MID-DAKOTA RURAL WATER SYSTEM

Quality On Tap!

July 2018 | Volume 14, Issue 1

SYSTEM SPOTLIGHT:
BROOKINGS-DEUEL RURAL WATER SYSTEM

STATEWIDE GROUND WATER QUALITY MONITORING NETWORK

WELL.... WHAT DO WE HAVE HERE?
DEALING WITH ABANDONED WELLS

MID-DAKOTA STAFFING CHANGES | CONSUMER CONFIDENCE REPORT

MESSAGE FROM MID-DAKOTA

Susan Hargens, Member Services Manager
Mid-Dakota Rural Water System, Inc.

A quote from Heraclitus that has been true throughout time is, "The only thing that is constant is change." Several changes have been made in the staffing of Mid-Dakota in the last several months.

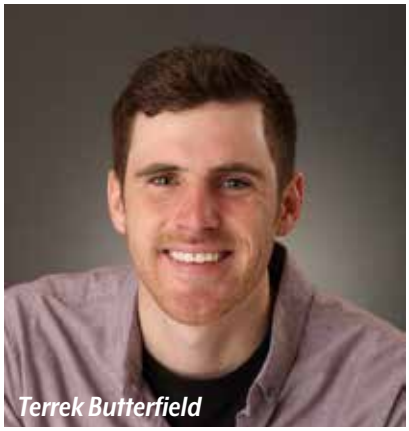
Distribution Specialist Jeff Metzger resigned to go back to Wyoming to follow another career, leaving a vacancy that needed to be filled at the Wessington Springs Field Office. The position was advertised, and Mark Gran was hired to fill that position and started work on June 26, 2017. Mark is from the Wessington Springs area and knows a lot of his customers, so he is an excellent fit for the position he was hired to fill. Mid-Dakota is very fortunate to have Mark on its operations team.

In order to be more efficient, the Board decided to pursue an Asset Management program and hire an Asset Manager to administer it. The position was advertised, and Terrek Butterfield was hired for the position on December 18, 2017. The Asset Manager will need to go onsite and inventory Mid-Dakota's assets and do a condition assessment and risk analysis. The information will need to be entered into the new Asset Management software which is a tool to help do this. Terrek's utilization of the new program will be helpful to identify assets that are beginning to cost too much in repairs, may need to be refurbished or rebuilt, or should rather just be replaced with new. When making plans for future upgrades or replacements this information will be valuable. Terrek is from the Huron area and will be moving into the Miller area. He will be a great "asset" to Mid-Dakota.

...continued on page 3

Jeff Metzger

Mark Gran



Terrek Butterfield

Quality On Tap!

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Rural Directors
Steve Robbennolt ..... District 1
Leslie Brown ..... District 2
Scott Oligmueller ..... District 3
Lennis Fagerhaug ..... District 4
Rick Benson ..... District 5

Municipal Directors
Dwight Gutzmer ..... At Large
Jim McGillvrey ..... At Large
Jeff McGirr ..... Huron
Darrell Raschke ..... Huron

Office Staff - Miller, SD
Scott Gross ..... General Manager
Connie Aymar ..... Financial Manager
Jamie Brueggeman ..... Office Administrator
Terrek Butterfield ..... Asset Manager
Sandy Holt ..... Customer Accounts Specialist
Tammy Oligmueller ..... Customer Accounts Specialist
Kristen Arthur ..... Customer Accounts Specialist

Member Services Staff - Miller, SD
Susan Hargens ..... Member Services Manager
DeAnn Hargens ..... Customer & Legal Records Specialist
Lorin Johnson ..... Hookup Specialist

Operations Staff / Water Treatment - Pierre, SD
Bill Sarringar ..... Water Treatment Plant Manager
Mike Polak ..... Water Treatment Plant Specialist
Steve Laird ..... Water Treatment Plant Specialist

Water Transmission & Distribution - Miller, SD
Gale Auch ..... Main Transmission Pipeline Specialist
Randy Bauer ..... Electrical Specialist
Calvin Kindle ..... Water Distribution Specialist
Craig Lunde ..... Data Acquisition Specialist
Scott Manning ..... Water Distribution Specialist
Wayne Ruhnke ..... O & M Specialist
Mike McCready ..... Small Systems Specialist

Pierre, SD
Shane Bothwell ..... Water Distribution Specialist
Ron Ramsey ..... Water Distribution Specialist
Al Thomas ..... Water Distribution Specialist

Gettysburg, SD
Gary Tobin ..... Water Distribution Specialist

Wessington Springs, SD
Mark Gran ..... Water Distribution Specialist

Huron, SD
Troy Dorris ..... Water Distribution Specialist
Scott Perry ..... Water Distribution Specialist

Consultants
Bartlett & West Engineers
May, Adam, Gerdes & Thompson – Law Office
Endorf, Lurken, Olson & Co. – CPA

Mid-Dakota Rural Water System, Inc.

NOTICE OF VACANCY

on the Board of Directors

Mid-Dakota Rural Water System, Inc. hereby gives notice to its membership that the following seats upon the Board of Directors will be up for election at its 2018 Annual Meeting:

There is one expired term in Rural Director District area #3, consisting of the following: All of Spink County; those portions of the Rezac Lake, Highmore Central, Mac's Corner, Collins Slough, Cottonwood Lake and Redfield service areas lying in Hand County; and the Staum Dam service area in Beadle County.

There is one expired term for Municipal-at-Large Director.

There is one expired term for a City of Huron Director.

(Note: Contact Mid-Dakota if you question whether or not you are in District #3)

Rural director nominations must be made by petition. Petitions must be filed with Mid-Dakota not later than 4:00 p.m. on September 17, 2018.

Nominations for municipal-at-large director will be made by recognized member municipalities. Nominating resolutions from member municipalities shall be filed with Mid-Dakota's office not later than 4:00 p.m. on September 17, 2018.

Nominations for City of Huron director will be made by the City of Huron. A nominating resolution from the City of Huron shall be filed with Mid-Dakota's office not later than 4:00 p.m. on October 2, 2018.

For more information, contact the Mid-Dakota Rural Water System, Inc. office at 605-853-3159 or 1-800-439-3079.

Message From Mid-Dakota: continued from page 2

General Manager, Kurt Pfeifle, announced that he would be leaving Mid-Dakota after 25 years to take on a new position as the Executive Director of South Dakota Association of Rural Water Systems (SDARWS). Kurt's last day was April 4th. He attended the SDARWS Board Meeting on April 5th and officially began his duties from that time forward. The directors and staff are saddened to see Kurt go but understand that this was a very good fit for him, so we are happy for him and his wife, Laurie. The SDARWS office is in Madison, SD so ultimately they will be moving to the Madison area. Kurt will still be involved in issues that affect the Mid-Dakota system, and he will be working for the benefit of all South Dakota rural water systems in his new position.


Kurt Pfeifle


Scott Gross

"After 25 years working for Mid-Dakota, I've been a witness to every piece of pipe going into the ground; all brick and mortar as it was constructed; and I've personally hired every employee working here. I've been blessed to have worked with a great Board of Directors. To say letting go is difficult would be a huge understatement. I get emotional thinking about all the friends and relationships, including directors and staff that I'll no longer interact with on a daily basis. It's truly an odd mix of excitement and elation along with sadness and melancholy that I am experiencing as I make this transition," says Kurt.

Financial Manager, Connie Aymar, was designated as Interim Manager until a replacement was hired. Mid-Dakota Operations Manager Scott Gross applied for the position and was hired. This move leaves the Operations Manager position open, and it was advertised with a June 14th closing.

Training Held at Mid-Dakota Office

On March 21st and 22nd, training was held in the Miller office which was put together by Bartlett and West Engineers. The first presentation was put on by Brittany Stwalley and Jonas Rugys with ESRI. It was about GIS mapping software and support. They talked about water-specific apps, web maps, and solutions to obtain accurate, up-to-date information. The second presentation was given by David Siddle, Sr. Account Manager, using Compass Tools Trimble. Attendees had hands-on training on current Trimble hardware/software, next generation Trimble devices, Mobile Mapping and UAV's.

On the 22nd attendees were given a Cla-Val Presentation which was presented by Dave Kluck, Sales Representative from Cla-Val. He provided information on the operation, maintenance and troubleshooting of Cla-Val control valves. This included Main Valve body operation and components, valve operation and services the main valve and pilot system.

The training was well attended by several systems. There were 35 attendees the first day and 27 the next day.

Rate Table Effective January 1, 2018

501 Residential 1-Unit
$42.00 per month minimum bill
$4.50 per 1,000 gallons 1st 33,000
$6.75 per 1,000 gallons over 33,000

502 Rural Household 2-Units
$52.00 per month minimum bill
$4.50 per 1,000 gallons 1st 10,000
$3.50 per 1,000 gallons next 56,000
$6.75 Per 1,000 gallons over 66,000

504 Rural Household 4-Units
$70.00 per month minimum bill
$4.50 per 1,000 gallons 1st 10,000
$3.50 per 1,000 gallons next 122,000
$6.75 per 1,000 gallons over 132,000

506 Rural Household 6-Units
$87.00 per month minimum bill
$4.50 per 1,000 gallons 1st 10,000
$3.50 per 1,000 gallons next 188,000
$6.75 per 1,000 gallons over 198,000

511 Livestock
$30.00 per month minimum bill
$3.50 per 1,000 gallons 1st 300,000 (per year)
$4.50 per 1,000 gallons 301,000 to 700,000 (per year)
$6.75 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
$23.00 per GPM per month demand charge
$0.50 per 1,000 gallons

163, 166 Special Class III
$4.69 per Pers (equiv) per month minimum bill
$4.35 per Pers (equiv) per month demand charge
$0.50 per 1,000 gallons up to contract amount
$6.75 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
or call the answering service direct at
1-888-545-7440

smart hub

For online bill paying:
www.mdrws.com

Mid-Dakota's Mission Statement

Enhancing Quality of Life By Providing High Quality Water and Excellent Service.

WHAT IS SOIL HEALTH
AND WHY SHOULD YOU CARE?

Soil health is "the capacity of a soil to function" (Doran and Parkin 1993). How well is your soil functioning to infiltrate water and cycle nutrients to water and feed growing plants?

Soil is a living factory of macroscopic and microscopic workers who need food to eat and places to live to do their work. There are more individual organisms in a teaspoon of soil than there are people on earth; thus, the soil is controlled by these organisms.

Tillage, fertilizer, livestock, pesticides, and other management tools can be used to improve soil health, or they can significantly damage soil health if not applied correctly.

Managing for soil health (improved soil function) is mostly a matter of maintaining suitable habitat for the myriad of creatures that comprise the soil food web.

Managing for soil health can be accomplished by disturbing the soil as little as possible, growing as many different species of plants as practical, keeping living plants in the soil as often as possible, and keeping the soil covered all the time.

MANAGE MORE BY DISTURBING SOIL LESS

Tilling the soil is the equivalent of an earthquake, hurricane, tornado, and forest fire occurring simultaneously to the world of soil organisms. Simply stated, tillage is bad for the soil.

Physical soil disturbance, such as tillage with a plow, disk, or chisel plow, that results in bare or compacted soil is destructive and disruptive to soil microbes and creates a hostile, instead of hospitable, place for them to live and work.

MANAGING FOR SOIL HEALTH MUST BEGIN BY CHANGING THE WAY YOU THINK ABOUT SOIL

The soil may also be disturbed chemically or biologically through the misuse of inputs, such as fertilizers and pesticides. This disrupts the symbiotic relationship between fungi, microorganisms and crop roots.

By reducing nutrient inputs, we can take advantage of the nutrient cycles in the soil to supply crop nutrients and allow plants to make essential associations with soil organisms.

DIVERSITY WITH CROP DIVERSITY

Sugars made by plants are released from their roots into the soil and traded to soil microbes for nutrients to support plant growth. The key to improving soil health is assuring that the food and energy chains and webs includes as many different plants or animals as practical.

Biodiversity will ultimately be the key to success of any agricultural system. Lack of biodiversity severely limits the potential of any cropping system and disease and pest problems are increased.

A diverse and fully functioning soil food web provides for nutrient, energy, and water cycling that allows a soil to express its full potential.

GROW LIVING ROOTS THROUGHOUT THE YEAR

There are many sources of food in the soil that feed the soil food web, but there is no better food than the sugar exuded by living roots.

Soil organisms feed on sugar from living plant roots first. Next, they feed on dead plant roots, followed by above-ground crop residues, such as straw, chaff, husks, stalks, flowers, and leaves. Lastly, they feed on the humic organic matter in the soil.

Healthy soil is dependent upon how well the soil food web is fed. Providing plenty of easily accessible food to soil microbes helps them cycle nutrients that plants need to grow.

KEEP THE SOIL COVERED AS MUCH AS POSSIBLE

Soil should always be covered by growing plants and/or their residues, and soil should rarely be visible from above. This is true regardless of land use (cropland, hayland, pasture, or range). Soil cover protects soil aggregates from 'taking a beating' from the force of falling raindrops. Even a healthy soil with water-stable aggregates (held together by biological glues) that can withstand wetting by the rain may not be able to withstand a 'pounding' from raindrops.

A mulch of crop residues on the soil surface suppresses weeds early in the growing season giving the intended crop an advantage. They also keep the soil cool and moist which provides favorable habitat for many organisms that begin residue decomposition by shredding residues into smaller pieces.

SOIL HEALTH FOR YOUR FARM, RANCH... FOR YOU!

Soil health is improved by disturbing the soil less, growing the greatest diversity of crops (in rotation and as diverse mixtures of cover crops), maintaining living roots in the soil as much as possible (with crops and cover crops), and keeping the soil covered with residue at all times. Drills, planters, seed, fertilizer, pesticides, livestock, fences, water, farm implements, etc. are all tools that can be used to manage the soil habitat for the benefit of living members of the soil food web.

Many soils have a water infiltration problem that causes a water runoff problem. If soil health is improved, the structure of the soil results in greater water infiltration, less runoff, less or no erosion, and reduced incidence of flooding and sedimentation.

Content provided by the South Dakota Natural Resources Conservaton Service (NRCS). For more information on soil health, visit www.nrcs.usda.gov/wps/portal/nrcs/main/sd/soils/health/

Well... WHAT DO WE HAVE HERE?

Abandoned wells exist throughout South Dakota and tap into every principle aquifer in the state. These are the same aquifers that we rely on today for much of the drinking water used in South Dakota. While the actual number of abandoned wells is not known, it is possible to make some reasonable estimates of the number of abandoned wells. In 1910, South Dakota had approximately 78,000 farms which reached a maximum of 84,300 farms in 1932. Since that time, farm numbers have declined steadily to about 31,700 today. Therefore, South Dakota has lost approximately 52,600 farms that likely had at least one well which may now be abandoned.

Aside from the reduction in the number of farmsteads, other factors have also contributed to the creation of abandoned wells. Rural electrification provided power to farmsteads that may have allowed access and pumping from more reliable, but deeper, aquifers. Similarly, regional rural water systems provided access to consistent and reliable water supplies, replacing, or at least supplanting on-site farm wells. Abandoned wells are not only a problem on farmsteads. Municipalities have also hooked up to rural water systems or constructed replacement wells and may not have appropriately plugged their old wells, which gradually fall into disrepair. Surprisingly, there remain a large number of private wells in many communities, even when there is a municipal water source.

Many people have good intentions to maintain an old well as a backup or standby well, but frequently these wells are sparingly if ever, used, and ultimately fall into disrepair. Many are forgotten over time. When this occurs, the old well becomes both a potential pollution source to everyone using the aquifer and as well as a possible physical safety liability to the property owner. Whoever owns the property on which the abandoned well is located is deemed to be the well owner, even if nobody knew of its existence.

LOCATING ABANDONED WELLS

Abandoned wells may be located anywhere, but there are some obvious indicators if you look carefully. On abandoned farmsteads, the presence of former wells may be marked by relic windmills or hand pumps, or a simple pipe sticking out of the ground. Wells were often drilled near outbuildings/barns, as hauling water to the livestock was more work than hauling water to the house. Large diameter, or bored, wells may have collapsed slowly over time, leaving a circular depression, with or without some other evidence of a well. Similar evidence would apply to locating old wells on existing farmsteads now served by alternate sources.

In many parts of South Dakota, early residents tapped into flowing artesian aquifers, which provided water without the need to pump it out of the ground. However, the quality of this water was not always the best, and as higher quality sources became available, many of these wells were also abandoned. Over time, the corrosive nature of this water can eat away at the well materials, degrading if not completely destroying the original structure. Old flowing well sites are often marked by low depressions supporting aquatic vegetation, such as cattails, in areas that are otherwise dry. If remnants of the original wells remain, water may be seen spraying into the air.

SAFETY HAZARDS

Many abandoned wells are not marked or covered. In some instances, the well casing, or a pit in which the well is located, is large enough for a person or animal to fall into and become seriously injured or killed. While the existence of such a threat to physical safety might be known by property owners familiar with the lay of the land, visiting friends and family may not know places to avoid. Fortunately, these types of accidents are entirely preventable with proper plugging of the well.

PROPERTY OWNER RESPONSIBILITIES

The owner of a property on which an abandoned well is located is deemed to be the owner of the abandoned well. Consequently, the owner is also responsible for plugging the abandoned well, or wells, as required by South Dakota Codified Law (SDCL) 46-6-18 and 46-6-27. There are many reasons for the owner to properly plug an abandoned well, aside from the legal requirement to complete the plugging. These wells also pose environmental and safety hazards resulting in potential legal liabilities. A list of abandoned well hazards is as follows:

- Contamination of aquifers by allowing surface runoff carrying pollutants to enter the ground water;
- Cross-contamination of aquifers by the well passing through more than one aquifer;
- Reducing artesian head pressure which may affect other wells in the same aquifer;
- Safety hazards to people and animals.

The plugging of an abandoned well needs to meet requirements outlined in the South Dakota Well Construction Standards, which can be found in the Administrative Rules of South Dakota Sections 74:02:04:67 and 74:02:04:69. These rules specify how to plug a well depending on the type of well construction, the kind of aquifer or aquifers which the well penetrates, and the materials to be used to plug the well. Even though the owner of an abandoned well may plug the well, we strongly suggest that a South Dakota licensed well driller perform the work. In some instances, complications may arise that benefit from a little practical experience. If a well is not plugged correctly, safety and ground water contamination threats may remain, and it is much more difficult and expensive to correct the improper plugging of an abandoned well.

If you have questions or need more information, please contact the Water Rights Program at 605-773-3352. Information is also available online at: denr.sd.gov/des/wr/abandonedwell.aspx.

Acknowledgment: Most of this abandoned well information consists of excerpts from a publication (FS 891 - October 1993) entitled, "Plugging Abandoned Water Wells" prepared in cooperation with the South Dakota State University Cooperative Extension Service, East Dakota Water Development District, and the Water Rights Program of the Department of Environment and Natural Resources.

Statewide Ground Water Quality **MONITORING NETWORK**

Many public water supplies, along with thousands of private individuals, across South Dakota, draw water from wells in shallow aquifers. In most instances, there is little more than a few feet of soil separating these aquifers from the land surface. Whenever it rains, or winter snows melt, water enters and recharges these aquifers. Unfortunately, this same process can carry pollutants into the ground water, which may require treatment before distribution and use for human consumption. Public water suppliers regularly monitor the condition of the water they provide, but their focus is just on their own particular source.

But what about the rest of the shallow aquifers? To gain a better understanding of the ambient water quality in shallow aquifers, the Geological Survey Program within the South Dakota Department of Environment and Natural Resources established what is known as the Statewide Ground Water Quality Monitoring Network (Network). The Network currently consists of a total of 144 observation wells spread across 79 locations monitoring conditions in 25 separate aquifers. The statewide ground water quality monitoring effort is an endeavor to monitor sensitive aquifers in South Dakota for non-point sources of contamination and long-term trends in water quality.

Attached is a map of South Dakota on which the locations of the monitored aquifers are plotted. Note that, due to limited information in many areas, the aquifer boundaries shown on this map are very approximate and should only be used for purposes other than general discussion.

The Network was designed to examine nonpoint-source pollution and ambient ground water quality. The goal of the statewide ground water quality monitoring effort is to maintain and modify as necessary ground water quality monitoring activities that regularly and systematically assess the present water quality, impact of agricultural chemicals on ground water, and long-term trends in water quality in sensitive aquifers.

The aquifers being monitored cover much of South Dakota and are among the most likely to be impacted by human activities because of their near-surface occurrence combined with overlying land use. Emphasis is placed on monitoring for health-related aspects of water quality and monitoring for non-point sources of ground water contamination. Over the years, analytes have included pesticides, pesticide transformation products, nitrate plus nitrite as nitrogen, common inorganic constituents, volatile organic compounds, radionuclides, cyanide, and trace metals.

METHODS

Monitoring sites are located away from known point sources of pollution, such as animal feeding areas, septic tanks, and underground storage tanks. Whenever possible, monitoring sites were placed in portions of aquifers that were thick enough to allow for installation of two wells whose screened intervals do not overlap vertically. Prior water quality investigations Geological Survey Program had indicated that water quality varied vertically within shallow aquifers.

Each well in the Network has a dedicated submersible pump used for development and sampling of the well. During a sampling event, water within a monitoring well is evacuated through the pumping system. During the evacuation of wells completed in sediments that are of moderate to high hydraulic

conductivity, temperature, pH, and electrical conductivity are measured until they have stabilized. Wells are considered to have stabilized after three consecutive readings taken 5 minutes apart indicate constant temperature, pH, and electrical conductivity. After stabilization and a minimum of 3 well volumes of water have been evacuated, a sample is collected.

All wells in the statewide ground water quality monitoring network are currently subject to sampling once every other year. An attempt is made to sample each well as close to the same time each year as possible. Samples collected on a biannual basis are analyzed for pesticides and common inorganic parameters. Trace metals, radionuclides, and cyanide analyses are currently performed once every five years. Volatile organic compounds are also analyzed once every five years but in only about 25 percent of the wells in an aquifer.

RESULTS

It would be hard to summarize all of the data collected over several decades from over a hundred wells in an exhaustive monograph, let alone in a short, two-page article. Interested readers can track down specifics about a particular aquifer or well at the contacts listed below. However, a few highlights can be discussed.

METALS

Water samples are tested for a variety of metallic elements, although very few were found present over established limits, or maximum contaminant level (MCL). Selenium exceeded the MCL (50 micrograms per liter) just five (5) times, all in the Cow Creek Aquifer in southern Potter County. Elevated lead (>MCL) was detected in two separate samples from the Big Sioux Aquifer. Elevated arsenic was found in a range of aquifers across the eastern part of the state, exceeding the MCL in 46 of 410 samples tested. None of these detections have been associated with a specific human health problem.

NITRATES

Elevated nitrate concentrations are a common occurrence in shallow aquifers in South Dakota. Of the twenty (20) east river aquifers in the Network, all but five (5) had at least one sample that exceeded the MCL (10 milligrams per liter). In many instances, levels were detected well more than the MCL, although most of these samples were collected from the shallow/water table well at paired sites. In many cases, rising overall trends in nitrate concentrations have been detected in the Network.

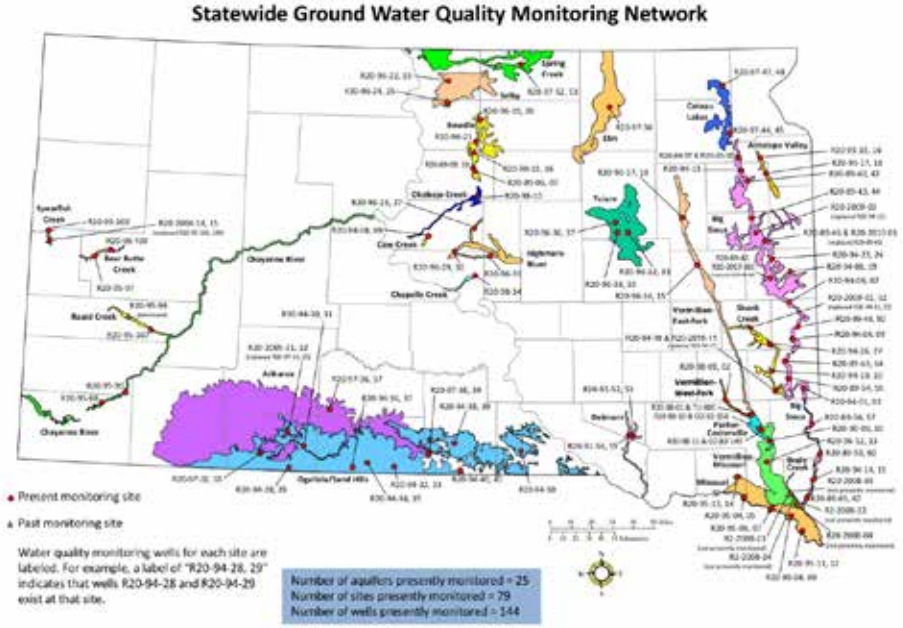
PESTICIDES

Samples have been analyzed for a wide range of pesticides, and while there are occasional detections, most are below the MCL. Atrazine and degradation product desethyl atrazine have been most frequently detected, occurring in about five percent (5%) of analyses. In most instances, detections have been reasonably transient. Re-sampling a site with a discovery most often results in a non-detect.

TO LEARN MORE:

The Geological Survey Program maintains a web page dedicated to the Network, which contains maps of the aquifers and well locations, and contact information for the lead investigator. www.sdgs.usd.edu/currentprojects/sgwqmn.aspx

Aquifers and Monitoring Sites in the Statewide Ground Water Quality Monitoring Network



BROOKINGS-DEUEL RURAL WATER SYSTEM

"Rural water is the greatest thing to come along since the rural electric and telephone." That's what one original customer of the Brookings-Deuel Rural Water System said after being hooked up to rural water in the early 1970s.

The need for a better water supply was first discussed around kitchen tables of local farmers – people working together to solve a common problem: a lack of quality water in area wells. Many wells were very high in iron (causing rust stains in laundry and sinks), manganese (causing dark stains), and nitrates from fertilizers and septic systems. It was very common on farms and in towns for people to have a cistern and pay to have water hauled in to fill them.

Brookings-Deuel started as a steering committee in 1972. In 1973, DeWild Grant Reckert and Associates (DGR) was hired as Brookings-Deuel's engineering firm, and the company still serves the system today. Brookings-Deuel RWS was incorporated in 1974, and a 16 member board was created. Today the system has a seven-member board. The original system was built in two phases – Phase I was the south end of the system, constructed in 1976, and Phase II was the north end of the system, constructed in 1977. 1978 marked the first year of full production.

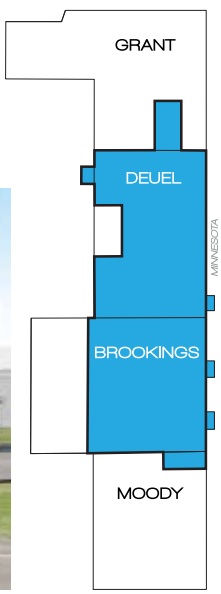
The original system consisted of about 1,000 hook-ups and 800 miles of pipeline. There was 150,000 gallons of storage. Over the years, system growth has been steady. The system now serves 2,600 customers, maintains 1,500 miles of pipeline and has 2.7 million gallons of water storage in tanks and towers throughout the system. All 13 towns located within the system's borders are now hooked up to Brookings-Deuel. Water systems were installed in Goodwin, Altamont and Labolt as part of Phase II construction, and the rest of the towns have hooked on one at a time, with Astoria being the last town to hook up in 2006. Livestock demand has always been an important part of the system. Rural water has allowed many livestock operations to grow with the access to more volume. Besides normal livestock usage, Brookings-Deuel RWS also serves eight commercial dairies and two colonies that have turkey and swine operations. With the exception of normal ongoing expansion, there were larger user expansion projects in 1982, 1984, 1992 and 2006.

Brookings-Deuel RWS has two well fields. One is the Clear Lake plant north of Clear Lake, and the other is the Joint Wellfield north of Bruce. Generally, the Clear Lake plant serves the north half of the system and the Joint Wellfield serves the south half

BROOKINGS-DEUEL RURAL WATER SYSTEM

of the system. Both plants have pressure filters for removal of iron and manganese. The Clear Lake plant's maximum capacity is 1.6 million gallons per day (MGD) and the Joint Wellfield's capacity is 3.8MGD. The Joint Wellfield is unique in the fact that Brookings-Deuel RWS owns it jointly with Kingbrook RWS. Both systems were being constructed around the same time and the partnership has been in place since day one. The Joint Wellfield is a separate entity and has its own board of directors consisting of three directors from each system. Brookings-Deuel administers the day-to-day operations at the Joint Wellfield.

BD RURAL WATER SYSTEM



DIRECTORS:

Doug Feten, Chairman

Clark Rogness, Vice Chairman

Scott Brandenburger, Secretary

Harold Haber, Treasurer

Gary Johnson, SA Director

STAFF:

Gene Wilts, Manager

Lenny Faehnrich, Operator II

Jesse Christianson, Operator II

Joshua Rogness, Operator II

Lyle Skorseth, Operator II

STATISTICS:

Hookups: 2,550

Miles of Pipeline: 1,500

Water Source: Wells

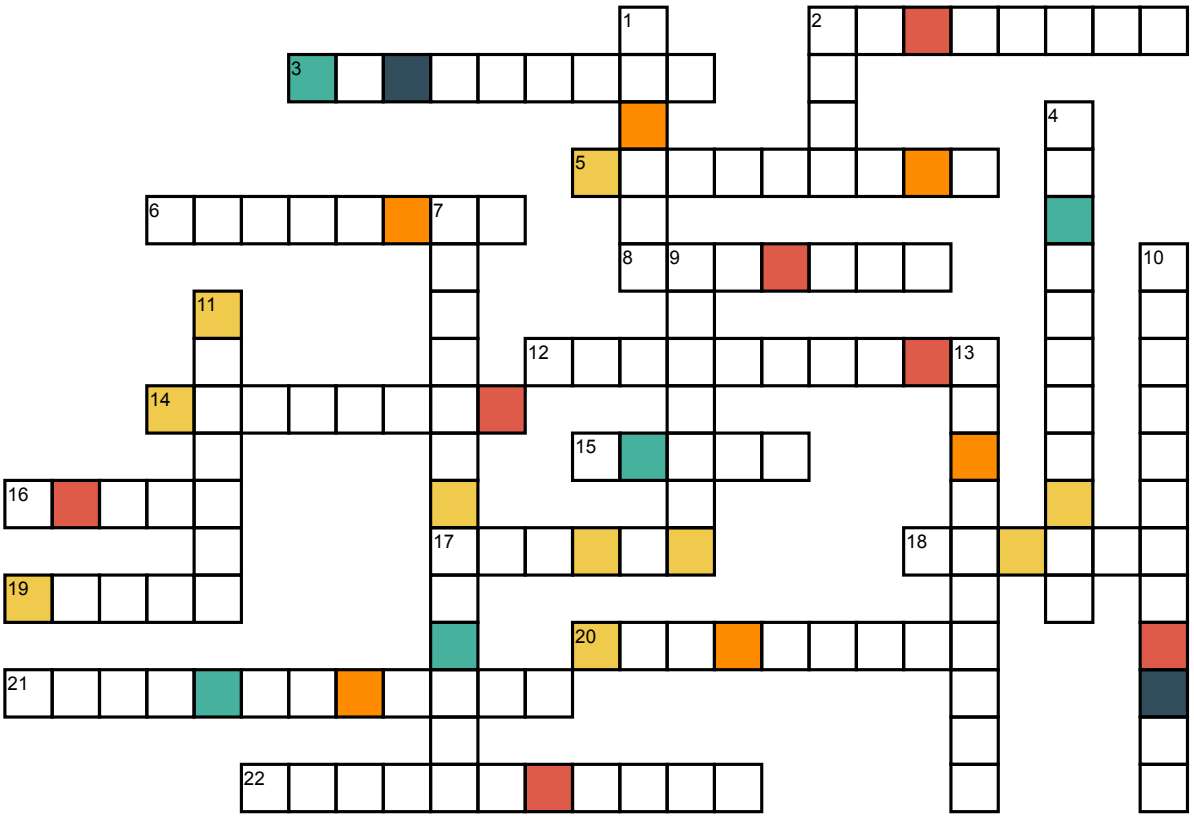
Counties Served: Brookings, Deuel, and portions of Grant, Moody, and Lincoln (MN)

Towns Served Individual: Revillo, Brandt, Astoria, Toronto, LaBolt, Bruce, Goodwin, Altamont, Bushnell

Towns Served Bulk: White, Elkton, Gary, Clear Lake

RURAL WATER CROSSWORD & WORD SCRAMBLE CONTEST

Earth's Fresh Water



WORD BANK

- ☐ brackish
- ☐ condensation
- ☐ confluence
- ☐ divide
- ☐ estuary
- ☐ evaporation
- ☐ floods
- ☐ ground water
- ☐ hydrologic
- ☐ limnology
- ☐ marshes
- ☐ mouth
- ☐ permeability
- ☐ ponds
- ☐ porosity
- ☐ reservoir
- ☐ rivers
- ☐ streams
- ☐ sublimate
- ☐ swamp
- ☐ well
- ☐ wetlands
- ☐ transpiration

ACROSS

2. Lands that are wet for significant periods of time
3. A storage location for water such as an ocean, glacier, pond
5. The study of bodies of fresh water and the organisms that live there
6. Amount of space between grains
8. Where the stream meets the ocean or lake
12. The cycle of water movement around Earth's surface
14. Water that has more salt than fresh water but less than sea water
15. A wetland with lush trees and vines found in a low-laying area beside slow-moving rivers
16. Point at which a stream comes into a large body of water
17. The largest types of streams
18. Usually occurs when precipitation falls more quickly than water can be absorbed into the ground or carried away by rivers or streams
19. Small bodies of fresh water that usually have no outlet
20. Solid changing directly into gas
21. Ability of water to flow through the pores
22. The largest reservoir of liquid fresh water on Earth

DOWN

1. A topographically high area that separates different water basins
2. Created by digging or drilling to reach groundwater
4. Change from a liquid to a gas
7. Process in which plants release large amounts of water into the air.
9. Bodies of water that have a current and are in constant motion
10. Change from a gas into a liquid
11. Shallow wetlands around lakes, streams, or the ocean where grasses and reeds are common
13. Where two streams come together

SCRAMBLE ANSWER

RULES: Use the colored squares in the puzzle to solve the word scramble above. Call your Rural Water System (See page 2 for contact information) or **enter online at www.sdarws.com/crossword.html** with the correct phrase by July 13th, 2018 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 Neal McIntyre who had the correct phrase of "ONLY FOOLS RUSH IN" for April 2018.

SDARWS HIRES NEW EXECUTIVE DIRECTOR

KURT PFEIFLE
SDARWS Executive Director

The Board of Directors for the South Dakota Association of Rural Water Systems welcomes Kurt Pfeifle as its new Executive Director. He replaces Dennis Davis who retired this past April after 39 years with the Association.

Pfeifle comes to the Association with 31 years of water management experience. He was the manager of the West-River Lyman/Jones Rural Water System from 1986 to 1991, after which he managed the Mid-Dakota Rural Water System for the past 25 years.

"Kurt's background and familiarity with the key functions of the SDARWS mission will have an immediate impact on the service we provide to all of the rural water users in South Dakota, said Ron Gillen, SDARWS Board Chairman. "I look forward to helping him as we keep moving forward. He truly is an asset we should build on."

After attending business school for one year at National College of Business, Pfeifle received his degree from Mitchell Technical Institute. Throughout his tenure, he has been a member of the South Dakota National Guard (13 years), Murdo City Council, and Miller School Board. Pfeifle was appointed and served five years on the Board of Commissioners for the South Dakota Housing Development Authority, and served on the South Dakota One Call Board as a representative for rural water systems.

The South Dakota Association of Rural Water Systems is a membership organization headquartered in Madison, SD with a satellite office in Spearfish. For over 40 years, SDARWS has been well-respected for the high-quality training, services, publications and advocacy they provide their water and wastewater members in South Dakota. The association employs 12 individuals and trains hundreds of individuals in all aspects of water and wastewater management through workshops, training classes, and conferences. SDARWS also produce the consumer magazine, *Quality on Tap!* which is a cooperative effort between 17 rural water systems and the Association and reaches over 38,000 rural water households throughout the state. They also support research programs like the Regional Water Research Consortium and the Water & Environmental Engineering Research Center and are committed to the long-term sustainability of rural water systems. They have also lobbied successfully against sales taxes on water and other pertinent issues while also supporting issues that are important to rural water systems such as the railroad bill, battling the Corps of Engineers over water rights, and supporting continued funding of the state Water Omnibus bill.

Mid-Dakota Rural Water System

Annual Water Quality Report

January 1, 2017 - December 31, 2017

Water Quality

Last year, the Mid-Dakota Rural Water monitored your drinking water for possible contaminants. This report is 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 more than 6,023 customer accounts, or a population greater than 32,000, an average of 5,189,000 gallons of water per day. We get our water from the Oahe Dam on the Missouri River which is a surface water source. The state has performed an assessment of our source water and they have determined that the relative susceptibility rating for the Mid-Dakota Rural Water public water supply system is medium.

For more information about your water and information on opportunities to participate in public meetings, call (605) 945-0437 and ask for Bill Sarringar.

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. Food & Drug Administration 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 EPA Safe Drinking Water Hotline at 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/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants can be obtained by calling the EPA Safe Drinking Water Hotline at 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 Mid-Dakota Rural Water 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 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 Water Quality Test Results

2017 Table of Detected Contaminants for Mid-Dakota Rural Water (EPA ID 2175)

Substance	90% Level	Test Sites > Action Level	Date Tested	Highest Level Allowed (AL)	Ideal Goal	Units	Major Sources of Contaminant
Copper	0.5	0	07/26/16	AL=1.3	0	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead	2	0	07/29/16	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 Sources of Contaminant
Alpha Emitters	4	ND - 4	09/27/16	15	0	pCi/l	Erosion of natural deposits.
Antimony	0.4		03/19/13	6	6	ppb	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
Arsenic	3		03/19/13	10	NA	ppb	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	0.042		03/19/13	2	2	ppm	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Chromium	1.6		03/19/13	100	100	ppb	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	0.5		10/27/17	4	4	ppm	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Haloacetic Acids	23.6	16.1-27.2	11/29/17	60	0	ppb	By-product of drinking water chlorination. Results are reported as a running annual average of test results.
Nitrate (as Nitrogen)	0.3		03/24/17	10	10	ppm	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Selenium	1.4		03/19/13	50	50	ppb	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Total Trihalomethanes	40.33	32.3-45.0	11/29/17	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. Bill Sarringar with the Mid-Dakota public water system at (605) 945-0437.

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)

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WATER MATTERS

Nitrates in Well Water (part 1)

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

WHAT IS NITRATE?

Nitrate (NO_3) is a naturally occurring chemical made of nitrogen and oxygen. Nitrate is found in air, soil, water, and plants. Much of the nitrate in our environment comes from decomposition of plants and animal wastes. People also add nitrate to the environment in the form of fertilizers.

HOW DOES NITRATE GET INTO WELL WATER?

Natural levels of nitrate in South Dakota ground water are usually quite low (less than 1 milligram per liter [mg/L] of nitrate-nitrogen). However, where sources of nitrate such as fertilizers, animal wastes, or human sewage are concentrated near the ground surface, nitrate may seep down and contaminate the ground water. Nitrate is highly soluble (it dissolves readily in water), so it tends to move with water flowing through the ground.

Wells most vulnerable to nitrate contamination include wells in shallow aquifers, dug wells with a casing which is not watertight, and wells with damaged, leaking casing or fittings. Presence of nitrate contamination of a well is often regarded as the first sign of deteriorating ground water quality.

HOW MUCH NITRATE IS TOO MUCH?

The federal drinking water standard for nitrate is 10 mg/L of nitrate-nitrogen, which provides newborns with reasonable protection against blue baby syndrome. This level is mandatory for all public water systems and strongly recommended for private wells.

HOW DO I KNOW IF MY WELL WATER HAS NITRATE?

Nitrate is tasteless, odorless, and colorless. To find out if there is nitrate in your water, have it tested by a qualified laboratory. Sampling material can be obtained from the South Dakota Department of Health at the following website: https://doh.sd.gov/lab/environmental/privatew.aspx

HOW OFTEN SHOULD I HAVE MY WELL TESTED FOR NITRATE?

If you have a non-public water supply, it's a good idea to have a routine nitrate test every two or three years, more frequently if nitrate has been detected in the previous sampling. State regulations require well drillers or owners to have a water sample tested for nitrate (and other things) when they construct a new well. After that, owners of private wells must arrange for their own water testing. You should also have your water tested for nitrate if you are a woman planning on becoming pregnant or if infants will be using the water.

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