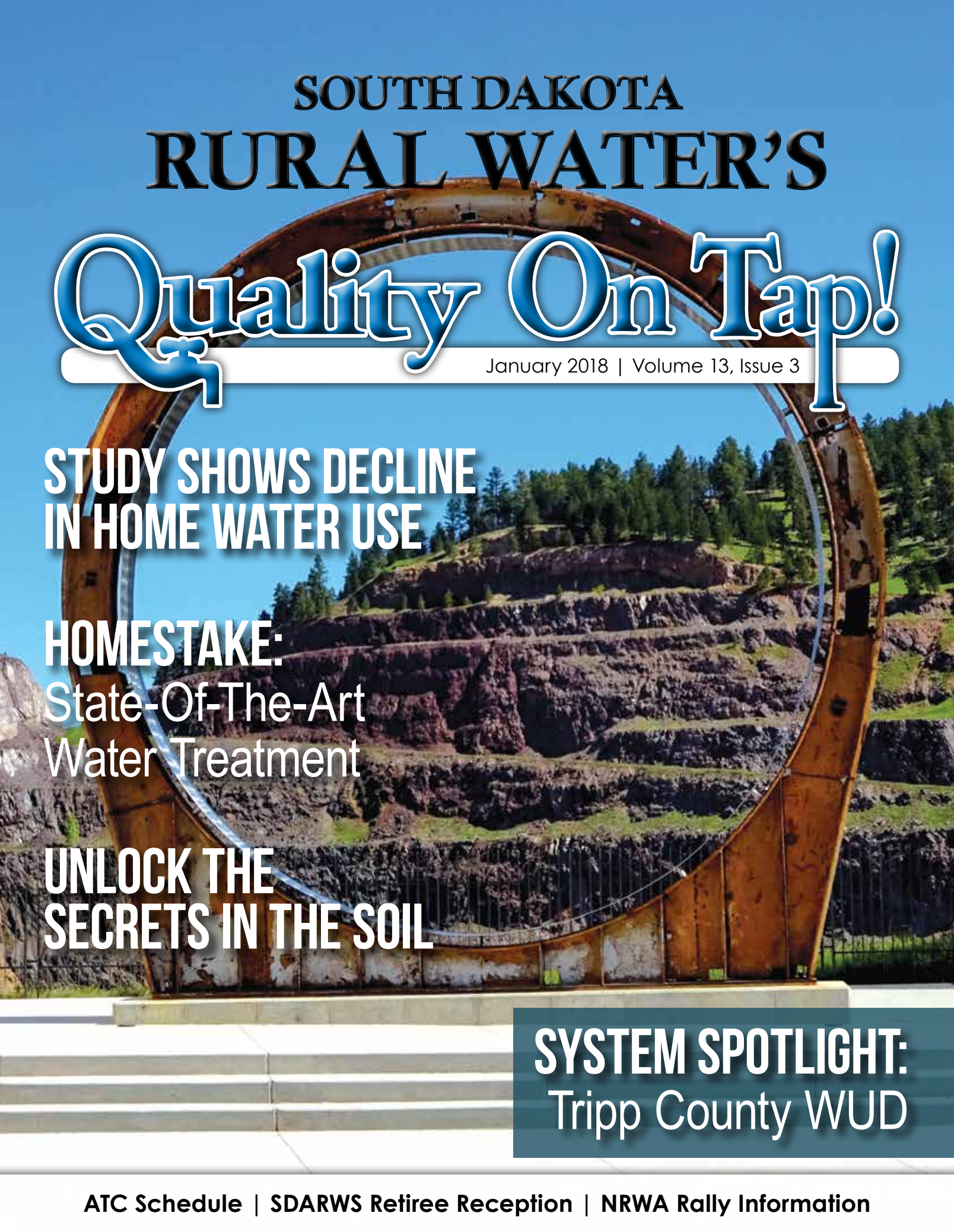

SOUTH DAKOTA RURAL WATER'S Quality On Tap!

January 2018 | Volume 13, Issue 3

STUDY SHOWS DECLINE IN HOME WATER USE

HOMESTAKE: State-Of-The-Art Water Treatment

UNLOCK THE SECRETS IN THE SOIL

SYSTEM SPOTLIGHT: Tripp County WUD

ATC Schedule | SDARWS Retiree Reception | NRWA Rally Information

A MESSAGE FROM THE PRESIDENT OF THE BOARD

Ron Gillen, President
South Dakota Association of Rural Water Systems

Join us at the 2018 ATC!

The 43rd Annual Technical Conference is approaching fast, and the staff at South Dakota Rural Water are busy behind the scenes gearing up for the event which kicks off Tuesday, January 9th at the Best Western Ramkota in Pierre.

Online registration is open, so check sdarws.com for everything you need to know – 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.

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've been doing for the past few years. Booth spaces are limited – so make sure to register soon to reserve your space!

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 2:00pm on Tuesday, January 9th.

Exhibitors can again look forward to participating in various advertising sponsorships at this year's conference. Please visit www.sdarws.com/annual-conference.html to see what we still have available.

This year will also mark the last ATC for three longtime SDARWS employees who are approaching retirement – Executive Director Dennis N. Davis, Circuit Rider Morris Elcock, and Wastewater Technician Jerry Hemeyer. I would like to invite anyone who would like to say goodbye to these gentlemen to come to our Exhibit Hall at the Ramkota in Pierre on Wednesday, January 10th from 4-8pm. We will be hosting a special program at 7:30pm, and the retirees will be on hand to say their goodbyes. We hope to see you then.

JANUARY 9-11 ATC 2018

SOUTH DAKOTA RURAL WATER'S ANNUAL TECHNICAL CONFERENCE

BOARD OF DIRECTORS

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Ron Gillen, President

Kingbrook Rural Water System
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BDM Rural Water System
Torre Raap

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Gary Johnson

Butte-Meade Sanitary Water District
VACANT

Davison Rural Water System
Bob Weisz

Fall River Water User District
Jim Ginsbach

Hanson Rural Water System
Doug Degen

Lewis & Clark Rural Water System
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Lincoln County Rural Water System
Merlyn Smeenk

Mid-Dakota Rural Water System
James McGillvrey

Minnehaha Community Water Corporation
Lloyd A. Rave

Oglala Sioux Rural Water Supply System
Willard Clifford

Perkins County Rural Water System
Lynn Frey

Randall Community Water District
Dave Meyerink

Rapid Valley Sanitary District/Water Service
Jack Tomac

TM Rural Water District
Jay Jorgensen

Tri-County/Mni Wasté Water Association
J.R. Holloway

Tripp County Water User District
Louis Kehn

WEB Water Development Association
Les Hinds

West River/Lyman-Jones Rural Water System
Rick Doud

Class B East River
Ronald Neeman

Class B West River
Robert Glenn

Class C
Dan Ostrander

2018 RURAL WATER RALLY

Dennis N. Davis, Executive Director
South Dakota Association of Rural Water Systems

South Dakota Rural Water does many things, and one of the most important benefit to our rural water membership relates to our legislative efforts. Every year the National Rural Water Association hosts a Rural Water Rally in Washington D.C. to further the work of providing drinking water and wastewater services to rural communities. Rural Water professionals, leaders and customers from every state attend the rally to thank their Senators and Representatives for their support and encourage them to further support the goals and needs of the Rural Water Industry. SDARWS has participated in the Rally since its inception in 1986, and 2018 will be no exception. The Rally provides your Association the opportunity to meet directly with our congressional delegation one-on-one to discuss concerns of SDARWS members and other systems, as well as with their staffers, and USDA. Guest speakers from legislative staffs and federal organizations, like the EPA and USDA, are invited by NRWA to share their views and insight to the assembled guests from across the nation.

SDARWS meets with both of our two Senators and our Representative; we also meet directly with their key staff members to make sure that rural water funding remains a priority. Our time at the Rally usually culminates with a meeting with the loan program specialists at USDA Rural Development. Managers and board members, and even employees of systems make the trek to DC for this important endeavor.

State rural water associations operate contracts that are funded through the National Rural Water Association. This funding originates with EPA and the Rural Utilities Service (RUS), a division of the USDA. For SDARWS, and more importantly, the public we serve, those programs include three circuit riders, a wastewater tech, a source water protection specialist, and a part-time training specialist. While membership dollars help to support your association, we cannot cover the cost of staff and travel to provide assistance to systems without continued funding through the State of South Dakota, USDA, and EPA.

While the Rally began as an information meeting to make us aware of legislative and regulatory issues affecting our industry, it also prepares us to discuss these very issues with our legislators. There are a few mainline items that we always like to discuss during our time in DC. It is important to note that all rural water priorities are authorized in the Farm Bill or the Safe Drinking Water Act. They are not earmarks.

We invite you to join us February 5-7, 2018 at the Hyatt Regency on Capitol Hill. For more information, visit NRWA's Rally page at: nrwa.org/rally. Room reservations can be made at the Hyatt Regency by calling 202-737-1234. If you have any questions about attending this year's event, please call the SDARWS office at 605-556-7219. We would love to have you join us on the Hill!

February 5-7 | Washington, DC | nrwa.org/rally

RETIREMENT RECEPTITON

Dennis N. Davis
Executive Director
Retiring April 5, 2018
39 Years of Service

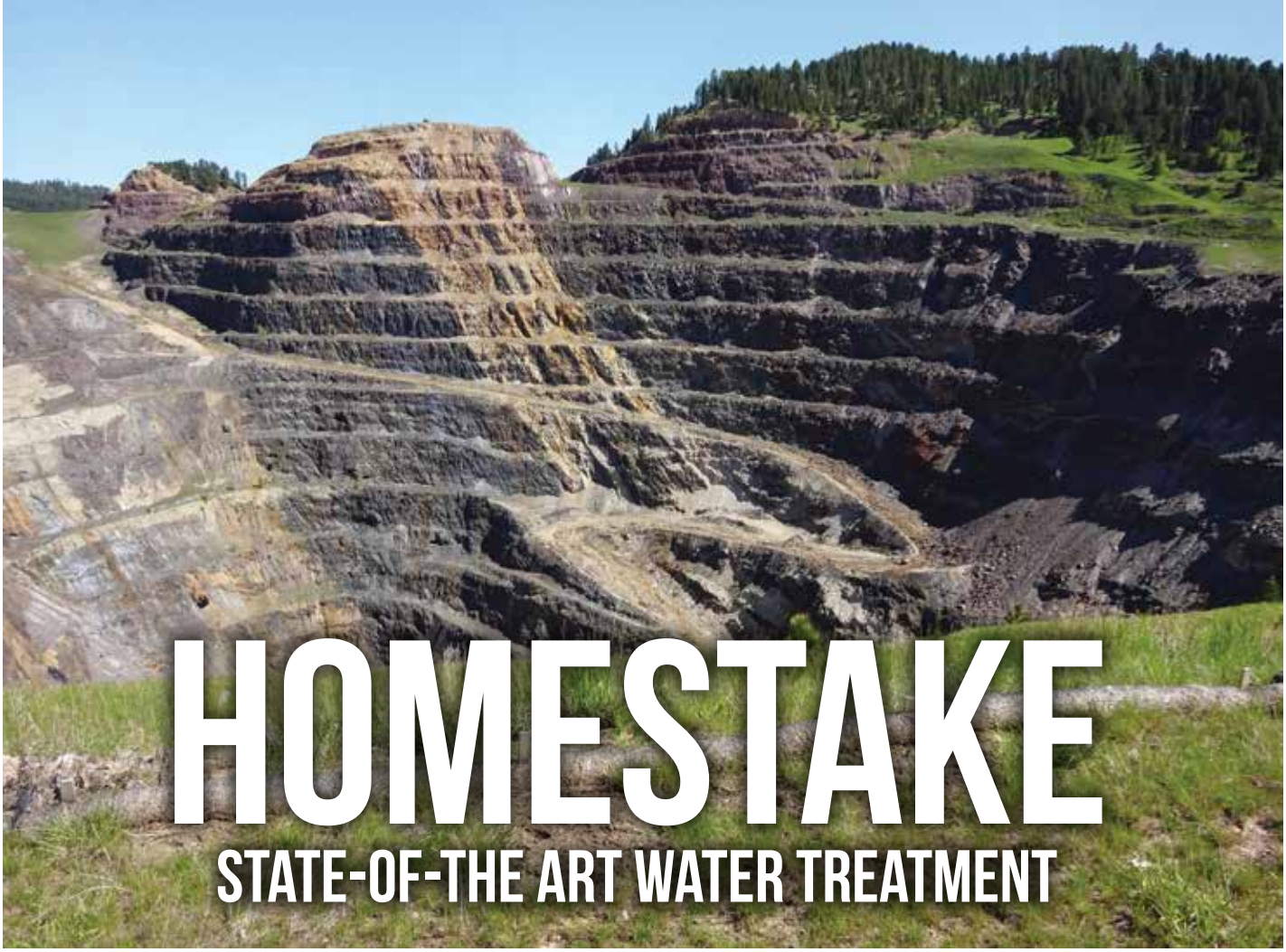
Jerry Hemeyer
Wastewater Technician
Retiring February 28, 2018
26 Years of Service

Morris Elcock
Circuit Rider
Retiring February 4, 2018
17 Years of Service

Join us at the ATC Exhibit Hall at the Ramkota Convention Center in Pierre, SD on Wednesday, January 10th from 4-8pm to wish our retirees a fond farewell and best wishes.

A short recognition program will take place at 7:00pm in the Exhibit Hall

Jerry and Morris will be the keynote speakers for the ATC Awards Brunch Thursday, January 11th at 9:30am where they will say their final goodbyes.



HOMESTAKE

STATE-OF-THE ART WATER TREATMENT

By Constance Walter, Communications Director for Sanford Underground Research Facility

Up through the late 1970s, the Homestake mine dumped water directly into Whitewood Creek. Laced with cyanide mercury and arsenic (cyanide was used to remove gold from the ore), the mine effluent effectively killed the stream. The Environmental Protection Agency stepped in, placing the burden of cleaning up the creek on the mining company.

Homestake spent millions of dollars looking at chemical treatment processes; however, the treatments weren't working. Homestake turned to Jim Whitlock, a microbiologist, who suggested a whole new approach to the problem:

"I started looking for bacteria," Whitlock said.

He and his team found microbes living in the fringe water of the Homestake tailings impoundment, and nibbling on the cyanide.

The team gradually exposed the microbes to increasing levels of cyanide until they could tolerate the high levels coming out of the mine effluent and then from the mine itself.

"Within 10 to 15 minutes, they could destroy the cyanide in the water," Whitlock said. The Wastewater Treatment Plant began pumping out clean water in 1984 and life gradually returned to the creek.

Since 2008, billions of gallons of water have been treated at the Sanford Underground Research Facility's (SURF) Waste Water Treatment Plant (WWTP). Over half of that comes from underground, while the rest comes from the Grizzly Gulch tailings. Once treated, the water is released into Gold Run Creek, which joins Whitewood Creek within a few hundred yards of the discharge pipe.

The water from the mine contains suspended solids – mostly iron, said Wastewater Treatment Plant Foreman Ken Noren. "Basically, it looks like tomato soup." When the water is pumped from the mine, it goes through sand filters then into a 15-foot deep, cone-shaped tank for iron removal.

But the iron particles are so fine, they can't be removed easily. So a coagulant, which neutralizes the charge of the iron particles, and a flocculant, or clarifying agent, are added to the tank and mixed with the water for 15 minutes. The flocculant causes the particles to form into clumps that can then be removed.

"Ideally, we want the chunks to be the size of a fingernail, but some can be as big as the palm of your hand." Noren said.

As the iron clumps into ever-bigger chunks, it settles to the bottom of the tank. Within 20 minutes after the mixing has stopped, the iron is removed from the tank and the usable water continues through a geotube that removes finer particles. The water bleeds through the bags while the iron remains.

"It comes out 99 percent pure iron," Noren said.

The water that can't be used, goes to the Lead/Deadwood sanitary sewer.

UNLOCK THE SECRETS IN THE SOIL
with these conservation practices

MIX IT UP
CROP ROTATION

Growing a diverse number of crops in a planned sequence increases soil organic matter and biodiversity in the soil. This increased biodiversity helps reduce plant and disease pressure, too.

TAP INTO ROOTS
COVER CROPS

Cover crops are un-harvested crops grown as a part of a planned rotation that provide benefits to the soil, principally by feeding soil microbes through their roots. Keeping living roots in the soil (before and after harvest) provides soil microbes with the habitat they need to thrive and provide nutrients and protection for harvested crops.

DISCOVER THE COVER
MULCHING

Applying or leaving plant residues or other suitable materials on the soil surface reduces evaporation, regulates soil temperature and helps protect the soil from erosion.

DO NOT DISTURB
NO-TILL

No-till is a way to plant and grow crops without disturbing the soil through tillage (plowing, roto-tilling or hoeing). In the garden, small areas or rows can be cleared and small holes can be dug for transplants (or seeds), which minimizes soil disturbance and protects microbial communities that reside in the soil. On the farm, large-scale no-till planters use rotating coulters (disk-like blades) to slice through plant residues and cut small slits in the soil while seeds are placed in the narrow openings. This no-till technique limits soil disturbance and significantly reduces energy use.

Information provided by the USDA Natural Resources Conservation Service - SD
200 Fourth Street SW, Huron, SD 57350
www.sd.nrcs.usda.gov

LOVE THE SOIL

Make it healthier with four key conservation practices

Whether you farm hundreds of acres of cropland or tend a backyard garden, by following four basic soil health principles you can improve the health, function and productivity of your soil. Applied over time, these soil health principles enhance the soil's ecosystem, allowing it to function naturally.

Like nature, these principles...

1. Keep the soil covered as much as possible;
2. Disturb the soil as little as possible;
3. Keep plants growing throughout the year to feed soil microbes; and
4. Grow a variety of plants to diversify soil biology.

HARVEST THE BENEFITS

- Improve water quality
- Increase soil's capacity to hold water
- Increase organic matter in the soil
- Increase microbiological activity
- Improve pollinator habitat
- Improve nutrient cycling
- Reduce plant stress and disease
- Reduce energy use

UPDATED STUDY SHOWS DECLINE IN HOME WATER USE

A 2016 study published by the American Water Works Research Foundation shows a marked decline in home water use from a previous study issued in 1999. The average annual indoor household water use dropped 22% during that period.

The initial 1999 study established a benchmark for water use following the implementation of the Energy Policy Act of 1992, which sought to improve energy and water efficiency. The Act established maximum flow rates for new residential toilets, showerheads, and faucets. Later federal regulations included clothes washers.

The 2016 study monitored approximately 1,000 single-family residential accounts randomly selected from 23 cities across the country. The large representation of cities reflected the strong influence of climate and weather patterns. The study also looked at inside vs. outside water use. A fundamental goal of the study was to quantify how much water is used both indoors and outdoors, as well as per capita and household.

Figure 1 to the right shows indoor household water use by fixture. Toilet flushing is the largest indoor use of water in single-family homes. Mandated reductions in toilet flush and clothes washer volumes and shower and faucet flow rates have contributed to the declines in residential water use. Total average indoor household use is 138 gallons per household per day.

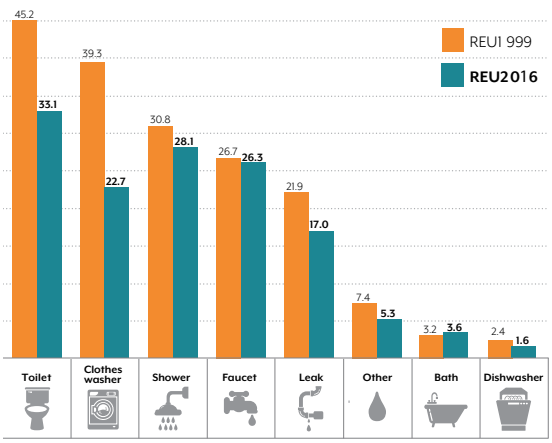
Outdoor water use was studied more extensively in the 2016 study vs. the 1999 study. Various factors were used to determine outdoor water use requirements. 72% of those surveyed actually used less water than was predicted. 16% used the targeted amount and 13% used more than predicted.

Figure 2 below shows the decrease in use per fixture or appliance from 1999 to 2016. Even without a concerted effort on the part of homeowners to switch to more efficient appliances and fixtures, reductions are anticipated as old toilets and clothes washers wear out and are replaced. The current average daily indoor per household use of 138 gallons per household is expected to reduce to 110 gallons.

Reductions in home water use can be a mixed blessing for water utilities. Less residential use means less demand on water sources, treatment and pumping facilities. Lower water sales can also mean less revenue for utilities that face aging infrastructure replacement needs. A careful eye on water trends is important for all parties.

Information from the American Water Works Association Research Foundation used with permission.

FIGURE 2. PERCENT OF THE THEORETICAL IRRIGATION REQUIREMENT (TIR) APPLIED TO LANDSCAPE



22%
DECREASE
PER HOUSEHOLD
DAILY WATER USE
1999 TO 2016

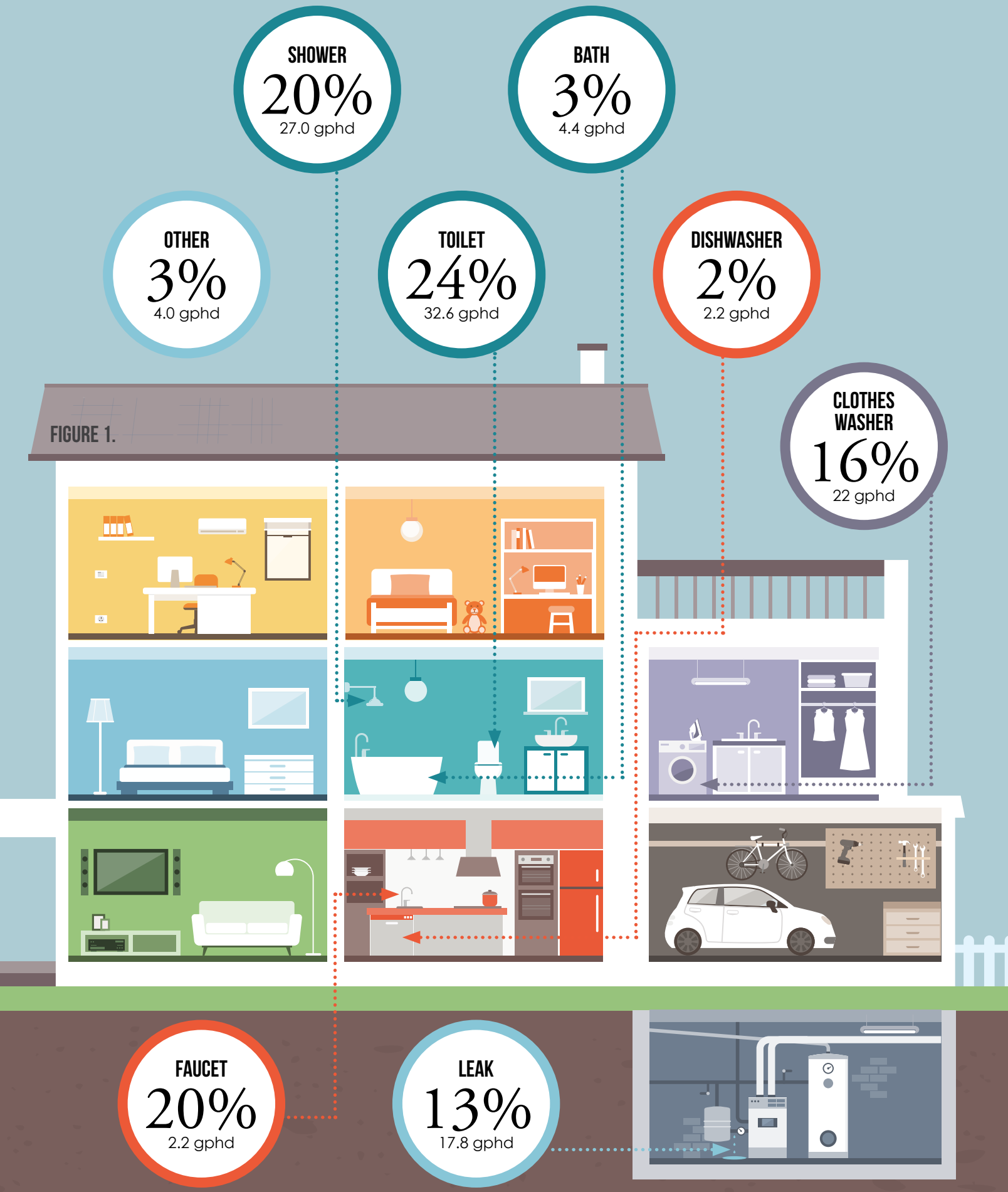

SHOWER
20%
27.0 gphd
BATH
3%
4.4 gphd
OTHER
3%
4.0 gphd
TOILET
24%
32.6 gphd
DISHWASHER
2%
2.2 gphd
CLOTHES WASHER
16%
22 gphd
FAUCET
20%
2.2 gphd
LEAK
13%
17.8 gphd

FIGURE 1.

SYSTEM SPOTLIGHT

TRIPP COUNTY WATER USER DISTRICT

Tripp County Water User District (TCWUD) has over 2,200 miles of pipeline stretching into five counties and serves 2,612 consumers. Geographically they are 101 miles east to west, and 51 miles north to south in south central South Dakota, and their office is located in Winner. The District has seven full-time employees and a nine-member Board of Directors.

TCWUD was conceived and developed by a group of local farmers and ranchers in need of quality potable water in the early 1970s. Many residents in the northern portion of Tripp County and the surrounding areas only had artesian wells or were forced to haul water for their drinking or livestock needs and were looking for alternate options. One option explored at this time was to use the water available south of Winner which was located mainly in the sand versus clay. A steering committee was formed at that time. They worked many long hours and went through much controversy trying to find land to drill the first wells. After many disappointments in locating a water source, Lawrence and Sedonia Wagner were the first to allow surveying on their property, where a very high quality water source was found. With the dedicated persistence of the committee and the help from the Wagners, the dream became a reality in the fall of 1977 when construction began. By the fall of 1978, TCWUD was in full operation, serving 515 users with 500 miles of pipeline, including one town and four Native American communities in Tripp County and portions of Gregory and Lyman Counties. The system started out with two wells that supplied 250 gallons per minute to a 500,000-gallon storage reservoir.

TCWUD had several expansion projects after the main system was started, the first one in 1979 when 55 users were added with the Mellette County Expansion. In 1986, another large expansion project took place extending into the Wewela and Lucas service areas in which 230 more users were added. The 1991 and 1993 expansions, continued to add customers with the addition of the Witten, Iona and Carlock service areas. In 2003-2004, TCWUD continued to expand with the East Gregory Expansion, which included the acquisition of the original East Gregory Water System in Gregory County, thus bringing the total number of customers to nearly 2000. In the fall of 2009, TCWUD completed their next project adding 101 customers to the Clearfield Service area and other internal upgrades to the District. The most recent project started in the spring of 2015 and consisted of installing an additional 214 miles of pipeline, appurtenances, replacement of five existing booster vaults, the addition of one new booster vault and the replacing or rehabilitating of nine existing PRV's to improve and expand the District's distribution system. They also added two new water towers, one in the town of Fairfax and the other southwest of Burke, added an additional 88 new users and replaced 91 meter pits in the East Gregory service area. TCWUD continues to grow internally on a monthly basis with the additions of new customers for household, seasonal and livestock use, with an average about 40 to 50 new users per year.

TCWUD's high-quality water comes from the Valentine formation of the Ogallala Aquifer and only requires gas chlorine and liquid fluoride treatment which is regulated by the South Dakota Department of Environment and Natural Resources. Presently, TCWUD has seven active wells and main storage capacity of 2 million gallons. On average, the system produces between 1.8 to 2.6 million gallons of water per day and the well field has the ability to pump up to 3,000 gallons per minute.

TCWUD won the South Dakota Rural Water Best Tasting Water Award in 2007 and 2009 and came in second in 2010 and 2011. In January 2017, TCWUD was chosen as the 2016 Rural Water System of the Year at the Annual Technical Conference held in Pierre. The District and Water Operators are recognized yearly by the South Dakota Department of Environment and Natural Resources with a Certificate of Achievement Award for meeting the requirements of providing safe drinking water to the public. In 2016, Jason Orel received the Rural Water Operations Specialist of the Year Award. Dale Waters received the Carroll Anderson Memorial award in 2005 and the Spirit of Rural Water in 2013. Ray Bartels also received the Spirit of Rural Water award in 2016.

Besides their Rural customers, they also provide water to the Towns of Colome, Dallas, Witten, Wood, Herrick, Fairfax, Burke, Bonesteel St. Charles and, when needed, Gregory. The system also supplies water to six Native American communities: Winner, Ideal, Dixon, Bull Creek, Milk's Camp and Wood. TCWUD also provides water to the Buryanek, Whetstone

TRIPP COUNTY WUD

Bay, South Scalp Creek, Burke Lake, Randall Creek and South Shore Recreation Areas.

Tripp County Water User District gives away two $1,000 scholarships each year in the Wagner and Jorgensen family names, for the cooperation and involvement in getting the water system up and going. Each year students submit their applications with their 250 to 500 word essays on – What Rural Water has done for them or their community. The scholarships are awarded to a child of a member of TCWUD each April.

TCWUD Manager Russ Phillips said, "As many systems in South Dakota continue to age, the main goal for the future of Tripp County Water User District, is to continue upgrading the infrastructure to meet today's and tomorrow's standards, as their system is now at 40 plus years. We are very proud of their system, their Board of Directors and Employees on the great job they do."

DIRECTORS:

Craig Covey, Chairman
Louis Kehn, Vice-Chairman/SA Director
Dale Waters, Secretary
Roger Kingsbury, Treasurer
Bryan Jorgensen, Director
Robert Sperl Jr, Director
Ray Bartles, Director
Verlyn Kuil, Director
Steve Wonnenberg, Director

STAFF:

Russ Phillips, General Manager
Jim Sund, Water Operator
Craig Brown, Water Operator
Jason Orel, Water Operator
Michael "Bud" Jacobsen, Water Operator
Lisa Stiehl, Office Manager
Donna Olson, Administrative Assistant

STATISTICS:

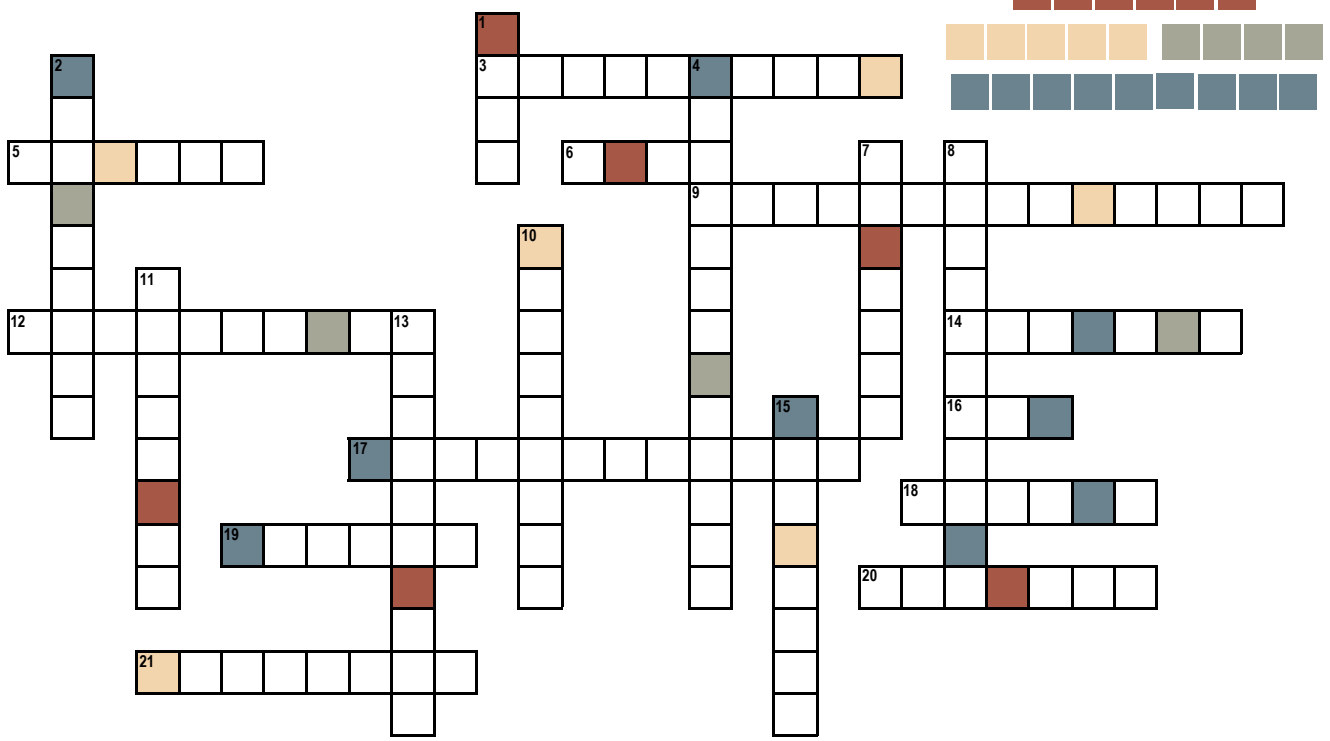
Hookups: 2,612
Miles of Pipeline: 2,207
Water Source: Valentine Formation of Oglalla Aquifer
Counties Served: Tripp, Gregory, Portions of Lyman, Mellette, and Todd
Towns Served Individual: Witten, Wood, Herrick, Fairfax, and St. Charles
Towns Served Bulk: Colome, Dallas, Burke, Bonesteel, 6 Native American Communities, and Gregory (backup)

RURAL WATER & Crossword Word Scramble Contest

The Legislative Branch

$100 Grand Prize

SCRAMBLE ANSWER



ACROSS

3. A procedure by which a specified number of voters may propose a statute, constitutional amendment, or ordinance, and compel a popular vote on its adoption.
5. The upper house in the bicameral legislature.
6. A legislator elected by members of the political party to assist party leadership.
9. A person in the House of Representatives chosen or elected to speak and act on behalf of others
12. A person elected by the citizens to make laws.
14. A person in the Senate chosen or elected to speak and act on behalf of others.
16. A bill passed by the Legislature.
17. The fundamental organic law of the state.
18. A statement of financial position for a definite period of time based on estimates of expenditures during the period and proposals for financing them.
19. An informal organization of members of each political party of the House, Senate, or both, that exists to discuss issues of mutual concern and possibly to perform legislative research and policy planning for its members.
20. Presiding officer of the House of Representatives, elected by the members of the House, at the beginning of each session.
21. The elected executive to head the State of SD.

DOWN

1. A proposed law introduced during a session for consideration by the Legislature
2. Any alteration made or proposed to a bill, motion, or clause thereof by adding, changing, substituting, or omitting.
4. Money set aside by formal action for a specific use.
7. Period during with the Legislature meets.
8. The legislative body of the state.
10. A group of legislators that hold hearings to determine if the proposed bull should go forward to the house for passage.
11. The geographical division of the state represented by a legislator.
13. A form of legislation expressing the opinion of the Legislature. It does not have the force of law.
15. A procedure used in the Legislature whereby a committee or member from the floor will move to strike everything after the enacting clause of a bill and insert in lieu thereof the substance of an entirely new bill.

RULES

Use the colored squares in the puzzle to solve the word scramble above. Call your Rural Water System (See page 2 for contact information) or enter online at www.sdarws.com/crossword.html with the correct phrase by January 9th, 2018 *to be entered into the $100 drawing.*

Online Entries - go to: www.sdarws.com/crossword.html

Only one entry allowed per address/household. You must be a member of a participating rural water system to be eligible for the prize. Your information will only be used to notify the winner, and will not be shared or sold.

Congratulations to Barb Ledeboer who had the correct phrase of "All good things are wild and free" for October 2017.

SOUTH DAKOTA ASSOCIATION OF RURAL WATER SYSTEMS NAMED 2017 STATE ASSOCIATION OF THE YEAR

The South Dakota Association of Rural Water Systems (SDARWS) received the State Association of the Year award at the annual Tribute to Excellence awards ceremony, held on Sept. 18 at the National Rural Water Association's (NRWA) WaterPro Conference in Reno, NV.

"The most prestigious and most honored award is the State Association of the Year," said Ed Savage, chair of the NRWA Awards Committee. "It is presented to the state association that projects a team effort in all areas of professional association operations and membership service. The State Association of the Year has excelled in all categories of the award and this is only accomplished by teamwork, strong leadership and member support."

"For over 40 years, SDARWS has been well-respected for the high-quality training, services, publications and advocacy they provide their members," Savage said. "With 12 employees and a combined total of 147 years of experience in the industry, this association trains hundreds of individuals in all aspects of water/wastewater management through workshops, training classes, and conferences each year."

The association supports research programs like the Regional Water Research Consortium and the Water & Environmental Engineering Research Center, and are committed to the long-term sustainability of rural water systems. They have also lobbied successfully against sales taxes on water and other pertinent issues while also supporting issues that are important to rural water systems such as the railroad bill, battling the Corps of Engineers over water rights, and supporting continued funding of the Water Omnibus bill.

SDARWS also produces the consumer magazine, *Quality on Tap!* The magazine is a cooperative effort between 17 rural water systems and the Association, and reaches over 38,000 rural water households throughout South Dakota.

SDARWS is headquartered in Madison, SD and has a second office located in Spearfish, SD.

Back Row L to R: Greg Gross, Morris Elcock, Steve Attema. Front Row L to R: Brant Ager, Nick Jackson, Ron Gillen (Board President), Dennis Davis (Executive Director), Larry Wasland (NRWA Director), Robyn Brothers, Jeremiah Corbin. Not pictured: Jennifer Bame, Mike Moeller, Jim Zeck, and Sid Munson.

JANUARY 9-11 ATC 2018

SOUTH DAKOTA RURAL WATER'S ANNUAL TECHNICAL CONFERENCE

PREMIER ATC SPONSOR

AE2S

SCHEDULE OF EVENTS

TUESDAY

JANUARY 9, 2018

EDUCATIONAL SESSIONS SPONSOR

BARTLETT & WEST

8A - 4P	CONFERENCE REGISTRATION – Registration Desk					
8A - 4P	WATER PAC RAFFLE – Lobby Area					
8:00 AM	BREAK TABLE – Lobby Area					
TIME	**GALLERY D-E**	**GALLERY F**	**GALLERY G**	**LEWIS & CLARK**	**L. FRANCIS CASE**	**LAKE SHARPE B**
10:00 AM	*Top of the Tower*	*Environmental Requirements of SRF*	*Esri Collector 101*	*Big Sioux River Nitrate Monitoring*	*Rural Development*	***11:00 AM - Quality on Tap! Editorial Board Meeting*** (This meeting is open to Rural Water managers, board members and office staff)
11:00 AM	*Technology Advances in Leak Detection*	*Hydro-Klean*	*GIS*	*Trench Safety*	*Chloramine Residual Optimization and Management*	
NOON	LUNCH – On your own					

AMPHITHEATER II

OPENING SESSION
Keynote Address
– Joe Schmit

Our keynote speaker is a man who has had a front row seat at some the greatest sports events in the last 30 years. He has interviewed the biggest names, covered the biggest events, and turned in some of the biggest expense accounts in TV history.

Joe has won 17 Emmys and numerous awards for his community service. He just released his first book called Silent Impact: Stories of Influence Through Purpose, Persistence and Passion.

2:30 PM	BREAK TABLE – **Sponsored by HR Green** – Lobby Area					AMPHITHEATER II
3:00 PM	*Potable Water Tank Mixing and Aeration for Better Water Quality*	*Small Community Wastewater Treatment Solutions*	*Building an Accurate GIS System and Incorporate Asset Data Management*	*Zebra Mussels: What Do We Need To Know?*	*Non-Chemical Water Technologies Up To BAT*	*Keynote Breakout w/ Joe Schmit*
4:00 PM	*Proper Tracer Wire Installation (MRWA Spec)*	*Private Property 1/1 Reduction Options: A Case Study*	*Empower*	*Smart Wellfields*	*Two-Stage Filtration Pilot Study - Efficient, Effective Iron & Maganese Removal*	

Session topics and times are subject to change.

WWW.SDARWS.COM/ANNUAL-CONFERENCE.HTML

WEDNESDAY JANUARY 10, 2018

TIME	AMPHITHEATER I	AMPHITHEATER II	L. FRANCIS CASE A-B	LAKE SHARPE B
8AM-4PM	CONFERENCE REGISTRATION – Registration Desk			
8AM-4PM	WATER PAC RAFFLE – Lobby Area			
8:00 AM	*Class B&C Member Caucus*	*Cellular AMI Systems*	*Diving into Digital Communications*	*SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219*
8:30 AM	8:15 AM *43rd Annual Membership Meeting* (This is the Official Business Meeting of the SDARWS)	*Billing and Asset Management*	*VFD/Pump Operations*	
9:00 AM				
9:30 AM		BREAK TABLE – **Sponsored by Butler Cat** – Lobby Area		
10:00 AM	*Rural Water Center Annual Meeting*	*Strategic Planning*	*Water Meter Technology*	*SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219*
10:30 AM		*Merging Rural Water Systems - A Case Study*	*2-Way AMI*	
11:00 AM				
11:30 PM	LUNCH – On your own			
1:00 PM	*Legislative Panel - with Representatives for Sen. Thune, Sen. Rounds, and Rep. Noem*	*Iron and Manganese Treatment Optimization*	*South Dakota Retirement Systems*	*SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219*
1:30 PM		*Water Sources in South Dakota*		
2:00 PM				
2:30 PM	BREAK TABLE – **Sponsored by CoBank** – Lobby Area			
3:00 PM	*Legislative Preview w/ Margo Northrup*	*DENR*	*South Dakota Retirement Systems, Continued*	*SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219*
3:30 PM		*SDWARN*		
4:00 PM	LEGISLATIVE RECEPTION AND TECHNOLOGY EXHIBITS – Grand Galleria			

2018 AWARDS BRUNCH SPONSOR

DGR ENGINEERING

THURSDAY JANUARY 11, 2018

8:00 AM	LEGISLATIVE OPEN FORUM – Rooms D&E
9:30 AM	AWARDS BRUNCH – **Sponsored by DGR** – Rooms A-B-C

SPOUSE PROGRAM

WEDNESDAY JANUARY 10, 2018

9:00 AM	Continental Breakfast
10:00 AM	Seasonal Stacker Craft w/ Jennifer
11:30 AM	Spouse Luncheon
1:30 PM	Rural Water Taste Test Finals

Don't forget to pick up your free ATC t-shirt at the SDARWS Booth!

DOES YOUR SYSTEM HAVE THE BEST DRINKING WATER IN SOUTH DAKOTA?

Bring a glass quart jar of your water to the 43rd Annual Technical Conference in Pierre

All entries must be submitted to the registration desk by 2:00 pm on January 9th in order to be entered into the contest. Entries must be submitted in a glass jar.

The winner's name will be announced at the ATC Awards Banquet on Thursday, January 11, 2018. The winner will go on to represent South Dakota at the NRWA Great American Water Taste Test in Washington, DC on February 7th, 2018.

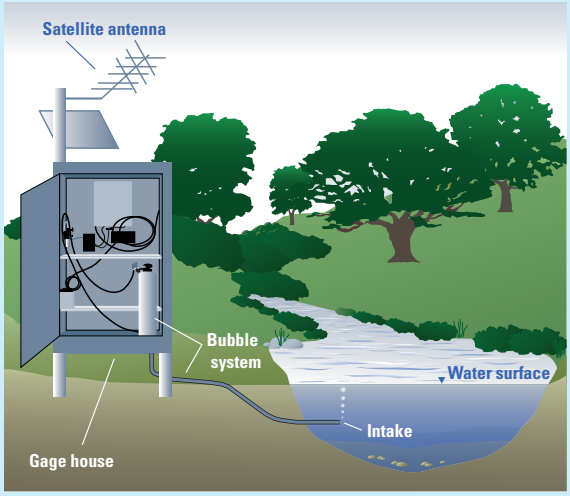
SOUTH DAKOTA RURAL WATER
P.O. Box 287
Madison, SD 57042

www.sdarws.com | 605-556-7219

WATER MATTERS

Streamflow-Gaging Stations

Since settlement in the U.S, there has been a need to know how much water is flowing in both natural streams and later in man-made structures such as canals and reservoir outlets. Some man-made structures are built such that the flow or releases from them is accurate and known. For natural streams, determining the flow (often termed "discharge") is much more complicated. Why do we need this information? The discharge of a stream is used by many different agencies and groups, whether to evaluate water use/water rights, determination of possible pollution loading, flooding, drought, and maximum flows for evaluation of bridge or culvert sizes to name just a few. Having accurate up-to-date information allows managers to make more informed decisions.



There are a number of ways to measure the discharge in a stream but they all include common necessary information: the velocity (or speed) of the water, the width of the stream, and the depth of the stream. The more detailed the information, the more accurate the determination.

For measurement of a continuous discharge, it is not financially or logistically possible to collect a discharge measurement at daily or even sub-hourly frequency. In these cases, the water-surface elevation, or river stage, is measured with instrumentation and then used to determine the discharge (see figure 1). The gage house contains the equipment that collects and transmits the water level or gage height data via satellite. Other data such as precipitation, air temperature, or water temperature may also be collected at these locations. Once the river stage data is received the discharge is calculated. To do this, there must be a mathematical relation developed between the gage height to the actual discharge in the stream. This relation is called a discharge rating.

For streams and rivers, the relation between the river stage and the discharge varies on a continual basis, so the rating needs to be updated as these changes take place. This can be driven by events that change the basic shape of the river channel (such as the example in figure 2), whether that is a build-up of debris, erosion, or changes in the bank shape. So when you see a Federal or State agency out in the stream or with equipment on the bridge, know that they are there to collect important information to monitor this valuable natural resource.

Find more information on how streamflow-gaging stations work by reading this short fact sheet: https://pubs.usgs.gov/fs/2011/3001/pdf/fs2011-3001.pdf

To view river stage and discharge collected at U.S. Geological Survey streamgages across South Dakota: https://waterdata.usgs.gov/sd/nwis/current?type=flow. Streamgages are funded and supported by various Federal, State, and local partners.

Back page content provided by:
Joyce E. Williamson, Director Dakota Water Science Center
U.S. Geological Survey • 1608 Mountain View Rd • Rapid City, SD 57702
605-394-3200 – http://sd.water.usgs.gov