

The Wyoming **Connection**

Spring 2025

Nitrates

PFAS: PER-Polyfluoroalkyl Substances

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The Wyoming Connection is the official publication of The Wyoming Association of Rural Water Systems. It is published quarterly for distribution to member systems, water and wastewater Operations Specialists, water related agencies and companies, legislators and government officials.

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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 – Wind River Canyon, Photo by Michelle Christopher



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Budget Season, Aging Infrastructure and Uncertain Revenue Streams

The recent Wyoming State Legislative session is over; bills have been signed or have become law with some having immediate effect and others due to kick in with the next budget year on July 1.

As with most legislative sessions, the legislature giveth and the legislature taketh (or create confusion). (as I always say, sometimes they shoot at the few and hit the many)

Some issues received clarity or beneficial treatment such as bid limits and recognition of Licensed Water/Wastewater Operators as Emergency Responders. Other issues like property tax reductions have created uncertainty and confusion.

Overlapping these issues is the rising costs of utility operations and the continued decline of aging infrastructure.

First, municipalities have enjoyed a \$75,000 bid limit for enterprise fund projects for a few years. When enacted, I think a lot of us thought it was across the board but.... This session, a bill was enacted to move the bid limit for Special Districts and Irrigation Districts to the same \$75,000 for projects.

Second, more for an access issue rather than a lot of other factors, the Wyoming Homeland Security statutes have been clarified to include Licensed Water/Wastewater Operators as Emergency Responders. We still have to work out credentialing so that operators have something to show law enforcement/fire personnel to gain access to critical infrastructure during an emergency event as needed.

If your system has business cards or a town/system ID card, you might ask if they will modify your business cards and or the ID with your Operator ID number behind your name or below as well as add the following on the back of your business card/ID until more formal emergency responder credentialing can be obtained.

The status of the Operator Certificate can be verified at :
[Http://DEQ.STATE.WY.US/WQD/WWW/opcert](http://DEQ.STATE.WY.US/WQD/WWW/opcert)
 Pursuant to Wy State Statue 35-9-152 a.1. – Holder identified with this card is designated as Emergency Responder.

Third, aging infrastructure and uncertain revenue streams will continue to be a priority for the foreseeable future. Has your system completed an Asset Management Plan, Capac-

WARWSDOKU

3	6			5	9	7		4
9		4	3				2	
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				1				
	7		4			6		5
	2				6	1		9
7		6	5	8			4	2

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.

ity Development Plan, updated your rate structure within the last 2 years and have you segregated your depreciation amount into a “replacement reserve” savings account pursuant to Wyoming Statute 15-7-407? Are your rates in compliance with 15-7-407?

Armed with the plans, have you created a Capital Improvement Plan or a replacement priority plan to address infrastructure that is approaching or past its intended useful life? Are your reserves adequate? Adequacy is subjective. (State and Federal Funding programs may require all of the “plans” be in place to qualify for loan/grant program funds.)

Generally, do you have enough in the depreciation reserve to comfortably make a “match” amount if requested by funding agencies (usually 20 – 50%)? Have you designated your reserves to address operation needs (at least 3-6 months of operation expenses); address critical component replacement (what is the one piece of the system that you cannot do without?) and the depreciation/replacement needs?

Each of these reserves (and your rate structure should take these into account) should be designated and be part of your “plans”.

Last, have you met with your County Assessor to determine the effect on your expected revenues from the actions of

the Legislature and Property Tax changes? Remember that property tax revenue based on assessed valuation will be capped starting with this year at no more than 4% increase each year. Additionally, residential property tax assessed valuation will see a 25% decrease starting with the current assessment year for at least 2 years and then a constitutional amendment will be on the 2026 ballot to permanently reduce assessed valuation by 50%.

Does your system rely on mostly residential customers? A discussion with your assessor to determine the effect on your system will be paramount in determining your operation budget upcoming. If you rely on property tax collections and rates, you may need to review your rates to make sure your revenue stream will still comply with 15-7-407 as well as your reserves. If your system only relies on "assessments", will those be affected by the changes, and if yes, should you have a discussion about instituting usage rates in addition to Assessments?

Lots of unknowns and questions. The good news, WARWS can assist with the creation of Asset Management Plans, Capacity Development Plans, Replacement Priority Plans, Rate Structuring reviews and we can attend community meetings to try and explain it all.

Just give us a holler and we can help!!! Mr. P.

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Spring 2025 – Gathering our Resources

Our 34th Annual Spring Training Conference held April 15-18 was successful by all measures. Thank you to all involved. The theme of “Gathering our Resources” held up with emergency response planning, operator essentials, rate setting/asset management and PFAS just to get us started. Let’s just say the info was current!!

Attendance continued to rise significantly from the covid years. We had over 250 registered along with a sold-out exhibitor area with 70 exhibitors (we had to squeeze 10 more booths in to meet demand). The Ramkota did a remarkable job as always. The classes, I believe, made this one of our best conferences since I have been around. Casper also performed pretty well I hear. I was almost sorry that I had to herd people back to class as the networking and visiting was quite evident, we were enjoying being OUT in force again!!!

I hope you all feel that you received full value for your registration dollar. The classes were outstanding, currently topical and useful in this environment. A member of the staff of our three Congressional Delegations attended and participated in several sessions. Our Congressional Delegation is strong, engaged, and educated on industry issues. I am very glad to work with them and their staffs. Senator Barrasso was able to drop by for the Annual Business meeting Friday morning and gave an update on goings on in Washington DC and thanked all for the work they do. Senator Lummis joined us via virtual and thanked the attendees for the work they do in providing safe drinking water for the state.



Operator Essentials Class by Brian Linton

All things cyber and emergency response included EPA, CISA, Wyoming Office of Homeland Security, Au2mation, SannerIT. Hopefully we all know who to call when we need help with cyber, physical, OT or IT help and emergency response. A full day of rate structuring and asset management, EPA rule updates, DEQ operator certification updates, railroad safety, PFAS, bacteria blooms, Incident Command Systems, communicating with boards and decision makers, contract management and much much more was offered over the 3 and a half days.

The wastewater treatment plant tour, the Titus Industry tour, the line tapping class and the hydrant class were very well attended and the ever popular Operator Roundtables!! We had it all for you.

We also had a great Best Tasting Drinking Water in Wyoming contest and one of the closest. Grand Targhee Resort made its 13th visit to the finals while The Town of Ten Sleep made its 5th trip to the finals, Nordic Ranches LLC made their first trip to the finals as did the Town of Meeteetse. Congratulations to Grand Targhee Resort for their 4th win in 16 years. I look forward to the trip to Washington, DC in February 2026 to watch Grand Targhee Resort compete in the Great American Taste Test again. They finished in the top 10 in 2025 so hopefully a repeat will move them up into the top 5 or higher.

Again, Thank you too all. Hope you enjoyed your week and even learned something. See you at one of the “mini conferences”, virtual trainings or next year for our 35th Spring Training Conference scheduled for April 2026. Mr. P.





Left to right

Davis Wolf, Regional Municipal Sales Manager – North, Core and Main, Jyme Lien, Wyoming House District 38 Representative; Ron Overson, Grand Targhee Resort; Paul Fulgham, National Director – Rural Water Association of Utah and NRW Secretary of the Board of Directors



Left to right.

Davis Wolf, Regional Municipal Sales Manager – North, Core and Main; Jayme Lien, Wyoming House District 38 Representative; Paul Fulgham, National Director – Rural Water Association of Utah and NRW Secretary of the Board of Directors.



Tapping Class by Randy Rumpler

From the Smoker

By Randy Rumpler

Several of my friends have asked for the receipt for my Jacked-Up Meatloaf. I made it for the WARWS Christmas party, and they asked for the receipt, well here you.

4- pounds of 90/10 hamburger

1- cup of Panko breadcrumbs

1- Red onion chopped up

Minced garlic to your taste, I use 2 table spoons

4-eggs

4- table spoons of Jack Daniels

2-table spoons of Steak rub, your choice

1/2 -cup of milk

8to 10 ounces of Pepper Jack cheese, sliced.

Mix everything together and slit into 2 even half. Put one half in the bottom of your pan and raise the sides to put your Pepper Jack cheese in. Place the other half on top and seal the edges to hold the cheese in when it melts.

Sauce:

1-cup of Ketchup

2/3-cup of brown sugar

½-cup of Jack Daniels- I use a little more!

2-tablespoons of steak rub

2-teaspoons of red pepper flakes

Mix all together and pour over you meat loaf. Place in the smoker with your choice of wood. Cook at 250 degrees until done, around 160 to 170 degrees and enjoy.



Nitrates

Every public water system in Wyoming tests for nitrates at least annually, while others test more often. Why are nitrates such a concern? Where do nitrates come from and what do we need to do about them if they're present in our drinking water?

Let's talk about what nitrates do when we ingest them. If you've ever sat through one of my water basics classes, you've heard me talk about methemoglobinemia. Or blue baby syndrome. Maybe you've even chanted "meh-the-he-muh-globe-an-ee-mi-ah" with me. If you've done this, thank you. You're a rock star. But what is actually happening in your body, besides a fantastic tongue twister? When nitrates are ingested, some of the nitrates (NO_3^-) are converted (denitrified for the wastewater folks) to nitrite (NO_2^-).

This conversion process occurs because of bacteria in your saliva, gut and small intestine. The nitrite then reacts with the iron found in red blood cells to form methemoglobin. Unlike hemoglobin, which contains ferrous iron (Fe^{2+}) and can transport oxygen throughout the body, methemoglobin contains ferric iron (Fe^{3+}) which is unable to bind oxygen and transport it throughout the body. This causes blood to be a bluish chocolate-brown color instead of the typical red color we expect it to be. Methemoglobinemia is caused by elevated levels of methemoglobin, which in turn can cause cyanosis (blue skin), aka blue baby syndrome.

Methemoglobinemia is a greater concern for infants and small children because their smaller body size and lower blood volume allows lower concentrations of nitrates to become toxic. They also have a lower concentration of a critical enzyme that converts methemoglobin back to functional hemoglobin making them even more susceptible to lower oxygen levels. They may also be consuming more nitrates if they are drinking juice or formula made with contaminated water. Beyond the readily obvious and terrible blue skin and death, chronic low levels of nitrates can lead to reduced oxygen supply to the brain and other developing systems, potentially leading to cognitive impairment in severe cases.

What about adults? Just like infants and children, we may experience lower oxygen levels in our body. Because our systems are fully developed, we don't see cognitive impairment as in developing bodies, but if our body is in a chronic oxygen deficient state, we may experience headaches, fatigue, nausea, macular degeneration and elevated heart rate. Because our bodies are working harder with less oxygen, thyroid issues may develop, and while there is no consensus on a direct link between elevated nitrates and cancer, higher


rates of nitrates may increase the risk of colon, bladder and gastric cancer.

Now that we know why nitrates are such a concern, we can leave health class behind and get into where they come from. Nitrates come from both natural and manmade sources. Manmade sources include fertilizers and industrial discharge. Natural sources include lightning fixation, geological formations, decaying plants and... POOP. Humans, animals, it doesn't matter, waste leaving the body contains some form of nitrogen, which breaks down into nitrates. If the nitrogen cycle is left incomplete, and nitrates aren't fully treated into nitrogen gas, then it can stay dissolved in the water and show up in surface water or percolate into groundwater.

Adequate treatment of nitrates includes not letting it into the water to start with. Wastewater treatment facilities and industrial treatment facilities should be operated correctly, ensuring that nitrates and ammonia are treated and removed before discharge. Fertilizers should be spread according to appropriate rates and timed so that the plants can uptake the nutrient and not just runoff.

Buffer strips and riparian areas should be maintained so that runoff is caught before contaminants can enter the stream. Septic systems and leach fields need to be correctly installed and maintained so that there is adequate treatment. It's important to remember that nitrates are easily dissolved in water, and while nitrates are terrible for human health, plants love them. Just don't encourage woody species to grow over a leach field. It may get plugged off.

Septic maintenance also includes being judicious about what goes down the drain. Bodily fluids are acceptable, grease, harsh chemicals (used to clean hard water and iron stains),



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and excessive solids are not. Your garbage disposal is not an acceptable way to clean out the fridge. As solids build up in the tank, there is less detention time and therefore less treatment happening before water goes to the leach field.

Pumping a septic tank routinely is critical to its functionality. Pumping your septic tank every 5 years is a good rule of thumb, but more often may be required depending on the size of your tank and the amount of water that gets flushed. Beyond good maintenance, planning for the future is a critical part of septic life. It's not if the leach field gets plugged off, it's when. While it may not be in your lifetime, replacing a leach field will happen in the life of the property, and it's a good idea to set aside an area that you can use to extend the leach field or replace it. Make sure it meets setbacks from buildings, property lines, wells, etc. Also, don't plant woody vegetation (tree rows, Russian olive trees, etc in the area as roots may become an issue.)

If your water source has high nitrates, you have a few options. Unfortunately, boiling isn't one of them. Boiling water removes water and not nitrates, so boiling actually concentrates nitrates. I know that one of the options that always gets thrown around is getting a new source. HA! I don't know who these people are, or where they live, but in the desert that is Wyoming, we use that water source that is available. Going after deeper groundwater may reduce nitrates, but it can also have increased levels of inorganic contaminants like radionuclides, uranium, arsenic and other metals. Wells

further away will bring additional expenses including drilling, pipelines, etc. Assuming you don't have a magic wand to create a new source or unlimited funds, treatment options are available. These include ion exchange, reverse osmosis and electrodialysis. Each treatment option comes with unique challenges and should be fully researched before installation. Treatment challenges include other water contaminants, operations and maintenance, life cycle expenses, brine disposal, increased complexity of the system and additional process testing. Installing treatment will increase expenses and take time to install.

Tracking nitrate trends is a good way to learn if nitrates are increasing in your water source. If you test more than annually, watching the trend may indicate that nitrates vary by season. If you're concerned about nitrates, or don't know where to begin, give the WARWS folks a call. We'll be happy to help!



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DID YOU KNOW?

Quality On Tap! was created by NRWA in 1996 as the first practical, hands-on guide to better public relations for water utilities. Today, the QOT logo can be found around rural America on water towers and utility vehicles, spreading awareness to turn on the tap.



Photo taken by Aaron Schroeder
near Delta, Iowa

PFAS: PER-Polyfluoroalkyl Substances

Ah, the wonderful world we live in. On the emerging contaminants, PFAS is at the top of the pile as far as operators are concerned. After attending several classes, watching hours of videos, and sitting in some EPA classes, I'm only getting more confused about what the future holds. As a major disclaimer, I'm not a lawyer, not a holder of a PHD, just a tech supporter who relies on common sense to get by in this world. The opinions in this article are just that! My opinion, who has attended classes, and spoken to a lawyer at our conference at length about the PFAS confusion we find ourselves in.

To start off with, I do urge operators to take some spare time if there is such a thing and do your own research on this matter. Take the 1,000-foot view of all the information that is coming out from all the sources that are smelling blood in the water. My view is that the party is now officially over! There is no cleaning up the mess we have created, and I'm not sure there is even enough money to get that done at this point. The time of kicking the can down the road is now over. Yep, the can went off the cliff along with common sense.

Who is to blame for all of our problems? Well, first off, I am a big part of the problem! Like many people, I enjoy staying nice and warm while enjoying the great outdoors here in the best state in the country. I like my nonstick cooking pans for all the numerous positive advantages they provide. I like being dry in a downpour, climbing into my tent and not getting soaked. So yes, if there is a demand, someone will supply the product. So, at the end of the day, I'll take some of the blame for sure. In many cases, I see companies; 3M, Dupont, and any other big companies who manufactured the products getting dragged through the mud and sued to oblivion.

The manufacturers created the products and have sold them for decades. Were the scientists who came up with these amazing chemicals to blame? Did they have any clue what the long-term disaster they were creating? The proverbial what did they know and when did they know it? Is the government organization in charge of protecting our environment, ya know, the EPA to blame? The EPA included PFAS et al in the UCMR 5 testing as a result of push back by industry groups like National Rural Water Association and our very own state association. At the end of the day, make your own minds up on the blame game, not that it even matters at this point.

Some treatment techniques out there being talked about include several that are in place already. Let's take one that

may be on the top of the list, the RO units (reverse osmosis). They are very good at removing impurities/ chemicals out of the water! That also may be a disaster in the making. They take all the good stuff out of the water at the same, what health effect will be drinking basically zero water long term? Who is going to pay for every system in the country to install RO units? The Government, you know the ones who have taken our tax dollars and run this country into a 36 trillion-dollar hole. Reminds of the saying "Don't worry we are with the government and we're here to help". To that end, legislation passed a few years ago does provide funds to states to assist with mitigation, testing and treatment.

WYDEQ is in the process of issuing an RFP for a group to provide baseline testing for all community water systems in the state before the initial testing deadline of sometime in 2026. Stay tuned, and we will make sure you are kept aware of the progress for the testing program.

Baseline testing is necessary for your system to not only know if PFAS is an issue, but if detected, at what level and does the level of detection show damage that you might be able to recover from various legal settlements.

NRWA and WARWS filed lawsuits against the manufacturers about 7-8 years ago. To date, settlements with 7 out of 20 manufacturers have settled, totaling \$14.5 Billion. These funds will be used for reimbursement for testing, remediation and or treatment as determined. To date only 32 out of the 320+ community systems in Wyoming have registered for the "cost recovery program". If your system has not, fear not, there is still time. Use this link for your attorney or board/council to join <https://nrwa.org/issues/pfas/> or call Mr. P for more information.

RO units also waste a lot of water, and discharge wastewater straight into the wastewater stream. (That will be in the next part of PFAS) I can't even start to say what a horrible idea that is, but the days of land applying lagoon sludge may be over! That logic got us here in the first place. How about the filters that Ro's use removes all the contaminants? According to some, they say just bring them to your local landfill. What can possibly go wrong with that in another 100 years? Stockpile a concentrated source of toxic waste in one place, and hope for the best. Yep, kicking a new can down the road again, what are we leaving our children? And don't even ask Kathy about PFAS in solid waste!!

VEGA

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Right now, PFAS is covered by yet another federal rule, CERCLA. In layman's terms, this is the super fund clean up statutes. Currently, PFAS et al is considered hazardous waste and must be disposed of pursuant to CERCLA statutes. Sen. Lummis and others are actively working on legislation to exempt municipality waste sites from CERCLA. Without an exemption, if detected, pretty sure it would bankrupt any system in America. Mr. P has testified in front of Congress on this issue, as have several other industry people. Progress is being made.

Some other treatment techniques include GAC, and activated carbon which also have their own pros and cons! If you have spare time and need a laugh, you-tube some of the wild ass ideas some of the smart people are coming up with. We are entering the twilight zone!

At the end of the day, once again, the great operators around the country will be tasked at cleaning up their mess. A mess caused by people who dropped the ball. A MCL has been proposed and is moving through the Rule Making process as we speak. The MCL is 4 parts per trillion, with a T. The prior health advisory was 70 parts per trillion. Arguing over the MCL limit is ongoing. Only time will tell where this mess will end up, one thing for sure, it should be a heck of a ride!



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Get Your Credentials On!

You know you are a Professional Operator. I know you are a Professional Operator. Sometimes though, our general public and decision makers do not recognize our water and wastewater operators as such. Here is a way to combat that. Get your Professional Operator Designation through Water Professional International, formally known as ABC.

Years ago, I worked with an ABC committee to design the Professional Operator Designation. It all began in 2006, not long after Hurricane Katrina had hit the gulf coast. Water and wastewater operators wanted to help, and they traveled to where they thought they could be useful. They ended up spending their time in hotels, frustrated to no end, because the state did not recognize their licenses, and they were not allowed to work on the system or help in its operation so exhausted operators could take a rest. It became apparent there needed to be a certification that would be recognized across state lines. For over 50 years ABC/WPI has been doing standardized testing to ensure certification programs were consistent. ABC/WPI believed that developing a designation that would be recognized across state lines was right up their alley and a challenge that they were willing to take on. WPI's Professional Operator Designation creates a global set of standards and testing criteria that reflect the best practices and protocols in the industry. The Professional Operator Designation, earned through WPI, is recognized across state lines as well as internationally.

So how does it work? PO certification is offered to operators in four levels (from Class I through Class IV) for water treatment, water distribution, wastewater collection, and wastewater treatment. The PO program grows with the operator as they gain experience and grow professionally. Many POs hold multiple disciplines or class levels as they move through their careers. Each PO certification level has professional and education criteria that must be met. If you have tested after May 2018 (fact check with Kim) in Wyoming you don't have to test again. Kim Parker will help you document your training. You will need to have your experience signed off by your supervisor. With all of that in hand you will be able to apply for reciprocity at the WPI web site. It is admittedly easier to get the designation through reciprocity but if you are considering getting another license you might as well apply for the designation simultaneously.

I have talked to operators across the state and often I am asked if it means that they will get more money. That question is between you, your supervisor and decision makers. Remember you do not need permission from anyone to work toward this designation. We have a lot of internally motivated operators in this state that just want to do it for them-

selves. They consider it a form of career advancement and know that it will improve their chances of being hired for any new position they may be considering. It does demonstrate a level of competency and professionalism that can gain you a competitive advantage. For those of you who are supervising operators it is a great deal for you as well. It can help you screen potential new hires and select contract operators. It also reduces the risk to the system by being able to document the competence of the operators under your charge.

So, do we have any of these critters in Wyoming? We do! Please congratulate Alexis Spray, Distribution II Operator for Green River. We have several more in the pipeline, including our very own Michelle Christopher. Please consider joining these outstanding operators and getting your Professional Operator Designation. Shoot, if we get a few more, WPI will even come to Wyoming and do a pinning ceremony. I will be in the front row hooting and cheering for all of you.

Michelle here! Yep, I'm one of those "seasoned operators" who gets to take the level 4 water treatment exam – again. If you're in this boat and want someone to come and review with you, give me a call! Let's show the world how amazing operators in Wyoming are!

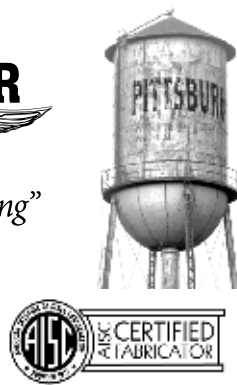
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Operator's Corner

Water Questions by Michelle Christopher:

- How are the metal parts on concrete pipe protected from corrosion?
 - Resin
 - Mortar
 - Bituminous
 - Creosote
- What was the primary reason that the EPA promulgated the final Ground Water Rule in October 2006?
 - Arsenic contamination
 - Radon contamination
 - Nitrates contamination
 - Fecal contamination
- What gas causes olfactory fatigue?
 - Radon
 - Methane
 - Hydrogen sulfide
 - Nitrous oxide
- The fluoride injection point should be as far away as possible from any
 - Phosphate chemicals used for corrosion control
 - Polymers used in coagulation
 - Calcium, such as lime
 - Ferric salts used for coagulation
- How many calcium hypochlorite tablets are needed to disinfect a water main given the following information:

a. Length of pipe A: 1015 ft	Pipe A
diameter: 2.00 ft	
b. Length of Pipe B: 1347 ft	Pipe B
diameter: 1.50 ft	



Calcium Hypochlorite = 65% available chlorine

Dosage required: 50 mg/L

Each tablet is 0.42 lb

- 58 tablets
- 60 tablets
- 62 tablets
- 64 tablets



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- Pipe A Diameter = $(.785)(2)(1015)(7.48 \text{ gal/ft}^3) = 0.02384 \text{ MG}$
1,000,000
- Pipe B Diameter = $(.785)(1.5)(1347)(7.48 \text{ gal/ft}^3) = 0.01780 \text{ MG}$
1,000,000
- Add MG of both pipes together $0.02384 + 0.01780 = 0.04164 \text{ MG}$
- Use the lbs/day equation to determine the number of lbs/day of Ca(Cl)_2 needed
 $\text{Lbs/day} = (0.04164 \text{ MG})(50.0 \text{ mg/L})(8.34 \text{ lbs/gal}) = 26.71 \text{ lbs}$
 $0.065 \text{ available Cl}_2$
- determine the number of tablets needed $26.71 \text{ lbs} = 63.6$, (round to 64)
0.42 lbs/tablet

Answers
Water

- B
- D
- C
- C
- D

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A Note From

Brian Linton

Circuit Rider
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307-349-4756

How Much is Too Much in Water Treatment?

In our pursuit of clean, safe water, it's easy to assume that more treatment means better water. But is there a point where "better" becomes "too much"? In the world of water conditioning, over-engineering can lead to unexpected—and even bizarre—consequences. The following story, retold by Cindy Rohrer, VP of Energy Labs and Billings Lab Manager, highlights how good intentions and advanced systems can go hilariously and alarmingly wrong when taken to the extreme.

We had a client from a town in WY several years back that had a home built. They were very specific about their water and how their water functioned to the point that a primary goal was that their toilet had to flush within a specific amount of time. They built an entire room for a whole suite of water treatment including a sophisticated water conditioning system. Jackson Hole traditionally has very clean water with low conductivity so water softening is not usually recommended. The client's home was also built using copper pipes.

This client's water was so over conditioned that the water started eating at the copper pipes. When the client's would shower, this water would deposit on them with the detritus of copper. The wife's razor and razor blades started turning blue and after wiping off his face to dry after the shower the towel would come away blue.

The client's sought out Energy Laboratories help because they were "afraid we're turning into Smurfs." After testing, it was determined the client's water was extremely over softened. The client's discontinued the softening and have since not been back with complaints of Smurf evolution.

This cautionary tale raises an important point: when does our pursuit of perfectly treated water go too far? In this case, the desire for "optimal" performance led to corroding pipes, blue-stained towels, and a household worried they were turning into Smurfs. But beneath the humor lies a very real message—there's a fine line between treating water for health and over-processing it to the point of harm.

Today, the conversation around water quality has grown even more complex. Beyond over-softening, we're now facing mounting concerns about invisible threats like mi-

croplastics—tiny synthetic particles that have infiltrated our water systems, our ecosystems, and even our bodies. Unlike the vivid blue reminders in this story, microplastics don't leave visible marks, but their potential health impacts are quietly building.

As technology advances and awareness grows, so does our responsibility to strike a balance. Safe water isn't just about removing everything—it's about understanding what needs to be treated, what doesn't, and the unintended consequences of going overboard. After all, in our mission to purify, we must be careful not to pollute in a different way.

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A Note From Randy Rumpler

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Operator's Frustration

Through my travels as a circuit rider and working with several water operators, I have heard time and time again the frustration with EPA. They are upset over the lead and copper inventory, especially with the property owned water service. Just about every ordinance in most towns read that the property owner owns the water service line from the curb stop or meter pit. You all feel you have no right to enter property and dig or enter the house to see what the line is made of, lead, copper, galvanize, or poly. I have heard several times that the property owner will not let them into the house to see what the water line consists of. A lot of you have sent letters to the owner requesting them to check what type of material the water service line is made of. Some of you get about half of the request letter back and the others just do not respond.

Now, what do we do? Keep plugging away at the inventory and do what you can. I know that Torrington has sent in a letter and form for a waiver. Torrington has kept reports, (inventory) of all the lines in town when digging or repair of lines. They have built this inventory for several years. Use your "as build's" from projects of water line replacement that show what material was used for the water service.

Continue to ask the public for assistance.

I understand everyone's frustration with this rule. You may know that our national group (NRWA) has a seat on the EPA Rule Workgroup tasked with offering suggested improvements and corrections. Many communities have already gone through the rule by paragraph and have sent detailed real life implementation issues to Mr. P. He is collecting those and submitting them to the NRWA representative on the workgroup as well as to the NRWA regulatory committee on which he serves. Send your comments with specifics to markp@warws.com on your community or special district letterhead and we will get your comments submitted.

I will step forward and say I agree with you. I know a couple of operators have sent emails to Rep. Harriet Hageman because she is reviewing the lead and copper inventory rule and working with legislators and regulators on clarification and improvements of the rule. If you would like to email her, here is her email address, INFO@hagemanforwyo.com. You can also email Sen Lummis's office with the detail. Sen. Lummis is a member of the Senate Environmental and Public Works Committee tasked with EPA oversight which is also reviewing the Rule, clarification and improvements or regulatory relief.

She can be reached at:

Senator Cynthia Lummis

<https://www.lummis.senate.gov/>

comments can be left on this site.

Keep your heads up and keep pushing forward and continue to work on your inventory. Feel free to reach out to any of the field staff, we can help with Asset Management Plans, Capacity Development Plans, Rate Structuring and can assist with the Lead Line Inventory Rule issues.

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Leave a Legacy

Next time I will resume teaching about rate setting. But right now, I have something to get off my chest.

The end of my rate analysis career is in sight. I'm wondering; have I made an impact? Have I helped utilities make their rates as fair as I could have? Are they adequate?

And that is just the work side of my life.

If you are in the last half of your career, you should be thinking about such things, too. If you are just starting out, you should peer down the road. Don't just think, "I gotta make some money!" Think, I want to make a difference. I want to leave a legacy.

Why leave a legacy?

I could go all Lion King and describe the "circle of life," but I won't. There are two self-serving reasons for you to leave a legacy:

1. You want to be well regarded when you are gone, and
2. You want to feel good about yourself while you are still here.

How do you satisfy those desires? Here are some thoughts about that.

First, and most important, figure out what "work-life balance" works for you. In the utility field we talk a lot about sustainability. Well, your work and personal life must also be sustainable during your time here. Thus, your work-life balance must be tailor-made for you. You cannot live someone else's life. You can only live your own.

Achieving work-life balance is not a "true or false, yes or no" question. It is a complicated essay question. And the answer you come up with at 25 will not work at 50 or 65. Set out now to find the balance you need now and tune it as you evolve. You are your greatest ongoing project.

Second, work toward becoming an expert in a field, preferably one you love or could love. How about the one you are in now? (Interestingly, research shows that most motivated people can become an expert at something.) I have read that it takes about 10,000 hours of "practice" to become an expert at anything – water system management, law, playing an instrument. Those hours amount to about five years if you "practice" full-time (lucky you), ten to twenty if you do it while trying to make a living.

I have also read there are no shortcuts to becoming an expert. You must put in the time. And that is not just clock-in/clock-out time. It is time spent diligently researching and discovering, honing skills and developing deep understanding of your field.

Third, be open to other fields. I was awful about that after I graduated with a degree in forestry. I thought forestry was the only work I could ever enjoy. I was wrong. I got merged out of that field after 12 years. Then I became an SRF loan coordinator for a state agency. Surprise, I enjoyed that more than forestry. That led me to rate analysis. Wow, I really love this work! In fact, it does not feel like work. This work has become my strongest area of expertise and that brings me joy. So be open to change. Who knows what doors may open in front of you, or what doors may slam against your backside and become a blessing.

Finally, here are the reasons for becoming an expert. Yes, being an expert will probably enable you to make a good living, and that certainly helps with the work-life balance thing. But bigger than that, when you are an expert, you get the opportunity to impactfully help people. You get to better their lives. To leave a legacy. You get to play out the theme of the Lion King movie, just without James Earl Jones's booming voice.

Leave a Legacy

It will help others and whether you are Mother Theresa or not, it will make you feel wonderful.

If you are selfless (not many can qualify for that), you will serve others and you will leave a legacy. That is straightforward. But here is a cool thing. Having self-interest does not stop you from leaving a legacy. You can still serve others, and you should serve others. And doing so will make you feel good about yourself.

For me, striving to leave a legacy is a no-brainer choice. I hope I have achieved that. I hope you will, too.

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

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Addressing the Workforce Shortage

Core & Main Creates Scholarship to Honor John Tedder

According to the AWWA's State of the Water Industry (SOT-WI) Executive Summary 2024, workforce issues have consistently ranked among the survey's top 10 challenges. Retiring talent, difficulty recruiting new workers, inadequate compensation, and evolving skill requirements are all obstacles in ensuring a sustainable water workforce. To address these obstacles, many in the industry look to stewardship as an answer to the problem. Stewardship is a practice that embodies the responsible planning and management of resources.

The National Rural Water Association (NRWA), in partnership with its' state associations, has made a significant investment—more than \$13 million in 2024—into workforce development and apprenticeship programs. This is a direct expression of environmental and community stewardship. These workforce development efforts aim to attract, train, and retain the next generation of water and wastewater system operation specialists, ensuring the sustainability and efficiency of rural water utilities.

Looking to the balance of 2025 and beyond, Core & Main's North Region will seek to actively cultivate its position as a waterworks industry steward through the creation of new, and active participation within existing programs designed to recruit, teach and retain members of the municipal workforce.

In many cases, the path to participation is simple. Colorado, Minnesota, North Dakota, South Dakota, and Wyoming's rural water associations support Apprenticeship Programs. These 2-year training programs recognized by the U.S. Department of Labor are designed to provide participants with a combination of classroom instruction and on-the-job training. Within Colorado and Wyoming, Core & Main has recently teamed with the state rural water associations in the establishment of two scholarship funds supporting Rural Water Apprentices from disadvantaged systems. This program has been named the John Tedder Scholarship in honor of its namesake, a selfless waterworks industry steward.

The John Tedder Scholarship is valued at approximately \$2,500 and is designed to provide the selected Apprentice with tools and equipment directly supporting hands-on learning and job readiness. Unlike monetary awards that may be spent on a wide range of expenses, the tools-based Core & Main/WARWS scholarship ensures recipients receive the

essential gear they need to succeed in their field from day one. This approach not only reduces the financial burden on apprentices, but also helps them build confidence and competence with the very equipment they will use on the job. For many trades and technical careers, having the right tools in hand is as critical as knowledge itself, making this form of support an investment in both immediate skill development and long-term career success.

At Wyoming Rural Water's Annual Spring Conference in Casper April 15-18, 2025, Core & Main surprised Larry Brown, an operator with Northern Arapaho Water & Sewer, with the first Wyoming scholarship in John Tedder's name. Brown received a tool kit in the form of a durable backpack full of the gear he needs to be successful on the job and for furthering his education. Among other items, the kit included an iPad and software, water-resistant clothing suitable for Wyoming winters, high-quality work boots, a Yeti water bottle and more.

"Your belief in my drive and my desire to learn means a lot to me, and I'm excited to start this journey," said Brown when thanking those who selected him for this award. "I owe so much to WARWS and to Core & Main for the confidence they have placed in me."



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Scrawny Girl – Crushing the Pastryarchy

by Michelle Christopher

As I've written in previous articles, I have a sourdough starter. A very ignored and abused sourdough starter. Unlike other starters, it doesn't have a name, it lives in my fridge, and it's ignored until inspiration strikes. My most recent innovation came when I could no longer find Lemon Meringue Pop Tarts online. A flavor that was only a limited edition, I hoarded these breakfast treats until they disappeared from my local grocery store shelves. I then stopped at every grocery store as I traveled throughout the state, and finally, I ordered them from that most evil of empires, Amazon. Eventually, the supply ran out, my freezer stash ran dry, and I was left with only one choice: make my own. I decided to up my Pop Tart game by making the pastry dough with sourdough starter. I have no other reason for doing this besides it seemed

like a good idea at the time. For the filling I used a traditional lemon pie filling recipe from an ancient edition of Betty Crocker. The good news is that the recipe turned out well. The unfortunate news is that they can be devoured almost faster than they can be made. If you do have a few that aren't immediately devoured, I recommend keeping them in the refrigerator or freezer and toasting them before consuming.

The Dough:

2 cups flour

1 tsp salt

¼ cup sugar

1 cup butter (2 sticks)

1 cup sourdough starter discard – if you don't have starter, you'll have to add around an extra ½ cup of flour and enough water to make a proper dough. I'm guessing around ½ cup. Maybe add a tbsp of vinegar if you're feeling wild.

Mix flour, salt and sugar together. Add butter in cubes, or grate it in. (I know it seems unhinged, but grating cold butter is a terrific pastry making hack!) Combine butter and dry ingredients until it looks like coarse cornmeal/peas/whatever your grandma taught you. Add sourdough discard and mix enough for the dough to stick together. You may need to add more water or flour depending on the hydration status of your discard. Divide into two equal chunks, wrap and chill while you make the filling.

The Filling: You'll need a cup of filling. It could be jam, pie filling, chocolate chips, etc. I'm sure any and all would be delicious. Here's the lemon filling that I used.

½ cup sugar

2 tbsp cornstarch

½ cup water

1 egg yolk, lightly beaten

1 tbsp butter

Zest of 1/2 lemon

2 ¾ tbsp lemon juice (I may have used 3 tbsp, but I like lemon)

Mix sugar and cornstarch together in a small saucepan. Slowly add water and cook over medium heat while stirring constantly until mixture comes to a boil and thickens. Pour about half the mixture into the beaten egg yolk (this prevents the mixture from curdling). Then blend the egg yolk mixture back into the saucepan. Bring it back to a boil (this happens quickly) and then remove it from the heat. Add butter, zest and lemon juice. The mixture will thicken as it cools.


The Pop Tarts:

While the filling is cooling, preheat the oven to 400° and roll out the two dough pieces into a rectangle shape about ¼" thick. Cut each rectangle into eight equal pieces. (16 pieces,

8 tops and 8 bottoms.) Spoon about 2 tbsp of filling onto the eight bottom pieces. You'll want to make sure there's about ½" border of dough so you can get a good seal on the tarts. Place the eight remaining pieces on the pieces with filling and crimp the edges with a fork to seal. You'll also need to poke holes in the top of the tarts. Place pastries on a cookie sheet lined with parchment paper and bake for about 25 minutes, or until golden brown.

The Glaze:

Mix 1 cup powdered sugar with ½ tbsp milk and ½ lemon juice. Pour over fully cooled pop tarts. You can add any zest that is left over or sprinkles. If you're using a different filling, you could go with a full tablespoon of milk and a splash of vanilla.



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Our Western Heritage

by Kathy Weinsaft

Renewal

That is what spring means to me as the grip of winter loosens its hold on our vast and beautiful Wyoming landscape. It feels like freedom. Some of our biggest blizzards happen in the spring, and lord knows we need the moisture, but if those storms hit, they won't last long and out the door we can go. It is like an awakening. The snow-covered plains and mountain valleys slowly give way to budding aspen trees and green of new grasses and wildflowers.

It is a siren call. My first spring adventure doesn't take place in Wyoming. It is in March, and it is the largest indoor pow wow in the country and takes place at the Denver Coliseum. There are lots of vendors for me to spend money with, great native American music and dancing, and lots of storytelling. Old people, like me, get in for a couple of bucks, and it is always a great time.

By the time I get done with spring pow wow, I can hardly wait to get my line wet and do a little fishing. The best fishing seasons in Wyoming are spring and fall, in my opinion. April is fabulous for brown and rainbow trout in Wind River Canyon. It is impossible not to have a good day in the canyon, no matter what the fishing is like. If you are not into trout but are in the area, Boysen Reservoir near Shoshoni has excellent northern pike opportunities. I can't leave the topic of fishing without mentioning the Miracle Mile. The Miracle Mile is a seven-mile-long tailwater section of the North Platte River, located 50 miles southwest of Casper, Wyoming. It provides consistent, cold water from the reservoir, creating ideal big trout habitat. Access to the Miracle Mile can be from I-80 via Carbon County Rd. 351 or from U.S. 220 via Natrona County Hwy. 407 and Carbon County roads 291 and 351. I have also heard of walleye and salmon being pulled out of the Miracle Mile. I have it on good authority that fly fishing is the way to do this, but I have not tried it. This year I am going to get brave and learn enough fly-fishing technique to give it a go.

Can you really think spring in Wyoming without conjuring up visions of wildflowers. When I close my eyes I see the meadow in back of Bear Lodge in the Big Horns at Burgess Junction. I took a friend from Delaware up the mountain to see the flowers eight years ago and she still talks about the experience. The apple pie with cinnamon ice cream at Moose Crossing sealed the deal for her. Vedauwoo is another hot spot for early wildflowers. Large patches of Indian Paintbrush can often be found around the entrance of the park.

Vedauwoo just fascinates me with its carefully balanced rocks and huge and uniquely shaped granite rock formations. The formations are made up of 1.4-billion-year-old Sherman granite. It is one of the oldest rock outcroppings

in Wyoming. I swear it looks like the Flintstones live there.

Spring is also the best time to participate in a dinosaur dig. Starting in June you can dig with staff supervision and help at the Wyoming Dinosaur Center in Thermopolis. Wyoming Dinosaur Center staff and visitors have removed more than 14,000 bones from the excavation sites. Most fossils are from long-necked sauropods, but also found in abundance are Allosaurus teeth. I have my heart set on doing this. If anyone wants to go with me, give me a call.

For me, Spring is a testament to endurance, rebirth and renewal. There is no better way to celebrate than to get out and enjoy the beauty of Wyoming.

It is, after all, part of our western heritage



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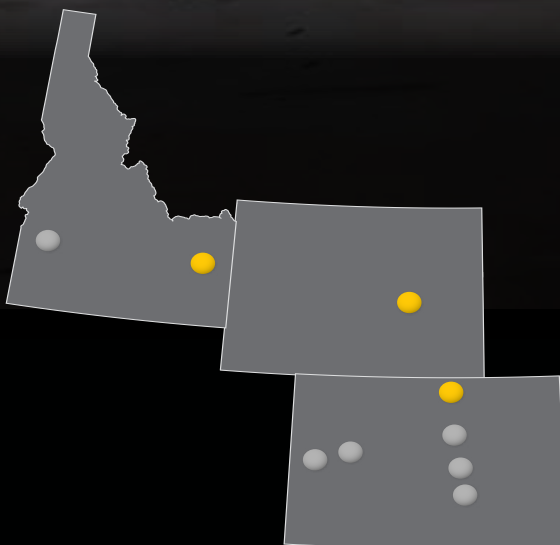
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