MID-DAKOTA RURAL WATER SYSTEM

Quality On Tap!

April 2021 | Volume 16, Issue 4

THE STATE OF OUR WATERS

SCHOLARSHIP APPLICATION | NEW EMPLOYEES AT MID-DAKOTA

FROM THE MANAGER

Scott Gross, General Manager
Mid-Dakota Rural Water System, Inc.

Well, I guess Mother Nature is showing us that she still has a sense of humor and with all that is happening around us she still wants us to not forget what she can do too. Mid-Dakota did appreciate the good weather last fall to finish up installing our parallel pipeline project to help with water flow toward the eastern border of our system. The final piece of this puzzle, a new 1.5-million-gallon water tower at our Highmore tank site will be completed late summer of 2021. This new tower will sit beside an existing 1.5-million-gallon water tower to make "Twin Towers" at this site and double Mid-Dakota's water capacity at this site.

We continue to improve our Automatic Meter Reading system and are still striving for 100% reads every day. MiData portal through Mueller Systems will be dropped by Mueller Systems this year, so Mid-Dakota is looking at alternatives to keep this service available. Right now, the best solution I've seen is trying to merge this information into Smart Hub through our billing software, more information to come if this is successful.

On March 15, 2021 Susan Hargens and Al Thomas will be retiring after many years of service to Mid-Dakota. They will be missed, so if you see these two enjoying their retirement please congratulate them on a job "WELL DONE."

With their retirement coming up fast, Mid-Dakota has hired Cameron Bohl and Scott Szuggar to fill their positions and to train alongside them until March 15, so if you know Cameron or Scott please congratulate them on joining the Mid-Dakota team.

I would like to thank all of Mid-Dakota's customers for all their understanding and patience as Mid-Dakota works through our growing pains in continuing to serve our population with a quality product and service. Thanks again for all of your support.

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New Employees at Mid-Dakota

After 26 years of working at Mid-Dakota, Susan Hargens has announced her retirement to begin on March 15, 2021. With her retirement coming up, the Membership Specialist position was advertised and filled quickly. Cameron Bohl accepted the position on December 7, 2020 and began working alongside Susan on January 4, 2021. Cameron is from Northville, South Dakota and studied at Lake Area Technical Institute in Watertown. She graduated in 2018 with a degree in Human Resources as well as a degree in Marketing Management. She moved to Miller after graduation and accepted a job in Highmore at Quoin Financial Bank. She is looking forward to working at Mid-Dakota as this job will be closer to home and put her education to use.

Al Thomas will retire after 17 years of working in the Water Distribution department. Scott Szuggar is from Pierre and will be taking his position. Scott began working at Mid-Dakota on January 4, 2021. He graduated from T.F. Riggs High School in 2007 and began working for the City of Pierre. He received certifications in Class 3 Water Distribution, Class 2 Water Treatment, and Class 2 Water Collections courses. His experience at the city will be helpful with his job at Mid-Dakota. Scott commented, "Coming from a municipal water system I'm excited to expand my water knowledge and learn how the rural aspects work."

Scott Szuggar

Cameron Bohl

SCHOLARSHIP APPLICATIONS DUE APRIL 1, 2021

For the past 14 years Mid-Dakota Rural Water System has presented scholarships to students attending a post-secondary school in South Dakota. This year will be no exception, and once again Mid-Dakota will be selecting four students to receive $500 scholarships to be used in their continuing education. The students must be a child of someone who is a member of Mid-Dakota or a resident of a community that is a Mid-Dakota member. An application can be found on page 15 of this issue of *Quality on Tap!*, on our website at www.mdrws.com, or at the Mid-Dakota office in Miller. Copies of the application have been sent to schools within the Mid-Dakota service area. The completed application must be accompanied by the most recent transcript from high school or college, a photo to be used for publicity purposes, and a 250-500 word essay about what rural water means to the applicant or the applicant's community.

Applications must be received at the Miller office by 5:00 p.m. April 1, 2021. All applicants will receive a letter letting them know whether or not they were chosen to receive a scholarship. A $500 check will be sent to each of the successful applicants' schools at the beginning of their second semester at the post-secondary school of their choice located in South Dakota.

TAKING CARE OF OUR WATERSHED

A lake is a magnificent water resource. The quality of its water is a reflection of what happens on the land that surrounds it. Rain and melting snow flow across fields, towns, and roads, picking up pollutants along the way.

To protect the lake, we must protect the "watershed," the land that drains or sheds its water into the lake.

The health of a watershed depends on the kinds of activities happening in the watershed. Is there anyone fertilizing their lawn, farming, raising livestock, using an automobile, or working on construction?

Federal, state, and local agencies, as well as non-profit organizations, and even local citizens help protect watersheds every day. You can do your part, too! We all have a responsibility to keep the watershed we live in clean and healthy for all living things. Be aware of your activities and how they might affect the environment.

Find and circle the eight pollutants listed below. Use the remaining un-circled letters to complete the phrase.

hint: start with the top row and move left, filling in with each un-circled letter.

- ☐ CHEMICALS
- ☐ MANURE
- ☐ NUTRIENTS
- ☐ OIL
- ☐ FERTILIZER
- ☐ PESTICIDE
- ☐ SALT
- ☐ SEDIMENT

N	O	N	F	P	O	I	C	E	R	U	N	A	M	N
T	S	O	U	E	R	S	H	C	E	P	O	L	L	U
T	I	O	N	L	R	H	E	V	U	R	G	X	D	F
G	F	G	Z	I	A	T	M	D	F	W	N	H	T	N
E	U	Y	U	O	Y	D	I	L	I	Z	T	Y	P	V
E	B	J	K	T	R	R	C	L	C	M	Z	P	M	K
G	D	J	P	A	Q	P	A	U	I	D	E	Q	T	F
K	J	I	D	P	A	J	L	B	J	Z	C	N	E	Q
A	L	P	C	F	X	H	S	A	P	D	E	L	T	V
H	Y	X	L	I	X	V	D	G	C	O	H	R	A	K
Z	D	K	R	F	T	O	V	L	E	F	N	T	G	G
X	F	E	S	D	F	S	J	Q	X	M	I	Z	O	T
G	I	J	W	D	B	H	E	T	L	A	S	C	W	U
M	N	T	Z	R	W	D	V	P	J	M	M	K	J	T
J	A	N	U	T	R	I	E	N	T	S	R	I	F	Z

THE NATION'S LARGEST SOURCE OF WATER QUALITY PROBLEMS IS:

_ _ _ - _

This happens when pollutants (like the kind you found in the puzzle) are carried away by precipitation and runoff in our watershed and then deposited into surface water or introduces them into the groundwater.

HOW CAN KIDS HELP?

Here are some fun ways you can get involved in helping protect your watershed!

BECOME A BACKYARDER!

Create a natural environment in your backyard by planting native trees, grasses, and flowers. Taking care of native vegetation is a cinch and it will attract beautiful birds and butterflies!

ORGANIZE A STREAM OR RIVER CLEANUP!

Trash in rivers and streams are not only an eyesore but harmful to aquatic life and other animals that forage the banks for food. Check out the National River Cleanup website for ideas on how to organize a cleanup group!

VOLUNTEER!

Did you know there are citizen monitoring opportunities throughout your area? Volunteer to monitor water quality or become involved in other things such as bird counts or tagging monarch butterflies. You could even start your own monitoring group to monitor something important to you!

TAKE A HIKE!

Look around. See what's going on in the watershed you live in. Document things you feel don't look right and call your local conservation district. They don't know everything happening in the watershed unless they have help from you!

PARTICIPATE IN AN ENVIRONMENTAL EVENT!

Did you know Earth Day is April 22, 2021? Check with your local conservation district or environmental organization for a list of events happing in your watershed. Volunteer to help at the event or just come out and learn more about the environment!

BACKFLOW PREVENTION

Cucumbers, tomatoes, squash, beets ... What are you planting this year? Spring is here, and it's time to plan for that garden, fertilize the lawn, kill some weeds, fill up the pool and wash the car in the driveway.

Something you may not think about is how your outdoor activities have the potential to contaminate your drinking water.

Backflow is the reverse flow of contaminated water through a cross-connection and into pipes of a consumer's drinking water system. A cross-connection is any connection between a potable water supply and other water or fluids of unknown quality. An example is the piping between a public water system or a consumer's potable water system and an auxiliary water system, cooling system or irrigation system.

Types of Backflow

There are two types of backflow: backpressure and backsiphonage. Backpressure backflow occurs when downstream pressure is greater than potable water supply pressure. Backpressure can result from an increase in downstream pressure, a reduction in water supply pressure, or a combination of both. Increases in downstream pressure can be created by pumps or temperature increases in boilers. Reductions in potable water supply pressure occur whenever the amount of water being used exceeds the amount of water being supplied, such as during water line flushing, fire fighting or breaks in water mains.

Backsiphonage is backflow caused by a negative pressure, or a vacuum in a public water system. Backsiphonage can occur when there is a stoppage of water supply due to nearby fire fighting or a break in a water main.

Protect Your Drinking Water

Backflow can make drinking water unsafe, so what measures have you taken to prevent contaminating your water? Rural water systems have been required to install backflow prevention devices on new connections since 1983. However, devices installed by water systems may not be sufficient in certain circumstances. That's why you should still use protective vacuum breakers on outdoor hoses.

So, before you bust out the fertilizer and start the sprinklers, make sure you protect yourself and your family. To avoid contamination, backflow preventers should be installed whenever there is potential for a cross connection.

To find out more about backflow prevention, contact your water system. Together we can maintain the quality of our drinking water!

WHAT IS BACKFLOW?

The undesirable backward flow of water through the pipes of a drinking water system. The backflow of water from home plumbing systems into community drinking water happens when water is pulled backward due to pressure loss in the system or pushed back by a pressure source such as a well pump.

WHAT IS A CROSS-CONNECTION?

Connections between drinking water and other water or fluids of unknown quality. Indirect cross-connections are made by garden hoses and temporary connections. Direct cross-connections are more permanent hard-pipe arrangements.

BACKFLOW PREVENTION TIPS

- Don't submerge hoses in buckets, pools, or sinks.
- Don't use a garden hose to clear a stoppage in a sewer.
- Don't use spray attachments without a backflow prevention device. The chemicals you put on your lawn could be fatal if ingested.
- Don't put a garden hose in anything you wouldn't want to drink.
- Do install vacuum breakers on all threaded faucets around your home.

healthy, productive soils checklist for growers

Managing for soil health is one of the best ways farmers can increase crop productivity while improving the environment.

Results are often realized immediately and last well into the future.
Following are four basic principles to improving the health of your soil.

1. Minimize disturbance
2. Maximize soil cover
3. Maximize biodiversity
4. Maximize presence of living roots

Use the checklist on the next page to determine if you're using core Soil Health Management System farming practices. It is important to note that not all practices are applicable to all crops. Some operations will benefit from just one soil health practice while others may require additional practices for maximum benefit. These core practices form the basis of a Soil Health Management System that can help you optimize your inputs, protect against drought, and increase production.

USDA United States Department of Agriculture

www.nrcs.usda.gov

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March 2017

Soil Health Management Systems Include:

What is it?		What does it do?	How does it help?
Conservation Crop Rotation Growing a diverse number of crops in a planned sequence to increase soil organic matter and biodiversity in the soil.		• Increases nutrient cycling • Manages plant pests (weeds, insects, and diseases) • Reduces sheet, rill and wind erosion • Holds soil moisture • Adds diversity so soil microbes can thrive	• Improves nutrient use efficiency • Decreases use of pesticides • Improves water quality • Conserves water • Improves plant production
Cover Crop An un-harvested crop grown as part of planned rotation to provide conservation benefits to the soil.		• Increases soil organic matter • Prevents soil erosion • Conserves soil moisture • Increases nutrient cycling • Provides nitrogen for plant use • Suppresses weeds • Reduces compaction	• Improves crop production • Improves water quality • Conserves water • Improves nutrient use efficiency • Decreases use of pesticides • Improves water efficiency to crops
No Till A way of growing crops without disturbing the soil through tillage.		• Improves water holding capacity of soil • Increases organic matter • Reduces soil erosion • Reduces energy use • Decreases compaction	• Improves water efficiency • Conserves water • Improves crop production • Improves water quality • Saves renewable resources • Improves air quality • Increases productivity
Mulch Tillage Using tillage methods where the soil surface is disturbed but maintains a high level of crop residue on the surface.		• Reduces soil erosion from wind and rain • Increases soil moisture for plants • Reduces energy use • Increases soil organic matter	• Improves water quality • Conserves water • Saves renewable resources • Improves air quality • Improves crop production
Mulching Applying plant residues or other suitable materials to the soil surface to compensate for loss of residue due to excessive tillage.		• Reduces erosion from wind and rain • Moderates soil temperatures • Increases soil organic matter • Controls weeds • Conserves soil moisture • Reduces dust	• Improves water quality • Improves plant productivity • Increases crop production • Reduces pesticide usage • Conserves water • Improves air quality
Nutrient Management Managing soil nutrients to meet crop needs while minimizing the impact on the environment and the soil.		• Increases plant nutrient uptake • Improves the physical, chemical and biological properties of the soil • Budgets, supplies, and conserves nutrients for plant production • Reduces odors and nitrogen emissions	• Improves water quality • Improves plant production • Improves air quality
Pest Management Managing pests by following an ecological approach that promotes the growth of healthy plants with strong defenses, while increasing stress on pests and enhancing the habitat for beneficial organisms.		• Reduces pesticide risks to water quality • Reduces threat of chemicals entering the air • Decreases pesticide risk to pollinators and other beneficial organisms • Increases soil organic matter	• Improves water quality • Improves air quality • Increases plant pollination • Increases plant productivity

USDA United States Department of Agriculture

The State of Our Waters

Jay Gilbertson, East Dakota Water Development District

Every year, the people of South Dakota, along with thousands of visitors, make use of the many and varied water resources of the state. Rivers and lakes are tapped by public water suppliers and private citizens for drinking water; irrigation provides water to crops and lawns to augment natural precipitation; anglers scour our lakes and streams in search of fish; and young and old enjoy a quick dip to escape the heat of summer. All of these activities are things we take for granted, but how do we know that the water on which we depend is really up to the task?

The South Dakota Department of Environment and Natural Resources (DENR), in cooperation with the United States Environmental Protection Agency (EPA), have identified a number of general classes of activities, known as beneficial uses, for the waters of the state. These are:

1. Domestic water supply;
2. Coldwater permanent fish life propagation;
3. Coldwater marginal fish life propagation;
4. Warmwater permanent fish life propagation;
5. Warmwater semipermanent fish life propagation;
6. Warmwater marginal fish life propagation;
7. Immersion recreation (swimming);
8. Limited contact recreation (boating and fishing);
9. Fish and wildlife propagation, recreation, and stock watering;
10. Irrigation; and
11. Commerce and industry.

All rivers and streams in South Dakota are assigned the beneficial uses (9) and (10) unless otherwise stated in the Administrative Rules of South Dakota (ARSD) Chapter 74:51:03. Lakes listed in ARSD Chapter 74:51:02 are assigned the beneficial uses of (7), (8) and (9) unless otherwise specified. These water bodies may also be assigned additional beneficial uses depending on local conditions.

For each beneficial use, DENR and EPA have established measurable standards (numeric criteria) to determine if the use can be safely met. For example, if the intended use is Immersion Recreation (swimming), bacteria counts in the water must be below a certain level and dissolved oxygen must be over a particular level. If the water body is to be used as a domestic water supply, concentrations of nitrate, sulfate, total dissolved solids, and other constituents cannot exceed specific levels. Temperature and suspended solids are the primary criteria used to evaluate suitability for the fisheries classifications, (2) through (6).

If most (90% or more) of the analyses from a particular water body meets the numeric criteria, then the resource is considered fully supporting of the designated use. It should be noted that a "fully supporting" designation does not necessarily mean that there were no problems found. It just means that if they were, they were few and far between, and not considered a serious risk to human health and safety. However, if violations of the numeric criteria are frequent (>10%) and/or severe, then the water body is considered impaired, and not supporting one or more of it's intended uses.

Every two years, DENR assembles water quality information on the rivers, lakes and streams of the state. The purpose of this report is to assess the water quality of South Dakota's water resources and to identify the impaired water bodies. This report meets the requirements of Sections 305(b), 303(d), and 314 of the federal Clean Water Act, which mandate a biennial report on state water quality to Congress. This report is also intended to inform the citizens of South Dakota on the status of the quality of their water resources. Finally, it serves as the basis for management decisions by natural resource agencies and interested stakeholders to plan and prioritize water pollution control activities. The report is published in even-numbered years. The most recent (2020) South Dakota Integrated Report for Surface Water Quality Assessment is available on the DENR website, https://denr.sd.gov/documents/SD_2020_IR_approved.pdf.

The Integrated Report breaks the State into fourteen major watersheds. It shows the name and location (county) of each lake and river/stream segment for which information is available. Each specific beneficial use is listed, along with whether or not it is meeting the intended use. In some cases, most often for immersion and/or limited contact recreation, there is insufficient information on which to determine if the use is supported or not. If an impairment exists, the cause is given, and where possible, potential sources of the problem are listed.

In the 2020 Integrated Report, excessive amounts of bacteria (primarily from livestock) and total suspended solids (agricultural and natural sources) were the most common sources of impairments to recreational and fisheries/aquatic life uses respectively. Another significant impairment is mercury found in fish flesh, although as this

is mostly attributed to atmospheric deposition from out-of-state sources, local corrective measures are problematic.

So, what happens when an impairment is found? Once a water body is determined to be impaired, DENR is required to conduct a more thorough investigation to better identify the source(s) of the impairment(s). Although the State maintains a network of over 150 surface water monitoring locations on rivers and streams, and annually samples over 60 lakes, their efforts are designed to function largely as screening tools. Rarely does this system provide sufficient information so that a particular problem can be effectively identified and treated.

These detailed investigations result in the development of something called a total maximum daily load, or TMDL. A TMDL represents the amount of a particular contaminant that can enter a water body in a given day without the beneficial use being impaired. A comparison of the actual pollutant load and the TMDL can give a pretty good idea of the amount of effort needed to correct the problem(s). A TMDL report will include recommendations for what actions may be necessary to address the problem(s) and to reduce the pollutant loadings.

In most cases, non-point source (NPS) pollution sources are responsible for identified impairments. NPS pollution, as it's name implies, results from the cumulative impact of many small activities across a watershed, as opposed to emanating from a single, readily identifiable location (point source). In South Dakota, where agriculture dominates the economy, it is no surprise that a significant amount of the NPS pollution is ag related. However, municipalities and commercial and residential areas can be significant contributors as well. In some instances, natural, or background, sources have caused impairments.

Once a TMDL report has been prepared, DENR works with interested local natural resource agencies and others to develop a project to address the problems. Referred to as watershed implementation projects, they utilize local, state and federal fiscal and technical resources to put into place voluntary changes to problematic land use practices. The changes or best management practices (BMPs), are designed to allow the landowner to continue to use their property in a manner they desire, while also eliminating or at least minimizing, adverse impacts on the public water bodies. In most cases, adoption of BMPs results in improved efficiency and productivity, as well as reducing pollution potential. However, in recognition of the very real public benefit derived from BMP implementation, projects provide cost-share assistance of up to seventy-five percent (75%) to willing landowners.

The BMPs that may be promoted by a particular project can vary depending on the type(s) of impairment(s) and likelihood of adoption. After all, the best solution is no good unless someone is interested in putting it into practice. Examples of BMPs supported by watershed implementation projects around the state include: upgrading animal waste management systems, installing terraces and grassed waterways, irrigation system upgrades, river bank and shoreline stabilization, long-term or permanent easements along rivers and streams, and public awareness and education. Most projects also have a water quality monitoring component to measure impacts on impaired waters.

Unfortunately, there is rarely a single action, or small set of changes, that can alter the status of a water body. NPS pollution comes from many places over a large area, and so "fixing" such problems involves implementing many BMPs across the watershed. As a result, watershed restoration projects may need to put in place hundreds of BMPs to affect change. The problems they are seeking to correct developed over many years - fixing them can also be a long-term, and very expensive, commitment.

Efforts to address known water quality impairments are currently active in nearly every major watershed in South Dakota.

Efforts to address known water quality impairments are currently active in nearly every major watershed in South Dakota. The Big Sioux River Watershed Project has developed innovative riparian buffer activities that are having demonstrable impact on water quality in the most heavily used watershed in the state. The Belle Fourche River Partnership is working to improve irrigation efficiency, and a subsequent reduction in field runoff. The South Central Watershed Project provides guidance and assistance to landowners in the Vermillion and lower James River basins, along with the watershed of Lewis & Clark Lake, spanning territory from Clearfield to Canova. These are just a few of the efforts underway.

Where do things go from here? DENR, the East Dakota Water Development District and other natural resource agencies continue to monitor the status of our water bodies. For the most part, the problems that have been identified, while real and requiring corrective efforts, do not represent significant threats to human health and safety, provided a little common sense is exercised. Drinking water impairments are rare, and with the ever increasing improvements in treatment technology, public water supplies are unlikely to be seriously harmed. (Provided we are prepared to pay treatment costs.)

SOUTH DAKOTA ASSOCIATION OF RURAL WATER SYSTEMS

Discussions about rural water began in South Dakota in the late 1960s. By 1972, Butte-Meade Sanitary Water District and Rapid Valley Water Service Company were established and a number of systems were organizing. Lincoln County Rural Water, south of Sioux Falls, was under construction at the time.

Rural water enthusiasts met in Madison, South Dakota, on October 11, 1972. A decision was made to hold a statewide meeting in Pierre on November 30. A letter of invitation went out to 17 systems. The following systems were represented at the November 30, 1972 meeting at the King's Inn in Pierre: Aurora-Brule, Big Sioux, Brookings-Deuel, Minnehaha, Rapid Valley, Sioux, TC & G, and Tripp County.

It was unanimously decided to form a "Steering Committee" and name it the "South Dakota Association of Rural Water Systems." The purpose of the organization was to monitor legislation, avoid duplication of efforts by sharing problems and solutions, and communicate with state and federal agencies concerning funding and regulations. The Association operated as a Steering Committee until January 1976, at which time the State of South Dakota granted a nonprofit corporation charter.

SDARWS, Inc., immediately became involved in forming a national organization. In April 1976, South Dakota joined six other states in Oklahoma City, Oklahoma, to establish the National Rural Water Association. An office was opened in Sioux Falls, South Dakota. South Dakota hosted the second National Rural Water Annual Meeting in Sioux Falls on September 12-13, 1977.

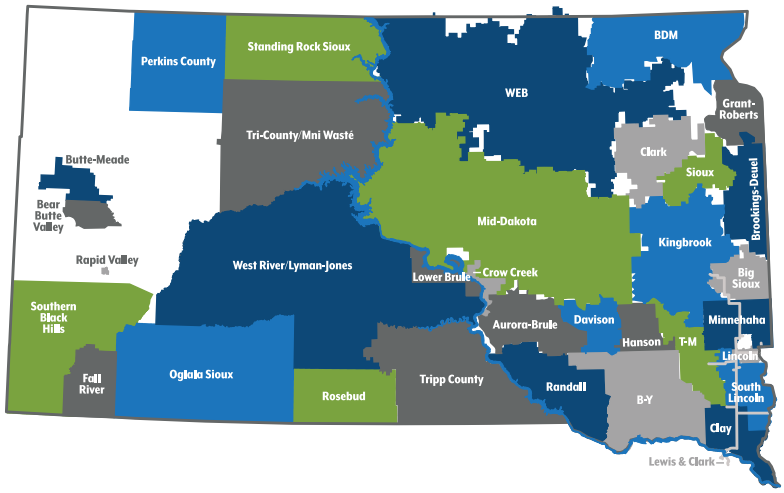
In April 1982, the Association expanded into water system technical assistance. Water treatment and distribution system on-site expertise could now be offered to the many smaller systems. In 1991, with the inclusion of Sanitary Districts, a Wastewater Technician position was added, moving the association forward in its work of preventing water pollution.

As the Association continued to grow and increase in membership, the Board of Directors expanded the Association for the purpose of assisting systems in western South Dakota by establishing the West River Regional Office in January 1991. The West River Office extended benefits and services to members statewide.

The Association is showing growth and movement toward set goals. SDARWS has grown from 2 to 12 employees and has expanded its membership to include nearly 300 organizations. With continued support from members, the challenges and opportunities of the future can and will be met with enthusiasm and cooperation. In February of 2010, the Association returned to Madison where it all started at that meeting in 1972 when an office building was purchased as a headquarters. In 2014 a second office/storage space was purchased in Spearfish as a West River headquarters.

Currently, the Association focuses it's efforts on training and technical assistance for water and wastewater systems, source water protection, and public outreach. They host a three-day Annual Technical Conference every January in Pierre, as well as hold seminars for water/wastewater operations specialists, rural water managers, board members, and office personnel. South Dakota Rural Water is the only water and wastewater association monitoring legislation in both Pierre and Washington, DC. SDARWS registers three lobbyists each year during the state Legislative Session and monitors all bills affecting municipalities, rural water and wastewater systems. SDARWS's lobbyists can be found in Pierre during the entire session and are prepared to activate their legislative network on issues that affect the water/wastewater industry.

SDARWS is proud to produce the *Quality on Tap!* magazine in cooperation with 15 Rural Water Systems: Aurora-Brule, BDM, Big Sioux, Brookings-Deuel, Clark, Clay, Davison, Grant-Roberts, Kingbrook, Mid-Dakota, Sioux, TM, Tripp County, WEB, and West River/Lyman-Jones. The magazine, now in it's 16th year of publication, is produced out of the Madison office by Communiciations & Marketing Coordinator Jennifer Bame.



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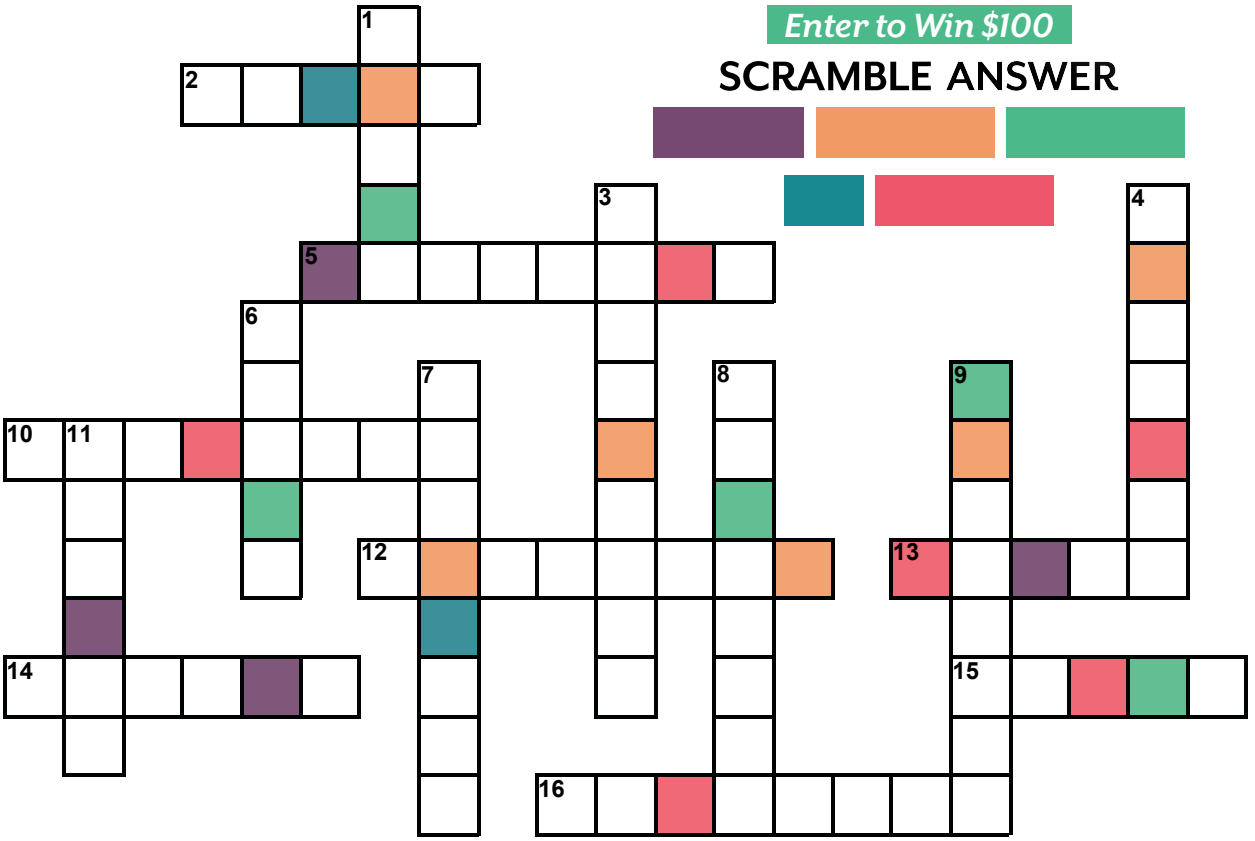
RURAL WATER CROSSWORD & WORD SCRAMBLE CONTEST

SPRING FLOWERS



Enter to Win $100

SCRAMBLE ANSWER

WORD BANK

- ☐ ASTER
- ☐ DAFFODIL
- ☐ DAISY
- ☐ DAYLILY
- ☐ FOXGLOVE
- ☐ GARDENIA
- ☐ GERANUIM
- ☐ HOLLYHOCK
- ☐ MARIGOLD
- ☐ ORCHID
- ☐ PANSY
- ☐ PEONY
- ☐ PRIMROSE
- ☐ SWEETPEA
- ☐ TULIP
- ☐ VIOLET

DOWN

1. A plant of the daisy family that has bright rayed flowers, typically of purple or pink.
3. A tall Eurasian plant of the mallow family, widely cultivated for its large showy flowers.
4. A lily that bears large yellow, red, or orange flowers, each flower lasting only one day.
6. A bulbous spring-flowering plant of the lily family, with boldly colored cup-shaped flowers.
7. A herbaceous plant or small shrub of a genus that comprises the cranesbills and their relatives.
8. A plant of the daisy family, typically with yellow, orange, or copper-brown flowers, that is widely cultivated as an ornamental.
9. A climbing plant of the pea family, widely cultivated for its colorful fragrant flowers.
11. A plant with complex flowers that are often showy or bizarrely shaped, having a large specialized lip and frequently a spur.

ACROSS

2. A small grassland plant that has flowers with a yellow disk and white rays.
5. A commonly cultivated plant of European woodlands that produces pale yellow flowers in the early spring.
10. A tall Eurasian plant with erect spikes of flowers, typically pinkish-purple or white, shaped like the fingers of gloves.
12. A bulbous plant that typically bears bright yellow flowers with a long trumpet-shaped center
13. A herbaceous or shrubby plant of north temperate regions, which has long been cultivated for its showy flowers.
14. A herbaceous plant of temperate regions, typically having purple, blue, or white five-petaled flowers, one of which forms a landing pad for pollinating insects.
15. A popular cultivated viola with flowers in rich colors, with both summer- and winter flowering varieties.
16. A tree or shrub of the bedstraw family, with large fragrant white or yellow flowers.

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 9, 2021 to be entered into the $100 drawing.

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

Congratulations to Darlene Lauck who had the correct phrase of "NOTHING BURNS LIKE THE COLD" for January 2021.

GROUND WATER & SURFACE WATER INTERACTION STUDY

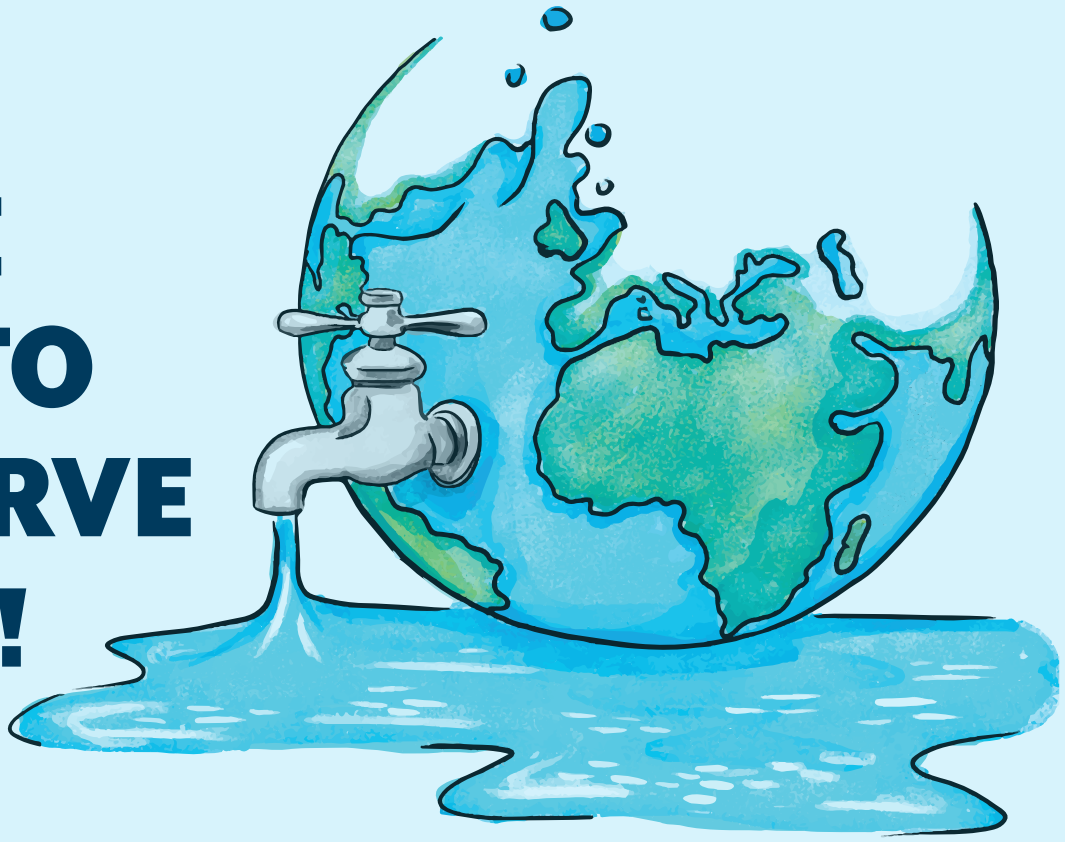
Many of the public water suppliers serving residents of the Big Sioux River basin draw water from the Big Sioux Aquifer. The aquifer is composed of sands and gravels deposited by glacial meltwaters during the last ice age, in the same valley now occupied by the river. Because of their close proximity, the river and the aquifer are interconnected, and water is known to move from the river to the aquifer, or the aquifer to the river.

To better understand this interaction, the Geological Survey Program of the SD Department of Environment & Natural Resources has initiated a detailed investigation of just how this movement of surface water (river) and ground water (aquifer). They are looking at this phenomena at two well fields located in the aquifer in close proximity to the river: the Clark Rural Water System well field north of Watertown, and the Big Sioux Community Water System well field at Egan. At each location, production wells are located close enough to the river that they might induce flow under intense pumping.

The study will involve collecting and comparing the chemistry and physical properties of water from the river and the adjacent aquifer. The intent is to identify parameters that are distinct to each source, defining what would be uniquely river water versus ground water. Then they will look at the characteristics of the water in between the river and the production wells, and determine if there is evidence of induced recharge, i.e., river water being 'pulled into' the aquifer. Detailed water level measurements will also be taken to monitor the direction of ground water flow in the well fields.

Initial field work began last fall, with the installation of dedicated observation wells at each location, as well as rehabilitation of wells already in the area. Staff from the SD Association of Rural Water Systems assisted by surveying the locations (latitude/longitude) and elevation of many of the wells at the Egan well field. The East Dakota Water Development District is providing support for the acquisition of dedicated data collection equipment to monitor water temperature and levels in the observation wells and the river. Water quality sampling is expected to begin this spring.

TEN SIMPLE WAYS TO CONSERVE WATER!



1. **Take shorter showers.** Long, hot showers can waste five to ten gallons every unneeded minute. Get a timer and time yourself. Install a low-flow shower head to reduce water use by 50% or more.
2. **Take baths.** A bath in a partially filled tub uses less water than all but the shortest showers.
3. **Turn off the water while you brush your teeth.**
4. **Don't let the water run constantly while you're washing or rinsing dishes.**
5. **Run the dishwasher only with a full load.** The short cycle uses only 7 gallons. This can save 11-13 gallons per each cycle not run.
6. **Keep a pitcher of drinking water in the refrigerator.** Running tap water to cool it off for drinking water is wasteful.
7. **Wash clothes with a full load.** This can save about 35 gallons for each small load not run.
8. **Check for leaks in pipes, hoses, faucets and couplings.** Even the smallest drip from a worn washer can waste 20 or more gallons a day. Larger leaks waste hundreds. Check for drips constantly.
9. **Do not use running water to thaw meat or other frozen foods.** Defrost food overnight in the refrigerator or use the defrost setting on your microwave.
10. **Report all significant water losses (broken pipes, open hydrants, etc.) to the property owner, local authorities or your water agency.**

Try to do one thing each day that will result in saving water.
Don't worry if the savings are minimal. Every drop counts. You can make a difference!

SCHOLARSHIP APPLICATION

Successful applicant will receive one of four $500 scholarships. Applicant must be a child of a member of Mid-Dakota Rural Water System or a resident in one of Mid-Dakota's participating communities. **The applicant must attend a South Dakota Post-Secondary educational facility and have a grade point average of 2.8 or higher (please provide a copy of transcript). This form must be completely filled out and a 250-500 word essay on what rural water has meant to the applicant or his/her community must be attached.** A current photo is also required to be used for publicity purposes. Mid-Dakota reserves the right to print any and all essays that have been submitted.

Please fill out completely:

Name: _____ Phone: _____

Address: _____

City: _____ State: _____ Zip: _____

Parent(s) Name(s): _____

Mid-Dakota Acct. #: _____ If no Account number, please state which participating community you are a member of: City of or Town of:

_____

Grade point average: _____ *(Remember to attach a copy of transcript)*

College Applicant will be attending: _____
(must be a post-secondary education facility in South Dakota)

Career Applicant is pursuing: _____

School Activities: _____

_____

_____

_____

_____

Community Involvement: _____

_____

_____

_____

Please compose and attach a 250-500 word essay about the benefits of rural water or what Mid-Dakota has done for you or your community (title is of your choosing). Deadline for the applications to be in the Mid-Dakota office is **5:00 p.m. April 1, 2021.**

Send completed application, transcript, current photo and essay to:

Mid-Dakota Rural Water System, Inc.
Attn: Scholarship Committee
P.O. Box 318
Miller, SD 57362-0318

Rate Table Effective January 1, 2021

501 Residential 1-Unit

$43.00	per month minimum bill
$5.00	per 1,000 gallons 1st 33,000
$7.25	per 1,000 gallons over 33,000

502 Rural Household 2-Units

$53.00	per month minimum bill
$5.00	per 1,000 gallons 1st 10,000
$4.00	per 1,000 gallons next 56,000
$7.25	Per 1,000 gallons over 66,000

504 Rural Household 4-Units

$71.00	per month minimum bill
$5.00	per 1,000 gallons 1st 10,000
$4.00	per 1,000 gallons next 122,000
$7.25	per 1,000 gallons over 132,000

506 Rural Household 6-Units

$88.00	per month minimum bill
$5.00	per 1,000 gallons 1st 10,000
$4.00	per 1,000 gallons next 188,000
$7.25	per 1,000 gallons over 198,000

511 Livestock

$31.00	per month minimum bill
$4.00	per 1,000 gallons 1st 300,000 (per year)
$5.00	per 1,000 gallons 301,000 to 700,000 (per year)
$7.25	per 1,000 gallons over 700,000 (per year)

161, 162, 164, 165 Special Class I & II

$16.40	per GPM per month minimum bill
$25.00	per GPM per month demand charge
$0.55	per 1,000 gallons

163, 166 Special Class III

$4.69	per Pers (equiv) per month minimum bill
$4.75	per Pers (equiv) per month demand charge
$0.55	per 1,000 gallons up to contract amount
$7.25	per 1,000 gallons over contract amount

1 Minimum & demand charges do not include any water.
2 Livestock (511) water allocations are annual use, not monthly.
3 "equivalent" population "person" = contract GPD ÷ 270

After Hours or Emergencies
Call Mid-Dakota
TOLL FREE at: 1-800-439-3079

For online bill paying:
www.mdrws.com

Mid-Dakota Rural Water System, Inc.
608 W. 14th St., P.O. Box 318
Miller, South Dakota 57362-0318
www.mdrws.com • 605-853-3159

WATER MATTERS

Aquifers 101

For most South Dakotans, the water that comes out of your tap started out in the ground. This 'ground water' has been drawn from geologic materials referred to as aquifers. As such, the importance of aquifers to all of us can not be exaggerated, but just what are they exactly?

What is an Aquifer?

An aquifer is a body of saturated rock from which water can be extracted in useful quantities. Aquifers must be both porous (have lots of open spaces in which water can be held) and permeable (able to let water move easily through it). In South Dakota, most aquifers consist of unconsolidated sand and gravel found along the courses of current, or former, rivers and streams. In certain areas, aquifers are made up of layers of sandstone or fractured limestone. Rocks such as granite and quartzite are generally poor aquifers because they have a very low porosity. However, if these rocks are highly fractured, they make very good aquifers.

How Does Water Get In An Aquifer?

Aquifers fill with water that soaks into the ground, having started out as rainfall, runoff or melting snow . The amount of water in storage in the aquifer can vary from season to season and year to year. Ground water may flow through an aquifer at a rate of 50 feet per year or 50 inches per century, depending on the permeability. But no matter how fast or slow, water will eventually discharge or leave an aquifer and must be replaced by new water to replenish or recharge the aquifer.

How Do We Get Water Out of an Aquifer?

Holes are drilled into the material that makes up the aquifer and a well is installed. Normally such water must be pumped to the surface, but in some cases the water will actually rise to the surface naturally (artesian aquifers). When water is pumped from a well, the water table (the top of the saturated part of the aquifer) is generally lowered around the well. Hydrologists call this a cone of depression. If water is pumped from a well faster than it is replenished, the water table is lowered and the well may go dry.

TRY THIS AT HOME:

Take a clear glass jar and fill it with gravel. Now pour water slowly into the jar. Watch as the water fills in the spaces between the bits of gravel. A jar "full" of gravel can actually hold quite a bit of water. You have created an aquifer!

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