

OCTOBER 2016

# ServiceLine

— The Official Publication of the South Dakota Association of Rural Water Systems —

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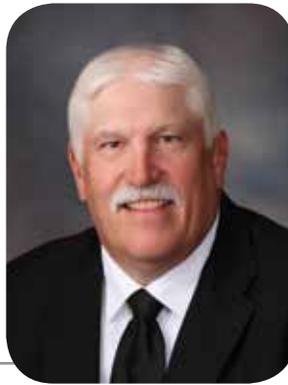
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# President's Message

Ron Gillen, SDARWS President



## Leadership Seminar

Association staff are busy getting ready for our Annual Leadership Seminar which will be held at the Best Western Ramkota Hotel in Pierre November 16-17th. This seminar is geared towards Rural Water System Directors and Board Members and includes informational sessions on water rates, asset management, sustainability, financing, and director and manager panels. The cost to attend Leadership is \$140 (\$15 discount for WaterPro members), and includes a meal at the President's Reception on the evening of November 16th. Registration for this event is available on our website at [www.sdarws.com](http://www.sdarws.com), or by calling the SDARWS office at 605-556-7219. Please see page 15 for this year's agenda.

## ATC Call for Papers

SDARWS is looking for presentations for our Annual Technical Conference in Pierre January 10-12, 2017. The ATC is our biggest training event of the year and hosts around 400 individuals. If your company is interested in hosting a training session, please submit your abstract online at: [www.sdarws.com/atc.html](http://www.sdarws.com/atc.html). For more information, please see page 7.

## Mark Your Calendar for the 2017 ATC

While the 42nd Annual Technical Conference is still a few months away, the staff at South Dakota Rural Water are already busy behind the scenes gearing up for the event which kicks off Tuesday, January 10th at the Best Western Ramkota in Pierre.

Online registration will be available soon – so keep checking [sdarws.com](http://sdarws.com) for information, as well as agendas, hotel information, and news regarding the upcoming conference. For those with smartphones – once you are registered online you will have access to our mobile app where you can manage your event registration, access event information on-the-go, and improve networking opportunities. The early bird registration deadline for this year's conference is December 16, 2016.

For our exhibitors, we will be offering two types of booth registrations: Full Conference Hallway (Tuesday and Wednesday) for \$450, and Wednesday Night at our Exhibit Hall for \$350, just like we did last year. Booth spaces are limited – so make sure to register soon to reserve your space! Make sure to reserve your booth space before December 16, 2016 to be eligible for the Early Bird pricing; exhibit booth prices will go up an extra \$50 after that date.

This year's awards brunch will feature a public judging of the top three finalists in the SD Rural Water Taste Test. The winner chosen at this taste test will go on to represent South Dakota in the National Rural Water Taste Test held at the Rural Water Rally in Washington, DC in February. If your water system is interested in participating in the taste test, please make sure that they bring a quart-sized glass jar filled with water from your water system to the Registration Desk by 2pm on Tuesday, January 10th.

Exhibitors can again look forward to participating in various advertising sponsorships at this year's conference. Please visit [www.sdarws.com/atc.html](http://www.sdarws.com/atc.html) to see what we still have available. ♦

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# Class Calendar

## OCTOBER

### **12 – STABILIZATION POND WORKSHOP** **Sioux Falls Water Reclamation Facility** **4500 N. Sycamore, Sioux Falls, SD 57101**

This course covers the material on the Association of Boards of Certification Stabilization Pond Exams. It does not cover material on the Class I or higher Wastewater Treatment Exams. This is a single day workshop starting at 8:30 a.m. local time and wrapping up around 4:30 p.m.

### **12 – COLLECTION SYSTEM MAINTENANCE & REPAIR** **The Bridges Golf Clubhouse - Beresford** **601 S. 7th Street, Beresford, SD 57004**

This one-day class covers overall maintenance on sewer collection systems and manhole rehab. Sponsored by HydroKlean. Class begins at 8am and dismisses at 4pm.

### **25-27 – BASIC WASTEWATER TREATMENT** **Sioux Falls Water Reclamation Facility** **4500 N. Sycamore, Sioux Falls, SD 57101**

This course covers the Association of Boards of Certification "Need to Know" requirements for the Class I & II Wastewater Treatment Exams. This course does not cover the material included in the Stabilization Pond Exam. Operators who will be attempting the Stabilization Pond exam should consider the Stabilization Pond Workshops. Class begins each morning at 8:00 a.m. local time and wraps up around 4:30 p.m. on Tuesday and Wednesday and approximately 11:30 a.m. on Thursday.

## NOVEMBER

### **15-17 – WATER DISTRIBUTION** **Spearfish Holiday Inn** **305 N. 27th Street, Spearfish, SD 57783**

This course covers the Association of Boards of Certification "Need to Know" requirements for the Class I through III Water Distribution Exams. This course only covers the material for Water Distribution. Class begins each morning at 8:00 a.m. local time and wraps up around 4:30 p.m. on Tuesday and Wednesday and approximately 11:30 a.m. on Thursday.

## DECEMBER

### **6-8 – WASTEWATER COLLECTION** **Huron Crossroads Hotel** **100 4th Street SW, Huron, SD 57350**

This course covers the Association of Boards of Certification "Need to Know" requirements for the Class I through III Wastewater Distribution Collection Exams. This course only covers the material for Wastewater Collection. Operations Specialists who wish to attempt a Water Distribution Exam should attend the Water Distribution Course. Class begins each morning at 8:00 a.m. local time and wraps up around 4:30 p.m. on Tuesday and Wednesday and approximately 11:30 a.m. on Thursday.

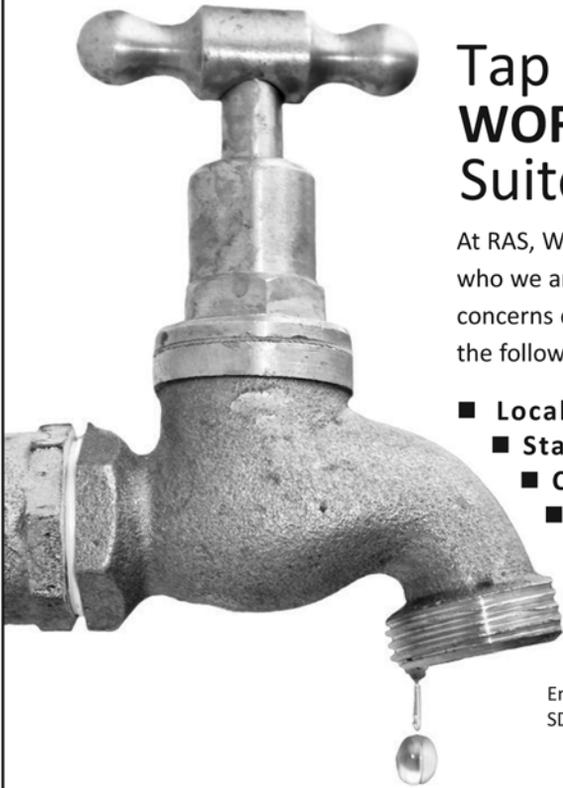
## JANUARY

### **26-28 – BASIC WATER TREATMENT** **Spearfish Holiday Inn** **305 N. 27th Street, Spearfish, SD 57783**

Topics covered include: South Dakota Drinking Water Regulations, disinfection, fluoridation, groundwater and wells, pumping, hardness, cross connections, pH, filtration, turbidity and mathematics. Day 1 & 2, 8:00 a.m. to 4:30 p.m.; Day 3 8:00 a.m. to 11:30 a.m.

**REGISTER FOR CLASSES ONLINE AT: [go.activecalendar.com/sdarws](http://go.activecalendar.com/sdarws)**

*Course agendas, maps and registration are all available online at [www.sdarws.com](http://www.sdarws.com). All classes are free unless otherwise noted. For more info on these and other events, visit [www.sdarws.com](http://www.sdarws.com) or call 605-556-7219.*



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SOUTH DAKOTA RURAL WATER'S  
ANNUAL TECHNICAL CONFERENCE

## CALL FOR PAPERS

The South Dakota Association of Rural Water Systems is looking for presentations for our 2017 Annual Technical Conference in Pierre, SD January 10-12.

Please submit your abstract for SDARWS's 2017 Annual Technical Conference. Presentation themes may include, but are not limited to the following:

- Drinking water security strategies and tools
- How Water Storage Can Impact Water Quality
- Fair Labor Standards Act
- Hands-on sessions:
  - ◆ Control valve repair kits
  - ◆ Hydrant maintenance and repair
  - ◆ Solution pump repairs (diaphragm and peristaltic)
  - ◆ Repair couplers, saddles, wet tapping
- The importance of Cross Connection Control
- Water Rights for public systems
- Ice Pigging to clean water and sewer pipelines
- Source water protection and sustainability of water supplies
- Climate change, water and energy efficiency, and conservation
- Clean Water Act/SDWA connections, nutrient pollution, and Harmful Algal Blooms (HABs)
- Emerging drinking water treatment technologies and optimization of current technology
- State revolving loan fund tools and techniques/green infrastructure strategies
- Small systems: TMF, sustainability strategies, technologies, and compliance
- Workforce, operator certification, and/or technical assistance initiatives
- Data management
- Distribution system issues
- Emerging contaminants in drinking water, both chemical and microbial
- Drinking water research
- Sanitation and wastewater management
- Risk assessment, risk communication and consumer outreach
- Implementation of regulations – challenges and successes

If you would like to make a presentation, please submit a one-page abstract with the proposed presentation title, and the name, title, affiliation, and contact information for the speaker to:

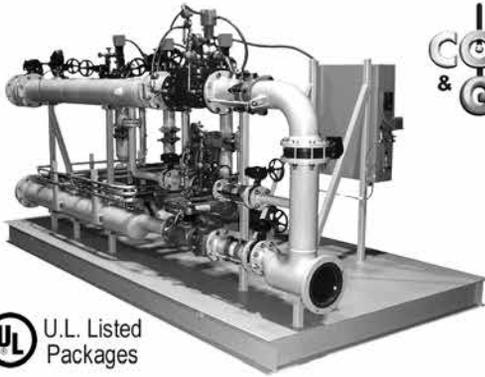
South Dakota Association of Rural Water Systems  
PO Box 287  
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*or email [ATC@sdarws.com](mailto:ATC@sdarws.com) by October 14, 2016!*

**Or submit online – [www.sdarws.com/atc.html](http://www.sdarws.com/atc.html)**

**All submissions must comply with the following guidelines:**

1. Deadline for submissions is October 14, 2016
2. Abstract submissions are limited to text only.
3. The conference planning committee will select submitted abstracts for sessions.
4. Please include a five sentence biography along with a 500 word abstract or description of your presentation. ●

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**NOVEMBER 16-17, 2016**

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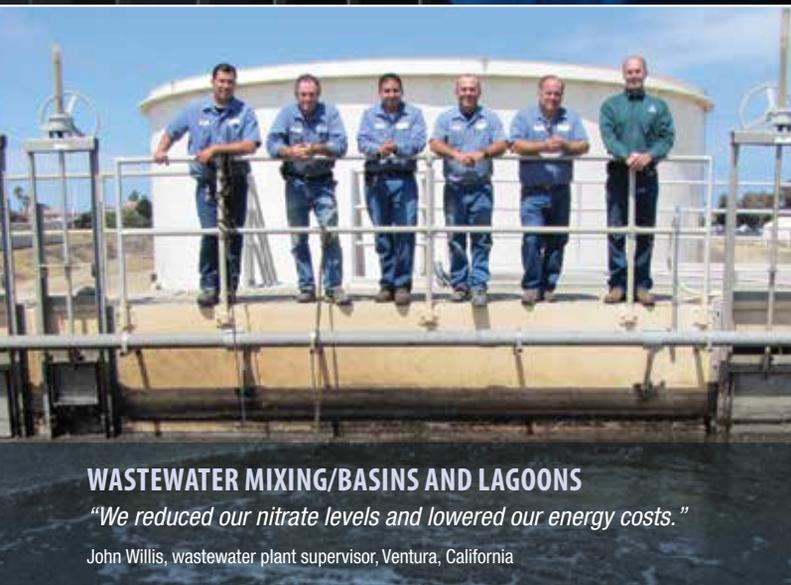
Cary Johnson, water operations mgr., Rochester Public Utilities, Rochester, Minnesota



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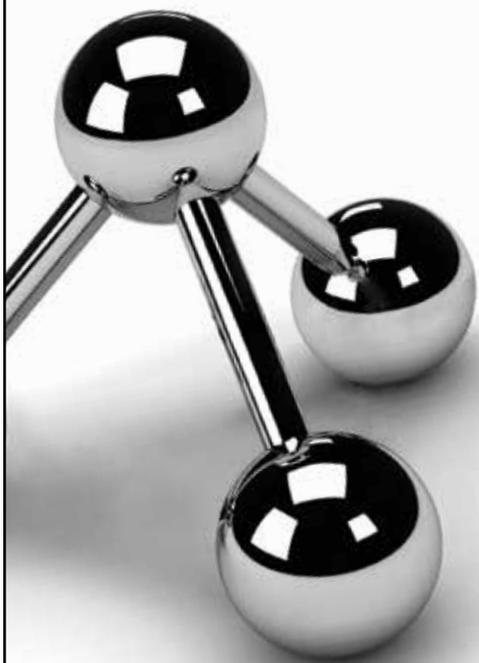
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# RURAL WATER



**Q:** Is measuring water in a well like measuring a stream?

**A:** No. In groundwater work the U.S. Geological Survey (USGS) puts a lot of effort in measuring the water level in wells. Since water levels in aquifers can change (for a variety of reasons) we need to keep accurate records of these changes, and what factors affect them, be it climate and rainfall variability, drought, or pumping characteristics of nearby wells. Water levels in wells can definitely be affected by water withdrawals nearby, and sometimes far away. Water levels underground respond much more slowly to precipitation than do rivers, so the need to run out to a well and take a water-level measurement at 2:00AM during a storm is less than doing so for a river about to flood and wash out some houses in the watershed.

One way to keep a record of the water levels in a well is to place a float at the end of a wire and lower it into a well. The float will go up and down as the water in the well goes up and down. The other end of the wire is attached to a machine that has a pen-like instrument attached, and the pen point moves up and down according to the action of the float. A roll of paper slowly rolls past the pen, so a record of water level is plotted continuously on the paper. With the advent of electronics over the last decades, more levels are being recorded electronically, where they are logged straight into a computer's memory. The USGS even has "real-time" groundwater monitoring sites, where continuous records of water levels are recorded and posted to the Web in near real time.

**Q:** Can drought affect the water level in wells?

**A:** Groundwater, which is found in aquifers below the surface of the Earth, is one of the Nation's most important natural resources. Groundwater is used to provide a large portion of the Nation's population with drinking water, it provides business and industries water for their purposes, and is used extensively for irrigation.

The water level in the aquifer that supplies a well does not always stay the same. Droughts, seasonal

variations in rainfall, and pumping affect the height of the underground water levels. If a well is pumped at a faster rate than the aquifer around it is recharged by precipitation or other underground flow, then water levels in the well can be lowered. This can happen during drought, due to the extreme deficit of rain. The water level in a well can also be lowered if other wells near it are withdrawing too much water.

**Q:** What makes a groundwater well go dry?

**A:** A well is said to have gone dry when water levels drop below a pump intake. This does not mean that a dry well will never have water in it again, as the water level may come back through time as aquifer recharge from precipitation seepage increases and/or pumping of the aquifer is lessened. It is true that all the water in the ground comes from infiltration of precipitation from above, but the geology of the underground rock determines the infiltration and movement characteristics of the water that is in the ground.

The water level in a well depends on a number of things:

- Depth of the well
- Type (confined or unconfined) of aquifer the well taps
- Amount and rate of pumping that occurs in the aquifer
- Permeability and porosity of the underground rock
- Amount of recharge occurring from precipitation or artificial recharge

Wells in unconfined water table aquifers are more directly influenced by the lack of rain than those in deeper confined aquifers. A deep well in a confined aquifer in an area with minimal pumping is less likely to go dry than a shallow, water-table well. ♦

*Reference: U.S. Geological Survey, US Department of the Interior; <http://water.usgs.gov/edu/mqanda.html>.*

# SPN & ASSOCIATES

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**A**ssociation staff are busy getting ready for our Annual Leadership Seminar which will be held at the Best Western Ramkota Hotel in Pierre November 16-17th. This seminar is geared towards Rural Water System Directors and Board Members and includes informational sessions on parliamentary procedure, sustainable water systems, customer service, branding, Rural Development loans, augmented reality

GIS, economic development, and a leadership panel on strategic planning, rate management, and productive meetings. The cost to attend Leadership is \$140, and includes a meal at the President's Reception on the evening of November 16th. There will be a \$15 discount for WaterPro members. Registration for this event will be available on our website at [sdarws.com](http://sdarws.com). The tentative agenda is below:

**Wednesday – November 16, 2016**

- 1:00 Welcome** – Ron Gillen, President  
(SDARWS)  
**Flag Presentation** – Nick Jackson (SDARWS)  
**National Anthem and Pledge of Allegiance**
- 1:15 Sustainable Water Systems**  
– Dennis N. Davis (SDARWS)
- 1:30 Parliamentary Procedure**  
– Nancy Moose, Professor of Adult Education, Dakota State University
- 2:15 The Effects of Climate Change on Ground Water**  
– Laura Farris, Region 8 EPA Climate Change Coordinator
- 3:15 Break**
- 3:30 Attorney's Corner**  
– Margo Northrup, Attorney, Riter, Rogers, Wattier, & Northrup, LLP
- 5:30 President's Reception**
- 6:00 Dinner w/ Guest Speaker**  
– Marty Jackley, South Dakota Attorney General

**Thursday – November 17, 2016**

- 8:00 Rural Development 101: Getting Ready for a Loan**  
– Tim Potts, Rural Development Coordinator, Rural Development
- 9:00 Break**
- 9:15 Augmented Reality – The Future of GIS**  
– Brady Hustad, ArGIS
- 10:15 Break**
- 10:30 Leadership Panel: Strategic Planning, Rate Management, and Holding Productive Meetings**  
– Greg Merrigan (Clay)  
– Ron Gillen (Aurora-Brule)  
– Kurt Pfeifle (Mid-Dakota)  
– Dave Meyerink (Randall)
- 11:15 Economic Development & You**  
– Joe Fiala, Research & Community Development Director, GOED
- 12:00 Closing Comments** – Ron Gillen (SDARWS)

# SDARWS Receives Award for Outstanding Achievement in Public Relations

The South Dakota Association of Rural Water Systems won the award for Outstanding Achievement in Communications, Publications and Public Relations award at the annual Tribute to Excellence awards ceremony, held on Sept. 13 at the WaterPro Conference in Orlando, Fla.

“In addition to their quarterly magazine (*ServiceLine*), South Dakota also publishes a consumer magazine (*Quality on Tap!*) and three digital newsletters that create a unified voice for rural water in their state,” Fulgham said. “Their newly re-designed website features an interactive map of rural water systems, online class and event registration, digital magazines, services and fees, live Facebook and Twitter feeds, as well as history, staff contacts, and promote NRWA Affinity Programs.”

SDARWS is the only Rural Water Association in the nation who produces a consumer magazine. “*Quality on Tap!*” is published quarterly along with 16 participating Rural Water Systems, and is created in-house. 34,000 copies are mailed quarterly, and reach about half of our rural water consumers in South Dakota. “QOT” highlights water issues affecting consumers, and proves successful in creating a unified voice for rural water in our state. Other publications produced by SDARWS include *ServiceLine* magazine, *Rural Water bi-Monthly eNews*, *JobConnection eNewsletter*, and *Ripples Legislative eNewsletter*.

SDARWS’s public relations efforts are administered by our Communications and Marketing Coordinator Jennifer Bame. Jennifer is a graduate of South Dakota State University, with a B.A. in Journalism/Mass Communications, and has been with SDARWS since 2012.

The 2016 WaterPro Conference was held September 12-14 in Orlando, Fla. The opening included speeches from NRWA President Charles Hilton, Rural Utilities Service Administrator Brandon McBride and NRWA CEO Sam Wade.

The speeches examined the past, present and future of Rural Water, highlighting accomplishments and raising concerns for the future.

58 South Dakotans traveled to WaterPro and were treated to educational sessions on new water technologies, operations and management, and an exhibit hall full of useful tools and services. ♠



# WaterPro Highlights



# South Dakota Rural Water AWARD NOMINATIONS

Do you know someone who is doing a great job? Goes above and beyond the call of duty? Has your water system achieved excellence this year – or has overcome some amazing challenges?

Give recognition where it is due by completing our Awards Nomination Form. Awards will be presented at the Awards Brunch at the ATC – January 12, 2017. **Application deadline is October 28, 2016.** Eligible nominees must be affiliated with a system member in good standing. The online form can be found at [www.surveymonkey.com/r/waterawards](http://www.surveymonkey.com/r/waterawards), or through a link on our website at: [sdarws.com/atc.html](http://sdarws.com/atc.html).

## WE ARE ACCEPTING NOMINATIONS FOR THE FOLLOWING CATEGORIES:

**RURAL WATER SYSTEM OF THE YEAR:** a member system who puts forth exceptional efforts to properly manage, operate, and maintain their drinking water system.

**RURAL WATER MANAGER OF THE YEAR:** Recognition for a manager of a Rural Water System for outstanding performance in operating a Rural Water System.

**RURAL WATER OFFICE PERSON OF THE YEAR:** Recognition for an administrative employee of a Rural Water System for outstanding performance in office management and procedures

**RURAL WATER SYSTEM OPERATIONS SPECIALIST OF THE YEAR:** Recognition for a State of South Dakota Certified Operator who is actively working for a Rural Water System with outstanding leadership ability/accomplishments in drinking water.

**MUNICIPAL MANAGER OF THE YEAR:** Recognition for a municipal manager for outstanding performance in managing a municipality.

**MUNICIPAL OFFICE PERSON OF THE YEAR:** Recognition for an administrative employee of a municipality (i.e. clerk, finance officer, etc.) for outstanding performance in office management and procedures.

**MUNICIPAL OPERATIONS SPECIALIST OF THE YEAR:** Recognition for a State of South Dakota Certified Operator who is actively

working for a municipality with outstanding leadership ability/accomplishments in drinking water.

**CARROLL ANDERSON MEMORIAL:** The Carroll Anderson Memorial Award is a tribute to the exemplary work of Carroll Anderson who gave generously of his time, talents, and efforts to the Kingbrook Rural Water System and the South Dakota Association of Rural Water Systems. This award recognizes an individual's outstanding voluntary contributions to the advancement of rural community water systems in South Dakota, and is the greatest tribute the Association can bestow recognizing an individual's contributions to both the member system and to SDARWS.

**FRIEND OF RURAL WATER:** This distinguished honor is awarded to agencies, organizations, or individuals who have lent a hand in supporting this fantastic phenomenon we call Rural Water. The ability to provide life's essential need, water, to all the citizens of South Dakota was not done by one person or organization; it is a collective effort encompassing many.

**SPIRIT OF RURAL WATER:** This award was introduced in 2010 and is presented to an individual, business or group that goes above and beyond for a rural water system or rural water cause. South Dakota Rural Water wants to recognize exceptional rural water advocates that stand out from the pack because of their commitment to rural water issues and/or their passion for the job. Eligible candidates include rural and community water consumers, employees, directors, as well as lawmakers, businesses, or any person or group that puts forth a noble effort to advance rural water.

**DONALD B. POSPISHIL:** This award honors the work of Don Pospishil who dedicated many years of his life to helping small water systems across South Dakota. The Donald B. Pospishil Award is awarded to individuals who demonstrate leadership abilities in the water supply field, provide quality services to consumers, and exhibit professionalism and dedication while operating and maintaining a small water system.



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If you are interested in advertising in *ServiceLine*, please contact Jennifer Bame by calling 605-556-7219, email: [info@sdarws.com](mailto:info@sdarws.com), or go online and visit: [www.sdarws.com/ad-rates.html](http://www.sdarws.com/ad-rates.html)

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# MAGUIRE IRON

## Celebrating a Century of Ingenuity & Entrepreneurial Spirit

There aren't many companies that can boast a track record like Maguire Iron. What started out in 1915 as a painting business started by Ed Maguire, and later acquired by Gene Jones Sr., has turned into a nationwide enterprise which designs, constructs, repairs, paints, and maintains water towers – and is headquartered right here in South Dakota.

The foundation of the company started back in 1915 when entrepreneur Ed Maguire traveled throughout the upper Midwest, paintbrush in hand, to provide his services to local communities. A few decades later, a young boy of only 15 began working for a company called Watertower Paint and Repair, a direct competitor of Maguire Iron. That boy, Gene Jones Sr., grew in the passion for his job and honed it into a career. In 1950 he took a job at Maguire Iron, and eventually purchased the business from Ed in 1958.

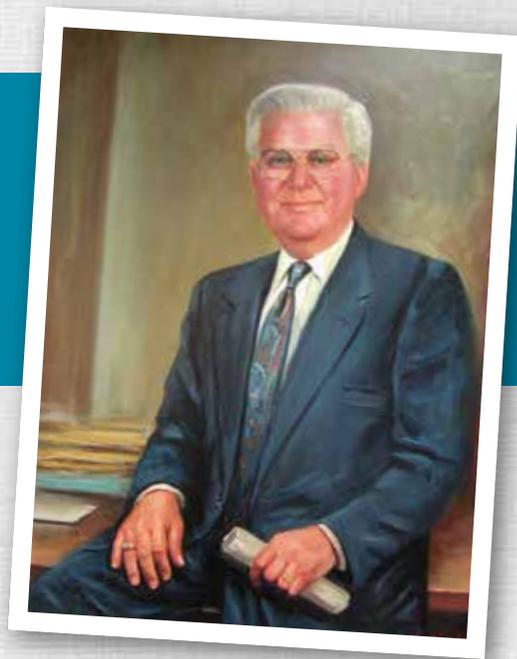
Throughout the 60's and 70's, Gene Sr. began acquiring small water tank painting companies in an effort to grow and expand his business. Based out of Minnesota, the core territory back in those days was South Dakota, North Dakota, Minnesota, Iowa, and Nebraska, and the work focused on

painting and repairing roofs, riser pipes, sandblasting, and painting both interiors and exteriors of tanks.

Gene Jr's entrepreneurial spirit grew and he looked to expand his business even further. "It is every tank painter's dream to build water towers. Dad was able to realize that dream. It is a testament to his wherewithal – to do something and get it done," said his son, Gene Jones Jr. In 1982, he purchased Master Tank, giving Maguire Iron the capability to design, fabricate, and erect towers. His ultimate goal was to serve communities through the entire life cycle of their towers. "Dad had an 8th grade education. His business acumen came from what he learned on the street. He was a hard worker and a smart worker as well," said Gene Jr.

In 1984, Gene Sr. seized an opportunity to move his company headquarters to Tea, SD, and later to its current location near the Sioux Falls Regional Airport. Maguire Iron is poised to meet customer needs as fast as it takes them to fly there. In fact, Maguire has access to their own airplane and pilot – helping them to reach out to customers around the country.

Painting water towers also became a passion for Gene Sr's sons as well. "By the time I was six, I knew I was destined to become a tankee," said Gene Jr. "I climbed tanks at the age of 12. I would climb and he'd be right behind me." The Jones boys would spend their summers working on crews painting and cleaning out tanks, and continued the passion and tradition that their father started. In 1993, sons Gene Jr., Scott, and Brad banded together and purchased the company from their father, thus carrying on the family tradition. "We've all worked together coming up on 20 years," said Gene, Jr. "Since then we've had a lot of growth. Whereas before we built six tanks per year, now we do 30+, and



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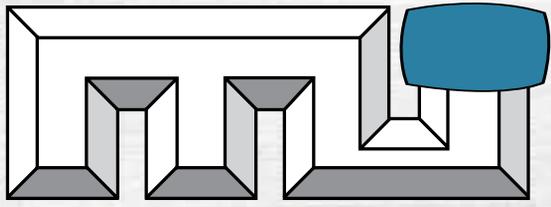


paint upwards of 300.” Maguire Iron fabricates a wide variety of storage tanks from Legged Tank Ellipsoids, Pedespheres and Hydrocones, to their trademark Spheroid. They also fabricate and erect ground storage tanks and standpipes. All of Maguire’s tanks are designed by their in-house engineer who has worked for the company exclusively for the past 25 years.

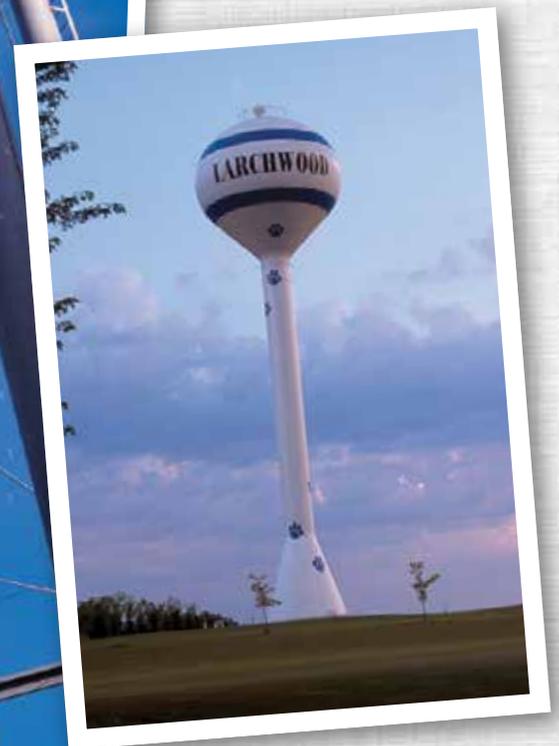
The Jones family also hope to keep the business in the family. “Ideally it would be great to have family involved, as well as key employees.” The Jones brothers have a combined total of 13 children between them, and a few have expressed interest

in taking on the family business. “We have done some family business succession planning,” said Gene Jr. If and when any of the Jones kin decide to take on the family business, they will join over 130 other individuals who keep Maguire Iron running. Currently, they are working on a 5-year strategy to focus their resources and attention on growing their paint and repair services in their existing territory of 35 states, and are looking to double the size of the company in that time. Maguire Iron’s goal is not to be the biggest water tank company in the USA, but to be “The Best Water Tank Company in the USA!” ♦





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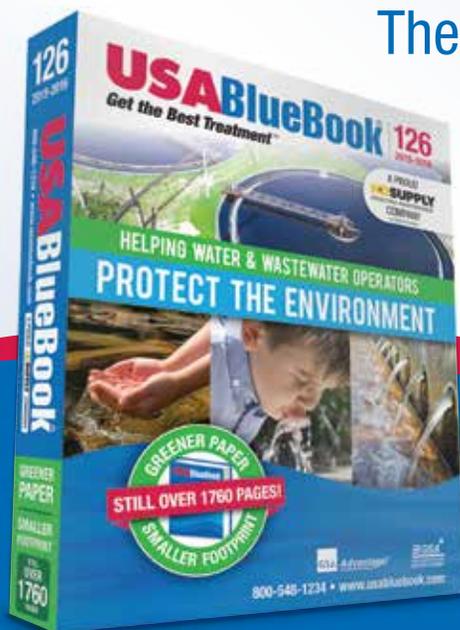


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# SDARWS Inspects 120-Year-Old Water Line

*By Mike Moeller, SDARWS Circuit Rider*

South Dakota Rural Water Association was contacted by Terry Wolterstorf, District Manager for the Lead Deadwood Sanitary District to discuss utilizing our non-potable camera to inspect their raw water collection system located in the Black Hills south of Lead.

The first question that came up was that the camera had typically been used in non-potable applications, and that SDARWS

didn't want to cause cross contamination of a drinking water system with the use of a non-potable camera. It was then decided that the camera and all the cables would be pressure washed and decontaminated with chlorine to make sure that cross contamination would not happen. Terry was certain it wouldn't be a problem anyway since he was having us video a raw water line, and that the water that was being collected was running on top of the ground for a short distance, and could possibly come in contact with foreign materials anyway.



*Water flowing out of a spring heading to the collection system*



*Water coming from another spring feeding the collection system.*



*All of the springs converging and heading into the collection pipe.*



Before we could get started, we had to figure out just how we would get the camera equipment (usually mounted in an enclosed trailer) up to the collection lines. The area where the collection lines were located could not be reached with a normal vehicle, let alone a pickup and trailer. After some brainstorming and some quick measurements, it was decided that the best course of action would be to take the camera equipment out of the trailer and mount it in the back of Lead-Deadwood Sanitary District's Polaris Ranger. SDARWS then tied down a generator in the back of our Kubota to run the equipment.

**...continued on page 28**



Camera transferred over and ready to inspect lines.



Camera set in an access point and ready to work.



Camera shot of a rock stuck in the pipe

The journey to the beginning of the collection line had begun. There were some treacherous trails to follow to get to where we needed to be, but we figured since some people pay a lot of money to ride ATV's out in the Hills on weekends, we might as well get paid to do it.

The collection line to be inspected is an 18-inch clay tile pipe with access points every 300 to 500 feet apart. SDARWS and the Lead Deadwood Sanitary District staff had no idea what would be found in the pipe once the inspection began. The pipe in question has been in place for at least 120 years, and had never had an inspection done in the past that anyone knows of.

The section of the collection system that was to be inspected was a mile and a half long, and it took one and a half days to complete the inspection. Overall, the condition of the pipe was amazing. There weren't any cracks or breaks found in the pipe, just a few rocks, some trees roots and a piece of wood wedged crossways inside. Honestly, it almost looked as if it was just a few years old instead of one placed in the 1800's.

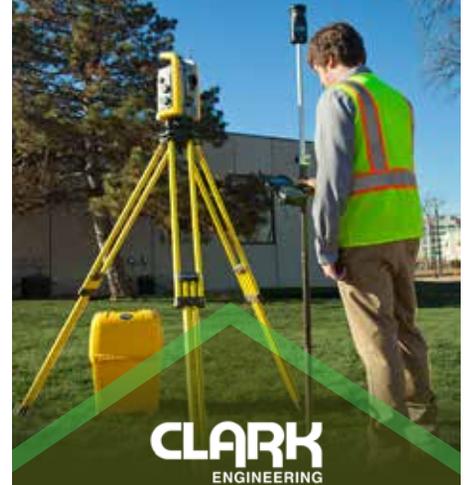
Terry asked if SDARWS would be interested in inspecting more of his collection system in the future and we told him that we'd be glad to assist him again in the future.

If you are interesting in having your collection system inspected, we'd love to help you out. Give us a call at 605-556-7219.



This exposed wooden pipe is thought to be 120 years old!

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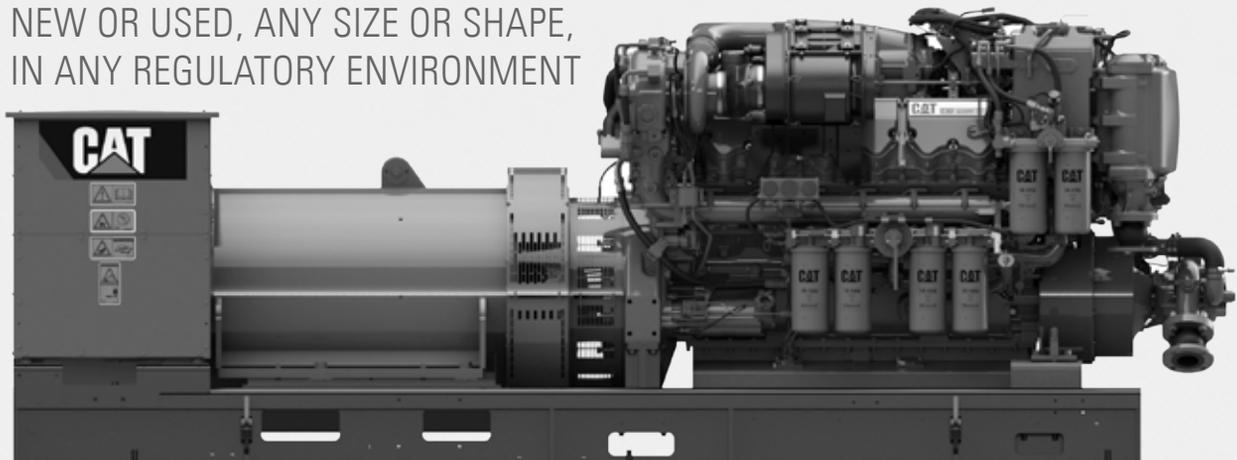
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# CONSTRUCTION PROJECT UNCOVERS SEWER MAINS PLUGGED WITH GREASE

By Chuck Clement, Madison Daily Leader

No one wants to call the plumber to fix a stopped up pipe in their house, but the city of Madison is finding underground sanitary sewer mains blocked with grease that make a clogged drain look like child's play. Mayor Roy Lindsay said construction workers replacing Madison's water and sanitary sewer mains under N. 2nd Street discovered major blockages in the sewer pipes at several locations due to grease disposed via water drains.

"In three different locations, we've found grease buildup in the sewer pipes," Lindsay said. "The blockages had built up from 50 to 80 percent to one location with 100 percent blockage of the pipe."

According to Lindsay, the complete blockage of the sewer pipe meant that wastewater needed to "back up" in the pipe to the point that it needed to "go around the block" and find another route downstream to the municipal wastewater treatment plant.

"Of course, it's difficult for anyone to realize to what extent this has been going on, because all of our sewer pipes are buried underground," Lindsay said. The city is replacing the municipal water and sewer mains that lie underneath N. 2nd St. as part of the SD Highway 34 repavement project currently under way in Madison. Kim Verhey, city foreman for Madison's water and wastewater distribution system, said no accurate records are available for the last time that new utility mains were installed underneath N. 2nd St.

"Our best estimate would be the last time the street was repaved," Verhey said. "That's probably more than 50 years ago."

Verhey said city workers weren't aware of the extent of the sewerline blockage, and no one would have an accurate idea without placing a camera into the sewer mains to record images. He added that city crews do "jetclean" the sewer mains "...on a pretty consistent basis," but those efforts could clear a small hole in the pipe without removing all of the grease buildup along the pipe walls.

City officials suspect that restaurants and other food related businesses along N. 2nd Street could have been significant contributors to the sewermain grease blockages. On June 1, the Madison Public Works Department mailed letters to all restaurant operators to remind them of their responsibilities related to grease disposal.



"Those letters have been sent to all of the restaurants to remind them of their responsibilities to maintain proper grease disposal so it doesn't enter the city sewer lines," said Lindsay, who also operates Madison's Subway restaurant.

The city letters notified restaurant owners that they have 90 days from the letter's date to certify that their businesses have a properly maintained interceptor to trap any grease or oil before the material reaches Madison's sanitary sewer system. A state licensed plumber needs to perform the initial certification. The business' owner or manager needs to verify every subsequent 90 days that the interceptor remains properly maintained and they need to provide a quarterly inspection report. The letters also notify restaurant operators that city personnel will perform spot checks on the grease interceptors.

The letters note that depositing grease and oil in the municipal sanitary sewer system is forbidden by Madison's municipal code and the state uniform plumbing code. Violations are subject to criminal prosecution and legal action including liability for any expense, loss or damages to the city.

Lindsay said that city officials weren't placing all of their attention on restaurant owners. They realize that Madison residents could have contributed to the sewer main blockages by dumping kitchen grease and oil down their sink drains.

"We also want to let residents know that what they pour down their drains may be

out of sight, but it's not out of mind as far as the sewer system is concerned," Lindsay said.

Verhey said that grease may look "broken down" by adding detergent as it flows down a water drain, but it doesn't necessarily stay that way.

"As the grease and detergent goes down the drain, all it does is get solidified a little further down the line," Verhey said. "Hot water and dish soap will only get (the grease) past a certain point. The grease is attracted to the cooler walls of the sewer pipe and attaches to it."

Verhey said the only wastewater that residents and businesses should dispose into the city sewer system should come from laundry, dishes, toilets, showers and baths. ♠

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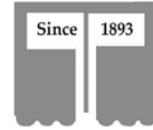
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  - bacterial reduction of methane in the absence of dissolved oxygen.
  - bacterial reduction of methane in the presence of dissolved oxygen.
  - bacterial reduction of sulfate compounds in the absence of dissolved oxygen.

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  - operators must be thoroughly trained.
  - protection of other personnel must be provided and used.
  - all of the above.

- 3** The overall efficiency of a pumping unit, if the current usage is 75 amperes at 220 volts and the pump output is 500 gpm at a head of 100 feet, is \_\_\_\_%.
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  - 57
  - 59
  - 76

- 4** Upon investigating a complaint of bad odors around a catch basin, you find that the trap and water level appear to be in good order. The proper next step is to
- add 7.5 to 10 pounds of quicklime to the basin daily until the odor diminishes.
  - ask residents to stay away from the catch basin area.
  - flush the basin with fresh water.
  - rod and then ball the connection from the catch basin to the sewer.

- 5** Which of the following is not typical of a "submersible" pump?
- can be installed in a crooked hole.
  - minimizes vandalism.
  - quieter operation.
  - requires water lubrication.

- 6** Possible types of atmospheric hazards found in manholes include
- explosion.
  - oxygen deficiency.
  - toxic gases.
  - all of the above.

- 7** The flushing water pressure in a water-lubricated wastewater pump should be \_\_\_\_\_ than the pump discharge pressure.
- 10 psi less
  - 5 psi less
  - 5 psi more
  - 10 psi more

- 8** Given the following data, what is the most likely cause of the mechanically cleaned bar screen problem? DATA: Above normal water differential across bar screen. Drive motor shaft turning. Drive sprocket, chain, rake not moving. Less than normal flow on bar screen downstream side. Bar screen mode selector in automatic position. Normal seasonal flow (influent) coming into bar screen. Alarm systems operating normally.
- low influent (incoming) level.
  - raw wastewater pumping units out of service.
  - sheared pin or disengaged clutch on drive unit.
  - none of the above.

- 9** The chlorinator is set to feed at the rate of 240 lbs/day, if the average flow through the plant is 2.0 MGD, approximately what is the daily average chlorine dosage in mg/L?
- 7 mg/L.
  - 12 mg/L.
  - 14 mg/L.
  - 28 mg/L.

- 10** Suppose the chlorine demand is 4 mg/L and a 0.1 mg/L chlorine residual is desired. How many pounds of chlorine will be required for a flow of 1.2 MGD in 24 hours?
- 20 lbs.
  - 39 lbs.
  - 41 lbs.
  - 62 lbs.

## Answer Key

1 D 2 D 3 B 4 C 5 D  
6 D 7 C 8 C 9 C 10 D



# MAKE PLANS FOR THE 2017 ATC

DENNIS N. DAVIS, EXECUTIVE DIRECTOR

While the Annual Technical Conference is still a few months away, the staff at South Dakota Rural Water are already busy behind the scenes gearing up for the event which kicks off Tuesday, January 10th at the Best Western Ramkota in Pierre.

Registration will be available soon on our website at [sdarws.com](http://sdarws.com) which aims to improve communication for both exhibitors and attendees, and should also ease the registration process. Our website will contain up-to-date agendas and news regarding the conference and the ability to register online. For those with smartphones – once you are registered online you will have access to our mobile app where you can manage your event registration, access event information on-the-go, and improve networking opportunities. Our Early Bird registration discount will be available until December 16, 2016 – so be sure to register early!

This year's keynote speaker is Colonel Mark Johnson of Eudora, Kansas. Mark is one of America's top motivational speakers, traveling the world and the United States inspiring audiences to achieve great success, above and beyond their expectations. He has made presentations in every U.S. state and twelve nations overseas.

Mark has led a fascinating life, full of travel and death-defying adventure. He survived numerous harrowing life and death situations during his twenty-one years as a Colonel in the Green Berets. He commanded specially-trained and educated teams that our nation selected for the most dangerous and hazardous missions. He conducted operations, many of a sensitive and classified nature, in over fifty-five nations on four continents. The invaluable lessons he learned in leadership, motivation, and team building, were shaped in times of extreme danger on the battlefields of the world. He learned to inspire those in his care to fearlessly excel despite enormous odds and he now translates those valuable lessons to today's world.

This year's awards brunch will feature a public judging of the top three finalists in the SD Rural Water Taste Test. The winner chosen at this taste test will go on to represent South Dakota in the National Rural Water Taste Test held at the Rural Water Rally in Washington, DC in February. If your water system is interested in participating in the taste test, make sure that they bring a quart-sized glass jar filled with water from your water system to the Registration Desk by 2pm on Tuesday, January 10th.

We look forward to seeing you in Pierre! ♦

## MARK YOUR CALENDARS!

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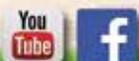
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