

SOUTH DAKOTA

Association of Rural Water Systems

Quality On Tap!

January 2019 | Volume 14, Issue 3

HOW MUCH WATER IS IN THE GROUND?

A CALIFORNIA PERSPECTIVE:

SOUTH DAKOTA
RURAL WATER SYSTEM
DEVELOPMENT

A MESSAGE FROM THE PRESIDENT OF THE BOARD

Ron Gillen, President
South Dakota Association of Rural Water Systems



2019 ATC REGISTRATION OPEN

The 44th 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 8th at the Best Western Ramkota Hotel and Convention Center in Pierre. We have a great conference planned and hope to see all of our Rural Water friends there. Make sure to check out pages 13-15 for lodging information and the agenda.

Online registration is open, so check www.sdarws.com/annual-conference for everything you need to know – agendas, hotel information, and news regarding the upcoming conference.

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 8th. Entries must be submitted in a glass jar. A representative from each system submitting an entry must be in attendance; no person can represent more than one entry.

2019 RURAL WATER RALLY

South Dakota Rural Water does many things, and one of the most important benefits 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. 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.

We invite you to join us February 4-6, 2019 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 the Rally, please call the SDARWS office at 605-556-7219. We would love to have you join us on the Hill!



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Class B East River
Ronald Neeman

Class B West River
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FROM THE EXECUTIVE DIRECTOR

Kurt Pfeifle, Executive Director
South Dakota Association of Rural Water Systems

South Dakota Association of Rural Water Systems knows that Water and Wastewater Operations Specialists are a necessity for communities to have access to clean drinking water and to ensure wastewater is returned to the environment properly. Without these highly trained individuals, communities will fail to prosper or eventually even exist.

Apprenticeship is a system in which workers train on-the-job, earning wages and doing productive work – while simultaneously taking courses and attending other training. When someone completes an apprenticeship, they will have valuable work experience and recognized industry credentials, along with state certification that allows them to continue in the field and over time, advance in their career.

Nationally, most water operations apprenticeships last two years. Apprentices, who must be at least 18 years of age, work full-time at a local water or wastewater system and must be paid at least minimum wage. As the apprentice advances through the program, his/her wages would increase according to a predetermined schedule governed by the Apprenticeship Program standards and agreed upon between employer and apprentice.

One key distinction between apprenticeship and other forms of workforce training is that an apprenticeship program engages the learner as a paid employee from the start of the program. Although an apprentice's wages may begin at a lower level than those of co-workers, his/her wages would increase as the individual progresses through the program, based on a



schedule outlined in a written agreement between employer and apprentice.

Nationally, it takes more than 380,000 highly skilled water and wastewater personnel to ensure the public supply of safe drinking water and to protect our lakes, streams and groundwater. Advancements in water treatment and supply technology have increased the skills and training required of this workforce. Water and Wastewater professionals are ultimately responsible for meeting stringent regulatory standards, replacing aging infrastructure, recruiting and training new operations specialists, and responding to and recovering from disasters. This is why SDARWS is exploring the creation of an Apprenticeship Program in our state.

Training Calendar

JANUARY

22-24 – BASIC WATER TREATMENT

Spearfish Holiday Inn

305 N. 27th Street • Spearfish, SD

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.

FEBRUARY

5-7 – BASIC WASTEWATER TREATMENT

Sioux Falls Ramkota

3200 W. Maple Street • Sioux Falls, SD

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.

26-28 – WATER DISTRIBUTION

Rapid City Ramkota

2111 N. LaCrosse Street • Rapid City, SD

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. Operations Specialists who wish to attempt a Wastewater Collection Exam should attend the Wastewater Collection 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.

MARCH

19-21 – BASIC WASTEWATER TREATMENT

Rapid City Ramkota

2111 N. LaCrosse Street • Rapid City, SD

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.

APRIL

3 – STABILIZATION POND WORKSHOP

Huron Crossroads

100 4th Street SW • Huron, SD

This course covers the material on the Association of Boards of Certification Stabilization Pond Exams. It does not cover material on 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.

9-11 – INTERMEDIATE WATER TREATMENT

Huron Crossroads

100 4th Street SW • Huron, SD

This course covers the Association of Boards of Certification “Need to Know” requirements for the Class II & III Water Treatment Exams. 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.

23 – SMALL WATER TREATMENT SYSTEM WORKSHOP

Rapid City Ramkota

2111 N. LaCrosse Street • Rapid City, SD

Topics covered include; small water treatment systems, groundwater issues, disinfection issues, regulatory issues for small community and non-community water systems. This course is designed for those who are not involved on a full-time basis with water treatment. This is a one-day course starting at 8:30 a.m. and finishing at 4:30 p.m.

25 – SMALL WATER TREATMENT SYSTEM WORKSHOP

Aberdeen Ramkota

1400 8th Avenue NW • Aberdeen, SD

Topics covered include; small water treatment systems, groundwater issues, disinfection issues, regulatory issues for small community and non-community water systems. This course is designed for those who are not involved on a full-time basis with water treatment. This is a one-day course starting at 8:30 a.m. and finishing at 4:30 p.m.

30-2 – SMALL WATER TREATMENT SYSTEM WORKSHOP

Sioux Falls Ramkota

3200 W. Maple Street • Sioux Falls, SD

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**

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



A CALIFORNIA PERSPECTIVE: SOUTH DAKOTA RURAL WATER SYSTEM DEVELOPMENT

*by Andy Christensen,
former Manager of the Clark Rural Water System*

South Dakota rural water systems have a lot to be proud of in all of their accomplishments. These systems, members of the South Dakota Association of Rural Water Systems, virtually blanket the entire state. Our family owns farmland in Beadle County served by the Mid-Dakota Rural Water System providing an assured high-quality domestic drinking water. I can remember as a farm kid growing up in the 1950's of having to carry water in a pail from a windmill for drinking, washing and bathing purposes. So glad those days are gone and that the Mid-Dakota RWS now serves us.

My background in South Dakota water started as the Domestic Water Coordinator for the WEB Pipeline Corporation helping to organize six steering committees that morphed into the large system it is today. From 1982 to 1989, I served as the Manager for the Clark Rural Water System in a seemingly unending succession of construction projects. Today, Clark has more than doubled its size and population served under subsequent Managers each contributing to Clark's success. After living in California, I appreciate more how SD rural water employees rise to the occasion in building these systems and providing high-quality service.

I am the manager for the Woodbridge Irrigation District that provides a much different service to 13,000 acres (40,000-acre area) and bulk service to the Cities of Lodi and Stockton totaling 400,000 people. The District's Mokelumne River water supply comes from snowmelt water originating in the Sierra Mountains

100 miles to the east. The water is diverted by a new dam, 414 cubic feet/ second (cfs) diversion and fish screen structure and 100-mile system of pipelines and canals providing irrigation water to farmers but bulk untreated drinking water to our customers including Lodi and Stockton's water treatment plants.

California has been plagued with droughts, fires, and floods, but the biggest disaster has been the excessive regulation, taxation, and fees charged by the State Government in Sacramento (referred to as regulatory droughts). Since our legislature meets year around, the number of regulations and fees on water, licenses, and permits has seemingly unending new regulations and intrusive control of water districts (mostly deleterious) adding to cost of water services. California depends on both surface water and groundwater which is in a state of overdraft. California droughts are caused by lack of rainfall also by almost no new construction of new reservoirs to serve a population that has doubled to 40 million people in the last 30 years. California plans to help meet its future water demands with mandatory conservation, reduction, and rationing.

South Dakota, not California, is ahead of the curve in meeting the water needs of its cities and rural population without unnecessary, burdensome regulation. I am happy the "can do" spirit is alive and well in South Dakota ensuring that every South Dakota citizen has reliable and safe drinking water brought to them by South Dakota's numerous rural water systems. South Dakota is a leader in developing its groundwater and surface water resources for domestic use. California can learn a lot from the successes of South Dakota Rural Water Systems.



BACKGROUND ON DRINKING WATER STANDARDS IN THE SAFE DRINKING WATER ACT

SUMMARY OF SDWA RELATED TO CONTAMINANTS:

■ **Congress enacted the Safe Drinking Water Act (SDWA) in 1974 and amended and reauthorized it in 1986 and 1996.**

- *Main federal law that ensures the quality of Americans' drinking water*
- *Authorizes EPA to set national standards for drinking water to protect against health effects from exposure to naturally-occurring and man-made contaminants*

■ **Drinking water standards only apply to public water systems (not individual private wells).**

■ **EPA works with states, localities, and water suppliers who carry out these standards.**

DRINKING WATER STANDARDS APPLY TO PUBLIC WATER SYSTEMS:

■ **Public water systems are those having at least 15 service connections or serve at least 25 people for at least 60 days a year.**

■ **Over 150,000 public water systems across the U.S. serve more than 300 million people.**

■ **Approximately 646 public water systems exist in South Dakota.**

THREE TYPES OF PUBLIC WATER SYSTEMS:

■ **Community Water Systems (CWSs)**

- *Provide water to the same population year-round (for example: homes, apartment buildings)*
- *Approximately 52,000 systems serving the majority of the U.S. population*
- *There are 463 Community Water Systems in South Dakota*

■ **Non-Transient Non-Community Water Systems (NTNCWSs)**

- *Provide water to same people at least six months a year, but not all year (for example: schools, factories, churches, office buildings that have their own water system)*
- *Approximately 85,000 systems nationwide, 20 in South Dakota*

■ Transient Non-Community Water System (TNCWS)

- Provide water where people do not remain for long periods of time (for example: gas stations, campgrounds)
- *Approximately 18,000 systems nationwide, 163 in South Dakota*

Drinking water standards may apply differently based on type and size of public water systems.

WHAT ARE DRINKING WATER STANDARDS?

Drinking water standards are regulations that EPA sets to control the level of contaminants in the nation's drinking water. The regulations also require water monitoring schedules and methods to measure contaminants in water.

THE STANDARDS ARE PART OF SDWA'S "MULTIPLE BARRIER" APPROACH TO DRINKING WATER PROTECTION, WHICH INCLUDES:

- Assessing and protecting drinking water sources
- Protecting wells and collection systems
- Making sure water is treated by qualified operators
- Ensuring the integrity of distribution systems (for example, minimizing leaks, maintaining adequate water pressure)
- Making information available to the public on the quality of their drinking water

THERE ARE TWO CATEGORIES OF DRINKING WATER STANDARDS:

■ National primary drinking water regulations (NPDWR or primary standard):

- Legally-enforceable standards that apply to public water systems
- Protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water from public water systems
- Take the form of maximum contaminant level or treatment technique rules

■ National secondary drinking water regulations (NSDWR or secondary standard):

- Non-enforceable guidelines for contaminants that may cause:
- cosmetic effects (such as skin or tooth discoloration)
- aesthetic effects (such as taste, odor, or color) in drinking water

The EPA recommends secondary standards to water systems but does not require systems to comply (except for the public notice required for exceedance of the fluoride secondary standard). However, states may choose to adopt them as enforceable standards.

SDWA PROCESSES INVOLVING DRINKING WATER CONTAMINANTS:

Contaminant Candidate List (CCL) — Requires EPA to develop a list of unregulated contaminants that are known or may occur in drinking water. This list is published every five years

Regulatory Determination for CCL — Requires EPA to decide whether to regulate at least five CCL contaminants with a drinking water standard every five years Specifies three criteria (adverse health effects, occurrence in public water systems, meaningful opportunity for health risk reduction)

Unregulated Contaminant Monitoring — Requires EPA to establish criteria for a program to monitor at least 30 unregulated contaminants every five years

Regulation Development — If EPA decides to regulate a contaminant via the regulatory determination process, the Agency has 24 months from the time of the determination to propose a regulation and 18 months from the proposal to finalize the regulation. The SDWA requires evaluation of a number of factors in the standard setting process.

Six Year Review — The EPA is required to review each standard every six years and, if appropriate, revise the standard. Any revision must maintain or improve public health protection. If a regulation is revised, EPA goes through the standard setting process again and evaluates a number of factors.

National Contaminant Occurrence Database (NCOD) — Requires the EPA to assemble and maintain a national drinking water contaminant occurrence database using information for both regulated and unregulated contaminants in public water systems.

HOW DOES EPA DECIDE WHICH CONTAMINANTS TO REGULATE?

The EPA has drinking water regulations for more than 90 contaminants. The Safe Drinking Water Act (SDWA) includes a process that EPA must follow to identify and list unregulated contaminants. This process may lead to development of a national primary drinking water regulation (NPDWR) in the future.

The EPA must periodically publish this list of contaminants (called the Contaminant Candidate List or CCL) and decide whether to regulate at least five or more contaminants on the list (called regulatory determination). A regulatory determination is a formal decision on whether EPA should initiate a rulemaking process to develop an NPDWR for a specific contaminant.

The EPA also uses the CCL to prioritize research and data collection efforts to help the Agency determine whether it should regulate a specific contaminant.

Information in this article provided by the EPA. For more information, please visit www.epa.gov/dwstandardsregulations/background-drinking-water-standards-safe-drinking-water-act-sdwa

HOW MUCH WATER IS IN THE GROUND?

South Dakota's lakes, rivers and streams are the most visible examples of our important water resources. Promotional efforts at the state and local level often like to focus on people enjoying recreational activities at a lake, boating and fishing along the Missouri river, or the scenic beauty of water falls, be they on the Big Sioux River or Spearfish Creek. However, the day-to-day water needs of most South Dakotans are met with water drawn from below the land surface. These under ground sources, called aquifers, provide needed water to public water supplies and private homes, ranches and farms all across the state.

Given the importance of these resources, keeping track of the amount of water in these aquifers is of critical importance. While it is easy enough to look at a river, lake or reservoir and tell whether it is full or empty, ground water by its very nature is hidden from view. The first indication that such a buried resource is in trouble might be when the well goes dry, at which point alternatives are going to be limited.

To keep track of South Dakota's under ground water resources, the Water Rights Program within the South Dakota Department of Environment and Natural Resources (SD DENR) maintains a network of roughly 1,600 observation wells across the state. They are divided among 105 different individual aquifers, or sub-units of larger systems, like the Big Sioux aquifer. Water level measurements are collected by Water Rights staff on a regular basis, with 12,000-15,000 manual water level readings gathered per year. However, in certain situations, more detailed information is needed, and about 40 wells are equipped with continuous recorders to collect more frequent measurements.

The network was established in 1957 under the direction of the Water Resources Commission. The first wells were drilled under contract with Grimshaw Drilling (James and Lewis Hutmacher were the drillers based in Oacoma and Sioux Falls). However, the oldest observation wells in the current network were constructed in 1953 by US Bureau of Reclamation and added to the observation well network in 1970's. Not surprisingly, a majority of the observation wells (936 wells) were added between 1976-1981, following a period of severe drought. In many instances, wells installed by other state entities, like the South Dakota Geological Survey, are incorporated into the network. Otherwise, private well drillers are hired to install new, or replace old, wells in the network.

The well network is used for a variety of purposes. First and foremost, it helps determine whether or not there is water available for additional users. South Dakota water law grants seniority to the first/oldest users of a particular water resource ('first in time/first in right'). Subsequent (junior) potential users have access only so long as their withdrawals do not adversely impact more senior users. The well network helps the Water Rights Program determine if there is water available for 'new' users.

State law also prohibits, in most cases, the mining of ground

water. This means that water cannot be withdrawn from an aquifer at a rate greater than it is recharged. The well network helps in determining how a given aquifer responds to existing pumping, and whether there is available water for other users.

In addition to help determine general water availability, the network is also used to:

- resolve well interference complaints or concerns;
- monitor long-term water level trends;
- determine the configuration of the potentiometric surface (water table) for the aquifer, and in turn determine overall flow directions;
- differentiate management units within larger aquifers; and
- provide input and calibration for models of ground water flow.

Is there a Water Rights network well near you? Information on the location of network wells can be found on the SD DENR website at: <http://apps.sd.gov/nr69obswell/default.aspx>. The link takes you to an interactive map, and you can zoom in on any part of the state to find the location of wells in your area of interest. Clicking on a particular well site will bring up information on the well location, elevation, depth and the aquifer being monitored. You can also pull up a detail drillers log, and a plot of water levels over the period of record.

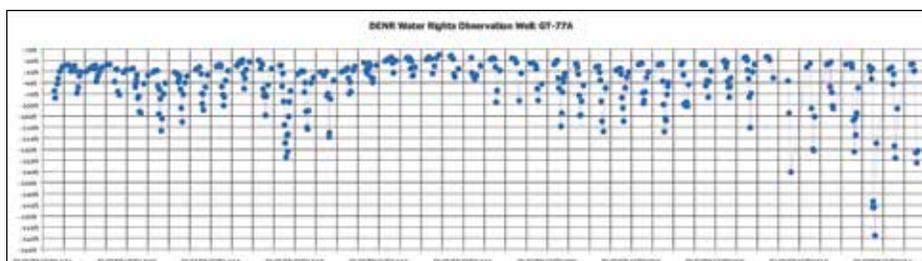
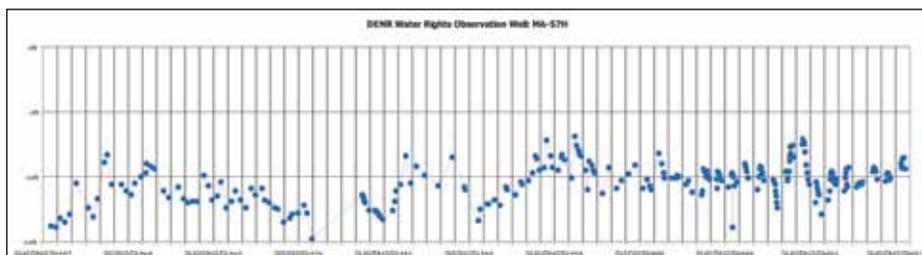
Two examples of the water level plots are shown. MA-57H is a well in the shallow Sioux Falls management unit of the Big Sioux aquifer shallow. Water levels in this well have been fairly stable over the life of the well, ranging from between seven and 15 feet below the casing top. Contrast that with the variability shown in well GT-77A. Located in the Prairie Coteau aquifer about 20 miles north of Watertown, water levels here rise and fall sharply in response to irrigation needs. Fortunately, once the pumps are turned off, water levels rise back up to ‘normal’ pretty quickly.

Water Rights well trivia:

Deepest well (JA-96A) - 2,239 feet total depth (TD) finished in the Dakota aquifer in northeastern Jackson County.

Shallowest well (FR-98A) - 12 feet total depth (TD) in alluvium along the Cheyenne River in northeastern Fall River County.

Greatest depth to water (LA-96B) - 900 feet below casing top in a Madison aquifer well near Spearfish in Lawrence County. By contrast, the pressure in a capped flowing well (ED-85B) in the Inyan Kara aquifer near lake Richmond in Edmunds County suggests that the water level would rise to 300 feet above the land surface.



WEST RIVER/LYMAN-JONES RWS

The concept of a rural community water system began as far back as the 1950s. A volunteer group was formed to take on the project, but the group had a difficult time obtaining funding. These dedicated people used their own money and resources to create an interest in their areas.

In the 1970s a project was being proposed by a group called Energy Transportation System, Inc. or the ETSI pipeline project. This was a pipeline project proposed to deliver large volumes of water through a huge pipe from the Missouri River to the coal fields of Wyoming. The purpose was to pulverize the coal, mix it with water, and send this slurry through a pipe to the power plants in the south and into the Gulf. The coal would then be dried and burned in the power plants.

The people of Lyman and Jones Counties decided to pledge their support along with the West River Water Development District; because they had been assured that if this project became a reality they would be able to draw water from this large pipeline for rural and municipal use. In time, this project was rejected and was unable to proceed. Shortly thereafter, the West River Water Development District decided to join in with Lyman and Jones Counties and work together in promoting a water project that would serve both areas.

Work began immediately signing members up and lobbying for

seed money through the South Dakota Department of Water and Natural Resources so preliminary engineering and lobbying efforts could begin.

In August of 1986, a Senate sub-committee field hearing was held in Kadoka. About 450 people filled the auditorium, and it was at this meeting that three members of the Oglala Sioux Tribe addressed the meeting and indicated that they were interested in joining the project, which would eventually be called the Mni Wiconi Water Supply project, and included construction of the West River/Lyman-Jones Rural Water Systems.

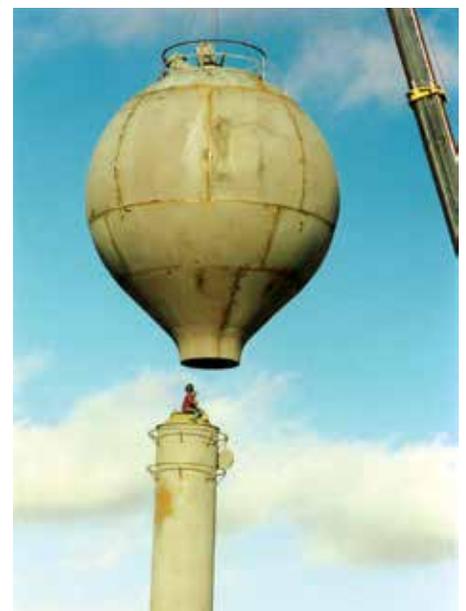
A great deal of time and effort was put in by all entities involved in the process. Much of western South Dakota has been connected to rural water through the Mni Wiconi Project, which was authorized by President Ronald Reagan in October 1988.

Lyman-Jones and West River continued to work together and eventually limited each of their organizations to 5 directors. The first membership meeting was held in January 1991. In May 1994, the West River and the Lyman-Jones water systems merged into one system and was named West River/Lyman-Jones Rural Water Systems.

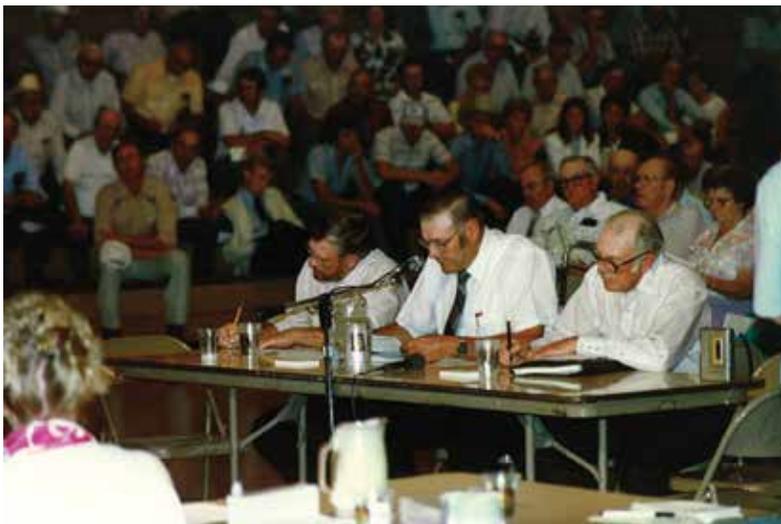
The Mni Wiconi systems are still in the process of completing construction. West River/Lyman-Jones Rural Water is approximately 95% complete to date.



WRLJ Headquarters in Murdo, SD



Construction of Vivian water tower



Director Joe Hieb, center, testifies on behalf of the project during the Senate field hearing in Kadoka in August 1986



WRLJ First Service - H&K Ranch

DIRECTORS:

Dave Fuoss, Draper – President
Richard L. Doud, Midland – Vice President
Dodie Garrity, Hayes – Sec./Treas.
Paul Goldhammer, Wall
Kirk Cordes, Creighton
Veryl Prokop, Kadoka
Casey Krogman, White River
Brad Smith, Vivian
Dean Nelson, Murdo
Quint Garnos, Presho
Marion Matt, Philip – Liaison for West River Water Development District

STAFF:

Jake Fitzgerald, Manager
Amy Kittelson, Office Manager
Kati Venard, Billing Secretary
Brandon Kinsley, O & M Foreman - Murdo
Ed Venard, O & M - Murdo
Steve Baker, O & M - Murdo
Brian Flynn, O & M - Murdo
Mike Vetter, O & M Foreman - Philip
Eddie Dartt, O & M - Philip
John Kramer, O & M - Philip
Nick Konst, O & M - Philip

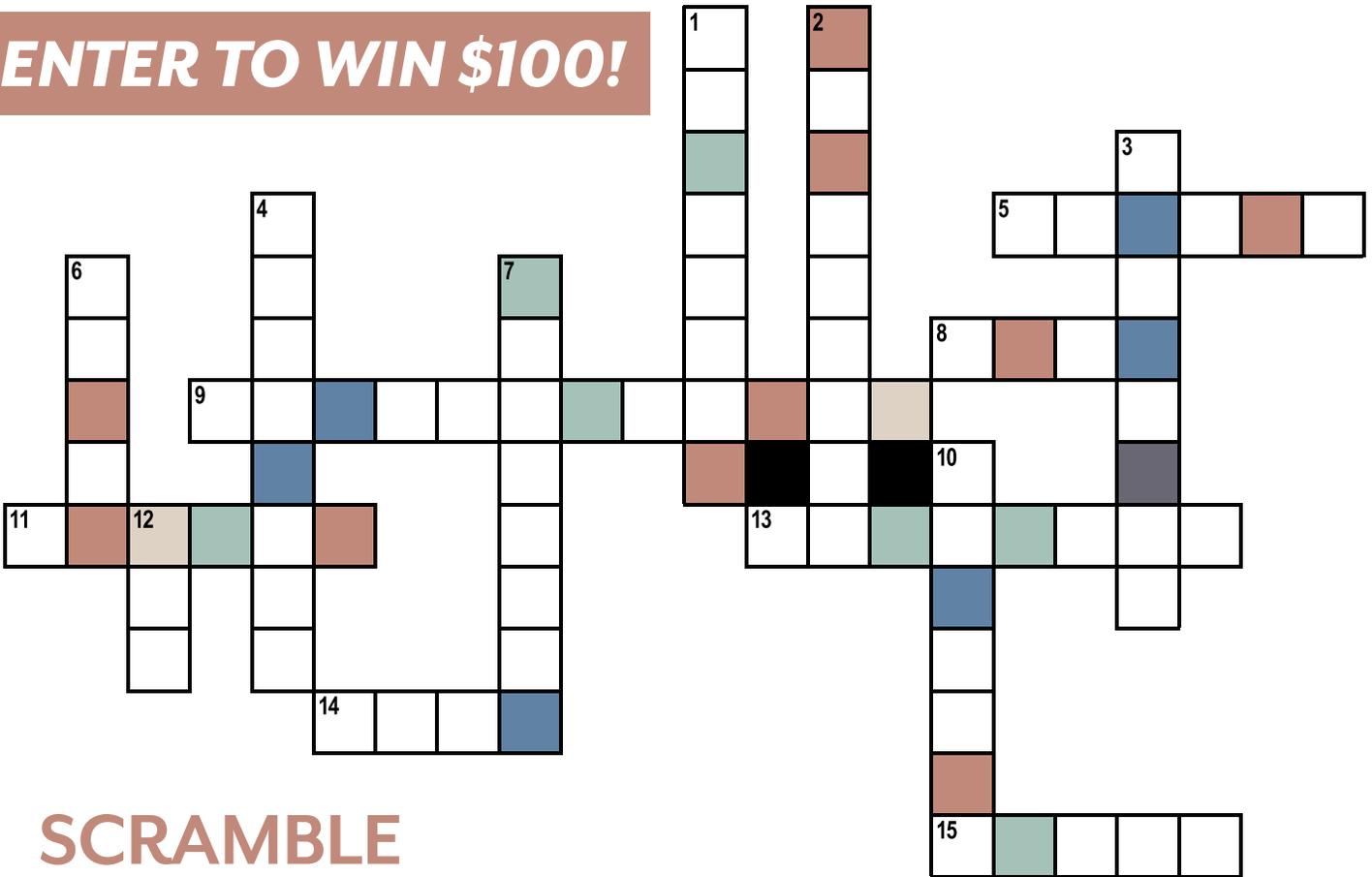
STATISTICS:

Hookups: 3,315
Miles of Pipeline: 3,450
Water Source: Missouri River via Mni Wiconi Water Treatment Plant, three West River/Lyman-Jones wells
Counties Served: Haakon, Jones, Lyman, Mellette, Stanley, and portions of Jackson and Pennington
Towns Served Individual: Draper, Reliance, Interior, Quinn, Vivian, Belvidere
Towns Served Bulk: Philip, Murdo, White River, Presho, Kennebec, Wall, Midland, Kadoka, Fort Pierre

RURAL WATER CROSSWORD & WORD SCRAMBLE CONTEST

WINTER WEATHER

ENTER TO WIN \$100!



SCRAMBLE ANSWER



DOWN

1. White storm
2. Freezing factor
3. Accumulation of snowfall over time
4. Light, brief shower of snow
6. Another word for arctic
7. Blizzard hazard
10. Frozen stalactite
12. Frozen, slippery condition

ACROSS

5. Bright halo caused by ice crystals
8. Frozen flakes
9. Precipitation that becomes ice upon impact (2 words)
11. Bone chilling
13. Transparent driving hazard (2 words)
14. Strong wind
15. Raining ice pellets

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 8th, 2019 to be entered into the \$100 drawing.

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 Diane Byer who had the correct phrase of "Water, use it wisely" for October 2018.

ATC 2019

SOUTH DAKOTA RURAL WATER'S ANNUAL TECHNICAL CONFERENCE

JANUARY 8-10, 2019

Pierre Ramkota Hotel & Convention Center

REGISTER

You can register online through a link on our website at www.sdarws.com/annual-conference

WATERPRO DISCOUNT

Become a WaterPro member and save an extra \$30 on your 2019 ATC registration. In addition to \$30 off at the ATC, you will also receive \$10 off 2019 West River EXPO registration, as well as discounts on several NRWA events. Visit waterprocommunity.org to register for a WaterPro membership.

HOTEL INFORMATION

DAYS INN – 605-224-0411

GOVERNOR'S INN – 605-224-4200

HOLIDAY INN EXPRESS – 605-223-9045

BAYMONT INN & SUITES – 605-224-4140

Member Full Registration

\$250 (Standard)

\$220 (WaterPro Discount Standard)

Member Full + Spouse

\$295 (Standard)

\$265 (WaterPro Discount Standard)

Member Tuesday Only

\$155 (Standard)

\$125 (WaterPro Discount Standard)

Member Wednesday Only

\$205 (Standard)

\$175 (WaterPro Discount Standard)

Member Brunch Only

\$30 (Standard)

www.sdarws.com/annual-conference.html



SOUTH DAKOTA RURAL WATER'S
ANNUAL TECHNICAL CONFERENCE

PREMIER ATC
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SCHEDULE OF EVENTS

TUESDAY

JANUARY 8, 2019

8A - 4P	CONFERENCE REGISTRATION – Registration Desk
8A - 4P	WATER PAC RAFFLE
8:00 AM	BREAK TABLE

TIME	GALLERY D-E	GALLERY F	GALLERY G	LAKE SHARPE B
10:00 AM	Saddles and Corps - Best Practices	O&M Considerations for Pressure Sewer Systems	GNSS Data Collection Hardware	11:00 AM Quality on Tap! Editorial Board Meeting <i>(This meeting is open to Rural Water managers, board members and office staff)</i>
10:45 AM	Single & Multi Pump Booster Pump Packages	Lift Station Maintenance	The Complete Drone Program	
11:30 AM	Ground Storage Maintenance	Raven - Lagoon Liner	Advanced and Affordable GIS	

EDUCATIONAL
SESSIONS
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& West**

NOON	LUNCH – On your own
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1:30 PM	AMPHITHEATER II Opening Session Keynote Address – Rob Bell	<i>Rob Bell began teaching his Customer Service and Communication Techniques early in his tenure as the Personnel Development – Education & Training Director for Dick's Supermarkets, Inc. He is "a recovering CPA" who worked as the Accounting Manager for a large transportation company before becoming Dick's Supermarkets' go-to-guy for education. He has also worked as an auditor, and an accounting instructor at the University of Wisconsin – Platteville.</i>
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2:30 PM	BREAK TABLE – Sponsored by Butler Cat – Lobby Area
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TIME	GALLERY D-E	GALLERY F	GALLERY G	LEWIS & CLARK	L. FRANCIS CASE	AMPHITHEATER II
3:00 PM	SD OneCall	Bioaugmentation for Wastewater Treatment	UAV Pipeline Design	Well Maintenance Program	Improving Water Taste & Safety Using Multi-Barrier Disinfection	Keynote Breakout Rob Bell
3:45 PM	Curb Stops and Service Fittings Best Practices	Utilizing Low Cost Solar and Air	GIS and Asset Management for Rural Water	Flexible Drop Pipe - Maximize Life & Performance of Water	History, Theory & Design of Lime Softening Water Treatment Plants	
4:15 PM	Managing Water System User Additions	Dell Rapids Wastewater Plant	Taking to the Skies to Communicate Your Message	Utility Locating Basics	USDA Funding Opportunities	

WEDNESDAY

JANUARY 9, 2019

8A - 4P	CONFERENCE REGISTRATION – Registration Desk			
8A - 4P	WATER PAC RAFFLE			
TIME	AMPHITHEATER I	AMPHITHEATER II	L. FRANCIS CASE A-B	LAKE SHARPE B
8:00 AM	<i>Class A&B Member Caucus</i>	<i>PPC Water Presentation</i>	<i>Planning & Financing Wastewater Projects with Private Funds</i>	SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219
8:45 AM	8:15 AM <i>44th Annual Membership Meeting</i> (This is the Official Business Meeting of the SDARWS)	<i>Maintaining Your Chlorine & Chloramine</i>	<i>Overview of EPA's Criminal Investigation Division</i>	
9:30 AM	BREAK TABLE – Lobby Area			
10:00 AM	<i>Rural Water Center Annual Meeting</i>	<i>Corrosion Control</i>	<i>Cybersecurity - SBS</i>	SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219
10:45 AM		<i>Water Tank Maintenance</i>	<i>Cybersecurity - EPA</i>	
11:30 AM	LUNCH – On your own			
1:00 PM	<i>Legislative Panel Featuring Representatives for Senator Thune, Senator Rounds, and Representative Johnson</i>	<i>Top of the Tower</i>	<i>Instilling Public Trust in Your Utility</i>	SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219
1:45 AM		<i>Air Monitoring in Confined Spaces</i>	<i>Infrastructure Resilience</i>	
2:30 PM	BREAK TABLE – Lobby Area			
2:45 PM	<i>Legislative Preview with SDARWS Lobbyist Margo Northrup</i>	<i>Answer to Water Quality & Quantity</i>	<i>DENR Regulatory Update</i>	SIGN UP TO USE THIS ROOM FOR CLIENT MEETINGS 605-556-7219
3:30 PM		<i>Meter Setters and Meter Pits - Best Practices</i>	<i>SDWARN</i>	
4:00 PM	LEGISLATIVE RECEPTION AND TECHNOLOGY EXHIBITS – Grand Galleria			

2019 AWARDS BRUNCH SPONSORED BY:



THURSDAY JANUARY 10, 2019

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

This is a tentative agenda and is subject to change

RURAL WATER TASTE TEST

Bring a glass quart jar of your system's water to the 44th 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. A representative from each system submitting an entry must be in attendance; no person can represent more than one entry.

The winner's name will be announced at the ATC Awards Banquet on Thursday, January 10, 2019. The winner will go on to represent South Dakota at the NRW Great American Water Taste Test in Washington, DC on February 7th, 2019.

WATER MATTERS

Nitrates in Well Water (Part 3)



Nitrate is a common contaminant found in many wells in South Dakota. Too much nitrate in drinking water can cause serious health problems for young infants. This is the last of a series of reports on nitrates in well water, intended to provide a basic explanation of nitrate in wells and gives steps that you as a well owner can take to protect your family and visitors from illness.

HOW IS NITRATE GETTING INTO MY WATER SUPPLY?

Nitrate contamination can enter your water supply several ways. One possibility is through physical or structural problems with the well itself. Ideally, the well is fully sealed off from any surface contamination, and the annular space (any open space in the drilled hole not filled with pipe) is fully sealed as well. If this is not the case, then surface contaminants have a pathway to enter your water supply.

Nitrate can also find its way into shallow aquifers by water moving through the soil. Nitrates are highly water soluble, that is, they dissolve readily in water. If there is residual nitrate in the soil, perhaps from fertilizer that was applied but not fully taken up by plants, water moving through the soil can pick up the contaminant and carry it down to the aquifer. Many of the shallow aquifers in eastern South Dakota have elevated nitrate concentrations, especially at or near the water table.

WHAT CAN I DO IF I SUSPECT A PROBLEM?

If you have concerns, it's a good idea to have your well inspected by a licensed well contractor if the well is old, or you do not know if it is structurally sound. Repairing the well or constructing a new, deeper well often results in a significant reduction in the nitrate level. To find licensed well drillers in your area, look in the Yellow Pages under "Well Drilling and Service."

Another good idea is to identify and remove sources of contamination near the well. Fertilizers, animal wastes, chemical storage areas, and septic systems should be located and managed so that they do not contaminate the well. If a source is too close to the well and cannot be moved, then you may need to consider having the well permanently sealed and replaced by a licensed well contractor.

WHAT ABOUT A WATER TREATMENT UNIT?

Home water treatment units are not recommended for treating high nitrate water which will be given to infants. There is no foolproof way of knowing when the treatment system may fail, and methemoglobinemia (blue baby syndrome) has been known to occur after just one day of exposure to high nitrate water.



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