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Spring 2023

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Spring 2023 – Change at the Speed of Light





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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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Articles, letters, and photos are welcome.

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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 – Popo Agie River in Sinks Canyon State Park. Photo by Mark Court



WARWS' Mission:

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.

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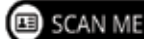
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The Drought is NOT Over

Wyoming finally enjoyed one of its snowiest winters in recent years which has helped ease concern over the Continuing Drought. Yes, I said continuing drought. All you have to do is look back over the last 22+ years of moisture level reporting on our local TV news programs. Most years they have told us that we are or were about 2 to 3 inches below normal each year. Well, in my math mind, that means that over those years we are about 36-45 inches below normal in total. For a state that only gets 11 – 14 inches a year normal, that means we are about 3 years or more in total moisture below normal.

One year is not going to “bust the drought” and a lot of the moisture was blown dry before it could do a lot of good over those below normal years. I had the privilege to talk with Senator Thomas a couple months before he passed away and remember one of his sayings about our Wyoming wind; “the snow in Wyoming does not melt, it just blows around until it wears out”. True then, true now. To this end, water conservation is now at the forefront of everyone’s thoughts as we look at Lake Mead, Lake Powell and Flaming Gorge in the Colorado River Basin but also all of our other basin areas in the northwest, central and northeast river flows.

It does not take a meteorologist to know that the drought years have piled on and we have had no real recharge of our aquifers, so our groundwater sources may have been impacted as well. Some western states are talking about systems having to drill new wells or drill deeper as their ground water wells have gone dry or not producing as they used to.

It will be difficult to convince people that we are still not out of the woods this spring when the snow melt may cause some flooding from the massive amount of snow we finally got this last year. For the state, we sit at about 125% above 30 year average, which is great, but that will not be enough to raise water levels in our reservoirs to where we would like.

It is estimated that even with all the runoff expected, Lake Mead and Lake Powell may only reach 26% of capacity by mid-summer, up from 23% last fall. Now 3% is a lot of water, but, only 74% to go!!

So, what can we do to conserve the water we have or use it more wisely? WARWS field staff will be working with community water systems to help determine a systems “water loss”, the difference between gallons pumped from system source wells or stream flows and how much water

was sold to system customers. 6% water loss is considered normal for a variety of reasons. Anything over that and the system should start looking at reasons. Reasons may be leaks; un-calibrated meters or the worst for all concerned is customers who for whatever reason have not been charged for the water they use. Congress has made a bunch of money available over the last couple years to help systems address their repairs, replacements, betterments needs and our staff can help with developing projects, funding applications and assessments of your needs.

The State Intended Use Plan (IUP) maintained by the State Revolving Fund (SRF) has about \$850 million in intended projects for Drinking Water SRF while the Clean Water SRF has about \$450 million. That is just for those known projects. Many additional projects will be added to the list in the next few years. Once they are all funded and completed, our aging infrastructure will be able to last us a few more decades until the pipes and plants wear out again. A never ending cycle.

WARWS encourages all system managers to develop a systematic program to address water loss, calibration and leaks. By controlling water loss, system managers (town councils, boards etc...) provide leadership, stewardship and accountability your customers deserve, as well as cut down on wear and tear to the system, and may allow your plant to not be overworked.

Citizens can do their part by ensuring that your hoses and faucets don’t leak, that you follow any water restriction schedules and never water in the heat of the day (10 A.M. – 6 P.M.). If you need to replace household appliances, purchase energy and water conserving appliances and follow manufacturer guidelines for use. Not only will you do your part in water conservation, but you will save a bundle as well. Mr. P



A Note From Rick Nansen

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On the Road

It's been an incredible couple of months on the job. Besides feeling like I'm aboard the Millennium Falcon about half the time, watching snow come at me like a shift from hyper drive to light speed, as the flakes come by the gazillions right at you...to casually ice-planeing @ 60 mph on a wind polished roadway slicker than the best Zamboni'd skating rink...just trying to "feel" things through the steering wheel... an adventure that would leave Tokyo drifters in awe. I've gradually made my way around the state. While I haven't made it everywhere, I'm checking places off the list, slowly but surely. This winter weather has curtailed many planned trips, but I'm sure I'm not alone here. And it's still coming at us and stacking up even more. This will improve the watershed, if the melt doesn't go too crazy.

As I've visited around the state, I've tried to assess what is needed of us/me @ WARWS. The common threads in conversation as I've been visiting, seems to gravitate towards monies, funding, and getting it. ...and LCR and EPA requirements of the impending inventory/replacement of contaminated service lines. To start, money, we all need it, but just how do we get it? Talking with office and admin staff, this seems to be where most systems are. With all the Federal and other monies out there (there's billions if not trillions available to infrastructure), and many just went through a round of trying to get it, only to find they came up short for one reason or another...and many smaller systems missed out completely.

There is definitely an attempt to "spread" it around, and there's definitely a way of going about getting it. Here I'm going to get real simple, and let future courses/classes (and those a lot sharper on this subject...USDA, RD, Kathy W., Michelle C., Mark P.) deal with technical specificity, I'd just like to bring up the basics. When I (or you) buy a vehicle or home, and we need assistance in purchasing, like a loan, we have to prove ourselves to the lending agency. We have to show income, assets and liabilities, payment history, proof of employment, etc., in short, show that we can and will pay them back if they loan us the money...and the rate we get, is based on our history in the financial world, and our ability to pay it back as agreed. Some of us have that information needed on our devices, at our fingertips and ready, and others must gather and collect it, and we all get a credit report ran to verify. It's the same for water systems and garnering the elusive infrastructure money that is flowing out there. Just a lot more work.

Systems are like our plight of securing funding for our personal needs, with a big difference. We have that info, and its

fairly easy to get them the info wanted rather quickly...not so for systems in general. Showing a system's ability to "pay it back", what are we looking at. Fees, grants, loans, federal monies, state monies...we have to prove our revenue. We have to look at rates, history (both incoming and outflowing cash). We have to verify it's continuity and ability to keep it coming in, to cover a new payment to secure monies. A bit more involved than just what us individuals do...it takes many of us.

Same with all aspects...counting what we own, our value. We call this asset management these days, and this too takes a little time to gather all the information. We need to justify what we want to purchase. That justification may be required by many different entities. Hence the importance of getting it right the first time, having all numbers match across all submissions (this factor alone caused many to miss out. Telling one bank one thing, and another bank another, then it all ends up in front of decision makers and discrepancies quickly get noticed, got the application thrown out on a technicality, not worthiness), P&L statements that make sense to all.

Justification in writing is a particular skill, grant writers help here. Researching the requirements of the desired funding alone is a noble thing to achieve. Researching designers, engineers, specifications, etc. Getting it right for all, in their language... which can itself be an exercise in futility. Being able to read and assess an application and fill it out to the lender's needs. And I could go on and on. The Point? It's a lot more complicated than a personal loan, and because it does encompass so much, needs many to accomplish. This is where I'm at.

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Systems shared with me a basic inability to meet all these requirements. There's a solution... All hands-on deck. Use all in your organization, to their special skills and abilities. You need all the help you can get. And many hands make light work. Instead of a couple of people being tasked, maybe take advantage of staff and let them do some counting and assessing. Use their knowledge to your advantage. We're not all accountants...let those do the accounting.

We still must do inventory and other assessments of needs. Inspections and prioritization of equipment and projects. In short, there's a lot that will need to be done. If done right, you'll all be working towards the same goal, just like the individual buying a new vehicle, you'll come up with facts and figures that all agree upon, and can be submitted confidently that it was done right. There will be enough and then some, for all to do...its not just office and admin staff, as operators we have a ton of knowledge as well.

The key is to collect all you can, you'll never have too much. And maybe it's time to get your GIS/Asset Management plan going. There's some great deals out there getting this done... and guess what! There's funding to do that too! That's why it's more important than ever to get your ducks in a row and can give a stranger all they need to determine your credit worthiness as a system, along with viability.

Its too important these days to have your systems management, books, accounting methods and anything you may need to have ready to acquire funding when its available... these days, it goes fast...as many have recently found out. I haven't filled this article with facts and figures, specific references, etc. because that's my point. Use the resources you must do the "Bean Counting" ...each other. This information should always be at a systems fingertip and constantly updated...and much easier to do, once done initially. And ready when it's needed.

Then I also noticed Sanitary Surveys (SSs) being a concern for many. Not to stress, I think there's over 240 open SSs right now. Mostly dealing with very simple things, like shoe box gaskets, #24 stainless steel mesh, etc. We're all in the same boat...all states are required to have SSs, it's just that in Wyoming, EPA has primacy and is required to administer the program. I can assure you, there are a ton of questions on this. Many also feel picked on, and don't realize this is a program designed to assist systems in maintaining compliance and correct operation with a strong sense of public health and safety.

While EPA wrote the program, and its followed equally across the country, their enforcement position, has many systems spooked and feeling picked on...its just not that way. Everyone must do the same. Don't let it stress you, all follow the same rules. Some have questions, ask them. Run your ideas by those trying to assist, have the conversations and ask for clarification when needed. Sometimes there is no wiggle room, sometimes there is.

Also, the most crucial thing – response. Make sure you maintain communications...I think about 40% are because

a simple communication is not maintained. Give specifics. Give date and times. If they change, more communication. Stay in touch and don't ignore the dates...That is critical in all aspects of operation.

Here again, I'd say about half have gotten nasty grams, because they just didn't respond. It's for public health and safety, and trying to catch things that may cause issues, nobody wants that.

Just know that we're all in the same boat, across the country. And don't forget to give us a holler if we can help... don't wait until you're in trouble. Let us know if you think something just isn't right. We can all look at it. We're good at helping before, during and after SSs. Just please, don't let them gather dust, that does nothing but put you on the naughty list, and its becoming more apparent...having Notices Of Violations and similar nastygrams will also most likely hinder systems abilities to acquire funding in certain situations, and the last thing we need is anything at all in the way.

We're here at WARWS are for you, and your customers... but mostly for you. Cheers! Keep it flowin' the right direction...

WARWS DOKU

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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.

A Note From Mark Court

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GOODBYE, SO LONG, FAREWELL

I knew this day would come and it would be one of the hardest things to do. By the time you all read this article, I will be officially retired. Man, nineteen years goes by quickly. I have had so many great experiences visiting with each one of you co-workers and board members past and present, operators, clerks, elected officials, vendors, lending agencies and regulators throughout the Great State of Wyoming. I also must mention everyone that I had the pleasure of meeting over the years at our In-service training and the National Conferences. They say that Wyoming is one big city with long streets, I must also say this is also true when you are a part of the National Rural Water Association. You have all given me incredible memories.

Over my nineteen years career with WARWS, I can't count the many hours on a boat assisting your systems with sludge profiles, sewer smoking, closed circuit camera inspections, the Agri-Green experiment and finally the Duckweed study. Sometimes it felt like I helped your system with something last year when in fact it was three or four years ago.

You may be wondering why I am retiring so young. Trust me, I really don't want to retire but after six years of damage to my body while I was in the army, all the travel, lifting, and bending has further damaged my body. Some days have become impossible to walk and other days I can walk miles. After a long week on the road, I find myself recovering in bed all weekend because of the severe pain in my back and legs. My doctors have become concerned about my overall health, although nothing is life threatening but will likely lose my mobility if I continue on the path that I have been on for the past nineteen years.

Eventually you have to come to the realization that it is time catches up with you and your body doesn't work like it did when you were twenty-five or thirty. I need to do things on my time now. When I was always on the road to meet my requirements, no matter how much pain I was in, I had to keep pushing forward. Now I can do things on my time. Trust me, If you are at Curt Gowdy State Park, you just might find me there with a fishing pole in my hand. As they say, "A bad day of fishing is still better than a good day of work".

Trust me, I plan on keeping busy as much as I can. For starters, I have a woodworking shop where I plan on making picture frames for the many photos that I have taken over the years. Other times, I will be working on the water and wastewater operator's math book. Yes, I know, I am a math nerd. I am hoping this book is much more understandable than everything else that is currently available in the field.

I may take on some contract operations with some systems here in Laramie, Goshen and Platte Counties. I also intend to continue to provide operator training classes. I just need to be able to do things that will accommodate me.

This early retirement will also be great in so many other ways. I have missed so many opportunities watching my kids and grandkids growing up. My granddaughter Aubree is now fifteen and has her mind set on nursing school at Texas A&M University. My grandson Tucker is fourteen and wants to become an EMT. My Grandson Graham is 14, and may become a software developer and finally, my Granddaughter Emily is 13 and is looking at becoming a firefighter just like her dad.

As for my wife Linnaea and myself, this will give us the opportunity to make up for all the time that I have been away as we intend to get an RV and do traveling on our time, when our health allows it. Life is too short, and it is now time to begin the new chapter in my life. I will never forget how each of you had an influence on my life.

I would like to thank Jane Jeffs for believing in me when she hired me in 2004, Mark Pepper for allowing me to do my job and not micro-managing, Donna Uribe for putting up with my corny wastewater jokes, Kathy Weinsaft for helping me with the sustainability workshops. I could not have done it without your help. Ross Jorgensen, Johann Nield, Dan Chamberlain, Michelle Christopher, Joe Dankelman, LeRoy Graham, Mike Jennings, Tom Arnbrister, Riata Little Walker and Rick Nansen for your inspiration and advice you have given me over the years.

I also want to thank some friends that are no longer with us, Jim Van Dorn, Miles Edwards and Jerry Chamberlain. You all impacted me professionally and I will never forget you. Cori Wondercheck, I have known you the least amount of time but I must say that you are definitely family. Thank you to all of the board members and above all, thank you to everyone in the Rural Water Family for allowing me to assist you over the years. Damn...I knew I couldn't get this article written without my eyes watering.

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We Need ICE

No, not the stuff we have been plagued with over this last winter, but a new proactive effort designed to give emergency personnel, next of kin, and other emergency information via our cell phone.

ICE is an acronym for "In Case of Emergency." The concept was originated in 2005 by British paramedic Bob Brotchie after the bombings of the London Underground. He noted that so many of the injured were unable to speak to say who they were, leaving the paramedics and police to rely on the victims' cell phones for clues. It occurred to him that there should be a uniform manner in which police and paramedics could use cell phones to find an individual's emergency contacts and potentially save your life. And thus, ICE was born.

Over 190 million people in the U.S. subscribe to cellular service. Police, fire, and other emergency personnel across the U.S. are using ICE as a free service checking cellular phones if those injured are incapable of providing the necessary information. The catch here is this system only works if you and others add their ICE information to their cellular phones.

Making ICE a common practice will also help make it a routine measure for emergency personnel to check your phone when necessary. Yeah, I know we all theoretically have an ID on us, but it is still a good idea to use ICE. Your ID doesn't contain your emergency list of contacts, medical history, primary care physician, which your ICE contacts should have on hand. You can also use it for important messages. For example, I put in my ICE information that I have dogs home alone.

ICE is very easy to setup. On your phone, add a new contact. Enter the letters ICE1 then type in your contacts name, followed by their phone number. I have several ICE contacts and information, and I just give each one a sequential number. For Example, My ICE1 is my first contact. My ICE2 is my second contact and My ICE3 is the message about my dogs. When you are choosing phone numbers for your emergency contact, make sure that it is easy to reach them. It does no good to have an emergency number for somebody's phone that is only answered during the day.

Once you get your ICE contacts in your phone, be sure to let them know you have done this and that they agree to being an ICE Contact for you. Once you have done that, you can provide them with your phone list of family members, primary care physician, and also main work contact. Also be sure to provide them with your medical conditions, such

as allergies, current medications, and previous medical procedures. Be sure to keep this contact information current, and also update your ICE contacts of any changes in your medical history.

ICE can and should be used by everyone.

Make sure your kids have ICE on their phone, even if they are under 18. Those under the age of 18 should list their mom, dad, or legal guardian as their ICE contact. Tell them to be sure to use real names and not just mom or dad in their contacts. It is particularly important for those of us that are living alone or traveling by ourselves.

In fact, it was getting hurt while I was traveling alone last year that caused me to find out about ICE. Some of you may remember that I took quite the tumble at the Waltman Rest Area. There was absolutely no one around. I was driving back to Casper with my hat pressed up against my nose because it wouldn't stop bleeding, it occurred to me that even if someone had been around they wouldn't have had a clue who I was or who I needed to have called if I was not conscious. When I got back to the office the next morning, I googled through swollen eyes, what to do in case of emergency if you are alone. ICE appeared in the first listing.

The more individuals that add ICE lists to their cellular phone the more likely that emergency personnel or just someone finding someone hurt will look at that persons phone for information. If your phone locks after a few minutes of non-use, you can still use it. Go to Settings: Emergency Notifications and add your ICE1 & ICE2 contacts. My Galaxy allows for up to 65 characters. Your ICE1 and ICE2 will stream across your locked screen. If you don't like strolling stuff on your screen, there are apps out there that will display your contacts on a locked screen. These apps are available for both Android and I-Phone.

ICE is becoming a more common practice. Now that you know, don't put it off. Add it to your cell phone right now. This is a proactive tool that can save lives and costs absolutely nothing.

Spread the word and let's get this done.

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Spring 2023 – Change at the Speed of Light

Our 32nd Annual Spring Training Conference held April 18th-21st was successful by all measures. Thank you to all involved. The theme of change at the speed of light pretty much held true as some information was changed as the presenter was walking to a podium. Let's just say the info was current!!



USEPA representatives: Erica Wenzel, Jill Minter, Chelsea Ransom, Kendra Morrison, Jamie Harris, Lucien Gassie, Kyle St. Clair

While attendance has not returned to pre pandemic levels, I'd like to think it may be affected by continuing COVID issues, as well as travel constraints. We had over 250 registered along with a sold-out exhibitor area with 57 exhibitors. The Ramkota did a remarkable job considering the ongoing supply chain issues that affect food choices, as well as cleaning supplies and other aspects. The classes and the outdoor sessions, 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. Thank you to Senator Barrasso for dropping by the Annual Business Meeting



Michelle Christopher teaching a Water Witching class

on Friday to update the group on DC happenings and for all he is doing for Wyoming. Our Congressional Delegation is strong, engaged, educated on industry issues and I am very glad to work with them and their staffs.



Casper Wastewater Plant Tour

The drought presentations from the Wyoming State Climate Office, lab sampling, hydrants, water plant tour, water witching, Lead and Copper Rule, NRCS info, bulk water hauling updates, wastewater plant tour, the Rawlins case



left to right - Wayne Stewart, Marketing Manager for Visit Casper; Anthony Prince, Marketing Manager for National Rural Water Association; Brandon Mistelske, Operator for the Town of Saratoga; Chuck McVey, Utility Supervisor for the Town of Saratoga; Shelby Johnson with USDA Rural Development in Wyoming and Colorado French, Field Staff for US Senator Cynthia Lummis.



Stevie Osborn is presented with her Certificate of Completion of Apprenticeship by Riata Little Walker, Apprenticeship Program Coordinator

study and Source Water Protection. WYDEQ; USEPA; SannerIT, City of Casper, Aktivov Asset Management, Carl Brown Getting Great Rates, USDA on funding updates and all of our many valued exhibitors/presenters. Reading all of this, now that's value for your training dollar!!

We also had a great Best Tasting Drinking Water in Wyoming contest and one of the closest. The Town of Saratoga made another visit to the finals (8th) while Grand Targhee Resort made its 9th trip to the finals and The Town of Cowley made its 1st along with Teton Village Water and Sewer District. Congratulations to the Town of Saratoga for their 2nd win. I look forward the trip to Washington, DC in February 2024 to watch Saratoga compete in the Great American Taste Test. A reminder that Chugwater finished in the top 10 this past February.

Again, Thank you to 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 33rd Spring Training Conference scheduled for in, April 2024. Mr. P.

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Making Projects Happen

System Development Fees and Surcharges, Part 1

Carl Brown, President
GettingGreatRates.com

Author's Note: Those who calculate and set rates (management staff, boards and councils) are the target audience for this article, and one to follow in the next edition. If you are not a rate setter or calculator, I hope you will pass this article series along to those who are.

To speed up the writing, I will not use the third-person tense, such as, "according to 'the author...'" Instead, I will just say, "I say..."

Why assess system development fees? Because it costs money to build capacity to serve new customers. You obligate capacity every time you connect a new user. Eventually, you run out of capacity to obligate. If you don't assess capacity costs to new connections, the cost gets passed on to existing customers in some other rate or fee. That is not fair.

Water and sewer service are the utility types discussed in this article. Why? They are just about everywhere there is a concentration of people.

But, SDFs and minimum charge surcharges should be applied, with some tweaking, to electric, trash collection and other services, too. Brevity demands limiting the media covered here, but the principles are the same for other services.

Why assess capacity surcharges? Same reasons, but, doing it with surcharges lets customers pay over time.

This article examines system development fees and minimum charge surcharges, later just called, "SDFs" and "surcharges." In particular, it describes meter size-based SDFs and surcharges. Granted, you really don't want to deal with setting (raising) rates

Definitions:

Cost-of-service or cost-to-serve rates – rates that recover costs from new customers and existing customers in proportion to the costs that each one causes.

System Development Costs – those incurred to build capacity-to-serve.

- System Development Fees (SDFs) recover those costs proportionately and "up front" at the time a new connection is made.
- System Development Surcharges (surcharges) recover those costs proportionately, over time, as an addition to each customer's minimum charge.

at all. But, in the utility business, rates happen. If you must set rates anyway, why not set adequate and fairly structured rates?

Should your utility assess SDFs and surcharges? Yes, if:

- If it is growing very fast, or
- It has at least three different meter sizes, or
- It has any four-inch or larger meters, or it might be asked to serve such meters, or
- It serves very many dedicated irrigation meters.

Rates should match the customer base. If that base is simple, rates should be simple. As communities grow and diversify – become more complex – their rates should match that complexity. Usually, such rates should include meter size-based SDFs and surcharges.

How a community sets SDFs sends a message. "We believe everyone should pay their fair-share." Or, "Cheap fees! Cheap fees! Please build here." Or, "We want to keep out the riff-raff."

There are surcharges to pay for things like high-strength wastewater. Cost-to-serve principles apply there, too. But, those surcharges are not calculated like capacity SDFs and surcharges.

The above statements are simplistic and crass, but you get it. Where and how you set SDFs, and all other rates, sends messages. Be sure that the message people receive is the message you want them to receive.

Like many, I am a proponent of cost-of-service rates. You might not adopt cost-to-serve rates. But, you should determine what such rates would be in your situation. That way, you will know what you are gaining and losing when you adopt different rates.

I beat the cost-of-service drum loudly. But, I think each system should have appropriately simple or complex rates. Sometimes, simple trumps mathematically fair. Your rate analyst can gather data, do the math and advise you, but the simple versus fair decision is yours, not theirs.

To that end, if you want to learn how to do cost-of-service rate "studies," your starting place needs to be a visit to the American Water Works Association store: <https://www.awwa.org/store>, to order the manual, "M1 Principles of Water Rates, Fees and Charges." Spoiler alert: many hours and tough reading ahead, but if you want to be a rate analyst, you've got to put in the work.

Ah, you say you don't want to be a utility rate analyst? But, you still want to get that job done right, at a reasonable fee? Then, visit <https://gettinggreatrates.com/freebies/rag.pdf> to download the free "Rate Analyst Guide." The guide will help you solicit and select the right analyst and manage them successfully. There are lots of ways to do this wrong. You want to get it right.

But, wait! Your first action should be contacting Bill Connor of the Association. If your situation is simple, he can advise you and even help you with some math – no big rate analysis needed.

If your situation is more complex, know that the Association initiated the Wyoming RATES Program to do the difficult math. Disclosure: I am the analyst for the Program, so I would do

that math. To learn more, visit <https://gettinggreatrates.com/consulting/WyRATES.pdf>. There are a couple of nice features of the RATES Program: Member systems get a 25 percent discount off my regular fees, and, the Association monitors my work, fees, etc. to assure that its members are being charged, served and treated right.

Back to the cousins: SDFs and surcharges; these are two parts of a comprehensive rates program. SDFs recover capacity costs “up front.” Their forte is recovering peak flow capacity costs. Why recover peak costs up front?

An aside:

Comparing your user charge rates to neighboring utilities is risky business. Their rates are probably unsustainable, unfair or both. You shouldn't match that.

Rule 1: Don't compare user charge rates.

Exception: If your rates are the lowest or most unfair of the bunch, comparison is your friend.

Exception to the exception: Many folks are proud of having the cheapest rates around, even if that results in bad or risky service. They might dig in even more when they find out they have won the race to the bottom.

My advice: Apply Rule 1. Figure out what it really costs, be strong, charge what it costs. For what customers get, those rates will be pretty cheap, too, and the utility will be funded right.

Rule 2: Do compare SDFs. Isn't rate setting fun?

If a big water-using plant wants to move to town and will need an eight-inch meter, and that will require you to upsize a lot of infrastructure, it is best to get as much of that extra cost up front as you can. Oh, you could plan on recovering all those costs over time with surcharges. But, if the plant goes belly up after five years, everyone else will be left holding the capacity cost bag.

But, there is a natural limit to how high SDFs can go – competition. If you price new connections too high, development – with its jobs, higher utility sales and so on – goes down the road where it is cheaper to build. You must find a happy medium on SDFs. Decisions, decisions.

Surcharges, on the other hand, recover capacity costs on the “easy payment plan” from current ratepayers. Thus, you should get what you can up front with SDFs. Get the rest, or a lot of it, over time with surcharges. You can recover peak flow and base flow capacity costs with SDFs and surcharges.

There, I said it. Capacity costs come in two flavors: peak and base flow.

Fees to recover peak flow costs should be based on meter size.

Base flow costs are the same for all customers, big or small. Thus, the base flow fee should be the same for all customers. If you are doing, or getting, a cost-to-serve rate analysis, just classify base flow costs as “fixed” and they will flow through to the base minimum charge – easy and fair. That means, for all

All developers want a deal. Be wary of the “Let us in cheap and you will be richly rewarded” sales pitch. Sometimes, cutting connection fees to lure development doesn't pan out.

practical purposes, you only need to recover peak flow capacity costs from SDFs and surcharges.

I have alluded to meter size-based rates several times, but why?

Meter size-based rates are clear cut. Other methods can be quite subjective. In rate setting, you want things to be clear cut every chance you get. You want to say to a disgruntled ratepayer, “The math says this is fair so we're going with fair.” Once you stake the high ground, which is mathematically supported, they are forced to argue for the low ground. Have that discussion openly, in front of everyone, and your other ratepayers are going to argue for the high ground rates, too. Plus, they will appreciate your being fair and open with them. Solve two problems at once.

The following generalities should give you an idea of when SDFs and surcharges are appropriate:

- If your community has stopped growing, “May-day! May-day!” If it is growing very slowly, just one “May-day!” With few new connections to assess fees to, SDFs become a moot point. They will generate little revenue. (The huge point is, the sustainability of your system is hanging in the balance. You have bigger fish to fry than SDFs.) In these cases, forget SDFs. By vote of the board or council, set new connection fees low and pretty flat. Maybe even eliminate them. But...
- Recover at least some system development costs through meter size-based surcharges. That way, you won't discourage growth, but you will recover at least some system development costs fairly over the long run.
- As communities mature, their infrastructure needs transition from mostly building new “stuff” to mostly replacing or upgrading existing stuff. SDFs match up well with costs for building new stuff, so use those costs as the basis for SDFs. Only new connections pay SDFs. Surcharges, however, are on-going and existing customers pay those, so those fees match up well with replacing existing stuff.

Those are some of the important SDF and surcharge concepts and realities. SDFs and surcharges should be a part of many utilities' rates, so consider them. Adopt them if they will help.

Next time we will tour the math of SDFs and surcharges. Math can be hard, but several tables in that article should help you to more easily grasp how it is done.

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

One Water

Water. Wastewater. Irrigation. Storm water. These are considered different industries, often vying for prestige, allotments and funding dollars. What if I told you that it's all the same water? Water is made up of two molecules of hydrogen and one oxygen molecule, regardless of use. There are other things in the water, but it really doesn't change that much. Sure, wastewater from the collection system has higher coliform counts than treated drinking water (or at least it should!), but if all waters were pure and sparkling, we'd be out of a job. Regardless of direction of flow or pressure, distribution and collection systems are collections of pipes, pumps and access points. If your treatment facility is upset, you're probably looking for ways to slow down the flows or recirculate them whether it's water or wastewater. The One Water concept is being introduced by AWWA, but I've been saying this for years, there is only one water.

While it is probably important, nay imperative that water and wastewater stay separate during treatment and consumption, we need to start considering them two phases of one cycle as opposed to two separate cycles. This is especially important for those of us who are privileged to live in headwater states. Downstream states rely on the quantity and quality of water we send to them for human health, agriculture and industry. Wastewater that we discharge fills water bodies or percolates into the ground, recharging aquifers. Evaporation from our non-discharging lagoons takes a different path in the water cycle, but it's going to be somebody's drinking water eventually. The better we care for our source water, the lakes, streams, rivers and aquifers, the more cost effective our treatment will be. Water treatment facilities are designed to remove pathogens, turbidity and other contaminants, but additional treatment steps add complexity and expense to a facility. Those facilities also become less efficient with the water they take in by adding additional treatment steps.

Drinking water systems don't get a pass from the wastewater facilities simply because it's the job of wastewater facilities to remove contaminants. Whether we are adding phosphate to drinking water to reduce corrosion, or discharging backwash water into the collection system, drinking water treatment techniques affect how wastewater must be treated. Is it the job of wastewater to remove pathogens and make the effluent safe to be discharged so that rivers, lakes, and other water bodies can support life? Absolutely. However, if we don't consider the full cost of adding drinking water treatment techniques, we may be creating issues downstream that our wastewater facilities are not fully equipped to deal with. Does this mean that we can use placing an undue burden on wastewater facilities as an excuse to inadequately treat

drinking water? By no means! What it does mean that rather than using a treatment technique in a blanket manner to solve a potential issue, we must consider the full effects of the technique and apply use on an individual facility basis. If that means including the wastewater treatment plant and collection system managers a part of the planning and design team for the water treatment facility, so be it. We must begin considering the whole watershed, recharge area or entire water/wastewater cycle of a utility in planning and development.

Beyond considering quality as an aspect of one water, there's also quantity. Water is a finite resource, especially in the west. Groundwater is often considered the saving grace during droughts, but when droughts begin lasting longer than a pair of shoes (not my running shoes, but somebody's shoes), it seems less of a silver bullet, and more of a rickety leg on a stool that's falling apart.

Drought affects the recharge rates groundwater aquifers. While it takes longer to see the effects of drought in groundwater, those effects are no less real, and take longer to see positive changes. So – how does water, wastewater, stormwater and a myriad of other uses play nicely when there's significantly less water to go around? First, it's important to acknowledge that all uses of water are valid and important in our communities. It's pretty hard to demonize agriculture water usage, then eat vegetables or other foods that have no chance of growing where you live. So, if all uses are valid, are some more valid than others? While we could argue all day about what uses are most important, the one thing I think everyone can agree on is that the first thing to do when facing a shortage is to improve efficiency. Whether or not we have the "right" to use a certain amount of water, the State expects us to put it to beneficial use. Leaks are not beneficial use, nor is water that runs down storm drains because of unregulated lawn irrigation. If we're going to expect other water users to share the water with us, we must be good stewards of the water.

Developing partnerships is an important aspect of a One Water philosophy. If we recognize that all water has value, then all groups working with water have value, regardless of actual financial status. These partners include upstream and downstream water users, industry, land managers, educators and many others. If we are considering actions based on the health of the entire watershed or recharge area, then we must include groups that have differing goals or value water differently. Engaging with all groups that have an interest creates dialogue, and those conversations lead to solutions that fit the issue, the system and watershed.

The time has come for us to recognize that we can no longer utilize water in the manner we've become accustomed to without severe repercussions. We cannot waste water through misuse and inefficiency, nor expect a downstream user to bear the entire expense of treating it. We must engage with all groups to develop commonalities that we can build partnerships on that will help us solve the water issues facing our area. The time has come to acknowledge there is only one water, and that water is life.

Operator's Corner

Wastewater Questions by Mark Court:

- What utilities must be shut off immediately when the basement floods?
 - Cable and internet
 - Electricity and gas
 - Municipal separate stormwater collection systems
 - Solid waste and backup generators
- What will prevent root intrusion into the collection systems?
 - Rigid joints
 - Scouring action
 - Sufficient flow
 - Vapor-tight joints
- What problems can occur when velocities in a collection system are too high or too low?
 - The velocities can be difficult to measure and record
 - The velocities can collect and release hydrogen sulfide gas
 - The velocities can enhance the inhibition of corrosion
 - The velocities can interfere with the operation and maintenance of the system
- Which type of collection system's principal components are force mains, grinder pumps and holding tanks?
 - Combination
 - Gravity
 - Low-pressure
 - Vacuum
- What is the flow in cubic feet per second (cfs) in a 10-inch diameter sewer pipe flowing full? A dye test indicates that the flow velocity is 1.5 feet per second.
 - 0.67 cfs
 - 0.79 cfs
 - 0.82 cfs
 - 0.93 cfs

- Canister gas masks only remove the chlorine smell.
 - Canister gas masks do not supply fresh air.
 - Canister gas masks are safe and effective for use in rooms with gas chlorine in use.
- Besides fighting fires, what are fire hydrants used for?
 - Traffic control, dog urinals, construction activities.
 - Construction activities, flushing programs, testing.
 - Street décor, construction activities, testing.
 - Flushing, public access, street cleaning.
 - The elevation of a pump is 6342 feet. The elevation of the tank that it pumps into is 6485 feet. What is the static head, in feet of the system?
 - 143 feet
 - 827 feet
 - 2745 feet
 - 2807 feet

Answers

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

Static head = discharge elevation – supply (pump) elevation
 $6485 - 6342 = 143$

Water

Step 4: $= 0.8170542975$

Step 3: Set up your formula
 $(0.4165 \text{ ft})(0.4165 \text{ ft})(1.5 \text{ ft/sec})(3.14)$

Step 2: Determine the radius of the pipe
 $\frac{0.833 \text{ ft}}{2} = 0.4165 \text{ ft}$

Step 1: Convert inches to feet like you did previously

It can also be solved like this:

Water Questions by Michelle Christopher:

- True or False: All algal blooms are toxic.
- Water with a pH of over 7
 - Reduces chlorination efficiency
 - Is associated with higher disinfection by-product levels (DBPs)
 - Is less effective at organic removal
 - All of the above
- Which of these statements are true about canister gas masks?
 - The material in the canister mask will be destroyed by the chlorine gas.

Answers

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

Step 1: Convert inches to feet
 $\frac{10 \text{ inches}}{12 \text{ in/ft}} = 0.833 \text{ feet}$

Step 2: Set up your formula
 $(0.833 \text{ ft})(0.833 \text{ ft})(1.5 \text{ ft/sec})(0.785)$

Note: $\text{ft} \times \text{ft} \times \text{ft/sec} = \text{cubic ft/sec}$

Step 3: Solve
 $= 0.8170542975$

It can also be solved like this:



Scrawny Girl's Granola

by Michelle Christopher

Granola gets a bad rap from many different angles. If you're in the 'Murica crowd, you use the term to refer to recyclin', Subaru drivin', hemp wearin' folks. If you're in the gym crazed pistol squat crowd, you probably eschew commercially prepared granola as too sweet, too much fat and too many carbs.

Honestly, I love granola. I don't love the commercial variety, as there is more sugar than I feel necessary, additives I can't pronounce, and the flavors are boring. I've tinkered with granola recipes throughout the years, adding various spices, seeds and nuts. This winter I embarked on an entirely new adventure in granola making: savory granola. Before you get weirded out and turn the page, allow me

to explain. First, get the image of not-honey sweetened, raisin studded granola out of your mind. Rather, think about wasabi, soy sauce and nachos. Nuts and seeds are appropriate in savory granola, dried fruit, not so much. Where do you eat savory granola? Honestly, pretty much wherever you want. It's great as a garnish for soups, casseroles, or simply as is. If I haven't been able to convince you on savory granola, I'm including my current favorite sweet granola version.

Gingerbread Granola: This granola is a holdover from the holiday season. It goes great with yogurt and cranberry sauce, leftover pie filling or other fruits. Or simply by the handful.

3 c oatmeal – I use old fashioned, however, if you're looking for less chewing time, go with quick oats.

½ c chopped nuts – these should be tree nuts like pecans, cashews, etc. unless you're allergic to tree nuts, then use something crunchy that you can eat. (I particularly like pecans and almonds in this)

½ c pumpkin seeds, sunflower seeds, or the like, or more nuts.

1 tsp cinnamon

1 tsp ginger, unless you're going for the holy grail and grating it fresh – then go with a 1" chunk, peeled

½ tsp cloves (I probably add more, but I really like cloves)

½ tsp nutmeg and cardamom, if you're feeling adventurous – it's completely optional

½ tsp salt

1/3 c molasses

1/3 c oil (I use olive oil)

*super cool tip, if you put the oil in your measuring cup first, then add the molasses, it's way easier to get out.

Preheat oven to 275 degrees F and line a rimmed cookie sheet with parchment or silicone liner.

In a large bowl, mix oats, nuts and seeds together.

In a smaller bowl, mix oil, molasses, spices and salt. Dump the liquid mixture into the bowl with the dry ingredients and mix until it's evenly combined.

Spread on the baking sheet and bake for 40 minutes, stirring half-way through. It will get a dark brown, so fear not! When it comes out of the oven, allow it to cool completely before breaking it into clusters and storing it in an airtight container. You could add raisins in this, but dried fruit can make granola soggy.

Nacho Granola – be brave, this one *almost* makes Doritos unnecessary!

3 c oatmeal – I use old fashioned, again, if you're looking

for less chewing time, go with quick oats. *If you're looking for a keto/gluten free version, I hear coconut flakes are a good option. I just wouldn't use the sweetened version in this recipe!

½ c chopped nuts – these should be tree nuts like pecans, cashews, etc. unless you're allergic to tree nuts, then use something crunchy that you can eat. (Cashews and corn nuts are pretty amazing in this!)

½ c pumpkin seeds, sunflower seeds, or the like
2 Tbsp cheese powder (It's a backpacking thing. You could substitute powdered parmesan or nutritional yeast flakes.)

1 tsp garlic powder

½ tsp each chili powder, cumin, paprika and turmeric

¼ tsp cayenne pepper (optional)

½ tsp salt

2 egg whites

2 Tbsp oil (I use olive oil)

2 Tbsp honey – yes this is savory granola, but you still gotta have something to stick everything together with!

Preheat oven to 275 degrees F and line a rimmed cookie sheet with parchment or silicone liner.

In a large bowl, mix oats, nuts and seeds together.

In a smaller bowl, mix oil, egg whites, honey, cheese powder, spices and salt. Dump the liquid mixture into the bowl with the dry ingredients and mix until it's evenly combined. Spread on the baking sheet and bake for 35-40 minutes, stirring half-way through. When it comes out of the oven, allow it to cool completely before breaking it into clusters and storing it in an airtight container.

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"INNOVATIVE SOLUTIONS"

Our Western Heritage

by Kathy Weinsaft

Spring Delights

I don't have a romantic bone in my body, but even I melt a little after a long Wyoming winter and the thought of spring. To keep myself from going even crazier than I already am during this old time Wyoming winter, I began making lists of places the pugs and I could use as home base while we explored the country side. I usually camp when I do this, but this spring I am going to spoil us and actually stay inside.

There is a really cool place that is tucked in just outside of Sundance at the base of Bear Lodge Mountain, hence its name Bearlodge Mountain Resort. There are private cabins equipped with kitchens. Wildlife spotting and strolling are high on my list of things to do while I am recharging. There is plenty of hiking around the area. It is not far from Devil's Tower which is a must for me every year. Packing a pole is absolutely a must because fishing around there is fantastic. About 30 miles from the cabin is one of the best western museums in the country. It was rated number six by True West Magazine. It is well worth the drive. While you are out and about be sure to stop at the Vore Buffalo Jump Site. It is fantastic. Only 10% of the site has been explored but I have never stopped there when something wasn't happening and it is also a cultural site for plains Indians. There are almost always volunteers to tell you about the site. It is a true Wyoming treasure.

In the Lander area? Oh, my gosh, check out the Outlaw Hideout Cabins. There are two cabins that are located on a working ranch and built from timber harvested from the property. There is a little spring running by the cabins and the location is just beautiful. You have a wonderful view of the Wind River Mountains up close and personal. There is always wildlife in the area. There are all sorts of legends about out-laws being buried on the property, which is totally possible. The Lawman cabin is 126 years old, made of hand hewn logs on the outside with everything totally new on the inside. It was originally built by an old Sheriff in the 1890's. I wish the walls could talk. I know that they would have stories to tell.

Because they are so popular, they like to rent the cabins for a minimum of two nights, but believe me one night is not enough. There is so much to see and do in the Lander area you would not want to stay less than that. There is all sorts of hiking in Sinks Canyon. The Trading Post in Ft. Washakie never disappoints, and if it is shopping you are after, there is a must stop in Lander. The Savvy Shopper is ground zero for Wyoming Pug Rescue. If you would like to cuddle a pug while finding the coolest and most unique clothes and household items at the best prices, hit the Savvy Shopper. Tell Danni, the owner, that Kathy sent you.

If you prefer swanky over rustic, there is the Lodge at Jackson Hole. It's located in the city limits, but has mountain

views. I have not stayed here, but I have seen the rooms and they are truly luxurious. There are all sorts of spa treatments available and a really good fitness center, jacuzzi and all season heated pool. It still has a western flavor, even with all the bells and whistles. If you watch their site, they often have deals on the rooms which makes them affordable. It is hard to beat spring in Jackson.

Enjoy all the food, hiking and window shopping that is available. For me and the pugs, the better option if I am in the area, is Signal Mountain Lodge. I love the place. I found it decades ago, long before I moved to Wyoming. It is actually at Moose and in the heart of Grand Teton National Park. It also has a marina, grocery store and a restaurant with the best view of the Tetons available. They have all sorts of lodging available from one-room mountain cabins to suite style units with kitchens. They all have amazing views and the pugs want me to tell you that the sniffs there are the best.

I love all these places, but I may have saved the best for last. It is River Ridge Cabins located between Saratoga and Encampment. Oh, dear lord! The setting is as peaceful as it gets. The family that owns the property have been there for generations and they are kind enough to share it with visitors. There are two cabins and lodge. The lodge would be perfect for a family reunion. The cabins are just gorgeously decorated, and nothing is left that you could desire. The kitchen is better than any I have ever had in my own homes. There is a gas fireplace if it gets nippy and lots of beautifully made quilts to bundle up with in the morning as you enjoy your coffee out on the full porch. There is huge TV, but you will be so taken with the quiet, I bet you don't even turn it on. The hiking in the area is second to none and there are all sorts of unique shops from Saratoga to Riverside to Encampment.

It is spring, don't take it for granted. Get out there and enjoy these wonderful places and all they have to offer.

It is, after all, part of our Western Heritage



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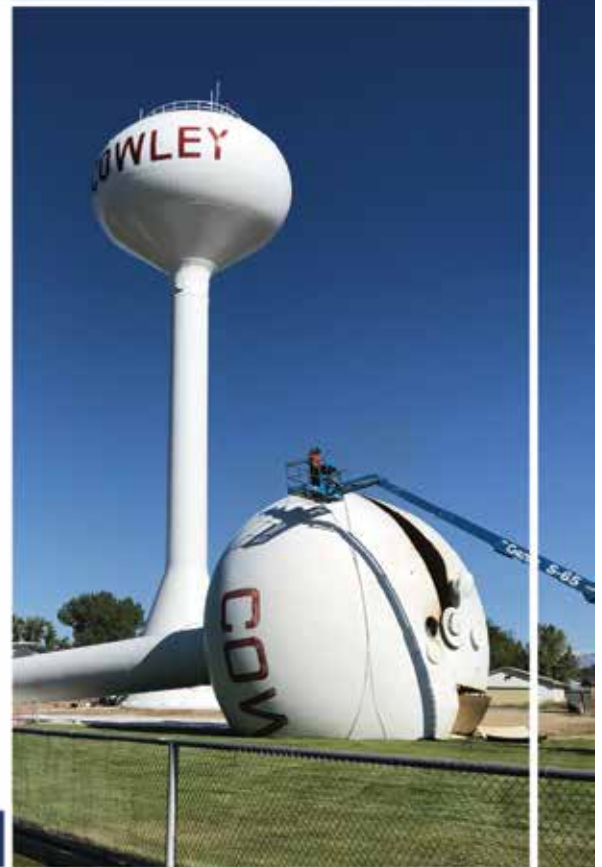
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