

ServiceLine

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

**SDARWS PARTNERS
WITH IDSHIELD**

**WATER TANK
INSPECTION
AREAS OF
FOCUS**

**THE INS AND OUTS OF
LOCK OUT/TAG OUT**

**2019 RURAL
WATER OPEN
HIGHLIGHTS**



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FROM THE SDARWS PRESIDENT

RON GILLEN, SDARWS PRESIDENT

WATER PRO

It isn't too early to start thinking about attending this year's WaterPro Conference in Nashville, TN September 9-11, 2019. NRWA puts on a fantastic show which brings in hundreds of vendors and hosts informative training sessions in operations, management, boardmanship and governance for those involved in water and wastewater utility systems – large and small, municipal and rural. WaterPro features expert speakers from across the water/wastewater industry. Want to hear about new USDA projects or EPA priorities? You can find out at the WaterPro Conference. The WaterPro exhibit hall is filled with vendors and service-providers dedicated to offering high-quality solutions for small and rural water utilities. Find out about all the best solutions for rural water today and tomorrow. For more information on this conference, including registration and hotel reservations, please visit waterproconference.org.

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 13-14th. 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 \$130, and includes a meal at the President's Reception on the evening of November 14th. Members of WaterPro will receive a \$15 discount. Registration for this event will be available online at <https://tinyurl.com/SDLadership>, or by calling the SDARWS office at 605-556-7219. Stay tuned for the agenda in the next issue of *ServiceLine*.

ATC CALL FOR PAPERS

SDARWS is looking for presentations for our Annual Technical Conference in Pierre January 14-16, 2020. 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: <https://tinyurl.com/ATCAbstracts>. For more information, please see page 13.

ATC AWARD SUBMISSIONS

There are only a few more short months before the snow flies, so that means it's time to get in your award nominations for the ATC! Check out the categories on page 18, and get your submissions in before the October 31st deadline. If you have questions on awards, please give the SDARWS Madison office a call at 605-556-7219. ♠

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OPERATOR CERTIFICATION TRAINING AND EXAMS

Intermediate Water Treatment	September 24-26	Rapid City-Ramkota
OpCert Exam	September 26-1:00 pm	Rapid City-Ramkota
Stabilization Pond Workshop*	October 1	Aberdeen-Ramkota
Stabilization Pond Workshop*	October 3	Mitchell-Highland Conference Center
Basic Water Treatment	October 22-24	Rapid City-Ramkota
OpCert Exam	October 24-1:00 pm	Rapid City-Ramkota
Water Distribution	November 5-7	Brookings-Days Inn
Wastewater Collection	December 3-5	Sioux Falls-Ramkota Inn

*The Stabilization Pond class deals strictly w/ ponds and is the best class for preparing to take the Small Wastewater System exam. The Basic Wastewater Treatment class deals w/ all types of wastewater treatment other than ponds and is the best class for preparing to take the Class I Wastewater Treatment exam. Small systems that use ponds for treatment can come into compliance w/ the OpCert Law by passing either the Class I Wastewater exam or the Small Wastewater System exam.

**Water systems serving less than 500 people that use wells can come into compliance by passing the Small Water Treatment exam. Larger systems must pass the Class I Water Treatment exam.

CONTACT HOUR REQUIREMENTS

Number and Type of Certificates	Contact Hours Required
Operator has one certificate (Class I or II)	10 contact hours every three years
Operator has one certificate (Class III or IV)	20 contact hours every three years
Operator has more than one certificate and all are Class I and II	15 contact hours every three years
Operator has more than one certificate and at least one certificate is a Class III or IV	30 contact hours every three years

**For more information contact SDARWS Trainer Jim Zeck
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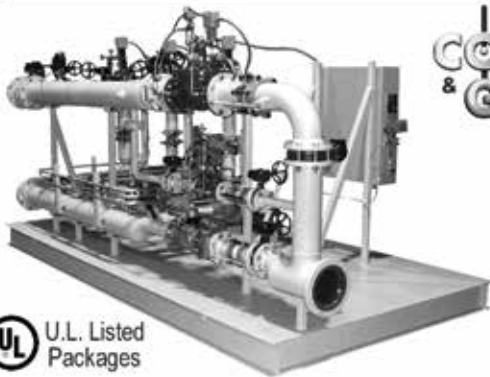
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SOUTH DAKOTA RURAL WATER'S ANNUAL TECHNICAL CONFERENCE

CALL FOR PAPERS

The South Dakota Association of Rural Water Systems is looking for presentations for our 2020 Annual Technical Conference in Pierre, SD January 14th-16th.

Please submit your abstract for SDARWS's 2019 ATC. 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
- Trench Safety
- Data management (e.g., SCADA, GIS, IT)
- Workforce, operator certification, and/or technical assistance initiatives
- 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:

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OR SUBMIT ONLINE AT
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ALL SUBMISSIONS MUST COMPLY WITH THE FOLLOWING GUIDELINES:

1. Deadline for submissions is September 20, 2019
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.



SDARWS 33RD ANNUAL RURAL WATER OPEN

By Jeremiah Corbin, SDARWS Source Water Protection Specialist

Elmwood Golf Course was filled with 174 Rural Water enthusiasts for the 33rd annual Rural Water Open on July 16. For the second consecutive year we employed a dynamic course layout utilizing all 27 holes that Elmwood has to offer. This format kept the pace of play manageable, while giving each team 18 unique holes to golf. The one main advantage to a dynamic course layout is it increases the pace of play for the large number of teams that participate in the Rural Water Open. Utilizing this arrangement, we were able to conclude play for all 44 teams in just over five hours with most teams coming in after 4 ½ hours.

At shotgun time the field consisted of 44 four-man teams. This year marked the 5th annual Water PAC Putt challenge. This year Jennifer Bame came up with a unique twist (thank you Internet) in which competitors had to select a card that determined the instrument they would be putting with. The selections included a toilet plunger, a tennis racket, a whiffle ball bat, a wooden baseball bat, a hockey stick, a child's toy putter, and an old leak detector. For each putt made the challengers were entered into a drawing. The challenge turned out to be quite a feat! We had 107

attempts at the challenge. Corey Sanderson won \$200 for the drawing of the individual that sunk all three balls, he was one of fifteen that made all three putts. Austen Clayes received \$100 for being drawn out of the pot of 29 who made two putts. Then out of 34 potential contestants, Austen Clayes name was drawn again for making one of the three putts and was awarded \$50 for that effort. Along with raising \$1,070, for Water PAC, this 19th hole offered a refreshing glass of beer to thirsty participants courtesy of Direct Automation.

When it comes to golfing, the Rural Water Open brings out an array of talent. Scores were competitive this year with 29 teams posting scores below par. Scores ranged from eleven under to ten over. Due to the nature of the dynamic field, scoring was based on score under or over par based on the particular 18 holes a team played. Tie breakers were decided by hole handicap and final rulings were determined by the club professional, Chad Veire. Again, we did not have mulligans at this year's tournament, but rumor has it they will make a return in 2020 – for a price. The Corporate Partners who helped make this event possible are listed on page 17. Without their support, it would be impossible to award prizes to all players. All of the team prizes, in each flight, were awarded prizes based on Corporate Partner donations.

Following Rural Water Open traditions, the tournament format included four person teams playing an 18-hole scramble with no championship or amateur division. After the scores were posted and verified by the club pro Chad Veire, all team scores were listed from lowest to highest and then the field was split in thirds with 14 teams in three flights. To summarize, the 1st flight teams ranged from -11 to -6; 2nd flight ranged from -5 to -1 and the 3rd flight ranged from -1 to +10.

Our first-place team from the 1st flight was again Team Munson. Our winner from flight 2 was a Core & Main team captained by Chad Hanson. The winner of the 3rd flight was first year team for the Rural Water Open, Team Suez, captained by Melinda Kurtz. Our last place team was Kristin Bisgard's Banner Team with a 10 over.

Our Flag Prize Winners Included: Chad Meyer, Closest to the Pin on #4W, he won his team Titleist Velocity Golf Balls donated by Bartlett & West. Jerry Backes had the longest drive on #7W and that earned him \$100 provided by Hawkins. Criag Wagner from team QPS/AE2S/HydroKlean drained the longest putt on hole 9W he earned \$100 and assorted golf merchandise from Direct Automation for the rest of his team. Melinda Kurtz with SUEZ won \$100 for being closes to the Pin on hole 12N. Brian Cooper with Maguire Iron won the hole prize on 16N for closest to the pin and \$100. Nick Gillen sunk the longest putt on hole 17N winning his team \$25 Visa Gift Cards and assorted golf merchandise provided by DGR. Justin Overman won \$100 for closest to the pin on #5E. Joe Munson with Banner had the longest drive on hole #7E and received a \$100. Brian Shaw with Qualified Presort/AE2S/Hydro Klean team sunk the longest putt on hole #9E scoring himself \$100 and winning his team assorted merchandise provided by DSG.

The Government Relations Committee's WaterPAC was again held on a par three hole. Due to the expanded footprint of playing all 27 holes, a second waterPac on the green challenge was again utilized. The Water PAC hole gives each golfer that buys a \$10 chance an opportunity to be entered into a drawing for \$100, if they hit their drive on the green. This year the East Water PAC hole, sponsored by DSG, raised \$1,265 and the West Hole, sponsored by Core and Main, raised \$961. The contribution to Water PAC from the 2019 Rural Water Open totaled \$3,296.

...continued on page 16



First Flight Winners: Team Munson



Second Flight Winners: Team Core & Main



Third Flight Winners: Team Suez

GOLF RECAP: continued from page 15...

Special thanks go to SDARWS Past-President Dan Carlson, Vice President Dale Thompson and Government Relations Committee members Larry Wasland and Glen Gilbertson along with SDARWS' Communications and Marketing Coordinator Jennifer Bame and Executive Director Kurt Pfeifle for manning the Water PAC holes.

Steve Bertrand, a late pickup on the Blassius Banner Team, was the lucky winner of the WaterPac drawing for the East Eight WaterPac hole and Brian Hoellein with Bartlett & West won the \$100 drawing for the West Eight WaterPac Hole.

Additionally, A Big THANK YOU to SUEZ for sponsoring the Drink cart tickets, and MicroComm for sponsoring the Cart GPS system.

In conclusion we would like to thank all the sponsors, participants and volunteers who helped make this event successful. Golfers please remember to check out the Corporate Partners on page 17, and when they stop by your facility let them know you appreciate their generosity and continued support. Mark your calendars for the 2020 Rural Water Open, it will take place on July 21, once again at Elmwood. ♣



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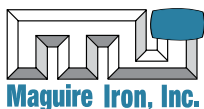
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WATER TANK INSPECTION AREAS OF FOCUS



By Brian Cooper, Maguire Iron

Water towers are used as primary water storage for many communities. They are designed to provide safe potable water, reliable water pressure and fire protection. To keep a water tower functioning properly, annual inspections should be conducted.

The American Water Works Association recommends: “Tanks should be washed out and inspected at least once every 3 years, and where water supplies have sediment problems, annual washouts are recommended.” (AWWA Manual M42, ch. 8, paragraph “Tank Washouts,” p.88)

When conducting a proper water tank inspection, the following five categories should be addressed and reported on to determine the condition of the water storage tank to properly maintain that asset:

1. Sanitary Conditions
2. Structural Conditions
3. Safety Conditions
4. Coating System Conditions
5. Security Conditions

SANITARY CONDITIONS

The sanitary conditions of a water storage tank are paramount to keeping the water supply safe inside the water storage tank from outside contaminants. The items that should be inspected to make sure that they meet all OSHA and AWWA standards are:

1. Vents – “Frost-Proof” screened vent of sufficient size.

2. Manways – 24” opening with 4” curb and 2” overhang.
3. Overflow Pipe – Sufficient size, screened and/or flap-gate and 18-24” from the ground

*Check your specific state regulations to make sure your tank is in compliance.

STRUCTURAL CONDITIONS

The water towers structural conditions are critical to ensure that the entire structure is safe. The inspection should ensure that the structure continues to meet the original engineers’ specifications. The items that should be inspected depending on the style of tank are:

1. Anchor Bolts – Secured and tight with no gaps between the nut and foundation plate.
2. Foundations/Grouting – No concrete deterioration and all gaps have proper grouting.
3. Wind Rods – Turnbuckles properly set to tanks engineered specifications.
4. Metal Loss in Steel Plates – Ensure no metal loss has taken place in metal plates.
5. Spider Rods – Properly secured inside the tank and are in good condition.
6. Roof Trusses – Have no metal loss, are properly secured and are structurally sound.

SAFETY CONDITIONS

The water towers safety conditions are important for keeping anyone who is on or around the structure safe. The safety items

...continued on page 20

that should be inspected based on the style of tank are:

1. Railings – 42” high with a mid-rail and 4” toe plate.
2. Ladders – 16” wide with 12” step, 3/4” non-slip rungs, 3/8” side rails and positive safety climb device.

COATING SYSTEM CONDITIONS

The water towers exterior and interior coating conditions are critical to protecting the steel from corrosion as well as protecting the potable water from the steel. Many factors effect coating performance. That is why it is critical to inspect all aspects of the tank for coating failures, especially areas of the tank that are exposed to moisture, both internally and externally.

Proper coating adhesion and film thickness should be measured by a N.A.C.E certified coatings inspector to determine how the coatings are performing and what the future needs of the coatings will be.

SECURITY CONDITIONS

The security of a water tank is paramount for ensuring the safety and quality of the structure and the potable water that it stores. There are multiple best practices to keep your tank and site secure based on the style of tank:

1. Terminate exterior ladders at least 12ft above grade.
2. Properly fence site
3. All doors and access hatches have proper locks.
4. Visit site on regular basis.
5. Install alarm system

IN SUMMARY

Safe water is the number one purpose of a water storage tank. A proper inspection, performed by a trained professional in the five inspection categories can alert you to any current issues or give you information on future issues that need to be addressed.

At Maguire Iron, we provide a full range of inspection services and maintenance plans tailored to your water tanks specific needs and budget. Call us today at 605-334-9749 to schedule an appointment with one of our water tower experts to determine your tanks condition and the best way to manage one of your most important pieces of infrastructure. ♦



These are examples of a proper welded steel vent and manway that meet OSHA and AWWA standards.



Anchor bolts improperly secured can cause structural issues.



Improper and failed grout between the foundation and the tank base plate.

THE INS AND OUTS OF LOCKOUT TAGOUT



**By Steve Attema,
SDARWS Safety Trainer**

Having a program to control hazardous energy may seem like a daunting task but following OSHA standards and keeping yourself and others safe can be a simple process. We'll get into the specifics little later but let's start by identifying what hazardous energy sources there are in the workplace. There are two basic forms of energy; stored (potential) energy and energy in motion (kinetic). Workers must be protected from both kinds and this energy and the source of the energy can come in many forms including:

- Thermal
- Gravitational
- Electrical
- Hydraulic
- Chemical
- Pneumatic
- Radiation

In water and wastewater operations the two most common forms are electrical (pumps, equipment) and hydraulic (water pressure).

A proper lockout/tagout program may use different devices to isolate or block energy sources from engaging equipment or causing harm to workers. These devices may include:

- Circuit Breakers
- Pressure Valves

■ Machine Blocks

To physically prevent access to controls of a machine there are a multitude of lockout devices that can be used and here are a few examples:

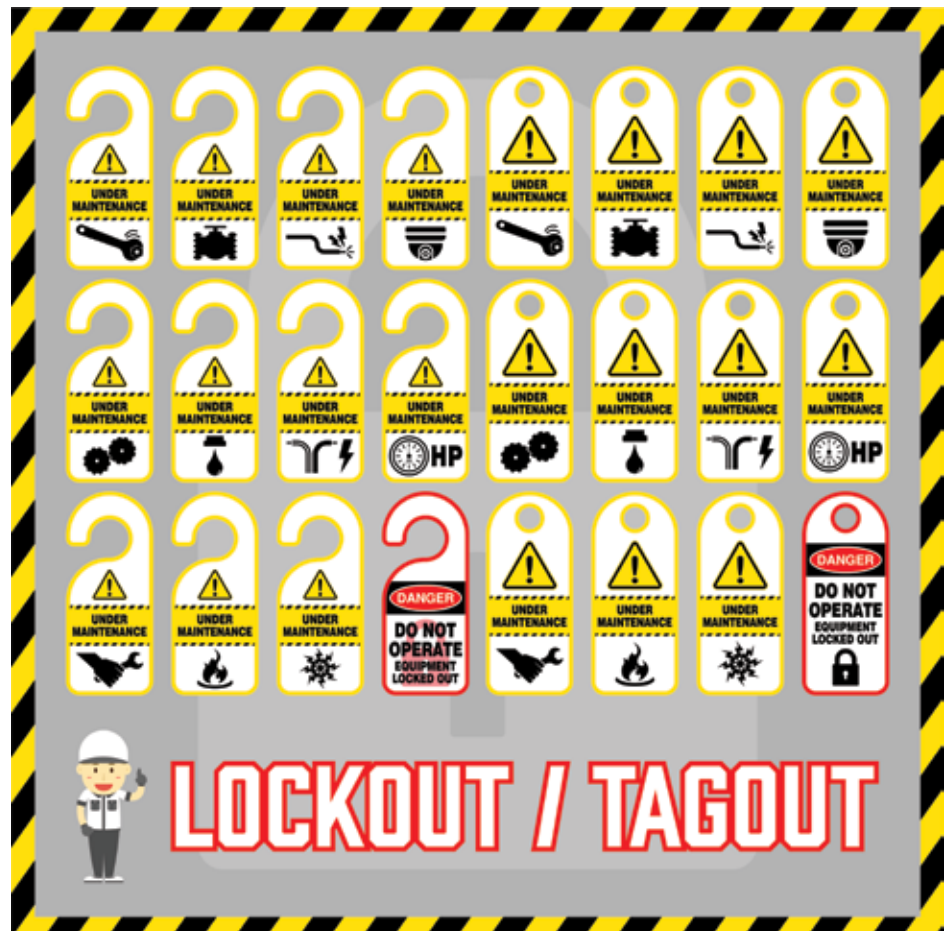
- Locks, Blocks, Chains
- Multi-lock Hasp
- Wheel valve covers, Ball valve covers

In addition, tags should be used to identify the date, time, and the person who applied the lock. The lockout tagout procedure should be used any time:

- Maintenance or repairs are done on machinery/equipment and hazardous energy exists.
- Start-up could occur unexpectedly.
- New Equipment is installed.
- Safety devices or guards must be bypassed.
- Employees must place part of their body that could get caught in moving machinery.

Now that we have identified the areas when lockout / tagout is needed let's move on to the steps involved. The employee performing lockout / tagout must understand the types energy sources present and their magnitude. Steps may need to be added based on particular situations but in general the lockout / tagout procedure is as follows:

...continued on page 22



LOCKOUT/TAGOUT: continued from page 21...

1. Notify all affected employees of the planned lockout / tagout.
2. Shut down the machinery or equipment.
3. Isolate machinery from all energy sources.
4. Lockout and tag energy isolation device.
5. Release all potential energy from the equipment (capacitors, line pressure, elevated items)
6. Verify that the energy isolation device is working (usually an attempt to restart it to make sure isolation and de-energization have occurred).

After these steps (and possibly others) the maintenance, service or repair work can begin in a safe manner. Once that work is complete the it is time to start up the machinery proper startup steps need to be followed as well:

1. Inspect the equipment making sure all parts and guards are back in place and tools have been removed.
2. Verify that the controls are in neutral, stop, or off position and remember to ensure that all safety devices have been replaced and are functional.
3. Make sure all employees are a safe distance away.
4. Remove lockout / tagout devices.
5. Notify all affected employees that all lockout or tagout

devices are removed and the equipment is about to be restarted.

6. Reactivate any isolation devices.

7. Restart the machinery or equipment.

There may be special situations where equipment needs to be started up or tested during maintenance or repair. These situations are allowed but need to have a proper procedure associated with them. This and other information regarding lockout/tagout are outlined in the OSHA standards (29 CFR 1910.147 and 1910 Subparts R & S).

The OSHA standards also have the different requirements including written procedures, training and periodic audits. These elements may be different for three different types of employees; authorized employee (the one who applies the lock), affected employee (the one who operates the equipment) and other employees (who may just be near the equipment).

Implementing these procedures may require some time, but it will help keep yourself and other employees safe. This article gave a broad overview about what is needed for a lockout / tagout program but the standards of 29 CFR 1910.147 and others need to be followed fully. If you need help revising or implementing your specific lockout/tagout program please contact SDARWS or other safety professionals. 💧

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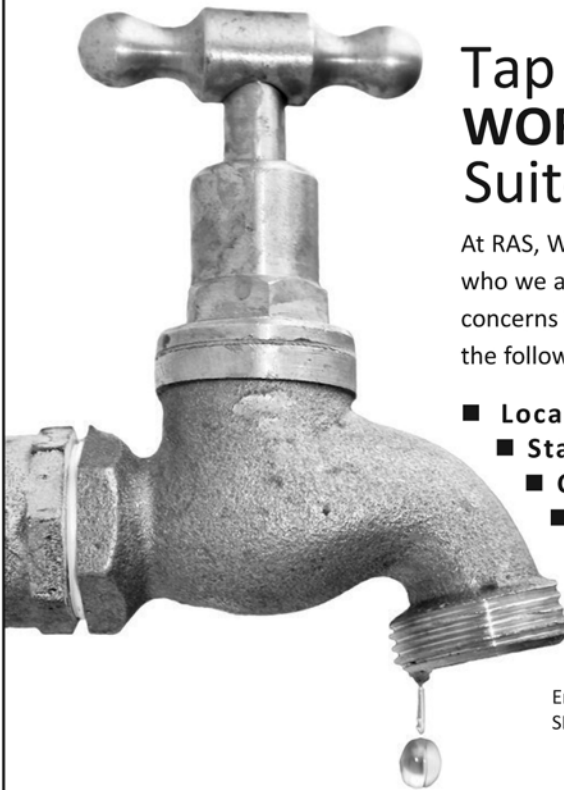
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South Dakota Rural Water AWARD NOMINATIONS

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 16, 2020. **Application deadline is October 31, 2019.** Eligible nominees must be affiliated with a system member in good standing. The online form can be found at www.surveymonkey.com/r/ATCAwards.

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 SUPERVISOR OF THE YEAR: Recognition for a State of South Dakota Certified Operator who is actively working a supervisory role for a Rural Water System, and has demonstrated outstanding leadership ability and/or accomplishments in drinking water.

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 and/or accomplishments in drinking water.

MUNICIPAL WATER/WASTEWATER SYSTEM OF THE YEAR: a municipality who puts forth exceptional efforts to properly manage, operate, and maintain their drinking water and wastewater system.

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 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 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 exhibits professionalism and dedication while operating and maintaining a small water system.

South Dakota Rural Water
AWARDS NOMINATION FORM

This form is also available online at: www.surveymonkey.com/r/ATCawards

Name of Nominee _____ Title _____

Employer _____ Years with System _____

Name of person making nomination _____

Address _____

City _____ State _____ Zipcode _____

PLEASE INDICATE AWARD:

- | | |
|--|--|
| <input type="checkbox"/> Rural Water System of the Year | <input type="checkbox"/> Municipal Office Person of the Year |
| <input type="checkbox"/> Rural Water Manager of the Year | <input type="checkbox"/> Municipal Operations Specialist of the Year |
| <input type="checkbox"/> Rural Water Office Person of the Year | <input type="checkbox"/> Carroll Anderson Memorial |
| <input type="checkbox"/> Rural Water Operations Supervisor of the Year | <input type="checkbox"/> Friend of Rural Water |
| <input type="checkbox"/> Rural Water Operations Specialist of the Year | <input type="checkbox"/> Spirit of Rural Water |
| <input type="checkbox"/> Municipal Water/Wastewater System of the Year | <input type="checkbox"/> Donald B. Pospishil |
| <input type="checkbox"/> Municipal Manager of the Year | |

SUPPORTING INFORMATION: Please provide a narrative for why this nominee deserves the award. (Outstanding accomplishments, contributions to system and state association, certifications, awards, exemplary work on legislative Issues, leadership, civic activities, etc.) Feel free to add additional pages if needed.

DEADLINE TO APPLY IS OCTOBER 31, 2019

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EMERGENCY MANAGEMENT TRAINING



**By Jeff Fossum,
SDARWS Circuit Rider**

Earlier this spring (or extended winter) I had received emails on an Emergency Management Training in Lonoke, Arkansas. In my mind I asked, “Why would I want or need to go to THIS – or yet another class?” As for the “want” to go, I was tired of the winter and all the problems that came with this particular South Dakota winter-spring. Yes, I was being selfish and I did not want to go. Next part of the statement was “need.” Did I “need” to go to learn about Emergency Management Training? I’ve had many years of training at Murphy’s School of Hard Knocks. My years at Murphy’s had already taught me how to keep water flowing and wastewater pumping with old mismatched Army Surplus generators for three days after the electric substation blew up that supplied electricity to the entire system. I also took a mandatory course on placing a new coating to the inside of a 500-thousand-gallon cement 1922 Ground Storage Reservoir... If only the watering restrictions in the heat of the summer were the worst part of that project. Not even the time delays were the worst part of the project. The icing on the top of the reservoir-cake was the lining failed – not just once, but two times. Now the number one most memorable course that Murphy taught me was on how a 500-year flood would ravage a system. With

this lesson, 95% of all structures in the system had major wastewater flooding in their basements, and about 1,000 feet of sewer main had washed away. On every street, every boulevard was lined with everything from appliances, furniture, and wastewater soaked basement-treasures.

In my mind I had some very good reasoning not to go to Lonoke, Arkansas. One morning my boss, SDARWS Executive Director Kurt Pfeifle asked me to consider attending the training. Kurt felt it would be a good training and had very good reports of the agenda content. This was enough to convince me to go.

Our host for the event was Dennis Sterberg, CEO of Arkansas Rural Water Association. Each one of ARWA employees was very hospitable and made sure we had everything that was needed – including rides from the airport. The parking lot of the Association had eight workstations with experts at each station to explain and demonstrate what services can be provided in an emergency

situation.

Unlike a good share of the training that I have received, this was mostly hands on. I will cover my favorite ones. The first station was a command center with living quarters with bunkbeds, cooking stove and showers. Everything that would be needed for an extended stay emergency worker rest area/command communication center. The need of equipment is to take care of the response people for rest, nutrition and mental support to continue a tough-to-impossible task of putting water and wastewater systems back together after a tragedy or natural disaster. The next station was a mobile water pressure purification plant with UV disinfectant that could produce a continuous 150 gallons a minute supply of potable water. Another station had a variety of variable frequency drives and portable generators. The thought behind this was not to fix the lift station, but to get the station running with a temporary power and controls. This would take the emergency away from the situation and make putting the station back in working order a non-emergency job. We also had stations with demonstrations of equipment that had been used in emergency response including drones, sewer cameras, and jet-vac machines.

The more intricate part of the training was socializing and networking. The ability to sit down and talk, discuss and bounce ideas off of others in the water business, and open the lines of communication across state lines helped is all to gather up ideas we could use to keep running efficiently under any condition.

After getting back home to South Dakota, I thanked Kurt for nudging me to attend the training with my co-worker Brant Ager. If you asked me now if the training was worth my time, the answer is definitely “can I go again?” 💧



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CERTIFICATION PRACTICE QUESTIONS

1. WHICH TWO CHEMICALS ARE THE MAIN CAUSE OF HARDNESS?

- a. Sodium and Potassium
- b. Calcium and Manganese
- c. Calcium and Magnesium
- d. Sodium and Magnesium

2. WHICH OF THE FOLLOWING IS A PHYSICAL CHARACTERISTIC OF WATER?

- a. Turbidity
- b. Hardness
- c. Alkalinity
- d. pH

3. WHICH OF THE FOLLOWING IS A FORM OF CARBONATE HARDNESS?

- a. Magnesium Sulfate
- b. Calcium Bicarbonate
- c. Calcium Chlorine
- d. Ferric Hydroxide

4. WHICH TREATMENT CHEMICAL COULD CAUSE PINK WATER COMPLAINTS?

- a. Chlorine
- b. Soda Ash
- c. Potassium Permanganate
- d. Chloramine

5. WHAT IS THE CHEMICAL NAME FOR PEBBLE LIME?

- a. Calcium Carbonate
- b. Calcium Hydroxide
- c. Calcium Oxide
- d. Calcium

6. WHAT IS THE CHEMICAL NAME FOR SLAKED LIME?

- a. Calcium Carbonate
- b. Calcium Hydroxide
- c. Calcium Oxide
- d. Calcium

7. WHICH IS TRUE ABOUT 1 TON CHLORINE CYLINDERS?

- a. They have two valves at one end
- b. The fusible plugs is located on the valve body
- c. A full container weighs 2,000 lbs.
- d. They are fed in a vertical position

8. WHICH IS TRUE ABOUT 150 LBS CHLORINE CYLINDERS?

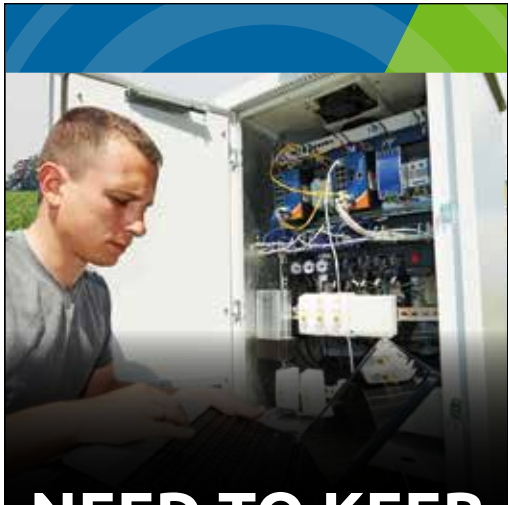
- a. They have single valve at one end
- b. The fusible plug is located on the valve body
- c. A full container weighs 150 lbs.
- d. They are fed in a vertical position

9. EXCESS FLUORIDE IN WATER (BETWEEN 2 AND 4 MG/L) CAN CAUSE?

- a. Cavities
- b. Mottling of the teeth
- c. Erosion of the tooth enamel
- d. Death

10. THE SPECIFIC GRAVITY OF GASSES IS BASED ON?

- a. Water
- b. Air
- c. Nitrogen
- d. Oxygen



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1. C; 2. A; 3. B; 4. C; 5. C; 6. B; 7. A; 8. A, B, & D; 9. B; 10. B

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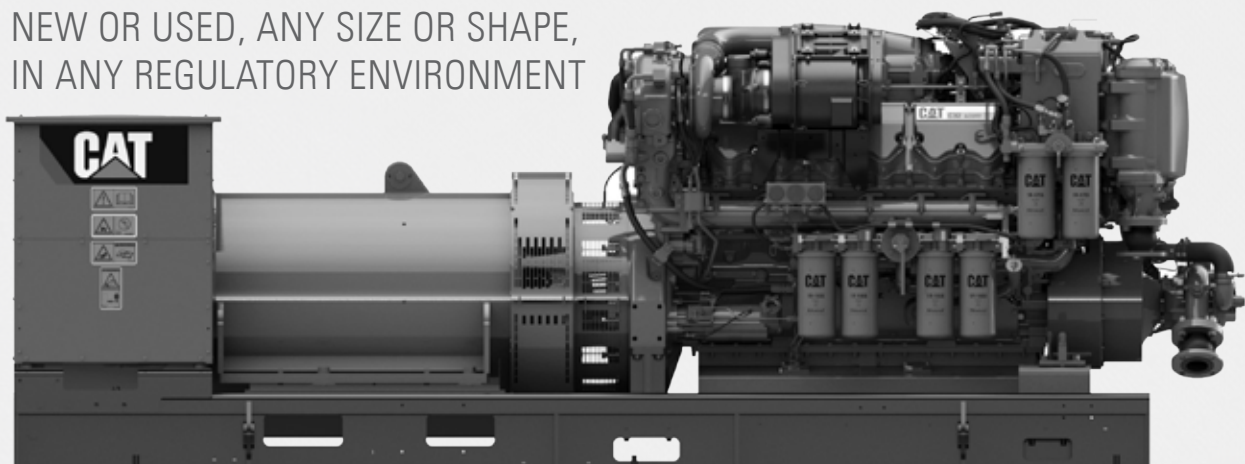
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LEAKS, LEAKS EVERYWHERE



**By Mike Moeller,
SDARWS Technical Assistance/
Training Specialist**

It was a long winter with many days below zero – even for the people such as me who live in the banana belt of the state. Winter didn't really hit us on the western edge until the first part of February. I remember on groundhog day it was 63 degrees at my house but oh how the weather changed after that, two days later it was -10 degrees. The temperatures stayed very low throughout February and didn't warm up until the end of March, causing the frost layer in the ground to go to the six-foot level in the Black Hills, which is not normal or ideal for the area.

After all the cold came spring, and with that, the calls started coming in. Systems were calling with water loss that was above what they may normally have. As I started looking for the leaks on their systems, I began to see a trend. The leaks I was finding were mostly on service lines at the curb stop, or at the connection where the poly pipe was connected to copper pipe and was stubbed out from under the foundation of the home. It made me wonder if the frigid winter and all the frost that was in the ground was playing a part in the reason for the location of the leaks I was finding.

The theory that we have is that water lines need to be buried below the frost line. When I lived east river, everyone always said that the water lines were at least six feet deep, and since I have lived on the

west side of the state I have seen a multitude of bury depths from three-and-a-half foot to six foot. Many things play a role as to how deep the water lines are buried on the western side of the state, but the main one is how easy it is to dig in the water line. The lines that I have seen that are at the three-and-a-half-foot level are usually laid on a rock shelf, and the only way to go any deeper would be to blast through the rock, which is very expensive. With that being said, the installer will usually put the water line on top of the rock to keep costs down.

Back to the leaks. As I stated before, the frost had to be playing a big role with the leaks. As we all know when frost goes into the ground, it causes the earth to shift, and when there is a water line in the area of movement any weak spot will only take so much movement before something must give. Once the fitting or connection gives, the frost will act as a barrier and not let the water surface until spring.

The best thing a system can do is first, make sure that your water lines are properly installed at a depth that frost shouldn't affect them. Next is to have the users on your system be aware of what they may or may not be seeing. If they see water sitting in an area they normally don't, then have them call in and let the system know about it. The systems that I deal with would rather investigate a place with water standing and possibly not have a leak than not to be called and have a leak continue and not be able to spot it.

Water is a valuable resource that we all need to survive. Leaks are inevitable, and every system will have them, but with some education to consumers and proper installation, many of them can be caught in a timely manner or possibly even avoided. 💧



1. A service line with a bury depth of 40 inches.

2. A homeowner called in this unusual water puddle in a ditch.

3. A leak at connection to curb stop valve.

PHOTOS FROM THE FIELD



SDARWS Wastewater tech Abbey Larson and Utilities Manager Frankie Ducheneaux were cleaning valve risers and exercising valves at the lagoon site in Isabel.



Circuit Rider Jeff Fossum out finding leaks in Brandon.



Miranda Kleven with AE2S discussing financial depreciation at the South Dakota Rural Water Manager Meeting. Systems From Iowa and Minnesota have joined their South Dakota contemporaries at the Grand Falls Casino.



SDARWS Wastewater Tech Bill Thorson smoke testing in Menno.



SDARWS co-hosting a manhole rehabilitation workshop with Hydro-Klean in Groton.

To see more pictures of SDARWS in action, follow us on Facebook at www.facebook.com/SDRuralWater

FINDING LEAKS WITH A CORRELATOR



**By Brant Ager,
SDARWS Circuit Rider**

The leak correlator has become an important instrument in SDARWS's tool belt for leak detection. It is frequently used when conditions are right and has found many leaks – helping to save water systems money in extra energy costs alone. It is handy to confirm a leak location when water is surfacing as well as find the leak when water is not surfacing. Many times the utility will dig where the water is surfacing and find no leak causing them to dig multiple holes which becomes spendy in a hurry.

The correlator works by measuring sound along the pipe. It does not distinguish what exactly a leak sounds like, but will instead find the loudest and most consistent noise. This leaves an amount of interpretation to be done by SDARWS staff. Sometimes we have to bracket the leak between the sensors using valves, curb stops, and hydrants, and it can take multiple correlations to get the leak in between sensors. It will either show no leak or say leak noise is out of bracket. Once the leak is within the sensors, the correlator will find the leak. It calculates the distance of the leak by measuring the time delay of the sound between the two sensors. So, with a known velocity of sound on a given pipe material the sound will arrive at one sensor faster than the other.

The correlator requires pipe type, size,

and distance between sensors to work. The accuracy of the parameters is crucial for the accuracy of the results. A common saying with correlators is “accurate in = accurate out.”

A recent leak detection project that I assisted with proved that beginning with accuracy is key (all our staff will ask how sure are you on the dimensions and might ask to measure the distance twice). The pipe type was cast iron. The pipe size was 8 inch, and the distance was 300 feet. The correlator measured the distance of the leak without question. An X was drawn on the asphalt, and a hole was dug to find no water. After reviewing maps, it was found that there was a short section of different pipe material and jog in the pipe route. These two factors completely threw off the results because the correlator was measuring the wrong parameters.

Accuracy, accuracy, accuracy! The correlator is a wonderful piece of equipment but must be fed the right information. SDARWS staff will be sure to stress this onsite. If your system needs assistance finding a leak, give us a call at 605-556-7219. ♦





FROM THE EXECUTIVE DIRECTOR

KURT PFEIFLE, EXECUTIVE DIRECTOR

We are excited to announce that we have been working with our partners at Marsh & McLennan Agency (MMA) to create a new affinity program for the association with IDShield. After many meetings with MMA and with representatives from IDShield, and a presentation to the board in April, we have approved the affinity program.

IDShield is the most comprehensive identity protection and restoration product available. This protection monitors social media, credit cards, bank accounts, credit reports, email addresses, plus many other security risks. Participants receive an alert via email or push notification on the IDShield Plus mobile app if their information is found online. Alerts contain details on the threat, including links to where the exposure occurred – giving participants the opportunity to look over the information to either dismiss



the notification or escalate the issue with licensed private investigators. I personally have used IDShield for protection for over a year, after our family experienced an identity theft-related event.

With the affinity program, members of the association will receive significantly discounted pricing when purchased through the association. For the association staff, we are paying for our 13 employees to receive an individual plan, with the ability to buy the family plan with payroll deduction for the difference in cost. There are options for how an employer may want to offer this to their employees and what they may want to pay for.

Look for additional information in the coming months regarding this new affinity program. We are even currently evaluating options to potentially make this offer available to customers of the rural water systems. More to come soon! 💧



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