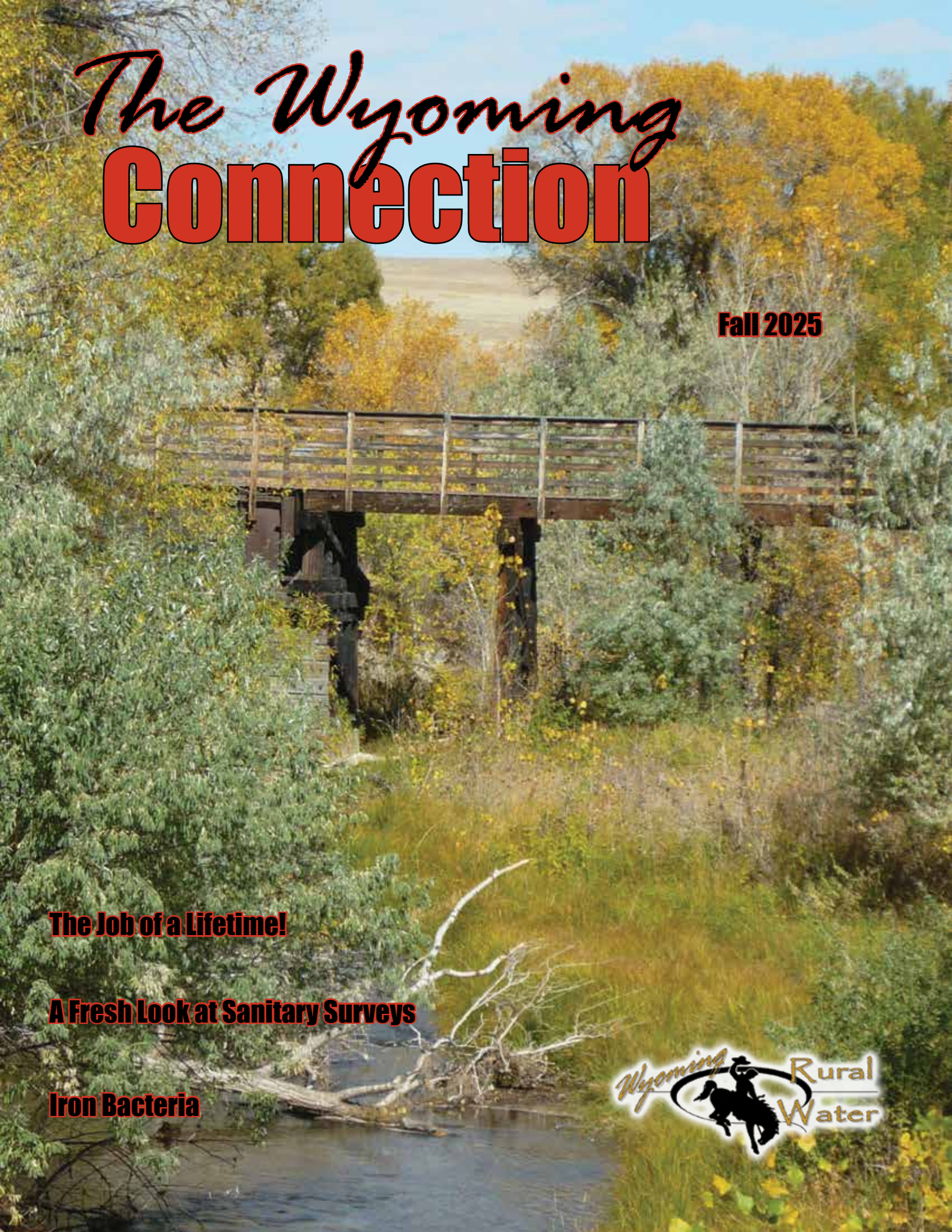
The Wyoming Connection

Fall 2025



The Job of a Lifetime!

A Fresh Look at Sanitary Surveys

Iron Bacteria

Wyoming Rural Water

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Articles, letters, and photos are welcome.
Submit to:
Wyoming Association of Rural Water Systems,
PO Box 1750, Glenrock WY 82637
"An equal opportunity provider"
(307) 436-8636 TDD 1-800-877-9965
e-mail: warws@warws.com
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Wyoming Rural Water

Contents and Features

The Association

Wyoming Association of Rural Water Systems is a non-profit association that provides on-site, one-on-one technical assistance and training to small municipalities under 10,000 population and all water and wastewater systems throughout the state. Equal Opportunity Provider.

Cover Photo – Deer Creek in Glenrock, WY. Photo by Mark Court

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To provide the assistance necessary to meet the needs of our membership and to ensure the protection of Wyoming's water ~ our most precious resource.

A Note From Mark Pepper

Executive Director
markp@warws.com
307-259-6903

The Job of a Lifetime!

I didn't know way back in late 2005 when I applied for the Executive Director position for WARWS that all of the aspects of my career would come together for a real career calling.

Many of you know my background, governmental accounting, auditing, budgeting and financial reporting to begin my career; then I moved on to food processing and agricultural concerns; then high tech venture capital, business coaching and start up counseling. All of that led to the last 20 years coaching elected officials on "the business of government", utility management, regulatory management and legislative temperament.

As I write this, I am but just a few short months away from stepping down from the day to day management of the Association. I'm looking forward to some long awaited personal trips and time to reflect, as well as weighing in when I want.

The last 20 years have been spent doing a lot of business traveling. I like to say, my job has been to travel around Wyoming and talk to people. I learned many years ago that lobbying was not a bad thing, all lobbying is, is educating people to your point of view. Isn't that what all of us do constantly, every day!!

I have always "commuted" to where I worked. My first 4+ years here in Wyoming after college graduation, the commute was pretty local. The next 6 years, the job site and our home were about 20 miles apart, so a 40 mile daily commute. Then came Nevada and a 55 mile one way commute for 7+ years. The next 7 years were in Texas, and the commutes were about 35 miles each way in heavy urban traffic.

The last 20+ have been back in Wyoming commuting 25 miles each way to the office but also racking up about 20,000 miles a year traveling the roads of Wyoming.

I don't know how many miles that all is, but in Early August, at dusk, on a back road from Clearmont to Sheridan, I got my first deer. 50+ years of driving; countless miles and my first accident. The car was driveable and got me to Sheridan for a meeting the next morning and then back to Casper, albeit without A/C, it was hot. 3 weeks and only $4,000 and it looks almost good as new and back to miles on the road.

WARWSDOKU

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The objective is to fill in the empty squares so each row, each column, and each 3x3 block contains the numbers 1-9 with no repeats.

I have met many people over the years, and I've enjoyed talking to most of them. 3 Governor's have appointed me to task forces, committees, commissions and work groups. A couple of them found our Association office as a good stopping point on their travels. Several times on a Monday morning or a Friday afternoon, they would stop in to check in and get caught up on utility issues.

I've been fortunate to meet and work with real statesman; Sen. Thomas, Sen. Enzi, Sen. Barrasso, Sen. Lummis (Congressman Lummis), Congressman Cubin, Congressman Cheney and Congressman Hageman. Many of them I had met and worked with before their time of service, so it was easy to rekindle friendships and working relationships. Wyoming has been and is fortunate, all of our federal legislators really do have Wyoming's interests at heart and do fight for us.

You may not believe that, but they are only 3 votes against 532 others, if all the others want to gang up on Wyoming like they did years ago on abandoned mine land funds, it's like an old anniversary card I found years ago. A grizzled biker, his gal riding on a motorcycle, the caption said, "It's me and you against the world honey and I'm glad I have you!" When you opened it up, the inside said, "cause I think we're going

to get creamed!!" We have a very powerful group fighting for us and I'm really glad I got to know them and work with them and their staff!! They have provided me with the opportunity to visit the White House, attend the State of the Union address, as well as testify in front of their committees on several occasions.

When I moved back from Texas, I was astounded to find out that a lot of my high school classmates or those from other schools in Wyoming I ran around with or competed against (remember, small town with long streets) were now State Reps, State Senators, Statewide electees, agency heads and I thought, oh crap, who would have thought we would be in charge!! I can assure you several high school principals, teachers and classmate's parents would not have believed it and would have feared for the survival of our great state.

Rural Water is a collection of 50 state affiliates of the National Rural Water Association began in the mid 70's to provide technical assistance to public utilities enabling them to maintain their infrastructure investments and always providing "Quality on Tap" utility services to their customers. I have 49 other state ED's who I know by name, phone number and can honestly call them my friends. Several have retired like I am getting ready to do, but we still call and meet up for a few days here and there. We are getting quite an alumni group as we all age. Their replacements have filled big shoes, and they are doing fantastic work. Rural Water is in good hands.

I could write for days about the work we have all done in working for good clean affordable drinking water and the myriad of behind the scenes discussions, arguments, late night edits, side of the road phone calls... I know many people do not think we have good laws or regulations in some cases. But when you work behind the scenes and understand the numerous issues, myriad of machinations, compromises that need to take place, it is humbling and gratifying at the outcome.

Whenever I would travel to Washington DC, I would be sad that every resident and student from Wyoming did not have the opportunity to stand where I have stood, have the discussions I have had…… the "business of government" is a great gig, but not every American understands it or gets involved enough to know how decisions are made and how it affects us all.

Standing in the West Wing or the Oval Office, being in the Speakers' Office in the Capital or meeting with a Secretary at their Cabinet Office or attending the State of the Union address gives one pause. I have tried to take it all in. I know those moments are few and far between and not everyone is afforded the opportunity. I just hope I made Rural Water and Wyoming proud in those moments.

I believe Thomas Jefferson once said that the absolute fear of government is a literate electorate. I encourage you to get involved, truly understand the proposals and effect of government decisions, learn and understand the "business of government". I joke a lot about my job, "legislators generally shoot at the few and hit the many!!" There are always unintended consequences and what may seem to be a good idea now, will always come back to bite you in the ass, to which the legislator will remark, "I didn't think that would happen, we need to fix that!!" The fix may be worse!!

I am not going away, just slowing and letting someone else take the reins and move the association forward. Sir Richard Branson once remarked when he was asked about retirement and when would he retire and sit on his private island? His answer spoke to me about retirement, he answered, he thought retirement would be a complete waste of everything he had learned!! Mike Dell once said when he was asked why he still worked (worth billions at the time, billions more now) and his answer was, I quit working when I was 25, this is just what I do!! I like those concepts.

I will probably still be traveling around Wyoming and talking to people, trying to impart what I have learned along the way, it's just what I do. Mr. P.

A Note From
Brian Linton
Circuit Rider
brian.linton@warws.com
307-349-4756

A Fresh Look at Sanitary Surveys

As water operators, we're all familiar with the **Sanitary Survey requirement from the EPA**. Before stepping into my role as a Circuit Rider, I had my fair share of surveys conducted by both EPA representatives and contract personnel. Now, as a Circuit Rider, I've been able to observe the process from a more neutral standpoint—sometimes with a contract surveyor, other times with an EPA employee.

From this perspective, it's been interesting to watch how the process actually works and what areas are reviewed. Many operators may view the EPA as a heavy-handed enforcer, showing up with a "big hammer" to catch every little mistake. That mindset often leads to dreaded thoughts of: "What are they going to find this time?"

I'd like to help shift that perspective. After sitting in on several surveys, it's clear that the EPA's main focus is not to make your life difficult. Rather, they are looking for **major risks to safe drinking water**—such as defects in design, operation, or maintenance, or failures in sources, treatment, storage, or distribution that could introduce contamination into the public water supply.

The Process
In the past, surveys were documented in a lengthy template—like the **2025 Wyoming Sanitary Survey**, which runs 105 pages. Today, the process is far more streamlined with tools like the **Survey123 app**, which makes it more organized and efficient for both surveyors and operators.

If your system has had s**ignificant deficiencies** noted in a prior survey, those will be the first items checked. If you haven't fully corrected them yet, be honest and provide documentation of your progress—photos, schedules, or written plans can go a long way in showing your efforts.

It's also important to notify the surveyor of any **changes in source water or treatment processes**. Keep your **contact information and personnel updates** current (including board/council members and operators) and have a **system site plan** ready to share.

Key Areas of Interest
The survey form covers both groundwater and surface water systems. A few of the most common areas of focus include:

- Chlorine sampling procedures and safety equipment
- Current inspection certifications
- System maps
- Water main disinfection protocols
- Cross-connection/backflow prevention plans and annual testing of devices
- OSHA training
- O&M manual and ERP (Emergency Response Plan)
- WARN membership and technical assistance resources
- Water system budget
- Sample siting plans (RTCR, Lead/Copper, Groundwater, Surface Water)
- System records and calibration logs

Preparing Your System
When the time comes for the on-site visit, make sure you have keys and access to all facilities. Combination locks can fail in bad weather, and codes are sometimes updated without notice—leading to frustrating delays.

Ahead of time, walk through your system with a "surveyor's eyes." Simple tasks like mowing or trimming around wellheads, gates, and doors can make inspections smoother. Consider whether system components are vulnerable to vehicle collisions—if so, install barricades.

Other details that often trip operators up:

- Ensure 24-mesh screens are secure and in good condition – if required.
- Check that bolts on wellhead covers are tight.
- Prevent pests or animals from accessing tanks and wells.

- Calibrate turbidimeters quarterly and verify your methods.

- Replace faulty or inaccurate pressure gauges.

One of the most common deficiency areas involves vent screens:

- Downturned vents should be at least 24” above the roof (or 8” if indoors).

- Non-downturned vents must have a solid cover at the bottom of the screen and be at least 8” above the roof surface.

- All vents should have secure screens to discourage tampering or vandalism.

Final Thoughts

A sanitary survey is not going to be all flowers and sunshine, but it also shouldn’t feel like a punishment. Instead, see it as an opportunity to look at your system from another perspective—a chance to identify vulnerabilities, strengthen your operations, and ultimately continue providing safe, high-quality drinking water to your community. Above all else, communications with the surveyor can go along way!

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https://www.epa.gov/system/files/documents/2025-03/2025-wy-sanitary-survey-template.pdf

A Note From
Michelle Christopher
Source Water Specialist
mchristopher@warws.com
307-259-8239

Iron Bacteria

We've all seen it – the orange slime oozing from a seep along a mountain stream, orange sludge clogging a well screen or the rusty chunks that a customer brings when they want to lodge a complaint. Iron bacteria is the bane of many water systems, causing maintenance nightmares and customer complaints. So – what is iron bacteria, where does it come from, can it be prevented, and once it gets into a system, is there any hope?

Iron bacteria is a group of aerobic bacteria that utilizes iron and manganese as its energy source. They can thrive in water with as low concentrations of iron as 0.1 mg/L. Because they are aerobic, they do need dissolved oxygen available, at least 0.3 mg/L. Common genus of iron bacteria include Gallionella, Sphaerotilus, Leptothrix, and Crenothrix. Each genus is identified by their distinctive morphologies. Gallionella forms twisted, ribbon-like stalks while Crenothrix are filamentous bacteria that form mat-like slimes.

These bacteria prefer the transition zone where de-oxygenated water flows into an aerobic environment. (Think where groundwater flows into a well, tank or is introduced to oxygen in some manner.) They also prefer a neutral-ish pH, between 6.5 and 7.5. In these conditions, the bacteria precipitate iron from its dissolved state to a solid one, forming mats, clumps and tubercles. These iron precipitates then show up in the distribution system as stains on fixtures, clothing, hair, taste and odor issues, and reduced capacity in ductile iron mains.

Iron bacteria are found in the soil, so they can be present in both ground and surface water. Aquifers that are high in iron are particularly susceptible to iron bacteria contamination. Areas with high iron content in the soil such as iron ore deposits or coal mines (sorry Wyoming) are more likely to have iron bacteria in the water. Iron bacteria can enter a well during construction, particularly if the casing or drop pipe is placed on the ground during construction. Anything going down hole should be disinfected, as well as disinfecting the well before it is placed into service, and after any repairs or maintenance is done. Following standards like the Wyoming State Engineer's Minimum Well Construction Standards can prevent contamination during construction. These standards include requiring potable water for drilling, capping the well casing and extending the casing a minimum of 18" above the ground surface.

The good news is that iron bacteria by themselves are not pathogenic. They aren't going to make you or your customers sick. The bad news is they do create an environment that supports the growth of pathogenic bacteria like e.coli. This environment also supports corrosion, reducing the service life of pumps, water mains and other appurtenances of the distribution system. Regardless of whether iron bacteria are going to make your customers sick, they are going to make the water look and smell unsafe. Since we're in the business of producing Quality on Tap! Drinking water, managing iron bacteria becomes a best management practice.

Prior to installing treatment for iron bacteria, it is critical to test the water so you know the extent of the problem. While there are tell-tale signs of iron bacteria contamination (stains, slimy coatings, taste and odor), laboratory tests can give the concentration of iron in the water and the concentration and species of bacteria. Knowing these parameters will help you set up a successful treatment plan.

When testing iron, it's important to test for both ferrous and ferric iron. Ferrous iron is dissolved iron, and ferric iron is in its solid state, presumably oxidized by iron bacteria. If you call up your favorite lab, make sure you specify that you need to test for both dissolved and solid iron, so they send you the appropriate bottles and preservatives. Take appropriate safety precautions when handling these preservatives; I have the burn scars to prove that they are serious! Iron bacteria can be tested through microscopic examination or

culture methods. One method is the BART (Biological Activity Reaction Test) test. This test allows you to test for iron related bacteria, as well as sulfur reducing bacteria. Once the sample is added to the test media, different reactions begin to occur. Each reaction (gas formation, clouding, slime formation or color changes) indicates different species of bacteria, as well as risk potential.

Once you know the severity of the contamination problem, you can start treatment. Disinfection with chlorine is the most common treatment. Use of other chemicals such as hydrogen peroxide, surfactants or acid may also be used. In severely contaminated wells, shock chlorination may not be effective on the first try but appear to make the water quality worse because of the removal of the iron slimes. Wells with extreme iron bacteria issues may benefit from first using a mechanical method like brush and bail, sonic or shooting to remove the large encrustations. If a mechanical method is used, contact a licensed well driller to perform this activity.

Once the mechanical cleaning is complete, the well should be flushed to remove any remaining debris which may interfere with the disinfection process. Shock chlorination of the well should be done at a level of 200 mg/L of chlorine. Missouri Rural Water has a great well disinfection calculator: https://moruralwater.org/water-tools-files/tool_wcdfc.php. Follow AWWA C654-14 Disinfection of wells https://wilsonengineering.com/media/55664/app-c-awwa-c654-13-disinfection-of-wells.pdf.

After the initial treatment, routine maintenance must be performed to prevent future iron bacteria growth. This includes routine chlorination, testing and flushing. You can also protect the groundwater source from future contamination by ensuring that your well is sealed adequately, has appropriate slope away from the well and that waste is properly disposed of, whether it be solid waste or septic.

Iron bacteria is a common challenge in our industry, and once it sets up shop in a system, it's difficult to eradicate. By ensuring that best practices and standards are followed during construction and routine maintenance occurs after, it can be reduced to a small problem. If you have questions about iron bacteria, or need guidance on treating it, give WARWS a call! We're here to help!

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We know a lot of WARWS members have personnel who travel, whether it's for training, conferences or site work. That's why we're excited to share a new travel perk just for you.

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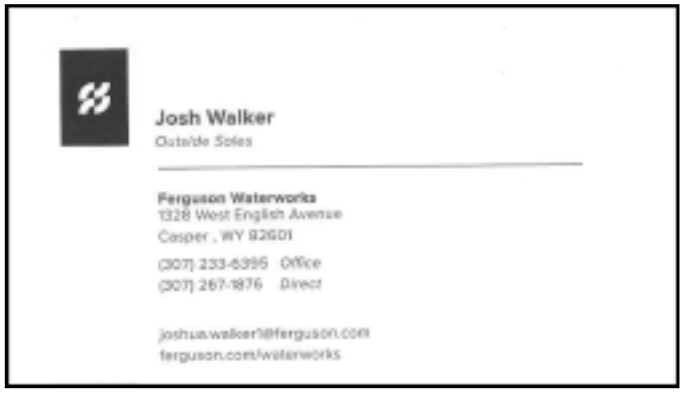

A Note From

Kathy Weinsaft

Training Specialist
kweinsaft@warws.com
307-262-3943

For What it is worth

I just celebrated my 68th birthday. 40 of those years I have been training water, wastewater and solid waste operators. It's been a great gig. I thought I might share some thoughts that I have picked up along the way.

Live a purpose-driven life- Picking up a paycheck is just not enough. Do work that matters. I believe that what you do matters a great deal, even though it often is not appreciated. You are providing clean drinking water, protecting rivers and aquifers and ensuring public health. That is a pretty big deal. When you understand why you are doing something the how becomes more meaningful.

Become an expert at something -It will give you confidence and change your life. When I was a baby planner I was called to the office of the Director of Missouri Department of Resources. The Director asked me a solid waste question that I did not know the answer to. He became red faced and screamed at me that it was my job to know. It was the best piece of advice I ever got. It is your job to know about your system and water issues.

Speak truth to power - Speaking truth to power means having the courage to raise concerns, even when it's uncomfortable or risky. It means respectfully challenging decisions that compromise safety, sustainability, or compliance. It's not about being defiant, it's about being a professional who takes responsibility for the people and communities you serve. In our line of work, we don't deal in opinions — we deal in facts, science, and public safety. When something is wrong, whether it's a failing piece of infrastructure, unsafe water quality, or poor management decisions, someone must speak up. That someone might be you.

Professionalism isn't optional
This industry demands consistency, accountability and respect for the work. I often hear operators complain that they are not treated like professionals. Keep showing up and acting like a professional. When I got admitted to graduate school I just knew for sure that they had made a mistake. I decided that I would act like I was smart until someone found out I wasn't. If you act like a professional people will be more likely to treat you as one.

Master the basics and embrace the tech
Understand how systems work from the ground up. Learn the names of every valve, how to trace a process flow, and what every alarm means. Then, stay open to new tools: digital meters, remote sensors, AI-assisted data analysis. Technology won't replace you, but the operator who understands it will.

Be curious and keep learning
You will stagnate without curiosity. Your license is a foundation, not a finish line. There is never a day I don't learn something whether it is about water, wastewater, solid waste, my computer, my pugs or one of my many hobbies. Challenge yourself. Always ask questions. Read O & M manuals. Go to workshops and classes. Stay engaged. If you really want to learn something, teach a class about it.

Show up with integrity
Be on time. Do the job right even when no one is looking. Do more than is required. Own your mistakes. We all make them. Learn from them. This is how you build trust with your coworkers and gain credibility and respect.

Leave it better than you found it
Isn't that what we all really want to do? Have goals for your system and the profession. What would you like it to be for the next generation of operators? How can you improve the system you are working in? Document procedures. Suggest improvements. Train the next person. Mentor someone younger or newer than you. Watch and learn from someone who's been around.

So there you have it. It has taken me a career to come up with these basic truths, so take them for what they are worth. I am not leaving yet, and I am always here to help. Call me.

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Tanner Sorlie 605-430-2017

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Wade Hirschi, CPA, PC
Wade Hirschi (307) 885-1040

Water Unlimited, Inc.
Sean Crabtree 307-289-2505

WLC Engineering & Surveying
Jason Meyers 307-266-2524

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Liberty Blain 307-632-5656

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Cavin Noddings 406-633-2316

Zenner USA
Bernard Nance 972-386-6611 x125

The PFAS National Primary Drinking Water Regulation –

Questions and Answers

The EPA finalized a National Primary Drinking Water Regulation (NPDWR) for six per- and polyfluoroalkyl substances (PFAS) on April 26, 2024:

1. perfluorooctanoic acid (PFOA),
2. perfluorooctane sulfonic acid (PFOS),
3. perfluorohexane sulfonic acid (PFHxS),
4. perfluorononanoic acid (PFNA),
5. hexafluoropropylene oxide dimer acid (HFPO-DA, commonly known as GenX Chemicals), and
6. perfluorobutane sulfonic acid (PFBS).

Exposure to PFAS in drinking water over a long time can cause negative health effects including thyroid disruption, certain cancers, elevated cholesterol, and immune disfunction. Sensitive subpopulations include pregnant women and developing babies. This rule will prevent thousands of deaths and reduce tens of thousands of serious PFAS-attributable illnesses.

Who is affected by this rule?

All community water systems and non-transient non-community water systems.

What are the deadlines?

The EPA will assign initial monitoring to your water system in 2026 so you can meet the April 26, 2027, deadline. Your February 2026 Monitoring and Reporting Requirements Report will communicate your monitoring schedule.

Compliance monitoring is required to begin April 26, 2027, and the monitoring frequency will depend on your initial monitoring results.

Compliance with the MCLs is due by April 26, 2029. The EPA announced in May 2025 it is looking into ways to provide more time for MCL compliance (see link to the announcement at the end of this article).

What are the MCLs?

The April 2024 rule establishes individual maximum contaminant levels (MCLs) for five chemicals, and a Hazard Index MCL for protection from mixtures for two or more of four chemicals when they occur together in drinking water (i.e. co-occur). EPA announced in May 2025 that it plans to retain the MCLs for PFOA and PFOS (see link to the announcement at the end of this article).

Chemical	MCL
PFOA	4.0 ppt
PFOS	4.0 ppt
PFHxS	10 ppt*
PFNA	10 ppt*
HFPO-DA (GenX chemicals)	10 ppt*
Mixtures of 2 or more of PFHxS, PFNA, HFPO-DA, and PFBS	Hazard Index of 1* (unitless)

* EPA has announced its intent to rescind the regulations and reconsider the regulatory determinations for PFHxS, PFNA, HFPO-DA (commonly known as GenX Chemicals), and the Hazard Index mixture of these three plus PFBS to ensure that the determinations and any resulting drinking water regulation follow the legal process laid out in the Safe Drinking Water Act. For more details, see the link to the announcement from May 2025 at the end of this article.

Where do I sample?

Sampling is required at all entry points to the distribution system (finished water). Each entry point may have a different monitoring schedule based on the source water type. System interconnections between a seller and purchaser are not required to be sampled.

What are the initial monitoring requirements?

Semiannual sampling is required by groundwater systems serving 10,000 or fewer persons. The two samples will be required five to seven months apart.

Quarterly samples collected two to four months apart are required for surface water systems, groundwater under the direct influence of surface water systems, groundwater systems serving more than 10,000 persons, and any entry point that blends surface water and groundwater.

What EPA analytical methods and laboratories are required?

For initial monitoring, the EPA has determined the following labs can be used. These labs must use EPA method 533, EPA method 537.1 version 1, or EPA method 537.1 version 2.

a. Laboratories EPA approved for the Fifth Unregulated Contaminant Monitoring Rule (UCMR5)
b. Laboratories certified by a state laboratory certifi-

cation program
c. National Environmental Laboratory Accreditation Program (NELAP) state accreditation programs that use the TNI standard – search for NELAP/TNI labs by method (533 or 537.1)

For compliance monitoring, laboratories must be certified by the EPA or the state and use EPA method 533 or EPA method 537.1 version 2.

Can previously acquired PFAS samples count towards the initial monitoring requirements?

Yes! Previously acquired PFAS sample results can partially or completely satisfy your initial monitoring requirements if certain conditions are met:

- Samples were collected in accordance with the Fifth Unregulated Contaminant Monitoring Rule (UCMR5)
- Samples were or are collected by other sample monitoring campaigns, like the Wyoming Department of Environmental Quality's (DEQ) PFAS in Drinking Water Monitoring Assistance Program, or the EPA Region 8's Tribal Emerging Contaminants Sampling Project
- Samples were collected using approved methods
- Samples were collected on or after January 1, 2019
- Sample collection meets the timing requirements for initial monitoring
- Most recent data from multiple years must be used
- EPA recommends that labs use one-third of the practical quantitation level (PQL) as the lower bound of their reporting systems.*

* A PQL is the lowest level at which a contaminant can be reliably quantified within specific limits of precision and accuracy during routine laboratory operating conditions using the approved methods. Note that samples collected prior to June 25, 2024, that were only analyzed down to the level of the MCLs are acceptable but would not qualify a system for reduced monitoring. To potentially qualify for reduced monitoring, samples must be analyzed down to half the MCLs or lower.

What are the best available technologies for treatment?

EPA does not specify or require how water systems must comply with the regulation, but the following technologies were identified as those that are capable of meeting the MCLs: granular activated carbon, anion exchange, and reverse osmosis/nanofiltration.

The EPA identifies feasible best available technologies based on factors such as high removal efficiency, reasonable cost, service life, and ability to achieve compliance.

How can I prepare for this rule?

During 2025, prepare for logistics and establish a budget. Each sample set is approximately $309. Become familiar with the rule by reviewing available fact sheets on the regulation website and quick reference guides on the implementation website. Begin planning for possible treatment upgrades, as needed.

What is the PFAS OUT initiative?

In May 2025, EPA announced planning for the new PFAS OUTreach initiative (PFAS OUT). Through PFAS OUT, the agency will initiate enhanced outreach to water systems known to need capital improvements to address PFAS, including those EPA has identified as having PFOA and PFOS levels above EPA's MCL. EPA will share resources, tools, funding, and technical assistance opportunities to help utilities address PFAS. PFAS OUT will ensure that no community is left behind as we work to protect public health and bring utilities into compliance with federal drinking water standards.

What technical and financial assistance resources are available?

WaterTA supports communities to identify water challenges, develop plans, build capacity (technical, managerial, and financial), and develop application materials to access water infrastructure funding. Complete the form to request technical assistance.

Wyoming's Emerging Contaminants in Drinking Water Grant can assist public water systems and private well owners address PFAS and other emerging contaminant-related issues in drinking water or source water. Eligible projects include monitoring, public outreach and education, source water planning, source water protection activities, planning and design, treatment, and others. Eligible entities can apply for subawards or WDEQ can conduct projects on behalf of eligible entities.

The Wyoming State Revolving Funds Program (SRF) provides funds to assist public entities with water infrastructure improvement projects. The Wyoming DEQ assists public water systems with the loan application process.

Additional programs and resources are available to local municipalities, Tribes, and communities, and additional financial resources are available. Please contact Karen Ward at ward.karen@epa.gov if you have questions about these assistance resources.

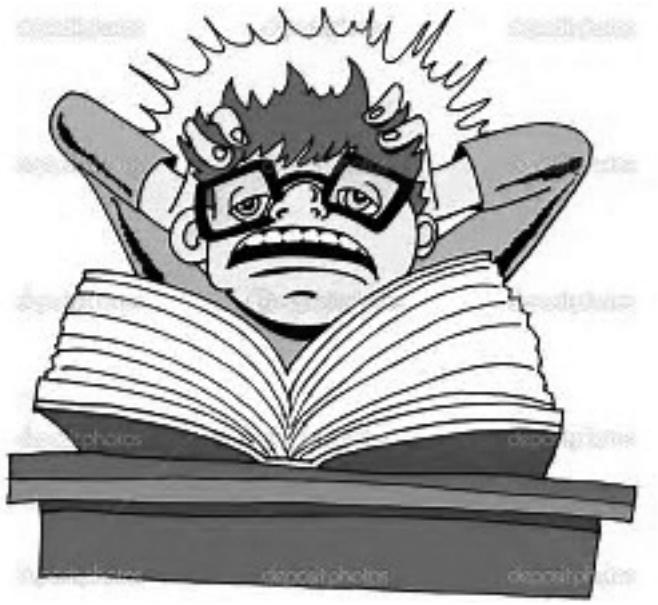
What if I have questions about the regulatory requirements or PFAS sample results I have already taken?

Contact Kendra Morrison at morrison.kendra@epa.gov or (303) 312-6145.

What is the link to EPA's May 2025 announcement about changes the agency intends to make to the PFAS NPDWR?

See "EPA Announces It Will Keep Maximum Contaminant Levels for PFOA, PFOS"

Operator's Corner



Water Questions by Michelle Christopher**:**

1. Where are air relief valves located?
    a. Next to check valves to eliminate or reduce surges
    b. On the discharge side of a well pump
    c. At the high points in transmission lines
    d. B and C

2. Pressure head can be described as ___.
    a. The amount of energy water possesses because of its elevation.
    b. The amount of energy due to velocity of flow.
    c. The vertical distance from point of measurement to the hydraulic grade line.
    d. The gauge pressure due to elevation or velocity.

3. Ammonia is an inorganic compound occurring ___.
    a. Predominantly from wastewater discharges.
    b. Predominantly from domestic or wild animals.
    c. Naturally or from domestic or wild animals.
    d. Naturally or from wastewater discharge, domestic or wild animals.

4. What are the chemical formula precipitates when chlorine is added to water containing iron and manganese?
    a. Fe(OH) and MnO
    b. $Fe(OH)_3$ and MnO_2
    c. $Fe(OH)_2$ and $Mn\ O_2$
    d. $Fe(OH)_3$ and MnO

5. Find the motor horsepower for a pump station with the following parameters:
Motor Efficiency: 88%
Pump Efficiency: 74%
Total Head (TH): 109 ft
Flow: 2.42 MGD
    a. 30 mhp
    b. 53 mhp
    c. 63 mhp
    d. 71 mhp

Answers

Water

1. D
2. C
3. D
4. B
5. D

1. Convert MGD to gpm

   Gpm= (2.42MGD)(= 1680.56 gpm

2. Formula: mhp=
3. = 71 mhp

RATES Program Results, Revisited

Carl Brown, President

GettingGreatRates.com

"RATES" is there to help your utility.

Rate Analysis and Training for Environmental Systems

"RATES" is a joint effort of eight rural water associations, including yours, and GettingGreatRates.com. GGR's forte is rate analysis. To leard about the RATES Program, visit: https://gettinggreatrates.com/. While there, download the "Rate Setting Best Practices Guide" from the Freebies page.

What is RATES, you ask? It is a two-part service program. The Association gives you lots of free help in rate setting and advice on basic financial and administration issues. When needed, I do rate analysis under the supervision of the Association. This article summarizes the rate analysis part.

Rate analysis is a fancy term for really detailed calculations. In my case those cover ten years. Analysis leads to fair and adequate rates, or as fair and adequate as you want your rates to be.

You pay a fee for those calculations and advice. The fee, which works like an investment, almost always generates a positive return on investment (ROI), in the form of extra rate revenue. Usually that extra revenue is needed to pay for expensive system improvements but hey, inflation happens, too. As you might view it, you get high enough rates and structure fairness comes along as a nice side benefit. (I view it the other way and the mathematical work of arriving at fair rates is definitely harder than that needed for high enough rates.)

Table 1 summarizes net revenue increases and ROI for my rate analyses since the inception of the RATES Programs. The easy-to-digest ratio is this. For each dollar invested in rate analysis (my fee), these utilities have or will net an additional $306, on average.

Table 1: RATES Results and Costs

$261,804,889	5-year Revenue Increase, All Utilities, All Programs
127	Number of Utilities Analyzed
1,428	Median Number of Connections per Utility
$6,788	Average Fee Paid per Utility, All Programs
$2,077,817	5-year Average Revenue Increase, per Utility, All Programs
30,612%	Average Five-year ROI per Utility
$306	Average Extra Revenue Resulting From Each Fee Dollar Paid

Return on Investment (ROI)

Wall Street can say, "We can get you a 100 percent ROI over five years." It cannot say, "We can get you a 30,600 percent ROI."

At its simplest, ROI is based on two factors: the revenue gain and the fee paid. I find my fees usually run 50 percent less than my comparable competition. (Sometimes it is a factor of two or three.) But even if you had to pay the higher fee, if that analyst could prove up the case for as much revenue gain as I do, your ROI from their service would still be crazy high. Keep that in mind when you reach the end of this article.

ROI is not always positive. A few analyses found that rates (rate revenues, really) needed to go down. Before you start thinking you are going to pay me money to tell you how to bring in less money, know this. Those clients where I recommended reductions were towns that have water and sewer service. One utility's rates were too high and needed to go down. The other utility's rates were too low and needed to go up. But for each of those towns there was or will be a net gain in total revenues, plus fairly structured rates for both utilities.

Why calculate the ROI over five years? Five years is about the shelf life of such financial and rate projections. By year five, conditions have usually changed enough that you should start over with a new analysis to account for the effects of those changes.

What kinds of utility rates were analyzed? Most were water and sewer, but seven were sanitation/trash collection and landfills, two were stormwater and three were electric.

What size utilities paid for an outside rate analysis?

- The median (middle) system size was 1,428 water connections, while the average customer count was 2,508.

- The largest was Manhattan, Kansas at 30,733 connections.

- The smallest was Public Wholesale Water Supply District #25 in Lawrence, Kansas at two connections. But that is misleading because the district wholesales to two large water districts.

- The smallest system that serves "retail" customers was Ranchos De Placitas, New Mexico at 91 connections. And they had me analyze their rates in 2014 and 2021.

- Forty-six of the 127 systems served less than 1,000 customers. Many of my strongest return on investment rate analyses were done for systems with fewer than 300 connections. It seems very small systems let their rates get dangerously too low before they "bite the bullet" and raise them. Sometimes they need outside help to accomplish that.

Table 2 shows returns by state. That deserves some explanation.

Kansas is the big "winner" for extra revenue, but then the Kansas Rural Water Association (KRWA) was the first association to take up the RATES Program effort. KRWA was active in rate setting and financial management assistance long before RATES came along. And KRWA may have the most member systems of all the rural water associations, so sheer numbers are on their side.

Table 2: RATES Results by State

State	Year RATES Started	Analyses Done	First 5 Years Revenue Increases		
			Total by State	Total per Utility	Average Annual per Utility
Arizona	2023	3	$9,659,429	$3,219,810	$643,962
Colorado	2017	10	$15,071,453	$1,507,145	$301,429
Kansas	2012	45	$107,725,184	$2,393,893	$478,779
Nevada	2022	0	$0	$0	$0
New Mexico	2013	7	$12,131,785	$1,733,112	$346,622
North Dakota	2013	0	$0	$0	$0
Virginia	2014	21	$49,159,215	$2,340,915	$468,183
Wyoming	2013	41	$68,057,822	$1,659,947	$331,989

Wyoming is the little engine that could. Though tiny in town count and population, Wyoming is a close second in rate analyses and revenue increase. Wyoming started RATES the year after Kansas, so the Wyoming Association of Rural Water Systems (WARWS) also has the time advantage. And WARWS has been a strong advocate for appropriate rates and strong finances for many years, too.

The two "zero" states also deserve discussion because they are not RATES "losers." Nevada recently started a RATES Program and then went through leadership changes for a couple of years – they had other things to deal with. North Dakota did join early, but there the Executive Director is an accomplished rate setting advisor (I consider him to be a protégé), so they simply have not needed my help. But I have been there, just in case.

Of interest to me, although my fewest clients (three) came from Arizona, the average annual revenue increase for those utilities was the highest of the states.

Take Home Messages

First, your association wants to see to it that all your needs for help are met. Some services they do directly. For others, they help you find and get service from an outside source. Rely on them either way.

Second, all utilities, including yours, need to raise rate revenues periodically. Occasionally they need a strong burst of new revenue – system improvements being the main driver of that. It can be difficult for folks inside the system to lead the charge for higher and restructured rates. Ratepayers can be skeptical of you trying to pry more money out of them. Think "deep state," because they are thinking that. Sometimes it helps to have an outsider "prove up the case" for higher and restructured rates and then the elected officials can appropriately follow their advice.

Third, I see my retirement not far down the road. If you think that having a supervised rate analysis service like "RATES" is a good thing, let the Association know. I am not the only rate analyst in the world. I like to think I am unique, but I can be replaced. And I think I should.

Set your rates appropriately and many things will fall into place.

Carl Brown is President of GettingGreatRates.com, which specializes in water, sewer, and other utility rate analysis. The firm serves as the RATES Program rate analyst for the Arizona, Colorado, Kansas, Nevada, New Mexico, North Dakota, Virginia, and Wyoming rural water associations. Contact: (573) 619-3411; Carl1@gettinggreatrates.com

A Note From

Randy Rumpler

Circuit Rider
randy.rumpler@warws.com
307-921-2844

Make Use of Your Wyoming Rural Water Circuit Riders and WYOWARN

After over fourteen months as a Circuit Rider, I have wondered why a few water systems operators will not meet with us or take the time to meet with us. We are here to help you, best of all we do this free of charge. If one of us is unable to answer the question, we will find out the answer to assist you. I have been unable to answer a question here or there, but was able to answer it after research or talking with my co-workers. Speaking for myself and my co-workers, we will not mislead you, but we will find the answer to assist you.

Here is what I am leading up too. A small town that I have tried several times to visit with the operators who would not take the time. They had a water transmission leak that put several homes without water for 8 days. They reported they were unable to locate the parts to make the repairs. They did get the pvc piping from another water system, but said they could not find the dresser. After having the dressers made, they got the water back on. Mind you they had to send out a water boil order, which was not filled out correctly. If they had contacted Wyoming Rural Water, we could have assisted in finding parts, helping with the boil order, we have a lot of resources available to us.

Another group that all water and wastewater systems should be members of is WYOWARN. This stands for Wyoming Water and Wastewater Agency Response Network and there is no cost to belong. This system is to assist other water and wastewater utilities to get help with equipment, manpower, and parts for natural or man-made disasters. This is a Mutual Aid Agreement that needs to be filled out and taken to your board or council to vote on and sign. It is an especially important program for all the water and wastewater systems to become members of. WYOWARN would have been a big assistance for the small town to be members of from the paragraph above. Please look up WYOWARN at www.wyowarn.org or go to Wyoming Rural Water web page. Wyoming Rural Water is the administrator for the WYOWARN program. For any questions, please call Wyoming Association of Rural Water Systems at (307)436-8636, or any of your friendly Circuit Riders or other rural water staff.

Please remember to visit with the Circuit Riders when they arrive at your system. I know that this is a very busy time of the year for all of you, especially if you are a one-person band or just one other employee. Remember, we are here to help!

Oven Barbeque Spareribs Sauce

By Randy Rumpler

This was my mother's recipe, which is one of my favorites to make and eat.

Recipe:

Three pounds of spareribs

Salt and pepper to taste.

One small onion chopped.

½ cup of brown sugar

3 tsp. of Worcestershire

1 cup of Ketchup

½ cup of water

Mix all ingredients together and pour over spare ribs. Cook in oven at 350 degrees for about 1 hour. Check meat temperature to make sure they are cooked completely. Sit down and enjoy!

Self Portrait

Scrawny Girl's Skillet Pizza – Another Sourdough Adventure

by Michelle Christopher

I blame social media for this recipe. I found it on a reel, curated by my unique algorithm of dad jokes, dogs, gardening and sourdough. When you enter the sourdough realm, you realize that if you're baking routinely enough to keep a sourdough starter happy, you will either have to open a bakery or go on insulin treatment. Enter the discard recipes.

My sourdough lives a life of general neglect in the recesses of my fridge, waiting for me to resurrect it into something creative. To bring sourdough back to life, it needs to be fed and allowed to expand. This is time and space consuming. If you simply add flour and water to your container, it may overflow and create a mess. Enter the discard. Prior to feeding your sourdough, you dump out a portion of it, creating space for the microbes to do their thing. You could just toss the discard starter or feel virtuous and flush it, adding to the microbiology of your septic tank. Or… you could turn that discard into a delicious meal!

Enter the skillet pizza. Great for any meal including breakfast, this delightful dish allows you to utilize both your sourdough discard as well as whatever is needing used in the refrigerator. Once the crust is set, you can add whatever sauce, meats and veggies sound good or are campaigning to leave the fridge. Then, add an egg and cover the whole thing with cheese. What's not to like?

Alright, let's get started. This is more of a process than a recipe, so bear with me. First, you will need a cast iron skillet. I have a delightful #5 cast iron skillet that I use for this. I will be giving all amounts in these directions around it. If you're using a larger one, like a #8, adjust your amounts accordingly. If you're struggling with adjusting those amounts, review water operator dosing math. It's basically the same thing. Also, I have no idea if a stainless-steel pan or heaven forbid, non-stick monstrosity will provide equal results. I'm not sure how to get rid of non-stick without worrying about potential ecological consequences, so maybe hide it next to that craft project you've ignored for the last five years and rescue a cast iron skillet from the secondhand store.

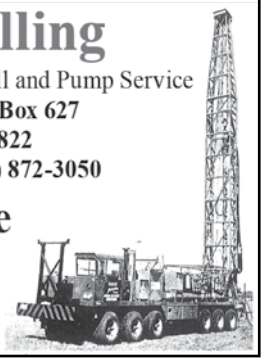
To make the crust, combine about a half cup of sourdough discard, ¼ teaspoon salt, 1 tablespoon of olive oil and enough water to make a thin batter. You also may have to add a bit of flour depending on what your discard looks like. You're looking for something like runny pancake batter.

Next, assemble the ingredients for the pizza. Once the crust is ready, things happen fast, so it's nice to be organized. (Says the girl who lives life in a find out manner…) First you need a sauce. Pizza sauce, pesto, and hollandaise are all decent options. Next, you need the toppings. Precooked sausage and bacon (because honestly, who has leftovers of these?), lunchmeat, pepperoni, and diced vegetables are all great options. The egg is optional (I use two for this sized skillet), the cheese is not. I also highly recommend topping it with pickled jalapenos.

Once you have everything organized and ready, preheat your skillet. Also, if you don't have a good season on your skillet, rub a little oil on it, but do not over grease it. When the skillet is hot, slowly pour the batter into the skillet over medium heat while rotating the skillet so that the batter coats the entire skillet and goes up the sides. The skillet should be hot enough so that the batter begins to bubble when it hits the skillet. Think many thin layers of batter and not one big thick layer. The crust may pull away from the sides of the skillet. If it does this, great! Turn the heat to

low and let the batter cook until it looks dry. At this point, spread the sauce over the crust, add the toppings and break the eggs over the toppings if you're using them. Put a lid on the skillet and let the eggs cook to your liking. When the eggs are nearly done, sprinkle grated cheese over the entire thing (measure with your heart) and add jalapenos if using.

To serve, loosen the pizza with a flexible spatula and slide it onto a plate. Slice it into halves, wedges, whatever and enjoy! I really think this could be made while camping over an open fire, but I haven't tried it out yet. Stay tuned…



Our Western Heritage

by Kathy Weinsaft

When the Aspens Turn and the Elk Bugle

After a frantic summer full of activity, it is time to take a breath. As summer's heat gives way to crisp mornings and that almost indescribably beautiful golden light, my favorite season of fall has arrived. Fall for me is more than a shift in weather, it's a time of reflection, reckoning and return. All those summer jobs that you had on your list that didn't quite get done, all those trips and hikes you were going to do that didn't happen can go back on the list for next year. It is time to slow down, enjoy Wyoming's beauty and listen for the bugling of elk.

You can hear those elk all over Wyoming, but for me, hearing and seeing them in Grand Teton is a totally Wyoming moment. With the Tetons as a background and those beautiful elk making that distinctive sound, well if that isn't heaven, I am not sure I want to go. I vividly remember the first time I saw a herd of Elk, with the males bugling. It was at Mammoth Hot Springs in the park. It was dawn and they were feeding on the lawn of the historic site.

That was in 1987. I was still living in Missouri, but I knew I was destined to become a Wyomingite. Those elks spoke directly to my soul.

Not alone had I not ever seen a herd of elk, I had never seen an aspen. While the oak and maple trees in Missouri are beautiful in the fall, in my opinion they cannot compare to the slender and graceful aspens. They seemed to shimmer in the breeze, their leaves fluttering and whispering in my ears. Between the elk and the aspens, I was a goner. It took me a few more years to get here, but from that first visit, there was no doubt in my mind, I had found where I was supposed to be.

So, today the huge cottonwood in front of my house is turning golden yellow and casting beautiful reflections across my yard. The elk and the trees mark not only the changing of the season, but evokes the very spirit of Wyoming. We are rooted and resilient. The transition from fall to winter is fleeting. It is a reminder to pause and witness the glory of nature before winter's stillness takes hold. Get out there and smell the crisp air, listen for the elk and enjoy the beauty.

It is, after all, part of our western heritage

USDA WATER & WASTE WATER DISPOSAL LOAN AND GRANT PROGRAM

Improve Your Facility

About the Program

This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.

Funding

Long-term, low-interest loan funding is available. If funds are available, a grant may be combined with a loan if necessary to keep user costs reasonable.

USE YOUR FUNDS TO FINANCE THE ACQUISTION, CONSTRUCTION, OR IMPROVEMENT OF:

01 Drinking water sourcing, treatment, storage, and distribution

02 Sewer collection, transmission, treatment, and disposal

03 Solid waste collection, disposal, and closure

04 Storm water collection, transmission, and disposal

05 Other related activities such as permits and legal fees

NRWA

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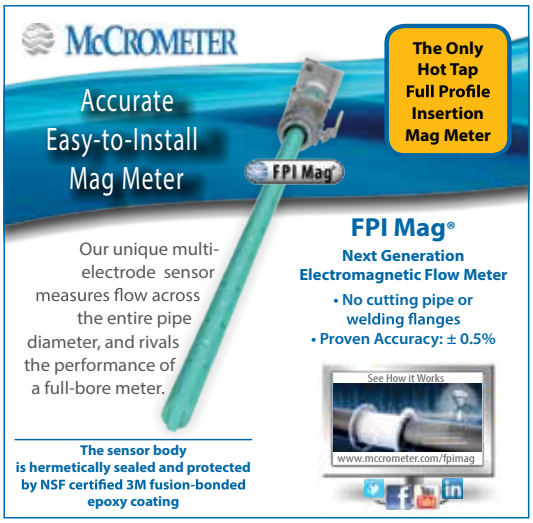

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