Drop (30 year) – David Waldoch, Kelly Lang-Haider, Albert Libke, Craig Doeden, Robert Brown, Terry Neuman, Duane Meliza, Chris Catlin, Richard Kittelson

Gold Drop (50 year) – Lawrence Turner

Section

2014 Leonard N. Thompson – Glen Gerads
2013 L.N. Thompson plaque – Jon Eaton

Andrew Sullivan Award for Outstanding Leadership – Pat Shea

Operator Meritorious Award – Scott Ketchmark

Benjamin G. Mason Award of Excellence – Tony Belden

Volunteer of the Year – Shawn Mulhearn

Scholarships – Advanced Degree Scholarship recipients – Justin Bergerson (U of M), Emily Von Hagen (NDSU), Erin Mattern (NDSU)

Top of the Glass Award – Moorhead Public Utilities

Meter Madness – Travis Reichl, Albert Lea

Pipe Tapping – Minneapolis Water Works

Tom Moulton is the AWWA representative shown in some of the photos. •
**Water System Leak Detection**

*Call US BEFORE You Dig!*

If you have a watermain break, we’ll be there with our Correlation Equipment and 16 years of Experience to locate where the pipe is leaking. We’ll put a mark on the surface where you should dig—no chasing, and no dry holes. WCS will save you time, water and most importantly Money!

Other Services:
- Water Loss Surveys
- Pool Leak Detection
- Plastic Irrigation Leak Detection
- In Floor Heating Leak Detection

For 24 hr Emergency Leak Detection
Call Tony Schrantz 612-600-8716

Through City Water System Leak Surveys, we’ve saved over 925 MILLION gallons of water just in Minnesota in 2013! Call to get a survey proposal for your city next year.

www.watermainleaklocator.com

---

**Jasper Engineering and Equipment Company**

We offer a full line of Instrumentation solutions

We represent Siemens Industry Inc. If you need to measure flow, level, pressure, temperature or other processes, we can provide solutions for you applications. Call today to schedule a visit.

Jasper Engineering & Equipment Co.
700 Hamel Road
Medina, MN 55340
Phone: 952-938-6504
Fax: 952-935-7772
www.jaspereng.com

---

**ABC WATERLINE SPECIALIST LLC**

Small, family-owned business, dedicated to doing a professional job at a reasonable price

- Under Pressure Valve Installation
- Line Stopping
- Line Tapping
- Waterline Maintenance

Mike Miller 218-220-0166
Cindy Miller 218-220-7684

---

**BERGERSON-CASWELL COMMERCIAL SERVICES**

#1 in Quality & Safety

Insist on BERGERSON CASWELL for Sales, Service, & Support for all your Water, Well, & Pumping related products.

Our experienced operators, high quality equipment, and company wide health and safety program ensure all projects are performed to specification, safely and efficiently

SINCE 1948

5115 Industrial Street • Maple Plain, MN • 55359
(763) 479-3121 • Fax (763) 479-2183 • (800) 328-6188
www.bergersoncaswell.com
Professionals in the water industry in the United States appreciate the quality of drinking water most Americans receive and that many take for granted. These professionals also know that many places in the world aren’t as fortunate and that a lack of safe water is a major factor in problems—both health and economic—that developing countries face.

Some are far away, such as Africa, but a group called Haiti Outreach Inc. is focused on an area only 600 miles from the United States. Sharing the island of Hispaniola with the Dominican Republic—flanked by the Atlantic Ocean and the Caribbean Sea to the north and south and by Cuba and Puerto Rico to the west and east—Haiti is trying to work its way back to the standards of life of its neighbors.

The challenges of many Latin American countries and commonwealths are not as acute as those in Haiti, which is ranked as the poorest in the Americas by the Human Development Index, using statistics related to life expectancy, education, and income. The 30-year reign of François “Papa Doc” and Jean-Claude “Baby Doc” Duvalier caused many citizens to leave the country from 1957 to 1986. “Their dictatorship wiped out more than a generation of the middle class,” said Dale Snyder, the executive director of Haiti Outreach, of the Duvaliers. “The country has not recovered, and it might take another 20 years.” A devastating 2010 earthquake near the capital city of Port-au-Prince was another setback to Haiti’s recovery.

With regard to water, Haiti ranked last of the 147 countries studied by Keele University of England for clean and available water. Haiti Outreach has been working since 1977 to forward its vision of Haiti becoming a developed country with clean water, adequate food, proper sanitation and medical care, electricity and infrastructure, and education and job opportunities for all. Its mission is based on sustainable development and not relief. Snyder said 90 percent of the organization’s work focuses on water and that community ownership, management training, and effective use of the economic system are the keys to their work and what distinguishes their organization.

“Many relief-based non-profits, however well-intentioned, create dependency, which is counterproductive to moving Haiti forward as a developed country.”

Snyder explained that Haitian communities must make a request for engagement and then meet certain criteria. “If, for example, they want a well, they need a letter signed by five people, three of whom must be women. The project ideas must originate from them. They must initiate and take action.” The community must purchase the land for the well so that it is on public, not private, land. The average well depth is 200 feet, which is below the reach of human contamination. As an undeveloped country with little industry, Haiti has little pollution. “Almost everything is organic,” said Snyder.

The communities elect a water-management committee, and Haiti Outreach sends trainers (called animators) to teach them how to manage and maintain the wells, develop their own rules and regulations, and raise money for future repairs. The management committee consists of volunteers, although they will...
A Haitian woman pumps water from a new well, part of a project from Haiti Outreach, a Minnesota-based organization that is helping Haiti to become a developed country with most of its focus on water.

Ron Axel and Dale Snyder

A wellhouse under construction in Haiti

Many residents in Haiti still get water from places like this and may have to travel a considerable distance to get it. Haiti Outreach has three well-drilling rigs in the country.

Haiti Outreach leads education and work trips to Haiti about six times a year. The trips are usually about eight days long. More information about group trips is available at http://www.haitioutreach.org.
Neptune’s R900 and E-Coder
Two Proven Technologies Integrated Into One Device

• Single, Wireless AMR Solution
• High 8-Digit Resolution
• Leak Detection
• Tamper Detection
• Reverse Flow Detection
• Reduced Material & Labor Costs

Contact Ferguson Waterworks for complete details on the Neptune E-Coder R900i . . . and take the next step in meter reading technology.

ESS BROTHERS & SONS, INC.
"Through six generations our integrity, knowledge and service lives strong"

Manhole Castings  Catch Basin Castings  Truncated Domes  Trench Grating  Paving Rings
Tree Grating  Access Hatches  Fabrication Products  Sediment Collection
Saw Blades  Infra Safe DCD  Wimco Sediment Control Products

CALL TODAY FOR THE ONE STOP SHOP ON ALL YOUR CONSTRUCTION NEEDS, GREAT CUSTOMER SERVICE AND WE DELIVER TOO!

MANHOLE INFILTRATION SOLUTIONS

Eis Brothers & Sons, Inc. — Construction Specialists for 146 Years!
9350 County Road 19 • Loretto, MN 55357 • 763-478-2027 • www.eisserothers.com
Since 1947, Brown and Caldwell has helped municipal utilities solve their toughest drinking water challenges. Advance with us.

Master Planning
Water Supply, Distribution and Treatment
Integrated Buried Infrastructure Management
Environmental Compliance
Instrumentation and Control Systems
Business Consulting
Facilities and Energy Optimization
Asset Management

©2013 Brown and Caldwell. All rights reserved. Brown and Caldwell, its logo, illustrations and “essential ingredients” are trademarks of Brown and Caldwell.
Can Parasitic Worms Get Into Drinking Water Tanks?

By Erika Henderson, Director of Research for Pittsburg Tank & Tower Inc.
On August 26, 2013 a small Oklahoma town was advised not to use the tap water for cooking or drinking, because red worms had been found in the town’s drinking water supply. The Oklahoma Department of Environmental Quality (DEQ) conducted an investigation and determined that midge flies entered the system through sand filters at the water treatment plant. The flies laid their eggs in the filters and when the eggs hatched the red worms simply swam into the water supply.1 Fortunately, these worms were not parasitic, but there are several parasitic worms that could get into drinking water systems: roundworms, flukes, and tapeworms.

These parasitic worms are transmitted by direct contact with their eggs, consuming a host that has the parasitic eggs, or consuming the feces of hosts that contain their parasitic eggs. Once consumed, the parasitic eggs hatch and attach themselves to the intestines. Some stay in the intestines, but others travel to various organs and parts of the body to cause damage, while they continue to grow and multiply.

HOST AND THEIR ENVIRONMENTS

Hosts can include: aquatic life, insects, birds, rodents and other animals. They can gain access to drinking water through openings on tanks. Aquatic hosts can travel through the inlet or outlet pipes depending on the tank’s source of water. Aquatic life is often found in tanks that receive their water from lakes, streams, rivers or other waterways. A few years ago, more than 50,000 gallons of mud and aquatic life were removed from a two-million gallon tank in New York, and in Georgia, a fish swam past the camera during an inspection. These are all potential parasitic worm hosts!

Other hosts can gain access by holes in the roof, shell, or floor. Gaps between the roof and shell, vents or overflows with torn or missing screens can allow insects, birds, and other small animals into the tank. If birds and insects are in the tank, then their feces and the possibility of parasitic eggs are also in the tank. Human beings that consume the contaminated water become the next host, where the parasitic worm continues to grow in them for years. Another disturbing fact is that these openings often go unnoticed until an inspection is performed. That means this potential risk could go unnoticed for years!

Stagnant water also contributes to contaminated water. The stagnant water can contain a variety of microscopic organisms and bacteria that lures potential hosts into the tanks. Stagnation occurs when water is separated into layers arranged by density, the least dense and warmer water sitting above the denser cooler layers of water coming in. The layers are caused by differences in temperature, pressure, and pH. These unmixed layers cause water quality to deteriorate and age, increasing bacterial growth. Flies, mosquitoes, water fleas and other insects and crustaceans are attracted to the bacterium and birds are attracted to the insects.

“Some stay in the intestines, but others travel to various organs and parts of the body to cause damage, while they continue to grow and multiply.”
MEET THE PARASITES
Roundworms: Water fleas are possible hosts to the Dracunculus larva, a type of roundworm that causes a horrific disease known as guinea worm disease (GWD). Once the infected water fleas are ingested, stomach acid dissolves the water flea, but not the Dracunculus larva that hatches and travels to connective tissues. Often, no symptoms are noticed until approximately one year later, when the disease and worm presents itself with a painful, burning sensation, as a blister on the skin forms. About a week later, the blister ruptures exposing one end of the worm. Often, the infected person immerses the affected area in water to relieve the pain, but then hundreds of thousands of larvae contaminate the water, allowing the cycle to repeat again. To extract the worm, a person must wrap the live worm around a piece of gauze or stick. The process can take hours to months and great pain accompanies it.2

Other parasitic roundworms include: pinworms, hookworms, Ascaris, Baylisascaris, and Strongyloides Stercoralis. Pinworms are said to be the number one parasite in North America and the eggs can become airborne, living for days without a host. Hookworm eggs can live without a host for weeks, and Strongyloides Stercoralis can live with or without a host. Baylisascaris and Dracunculus Insignis are found in dogs, raccoons, etc.
Complete Water Services
Water Supply, Water Treatment, Storage, Distribution, Operations Support

24-hour leak detection services: 612.991.3400
Visit tkda.com or call 800.247.1714 for more information. Saint Paul | Duluth

Innovative & Sustainable
Engineering, Architecture, Planning

Agile leadership flows from active listening. The foundations of our successes begin by simply listening to our clients. Ready to talk about your challenges? We’re listening.

We’re building a world of difference. Together. WeKnowWater@BV.com

 WWGoetsch Associates, Inc.

PUMP AND MOTOR SALES AND SERVICE

SALES
• Aurora
• Fairbanks Morse
• Hydromatic
• Layne/Verti-Line
• Goulds Vertical Turbine
• Grundfos

SERVICE
• All makes and models of pumps, motors and controls
• Motor rewinding
• Surge testing
• Fully equipped service centers
• Fully equipped service trucks
• Preventive maintenance contracts

800-831-7914
(952) 831-4340 • (952) 831-7914 • (952) 831-2357 fax
5250 West 74th Street, Minneapolis, MN 55439
(218) 829-6890 • (218) 829-6972 fax
7674 College Road, Ste. 105, Baxter, MN 56425

Listen & Lead

Celebrating three years of different.

We believe in simplicity.
We believe in setting the bar even higher.
We believe in doing what we say.
Thank you for believing in us.

Apex Engineering Group

ApexEngGroup.com
minks, foxes, otters, skunks and other small animals of North America. Just last year, a decomposing raccoon was found in a Virginia ground storage tank, and a dead squirrel was pulled from a Missouri ground storage tank.

Ascaris worms are roundworms that cause respiratory problems, and live worms may be observed in the stool or exiting through the nose or mouth. According to Human Diseases and Conditions, “It has been estimated that four million people in the United States carry ascaris, most of them in rural southeastern areas.”

May 24, 2013, The Center for Disease Control and Prevention (CDC) reported in their Morbidity and Mortality Weekly Report that, “During April 2010- March 2013 the Maine Department of Health and Human Services investigated multiple cases of ascariasis that have been reported by health-care providers, veterinarians, and patents. After investigation, 14 persons on seven farms in Maine were identified with Ascaris infection.”

Flatworms: The Trematodes (flukes) are found worldwide, and their common hosts are fish, snails, water plants and fish eating animals. These potential hosts are found and removed from water tanks yearly. Flukes are flatworms that live in the intestines, tissue, lungs or blood depending on what kind has infected the body. The Fasciolopsis Buski (intestinal fluke) infects the small intestines, and the Fasciola Hepatica (liver fluke) infects the biliary ducts and gall bladder. The Paragonimus Westermani (lung fluke) is found in the lungs and is sometimes mistaken for lung cancer. The Schistosoma (blood flukes) are found in the blood and travel all over the body causing damage to red blood cells and organs. People infected with blood flukes get sick, weak and often die.

Tapeworms: The Cestodes (tapeworms) include: Taenia Solium (pork tapeworm), Taenia Saginata (beef tapeworm), Diphyllolothrium Latum (fish tapeworm), Hymenolepis Diminuta (rat tapeworm), and Hymenolepis Nana (dwarf tapeworm). The pork tapeworm can cause Neurocysticercosis (NCC), an infection of the brain or spinal cord. According to the American Academy of Neurology, “Neurocysticercosis is typically considered a disease of the developing world. Nonetheless, NCC is also diagnosed in the developed world. The disease now is on the rise in developed countries such as the United States, Canada and the United Kingdom.”

January 15, 2013, a NewRX editor of Life Science Weekly reported that, according to Baylor University College of Medicine, “The rise in the number of cases of NCC in developed countries, especially in the Unites States of America, has largely been driven by influx of immigrants from endemic to non-endemic regions and the widespread access to neuroimaging. Cases of local transmission have also been documented, particularly in the setting of a tapeworm carrier present in the household, which highlights the relevance of NCC as a public health problem in the USA. We estimate that between 1320 and 5050 new cases of NCC occur every year in the USA.”

The beef tapeworm eggs can survive for months in the environment, and the fish tapeworm eggs mature in the water within three weeks. Tapeworms of wild animals can cause Alveolar Echinoceccosis disease that mimics liver cancer and cirrhosis of the liver.

PREVENTION
• Prevent the potential hosts from entering the tank by getting it inspected for openings that could lead to unauthorized access. Screens, free from rips or tears, should cover all pipe openings. Holes and gaps should be sealed or welded. Roof man- ways and hatches should seal tightly and a lock should be placed on them. Ladders should have appropriate ladder guards and locks to prevent people from entering the tank or placing potential hosts into the tank.
Clean and disinfect water tanks regularly. The America Water Works Association (AWWA) states: “Tanks should be washed out and inspected at least once every three years, and where water supplies have sediment problems, annual washouts are recommended.” (AWWA M42-92) Biannual inspections and cleanouts are probably more desirable. Water tanks can be taken out-of-service and a trained professional can physically enter the tanks to inspect and clean them, or a robotic inspection and cleanout can be performed. A robotic inspection does not require draining the tank and there is no downtime, liability, or water loss. Lockout/tag out procedures and confined space permits are not needed, because no one enters the tank. The robot is equipped with lights and a color camera, and live viewing of the inspection takes place through a ground monitor. A DVD of the inspection is provided and both forms of inspections come with a written report that includes a detailed evaluation, photographs (hopefully, none with potential parasitic hosts), recommendations of needed repairs, code updates, and a cost estimate for each item.

After an inspection has been performed and the condition of the tank has been determined, please address the issues. If the tank needs to be cleaned, then please clean it. If the water temperature during the inspection indicates possible stratification, then please take necessary steps to eliminate it. A mixing system may need to be installed to prevent the stratified water, and the water may need to be tested and treated more often.

Everyone deserves clean and healthy drinking water free from parasitic worms. Please take all necessary precaution to prevent potential hosts from getting into drinking water tanks and spreading these horrific diseases that result from the infections. Keep in mind that this article only discussed multi-celled parasitic worms that could potential get into drinking water tanks. A whole gamut of various single-cell parasites, viruses, and bacteria could also be lurking in drinking water tanks waiting to attack human cells.


Elements of Your Success


These elements make up the structure of AE2S. What does that mean to you? Extreme client service, trusted relationships, a shared vision for your future, and passion for every project. They all translate into your success.

WATER ENGINEERING
WASTEWATER ENGINEERING
WATER RESOURCES ENGINEERING
ELECTRICAL ENGINEERING
FINANCIAL SERVICES
ASSET MANAGEMENT
INSTRUMENTATION & CONTROLS
OPERATIONS OPTIMIZATION

Advanced Engineering and Environmental Services, Inc. (AE2S)
Offices located throughout the Upper Midwest and Rocky Mountain Region

www.ae2s.com
Halfway through 2014 and more than half the country has already seen new record high temperatures. Warmer water in storage tanks and towers may trigger unexpected growth of some microbes. Sediment on the floor of water storage tanks can become a safe habitat for a wide range of living organisms. If your chlorine use is increasing during warmer months, you may already be fighting this battle.
Inspection of water storage facilities using underwater cameras, remotely operated vehicles, and commercial divers provides detailed insight concerning the condition and severity of sediment accumulation. This view into so many different water systems has provided a very unique perspective, along with an understanding of the weaknesses, of our current distribution infrastructure.

Most communities have outstanding water treatment systems and practices that remove microbes and other contaminants. The problems begin when that near perfect water is pushed through aging, often antique infrastructure to storage facilities that are rarely, if ever, cleaned. If your tanks are on a cleaning schedule, your water system is among the best in the nation. Unfortunately, that is not currently the norm for many systems.

Sediment slowly builds up in most water tanks. After a few years of service, a quarter to a half-inch is common; at between five and ten years of service, a half inch to two inches; and at ten to twenty years without cleaning, tanks can often accumulate three or more inches. Despite the water being near perfect at the treatment stage, it often travels through miles of water mains that are 20, 30 or even 50 years or older.

Occasionally there are main breaks, where water is lost but dirt and other contaminants can be sucked into the system. Many tank inspection personnel focus on the structural safety of the tanks, but dismiss the sediment on the floor as unimportant. Water utility managers and operators should view tank sediment in an entirely different way. The sediment offers protection and food to living contaminants that make their way into the storage tank. Over time, a harmless amount of bacteria can grow to the point where it is depleting chlorine reserves and forcing the use of additional disinfectants.

The soft sediment that accumulates on the interior floors allows a habitat where bacteria, protozoa, or even viruses (1) can grow and become a threat to public health. Record high temperatures create a warmer environment that may spur more activity and leave tanks at an even greater risk of chlorine depletion from the growth of microorganisms – including pathogens.

In January of this year, Ron Perrin of RPWT, was invited to speak at the U.S. Environmental Protection Agency (EPA) Region Six, Five-State Meeting On Drinking Water Quality in Dallas, Texas. His presentation titled, "Out of Sight, Out of Mind", covered what his company had found inspecting and cleaning water tanks across Texas, and in many other states. He also showed a video of divers removing sediment and reviewed what sort of microbes can use tank sediment to get a foothold in distribution systems. Some participants acknowledged that microbial growth in tank sediment was something they had never thought about.

The program was well received, and gave both state and federal regulators a different perspective on an often hidden problem. At this time, EPA has no rules requiring potable water storage tanks to be cleaned or inspected – just a recommendation to clean “as needed.” Similarly, the American Water Works Association recommends cleaning every three to five years, or “as needed.” That leaves ample room for interpretation, so utility managers are not motivated to include tank cleaning in maintenance budgets. Few states require scheduled cleaning, and many don’t even require regular inspection. But what are the potential consequences of the failure to inspect and clean?

“With more aging water storage facilities, holding warmer water, conditions are perfect for triggering growth of more dangerous contaminants than have ever been reported.”
Example:

September 16, 2013, NBC News reported: “Deadly brain amoeba infects US tap water for the first time”. The death of a 4-year-old boy near Violet, LA., was linked to the Naegleria fowleri amoeba. The child had been playing on a backyard slip-n-slide that used water from the St. Bernad Parish water system that was later found to be contaminated with the amoeba. “Tests show its present throughout the water supply system in St. Bernad Parish, directly southeast of New Orleans”.

“Naegleria fowleri infects people when water containing the amoeba enters the body through the nose. This typically occurs when people go swimming or diving in warm freshwater places, like lakes and rivers. The Naegleria fowleri amoeba then travels up the nose to the brain, where it destroys the brain tissue.”

After the boy’s death, the Louisiana Department of Health and Hospitals (DHH) asked the U.S. Centers for Disease Control and Prevention (CDC) for help, since the department could not find a lab to test for the amoeba. The CDC usually does not test drinking water, but did, in this case, because of two additional deaths related to the amoeba that occurred in Louisiana, 2011. The CDC also tested DeSoto Parish Waterworks District No. 1 because it was near the site of one of the 2011 deaths.

On October 8, 2013, the CDC confirmed the presence of the rare amoeba in five locations in DeSoto Parish Waterworks Dist. #1. The Louisiana water utilities responded to the amoeba by conducting a chlorine burn to kill the organisms in the system. On January 22, 2014, following the chlorine burn, CDC test results were negative for Naegleria fowleri in DeSoto Parish. The same results were found in St. Bernard parish following their chlorine burn on February 11, 2014.

A primary concern should be that the Naegleria fowleri may be lingering in the tank sediment. Naegleria fowleri is typically dormant in cooler months and active in warmer temperatures.

One reason Naegleria fowleri had not been found in U.S. water systems is that tests for it (and many other bacteria, protozoa and viruses) are not routinely performed. The amoeba has been found only in the southern half of the country in fresh water lakes, rivers and streams where high temperatures enable it to become active.

Since water utilities cannot test for every known contaminant, much less those not yet found in water tanks, a coliform test is used to determine whether other fecal pathogens are likely to be present. The new Revised Total Coliform Rule (RTCR) requires assessment and corrective action when there are indications of coliform contamination. The RTCR no longer includes a monthly maximum contaminant level violation for multiple total coliform detections. Instead, systems that have indicators of coliform contamination in the distribution system must assess the problem and take corrective action.
Urban sprawl, aging tanks and record high temperatures

As our communities grow, we see urban sprawl everywhere, and more water storage tanks and towers are built to accommodate the growth. At the same time, the water storage facilities our parents and grandparents used, along with the infrastructure that supports them, are still in service in many established areas and getting older. While there is nothing wrong with older facilities that are well maintained, many tanks and towers rarely, if ever, have had their interiors cleaned. Contracted inspection technicians and commercial dive crews often meet water utility workers who have been on the job for five years or more and have never seen a tank cleaned.

Meanwhile, summers seem to be getting longer and record high temperatures are increasingly common. That combination can allow soft sediment on the floor of tanks to become breeding grounds for a host of different microbes allowing them to get a foothold in the distribution system. Ideal conditions occurring more regularly can enable these organisms to bloom out on a record hot day, overtaking chlorine and other disinfectants.

With more aging water storage facilities, holding warmer water, conditions are perfect for triggering growth of more dangerous contaminants than have ever been reported. The Naegleria fowleri amoeba may have been our first warning of increased contaminant growth in water tanks.

Are current testing procedures adequate?

While pathogens increase in strength and number under the safety of a blanket of sediment, testing at the tap (even at multiple locations) may not reveal a problem. In the warmest part of the summer, perhaps on a record hot day, a standard test at a tap may find that chlorine reserves seems to have been suddenly depleted and the entire system is now at risk. In reality, the problem has been festering under the sediment undetected, for months, or in some cases, years.

The assessment of sediment on tank floors is often overlooked when doing a tank inspection. This is a very important part of the inspection process and should not be taken lightly. The EPA is now considering requiring tank inspections under the new RTCR. This will be a big advancement for states without current rules for inspection. Water utility managers should be sure that tank inspections include the interior tank floor. Smaller systems can often check for sediment by simply lowering the water level enough to see the floor and looking inside the top hatch of the tank.

If you do not want to take your facilities out of service to conduct the inspections in-house, there are contractors eager to assist you. A growing number of
“If your contractor fails to maintain workers compensation, your water utility may be held responsible for any accidents or injuries that take place at your facility.”

contractors offering Underwater Camera, Remotely Operated Vehicle (ROV) or Commercial Diver Inspections allow utilities to get excellent documentation on their storage facilities. The inspection report should include photos of inspection points and underwater video clearly showing if you have sediment on the floor. There have never been more choices to get tanks and towers inspected without disrupting your water service.

When hiring a contractor
There are a few things to consider when hiring a contractor to clean or inspect a water storage tank. Remember that storage tanks of all types are regulated as a confined space. A written confined space policy and procedure and training records should be asked for in advance. Training should document there as has been OSHA training for confined space entry. If the contractor is going to put divers in your tank, diver certifications should also be asked for. Commercial diver certifications from the Association of Diving Contractors International (ADCI) are the standard for commercial diving. This ensures the divers have met educational and training standards that far exceed recreational divers.

Of course, when hiring any contractor you should check recent references, and basic insurance requirements are essential. If your contractor fails to maintain workers compensation, your water utility may be held responsible for any accidents or injuries that take place at your facility. The contractor should also maintain at least one million dollars of liability coverage and a commercial auto policy.

The importance of basic housekeeping
Basic housekeeping is important. Every water tank should be on a schedule to be cleaned at least once every five years. If tank inspections reveal extensive sediment, or records indicate that the facility has not been cleaned in the past five years, it is likely that the sediment needs to be removed. Should you get a violation under the new RTCR, inspection of your storage facilities is the first thing you should consider doing to assess the problem. If no other obvious problems are found, cleaning the storage tanks may prove to be one of the more effective corrective actions a utility can take.

Be aware of chlorine levels before draining tanks for in-house cleaning. Putting chlorinated water into streams is an EPA violation. You should check your state regulations on chlorine discharge before draining a tank, in particular a super chlorinated tank that you have taken action to correct will need special procedures. Diving contractors removing sediment directly from the floor of the tank seldom have a problem with chlorine discharge. The sediment has often depleted the chlorine reserves on and near the floor of the facility. Remaining chlorine residual can be depleted as it is mixed with the floor sediment through multiple sections of discharge hose.

The fact is, keeping your tanks clean will likely prevent you from getting an RTCR violation in the first place. What contractors have found is this: Once the sediment is removed, utility operators discover that chlorine costs are reduced because the chlorine is no longer losing the war with the microbes that were growing in the sediment.

However you choose to do it, just get it done. Do not let it go year after year, out of sight and out of mind. Knowing what is in your facilities with a good inspection is your first line of defense. If an accumulation of sediment is found, don’t think of it as “just a little dirt.” Know that it is a broken barrier that can allow contaminants to compromise the entire water supply and the health of the community.

About the Author:
Ron Perrin is a member of the AWWA and the owner of Ron Perrin Water Technologies in Fort Worth, Texas. Since 1997, his company has inspected over six thousand water storage tanks and towers in 14 states. Ron may be contacted through his web site at www.ronperrin.com. He is the author of Inspecting and Cleaning Potable Water Storage, 12/07/2009, 158 pages, [ISBN-10: 1441532447]. His presentation, “Out of Sight, Out of Mind” has been presented at several water utility schools and conferences and is available in the form of a power point presentation with ample notice. For additional information, check out The Clean Water Tank Project at www.cleanwatertankproject.com.

Reference Material and Links:
(1) Health Risks From Microbial Growth and Biofilms in Drinking Water Distribution Systems. EPA, JUNE 17, 2002.
(5) Revised Total Coliform Rule (RTCR), Federal Register, 02/13/2013.
(6) National Primary Drinking Water Regulations: Finished Water Storage Facility Inspection Requirements Addendum to the Revised Total Coliform Rule. http://yosemite.epa.gov/opei/rulegate.nsf/7e8e1ba76df52e6d883452564f307ad746e6d16d82605d285257ce10069c52c1open?opendocument#5
Inaccuracy is Expensive.

AquaSense intelligent water management

Beyond metering, the AquaSense™ water management solution combines the power of Sensus advanced metering technology, software and proven service with the FlexNet™ communications system. Now you can account for every drop and turn water into revenue through our enhanced leak detection and unparalleled data acquisition.

AquaSense is scalable to fit the needs of large and small utilities alike, realizing day-one savings, short-term payback and technology that will grow with you into the future.

Tomorrow’s water management breakthrough is available today. AquaSense water management solution.

Chance Curtis | 763-856-0110 | chance.curtis@sensus.com

www.sensus.com/aquasense

Our work has a lasting ripple effect

Design with community in mind

stantec.com
For over 35 years, Prinsco has been developing more than just plastic pipe. We’ve been developing a reputation that’s founded on one simple thing: INTEGRITY. It’s how we design our products, it’s how we treat our customers, it’s how we do business.

Look for our GOLD STRIPE of quality to ensure your pipe has been engineered with integrity.
Unknown to me, several members of our section nominated me for Honorary Membership in AWWA. The application was approved by the National Board of Directors and I received the Award at the National Conference in Boston this past June. I was further recognized by the Section at the fall conference banquet. This is a great honor as only three were chosen across all of AWWA this year.

No one earns an award for their career without the help of many other co-workers and fellow section members. There are many people to thank for their role in the many things I have done and worked on over a career starting in 1968. At this point I am still working part time in the water field but I am enjoying semi-retirement.

I do want to share some of the greatest memories of my water career:

Of course starting at St. Paul Regional Water Services right out of college in 1968 and retiring as General Manager in 2003 was my main career. Probably the things I will remember the most were the main breaks or other incidents that got me in front of a radio station microphone or a TV camera. Mostly they were good but some were not very pleasant. I won't list any but I enjoy talking about some of those like the police that were told not to drive into a main break pool of water but did anyway and the car sank out of sight. Of course, I am proud of the many improvements to the system over my career and the Board support to make that happen.

I also worked as Director of the Minneapolis water system for over 4 years. I will always remember those 4 years too. My memories there will include building a new capital plan going forward and strengthening the relationship with the suburban customers.

I held many positions in AWWA but being involved on the national level in the Standards Council and the Water Utility Council were very rewarding. As General Manager at St. Paul, I also belonged to AMWA (Association of Metropolitan Water Agencies). I was appointed by AMWA to serve on the Children's Health Protection Advisory Committee for the EPA for 6 years. I was the only water representative on the committee so I really represented all of the water industry and I was on the National Water Utility Council at that time. This committee will always be in my memory as before this committee started the EPA spent $0 on research related to children's health and the committee helped change that so besides research on adult health issues related to the environment (water, air, food), they also now do significant research on how the environment may affect children's health which is different than for adults who are no longer in the growing stage.

One of my favorite volunteer efforts has been Water For People. I want to mention one incident that is forever painted in my memory. In 1992 I took a trip to central BAJA with several other church members to a site where we had funded a well. This site was an orphanage under construction and a medical clinic. The clinic was used by doctors from LA flying in one weekend a month to help the poor from the area with dental, eye, or other medical problems. Thirty to forty doctors did a fly in to provide free help. We slept in air conditioned trailers but the people seeking medical care slept outside on the desert ground. During the day I mixed mortar for the orphanage they were
building. It was 115 degrees. My other church members all worked in the clinics. The clinic well failed and they were using the neighbor’s contaminated irrigation well for water. Our church had funded a new well for the clinic/orphanage. While I was using a hose from the contaminated well, a small boy carrying his bottle which he had dropped in the dirt, asked me to wash then nipple. I was really torn with what to do. The dirty nipple and bad water from the hose were both not safe, however, I decided to wash his bottle and nipple with the hose water. Never forget his face. The pilot of the light plane let me fly it for a couple hours on the way back in Mexico air space. WOW!

For all the work we do and awards we get for success, it is the precious moments that we pack into our memories and recall years later that make us feel good. Also, it is all the good people around us and the people we serve that make it all worthwhile.

Thank you all who have been there with me along the way including my wife, Lee. I also need to thank my parents, although they are gone. I do regret my mother died of ALS early in my career and was not there to follow my career. I have not quit just at a different phase of my career, balancing the important things in my life. I am working on a new idea for the Section. More when I develop it further.

Thanks to everyone who has touched my life.

“For all the work we do and awards we get for success, it is the precious moments that we pack into our memories and recall years later that make us feel good.”
New to Minnesota Department of Health Drinking Water Protection

Susan Wyatt has joined the MDH Section of Drinking Water Protection to draft the section’s Quality Management Plant for environmental work. She is interviewing staff regarding their role in drinking water protection and will draft the section’s training plan for ongoing quality improvement activities.

Susan grew up on a farm in northwest Ohio and has a passion for The Ohio State University Buckeyes and for motorized vehicles of all kinds—including antique tractors. While in college, she discovered a passion for classic cars. For four summers in Minnesota, she drove a bright orange Volkswagen microbus, aptly named “Clementine,” which she had restored to its shiny 1973 condition. She and Louie, her 10-year old ShihTzu/Bichon puppy, like to spend time at the dog park or take spontaneous country drives to smell the good Minnesota farmland dirt.

Trent Farnum has joined the Source Water Protection Unit of the Minnesota Department of Health Section of Drinking Water Protection as a hydrologist, covering the northwestern part of the state. Farnum worked as a hydrogeologist for Stantec since 2007, primarily on the hydrogeology of contaminated sites. Before that, he was an intern at Dakota County, working on the Hastings area nitrate study. Farnum has experience in groundwater flow modeling.

Fairmont wins Tap Water Taste Test

Doug Rainforth of Fairmont displays his trophy and the tournament board for winning the Great Minnesota Tap Water Taste Test at the State Fair on August 27. Fairmont water won over International Falls in the final round. North St. Paul and Le Sueur were the other cities that made the Final Four. In addition, Apple Valley, Bloomington, Burnsville, Eagan, Eden Prairie, Grand Marais, Hastings, Lakeville, Lino Lakes, Minneapolis, St. Cloud, St. Paul, St. Peter, and Willmar provided water samples for the contest. Fairmont gets its water from Budd Lake and recently opened a new treatment plant with lime softening, on-site sodium hypochlorite generation for disinfection, rapid sand filters, and granular activated carbon adsorption filters for taste and odor control. Below: while at the fair, Steve Schneider filled his water bottle with the good stuff from a bottle-filling station inside the Eco Experience building.
MNAWWA develops communications kit

The Minnesota Section of American Water Works Association has developed a communications kit for customers and media related to frozen services. The winter of 2013-2014 was particularly cold, resulting in a large number of freeze ups of service lines. The communications kit, Let It Run! A Special Media Kit for Utilities, has radio and television, print, and social-media materials and is available at www.mnawwa.org/resource/resmgr/Docs/MediKitFrozenWaterLines.pdf.

**LET IT RUN!**

To prevent freezing, please leave a cold water tap running at a steady rate of approximately 1/4 inch (width of a #2 pencil)

**REPORT A FROZEN SERVICE!**

Water service lines are freezing in your neighborhood. Contact your water supplier to see what you should do!

---

Our concern for the environment is more than just talk

As we continue to deliver valuable information through the pages of this magazine, in a printed format that is appealing, reader-friendly and not lost in the proliferation of electronic messages that are bombarding our senses, we are also well aware of the need to be respectful of our environment. That is why we are committed to publishing the magazine in the most environmentally-friendly process possible. Here is what we mean:

- We use lighter publication stock that consists of recycled paper. This paper has been certified to meet the environmental and social standards of the Forest Stewardship Council® (FSC®) and comes from responsibly managed forests, and verified recycled sources making this a RENEWABLE and SUSTAINABLE resource.
- Our computer-to-plate technology reduces the amount of chemistry required to create plates for the printing process. The resulting chemistry is neutralized to the extent that it can be safely discharged to the drain.
- We use vegetable oil-based inks to print the magazine. This means that we are not using resource-depleting petroleum-based ink products and that the subsequent recycling of the paper in this magazine is much more environment friendly.
- During the printing process, we use a solvent recycling system that separates the water from the recovered solvents and leaves only about 5% residue. This results in reduced solvent usage, handling and hazardous hauling.
- We ensure that an efficient recycling program is used for all printing plates and all waste paper.
- Within the pages of each issue, we actively encourage our readers to REUSE and RECYCLE.
- In order to reduce our carbon footprint on the planet, we utilize a carbon offset program in conjunction with any air travel we undertake related to our publishing responsibilities for the magazine.

So enjoy this magazine...and KEEP THINKING GREEN.
Applications

- Potable Water Pressure Boosting
  - Rural Water Lines
  - Large Municipal Water Boosting Projects
  - Filling Water Towers
  - Boosting Pressure for Isolated Pressure Zones

- Non-Potable Water Pressure Boosting
  - Irrigation
  - Golf Course Irrigation
  - Agricultural Irrigation

Features - Benefits:

- NSF 61 Certified
- Scada System Compatible
- Sizes 5" - 30" Diameter
- Quiet - submersible pump and motor are housed below ground
- Safe-No vault, no confined space entry
- Houses any size submersible pump
- No building to heat or cool
- Small footprint

Interested in finding out more?

Contact us today and we will send you our product catalog and a free sleeve of Golf Balls!

BE SURE TO MENTION PROMO BREWINTER14

“The bitterness of poor quality remains long after the sweetness of low prices”

DIXON ENGINEERING, INC.

Engineering and Inspection Services for the Coating Industry

Since 1981, Dixon Engineering has been recognized as a leader in the storage tank and coating inspection industry. With offices throughout the midwest. Our clientele consists of industrial, state, municipal, and federal clients. Dixon has experience with virtually any type of water and wastewater storage tank and coating maintenance needs. Specify Dixon Engineering and let our expertise help you preserve the value of your facilities.

Dixon offers the following services to meet your engineering and inspection needs:

Inspection Services

- Tank Maintenance
- Underwater Dive or ROV
- Warranty
- Steel Coating Applications
- Concrete Coating Applications
- New Tank Construction

Engineering Services

- Tank Coating Specifications
- Expert Witness
- Antenna Design and Review
- Coating System Failure Analysis
- Cathodic Protection Specifications
- Treatment Plant Coating Specifications

Our staff is comprised of engineers and NACE, SSPC, AWS, and API certified inspectors.

Visit our website at http://www.dixonengineering.net for information about these and our other services.
Residents of Toledo, Ohio, were told not to drink their water in August 2014 because of microcystin-LR, a toxin caused by a harmful algae bloom in Lake Erie, the city’s water supply.

Microcystin-LR is produced naturally by cyanobacteria, or blue-green algae. A Minnesota Department of Health (MDH) fact sheet, Microcystin-LR in Drinking Water, says, “When excess cyanobacteria grow in a lake or pond, they form an algal bloom, which often appears as a layer of green scum. However, not all green scum on a lake is an algal bloom, and not all algal blooms contain the kinds of cyanobacteria that produce microcystin-LR. There are dozens of types of microcystin; Microcystin-LR is one of the more toxic and well-studied varieties."

MDH has established a guidance value of 0.04 parts per billion (ppb) for microcystin-LR in drinking water, a standard that is lower than current laboratory detection limits. The Department of Health is checking for improved test methods that can meet the guidance values.

Microcystin-LR has not been detected in groundwater or treated drinking water in Minnesota. It is sometimes found in Minnesota lakes when algae blooms are present. In 2011, MDH reported on an algal bloom and microcystin contamination in Little Rock Lake in Benton County, but microcystins were not detected in nearby shallow wells.

The southern Minnesota city of Fairmont uses Budd Lake as its source; in 2008 microcystins were detected at 133 ppb at the surface of the lake during an active algal bloom, although the treated drinking water had no detectable microcystins. Since that time, Fairmont has upgraded its drinking-water system, including a new treatment plant that has lime softening with granular activated carbon adsorbers for taste and odor control. In addition, since 2002 Fairmont has been using a SolarBee system to increase the lake’s dissolved oxygen, improve the water quality of their deep intake, and help control the blue-green algae blooms.

MDH, anticipating a guidance value for microcystin-LR, sampled representative surface-water systems in the state in 2012 to gather information on microcystin levels in raw and finished water. Samples were analyzed by MDH's laboratory, with a detection limit of 0.15 ppb. Microcystins were detected in six of 12 raw-water samples; no microcystins were detected in treated water. St. Paul Regional Water Services, which had its chain of lakes sampled in 2012, elected to conduct additional sampling the following year. Samples were collected weekly throughout the summer from raw water, from the secondary settling basin (before filtration), and from treated water. Detections were limited, with no detections in finished drinking water.

The Minnesota Pollution Control Agency (MPCA) has a webpage, Blue-green algae: Could Ohio’s problem become Minnesota’s problem?, and says the short answer to the question is, “No. Most Minnesotans do not get drinking water from lakes, where this type of algae can flourish. Nearly 75 percent of our drinking water comes from groundwater. Most of the other 25 percent comes from rivers or reservoirs fed by rivers. Algal blooms thrive in calm, warm, shallow water bodies.”

The MDH fact sheet is at http://tinyurl.com/mkdca2b, and the MPCA webpage is at http://tinyurl.com/o7xu7qs.
Organizations are continuing to celebrate the 40th anniversary of the federal Safe Drinking Water Act with activities to commemorate the landmark legislation, which was signed into law by President Gerald Ford on December 16, 1974.

The Minnesota Department of Health is continuing to promote a six-minute video on the significance of SDWA in Minnesota and elsewhere. The video features U.S. Representative Betty McCollum and Steve Schneider, general manager of St. Paul Regional Water Services, as well as former Minnesota Governor Al Quie and former U.S. Vice President Walter Mondale, who both represented the state in Congress when the act was passed.

The video is available at http://tinyurl.com/jwr9yjn or by scanning the QR code below.

For Minnesota Department of Health’s annual report, visit www.health.state.mn.us/divs/eh/water/com/dwar/report2013.pdf or scan the following code.

Many police departments in Minnesota have drop-off boxes for the disposal of medications and other pharmaceutical materials. In addition, the Eden Prairie police department is providing free disposal bags to its residents.

Companies are also involved in efforts to get people to dispose of pharmaceuticals and personal-care products properly rather than flush them down the toilet, which can result in contamination of water.

Here is a web site with more information on proper disposal: www.medsaway.com/faq.
Professional Directory

**THEIN WELL COMPANY**

OVER 115 YEARS OF EXCELLENCE

- Water Well Drilling
- Well Abandonment
- Well & Pump Service & Installation
- Well Redevelopment
- Well & Pump Repair
- Well Televising

www.theinwell.com
(800) 450-8000

**MILBANK Winwater**

Large enough to handle any job, but small enough to care about yours.

- WATER PRODUCTS
- PUMP SYSTEMS
- INDUSTRIAL PIPING
- GEO TEXTILE FABRIC
- WATER METER SYSTEMS
- ROAD CASTINGS

S. Hwy. 15 • P.O. Box 350 • Milbank, SD 57252
1-800-743-2972 • Fax 605-432-5447

**DOWNHOLE WELL SERVICES, LLC.**

- Radial View Color Video Inspection (4 in. min.)
- Axial View Color Video Inspection (2 in. min.)
- Natural Gamma Logging
- Electric Logging (R & SP)
- Caliper Logging
- Temperature Logging
- Impeller Flow Logging
- Normal Resistivity Logging
- Spectral Gamma Logging

Jim Traen, Manager / Geophysical Technician
8145 Long Lake Road, Mounds View, Minnesota 55112-6033
Ph. (651) 238-1198 • Off. (763) 785-1676 • Mob. (912) 708-7824
Fax (763) 764-2244 • Email: Jim@DownholeWellServices.com
Web Site: DownholeWellServices.com

**Sherwin Williams**

HIGH PERFORMANCE COATINGS
FOR ASSET PROTECTION AND EXTEDNED LIFE SERVICE

Jennifer Zepeda, CSI, CDT
(612) 518-7799 • jennifer.zepeda@sherwin.com

**M.E. SIMPSON Co., Inc.**

Professional Service Solutions Provider
Phone: (605) 255-1521 • Fax: (605) 531-2144
salesinfo@medsimpson.com
www.mesimpson.com

**Mid America Meter, Inc.**

Nationwide Sales & Service
Water Meter Testing, Repairs & Calibration
1-800-324-0365

Bruce Pietig
710 Hamel Road
Medina, MN 55340
Phone 763-478-8941
Fax 763-478-8943
www.midamericameter.com

**BANNER Engineering | Architecture | Surveying**

Water Treatment
Storage & Collection
Wastewater
Collection & Treatment
Hydraulics | Hydrology

BANNER

Engineering | Architecture | Surveying
www.bannerassociates.com

Pipestone, MN • Sioux Falls, SD • Brookings, SD
Toll Free 855.323.6342

**E.H. Renner & Sons**

15688 Jarvis Street N.W. • Elk River, MN 55330

**KATIE RENNER WELLE**

Project Manager
Submersible & Lineshaft Turbine Sales & Service

E.H. Renner & Sons
INTEGRATED
WELL DRILLING FOR FIVE GENERATIONS

Office: (763) 427-6100
Direct: (763) 427-6101
Mobile: (763) 286-5283
krenner@ehrenner.com
www.ehrenner.com
Fax: (763) 427-0533
The Breeze would not be possible without the advertising support of the following companies and organizations. Please think of them when you require a product or service.

<table>
<thead>
<tr>
<th>Company</th>
<th>Page</th>
<th>Phone Number</th>
<th>Web Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Waterline Specialists</td>
<td>18</td>
<td>219-220-0166</td>
<td><a href="mailto:abcwaterline@gmail.com">abcwaterline@gmail.com</a></td>
</tr>
<tr>
<td>AE2S</td>
<td>29</td>
<td>701-364-9111</td>
<td><a href="http://www.ae2s.com">www.ae2s.com</a></td>
</tr>
<tr>
<td>ANOKA Technical College</td>
<td>14</td>
<td>763-576-4948</td>
<td>anoskatech.edu</td>
</tr>
<tr>
<td>Apex Engineering Group</td>
<td>26</td>
<td>701-373-7980</td>
<td><a href="http://www.apexenggroup.com">www.apexenggroup.com</a></td>
</tr>
<tr>
<td>Badger State Inspection, LLC</td>
<td>22</td>
<td>715-533-8686</td>
<td><a href="mailto:kmulhern@badgerstateinspection.com">kmulhern@badgerstateinspection.com</a></td>
</tr>
<tr>
<td>Baker Manufacturing Company, LLC</td>
<td>41</td>
<td>800-356-5130</td>
<td><a href="http://www.bakermonitor.com">www.bakermonitor.com</a></td>
</tr>
<tr>
<td>Banner Associates, Inc.</td>
<td>44</td>
<td>507-931-0930</td>
<td><a href="http://www.bannerassociates.com">www.bannerassociates.com</a></td>
</tr>
<tr>
<td>Bergerson-Caswell, Inc.</td>
<td>18</td>
<td>763-479-3121</td>
<td><a href="http://www.bergersoncaswell.com">www.bergersoncaswell.com</a></td>
</tr>
<tr>
<td>Black &amp; Veatch Corporation</td>
<td>26</td>
<td>952-896-0500</td>
<td><a href="http://www.bv.com">www.bv.com</a></td>
</tr>
<tr>
<td>Bolton &amp; Menk, Inc.</td>
<td>24</td>
<td>507-625-4171</td>
<td><a href="http://www.bolton-menk.com">www.bolton-menk.com</a></td>
</tr>
<tr>
<td>Brown and Caldwell</td>
<td>22</td>
<td>800-727-2224</td>
<td><a href="http://www.brownandcaldwell.com">www.brownandcaldwell.com</a></td>
</tr>
<tr>
<td>Calgon Carbon</td>
<td>7</td>
<td>800-422-7266</td>
<td><a href="http://www.calgoncarbon.com">www.calgoncarbon.com</a></td>
</tr>
<tr>
<td>Dixon Engineering</td>
<td>41</td>
<td>616-374-3221</td>
<td><a href="http://www.dixonengineering.net">www.dixonengineering.net</a></td>
</tr>
<tr>
<td>Downhole Well Services, LLC</td>
<td>44</td>
<td>651-238-1198</td>
<td><a href="http://www.DownholeWellServices.com">www.DownholeWellServices.com</a></td>
</tr>
<tr>
<td>E.H. Renner &amp; Sons</td>
<td>44</td>
<td>763-427-6100</td>
<td><a href="http://www.ehrenner.com">www.ehrenner.com</a></td>
</tr>
<tr>
<td>Engineering America</td>
<td>2</td>
<td>651-777-0490</td>
<td><a href="http://www.engamerica.com">www.engamerica.com</a></td>
</tr>
<tr>
<td>Ess Brothers and Sons Inc.</td>
<td>21</td>
<td>763-478-2027</td>
<td><a href="http://www.essbrothers.com">www.essbrothers.com</a></td>
</tr>
<tr>
<td>Fargo Water Equip. Div. of DSG</td>
<td>3</td>
<td>701-237-0222</td>
<td><a href="http://www.fgo2co.com">www.fgo2co.com</a></td>
</tr>
<tr>
<td>Ferguson Waterworks</td>
<td>21</td>
<td>763-560-5200</td>
<td><a href="http://www.ferguson.com">www.ferguson.com</a></td>
</tr>
<tr>
<td>General Repair Service</td>
<td>10</td>
<td>800-767-5151</td>
<td><a href="http://www.generaterepair.com">www.generaterepair.com</a></td>
</tr>
<tr>
<td>Hawkins, Inc.</td>
<td>12</td>
<td>800-328-5460</td>
<td><a href="http://www.hawkinsinc.com">www.hawkinsinc.com</a></td>
</tr>
<tr>
<td>HD Supply Waterworks</td>
<td>47</td>
<td>952-937-9666</td>
<td><a href="http://www.waterworks.hdsupply.com">www.waterworks.hdsupply.com</a></td>
</tr>
<tr>
<td>HR Green, Inc.</td>
<td>12</td>
<td>651-644-4389</td>
<td><a href="http://www.hrgreen.com">www.hrgreen.com</a></td>
</tr>
<tr>
<td>Huber Technology Inc.</td>
<td>10</td>
<td>704-990-2055</td>
<td><a href="http://www.huber-technology.com">www.huber-technology.com</a></td>
</tr>
<tr>
<td>Hydro Design, Inc.</td>
<td>13</td>
<td>800-315-4305</td>
<td><a href="http://www.hydrodesigninc.com">www.hydrodesigninc.com</a></td>
</tr>
<tr>
<td>Hydro-Klein</td>
<td>16</td>
<td>515-293-0500</td>
<td><a href="http://www.hydroklein.com">www.hydroklein.com</a></td>
</tr>
<tr>
<td>Interstate Companies</td>
<td>16</td>
<td>651-765-0765</td>
<td><a href="http://www.interstatemetal.com">www.interstatemetal.com</a></td>
</tr>
<tr>
<td>Jasper Engineering &amp; Equipment Co.</td>
<td>18</td>
<td>952-938-6504</td>
<td><a href="http://www.jasperengineering.com">www.jasperengineering.com</a></td>
</tr>
<tr>
<td>K&amp;J</td>
<td>12</td>
<td>800-213-3800</td>
<td><a href="http://www.kjeng.com">www.kjeng.com</a></td>
</tr>
<tr>
<td>Leggatte, Brashears &amp; Graham, Inc.</td>
<td>22</td>
<td>203-944-5010</td>
<td><a href="http://www.libweb.com">www.libweb.com</a></td>
</tr>
<tr>
<td>M.E. Simpson Co., Inc.</td>
<td>44</td>
<td>800-255-1521</td>
<td><a href="http://www.mesimpson.com">www.mesimpson.com</a></td>
</tr>
<tr>
<td>Maguire Iron</td>
<td>36</td>
<td>605-334-9749</td>
<td><a href="http://www.maguireiron.com">www.maguireiron.com</a></td>
</tr>
<tr>
<td>Mid America Meter Inc.</td>
<td>44</td>
<td>800-324-0365</td>
<td><a href="http://www.midamericanmeter.com">www.midamericanmeter.com</a></td>
</tr>
<tr>
<td>Milton Irrigation Company</td>
<td>44</td>
<td>800-743-2972</td>
<td><a href="http://www.miltonirrigation.com">www.miltonirrigation.com</a></td>
</tr>
<tr>
<td>Minnesota Pipe &amp; Equipment</td>
<td>4</td>
<td>800-325-5636</td>
<td><a href="http://www.minnesotapipes.com">www.minnesotapipes.com</a></td>
</tr>
<tr>
<td>Moore Engineering Inc.</td>
<td>48</td>
<td>701-282-4692</td>
<td><a href="http://www.mooreengineering.com">www.mooreengineering.com</a></td>
</tr>
<tr>
<td>Northwestern Power Equipment Company</td>
<td>16</td>
<td>651-628-0883</td>
<td><a href="http://www.nwpco.com">www.nwpco.com</a></td>
</tr>
<tr>
<td>PAY Water Technologies</td>
<td>6</td>
<td>866-729-6493</td>
<td><a href="http://www.paywater.com">www.paywater.com</a></td>
</tr>
<tr>
<td>Pittsburgh Tank &amp; Tower Maintenance Co. Inc.</td>
<td>24</td>
<td>270-826-9000</td>
<td><a href="http://www.watertank.com">www.watertank.com</a></td>
</tr>
<tr>
<td>Pollardwater.com</td>
<td>9</td>
<td>800-437-1146</td>
<td><a href="http://www.pollardwater.com">www.pollardwater.com</a></td>
</tr>
<tr>
<td>Prinsco</td>
<td>36</td>
<td>800-992-1725</td>
<td><a href="http://www.prinsco.com">www.prinsco.com</a></td>
</tr>
<tr>
<td>Progressive Consulting Engineers, Inc.</td>
<td>22</td>
<td>763-560-9133</td>
<td><a href="mailto:pocel@pce.com">pocel@pce.com</a></td>
</tr>
<tr>
<td>Quality Flow Systems Inc.</td>
<td>46</td>
<td>952-758-9445</td>
<td><a href="http://www.qfsa.net">www.qfsa.net</a></td>
</tr>
<tr>
<td>Sensus USA, Inc.</td>
<td>35</td>
<td>715-634-4000</td>
<td><a href="http://www.sensus.com">www.sensus.com</a></td>
</tr>
<tr>
<td>Sherwin-Williams</td>
<td>44</td>
<td>612-518-7799</td>
<td><a href="http://www.sherwinwilliams.com">www.sherwinwilliams.com</a></td>
</tr>
<tr>
<td>Short Elliott Hendrickson Inc.</td>
<td>25</td>
<td>651-490-2000</td>
<td><a href="http://www.sehinc.com">www.sehinc.com</a></td>
</tr>
<tr>
<td>Stantec</td>
<td>35</td>
<td>800-880-4700</td>
<td><a href="http://www.stantec.com">www.stantec.com</a></td>
</tr>
<tr>
<td>Summit EnviroSolutions</td>
<td>15</td>
<td>612-750-4024</td>
<td><a href="http://www.summitc.com">www.summitc.com</a></td>
</tr>
<tr>
<td>Swanson Fire Systems Co.</td>
<td>37</td>
<td>763-383-4700</td>
<td><a href="http://www.swanfire.com">www.swanfire.com</a></td>
</tr>
<tr>
<td>Thein Well Company</td>
<td>44</td>
<td>800-450-8000</td>
<td><a href="http://www.theinwell.com">www.theinwell.com</a></td>
</tr>
<tr>
<td>TKDA</td>
<td>26</td>
<td>651-292-4621</td>
<td><a href="http://www.tkdac.com">www.tkdac.com</a></td>
</tr>
<tr>
<td>Tankwa Water</td>
<td>7</td>
<td>763-559-2837</td>
<td><a href="http://www.tankwa.com">www.tankwa.com</a></td>
</tr>
<tr>
<td>Ulteig Engineers, Inc.</td>
<td>38</td>
<td>701-451-8300</td>
<td><a href="http://www.ultieg.com">www.ultieg.com</a></td>
</tr>
<tr>
<td>Van Bergen &amp; Markson, Inc.</td>
<td>38</td>
<td>763-546-4340</td>
<td><a href="http://www.vbmrcinc.com">www.vbmrcinc.com</a></td>
</tr>
<tr>
<td>Vessco</td>
<td>11</td>
<td>952-941-2678</td>
<td><a href="http://www.vessco.com">www.vessco.com</a></td>
</tr>
<tr>
<td>Water Conservation Services, Inc.</td>
<td>18</td>
<td>612-600-8716</td>
<td><a href="http://www.watermainleaklocator.com">www.watermainleaklocator.com</a></td>
</tr>
<tr>
<td>W.W. Goetsch Associates, Inc.</td>
<td>26</td>
<td>952-831-4340</td>
<td><a href="mailto:info@wwegoetsch.com">info@wwegoetsch.com</a></td>
</tr>
<tr>
<td>Widesmith-Notting</td>
<td>16</td>
<td>218-829-5117</td>
<td><a href="http://www.widesmithnotting.com">www.widesmithnotting.com</a></td>
</tr>
<tr>
<td>WSB &amp; Associates, Inc.</td>
<td>19</td>
<td>763-541-4800</td>
<td><a href="http://www.wsbeng.com">www.wsbeng.com</a></td>
</tr>
<tr>
<td>Ziegler Power Systems</td>
<td>12</td>
<td>888-320-4292</td>
<td><a href="http://www.zieglercat.com/power">www.zieglercat.com/power</a></td>
</tr>
</tbody>
</table>

To reach water professionals through Breeze magazine and its targeted readership, contact Darrell at your earliest convenience to discuss your company’s promotional plans for 2015.

Darrell Harris, Marketing Manager
Ph: 1-877-985-9793
Fax: 1-866-985-9799
darrell@kelman.ca
The cycle of solutions - water and wastewater technology

Water is crucial for our survival. Clean water supplies and efficient sewage treatment have never been more important. KSB’s know-how and extensive product range help you meet all water supply and treatment requirements, efficiently and effectively. We offer end-to-end solutions addressing all stages of the water cycle from water extraction to sewage treatment.

www.ksbusa.com

KSB Authorized Distributor

www.qfsw.net  Ph. (952) 758-9445  Fax. (952) 758-9661  pat@qfsw.net
We are your partner in building the success of your projects. From the earliest planning stages to the final accounting, we bring all of our know-how—as well as products, supplies and services—to your success story. Local HD Supply, WATERWORKS experts will help to speed the process and smooth the challenges as only a veteran of the business can do. More importantly, with our vast inventory and our reputation for creating success, we can deliver something very rare in this business: peace of mind.

“So, let’s begin building the foundation for your next success story this afternoon…. and you will sleep better tonight.”

MINNESOTA BRANCHES

1 EDEN PRAIRIE
15800 West 79th St.
952-937-9666

2 ST MICHAEL
16195 54th Street N.E.
763-428-7473

3 HUDSON, WI
637 Commerce Dr.
715-386-6010
The jewel of a city isn’t always noticed, but it is a thing of beauty.

Great communities have great infrastructure.
If it solves a challenging water quality problem that impacts the lives of people in our region, chances are good that Moore Engineering had something to do with it. We are passionate about infrastructure, and we’re not happy until it works better than you ever imagined.

Contact us.
218-998-4041
mooreengineeringinc.com
consult@mooreengineeringinc.com

North Dakota – Minot • West Fargo  Minnesota – Fergus Falls • Wadena