

The Wyoming Connection

Summer 2024

Decision Makers - Not Informed, But Liable

When Lagoons Get Hit With Something

The Lake





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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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Contents and Features

Decision Makers – Not Informed, But Liable	5
Operator's Corner, Michelle Christopher	7
When Lagoons Get Hit With Something, Joe Dankelman	8
New Circuit Rider, Randy Rumpler	9
Just In Case, Kathy Weinsaft	10
The Lake, Michelle Christopher	12
Our Western Heritage, Before the Snow Flies Again, Kathy Weinsaft	13
Scrawny Girl's Charcuterie Board, Michelle Christopher	14
To Charge, or Not to Charge?, Carl Brown	15

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 – Seminoe Dam. 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.

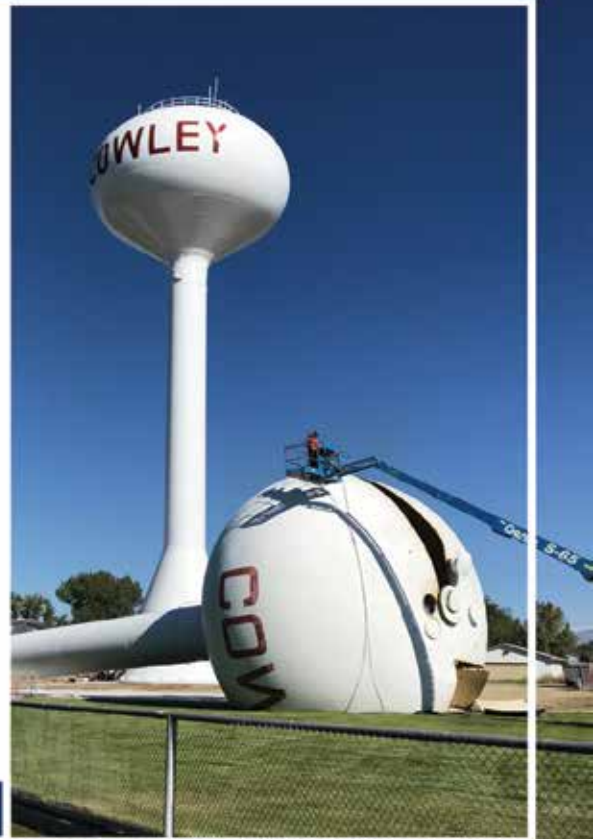
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Decision Makers – Not Informed But Liable

Typically, less than 30% of all elected or appointed decision makers attend either WAM, WAMCAT or WARWS classes on board training, liability issues or understanding governmental financing. With recent court cases across the U.S., board training is becoming imperative. This was the impetus for the legislature creating and passing legislation that required the Wyoming Department of Audit to write rules on Public Officer Training.

I wonder how many elected officials or hired management know that they may be held personally liable for sewer backups? Insurance may not cover these backups if the entity has not taken the necessary steps to insulate from actions considered negligent? Did you know that elected officials or hired management are being held personally liable for lack of financial planning in some states? Financial planning deficiencies can include deficient rate schedules, budget shortfalls or lack of trained utility personnel. Did you know that elected officials or hired management can be held liable or criminally culpable for some of these offenses? Please encourage your elected officials or hired management to attend these classes with you. In addition to classes for utility license renewals, we always have a management track.

We have worked with a few councils and boards during 2024 that have been rocked by lapses in trust with a clerk or treasurer or in a couple cases, an entity credit card misused for personal expenses by utility staff. In all cases the elected boards or councils had yet to complete the required Public Officer Training.

While we created curriculum to satisfy the requirement and can conduct this training free of charge, it is a 6 hour class that we do. The State Department of Audit has since created 6 short videos available on their website for elected and appointed public officials to watch at their own pace. Once you finish the video(s), there is a short test to take. Successful completion will generate a certificate to be held by the entity to satisfy this new rule. Failure could result in not qualifying for state loans or grants until 100% of the body has successfully completed the minimum training offered. Along with this training, the SLIB Board and or State Revolving Loan fund have created new rules for your entity

WARWS DOKU

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8		6						1
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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.

to qualify for state funding including an Asset Management Plan, adequate rate structures and other items. Visit or contact the Office of State Land Investment to make sure your entity has everything needed to seek state funding for your projects.

And yet, in a couple cases, board or council members have indicated that they failed the test and are not sure why. Some have complained to the legislature to remove or adjust who has to take the class. One legislator/board member indicated that he did not think he should be required to take the class since he does not sign checks and thus had no fiduciary responsibility.

In conversation with him I asked if he voted on the budget and or voted to approve checks to be paid, vouchers or financial reports annually or monthly. Of course his answer was yes and I informed him that and the fact he did not believe he was responsible, is why the training was needed and he needed to take it.

We find many boards and council members do not ever look at a bank statement, cancelled checks (or copies provided by the banks), or never review the financials against a budget or

ask questions about the budget vs actual. They remark that is the Clerk's job.

I agree it is the Clerk's job to provide all that to the board or council for review and since the council or board is the only group that can approve the items, approve payment for bills presented, the board or councils job is to provide fiduciary responsibility oversight of the clerk and all operational matters of the entity.


Many boards and councils are surprised to find out that they are responsible for all aspects of the Safe Drinking Water Act and or the Clean Water Act which includes the operations of their water and or wastewater licensed utility professionals. Those acts indicate that the owner of the utility is both civil and criminally liable for utility management.

The owner is defined in those acts as the Elected Public Officials, not the licensed water operator. The licensed water operator has the same liability as the Elected Public Officials separately from the owner. Negligence can be considered in determining culpability.

So, visit the Wyoming Department of Audit website, click on the public funds tab and follow the drop down to the "Training – Public Officer" and all the info, videos and access to the test is available there.

Or, you can give us a call and we can conduct an onsite 6 hour class on the same info but probably a little more in depth with a lot more real life examples. Mr. P.

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Operator's Corner

Water Questions by Michelle Christopher:

- True or false? The best way to locate a chlorine leak is to spray water on the piping.
 - True
 - False
- Oxidation is a treatment technique for taste and odor control. Which of the following chemical groups are oxidants?
 - Ferric chloride, aluminum sulfate, bentonite and polyaluminum chloride
 - Potassium chloride, calcium hydroxide, magnesium chloride and sodium silicate
 - Chlorine, potassium permanganate, ozone, and chlorine dioxide
 - Powdered activated carbon, granular activated carbon, soda ash and zinc poly phosphate.
- Which of the following is NOT a factor influencing corrosion?
 - Pipe material
 - Dissolved solids
 - velocity
 - flocculation
- Which valve is designed to throttle flow?
 - Gate
 - Butterfly
 - Plug
 - Check
- A jar test indicates that the optimum alum dose for a plant is 95 mg/L. If the average daily flow through the water treatment plant is 1.25 MGD, how many tons of alum will be used in a month? (assume a 30 day month)
 - 14.9 tons/month
 - 990.4 tons/month
 - 0.5 tons/month
 - 29,000 tons/month



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- Determine lbs/day: $95 \text{ mg/L} \times 1.25 \text{ MGD} \times 8.34 = 990.375 \text{ lbs/day}$
- Convert lbs/day to lbs/month (multiply by 30 days/month) $990.375 \times 30 = 27,911.25 \text{ lbs/month}$
- Convert lbs/month to tons/month (divide by 2000 lbs/ton) $27,911.25 / 2000 = 14.85 \text{ ton/month}$

- B
- C
- D
- B
- A

Answers Water

A Note From

Joe Dankelman

Circuit Rider
joed@warws.com
307-439-9065

When Lagoons Get Hit With Something

Small systems issues pop up once again, for a small-town lagoons system. While traveling around the northwest side of the state, WARWS ran into an upset lagoon. Unfortunately, these issues sure seem to share some common traits that go up all over our wonderful state. Unlike a possible meth hit, which are all too common, this may have been caused by the unintentional dumping of common household chemicals. This Town has a population under a hundred people on a good day, and only end up discharging a couple of times a year, if at all. Some years they add water from their fire hydrant flushing program to make up for the evaporation rate they deal with. Still, their lagoons flipped on a dime and soured up in just a few days. Seems no one system is immune from the household chemicals that we all use at one time or the other.

As Spring of 2024 started warming up and the ice melted away, the three cell lagoon system was looking great. That is until it didn't! As the operator was doing his daily checks, he realized straight away some was very wrong with the first cell. The cell went from a nice green tint to a darker brown color with floating mats of scum thrown in, for an added visual wow factor of ten. While investigating further, we noticed a pungent smell at the influent manhole. The smell had a distinctive chemical funk to it, which I've haven't run into yet. The funky smell of the influent was accompanied with a chalky white color, similar to a glass of milk diluted with some water.

As the tour continued, cell two also showed signs of the start of not being happy at all. While not as bad as cell one, the cell did show the same discoloration the first cell did. Cell three seemed to only have mats floating in the south corners but started to become a darker green. These cells are maybe a couple acres, each with an average depth about five feet. No aeration is available, and bypassing the first cell was not an option at the time. Once again, thanks to having a great emergency response plan, the operator took rapid steps to fix the issues he was encountering.

The first step taken was trying to find the source of the influent issues. This turned out to be an exercise in futility at

best, which produced no smoking gun. In a few days' time the influent did clear up, so finding out the issue that caused the mess will never be found. Followed was the treatment of the first two cells with some bugs, and potassium permanganate to up the DO. This treatment finally did a great job, bringing the lagoon back to looking great in a couple of weeks. While no smoking gun was found not discharging turned out to be a blessing, giving the operator time to get thing under control. Once again, thanks to a great operator, some luck, and doing daily checks a possible disaster was avoided.

Some other ideas we kicked around were adding some informational flyers to the water bills. To include, how fragile a lagoon system may be too common household chemicals. Bringing these issues up at a Town Hall meeting? How much it could cost the town to repair the damage chemicals can cause. A possible increase in sewer rates, to offset those costs. If required, the extra testing costs the town may have to fork out. In this case having some extra bugs, and potassium Permanganate on hand really saved the day. Keeping an updated ERP was also a huge help for the operator, and the new operator in training. So if your system is small, or have enormous cells like the ones in Powell be on the watch for a hit on your lagoons at any time. Come fall when the town slows down to a dull roar, we will add the required cyber security information to their ERP. Any of your favorite WARWS staff are more than happy to swing on in, to lend a helping hand.


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A Note From Randy Rumpler

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

New Circuit Rider

I would like to introduce myself. Most of you know my face from all the conferences we have attended. I started my public service as a professional certified police officer in Greybull for almost 8 years. My wife, Carol, and I decided to have kids and we have a son Quintin, 33 years of age, and a daughter Eliza age 30, we have two grandkids, Bentley 8 and Valarie 10 years of age. I watched the other officers taking vacation to go watch their kids in sports and decided I wanted to be a dad and moved over to public works. I obtained my level 1 water treatment and level 2 distribution, and then received my level 1 wastewater treatment and level 2 collection licenses. In 1992, Ross Jorgenson became our Public Works Director and he sent me to Casper College, and I received my backflow licenses, tester, surveyor, and repair.

Ross then left the Town of Greybull, and we went through a couple other directors. I moved up to the Director for the Town of Greybull and kept that job for 12 years. In 2011, I took a job with WYDOT in Rawlins, after 20 months we decided this was not for us. I interviewed for the Directors job opening in Glenrock and I was hired. Working in Glenrock, we have completed several water and sewer projects. We also built the Town Square, which has two large playground equipment, volleyball court, basketball court, concession stand, meeting room, and amphitheater, splash pad, oh and a synthetic ice-skating rink. We also built a new Boy's and Girl's club for the youth of Glenrock. I was the project manager for both of these projects.

Well, now you know where I am out now. I have always loved what Rural Water has done for everyone, helping us, and teaching us. I decided to make the move and get away from politics. I just hope I can assist you as others before me, plus it is time to put names to all the faces I have seen at training classes. When I stop by, please take a little time to visit so we can get to know each other.

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Just in Case

In 18 years with Wyoming Rural Water I have never repeated an article. The time has come. I am updating an article about documenting sanitary survey deficiency corrections. Just in case you didn't read it the first time or have misplaced the information here is your second chance.

Last year when I wrote about this subject Wyoming had 215 significant deficiencies in 86 systems. This year we have 332 significant deficiencies in 102 systems. We are not getting better at this whole documentation thing. I am unclear where the disconnect is but I know getting these deficiencies cleared is a doable. Let's start at the beginning.

The process will begin when you receive a Sanitary Survey letter from EPA informing you that significant deficiencies were found during a sanitary survey of your water system.

Normally you will have six months to correct the deficiency and to provide documentation of the correction to EPA. This is where the communication needs to begin.

Do not ignore the deficiency. It isn't going away by itself.

Get a plan together and send it via email to Matt Langenfeld at Langenfeld.matthew@epa.gov and always include R8D-WU@epa.gov in any email to EPA. This ensures that your email will go to Matt. Always include your name and phone number, and include the systems PWS # and the name of the system in the subject line of all email messages. Make sure that you can explain how you are going to correct the deficiency.

Be aware that you may need a permit from WYDEQ to make the correction. Call your district engineer and make sure. Here is the link to the District Engineers <https://deq.wyoming.gov/district-offices>. If you need a permit or if there are other valid reasons it may very well take more than 6 months to correct your system's deficiency. If you need an extension, send an email requesting an extension to Matt before your significant deficiencies are overdue and before you have received a Notice of Noncompliance. Provide the PWS # and the facility in the subject line of the email. Identify those specific significant deficiencies that an extension is requested for. Describe why you are requesting an extension. Needing to get a DEQ permit is a good reason. Not a priority is not a good reason. Provide a new recommended date for completion. Follow up with Matt in a couple of weeks if you don't get an email response and let him know that you have requested an extended schedule. You will receive an email response to the extension request. Keep EPA in the loop as

you get your permit or as you begin your correction. Don't make them guess what you are doing.

Once you have made the correction, you need to document what has been done. This is where many mistakes are made. Here is a link to the form that you need to use and submit [SDWA-08-2022-0004 CORRECTION NOTICE DOC.pdf \(epa.gov\)](#). This form needs to be completed and EPA notified within 30 days of correcting each significant deficiency. Keep communicating. Be sure when you fill the form out that you include pictures of the correction. Make sure that each picture is uniquely numbered and listed on the correction form. You place the PWS number for your system at the top of the Significant Deficiency Correction Notice. Do not place this number below in the facility box. A facility is a component of the water system, not the PWS number. In the box that says facility, place the item that you are correcting such as storage tank or well. In the Significant Deficiency box next to the facility box on the form place the number of the significant deficiency that is in the original letter you received and what the deficiency was. Be sure to include your WYDEQ Permit #, your name, phone number and email address on the form along with a copy of the permit. If no permit was needed or required, check the NA box.

The next group of issues that are problematic in documenting the corrections that have been made are with the pictures that are or are not submitted. Submit pictures! Make sure that the pictures adequately show the correction. If possible, include before and after pictures of the correction. Make sure the pictures are not grainy or dark. Remember you are trying to tell a story with the pictures. Include tape measures in pictures to demonstrate distance and scale. Make sure that the tape measures are readable in the picture. Include close up pictures of what has been corrected along with pictures of the entire area. Again, make sure that each picture is uniquely numbered and that the number of the picture is included on your correction form. Provide a narrative with each picture explaining what you did and why and when it was done.

Correcting significant deficiencies on tanks and documenting the corrections is worthy of an entire article unto itself. A tank may receive a significant deficiency if the sanitary surveyor is not able to access portions of a tank due to safety concerns, the well seal cannot be viewed or if they find an overflow or drain. If this happens, you will need to be your own surveyor and fill out the Storage Tank Finished Water Inspection & Cleaning Checklist. This checklist is totally different from the significant deficiency correction notice form. You may well need to fill out both of these forms. You can find this checklist at www.warws.com under downloads water. It is often difficult to see your own system, or tank accurately. It may be helpful to have a second set of eyes with you when you attempt to fill out this form. Reach out to one of our circuit riders. They will be more than happy to help. We are all here to help. Let's give EPA what they need in the format that they need it in and clear up all these significant deficiencies. Please, let's get these deficiencies cleared up so I don't have to write a 3rd article about the subject.

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04

Storm water collection, transmission, and disposal

05

Other related activities such as permits and legal fees



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The Lake

For the last 26 years of my life, John and I have been hiking to Shamrock and Mirror Lake in the spring. Most years, this backpacking adventure occurs on the weekend before Memorial Day. It has been as early as April 28th, in honor of John's birthday, or as late as June 8th because of work schedules, but it's always been our way of starting summer adventures. The weather has ranged from 70 degrees with blistering sun to 15-degree nights, blizzards, torrential rainstorms and gale force winds with the occasional lightning strikes to spice things up. We've experienced the highs, lows and everything in between at the lake. It's been an incredible luxury and honor to watch this lake for over a quarter of a century.

Obvious things have changed at the lake. For starters, John and I have aged. With that aging has brought on gear changes. We no longer accept post holing through snowdrifts but carry snowshoes. Sometimes we put them on within a mile of starting, other times we only put them on for the final mile. Instead of blue jeans and Carhartt carpenter pants, we now wear quick-drying space age fabrics and stuff puffy jackets in our packs instead of tying insulated flannel shirts and sweatshirts on the pack tops.

One sad retirement this year was John's sweatshirt. He has proudly proclaimed that he's had it longer than he's had me. It's made 30 of the 36 years that he's been coming to the lake and has gone from the warm top layer to a lightweight underlayer. I think he's vacillating between a Viking style funeral or bronzing to give it a proper send off. Our packs have changed as well. Gear technology has benefitted wildly from the advances in fabrics and popularization of the lightweight backpacking movement. Our tent, sleeping bags and cooking gear are now lighter than just the sleeping bags we carried on my first trip.

The lake shows more subtle changes. I've watched trees battle-scared from fires, lightning and insects die, decay, and fall in the lake. When the big tree first fell in, it was nearly impossible to fish from because of the many branches sticking out everywhere. Now, its protruding branches are broken off, and the tree is albeit completely submerged.

I've also watched tiny seedling trees sprout, grow and flourish. One such tree started from a decayed stump in the sedge filled outlet of the lake. This tree is now over 20 feet tall, and with the sedges, its roots are trapping sediment, creating a marshy riparian area where new plant species, ones that prefer slightly drier conditions are beginning to grow.

With the filling in of the shoreline, you'd think that the lake level would be rising. Surprisingly, it's been dropping. While I have no specialized monitoring tools to prove this, I do have highly calibrated rocks and logs. Rocks and logs which I've spent countless hours trying to retrieve my snagged lures from. Rocks and logs which I now stand on to cast into the water. An obvious reason would be that we're consistently going in earlier now than we did when we were young (hooray for not having to rely on 3-day holiday weekends!). However, the springs don't appear to be flowing less, nor does the creek downstream of the lake appear to have diminished flows. Again, I'm using highly calibrated rocks for this statement. Also, several summer trips have confirmed these levels are consistent regardless of season. Shamrock Lake is created from a natural lava rock dam. I'm curious about the dam. Has changes in flows and water quality created pathways through the dam?

These changes in levels and flows have also created changes in water quality. Shallower lake depths create warmer water. The lower lake levels also mean less water volume. Less water volume and increased vegetation create higher concentrations of nutrients trapped in the lake. Shamrock is a eutrophic lake. Eutrophic means "good nutrition" in a literal sense, and when we're talking about bodies of water, it basically means there are high levels of nutrients. This seems like a "well, duh" description of Shamrock, as it is always a bright shade of green due to the high algae content. (Green algae, not the toxic cyanobacteria.) However, as the lake levels have been decreasing, I've noticed rafts of floating algae. An almost unheard-of occurrence on previous trips.

What do these changes mean? Simply put, landscapes change. Even wild ones. We could go to great lengths to "save Shamrock", create terracing on the barren west slope to reduce sediment loading, dredge sediment to restore depths, employ sonic surveying of the dike to see if there are any changes occurring in the dike that need repaired, but this lake is in the wilderness, where natural ecosystems are allowed to evolve as time progresses.

While I could be saddened by the changes that I see, and mourn for days gone by, the lake wouldn't care. It would simply progress as lakes do; they hold water, sediment and nutrients, and those ingredients create a habitat for fish. And the fish in turn, create a food source for the ducks, otters and crazy hikers who visit the lake occasionally.

So, why should you care about a tiny lake that you'll probably never visit? Shamrock is a very real microcosm of a changing landscape. Changes so subtle that without the privilege of long-term monitoring might go unnoticed. What is happening in the environments that you work and play in? Have you noticed any changes? It's a true honor to be able to watch a landscape grow, change, and adapt as the years progress. I'm excited to watch the next quarter century at least, at Shamrock Lake.

Our Western Heritage

by Kathy Weinsaft

Before the Snow Flies Again

There are things to see, lessons to learn and history to think about. Wyoming is just full of historical treasures, and in the 28 years I have lived here, I feel like I have just scratched the surface. I am just determined this year to see a few more historical sites.

Beginning in Cheyenne, I want to see the Governor's Mansion. I have driven by it. I have wondered about it, but I have never explored it. Of course, it is located in Cheyenne. It is at the corner of 21st street and House Avenue, and it served as home to 19 of Wyoming's governors and their families. It was designed by Charles Murdock and built in 1905. It was very modern for its time. It had central plumbing, hot water heat and combination gas and electrical fixtures. It was listed on the National Register of Historic Places in 1969. In 1977, Historic Governor's Mansion opened to the public as a museum. In 2004, an extensive restoration was done on the mansion and it now reflects the history of the home through various eras throughout. You can enjoy self-guided tours enhanced with cell phone audio, as well as videos providing information about Wyoming and its first Executive Residence. It is free and open to the public, Wednesday through Saturday 9am-5pm.

Ever since I found out that there is a Chinese Museum in Evanston, I have been itching to go see the place. It is the Chinese Joss House Museum. It tells the story of the Chinese immigrants who lived and worked in Uinta County from the 1870's through the 1930's. There is even a scale model of Evanston's Chinatown, archaeological discoveries from the location, historic photographs and artifacts from the late 19th and early 20th century. Who knew?! It is located at 1020 front street in Evanston.

Safari anyone? I have booked a reservation at Fossil Lake Safari to dig for fossils. I have wanted to do this for decades, and by golly this year it is happening. There is a world-famous fossil bed in Kemmerer, Wyoming. It has a prolific assortment of exquisitely preserved fossil fish from the samples that friends of mine have brought home. It isn't free, but you get to keep the fossils that you find at the Fossil Lake Dig. I have been told these include dozens of species of fish, stingrays, gars, plants and insects. This just really seems like a unique opportunity that we are very lucky to have right here in Wyoming.

I am sure I have been to or through Guernsey at least 100 times. What I haven't done is taken the time to drive three miles west to visit the Oregon Trails Ruts State Historic Site. At this site, where the trail was forced away from the river and crossed a ridge of soft sandstone, the track is worn to a depth of five feet, creating some of the most spectacular ruts remaining along the entire length of the Oregon-California Trail. The geography of the area dictated that practically

every wagon that went west crossed the ridge in exactly the same place. That is why these ruts are so darn impressive.

The Museum of the Mountain Men is another destination that just has to happen. Every time I am in Pinedale, I am either busy working or the museum isn't open. The museum highlights the rugged life of fur trappers and explorers that navigated the Rocky Mountains. Think Jeremiah Johnson! I have it on very good authority that this museum is one not to be missed. The exhibit features all sort of artifacts and firearms. It is located at 700 east Henick Street in Pinedale.

Medicine Lodge State Archeological Site has a new exhibit. I have been told by a very knowledgeable friend that saw it the day it opened that it is mind-blowing. It is an integration of technology and culture that immerses you in thousands of years indigenous culture and history through seasons, sights, and sound. According to the site's curator, you go through seasons and different timeframes to get a taste of the indigenous culture from the past 10,000 years. It's not a museum or typical cultural center. It is a one of a kind of experience and will mean different things to different people. It is located at the Medicine Lodge State Archaeological Site, 4800 Road 52, Hyattville, and is open 8am-4pm Monday thru Friday. They may have longer and different hours as the season goes on.

Do one or do them all, but be sure to get out there and explore.

It is, after all, part of our Western Heritage

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Self Portrait

Scrawny Girl's Charcuterie Board

By Michelle Christopher

Charcuterie boards appear to be all the rage recently. Got a party? Charcuterie board. Planning a movie night? Charcuterie board. Just needing a little snack? You got it, charcuterie board. As one of the senior members of the Millennial Generation, I feel like these are nothing more than a glorified version of the most exciting thing to grace a lunch box ever, the Lunchable. Tiny boxes with crackers, deli meats and cheese slices, with the occasional fruit snack pouch if your mom was feeling extra generous (first day of school only), these were such a fun treat.

What goes on a charcuterie board? Basically, anything that doesn't require cooking. Cured or deli meats, sliced cheeses, crackers, nuts, and dried fruits are all common items on a charcuterie board. The fancy ones may even have can-

dies. These are also common items found in my backpack, whether it be a day hike or multi-day adventure. The only real difference between the average charcuterie board and the snacks in my backpack is the presentation. While charcuterie snacks are delivered on beautiful hardwood boards in artfully crafted patterns, snacks in my backpack are carried around in Ziploc baggies, hoping against hope that the crackers don't become powder before we reach our destination. Enter the resealable plastic tray, aka the Tupperware. I was gifted one of these from a family member over Christmas. They had filled it with the standard holiday treats, and being one who is averse to throwing anything away, I saved it for no particular reason.

Preparing for a hike early this spring, I was loading my pack with our usual snacks, when I came across the holiday tray. It happens to fit perfectly in my daypack. It also holds the cracker baggies and prevents the crackers from becoming crumbs. So, I slid the tray along with our usual snacks in my pack, preparing to wow John with an artisanal adventure charcuterie board. When we stopped for lunch, I put the snacks in my tray, neatly arranging them. To which my ever-supportive husband responded, "Nice. The crackers aren't smashed." Maybe you can get a better reaction from your hiking partners. Regardless, spring is here, and summer is just around the corner! Get outside and enjoy the wild!

Adventure Charcuterie Board

Snacks: These can be whatever you really enjoy, but I recommend crackers such as Wheat Thins because they are one of the more rugged crackers, sliced salami or summer sausage, cheese slices (NOT the Kraft Singles version), trail mix, and gummy candies. If the weather is cool, you can include chocolate, but as it begins to get warmer, chocolate tends to melt and go everywhere. If you have good containers that have trustworthy lids, including a dip like hummus or salsa is nice. Fresh fruits and vegetables are great inclusions, just make sure you choose ones that don't smash, or you're packaging them appropriately. (Like in a leftover resealable tray!)

Presentation:

As previously stated, I'm in love with my resealable tray. If you don't have one, you can just leave the items in their baggies or containers and arrange them on a rock or stump. You could go all social media influencer worthy and find a semi flat piece of bark or log, remove them from said containers and serve up a board that is 'Gram worthy, but it seems like a lot of effort when you consider the risks of getting sand in the snacks or contaminating them with badger pee. But again, it's your choice!

Have fun with your hiking snacks, and if you put together a really spectacular adventure charcuterie board, tag me with the hashtag #qualityontap or #adventurecharcuterie. I look forward to seeing your creations!

To Charge, or Not to Charge?

(Multiple Minimum Charges)

Carl Brown, President
GettingGreatRates.com

Author's Note: I am a rate analyst, not an attorney. I offer no legal advice on this issue. Rather, this discussion is about the fairness of assessing multiple minimum charges versus meter size-based minimum charges.

It is common practice for water utilities to assess a minimum charge to each apartment unit in a complex, each commercial unit in a strip mall and similar "extra" units beyond the location's meter.

DON'T DO IT!

"Back in the day" when I worked for an agency administering State Revolving Fund loan applications, I promoted assessing multiple minimum charges. In my defense, it was agency policy, so I was just doing my job. But it is an unfair and risky practice.

Still, utilities do it for some logical reasons:

- More units generally mean (marginally) more costs.
- Bill calculation is simple.
- Boosting revenue is the main reason for multiple minimums.
- In most cases, collecting multiple minimum charges from one customer is a sure thing. Collecting from, say, 100 apartment residents is not.

Multiple minimum charges have their upsides. What are the downsides?

- They are not fair, and
- You might get sued and maybe lose.

Ah, the pesky lawsuit issue.

Why multiple minimum charges are not fair

When service flows to the property owner through one pipe and one meter, that customer causes the utility to incur one "basket" of fixed costs, not multiples. Sure, a meter, pipe and other infrastructure sized big enough to serve 100 downstream "users" costs more to build. But the infrastructure cost required to serve that larger meter and upstream infrastructure pales compared to multiples of those costs that are the same regardless of meter size or customer type.

Now, I need to clarify one thing. If the utility's pipes are

plumbed to 100 individual apartment units, strip mall units, or mobile home park pads, and you send a bill to each location, you do not have one owner-customer. You have 100 individual customers. Bill every customer and assess the appropriate minimum charge to each.

But if there is one property owner for the complex, you should plumb to the property owner's meter and let the property owner recover costs from their renters as they see fit. If a renter does not pay the property owner, that is the owner's business, not yours.

Let us agree, multiple minimum charges are unfair. But is there a good alternative? There are two:

1. Assess a level minimum charge to all customers, or
2. Assess meter size-based minimum charges.

Alternative 1 or 2: Which is best for your system?

Alternative 1 is best for smaller systems with few large meters. Why? It is simple. And with few large meters to surcharge, there is little extra revenue to be gained from large meter surcharges, anyway.

Alternative 2 is better for larger systems with many larger meters, or maybe just one very large meter, because the extra revenue makes surcharge calculations worth doing.

Let's start with Alternative 2 first. As meter size goes up, the surcharge to the minimum charge goes up. (By the way, you should use the same strategy for system development fees, too.) It is a simple concept, but the math is difficult. Forego the math and you risk a lawsuit. (Ah, lawsuits again.) To get it right, you or better yet, a rate analyst, should do this:

- Estimate the long-term capital cost of the utility,
- Estimate the portion of that cost that is associated with peak flow capacity, then
- Divvy all, or more likely only part of that cost based on the sustainable peak flow capacity of different meter sizes and types. You probably have heard it said, "The meter is your cash register." Meter-based minimums are yet another use for the cash register.

You want "buy-in," you don't want lawsuits.

This structure requires each customer, regardless of meter size, to pay one share of basic fixed costs – billing, administration, that sort of thing. The smallest sized meter would also pay one "share" of capacity cost as a surcharge to the basic minimum charge. But a big meter with, say, 25 times more peak flow capacity than the small meter would pay 25 shares of capacity cost as its surcharge. (Share proportions for a few meter sizes are shown in the following table.) Thus, the full minimum charge for a four-inch meter

usually comes in at four to ten times higher than the charge for a small meter.

This structure is mathematically fair. And reasonable cost estimation and accurate distribution of those costs helps you get “buy-in” for those fees. You want “buy-in,” you don’t want lawsuits.

AWWA Safe Operating Flow by Meter Size

This data is excerpted from Table VII 2-5, page 338, American Water Works Association Manual M1, Principles of Water Rates, Fees, and Charges, Seventh Edition. This table calculates the meter equivalent ratio, which is used for calculating peak flow capacity-based minimum charges and system development fees.

Meter Size in inches	Meter Type	Maximum-Rated Safe Operating Flow, in Gallons per Minute	Meter Equivalent Ratio (Capacity Shares)
Five Eighths	Displacement	20	1.0
Two	Displacement	160	8.0
Three	Singlet	320	16.0
Four	Singlet	500	25.0

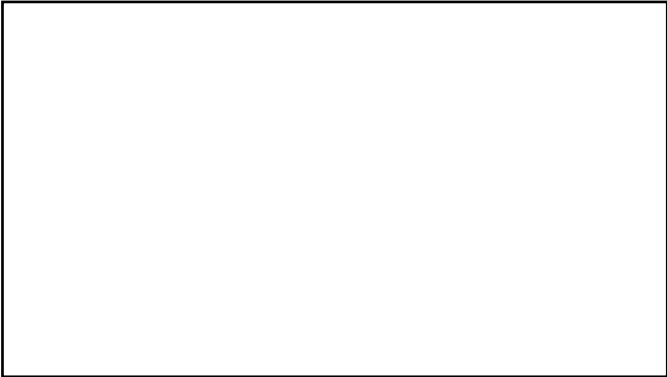
Cost-to-serve calculations and rate structures can get complicated. Thus, I recommend making the rate structure only as complex as required by the customer base and situation. Thus, Alternative 1 is the better choice for most systems.

If the customer base is simple – there are few of them and most are served by small meters – keep the rate structure simple, too. Just assess a level minimum charge to each meter. Do not worry about recovering capacity costs on a sliding scale because that will not net much extra revenue anyway. Just recover fixed costs with a level minimum charge and variable costs with unit charges.

Two final thoughts.

Those who deal with rate setting should learn some basics about it. A good starting place is to read the “Rate Setting Best Practices Guide,” available free at <https://gettinggreatrates.com/Freebies>. And if you do not know that your rates are fair and adequate (hint – most are neither), contact Kathy Weinsaft at the Association to talk about it. If your rates are in pretty good shape, Kathy or other staff can help you make them better. If they need a lot of work, she will refer you to me and, if you are willing, I will help you through the Wyoming RATES Program <https://gettinggreatrates.com/WYRATES>. Either way, we will get you to appropriately fair and adequate rates.

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



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

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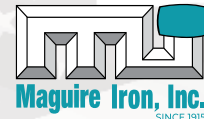
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