



# *Aurora-Brule* Rural Water System

# Quality On Tap!

April 2017 | Volume 12, Issue 1

**SYSTEM SPOTLIGHT:**  
Perkins County RWS

**UNEXPECTED BENEFITS  
& UNLIKELY ALLIES**

**GEOLOGY &  
SOUTH DAKOTA  
RESOURCES**

# FROM THE MANAGER

**Wade Blasius**  
Manager, Aurora-Brule Rural Water System



Welcome to another edition of *Quality on Tap!*

With the winter months behind us, we're gearing up for some spring and summer projects on the water system.

We have nearly completed the installation of the Automatic Meter Reading system (AMR) which has taken a little longer than we had anticipated. As we transition to AMR, we're seeing many of the benefits that this new system has to offer. For the consumer; you no longer need to read the water meter and calculate the bill every month. You also have the ability to monitor water use, which has helped countless member/consumers identify leaks on their home or farm water lines and fixtures. For our system operations it has helped us in detecting water loss on distribution pipelines, and has streamlined our billing process as well.

Once your new AMR has been installed, please take advantage of the customer portal that is available on-line called "Eye on Water" ([eyeonwater.com](http://eyeonwater.com)). From there one can log in from a home computer to set up an account and begin tracking annual, monthly, and hourly water use. A smart phone app is also available. The site will allow you, the consumer, to pre-set maximum water flow parameters into your account – and will notify you by email or text if water consumption exceeds the maximum flows that have been set in place. This allows the consumer to identify the source of the problem and address the issue before it results in an atrocious water bill.

Eye on Water provides step by step instructions on how to create an account and navigate the site. If you need assistance, please contact the water office and we'll be happy to help get you started.

Planned projects for this year include the re-sealing of one of our above ground storage tanks, re-painting an elevated water storage tank and replacing a pumping station. We will also be working to finish the Radio Telemetry System Upgrade project that was started last fall. This control system provides the communications between our pump stations and water storage tanks which is vital to our operations.

This issue of *QOT* includes the official 2016 Water Quality Report on pages 14 thru 15. Please direct any questions or concerns regarding this report to me at the water office.

Enjoy the Spring!

# ABRWS

*Aurora-Brule*

RURAL WATER SYSTEM

## BOARD OF DIRECTORS

**Ron Gillen**

Chairman, State Director - District 2

**Raymond Heath**

Vice Chair/Secretary - District 1

**Craig Swanson**

Treasurer - District 3

**Paul Hettinger**

Director - District 5

**Tom Geppert**

Director - District 4

## STAFF

**Wade Blasius** - Manager

**Mary Brainard** - Bookkeeper

**Loren Geerdes** - Plant Operator

**Kraig Sinclair** - Distribution  
Operator

**Gary Pierce** - Distribution Operator

**Glenn Eimers** - PT Operations

## OFFICE HOURS

8:00 a.m. – noon

1:00 p.m. – 5:00 p.m.

**Office is closed weekends and  
holidays**

## CONTACT INFORMATION

117 W. 2nd Street

P.O. Box 140

Kimball, SD 57355

Phone: (605) 778-6110

1-888-282-2497


Fax: (605) 778-6292

[abrws@midstatesd.net](mailto:abrws@midstatesd.net)

## FOR EMERGENCIES

After Hours Call 605-778-6110

Leave a message. Messages are  
immediately transferred to cell  
phones.

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(1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: [program.intake@usda.gov](mailto:program.intake@usda.gov). This institution is an equal opportunity provider.



# NOTICE OF VACANCIES

## Aurora-Brule Rural Water System Directors

The following Board of Directors Positions of Aurora-Brule Rural Water System, Inc. will become vacant on Oct. 4, 2017 due to expiration of the present term of the Current Directors:

**District 3** – Craig Swanson. District 3 Comprises the area South of Interstate 90 and west of an imaginary line if highway 45 were to cross Interstate 90 in a straight route south of where it meets old highway 16, approximately one (1) mile west of Kimball, South Dakota.

**District 4** – Tom Geppert, District 4 Comprises the area south of Interstate 90 and east of an imaginary line if highway 45 were to cross Interstate 90 in a straight route south of where it meets old highway 16, approximately one (1) mile west of Kimball, South Dakota and west of the road that travels directly south of White Lake, South Dakota.

Any member wishing to be considered a candidate for the office of Director must submit a “Notice of Intent to Seek Election for Director Position” form to the corporate office not less than 60 days before the Annual Membership Meeting, which is scheduled for October 4, 2017.

Intent forms may be obtained from the Rural Water office at 117 W 2nd St. Kimball, SD. Monday through Friday between the hours of 8:00 A.M. and Noon and 1:00 P.M. and 5:00 P.M. and must be returned no later than the 4th day of August 2017 at 4:00 P.M.

## RON GILLEN AWARDED

The South Dakota Association of Rural Water Systems recently awarded Ron Gillen, president of the Aurora Brule Rural Water System and the South Dakota Association of Rural Water Systems with the Carroll Anderson Memorial Award at their Annual Technical Conference in Pierre on January 12, 2017.

The Carroll Anderson Memorial Award is a tribute to the dedicated work of Carroll Anderson who gave generously of his time, talents and efforts to the Kingbrook RWS and the South Dakota Association of Rural Water System. At the time of his death in December of 1977, Carroll Anderson served as Vice-Chairman of both organizations. The award represents the greatest tribute our association can bestow on an individual to recognize their contributions to both their member system and South Dakota Rural Water. This award, in recognition of outstanding voluntary contributions to the advancement of rural community water systems in South Dakota, has been presented to a very elite group of people.

Gillen grew up in a large family on a farm near White Lake, SD, where he also attended and graduated from high school. He attended South Dakota State University and earned a degree in Agricultural Engineering, and later a degree in civil engineering. He is very active in his community with volunteer activities such as the Commercial Club, and the Catholic Youth Organization. He lives with his wife on a farm near his hometown of White Lake, and they have four children and five grandchildren.

During his career, Gillen was the Regional Engineer for South Dakota DOT for 15 years. He joined his present employer, Brosz Engineering, in 2006. He was first elected to his rural Water Board in October of 2007 and has served as the systems Vice Chairman, and as of October 2015, its chairman.

He began representing his Rural Water System on the South Dakota Rural Water Board in December of 2007, and became the chairperson of South Dakota Rural Water in 2015 where he has helped to guide the Association through some challenging times.

“His generous personality and desire to help people, along with his strong business knowledge and leadership abilities within both his own system as well as the State Association make him well deserving of this prestigious award,” said Wade Blasius, manager of the Aurora-Brule Rural Water System.

The South Dakota Rural Water Annual Technical Conference in Pierre hosted over 450 individuals and provided water and wastewater educational presentations for board members, managers, and operations specialists from throughout South Dakota.





# OUT AND ABOUT

## APRIL

### 1 – ROOTS & SHOOTS GATHERING - WATERTOWN

An annual spring free day at the Bramble Park Zoo in Watertown. Stations around the zoo highlight service learning, animals and Native American cultures. This is a Jane Goodall Institute's Roots & Shoots event. Free will canned-food donation. [www.brambleparkzoo.com](http://www.brambleparkzoo.com)

### 15 – EGGSTRAVAGANZA – RAPID CITY

Spend time with the family in downtown Rapid City, experience children's activities at Main Street Square and hunt for eggs at Memorial Park on Saturday, April 15. The Easter Bunny will even make an appearance! For full event details, visit [mainstreetsquarerc.com/concerts-and-festivals/eggstravaganza.html](http://mainstreetsquarerc.com/concerts-and-festivals/eggstravaganza.html).

### 26-29 – BLACK HILLS FILM FESTIVAL – HILL CITY

The 8th annual Black Hills Film Festival will be April 26-29. In addition to screening great Independent Films, the Festival also features seminars and workshops with Industry Experts and great parties with Celebrity guests. Some of the weekend's events take place in Hill City and others take place in Rapid City. See the full schedule online at <http://www.blackhillsfilmfestival.org>.

## MAY

### 5-7 – SOUTH DAKOTA BIRDING FESTIVAL – FT. RANDALL

Registration is in Pickstown, SD. Activities include bird banding, bird identification, birding experts and speakers, guided field trips, and children's activities. This is the only time that the Karl Mundt National Wildlife Refuge located by the Fort Randall Dam is open to the public. <http://southeastsouthdakota.com/what-to-do/calendar-of-events/details/south-dakota-birding-festival>

### 19-20 – SOUTH DAKOTA STATE PARKS OPEN HOUSE AND FREE FISHING WEEKEND

The annual Open House Weekend includes free entrance to all South Dakota state parks. (Camping fees do apply.) A number of parks will also host special events to kick off the summer and it is free fishing weekend, so licenses are not required. <http://gfp.sd.gov/state-parks>.

*If you would like your event featured in the July 2017 issue of Quality on Tap!, please email your event description to: [info@sdarws.com](mailto:info@sdarws.com). July's issue will cover events taking place July - September 2017. Event listings are subject to approval by the QOT Editorial Board.*

## MAY

### 20 – HURON TURKEY DAYS/TURKEY RACES

The Huron Turkey Races take place every spring in downtown Huron. The event draws crowds eager to watch teams of two try to encourage their "turkey" team to cross the finish line first for a chance to win \$1,000. Activities include skills games, balloon animals, and more. Turkey Legs and Fowl Balls will also be available to test your palate. It's free fun for the entire family! [www.huronsd.com/visiting-huron/special-events/huron-turkey-races](http://www.huronsd.com/visiting-huron/special-events/huron-turkey-races).

## JUNE

### 8 – SD SHAKESPEARE FESTIVAL - VERMILLION

The Comedy of Errors, an early Shakespeare play, deals us not only one, but two sets of identical twins. As the two heroes travel in search of their long-lost twins, they are mistaken along the way by citizens. Plenty of slap-stick, shtick and verbal banter serve up a true "comedy of errors." Performances are June 8-10 at 7 p.m. and June 11 at 4:30 p.m. There will be live music and vending beginning one hour before each performance. Bring your blanket or lawn-chair to Prentis Park in Vermillion. [www.sdshakespearefestival.org](http://www.sdshakespearefestival.org)

### 17 – ABERDEEN ARTS IN THE PARK

Aberdeen's 42nd annual Arts in the Park will feature exhibitors and vendors filling Melgaard Park for a weekend of fun, food, entertainment and of course fantastic arts and crafts. The juried event attracts exhibitors from more than 12 states and features more than 100 booths. Event hours are 10 a.m.-6 p.m. on Saturday and 10 a.m.-5 p.m. on Sunday (the third full weekend each June). Free admission. [www.aberdeenaareaartscouncil.com](http://www.aberdeenaareaartscouncil.com)

## JULY

### 28-30 – ARLINGTON DAYS

Arlington Days kicks off their 3-day celebration with something for all ages. Arlington Days features a Mud Bog side-by-side competition on a 400' track on Saturday afternoon for an opportunity to see some exciting muddy racing action. Bring your 4x4 and get in on the fun! A street dance; Music in the Park; Outdoor Picnic; Kids Fishing Derby; Free Swimming; and lots more entertainment for the whole family. See full list of events at [www.arlingtonsd.com/economic\\_chamber](http://www.arlingtonsd.com/economic_chamber).





# CALL BEFORE YOU DIG - IT'S THE LAW!

*By Larry Janes, Executive Director, SD One Call/SD811*

**H**ave you ever thought about what it would be like not to have good tasting, clean water available when you need it? Probably not. I know I rarely do, but there's just nothing better than turning on the tap and getting a refreshing cold glass of water to quench your thirst on a hot day or having that steaming hot water ready for you in the shower. And in those rare cases when there's a water break, we just can't wait until it's repaired.

For many, having clean water available for basic human needs is just not the case. There are all kinds of figures available on the internet ranging anywhere from hundreds of millions of people to several billion people who don't have access to clean or even adequate water supplies, either on a regular basis or ever. Fortunately for those of us living here in South Dakota, we do. And we have our water suppliers, excavators and you to thank for that.

Our water suppliers work hard to learn about new technologies to keep our water clean and safe. But why thank excavators and you, you ask? That's because you contacted the South Dakota 811 Center before digging, more than ever before, in 2016. In fact last year was a record year for contacting the South Dakota 811 system, either by calling 811 or by going on-line to request utilities to locate their underground services and mark them with paint or flags before digging occurred. The 811 Center was contacted, a whopping 148,352 times last year. That's more than any other year since the service began back in 1993. With our population in South Dakota of about 858,000 people, and with this large number of locate requests, it works out to almost one in six people digging something, somewhere in the state all year long.

What's really cool about this is that 54% of all these requests were made on line, with no hold time, even during the busiest times of the year, which are always during the spring thaw and just before freeze-up. We're constantly working to make it easier and more efficient for you to get your work projects out to the utilities in your area as quickly as possible. A call to the 811 Center takes about 7 to 8 minutes, from the time you reach a representative until you hang up, but the new, on-line Homeowner Portal takes only about half that time. Just go to [www.SD811.com](http://www.SD811.com), click on the Homeowner or Landowner tab and click [HERE](#) to process your request using the South Dakota Homeowner Portal. It's a step-by-step process that's really easy to use. (Even I can do it, and that's saying something).

South Dakota 811 is there to accept your calls and on-line requests 24/7, 365 days a year, so water suppliers and other underground facility operators know to mark their lines to prevent outages. This can protect those buried services during excavation projects, such as planting trees, placing fences or drain tile, and any other projects where the earth will be disturbed and where those buried lines could accidentally be damaged. Once you've made contact with the Center all utilities in the area are notified of the work you'll be doing and when you plan to do it, so they can mark those underground lines, including your water, to ensure your safety and making sure that you won't lose your valuable services.

It's not only a good idea to contact 811 before digging, it's actually a law in South Dakota, as it is in every other state. You did a great job last year in keeping yourself and your water safe. Keep up the good work! Thank you from South Dakota 811 for getting those lines marked. And thank you from your local water provider and the South Dakota Association of Rural Water Systems.



*Glacial Lakes Ethanol Plant served by  
WEB Water Development Association, Inc.*

# Unexpected Benefits & Unlikely Allies

## THE ROLE OF CURT HOHN, JOHN SIEH AND THE BUREAU OF RECLAMATION IN SOUTH DAKOTA'S DOMESTIC WATER SYSTEMS

*By Peter Carrels*

Two of today's key benefits from Missouri River development – recreation and domestic water pipelines – were not mentioned when the federal Flood Control Act of 1944 was discussed, championed and enacted. No one envisioned that by building dams on the river, walleye habitat would be created, and a recreation industry with widespread benefits would blossom. Planners also failed to anticipate the development of pipeline systems emanating at the river and providing clean, ample water to thousands of South Dakotans and hundreds of thousands of livestock.

A pivotal reason for passage of the 1944 legislation were plans in the bill calling for construction of several massive irrigation projects on the Northern Plains. Economic development leaders in both Dakotas cheered the prospect of these extensive blueprints. The venerable Bureau of Reclamation (BOR), a formidable federal agency, would plan, promote and build the projects as they had done in many other western areas.

Oahe dam was erected high and mighty to create a deep reservoir that would feed one of those irrigation projects, a sprawling, complex enterprise to be situated in northern South Dakota and officially titled the Oahe Unit. But when

grassroots opposition challenged that irrigation plan in its early years of construction it fell to project opponents to compel a more productive and noncontroversial use for those impounded Missouri River waters.

John Sieh became a notable figure in the Oahe irrigation project conflict. A Brown County farmer and businessman, Sieh helped lead the group of farmers and conservationists – called United Family Farmers – that opposed the irrigation project and fought the BOR and its powerful political and business supporters. In 1974 he first won election to the Oahe Conservancy Sub-District board of directors, the local board overseeing development of the federal irrigation project, and two years later he became that board's chairman, an occurrence that demonstrated the rising power of United Family Farmers. Sieh was simultaneously beloved and berated, speaking boldly and strategizing forcefully against the project. But he was also a public-spirited citizen, understanding that opposing the Oahe Unit was not sufficient duty for an institution like the Oahe Sub-District.

Sieh and his trusted colleague and friend, Curt Hohn, manager of the Oahe Sub-District, recognized that many rural people in the area to be served and impacted by the Oahe irrigation plan suffered from inferior and inadequate





*WEB Water Intake on the Missouri River*

water for household and other uses.

In its formative stages was a small group of dedicated individuals trying to rectify this problem by promoting a pipeline using Missouri River water. Sieh, Hohn and the Oahe Sub-District became their chief allies. The Sub-District hired a staffer to help pipeline advocates, allocated funds to help plan and establish the pipeline, and courted political support for it. This was the beginning of the WEB water system, named after the three counties – Walworth, Edmunds, and Brown – that would have benefited by the pipeline project.

By 1982 a major political compromise traded development of the Oahe Unit for federal support of several South Dakota water projects, including the WEB system. It had been a bitter ten-year fight to halt the enormous irrigation plan, and there were considerable misgivings about the trade by the project's boosters in South Dakota. But Sieh and Hohn pushed hard, and they found political partners who understood that replacing a controversial project with a popular, useful one was reasonable and appropriate.

When Hohn left the Sub-District in late 1982 he was hired by WEB supporters to help guide the WEB system through construction to completion. It was a tricky assignment, because the Oahe-WEB trade ushered in a new and relatively undefined set of responsibilities for the federal Bureau of Reclamation.

Losing the Oahe irrigation project fight was painfully difficult for the BOR as it marked the first and only time grassroots opponents had derailed one of its projects. That historic defeat also signaled a dramatic end to the agency's long domination of the West, and to the conventional mentality that building irrigation (reclamation) projects was synonymous with progress. Among BOR's new responsibilities was aiding rural water systems, including the new WEB project.

That, of course, meant bitter rivals Curt Hohn and the BOR had to work together. Hohn would later say that WEB and BOR steadily developed a positive working relationship, and that he grew to appreciate the professionalism of the agency. Hohn was credited with helping craft the unique funding mechanism through which the BOR could administer monies to build WEB, and that approach was later applied to other Missouri River pipeline systems.

Today's vast WEB water system may have been invented and incubated by an ardent collective of local activists, but the pipeline system was given its lasting life by John Sieh, Curt Hohn and their allies on the Oahe Sub-District board. Curt Hohn's skills and tenacity are critical reasons WEB became an invaluable contributor to quality of life in the region it now serves, and that success paved the way for numerous other rural water systems receiving federal funding via the Bureau of Reclamation.

*Peter Carrels' book [Uphill Against Water](#) described Missouri River development in South Dakota and closely profiled the political fight over the Oahe irrigation project. From 1980 through early 1983 he worked for the Oahe Conservancy Sub-district. He now serves as communications coordinator for the University of South Dakota, and also works as a freelance writer for clients and publications.*

# GEOLOGY & SOUTH DAKOTA WATER RESOURCES

## Part Three

*By: Martin Jarrett, Big Sioux Community Water System, and Jay Gilbertson, East Dakota Water Development District*

South Dakota has a diverse geologic history. Hard, crystalline rocks like granite and quartzite are found in the central core of the Black Hills and in quarries near Milbank, Mitchell and Sioux Falls. These and similar rocks underlie all of the state and form the foundation on which all other materials rest. Layered rocks, which can be seen ringing the Black Hills and extending east to the Missouri River valley (and beyond), record periods when the state was covered by great oceans that swept over the landscape. Lastly, covering most of the state east of the Missouri River are largely unconsolidated deposits left behind when glaciers repeatedly advanced across the area. While each geologic unit is different, they all share a common trait - they each have a direct connection to the drinking water resources that we utilize today. This is the third and final of a series of articles in which these connections will be explained and explored.

### Ice Age South Dakota

From time to time over the long history of the planet, there have been periods when the climate was substantially cooler than usual. Referred to as ice ages, they mark times when glaciers covered a significant portion of the Earth's surface. During an ice age, which can last tens of millions of years, climatic fluctuations cause glaciers to alternately grow and advance, during glacial periods, and thaw and retreat, during interglacial periods. We currently live in what would be described as a relatively warm interglacial period within the Quaternary ice age, which began around 1.6 million (1,600,000) years ago.

The last major glacial period ended about 10,000 years ago. At its peak (18,000 to 25,000 years ago), glaciers covered about 30% of the planet's land surface, including most of northern Europe, northwestern Asia, Canada, and the northern United States. In places, the ice was up to 2-1/2 miles thick. In our part of the world, glaciers originating in Canada covered most of South Dakota east of the Missouri River. Note: Deposits from this period are mapped in shades of brown on the geologic map.

Evidence of earlier glacial periods can be found in certain parts of South Dakota, including deposits that likely date to the beginning of the current ice age. However, each advancing glacier often eroded and stripped away the deposits left behind by its predecessors, recycling and then

re-depositing the material, collectively called glacial drift. As a result, the present landscape is largely the result of the final advance, and subsequent retreat, of the ice. Deposits from earlier glacial periods are found along and east of the Big Sioux River, an area not covered by ice the last time around.

Glacial drift in South Dakota takes two basic forms. Glacial till is the material deposited directly by the ice when a glacier melts. It contains particles that range from microscopic clay up to boulders several feet across or larger. A single glacier can transport material for hundreds of miles, taking rocks from one area and depositing them somewhere else. Often the rocks left behind are nothing like the local variety. Such rocks are called erratics, and in certain instances can be shown to have traveled over a thousand miles as the result of multiple glacial events. Almost without exception, the rocks and boulders scattered across eastern South Dakota were carried into the state from elsewhere, mostly from Canada.

### Glacial aquifers

The other major type of glacial drift is called outwash. Outwash typically consists of sand and gravel deposited in rivers and stream valleys by meltwater from glaciers. As ice melts, the resulting water flows away from the glacier, often in substantial torrents. As it passes over previously deposited material, it can pick up all but the largest particles. As the water slows, sand- and gravel-sized particles settle out, forming outwash deposits, while finer particles are carried far away. Across eastern South Dakota, deposits of outwash at or near the land surface mark the courses of meltwater channels and pathways formed as the last glacial period came to a close. Similar deposits are found buried beneath recent drift, but were formed in a similar manner during prior glacial periods.

Composed of porous sand and gravel, glacial outwash can hold and transmit significant quantities of water. Water from rainfall and/or snow melt that soaks into the ground can be found in these units. In some cases, modern rivers and streams, like the Big Sioux River and its tributaries, follow the old glacial meltwater channels. Interconnections between the river and aquifer provide another path for water to enter the outwash. As such, these deposits make excellent aquifers on which the citizens of the state have depended for many years.





# GEOLOGICAL MAP OF SOUTH DAKOTA

Public water suppliers across eastern South Dakota, including both municipal and rural water systems, have developed well fields in glacial outwash aquifers. This is particularly true east of the James River, where extensive surface outwash bodies are found along former meltwater pathways in the Vermillion River and Big Sioux River basins. Using current and former channels as a guide to locating these aquifers, communities and individuals need do little more than dig/drill down a few tens of feet to find accessible water.

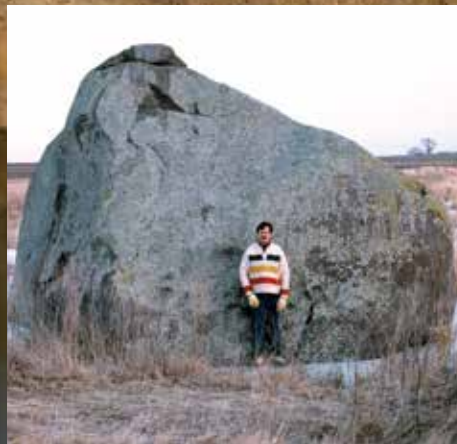
Where near surface outwash deposits/aquifers are absent, locating buried outwash poses more problems. Unlike older and geographically extensive bedrock aquifers (see Dakota aquifer described in the October 2016 Quality On Tap), the presence and location of outwash aquifers is not readily predictable. To better define the aquifers in the glaciated part of the state, the South Dakota Geological Survey (now known as the Geological

Survey Program within the State Department of Environment and Natural Resources) began a program in the late 1950s to define and inventory the geologic and groundwater resources county-by-county.

A critical part of the Survey's county study program involved the systematic drilling of exploratory test holes into and often through the cover of glacial drift. As a result, geologists were able to identify and map numerous buried glacial outwash aquifers. Observation wells installed in these aquifers have helped further define and quantify water available for use by public water suppliers, farms and individual homes. To date, the Survey has drilled over 23,000 test holes and wells for the sole purpose of better understanding and managing our natural resources. This effort has resulted in an unparalleled resource for the benefit of all South Dakotans.



*Glacial outwash from near Big Stone City.*



*Lone Rock glacial erratic in eastern Moody County.*



*Glacial till from near Milbank.*



# SYSTEM SPOTLIGHT

## PERKINS COUNTY RURAL WATER SYSTEM

The idea of Perkins County Rural Water (PCRWS) first came to light in 1982 when a group of farmers, ranchers, and representatives of Lemmon and Bison were approached by the Southwest Water Pipeline Project with the idea to sell water to Perkins County.

In 1992, the project was re-introduced to Perkins County by Southwest Water Authority. At this time, a committee of approximately 25-30 people from all over the county got together to form Perkins County Rural Water System, Inc. A nine member, volunteer Board of Directors was selected from three districts within the county. In addition municipal members selected one representative to serve on the board.

Perkins County Rural Water became a reality when it was organized as a non-profit organization in March 1993. The State of South Dakota furnished the startup money in the form of two \$50,000 grants under the State Water Plan. With this money, PCRWS was able to finance a feasibility study done by KBM, Inc. of Grand Forks, ND, and The Alliance of Rapid City, SD. The study was finished in late 1993 and showed it would be feasible to build a distribution system and purchase water from Southwest Water Authority.

The Governor's office and the State legislature were approached at this time to authorize Perkins County Rural Water System, Inc. With the authorization came appropriations of one million dollars to be used to finance our portion of the Southwest Pipeline construction in North Dakota and to allow the system to lobby US Congress for a Federal Authorization.

The next several years were spent working with US Congress,

towns of Lemmon and Bison, United States Fish & Wildlife Service, and the Grand River Grazing Association. In 1998, both of the towns signed a contract with Perkins County Rural Water to furnish them with 100% of their water needs. In the spring of 1999, the US Senate approved our authorization on the federal level. The House of Representatives passed the authorization in October of 1999, and the President signed our authorization into Public Law 106-136.

The authorization stated that the federal government would cost share 75% grant money of 28 million dollars to build the distribution pipeline in Perkins County. The appropriation was spread over at least six years of construction time.

Perkins County Rural Water was able to purchase 400 gallons per minute plus any excess water in the line to South Dakota from Southwest Water Authority and distribute that to the members of Perkins County Rural Water. To take care of demands that exceeded the purchase, storage was to be built to stockpile water.

Initial construction on the system began in 2003 with ground breaking occurring May 1, 2004. Initial construction of Phases I to VIII was completed in 2012 with the final amendment for initial construction signed after the installation of the HWY 75 Booster Station. PCRWS began their state repayment of \$5.144 million over 40 years on July 1, 2015.

The system is currently finishing up a DOT mandated realignment project from White Butte to Lemmon on HWY 12, and Summerville to Lemmon on HWY 73. They are currently in the process of installing an automatic meter reading system which began in 2014, and plan to finish this project in 2017.



*Perkins Co. Office in Bison, SD*



*Booster Station on Highway 20*





*Main pump station near Lodgepole.*

# PERKINS COUNTY RURAL WATER SYSTEM

## DIRECTORS:

- Don Melling, President
- Brian Morris, Vice-President
- Lynn Frey, Secretary/SA Director
- Colin LaMont, Treasurer
- Holly Waddell, Director
- Rodney LeFebre, Director
- Stanley Brixey, Director
- Art Pederson, Director
- Luke Clements, Director

## STAFF:

- Shiloh Baysinger, O&M Manager
- Eric Newman, O&M Operator
- Brandi Baysinger, Office Manager

## STATISTICS:

- Hookups: 878
- Miles of Pipeline: 850
- Water Source: Southwest Water Authority, ND
- Counties Served: Perkins
- Towns Served Bulk: Lemmon, Bison



# RURAL WATER & Crossword Word Scramble Contest

## Birds of Spring

\$100 Grand Prize

### DOWN

1. Sunny colored songbird
2. Four and twenty of these baked in a pie
5. Violet fork-tailed swallow (two words)
6. Big-headed diver
9. Tree hole driller
10. Azure symbol of happiness
13. Bright red bird
19. Happy as a \_\_\_\_\_

### ACROSS

3. Black and orange songbird; Baltimore baseball mascot
4. Pesky dark-brown bird
7. Small hoverer with a long tapered beak
8. Rural nester (two words)
11. Common and loud "seed cracker"
12. Tiny black and gray songbird
14. Pirates of the Caribbean Captain Jack
15. Rockin' red-bellied bird of spring
16. Avian mimic
17. "Crazy," but not a duck
18. American plover; "murdering buck"
20. Tiny little brown backyard bird

**SCRAMBLE ANSWER**

## 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](http://www.sdarws.com/crossword.html) with the correct phrase by April 10th, 2017 to be entered into the \$100 drawing.

**Online Entries - go to: [www.sdarws.com/crossword.html](http://www.sdarws.com/crossword.html)**

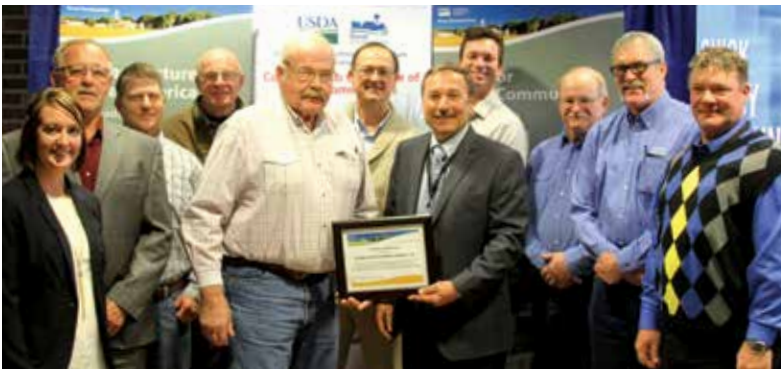
Only one entry allowed per address/household. You must be a member of a participating rural water system to be eligible for the prize. Your information will only be used to notify the winner, and will not be shared or sold.

Congratulations to Robin Buchholz who had the correct phrase of "Victory requires payment in advance" for January 2017.



# Rural Water Across South Dakota

## Kingbrook & WEB Receive USDA Rural Development Funding for Improvements



*Kingbrook receiving their Rural Development funding.*



*WEB receiving their Rural Development funding.*

US Department of Agriculture Rural Development Acting State Director Bruce Jones announced that the Kingbrook Rural Water System, Inc., and the WEB Water Development Association, Inc., will receive Water and Environmental Program (WEP) funds for various improvement projects. USDA Rural Development Community Programs Director Tim Potts was in Pierre at the South Dakota Rural Water Conference held on January 10 – 12, 2017 to make the announcement on Jones' behalf.

"Supporting water systems that supply rural residents with safe and dependable water is part of USDA's mission," said Jones. "USDA is pleased to assist Kingbrook and WEB with improvements to their systems."

Kingbrook Rural Water System, Inc. based in Arlington was awarded a WEP loan of \$10.8 million and a grant of \$1.387 million to provide approximately 230 new service locations and improve the reliability of the existing water system.

"The recent loan and grant funding received from USDA Rural Development will enable Kingbrook to complete a significant expansion project to provide service to rural residents in need of quality water within our eleven county service area," said Randy Jencks, General Manager for Kingbrook Rural Water System,

Inc. "USDA Rural Development is a major funding source for our organization and their staff does a great job providing financial assistance where needed. Without their committed and professional help, we would not have been able to complete this project."

WEB Water Development Association, Inc. based in Aberdeen was awarded a WEP loan of \$7.12 million to upgrade water lines and construct a new booster station.

"WEB Water is happy to move forward with this improvement project to help with meeting the capacity needs of our current membership," said Angie Hammrich, General Manager for WEB Water Development Association, Inc.

Water and Waste Disposal Loan & Grants assist in the development of water and waste disposal systems in rural areas and towns with a population not in excess of 10,000. The funds are available to public bodies, non-profit corporations and Indian tribes.

For more information, contact the Rural Development office nearest you. You can locate an office by visiting [www.usda.gov/contact-us/state-offices/sd](http://www.usda.gov/contact-us/state-offices/sd). Visit [www.rd.usda.gov/programs-services](http://www.rd.usda.gov/programs-services) for information on all Rural Development's programs.

# Annual Drinking Water Quality Report — Aurora-Brule Rural Water System —

January 1, 2016 – December 31, 2016

## Introduction

The purpose of this report is to inform you of the quality of the drinking water that we provide. We are required by the U.S. Environmental Protection Agency (EPA) to test our water frequently for the presence and concentrations of over 80 different substances. The South Dakota Department of Environment and Natural Resources (DENR) reviews all of our testing data to ensure that 1) we are providing safe drinking water to our customers, and 2) we are complying with EPA regulations.

We want you to fully understand the information contained in this report. If you have any questions, please contact:

Wade Blasius

Aurora-Brule Rural Water System, Inc.

P.O. Box 140 | Kimball, SD 57355

Phone: (605) 778-6110 or Toll Free 1-888-282-2497

## Information provided by the EPA

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

## Where does our water come from?

The source of our drinking water is surface water from Fort Randall Reservoir, on the Missouri River. Aurora-Brule RWS purchases some water from the Randall Community Water District, which has the same source. The Missouri River drains most of Montana and North Dakota, and most of western South Dakota.

## Why do we test our drinking water?

The water we pump from Fort Randall Reservoir is surface water that comes from the Missouri River and other streams upstream of our intake. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and can pick up substances resulting from the presence of animals or from human activity. Too much of any substance, either naturally occurring or resulting from human activities can be considered a contaminant.

Contaminants that can occur in source water include: 1)

microbial contaminants, such as viruses and bacteria, which can come from human sewage or livestock waste disposal facilities, and wildlife, 2) inorganic contaminants, such as salts and metals, which are generally naturally-occurring in this area; 3) pesticides and herbicides, from both residential and agricultural use, 4) organic chemical contaminants, including synthetic and volatile organic chemicals, which can come from leaking gas storage tanks, urban storm water runoff, agricultural runoff, and septic systems, and 5) radioactive contaminants, which are naturally occurring in some of the rocks in South Dakota.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

## What treatment does our water receive?

Aurora-Brule Rural Water and Randall Community Water District utilize the same method of treatment. The first stage of the treatment process is a screen at the intake station. This screen keeps out relatively large debris such as driftwood, fish, etc. The water is pumped from the intake station to the treatment plant. At the treatment plant, a coagulant is added to the water. The coagulant makes small, microscopic particles and impurities stick together to form larger particles. This makes the smaller particles easier to remove. After the water is treated with the coagulant, it is filtered to remove the particles and other impurities normally found in lake water. We add potassium permanganate to remove tastes and odors caused by decaying organic material, such as dead leaves. We also add chlorine and Ammonia which forms chloramines to kill any bacteria that may be in the water. As the water leaves the plant, fluoride is added to protect against tooth decay.

## Summary of 2016 Water Quality Tests Results

We are pleased to report that our water in 2016 was in compliance with all EPA and state water quality standards.

Although we routinely test our water for over 80 different substances, only those 10 substances shown in the table were detected. With the exception of lead and fluoride, all of these 10 substances are naturally occurring.

Alpha emitters, antimony, arsenic, barium, chromium, and selenium are all substances that are naturally occurring in the rocks and soil within the Missouri River watershed. These six substances were well below the highest level allowed by EPA.

Sulfate is also a substance that is naturally occurring in the rocks and soil within the region. Sulfates have not been demonstrated to pose any health risks and are therefore not regulated by the EPA. We monitor for sulfates to provide information to the EPA and the DENR regarding the occurrence of sulfates in drinking water. EPA may use this information and information from other drinking water providers throughout the United States, to determine if sulfates should be regulated in the future.



Turbidity is a measure of the cloudiness of the water. We monitor it daily because it is a good indicator of the effectiveness of our filtration system. Turbidity levels vary due to changes in surface water runoff. The turbidity levels measured in 2016 were well within the acceptable range of levels allowed by the EPA. Fluoride is naturally present at low levels in our water. We monitor for lead and copper in some of our customer's homes to determine if it is leaching from plumbing fixtures. Due to the chemical stability of the water we produce, the measured lead and copper levels are low and are well below the highest level allowed by EPA.

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### We Welcome Your Input

We have an annual meeting every year for our customers. We mail invitations stating the time and place of the annual meeting to all of our members. Additionally, our Board of Directors meets on the second Tuesday of every month at the main office located in Kimball, SD. If you would like to attend one of the board meetings, please notify Wade Blasius at the address and phone number listed at the beginning of this report.

## DEFINITION OF TERMS

These definitions are provided to assist you in understanding our water quality test results and the following discussion of the results.

**Action Level (AL)** – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Treatment Technique (TT)** – A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

**Maximum Contaminant Level** – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Maximum Contaminant Level Goal** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

# 2016 Water Quality Test Results

Aurora-Brule RWS - Water Quality Tests Taken At The Treatment Plant						
Substance REGULATED	Sample Date	Highest Level Detected	Range of Detection	Ideal Goals (MCLG)	Highest Level Allowed (MCL)	Likely source of substance
Antimony	03/22/12	0.3	N/A	6.0	6.0	Erosion of natural deposits
Arsenic	03/22/12	2	N/A	N/A	50	Erosion from natural deposits; Orchard runoff
Chromium	03/22/12	2.3	N/A	100	100	Erosion of natural deposits
Barium	03/22/12	0.042	N/A	2.0	2.0	Erosion of natural deposits
Mercury	03/17/03	0.1	N/A	2	2	Erosion of natural deposits
Fluoride	01/06/16	1.32	.43 – 1.32	0.9-1.7	4.00	Water additive to promote strong teeth
Selenium	03/22/12	1.5	N/A	50.0	50.0	Erosion of natural deposits, Mine discharges
Turbidity	Daily	99%	within limits	N/A	TT	Soil runoff
Total Coliform Bacteria	Continuous	0	NA	0	1	
Nitrate	03/10/16	0.2	N/A	10	10	Runoff from fertilizer use; Leaching from Septic tanks, Sewerage, Natural deposits
Alpha emitters	05/16/12	1.1	N/A(1)	0	15.0	Erosion of natural deposits
Haloacetic Acids	08/03/16	14.5	ND – 14.5	0	60	By-product of drinking water chlorination
Total Trihalomethanes	08/03/06	6.41	ND – 6.41	0	80	By-product of drinking water chlorination
Randall CWD – Water Quality Tests Taken At The Treatment Plant						
Antimony	09/26/12	0.5	N/A	6.0	6.0	Erosion of natural deposits
Arsenic	09/26/12	2	N/A	N/A	50	Erosion of natural deposits; Orchard runoff
Chromium	09/26/12	0.9	4.0	100	100	Erosion of natural deposits
Barium	09/26/12	0.041	N/A	2.0	2.0	Erosion of natural deposits
Fluoride	01/06/16	1.32	.43 – 1.32	0.9-1.7	4.0	Water additive to promote strong teeth
Selenium	09/26/12	1.7	1.4-1.7	50.0	50.0	Erosion of natural deposits, Mine discharges
Turbidity	Daily	99%	within limits	N/A	TT	Soil runoff
Total Coliform Bacteria	Continuous	0	N/A	0	1	
Nitrate	05/23/16	0.4	NA	10	10	Runoff from fertilizer use; Leaching from Septic tanks, Sewerage, Natural deposits
Alpha emitters	05/14/03	3.1	N/A	0	15.0	Erosion of natural deposits
Haloacetic Acids	07/25/16	72.5	ND -72.5	0	60	By-product of drinking water chlorination
Total Trihalomethanes	07/25/16	114	ND-114	0	80	By-product of drinking water chlorination
Water Quality Tests taken at the Customers Tap						
Substance REGULATED	Date Sampled	Highest Level for Compliance	# of Samples above the AL	MCLG	MCL	Likely source of substance
Copper A-B	6/24/15	0.2	0	0	AL=1.3	Corrosion of household plumbing.
Lead A-B	6/24/15	3.0	0	0	AL=15.0	Corrosion of household plumbing
Copper Randall	9/20/12	0.2	0	0	AL=1.3	Corrosion of household plumbing
Lead Randall	09/19/12	3	0	0	AL=15.0	Corrosion of household plumbing

**Aurora-Brule Rural Water System**

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# WATER MATTERS

## How Waterfalls are Formed

According to the dictionary, a waterfall is “a cascade of water falling from a height, formed when a river or stream flows over a precipice or steep incline.” Such a dry, academic description might well provide a workable technical definition, but it does little to convey the beauty of such features that have drawn the attention of people for ages. Waterfalls, both large and small, are the focal points of many national, state and local parks and scenic areas, ranging from the massive Niagara Falls along the St. Lawrence River to the modest Minnewissa Falls at the Pipestone National Monument 50 miles northeast of Sioux Falls.

In many cases, waterfalls form when fast-moving water passes over hard, resistant rock that transitions into softer, more easily eroded material. The harder capping rock is preserved (or eroded much more slowly), while the softer rock is quickly worn away. As a result, a step (geologists call it a nick point) develops in the river or stream, over which the water “falls.” Over time, the harder rock will also be eroded, and the waterfall moves slowly upstream. Chunks of the more resistant cap rock are often visible at the base of the waterfall. Roughlock Falls and Spearfish Falls along Little Spearfish Creek in the Black Hills are two good South Dakota examples of this type.

In other cases, the ledge over which the water “falls” is the result of a break in otherwise fairly uniform rock. Over millions of years, forces within the earth have created faults and fractures in the Sioux Quartzite, which is found across parts of southeastern South Dakota. These breaks have left behind a fairly irregular surface on the quartzite. When modern day rivers and streams flow across this surface, waterfalls and cascades develop where there are sharp transitions. The Falls of the Big Sioux River are an example, and led to the development of our states largest community. Rock Rapids, Iowa, got its name in a similar manner.

Next time you come across a waterfall, see if you can figure out just why it is there, but only after admiring what is taking place.



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