



**BROWN
DAY
MARSHALL**
Rural Water System, Inc.



Quality On Tap!

April 2018 | Volume 13, Issue 4

HOW SAFE IS YOUR TAP WATER?

EROSION: ONE OF
THE GREATEST ISSUES
FACING AMERICAN SOIL

SYSTEM SPOTLIGHT:
AURORA BRULE
RURAL WATER SYSTEM

FIRST OF ITS KIND
SDSU'S NEW PRECISION
AGRICULTURE MAJOR



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Rural Water System, Inc.

FROM THE MANAGER



Rodney Kappes
Manager, BDM Rural Water System, Inc.

Greetings from the Team at BDM:

2017 was another great year for your water system, with 2018 looking to be even more interesting. I will provide a brief financial recap of 2017 and introduction to 2018 in this newsletter. Please plan to attend your water system's annual meeting on Monday March 26th at 6:00, here at the BDM office. A more in depth discussion of 2017, and plans for 2018, will be discussed.

I just received the preliminary year end 2017 financial audit, and your water system continues to improve financially, and today is in a very sound financial position. As of the preliminary audit report, your water system (for the first time in many years), has fully funded its annual depreciation and will finish the year with a positive change in net assets, or more commonly referred to as a net profit. Our intent is to not operate the company to generate large profits. However, as I have noted in earlier comments, from a period of 2006-2015, this system had accumulated just under 4 million dollars of unfunded depreciation expense. This means that 4 million dollars of wear and tear on fixed assets took place in that time period, and the funds to repair/replace that wear and tear are not available. When we raised rates in 2016, that analysis was to get BDM to a minimum of a breakeven financially. Fortunately, over the past 2 years, we also have been able to reduce interest expense by refinancing a major portion of our term debt with CoBank and have been diligent in identifying efficiencies in our processes and identified expense cost savings. These expense savings have allowed your water system to show a positive number on the bottom line. We need to remember that this process we have embarked upon, will be a journey, not just a one or two year adjustment. An important concept to keep in mind is that many of the fixed assets placed into service and being tracked on our depreciation schedule, were put on the schedule at the value they cost when they were put into service, which was between 15 to 30 years ago. That means we will not be able to replace those assets at those prices, but something higher and sometimes considerably higher than what our

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BDM MEMBERSHIP CORNER

Holiday Closings

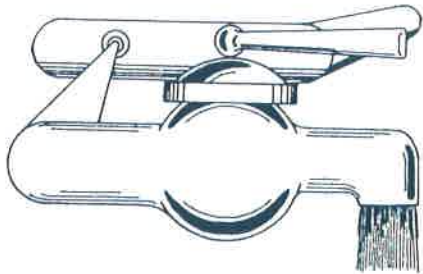
The BDM Rural Water System offices will be closed on the following dates:

MONDAY, MAY 28TH – MEMORIAL DAY

As always, if you have an emergency, please call the office at 605-448-5417 or toll free at 1-800-448-9236. You will then receive a message with the telephone number of the employee on call. Please call that person for assistance in an emergency only.

IMPORTANT PAYMENT REMINDER:

When remitting your water bill payment, please be sure to include the payment stub with your check, even if you have a cellular-read meter. If you have a cellular meter, please leave the meter reading boxes blank; they will be filled in at the office. Payment stubs help ensure that payments are posted to the correct account. We appreciate your cooperation!



Our Mission

is to ensure our members have quality water at a reasonable price for household, livestock and commercial use for generations to come.

BDM RURAL WATER SYSTEM, INC. RATE SCHEDULE (Effective July 2018)

General User Rates:

Debt Service monthly payment: \$35.00 per hookup per month for member-read meters, \$36.00 for cellular meters

\$6.50 per thousand gallons for the first 2,000 gallons used per month

\$5.50 per thousand gallons for the next 5,000 gallons used per month

\$4.50 per thousand gallons for the next 8,000 gallons used per month

\$3.50 per thousand gallons for over 15,000 gallons used per month

Add \$1.00 to the Monthly Totals Below if Hookup has a Cellular Meter

Gallons Used Per Month	Monthly Total	Gallons Used Per Month	Monthly Total
1000	41.50	25000	146.50
2000	48.00	30000	164.00
3000	53.50	35000	181.50
4000	59.00	40000	199.00
5000	64.50	45000	216.50
6000	70.00	50000	234.00
7000	75.50	55000	251.50
8000	80.00	60000	269.00
9000	84.50	65000	286.50
10000	89.00	70000	304.00
11000	93.50	75000	321.50
12000	98.00	80000	339.00
13000	102.50	85000	356.50
14000	107.00	90000	374.00
15000	111.50	95000	391.50
16000	115.00	100000	409.00
17000	118.50	125000	496.50
18000	122.00	150000	584.00
19000	125.50	175000	671.50
20000	129.00	200000	759.00

Lake User Rates:

Debt Service monthly payment...\$28.00 per hookup per month for member-read meters, \$29.00 for cellular meters

\$6.50 per thousand gallons of all water used per month.

All Users:

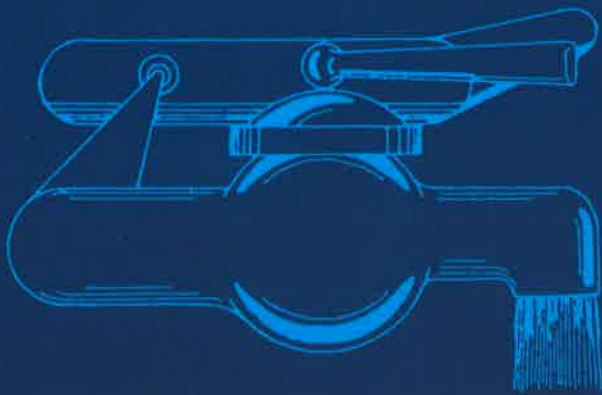
No water is included in the debt service payment. All water used is in addition to the monthly debt service payment. Payments are due by the 10th of the month. A \$10.00 fee applies to all payments received after that date. Service is subject to disconnection if payment is not received by the 15th.

AFTER HOURS & WEEKENDS WATER EMERGENCIES:

Please call the BDM Office at 605-448-5417 or 1-800-448-9236 & a message will direct you to the employee on call.

MARK YOUR CALENDAR

BDM's 38th ANNUAL MEETING



**BDM Building in Britton
705 7th Street**

MONDAY
March 26th, 2018
@ 6:00PM

**Director positions in
Districts One and Seven
are up for election.**

Financial and operations reports will be available.

Cash Prize Drawings will be held.

Only BDM members are eligible to vote and enter the drawing.

A light supper will be served following the meeting.

Manager: continued from page 2

depreciation number is currently indicating. To be able to prepare for these higher replacement costs and cover a portion of the \$4 million of unfunded depreciation, we need to continue to show annual positive results. This kind of financial performance will give us a chance to keep your water system viable in the future. As with any business, any type of unexpected/unplanned major system issues, can place unexpected hardships on your system, but I can assure you, we are in a much better situation today to deal with those than in the past.

For 2017 we invested \$285,000 back into the system in fixed assets. In 2016 we invested \$315,000. For the past 2 years we've re-invested \$600,000 in your system, with 100% of that amount cash financed, meaning no loans were required. We won't get any measurable debt relief for 18 years. We need to continue to be in a position to cash finance the replacement assets, as the loans for those original assets won't be paid until 18-30 years from now. My hope is that we can stay proactive in asset replacement (versus crisis replacement) and at the same time be able to eliminate some of our term debt by prepaying some of the outstanding balance in the years to come.

One of the expense items that continues to grow and unfortunately will continue to grow into the future, is fixing leaks. For 2017 we spent just shy of \$90,000 to repair leaks, which includes the contractor costs and parts. This did not include any of our team members' time. For 2017 we fixed 35 leaks.

Just a brief comment on 2018 projects that include: the completion of the mapping project, initial hydraulic modeling information on the portion of the system south to Groton and west of Britton to Hecla, completion of our plant optimization study, plant motor/pump replacement/upgrades to hopefully reduce line breaks on the main line going east and increase pumping capacity, investigation and implementation of new online payment portal, initial study on SCADA replacement project and continue replacement of Verizon cellular read meters. The SCADA system replacement alone, will be in range of \$450,000 – \$500,000, which your board has already reserved and has set aside for this project.

The team, which includes Shannon, Darin, Jim, Ryan and Mark continue to provide 24/7 coverage. They do an outstanding job and if you have a chance, please thank them for their commitment, service quality and being passionate about what they do every day. Paul has decided to return to Colorado, so we will be filling his position shortly. If you know of anybody that is looking for an exciting and rewarding career in your water system, please refer them to us.

We wish you a safe and productive 2018, God Bless.

EROSION: ONE OF THE GREATEST ISSUES FACING AMERICAN SOILS

There are many issues facing the modern-day farmer, though most of them are nothing that new. After all, nature has always kept us on our toes in the form of drought, flood, and other extreme events. You would think that with technological advances and increased agricultural acumen, however, we would have taken steps towards reducing the negative effects of nature... or at least be part of the solution, not the problem. Unfortunately, when it comes to erosion, it would appear that we ourselves are the ones to blame for digging us into a deeper ditch.

Now certainly, erosion has always been in existence. It is not necessarily a man-made problem, but unlike many other agricultural issues, it has come to the forefront largely because of human activity. Nowhere is this more apparent than in the Midwestern United States. Here, soil erosion has grown so extreme that Jerry Hatfield, director of the USDA-ARS National Laboratory for Ag and the Environment, believes that we're losing, on average, five tons of soil per acre per year due to erosion (with higher-end areas losing closer to 100 tons per acre per year).

These numbers by themselves can be a bit staggering, but they become even more alarming when we consider soil replacement rates. Essentially, many believe we're losing soil faster than soil can be restored, thus, if nothing changes, the situation will only become more dire.

SOIL EROSION: DIGGING DEEPER

"(Erosion rates are) all rainfall driven," says Hatfield. This reality may seem to contradict the above statement that increased erosion is a man-made problem. As seems to always be the case when it comes to agriculture, a closer look into things reveals the greater truth.

Spring is generally the wettest time of year. For the farmer who has, say, a corn and soybean rotation whose fields lay fallow in the spring, there's no crop present to help transpire the water or protect the soil. Compounding this issue is the practice of conventional tillage which exposes soil, breaks down soil structure and thereby, decreases pore space and infiltration. The result? Runoff which leads to erosion. There are even some studies out there that suggest that erosion increases exponentially as runoff increases.

Still, there is some hope. Seven million acres have already been enrolled in the Conservation Stewardship Program (CSP) in South Dakota alone to reduce soil erosion and improve water quality as of 2017. The reality is, however, that while this is a needed step in the right direction, it's more of a crawl than a leap. So what can we do? Once again, if our research is of any indication, it appears that the four principles of soil health are needed. This fact isn't lost on Chad Watts, executive director of the Conservation Technology Information Center in Indiana.

"You protect land from erosion and reduce the amount of sediment you put into streams with these (types of soil health) practices," Watts says, though he knows changing the hearts and minds of traditional farmers will take more convincing. That's where Midwest native and soil health specialist Doug Peterson comes in.

"The practice of tillage is more ingrained in most people than

their religion," Peterson says.

The notion that conventional till decreases soil stability, soil function and enhances erosion and runoff is a tough pill to swallow for many. After all, most farmers were raised to believe that the very reason they should use conventional till is to help reduce such issues. Unfortunately, regardless of how strongly we adhere to our beliefs, that does not necessarily make them true. In this regard, Peterson doesn't beat around the bush.

"There is no agronomic or economic reason for tillage to be justifiable anymore," Peterson says. "It destroys everything that restores soil function."

We saw strong evidence of this firsthand in South Dakota when the NRCS' Jeff Hemenway walked us through an eye-opening slake test comparing infiltration in no-till versus conventional till soils.

"The tilled soil dissolves rapidly (in a slake test)," Peterson notes. "In the presence of rain, without the glues or [root] exudates, the soil particles in the aggregates break loose, and they are very susceptible to erosion."

EROSION: NOT SIMPLY AN ISSUE OF CONVENTIONAL TILL

It's become easy for advocates of no-till and regenerative farming to "bully" the idea of conventional till. Once again, however, a closer look at things makes it evident that converting to no-till is not a fix-all. If we must view it in such terms, tillage is not the enemy. If a farmer adopts the first principle of soil health (do not disturb), but neglects the other three, they're only seeing a fraction of the picture. When it comes to erosion and enhancing infiltration, the second principle of soil health (keep the soil covered) is just as crucial. This is one of the many reasons why cover crops have seen a significant rise in recent years.

When you have a living canopy and live roots directly beneath the soil, you can reduce runoff head on. Instead of bombarding the soil, rain hits the canopy and slowly trickles down the plant into the roots. This slow-down effect on raindrop impact is one of the chief benefits of the third principle of soil health (keep a live root in the soil as many days as possible). The result is infiltration as opposed to runoff and erosion.

In this way, it seems rather evident that the solution to high erosion rates comes through the application of principles of soil health. Specifically, through the use of no-till, diverse rotations and cover crops (i.e., no fallow periods) which keep the soil covered and keep a live root in the ground year-round, we address the core issue that runoff and erosion are simply symptoms of degraded soils.

"Your soil is more than just the medium in which you grow plants," Watts says. "The downfall of many civilizations was when they degraded their soil to the point that it was no longer productive. When soil degrades to the point of no return, that's when civilizations begin to fail. It behooves you to protect your soil."

To learn more about conservation practices, visit the NRCS' Soil Health Page at <http://meritomyth.com/>

First of Its Kind:

SDSU'S NEW PRECISION AGRICULTURE MAJOR

The new bachelor's degree is the first in the country and has gained industry attention

By Sydney Sleep

The new precision agriculture major at South Dakota State University has gained significant attention from the agricultural industry.

Introduced to students during the Fall 2016 semester, SDSU is the only university in the country to offer a four-year degree in precision agriculture. Precision agriculture is a management approach utilizing cutting-edge technology to increase yields, improve soil health and optimize inputs.

John McMaine, Assistant Professor in the Department of Agricultural & Biosystems Engineering, states that "decreased



chemical and fertilizer application leads to decreased loss to sensitive groundwater and surface-water resources. It could also lead to potential changes in land use which would decrease the amount of marginal land farmed."

He adds that "from a drainage perspective, control drainage versus conventional drainage, control drainage is a Precision technique in the sense that the process actively manages a situation based on information to be collected. Control drainage can reduce the loss of nutrients, particularly nitrate, from tile drain systems which reduces the impact of tile drainage on surface water."

Additionally, McMaine shared that "there can also be Wellhead protection of sensitive well areas or use less. It goes back to "less applied so less lost," but also alternate crops or management

strategies can be used for those sensitive areas and that information can be better determined and utilized using Precision Ag techniques." A final point from McMaine was that "if there is a sensitive aquifer or an aquifer with limited capacity then Precision Irrigation techniques can be used to greatly decrease the amount of water that's used."

The major provides students with training from the Agronomy, Horticulture and Plant Science Department and the Agriculture and Biosystems Engineering Department, with additional classes from the Jerome J. Lohr College of Engineering. Students are learning how to integrate math, statistics, computer science and engineering concepts into agricultural production

"Over about the past 10 years, there have been several classes tied to precision agriculture offered on campus and student interest in the classes was growing," says Van Kelley, Agricultural and Biosystems Engineering Department Head.

As a result, several department heads on campus gathered together to discuss what the precision agriculture program parameters would be. They saw the rapid onset of technology being developed to assist farmers and their ability to be even better stewards of the land and resources, while at the same time increasing yields, improving livestock production methods and helping maintain water quality and wildlife habitat.

Department heads were also influenced by requests from industry professionals looking for technologically proficient graduates.

The new precision agriculture program was a motivating factor that led John Stubbendick to attend SDSU. The junior precision agriculture major from Avoca, Nebraska, believes the major provides students with the tools to keep up with industry needs.

"The industry is very interested and involved in the program and our classes, so I am very optimistic about what the major has to offer and the employment opportunities in the future," Stubbendick says.

Precision agriculture will allow producers to apply crop inputs in exactly the right place in the right amount at the right time," explains Bill Gibbons, Interim Director of the South Dakota Agricultural Experiment Station and Interim Associate Dean for Research. "This will allow farmers to save on input costs, maintain strong yields, and achieve unprecedented environmental stewardship."

Gibbons continues, "As precision technologies continue to advance, application rates that were once made on a per-acre basis are now being made on a square foot basis. In the future it is plausible that decisions and actions will be made on a per-plant basis. By essentially 'spoon feeding' plants with required inputs, farmers are dramatically reducing the amount of excess inputs

that escape the field through surface or groundwater movement.”

The new precision agriculture degree keeps students at the cutting edge of the rapidly evolving intersection of agronomics, high-speed sensor technology, data management and advanced machinery development. Students graduate with technical and management skills, and will be prepared for lifelong careers that support economically and environmentally sustainable agriculture.

“Creating a minor in 2015 was the first step, but we felt like there needed to be more,” explains David Wright, Agronomy, Horticulture and Plant Science Department Head.

SDSU Vice President of Research and Economic Development Daniel Scholl says the major in precision agriculture is motivated by SDSU’s vision of inspiring the next generation of precision agriculture innovators and leaders.

“Employers need, and are demanding graduates capable of leading decades of innovation in the rapidly advancing area of precision farming,” Scholl relates. “SDSU’s mandate as a land-grant university is to respond to changing needs with the degree offerings that will promote graduates’ abilities to take their roles as leaders in the economy.”

INDUSTRY-DRIVEN

The addition of the precision agriculture major was encouraged by industry leaders who became engaged in the development process and have remained involved.

“Prior to this major, students have been educated in specifics in engineering and agronomy, but we wanted to marry these to provide a more rounded skill set,” Kelley says.

Faculty are continually working with the industry to modify curriculum to include precision agriculture techniques. The new courses provide knowledge in areas such as using sensors and geospatial statistics.

To help offer the best technology and education to students, the program has partnered with companies like Raven Industries, John Deere Precision Planting, Kinsey Ag Services and the Climate Corporation. These companies make frequent visits to campus and remain in close contact with faculty to provide insight, donate technology and serve as mentors to students.

“Since the onset of the program, there has been a lot of industry interaction; we are implementing more industry-related projects to provide companies with opportunities to interact with students,” explains Nicholas Uilk, precision agriculture instructor.

Shane Swedlund, Facility and Engineering Manager for Raven Industries at the SDSU Research Park, notes that partnering with the SDSU precision agriculture program made a lot of sense because a great deal of what Raven does is focused on precision agriculture and they can work with students on projects.

UNITED FRONT

Working to connect precision agriculture majors with industry leaders, students have been attending the National Farm Machinery Show in Louisville, Kentucky, for several years.



The two departments are planning a new research and education facility that will house the faculty of the two departments in one building while also providing students an opportunity for increased interaction. “The concept is to bring faculty together in a common environment,” Wright says.

The goal of the facility is to provide better learning opportunities for the students and better facilities for research.

For example, in engineering classes students would work with programs to develop new sensors and then in the agronomy classes students test the sensors and make sure they provide the needed efficiency for farmers.

Don Marshall, Interim Dean of the College of Agriculture and Biological Sciences, says the vision is to inspire the next generation of precision agriculture innovators and leaders with high-quality classroom experiences and hands-on learning opportunities. “Our students are putting knowledge and theory to use through relevant, experiential agricultural learning projects and have a competitive advantage as they enter the workforce, he states.

Ultimately, SDSU’s precision agriculture program benefits both food producers and consumers. “As farmers are provided with better technology, they can produce more food, more efficiently and sustainably,” Wright concludes.

Learn more about the SDSU Precision Agriculture Program at www.sdstate.edu/programs/undergraduate/precision-agriculture-bs or email sdsu.academic.programs@sdstate.edu, call 605-688-5133.



HOW SAFE IS YOUR TAP WATER?

Recently the news has been full of dire warnings about chemicals, toxins, bacteria, and other worrisome contaminants turning up in drinking water. National attention has recently been drawn to a public water system in South Dakota that has trace amounts of Radium in their drinking water. How do you find out if the water coming out of your faucet is safe? It's not as hard as you might think – there are great resources out there if you know where to look.

Public water systems in South Dakota are required to meet the requirements of the Safe Drinking Water Act (SDWA). The SDWA is the federal law that protects public drinking water supplies throughout the nation, it was originally passed by Congress in 1974 and has been periodically revised (with major amendments in 1986 and 1996). The SDWA requires systems to be operated by certified operations specialists who are dedicated to delivering safe water to members. To ensure the highest quality product possible, the water is monitored and tested for over ninety potential contaminants.

The EPA sets national standards for drinking water based on sound science to protect against health risks, considering available technologies and costs. National Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants in drinking water or required ways to treat water to remove contaminants. Each standard also includes

requirements for water systems to test for contaminants in the water to make sure standards are achieved.

Contaminants are introduced to water from one of two sources – they are naturally occurring or manmade. Radium, a naturally occurring contaminant resides in rocks and soil within the earth's crust. Groundwater can contain varying levels of radium depending on local geology. Deep bedrock aquifers used for drinking water sometimes contain levels of radium that exceed health-based regulatory standards. Check your system's Consumer Confidence Report (CCR) to determine if radium has been detected in your community's water.

Land use has the greatest impact in terms of manmade contamination of source water. It is nearly impossible to inhabit a watershed without affecting the water quality in some way. Water readily absorbs constituents as it encounters them, so as the amount of any constituent increases, the likelihood of it showing up in a water supply increases.

The Environmental Working Group's (EWG) web tool aggregates and analyzes publicly available data from nearly 50,000 public water systems across the country. Using the database is an easy way to learn more about what's in your water, and it was quickly picked up by the media. But the way in which the EWG presents

The EPA sets national standards for drinking water based on sound science to protect against health risks, considering available technologies and costs.

its data could cause unnecessary fear.

Search the EWG database, and you are more than likely to find at least one "cancer-causing" pollutant at levels above "health guidelines." But what that actually means creates confusion. In many cases, the EWG cherry-picks its benchmarks for contaminants from the lowest recommendation available. Instead of informing people about their water, it may leave them needlessly worried. Search for just about any zip code, and users are shown a handful of scary-sounding chemicals, mated to the word cancer.

But is all the drinking water in the United States causing cancer? Of course it's not that simple. In the US, the EPA sets maximum contaminant levels (MCLs) as part of the Safe Drinking Water Act. Because it found these lacking, the EWG based its analysis partially on its own standards.

"When official guidelines are not available or are insufficient to protect public health, we developed our own health benchmarks using publicly available scientific research," reads EWG's data sources and methodology page.

Similarly, on its "EWG Standards" page, the organization notes the standards were devised using "the best and latest scientific evidence," but does not link to or mention any specific scientific studies used.

An EPA spokesperson provided the following statement when asked for comment about the database: "America's drinking water remains among the safest in the world and protecting drinking water is EPA's top priority. We take our commitment to protecting public health seriously and when issues arise, we work closely with states, local governments, and water suppliers to review and address, as appropriate."

But tell that to the residents of Flint, Michigan, who drank lead-laced water for more than a year. Or the 218 million Americans unwittingly drinking chromium-6 (the carcinogenic "Erin Brockovich" chemical) right from their faucets.

So how do you know if your water is safe to drink? For the most part, America's drinking water is pulled from groundwater or surface water sources and treated at plants to federal and state purity levels before arriving to your tap.

Unless you have a private well, the best way to find out if the water flowing from your faucet is safe is by searching the DENR Drinking Water System Information Page (<http://denr.sd.gov/des/dw/sysinfomap.aspx>) and finding your water system's CCR. This annual drinking water quality report, which your system must complete by July 1 of each year, includes information on where your water comes from, the levels of detected contaminants and your system's compliance with drinking water rules.

For instance, take the CCR for the Mid-Dakota Rural Water System. After sampling results for over 90 substances and elements regulated by the Safe Drinking Water Act, the information provided indicated that they met all drinking water standards for the year. In fact, Mid-Dakota has received the Secretary's Award for Drinking Water Excellence for 16 consecutive years of providing safe water without a violation.

If you have determined that your tap water contains contaminants that exceeds safe levels, you might want to consider filters to

reduce or eliminate the contaminants or even bottled water for serious contamination. Both options, however, have caveats.

First, not every filter is created equal. The popular Everyday Brita Pitcher, for instance, only filters four constituents – chlorine (just the taste and odor), copper, cadmium and mercury. In fact, according to the company's own website, Brita's only product that filters lead is its faucet system that attaches directly to your tap.

There's some debate that filters like Britas are only good for tastier water, not healthier water. It is important to note that unlike municipal water, personal filters aren't subject to any government oversight or regulation, but the independent, nonprofit NSF International provides certification and standards for many filters on the market.

The EWG recommends that you install a water filter to remove contaminants, which is not necessarily a bad idea. But the organization receives a financial incentive through Amazon's affiliate program if you purchase a filter through its website. The more people who buy water filters, the more money EWG stands to make.

As for bottled water, more than \$100 billion is spent each year on bottled water around the globe, with Americans alone spending nearly \$12 billion on bottled water each year. Clearly, there is a demand for bottled water, but is it any safer?

While surveys have found that more than half of Americans believe that bottled water is safer than their tap water, and nearly two out of three Americans prefer the taste of bottled water to tap water, "tap water and bottled water are generally comparable in terms of safety," Katherine Zeratsky, a licensed dietician with the Mayo Clinic, states.

"So, the choice of tap or bottled is mostly a matter of personal preference," she adds.

In fact, some companies just sell bottled tap water from public sources. Bottled water companies may argue that their water is filtered or purified, but does that justify prices that are 240 to over 10,000 times more per gallon than the water flowing from your tap?

Additionally, community water systems are required to publish all their water quality tests; bottled water companies are not. The EWG found 38 contaminants in 10 popular brands. Not only that, some water bottles are made of #7 plastic, which can leach a harmful chemical called bisphenol-A (BPA) into the water it contains. Even if the bottle is made of recyclable material, most people do not bother recycling – about eight out of 10 plastic bottles end up in a landfill or the incinerator.

According to the EPA, the standards for bottled water in the U.S. are exactly the same as those for tap water – and bottled water isn't subject to the same reporting standards as tap water.

Here are some takeaways. You should definitely verify that your local water supply is safe. If it's not safe consider a filter system and maintain the system as required. Utilize a reusable BPA free water bottle while away from home. Finally, other than convenience or personal preference, there is no reason to choose bottled water over the water flowing from your tap. So, raise a glass of tap water, enjoy the refreshment and cheers to you!

AURORA-BRULE RURAL WATER SYSTEM

Aurora-Brule (A-B) Rural Water System started as a steering committee of farmers in 1970 that were looking for a source of good quality drinking water for the rural areas of Aurora, Brule and Buffalo Counties. The communities and farms were using artesian water that was poor in quality, and most wells were 1,000 to 1,500 feet deep. The water system incorporated in May of 1972 and a five member Board of Directors was established. The Board hired HWS Engineering of Lincoln, Nebraska to begin designing a water distribution system. The Board and engineers also went to work trying to find financing to begin construction.

Construction on Project I of A-B Rural Water System was bid in 1977 and construction began in 1978. This project consisted of 70 rural users and a 50,000 gallon storage tank south of Kimball.

After the pipelines were installed, Aurora-Brule purchased water from the Randall Community Water District to serve those 70 farms.

In 1980, the water treatment plant was built along the Missouri River south of Chamberlain. That same year, 325 miles of distribution pipeline was installed in western Brule County, which added another 300 farms and the towns of Pukwana and Kimball to the system. In the spring of 1981, the new water plant was put into operation, providing water to all 370 users on the system. Every year from 1982 through 1986, pipelines, pump stations and storage tanks were added to provide water to farms and communities in Aurora, Brule, Buffalo, Jerauld, Davison and Douglas Counties.

Throughout the 1990s and beyond, construction continued adding storage tanks and customers throughout the system. In 2004, Aurora-Brule collaborated with Davison Rural Water System and Randall Water District to provide water to eastern Aurora County, including the towns of Plankinton and Mt. Vernon.

The system's latest project was a new Missouri River intake and raw water line. With the completion of this project, water is pumped from an 80-foot deep caisson (underground water collection chamber) located on the shore of the river, by two 200-horsepower vertical turbine pumps.

The original water treatment plant was upgraded in 2006, increasing the plant capacity from 1.2 million

gallons per day (MGD) to 2 MGD. The system has 560,000 gallons of treated water storage at the water plant and seven storage tanks in the distribution system holding a total of 1.3 million gallons of water.

Manager Wade Blasius, who has been with the system for over 35 years, recalls, "Getting rural water was life changing for some, because their well water quality was very poor. Many of the farm



AURORA-BRULE RURAL WATER SYSTEM



DIRECTORS:

Ron Gillen, Chairman/SA Director

Tom Geppert, Vice Chairman

Raymond Heath, Secretary

Craig Swanson, Treasurer

Paul Hettinger, Director

STAFF:

Wade Blasius, General Manager

Mary Brainard, Bookkeeper

Joe Priebe, Plant Operator

Kraig Sinclair, Distribution Operator

Gary Pierce, Distribution Operator

STATISTICS:

Hookups: 1,350

Miles of Pipeline: 1,000

Water Source: Missouri River

Counties Served: Aurora, Brule,
Buffalo, and portions of Jerauld,
Davison, and Douglas

Towns Served Individual: Aurora
Center, Gann Valley

Towns Served Bulk: Kimball,
Pukwana, Stickney, White Lake,
Plankinton



women didn't have washing machines because of the hard rusty well water. They had to bring their laundry to a Laundromat in town."

Blasius said A-B Rural Water has seen areas of growth that will need to be addressed in the future, and the system will continue to make upgrades to better serve its customers.

Aurora-Brule's water source has always been the Missouri River. The treatment process utilizes water clarifiers and a chemical feed system to separate solids from the water, followed by gravity sand filtration. Chlorine and ammonia are added to generate chloramines for disinfection.

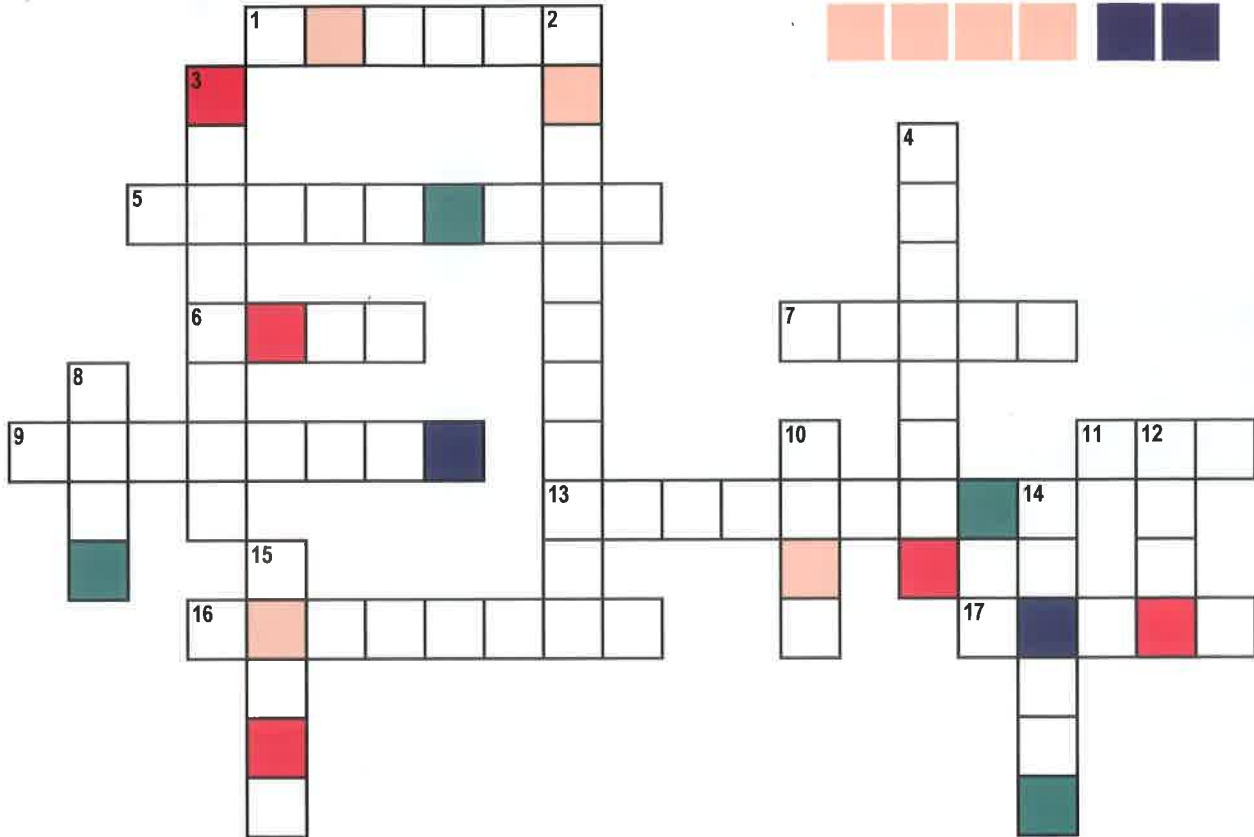


RURAL WATER & Crossword & Word Scramble Contest

April Fools

\$100 Grand Prize

SCRAMBLE ANSWER



ACROSS

1. April Fool's Day doings
5. Greatly astonish or amaze
6. A humorous or malicious deception
7. Funny or amusing in an odd way
9. Humorous entertainer
11. Don't be left with this on your face

13. The state or experience of finding something funny
16. An unexpected or astonishing event
17. The day of the month on which April Fool's day occurs.

DOWN

2. Silly or high-spirited behavior; mischief

3. It's known as the best medicine
4. Monkey business
8. Nitwit, dunce, or moron
10. A thing said or done for amusement
12. An amusing story or scene
14. Deceitful, crafty, or skillful
15. The quality of being amusing

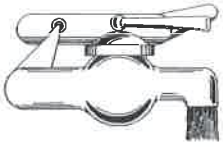
RULES

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 April 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 Jean Lang who had the correct phrase of "Habits change into character" for January 2018.



**BROWN
DAY
MARSHALL**
Rural Water System, Inc.



PO Box 49
705 7th Street
Britton, South Dakota 57430
www.bdmruralwater.com
605-448-5417

2018-2019 Scholarship Application

BDM Rural Water is sponsoring four \$500.00 scholarships to be presented for the 2018-2019 school year. Two boys and two girls will each receive the \$500.00 award to be drawn at random.

APPLICANT INFORMATION:

Last Name _____ First Name _____

Mailing Address _____

City _____ State _____ Zip _____

Email Address _____

Telephone Number _____ Date of Birth _____

FAMILY INFORMATION:

Parents Names _____

BDM Rural Water System, Inc. Account Number _____

ACADEMIC INFORMATION:

Name of High School _____ Year Graduated _____

University/College/Technical Institute you are or you will be attending _____

At present I am or plan on majoring in _____

REQUIREMENTS:

- You must be a child of a member of BDM Rural Water System, Inc. with a billing account directly from BDM Rural Water.
- GPA must be a minimum of 2.0. A sealed official transcript must accompany this application.
- You must attend either a 2 year or a 4 year college or vocational institute.
- In order for this application to be considered, a photo to be used for publicity purposes must be submitted along with your application.

If you are selected as a recipient of this scholarship, may we send a news release to your hometown newspaper?
Yes / No

Name of Newspaper _____ Address _____

City _____ State _____ Zip _____

Signature _____ Date _____

**All forms must be returned to the BDM Rural Water office by May 1, 2018.
BDM Rural Water System, Inc., PO Box 49, Britton, SD 57430**



BDM Rural Water System

Annual Drinking Water Quality Report

January 1, 2017 – December 31, 2017

Water Quality

Last year, the Brown-Day-Marshall RWS monitored your drinking water for possible contaminants. These two pages are a snapshot of the quality of the water that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies.

Water Source

We serve approximately 8,000 customers an average of 1,120,000 gallons of water per day. Our water is groundwater that we produce from local wells. The state has performed an assessment of our source water and they have determined that the relative susceptibility rating for the Brown-Day-Marshall RWS public water supply system is low.

For more information about your water and information on opportunities to participate in public meetings, call 605-448-5417 and ask for Rodney Kappes.

Additional Information

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. 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.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

- **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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

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. Immuno-compromised 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 microbial contaminants can be obtained by calling the Environment Protection Agency's Safe Drinking Water Hotline (800-426-4791). If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Brown-Day-Marshall RWS public water supply system is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing

your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Detected Contaminants

The table below lists all the drinking water contaminants that we detected during the 2017 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 – December 31, 2017. The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

2017 Table of Detected Contaminants for BDM RWS (EPA ID 0882)

Substance	90% Level	Test Sites > Action Level	Date Tested	Highest Level Allowed (AL)	Ideal Goal	Units	Major Source of Contaminant
Copper	0.7	0	08/29/16	AL=1.3	0	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead	3	1	08/30/16	AL=15	0	ppb	Corrosion of household plumbing systems; erosion of natural deposits.

Substance	Highest Level Detected	Range	Date Tested	Highest Level Allowed (MCL)	Ideal Goal (MCLG)	Units	Major Source of Contaminant
Barium	0.014		07/23/13	2	2	ppm	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Chromium	4.7		07/23/13	100	100	ppb	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	0.52		11/07/17	4	4	ppm	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Haloacetic Acids	6.40		08/02/17	60	0	ppb	By-product of drinking water chlorination. Results are reported as a running annual average of test results.
Selenium	0.7		07/23/13	50	50	ppb	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Total trihalomethanes	2.88		08/02/17	80	0	ppb	By-product of drinking water chlorination. Results are reported as a running annual average of test results.

Please direct questions regarding this information to Mr Darin Roehr with the Brown-Day-Marshall RWS public water system at (605)448-5417.

Terms & Abbreviations Used in Tables

Action Level (AL) – the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow. For Lead and Copper, 90% of the samples must be below the AL.

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

Maximum Contaminant Level Goal (MCLG) – 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.

Treatment Technique (TT) – A required process intended to reduce the level of a contaminant in drinking water. For turbidity, 95% of samples must be less than 0.3 NTU.

Removal Ration (RR) – The TOC removal ratio is the ratio between the actual TOC removal and the TOC removal requirements. The lowest running annual average of quarterly percentages is reported.

Units

ppb – parts per billion, or micrograms per liter (ug/l)

ppm – parts per million, or milligrams per liter (mg/l)

pCi/l – picocuries per liter (a measure of radioactivity)

BDM Rural Water System
PO Box 49
Britton, SD 57430
www.bdmruralwater.com
605-448-5417

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MADISON, SD

WATER MATTERS

Aquatic Invasive Species: Zebra Mussels

WHAT IS AN AQUATIC INVASIVE SPECIES?

Aquatic Invasive Species (AIS) are organisms that invade ecosystems outside of their natural or historic ranges. They are also known as exotic, non-native, or non-indigenous. They have spread outside of their ranges due to intentional or unintentional introductions. Ways they are spread include emptying aquariums into lakes or streams, by way of watercraft and sea planes, or by recreational activities like fishing, diving, and hunting.



PHOTO COURTESY OF SD GF&P

AIS SPOTLIGHT: ZEBRA MUSSELS

The impacts of AIS vary greatly, depending on the organism. One of South Dakota's most harmful AIS is the Zebra Mussel. Zebra mussels were first discovered in 1988, in the Great Lakes. They were brought to the United States from Europe in the ballast water of ocean-going ships. They likely made their way to South Dakota as hitchhikers on recreational watercraft. Zebra mussels have caused considerable damage to native ecosystems around the country as well as to industries, such as power plants and water suppliers. Zebra mussels can filter a vast amount of water altering entire aquatic food webs. They also have the ability to attach themselves to hard surfaces such as rocks and swim rafts, thus impeding water recreation. They also smother native mollusks as well as wreak havoc on irrigation intakes and boat motors. Zebra mussels currently infest Lewis & Clark Lake and McCook Lake in South Dakota.

**TO LEARN MORE ABOUT SOUTH DAKOTA'S
AQUATIC INVASIVE SPECIES VISIT
[HTTP://SDLEASTWANTED.COM](http://SDLEASTWANTED.COM)**

3 WAYS YOU CAN HELP PREVENT THE SPREAD OF AIS!

1. DO NOT RELEASE YOUR AQUARIUM PETS INTO THE WILD
2. DO NOT MOVE WATER, ANIMALS, OR PLANTS FROM ONE WATER BODY TO ANOTHER
3. LEARN HOW TO IDENTIFY THE COMMON INVADERS AND REPORT ANY SIGHTING TO SD GFP AT 605-223-7660



PHOTO COURTESY OF SD GF&P

Back page content provided by:
East Dakota Water Development District
132B Airport Drive • Brookings, SD, 57006
(605) 688-6741 • <http://eastdakota.org>