

MISSOURI WATER LINES

A PUBLICATION FOR MISSOURI'S WATER AND WASTEWATER INDUSTRY

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\$2,582,000
Waterworks System Revenue Bonds

Proceeds were used to finance improvements to publicly owned drinking water treatment facilities.

City of Stover, Missouri

\$1,009,078
Combined Waterworks and Sewerage System Refunding Revenue Bonds

Proceeds were used to refund the City's Series 2006 A&B Combined Waterworks and Sewerage System Revenue Bonds.



PWSD No. 4 of Cass County, Missouri

\$600,000
Equipment Lease Purchase Agreement

Proceeds were used to install approximately 9,300 linear feet of 8-inch PVC water mains and appurtenances.

City of Auxvasse, Missouri

\$514,480
Combined Waterworks and Sewerage System Refunding Revenue Bonds

Proceeds were used to refund the City's Series 2008A Combined Waterworks and Sewerage System Revenue Bonds.

Clarence Cannon Wholesale Water Commission

\$1,200,000
Water Revenue Bonds

Proceeds were used to acquire, construct and equip a distribution system and appurtenance facilities to the City of Laddonia, Missouri, and the City of Monroe City, Missouri.

City of Iberia, Missouri

\$723,636
Combined Waterworks and Sewerage Revenue Bonds

Proceeds were used for engineering design services related to the acquisition and construction of extensions and improvement to the City's system.

City of Braymer, Missouri

\$368,000
Combined Waterworks and Sewerage System Rev Bond

Proceeds of the Bond were used for engineering design services related to the acquisition and construction of extensions and improvements to the City's system.

Lake Area Waste Water Association, Inc.


\$13,028,000
Bank Loan

Proceeds were used to pay costs of planning, designing and constructing improvements related to a new wastewater facility.

City of Goodman, Missouri

\$775,000
Equipment Lease Purchase Agreement

Proceeds from the sale of the lease were used in part to provide improvements to the Water System.



PWSD No. 3 of Johnson County, Missouri


\$418,300
Waterworks System Revenue Bond

Proceeds of the Bond were used to acquire, construct, furnish, equip, extend and improve the District's Waterworks System.

City of Conway, Missouri

\$295,493
Lease Purchase Agreement

Proceeds of the Lease were used in part to acquire, construct and install certain improvements to the City's sewerage system.



PWSD No. 1 of Greene County, Missouri

\$419,500
Equipment Lease Purchase Agreement

Proceeds from the sale of the lease were used to acquire, construct and extend the waterworks distribution system.

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About the Cover:

Pictured is Truman Lake. Photo is courtesy of Nathan Lines, MRWA Drinking Water Circuit Rider.

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Missouri Rural Water Association Mission Statement:

"To be the leading source of professional services, support and representation for water and wastewater utilities."

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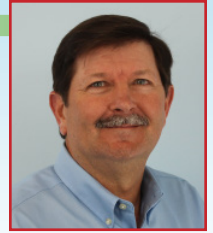
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From the Executive Director

Howard Baker, MRWA Executive Director

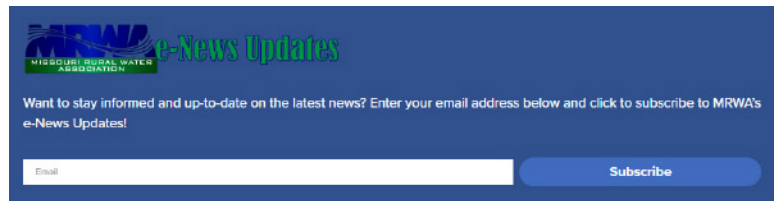


As we move forward to 2024, it is apparent that the job descriptions for operators and clerks are changing fast. In the last 365 days, many of you have had to:

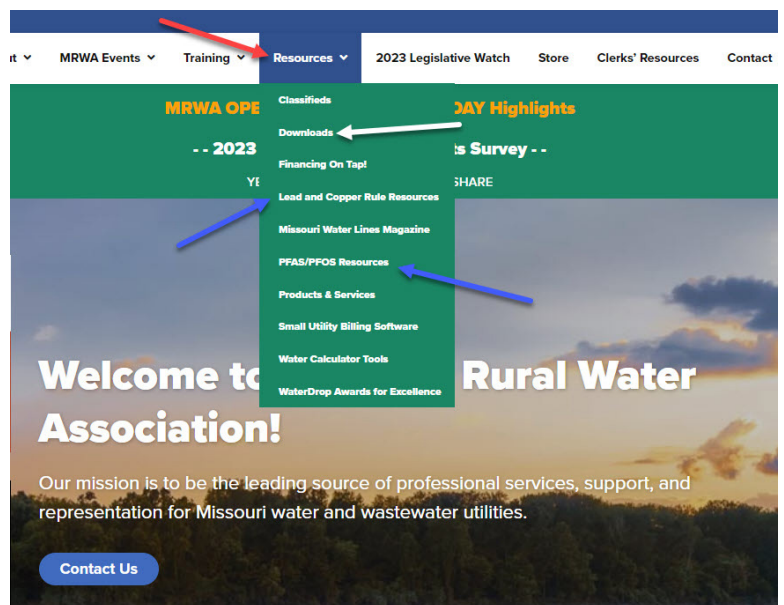
- ♦ Apply for a staggering amount of funding through the American Rescue Plan Act (APRA funds).
- ♦ Do the reporting once you received those funds.
- ♦ Start and hopefully complete your lead service line inventory by October 16, 2024.
- ♦ Be prepared to deal with the PFAS/PFOS chemicals and the new (well...not new) changes in the EPA Cybersecurity rule.

Your system may not have to deal with all of these, but you must be informed, and that is where we come in.

One of the main goals of MRWA is to keep you informed. We do that through MRWA field staff system visits (not the fastest, but the best method to answer questions you may have), through our moruralwater.org website, and through our emailed e-News Updates. Of the ways mentioned to get you information, the fastest is through the e-News Updates; the best way to insure you get information as soon as we get it. But that only works if you are signed up to receive those. If your system is an MRWA member system, please do not assume that we have YOUR email in our e-News email list. Sometimes, personnel changes or email addresses may not be included on your system's renewal form. Of all the ways to keep up with changes that could directly affect you and your system, this is the easiest. To sign up, simply go to our website and scroll down to the bottom of any webpage. There you will see our sign up for MRWA e-News Updates. If you haven't been to our website, just search for moruralwater in any internet browser.



The MRWA website is loaded with information. The Resources tab has a link to our Downloads where you can find sample Water District Rules and Regulations, sample Policies of all sorts, Lease Agreement sample documents, Rural Development Right of Way Easement Packets, and Backflow Prevention Notification Forms. These are just a few of the hundreds of documents that you can download and use, or at the very least use as a guide to make your own. You will also find the latest information on the Lead Service Line Inventory (LSLI), PFAS/PFOS and more.



(continued on page 8)



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Nonmembers:

- Full page \$650 per issue
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- Back Cover – additional \$200/issue
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MIKE DOUGLAS

(continued from page 4)

The true gold mine of information is at the MRWA conferences. Although the conference sessions themselves hold very relevant information, they are shadowed in comparison by the thousands of years of experience walking around at the conferences. Think about it... there is no other place that you can go and have access to that volume of information. Each of you bring experience with you, and it gets shared with others; sometimes you give information and sometimes you receive it. It is a great time to get to know others that do the same thing you do.



I would love to be able to tell you that there won't be anymore changes to job descriptions in water/wastewater, but we all know that wouldn't be true. We will be testing for something new, doing the job a different way, using a new tool; it's always changing, and MRWA is here to keep you informed about those changes so that you can be prepared. Take pride in knowing that nothing is more important than what you do.

To Missouri Rural Water Association,

This letter is intended to be for the Director of Association or the supervisor of Mr. Loyd Rawlings.

On behalf of Silver Bell MHP and our parent company Three Stone Properties we want to extend our gratitude for the help Mr. Rawlings provided to us recently..

We had been running into some problems with our plant and reached out for a consult. Mr. Rawlings came to meet with us and discussed in length our issues and provided solutions to our concerns. Since he has experience with a plant very similar to our, he shared his knowledge with us, and his advice has proven to be very valuable and helpful. Not only is he a wealth of knowledge he treats us with respect and understanding and is very personable and professional.

We just wanted to take the time to share with you the good experience we had with him and let you know the great asset he is to your organization.

Thank you for the recent help and we look forward to working with you in the future.

Ada Rivera
Property Manager at Silver Bell MHP

We at the City of New Bloomfield would like to extend our thanks and appreciation for all that the MRWA has done and continues to do for our community. Being a newer City Clerk I always tend to have questions, The MRWA has always been there to answer them. Thank you to the MRWA and to Mr. Klark Bohling, we truly appreciate you.

Dear Mr. Baker,

Beginning month of February 2023 City of Cleveland was informed by Public Water District #2 that their telemetry system data is showing excessive water usage by Cleveland, further research showed that it is a leak with massive water loss.

City's Water/Sewer Superintendent spent two weeks looking for a leak but it was not showing up anywhere so he contacted MRWA. Nathan Lines responded and visited Cleveland on Tuesday, February 21, 2023. Mr. Lines was able to find the leak within an hour of showing up. We are very impressed by his expertise and thankful for the help.

Tasneam Nawaz, MRCC
City Clerk, Cleveland, MO

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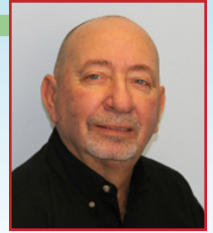
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Private Well Owners or Public Water Supplies

Wayne Roderman, MRWA Resource Conservation Circuit Rider



Missouri Rural Water Association has generally always dealt with public water supplies consisting of water districts, municipalities, homeowner associations, subdivisions, and schools, etc. Recently, MRWA has included a Private Well Program into the mix of services provided by the Association, and seeing as how there are approximately 400,000 private wells in Missouri, someone might comment, "It's about time!" One thing I've learned from years of working with private well owners and public water supplies, the ordinary citizen hardly ever thinks about water until they turn their tap on and nothing comes out. Water is absolutely one of the most critical components of life, yet never crosses the mind of most people day to day. They just take it for granted the well has water in it and the pump will always pump it to the house or the water operator will make sure we have water because that's their job. Of course, when there is no water coming out of the faucet, it's the water operator's fault because all we ever see them do is drive around in the truck! Okay, I'll get off my soap box because I'm supposed to be talking about private wells.



One thing I always hear private well owners say is, "I don't have to pay a water bill every month because I've got my own well!" I beg to differ. I'm a private well owner and I know there is a bill every month. We have a well on the farm that pumps an average of 4,000 gallons of water each month. The electricity for that well costs \$30.00 per month and that's the only thing on the electric meter. Also, the national average of a pump is 7 to 10 years, and when the pump goes out, guess who's the one that has to pay to replace it. I just recently replaced a pump at a cost of \$2,250.00. If you calculate that over a 10 year period, that pump cost \$18.75 per month. Add that to the electrical cost and I pay a water bill of \$48.75 per

month! Is this beginning to change the way you think? You might say, "Well, I don't have to pay it every month." I'm certain the electric company will want you to pay every month and although you might choose not to pay monthly for the pump, you will pay when it needs replaced. Would you rather pay a large lump sum then or a little bit at a time now? Of course, you might get lucky, and the pump could last for 20 years. Or, if you're unlucky, it might only last for five years...??

Of course, there are other components of a private well system that can fail and put you out of water, like the pressure switch. It has contacts in it that open and close when the pressure reaches a certain point. Over a period of time, they get

worn and no longer make a good connection and the pump won't come on. I've even seen ants, or some other foreign matter get between the points which prevent the contacts from making a connection. I remember receiving



a phone call from someone who said they didn't have any water and asked me to come and repair the problem. I drove 25 miles to their residence and discovered a big old red wasp stuck in the contacts. I just took my screwdriver and scraped him out and the pump kicked on and they had water. I gave the homeowner a bill for \$25 and he said, "I'm not paying that! All you did was scrape that wasp out of there!" I told him he wasn't paying me for what I did, he was paying for what I knew to do.

(continued on page 12)

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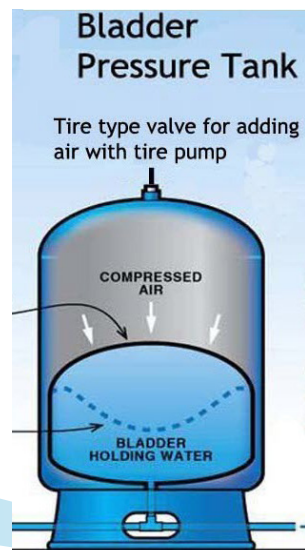
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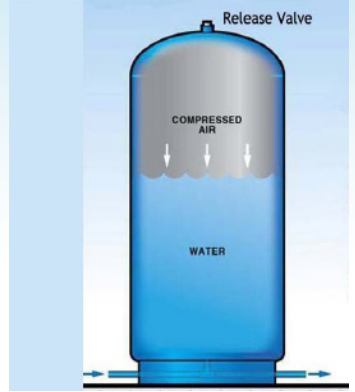
What about a pressure tank? Water will not pressurize and without a pressure tank, the pump will turn on and off quickly trying to maintain pressure. That's the surest and quickest way I know of to burn up a pump. If your pump is cycling on and off fairly often, the first thing I would check would be the pressure tank. If you have a bladder tank there will be a valve stem on the top edge, and you can check it with a regular tire gauge. Turn the electric off and open a faucet. When the water stops running, check the air in the tank. There should be two pounds less air in the tank than the turn-on pressure of the pump. Most individual pressure switches are set to 30/50. That means the pump turns on at 30 psi and off at 50 psi. The pressure tank should have 28 pounds of pressure in it. If it's low, air it up to the proper psi and then check it regularly to see if it's maintaining the proper air pressure. If not, the bladder has a hole in it and the tank will need to be replaced. If you have a 20/40 pressure switch, the pressure tank should have 18 psi, a 40/60 pressure switch would require 38 psi in the pressure tank. If you have an older system, you may have just a tank without a bladder or diaphragm in it. These types of tanks just have an air bubble in the top of the tank. The air and the water can mix together, and a little air can leave the tank every day. Then the tank becomes 'waterlogged' and your pump will cycle too often. At that point, you need to shut the water off and drain the tank. Then when you turn the water back on, it will create another air bubble in the top of the tank, and you'll be okay for a while. If you have that kind of tank, I would suggest you replace it with a bladder tank. It will keep your pressure more stabilized and your well pump will probably last longer.

At my house in town, I'm on a public water supply. Recently the electric was off several days and some of my family on private wells came to my house because I still had water. Public water supplies usually have large storage tanks that will supply



water for an extended period of time without electric. Some public water supplies also have back-up generators. When there are power outages, they can still pump water utilizing a generator. There are not a lot of stand-by generators at individual homes and therefore no electricity means no water.

One Compartment Stainless Steel (old style) pressure tank



It may sound like I'm suggesting everybody connect to a public water supply. I'm not! I like private wells. I am just sharing some information with you concerning private wells. If you have a private well, here are some general preventative maintenance tips:

- Make sure you check it once in a while.
- Make sure grade is sloped away from the well to prevent surface contamination.
- See if the well cap is still on properly so nothing can get into the well from the surface.
- Is the pump cycling normally? If your electric bill is suddenly higher it could signify your pump is running more.
- Make sure the septic tank is working properly, with laterals and field drains away from the well.
- Don't leave a garden hose in a stock tank where water could be siphoned back into the well.
- If you have a well house, do not store any contaminants within the well house.
- If you lose pressure, your water becomes cloudy, or your water has a bad taste or odor, you might want to have the water tested to check for contaminants in your well.

Remember, you can only live approximately four days without water. Take time to check your well, pump, and other components. If you repair little problems before they become big problems, you'll be less likely to turn on the faucet and wonder why there is not any water.



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Third Times A Charm!

Nathan Lines, Drinking Water Circuit Rider



As a Circuit Rider, I have found myself frustrated with the number of systems that still don't know what I am talking about when I show up and ask how they are doing with their Lead Service Line Inventory. I started thinking about all the classes and webinars that we (MRWA) have held on this very subject, and could not understand why systems still did not know what I was talking about. Then, I sat back and thought about it from an operator's perspective. That is when it made sense to me.



We have all heard the old saying, 'third times a charm'. When you use the expression "Third times a Charm", you mean that the third time something is attempted, luck is sure to yield a successful result. The phrase is also used as an actual good luck charm that is spoken just before you try something for the third time.

In the water and wastewater industry we are constantly having to deal with new rules and regulations from regulatory agencies. There is usually fancy terminology and acronyms that accompany these new rules and regulations. Most recently on the water side, we are dealing with Lead Inventories and this crazy acronym PFAS (I'm still not sure how to pronounce the word that PFAS stands for).



In the past, when I was an operator, I would attend MRWA's Fall Operations & Maintenance Symposium at the Lake of the Ozarks. That is where I would usually find out about all the new rules and regulations that were the hot new topics in the water and wastewater world. Now as much as I should not admit it, when I would hear one of the speakers talking about something I had never heard of before, it would usually go in one ear and out the other.

Fast forward a few months and Joe Anstine, MRWA Drinking Water Circuit Rider would stop in my shop to see how things were going. And usually in conversation we would talk about the past Fall Conference and its classes. Then he would mention that new rule or regulation that I had let go in one ear and out the other. This being the second time I would hear about it, my brain would stop for a minute and think, "I wonder if this is going to apply to us?" Conversation would continue and that new rule and regulation would soon be gone as fast as my brain paused to think about it.

A few more months go by and, one morning while checking my emails, I see a newsletter from MRWA that is talking about that same new rule or regulation; this being the third time that I have seen or heard about it. Now my brain is on full alert, and I know I need to get to the bottom of this and find out exactly what it is I am going to be dealing with.

As operators, our jobs are mentally and physically demanding. It is extremely easy to get set in our ways to think we know exactly what, when, why, and how things need to be done. With this mindset, things like the new rules and regulations sometimes take us numerous times of hearing the same thing before it clicks and we make ourselves figure out what it is all about. Hopefully, not everyone's brain works the way mine does. If so, I feel for you. But, if it does and you are one of those operators that need to hear the same thing numerous times before it clicks, for you my hope is, the "Third times a charm."

As always, feel free to reach out to any of MRWA's staff for any of your water or wastewater issues, including those new rules and regulations that you might have questions about.

2 Ways to earn CEUs for Water Fluoridation

1. Missouri Water Resources Research Center

This course consists of three modules for water operators, administrators and the public, and three additional modules for water facility operators. It is FREE and approved for one CEU hour towards drinking water licenses by the Missouri Department of Natural Resources. Participants can access the modules at Health.Mo.Gov/waterfluoridation.

Topics covered are:

- Fluoridation introduction.
- Fluoridation costs and benefits.
- Drinking water treatment overview.
- Fluoridation technology and equipment.
- Fluoride analysis/laboratory techniques and safety.
- Fluoridation system design.



2. Centers for Disease Control and Prevention Water Fluoridation

This course is designed to build the capability of state fluoridation programs, and to help increase knowledge and refine skills to implement and maintain community water fluoridation. It is FREE and approved for eight CEU hours towards drinking water licenses by the Missouri Department of Natural Resources. Participants can access the modules at cdc.gov/fluoridation/engineering/training.htm.

- Module 1. Science - history and science of fluoridation, benefits and health effects.
- Module 2. Program – state program management and oversight, and communication principles.
- Module 3: Water system overview and design.
- Module 4: Technical information for water fluoridation additives and operations.

Upon completion of the course, please email your name, operator number and course completion certificate to oralhealth@health.mo.gov for CE credits to be awarded.



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Continued on page 11



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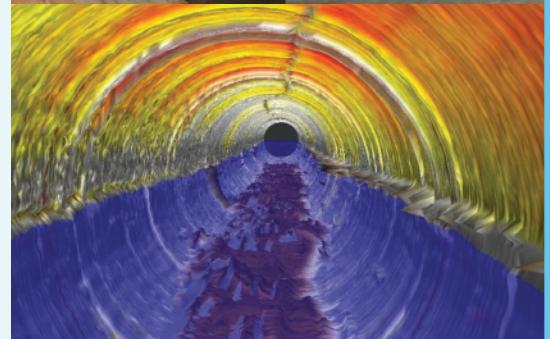
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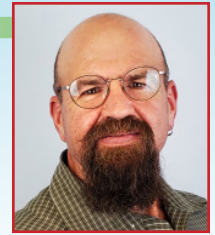
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The Sneaky Thief: I & I

Loyd Rawlings, EPA Wastewater Quality Specialist



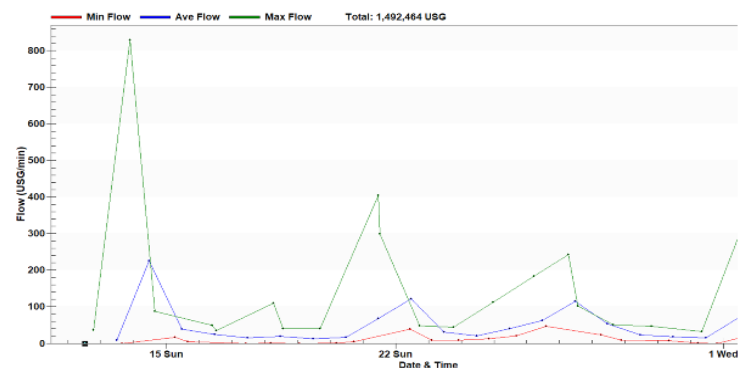
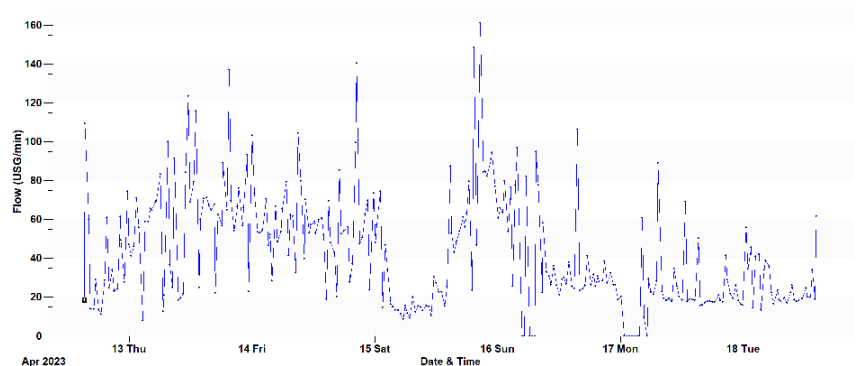
In this ever-changing economy, sometimes the smallest issue turns into a costly venture. Inflow and Infiltration (I&I) can be a huge strain on the budget. This is why I call I & I “The Sneaky Thief.” The issues that arise from this thief seem to happen slowly over time, going almost unnoticed. Most of the time it’s taking a bit more power from here or there by hydraulically overloading the system, which in turn causes a ripple effect down the line from extended pump times to treatment hydraulic overload.

Many times, there is not just one “smoking gun” bringing the system to its knees, but rather several issues throughout the entire system. For instance, a small 1/8” stream of water may not see like a huge issue but if I have 50 of those 1/8” streams leaking into the system, it could overwhelm not only the collection system but the treatment plant and/or lagoon system. Thus, causing issues to arise in meeting regulatory compliance. The most common method of finding these issues uses smoke testing of the system. This is a very cost-effective way to discover your I & I problems in a dry season. With changing weather conditions throughout the year, it may not be practical to smoke test due to wet conditions. This is when using flow monitoring equipment becomes priceless.

While with Missouri Rural Water Association, I have had the privilege to work with a few smaller systems to help determine their flow issues in rain events. I know that rain events and treatment plant problems seem to be a common and accepted theme across not only the state but also the nation. Using flow monitoring in both dry and wet conditions will help to rule out parts of the system that are not having issues which in turn helps to focus the system’s limited resources on the problem areas. The reduction of I & I can have a positive ripple effect along many routes of saving money. These areas can be, but are not limited to, energy conservation, equipment maintenance costs, longevity of pumps

and motors, elimination of Sanitary Sewer Overflows (SSO), and possible regulatory fines. If a system is looking into the possibilities of connecting to another system or regionalization, the costs might be overwhelming.

One system in the study had a normal flow of approximately 7,500 gallons per day. While monitoring during a 2.5” two-day rain event using MRWA’s Greyline Stingray, it was discovered that the system’s flow went from its baseline flow of 150 gpm to nearly 900 gpm. This demonstrated the quick inflow of water into the collection system caused by I & I issues. Over the next week there were still short spikes in the flows which would lead back to the infiltration of that rainwater making its way into the system. Having the ability to graph the flows at velocity and temperature allows us to see the cooler rainwater working its way into the system. With this method we currently only have one monitor, so we try to strategically place the device to provide the most accurate data.



(continued on page 22)

(continued from page 21)

MRWA's apprenticeship program is currently working on a module titled: MRWA Apprenticeship Program - I & I Micro Detection. The MRWA Apprenticeship Program is partnering with Duke's and Eastech Flow Controls to bring innovative technology and software into the classroom along with real-world hands-on experience. Duke's and Eastech Flow Controls will provide in-person training about different I & I issues, and they will also provide hands-on installation of the I-Tracker and installation of the Eastech apps on the apprentices' cell phones. Using this I-Tracker system eliminates the need for confined space entry, allowing for increased operator safety. This will be a four-month study at the City of Clever using 15 I-Trackers. 1 of the 15 will be cellular capable and the other 14 are Bluetooth compatible. With these 15 devices placed within the sewer system,

20,000 feet of sewer mains will be monitored. Duke's and Eastech will return to provide a complete I & I study of the results. One of the greatest benefits of this type of technology and multi-point installation is its ability to help eliminate parts of the system that are working properly and show the ones in need of maintenance.

In conclusion, I & I is a thief of not only money but of overall system function. Reducing the amount of I & I being introduced into the system may eliminate the need for a bigger bucket at the end. As with many projects this is one that will take time and effort to complete. It will be an ongoing battle of tree roots, bad service connections, and millions of gallons of rainwater. Winning this battle will help the system in reaping rewards such as a reduction of higher energy use/cost and premature pump or motor failures.



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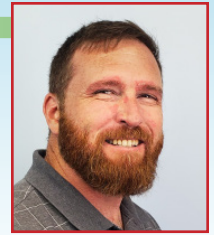
Applications, information and forms can be downloaded from the NRWA website at nrwa.org or by scanning the QR Code above. For help, please call 1.800.332.8715 or email nrwarwlf@nrwa.org.



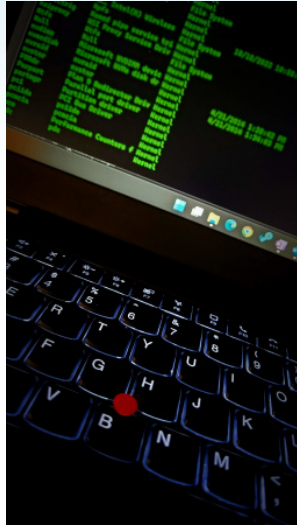
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Summer Phishing

Michael Bertschinger, Energy Efficiency



The word Cybersecurity is very daunting. It conjures images of people in underlit rooms, huddled over laptops with back-lit keyboards. Multiple monitors floating in the air filled with open command windows with lines and lines of green text scrolling perpetually. The sound of hundreds of keystrokes clicking away endlessly as they search for the white rabbit to follow. While these images fill your mind, you feel this has nothing to do with your job. I mean, you are here to maintain water quality, right? Your interaction with computers is minimal at best, you are elbow or knee deep in the muck of the daily needs of your system. But if you access any computer or even a part of your system on your phone, Cybersecurity affects you, too. It is worth noting the word Cybersecurity is only a different type of security for your water operations. It serves the same purpose as the fencing, doors, and padlocks you use today, it just covers different assets. Parts of this security layer will not require all of you to become computer experts and lock you in that underlit room listening to the keystrokes droning on waiting for Neo to arrive. Here we will just focus on the keys to the doors and padlocks of your cyber system. Everyone who has access to anything digital in their system has these keys and needs to know how to protect them. Everybody needs to do their part in bolstering the Cybersecurity of their water system.



a username, a password or a social security number. These same actions can be used in our email and text message systems. Think of these pieces of information as the keys to the doors or padlocks of your digital systems. People could guess this information over time like opening a lock with a set of lock picks, but the process is quite a bit faster for them with the key in hand.



The same types of strategies are employed to collect information from water systems. They are looking for a way through the locked doors to which you hold the keys. Phishing is one of these processes. Phishing scams are a type of online scam where scammers use fraudulent emails, messages, or websites to trick people into revealing their sensitive information such as login credentials, credit card numbers, or other personal information.

To avoid falling prey to an email phishing scam, here are some tips: (refer to Figure 1)

1. Check the sender's email address: Always check the sender's email address to see if it is legitimate. Scammers often use email addresses that are like those of legitimate companies, but with slight variations, such as @goog1e.com instead of @google.com. Be especially careful of emails that come from unknown or suspicious-looking email addresses.

2. Don't click on suspicious links: Never click on links in emails or messages that you weren't expecting, especially if they come from unknown senders. Hover over the link to see where it leads before clicking on it. If the link looks suspicious, don't click on it.
3. Verify requests for sensitive information: Be wary of emails or messages that ask you to provide sensitive information, such as your login credentials, credit card numbers, or social security number. Legitimate companies will never ask for this information via email. If you're unsure about a request, call the company's customer service number or visit their website directly to verify the request.
4. Use security software: Install security software on your computer and keep it up to date. This can help detect and prevent phishing attempts.
5. Be cautious with attachments: Don't open attachments in emails or messages unless you were expecting them and trust the sender. Scammers often use attachments to deliver malware or viruses.

By following these tips, you can help protect yourself from phishing scams and keep your personal and water system's information safe.

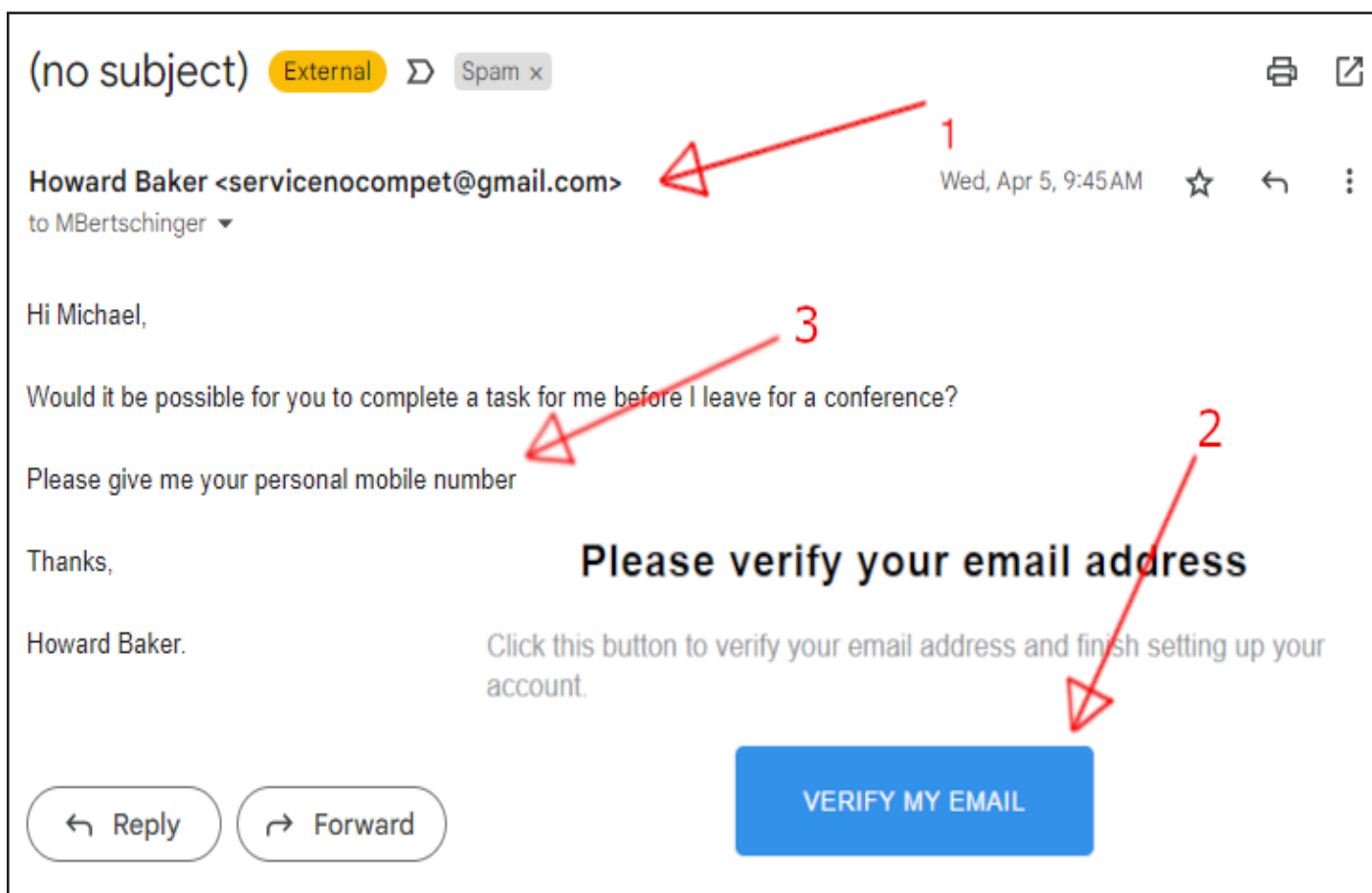


Figure 1



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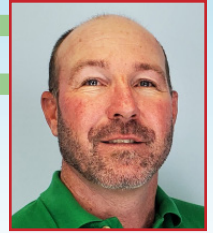
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It's not IF, It's WHEN: First-Hand Emergency Response

Barry Barnes, Wastewater Technician



We have all heard the phrase, "It's not if, it's when." This especially rings true when it comes to a natural disaster. They can happen when you least expect it. Being prepared for such monstrous surprises can not only save lives, but help get a community through such problems.



There are many types of natural disasters: earthquakes, tornadoes, wildfires, snowstorms, ice storms, floods, and droughts are the ones that come to mind. Of those, I have seen firsthand the destruction that floods and tornadoes can bring to a community.

In April 2017, I started a new job at a wastewater plant. Four days on the job and the Jacks Fork River was running through my plant. For three days the plant was under 3' of water. When the water receded, we had broken creek-crossing water lines, mud, trees, and debris everywhere. We were not prepared for this situation at all. I remember thinking to myself, "Where the heck do we start?" I no sooner thought that and there was Wayne Roderman and Brad Rayburn with MRWA. They asked, "We are here, what do you need?" They helped us get clean water back to our customers in timely fashion. When we were finished with the drinking water, Donald Jones from MRWA showed up and said the same. He helped me get the wastewater plant back up and running again. When the dust settled, I took a long hard look at our old, outdated Emergency Operations Plan.

Since becoming a wastewater technician for MRWA, I have been to a tornado site that will forever change my life. MRWA Emergency Management Coordinator Joe Anstine called me one morning and asked me if I had heard what had happened at Glen Allen. He told me they had been hit by a tornado and asked that I go there to find out what they needed. Five miles before I got there, the destruction was apparent, to say the least. Trees twisted off, buildings destroyed or relocated, debris everywhere. When I finally reached the village, the team of emergency personnel instructed me that I would need to go around town to the staging area in Marble Hill. After reaching the staging area and talking to Emergency Command, I was told to go on through and help Roger Moyer with evaluating the wastewater plant. Electric poles were down all around the community. We decided that it would be best to get a generator on the way. MRWA's Wayne Roderman arrived on scene and took the lead on the situation. He informed me that we needed to leave the area and alert the proper authorities of a gas leak on a huge propane tank in the middle of town. We alerted the proper authorities, and they assured us that the leak was taken care of. After a long trip from the other side of the state, MRWA Circuit Rider Nate Lines arrived with a generator. Once assembled, we headed back to Glen Allen. On our way back we had a slight delay because of the Governor's helicopter landing in the middle of the highway. When we finally got back to the Village of Glen Allen,



Roger Moyer wired the generator connection and resumed operation at the wastewater plant.

The Village of Glen Allen was devastated: trees uprooted, debris everywhere, homes destroyed, power lines down, and lives lost. My hat's off to the emergency personnel who were there; they are true-life heroes that I will never forget. Before we left, The Mayor of Marble Hill, along with other volunteers, were handing out bottled water and meals to the people of Glen Allen. He even thanked us and asked if we needed anything. That made me stop and think, "You know? There are lots of good people still in this old world."

A good Emergency Operations Plan can go a long way when faced with a natural disaster. This will give you many tools to have before the lightning strikes, so to speak. Saving lives and making things run smoothly are just a few of the very important advantages to having one. If you don't have one, get it done today. If you do have one, make sure it's up to date. If you need help, give MRWA a call; we'll be glad to help.



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Faces of

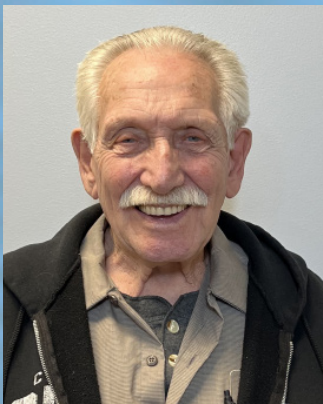


Dale Perry is the Johnson County PWSD #1 foreman. His career in the water industry began in 1981, with 42 years of service. He maintains DS-III and DW-D certifications. He attended his first water conference in 2022, calling it a memorable experience. He enjoys fishing, casual conversation, maintaining his wooded property, and watching deer and other wildlife from his back porch. His colleagues note his dedication, stating he always answers his phone, no matter the day or time. Coworkers recognize his positive attitude and exceptional knowledge as he performs daily activities.

Daren Solomon is a water specialist at Hollister and has 23 years in the water industry, with DS-II and WW-C certifications. Daren was a SCUBA diver and instructor, visiting some of the world's premier diving locations. He enjoys floating rivers, fishing, rappelling, shooting sports, and flying drones. Daren noted the biggest challenge for the water industry is recruiting young people involved in the industry.



Clell "Curly" Hensley has 37 years in the water industry and holds DW-A, WW-C, and DS-III certifications. His employer, College of the Ozarks, is the beneficiary of his knowledge and experience. He enjoys the outdoors and nature and traveling is one of his favorite pastimes. Curly notes that regulations are very strict, and that we could better use our resources in less developed countries.



Rural Water



Mark Tallant began his career in April 1985 with Pulaski County PWSD #2 as a meter reader. Thirty-eight years later he is the General Manager of the district and holds a DS-III certification. Mark enjoys farming, deer hunting, and going on vacations with the whole family. Mark has been married to his wife for 34 years. They have one daughter, one son, three grandsons, and one on the way. If you're looking for Mark on Sundays, you can find him in the pulpit of the First Baptist Church in Swedeborg where he preaches every Sunday.

Randy Holt began his career in 1998 with 25 years of service. He currently maintains DW-C and DS-III certifications and holds the title of General Manager for PWSD #1 of Andrew County. Randy enjoys traveling, golfing, and trap shooting, and enjoys his family and playing with his grand kids.



Don Decker started at the City of Richland in 1997 working electric, but with Richland being a small town, he also helped with water/sewer maintenance and repairs. In 2007 he got his DS-III, DW-C, and WW-C certifications, the last of which he later upgraded to a WW-A. In 2015 he was awarded MRWA Wastewater Operator of the Year. 2019 found Don taking the position of Superintendent of Public Works for Richland. In his free time he likes to travel and spend time with his wife, kids, and grand kids and enjoys wood working when he has the time.

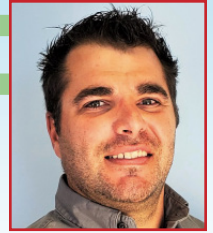


If you'd like to share a colleague, co-worker, or your own face and story with the readers of MRWA's Missouri WaterLines, contact Jim Patton by phone at 573-337-0053 or by email at jpatton@moruralwater.org.



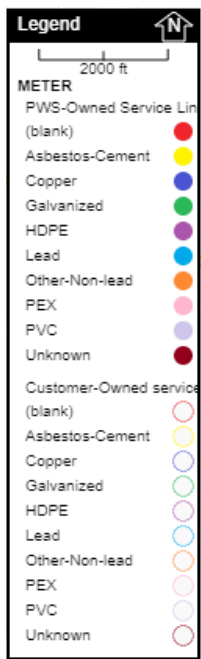
Can Diamond Maps REALLY Help with My Lead Service Line Inventory?

Brandon Deckor, GIS Mapping Specialist



Lead and Copper... did your heart skip a beat when you read those words? Are you saying to yourself, "I'm dreading the lead service line inventory. How am I going to get it done?" Or, "I wish there was a way I could make this easier." Well, what if I told you that MRWA may have the perfect solution to all of those?

I currently oversee MRWA's GIS Mapping which uses Diamond Maps as its platform. It is the perfect resource to map and grow the future of your system with usable features to help with the completion of your lead service line inventory (LSLI). Recently Ben and Zach with Diamond Maps have worked together to make it possible to add the full lead service line inventory sheet to your meter layer on your city's or district's map. So, you know what that means, NO PEN AND PAPER NEEDED! No carrying around a clip board full of papers in rainy or windy weather while trying to inventory your system. You can inventory everything by the cell phone or tablet you already carry around daily. Almost every inventory slot on the Lead Service Line Inventory (LSLI) layer portion now comes with a full pick list so you are just a click-and-save closer to completion.



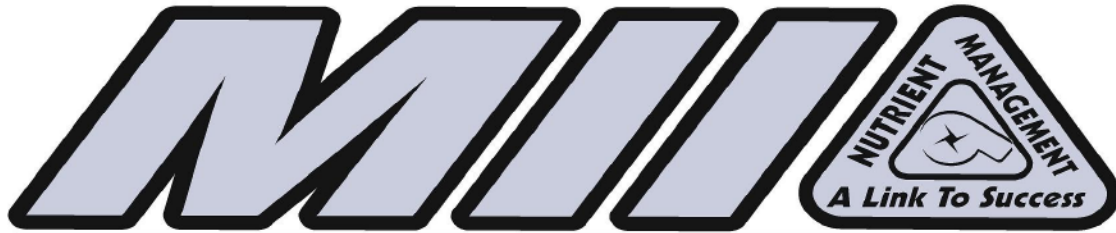
A second feature that has been developed is color coding your meters once you have finished your inventory. When doing the PWS side of the inventory, we can color code your meter dot color to change to the chosen type of material selected. For example, if your line is copper it would change to blue and if the line is lead it would change to red. But wait, there's more! We then can also change the line around the dot to color code to the customers side of the meter. This makes tracking your inventory so much easier while being able to look at your electronic map and coding to see the areas that may need future line updating.

If you've made it this far in my read, I would like to personally thank you for your time, as it is valuable to us all. This leads me to these next couple of time-saving assets our mapping solution has to offer. The first is that you can now select, modify, and change multiple fields at one time for multiple meters. By doing it this way, you do not have to go one-by-one into subdivisions or newly built areas in your districts and cities. Next, which is my personal favorite, is the attachments file.

You can store all notes and photos of an individual meter in its meter layer. That means no more scrolling back through photos or flipping through files. It's all right at your fingers tip with just a few clicks. Last, and this is the one as an operator or office manager that you may be most thankful for, is the five-click transfer feature. Once your inventory is completed within the map, it then takes just five clicks to put all the data from the map into the MoDNR LSLI spreadsheet. Once again, no pen or paper needed! A High Five for Five Clicks!

If your system already uses DiamondMaps, you're just clicks away from your LSLI being easier. If you currently struggle with numerous paper maps that are as old as your system, contact me today to get your system scheduled for mapping.





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Nearly \$1.2B Settlement Win for Water Systems Against Manufacturers of PFAS

The National Rural Water Association (NRWA) is thrilled to announce a \$1.185B settlement has been reached in litigation against the manufacturers of perfluorooctanoic acid and perfluoro octane sulfonate (PFAS), including DuPont, Chemours, and Corteva. Napoli Shkolnik Law Firm, NRWA's official partner, was a key player in the settlement that was announced on June 2, which will help water systems affected by PFAS. It's still not too late to sign up.



Contact:
Sam Wade
Former NRWA CEO
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NRWA has created the [PFAS Cost Recovery Program](#) to help systems with PFAS treatment costs. If your system has already signed up for the program, Napoli will be in contact with you with next steps, which may involve more testing. If your system has not registered for the program, we encourage you to [contact Napoli Shkolnik PLLC](#) to represent your system as a trusted attorney who will fight for compensation to overcome the financial impacts of PFAS. NRWA has retained the firm to represent the Association and our members.



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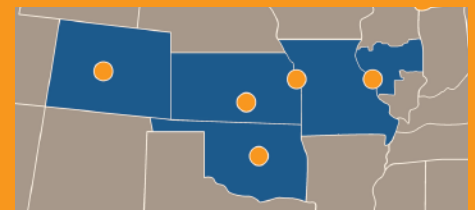
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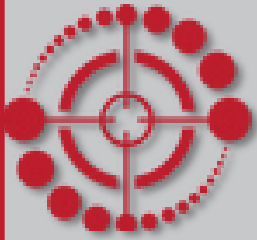
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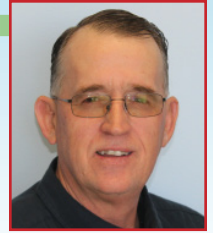
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Successful Apprenticeship: It Takes 3

Billy Everett, Apprenticeship Coordinator



The Mentor

At its core, Apprenticeship is a relationship-driven learning model, which is based on actual day-to-day work, in which a novice, new employee or maybe someone new to the position can gain hands-on knowledge from an expert (mentor) to grow skills and act with increasing independence and confidence. In the classic one-on-one model of apprenticeship, the learning happens because of the physical proximity and observation between the apprentice and the mentor. Experience has historically been connected to longevity, putting the responsibility to become the teachers on those with more experience and seniority. This interactive learning approach allows apprentices to learn through close observation, practice, feedback, and coaching, all of which are quite effective for building deep expertise and skill mastery. Our industry is in no shortage of highly qualified mentors who can provide a wealth of knowledge and expertise.



The System

The MRWA model of modern apprenticeship is a first for Missouri. Most of us received training in traditional

routes that didn't include the apprenticeship pathway. This can be an obstacle and a challenge to consider when implementing a new direction to train employees. The only way an apprentice can successfully succeed is when this process is embraced throughout the entire organization. It requires a focused effort to intentionally build a structure within that supports the apprentice throughout their apprenticeship. The highly sought traits of a seasoned employee such as skill set, habits of mind, and actions didn't instantly develop, and neither can we expect the apprentice to develop overnight. A well-executed apprenticeship system should be cultivated across the entire organization. Boards, Councils, Mayors, HR Directors, Administrators, Supervisors, etc. should all be engaged. In a people first employee-development universe, an apprenticeship should be viewed as a complement to the ongoing investments in our workforce.

The Apprentice

Apprenticeship environments can flourish within an organization that has a strong learning culture. A good training/learning culture emphasizes the importance of every person taking ownership for their development and growing their skills. That type of personal accountability paves the way for an eager apprentice. By fostering this culture of intentional learners, an organization builds within their employees a readiness to act as apprentices. Intentional learners embrace both the mindsets and skills that allow them to learn in every context. These



same principles are the building blocks for the apprentice. I've heard my entire life that "leaders are born, not trained." I've come to believe that's not the case. Skills and attributes that make great leaders are not granted at birth to a select few who are destined to greatness. Most essential skills and competencies are learnable. If an employee only knows what they've been taught, how can we expect them to advance unless they're exposed to additional education and training?

An apprentice enrolled in the MRWA Apprenticeship Program is challenged every month with new ideas, new products, and innovative training methods. The apprentice is the focus of the entire program.

Additionally, the Wake Foundation has partnered with the MRWA Apprenticeship Program to provide

tuition assistance to veteran apprentices enrolled in the program. The Wake Foundation is a Missouri non-profit veteran's organization committed to helping veterans from all military branches live a fulfilled life after serving their country,



Pictured left to right: Robert Wake (Wake Foundation) with veteran apprentices-
Dillion Smith - City of West Plains
Trevor Drummond - Boone Co. PWSD # 9
Chris Hunter - City of Fulton

Christensen, L., Gittelson, J., Smith, M., & Stefanski, H. (2021, October 21). Reviving the art of apprenticeship to unlock continuous skill development. McKinsey & Company. Retrieved April 28, 2023, from: <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/reviving-the-art-of-apprenticeship-to-unlock-continuous-skill-development>

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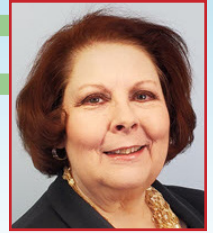


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Why Being In The Top 200 In Your Class May Not Be A Good Idea!

Mary West-Calcagno, TMF Circuit Rider



The time of year which this article is being written is the time of year for graduations - celebrations of hard work and achievement. What parent isn't proud to see their student listed among the honor society or "Best of"? Would that parent feel the same way if the school flipped that list and named the top 200 worst students?



I don't believe that every student should be judged by the best in class, but there is a standard by which every student is judged as passing or failing; the same is so with wastewater utilities! Regulatory initiatives are seemingly on a never-ending pendulum swing from the permissive to the extremely strict. Right now, we seem to be trending toward more regulation, and more strict interpretation of long-standing rules.



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The Missouri Department of Natural Resources (MoDNR) has been working with communities to become compliant with regulations regarding disinfection of wastewater, ammonia limits, metals limits, and changes in pH values. For some time, communities with limited resources have been given extended schedules of compliance, compliance assistance visits from the Department, and evaluations of affordability of upgrades necessary to achieve compliance. With new regulations on the horizon, non-compliance paired with existing regulations only adds to the burden of meeting new requirements. However, there is always a point where the permittee is judged to either be passing and moving on to "graduation" or are given a failing grade and moved into enforcement. Who are the parents sitting in the audience, reading the program about the decision-makers' success on behalf of the community?

MoDNR must answer to another regulatory agency: The Environmental Protection Agency (EPA). EPA evaluates how MoDNR implements regulations and manages compliance for the permitted systems in the state. Having many "student utilities" with failing grades causes increased scrutiny and improvement plans that MoDNR needs to meet, too. They don't want to be judged as failing either.



What actions result in unfavorable grades? I'll list my observed top 10 (not in order of importance):

1. No certified operator associated with the system
2. eDMR reports not submitted or not submitted on time
3. "Concerned citizen" reports – these reports result in inspections of the system (not simply an inspection of the concern) and can identify recordkeeping violations, expired permits, sanitary sewer overflows, etc.
4. Effluent limit violations, or violations of removal efficiency
5. Failure to file required reports including Inflow and Infiltration (I & I) reporting, collection system operation and maintenance, schedule of compliance milestone reports, wet testing reports, operational monitoring reports, etc.
6. Failure to apply for NPDES Permit renewal prior to 180 days before permit expiration
7. Failure to file sludge 503 reports
8. Land application not in compliance with agronomic application rates
9. Bypass of treatment facilities during wet weather

(continued on page 48)

(continued from page 47)

10. Bypass of treatment facilities due to lack of maintenance

11. BONUS: Failure to respond to a notice of violation, letter of warning, recommendations, or other inspection notice, or letter from the Department asking you to do something

MoDNR recently indicated that there is a list of the top 500 systems that are not in compliance with Missouri wastewater regulations. EPA has been asked to work with the top 200. EPA compliance orders frequently come with a penalty, and depending on the situation, solutions are usually not painless for the community. Rates increase, timelines for compliance are shortened, and alternatives' costs rise.

The time to ignore the finals is over. Everyone - from the Mayor to the operators, and even to the community as a whole - must get engaged and work toward compliance. Communities who make forward progress always yield better results than those who simply ignore the warnings, violations, and communication from the regulatory agencies.

MRWA offers training, on-site operational assistance, help with loan and grant applications, and will even assist you in meeting with regulators and engineers to help solve problems.

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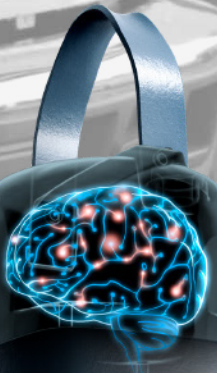
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System Profile: Clarence Cannon Wholesale Water Commission

Elizabeth Grove, Management Circuit Rider



The Clarence Cannon Wholesale Water Commission (CCWWC) is a regional wholesale water supplier in northeast Missouri. Located on beautiful Mark Twain Lake, (the water treatment plant is located between Florida and Paris, and just north of Sante Fe and Mexico on Monroe County Route U) the 10 mgd water treatment plant provides water to 23 municipalities and rural water districts that cover 14 counties.

The CCWWC is a Joint Municipal Utility Commission formed under Missouri statutes 393.700 to 393.770. It was officially incorporated in 1983. The purpose was to provide a stable, long-term water supply for the region. Public water systems in northeast Missouri were heavily dependent on surface water sources that were vulnerable to dry periods and droughts. This resulted in unreliable sources that created issues with growth and development in the region.



Mark Twain Lake is a Corps of Engineers impoundment of the Salt River that has 20,000-acre feet of storage space available for drinking water purposes. CCWWC and the state of Missouri entered into a contract with the federal government to secure a portion of that water storage space that has the capability to supply 16 mgd of drinking water. The water plant and transmission system started producing and delivering water in June 1992.

Average current production at the water plant is 4 mgd. CCWWC employs twelve people to operate and maintain the water treatment plant and the transmission system.



CCWWC has been successful in providing a reliable, cost-effective water source for its member systems. Public Water Supply Districts have been able to expand their services to more customers. Municipalities have eliminated the worry of drought and the impact it has on their water sources.

Over the past 31 years, the CCWWC system has impacted the growth and development of the entire northeast quarter of the state. Besides a stable, long term water source, the CCWWC has been an active participant in source water protection activities and programs in the Salt River basin (Mark Twain Lake is an impoundment of the Salt River). They have worked with groups such as the Missouri Department of Natural Resources, Missouri Department of Conservation, Missouri Stream Team, various agricultural groups, and local citizen groups to improve and enhance water quality in the watershed.

The challenges of operating and maintaining a water system never end. Dealing with water leaks, weather events, and mechanical breakdowns are part of everyday life for a water specialist. One such event that occurred at the water plant around Christmas time in 2022 exemplifies the type of situation that crops up and the dedication of water specialists to insure the safe, dependable delivery of water.

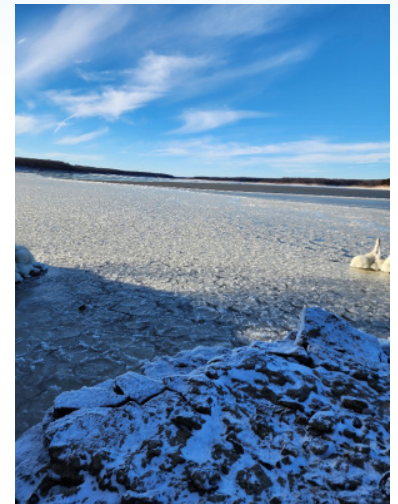
Scott Allen, Chief Operator at CCWWC chronicles the event below:

“We are operating in our 31st year, and Mark Twain Lake still manages to throw new stuff at us. Friday night December 23rd, the winds blew so hard from the North and the North Fork was still building an ice cover. The heavy winds began to shove what we think of as “Frazil Ice” into our Raw Water Intake Channel. Just after midnight early on the 24th, our Raw Water Intake wet well began to drop, indicating that water could not flow through the intake screens to the pumps.

Kurtis Arnett and Joe Smith met me at the water plant early that morning and we began to assemble a flush line connection to the Raw Water Intake. The CCWWC had installed this



6-inch line during a 2004 Raw Water Intake expansion project. As we installed a second 20-inch raw water line to the WTP, we also installed a 6-inch line to a flush hydrant that was fed by our 4 MG Ground Storage Tanks. It was for the purpose of flushing silt out of the raw water wet well and intake screens. At 750 gallons per foot in the wet well, it takes about an hour to fill it to the top for flushing. We did this twice on each of our lower intakes 582 MSL and 594 MSL. We also opened our 600' elevation intake, which was barely under water.



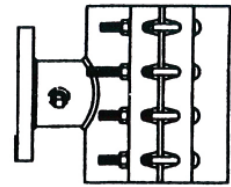
We had normal flows through Saturday night but around 4:00 am Christmas day we began to see lower flow on the pumps, without any drop in the wet well. This indicated that small, packed ice was forming around the individual pump screens. Kurtis Arnett met me again at the WTP at daybreak and we filled the wet well again to wash the ice off the screens. We ran for almost 28 hours straight to fill everything up. We never had to curtail any of our 23 Member Systems during this emergency and are implementing some upgrades to make this an easier process in the future.



Over the years, the 11 staff members of this Commission have given countless hours away from family and friends without any expectations for recognition. I am positive that Northeast Missouri will have dozens of hero stories from your members that happened during this unbelievable cold snap. Our own member systems were no doubt all working to keep things flowing. I would not be at all surprised if the MRWA staff wasn't called out as well. “

The water specialists that take care of the water and wastewater systems across the state and the nation are unsung heroes and we owe them our deepest respect and gratitude!

Stop by and visit the CCWWC water plant on Route U in Monroe County sometime. They are always glad to see visitors and provide a tour of the facilities.



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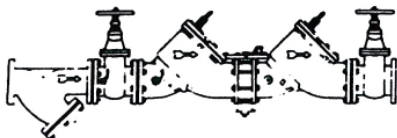


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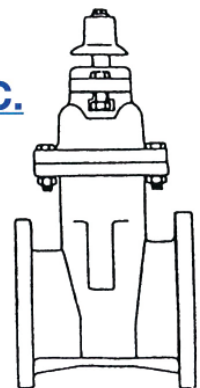
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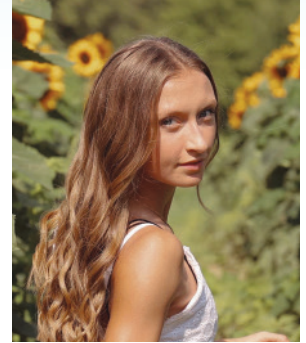
2023-2024 Scholarship Recipients

Crystal Cooper, MRWA Chief Financial Officer



High School Winners:

Kristlyn Smith is a recent graduate of Marionville High and the daughter of Stacy Smith who is an operator for the city of Monett. In high school Kristlyn participated in track, cross country, volleyball, FBLA, FCA and the A+ Program, along with many other activities. She will be participating in the Summer Work Program at College of the Ozarks, which helps pay for room and board, prior to attending classes this fall. Kristlyn's love of running has drawn her interests into becoming a personal or athletic trainer in the future.



Sarah DeVore, daughter of Laclede County PWSD #1 District Manager Mitch DeVore, has graduated from Iberia R-V High School. Sarah held offices in many academic clubs and achieved top score awards in multiple subjects. She hopes to become a Registered Nurse and is getting an early start to the hospital experience by working as a patient care tech this summer before making the commute to the Osage Beach campus of State Fair Community College. Sarah enjoys spending time with family, floating, and camping.

Karlie Waterman recently graduated from Meadville R-IV High School and is the daughter of Livingston County PWSD #2's Treasurer, Stacey Waterman. Karlie has been heavily involved in FFA and 4-H. When she's not working during the summer, she will show pigs at the Livingston County Fair and State Fair. Karlie is very much an outdoorsy girl, enjoying hunting, fishing, riding horses and showing pigs. In the fall she will be attending North Central Missouri College pursuing a degree in accounting.

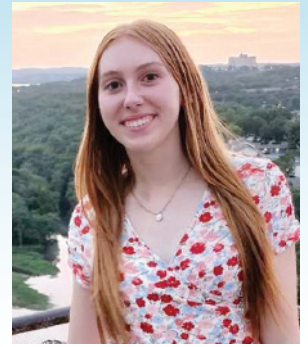


College Winners:



Lancing Moore is the daughter of Chief Water Operator Tina Mitchell from Shelbina. Lancing is currently a student at the University of Missouri – Columbia and will also be taking virtual classes over the summer with Moberly Area Community College. During the school year at MU, she plays the bassoon in the University Band, is a member of the Architectural Design Student Association and also is a student supervisor working for the campus dining services. Lancing currently majors in Architectural Studies with minors in Construction Management and Engineering Sustainability. She was also a recipient of this scholarship last year after graduating from South Shelby High School.

Amelia Stone is currently enrolled at College of the Ozarks. She is the daughter of Roger Stone with the city of Lockwood. This summer she is working at the daycare on campus as part of the summer work program. Amelia has a love of children and therefore plans on graduating with an RN BSN degree and becoming a labor and delivery nurse. During the school year she participates in the family studies club, nursing Christian fellowship and NAMI. Outside of class, Amelia can be found thrifting, going on walks, or otherwise spending time with close friends and family.



Kirby Richards is a repeat winner and is the daughter of Robert Richards, Water Plant Supervisor with the city of Slater. Kirby will be heading into her senior year this fall at the University of Missouri, majoring in Agribusiness Management and minoring in Plant Science. During the school year she works at the University Extension Offices but, this summer she is enjoying working for MFA as a crop scout. Kirby is considering continuing her education by attending grad school once she obtains her undergraduate degree.



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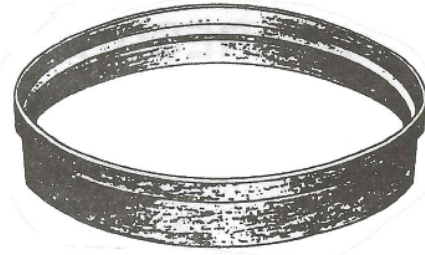
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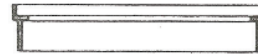
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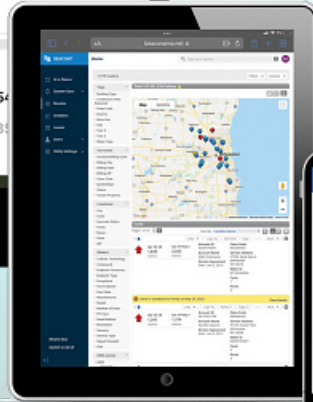
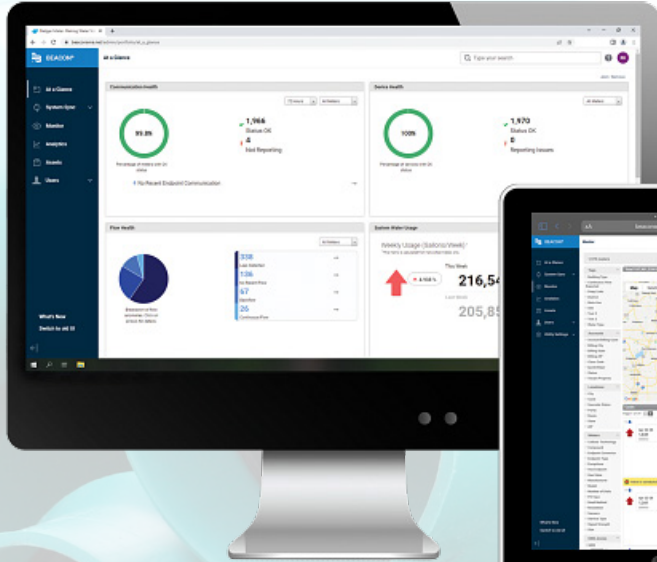
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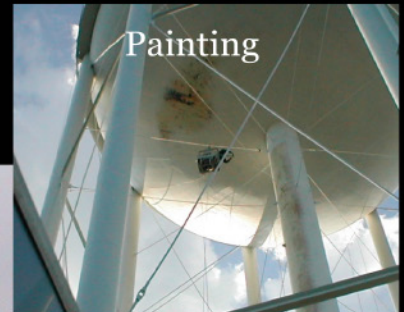
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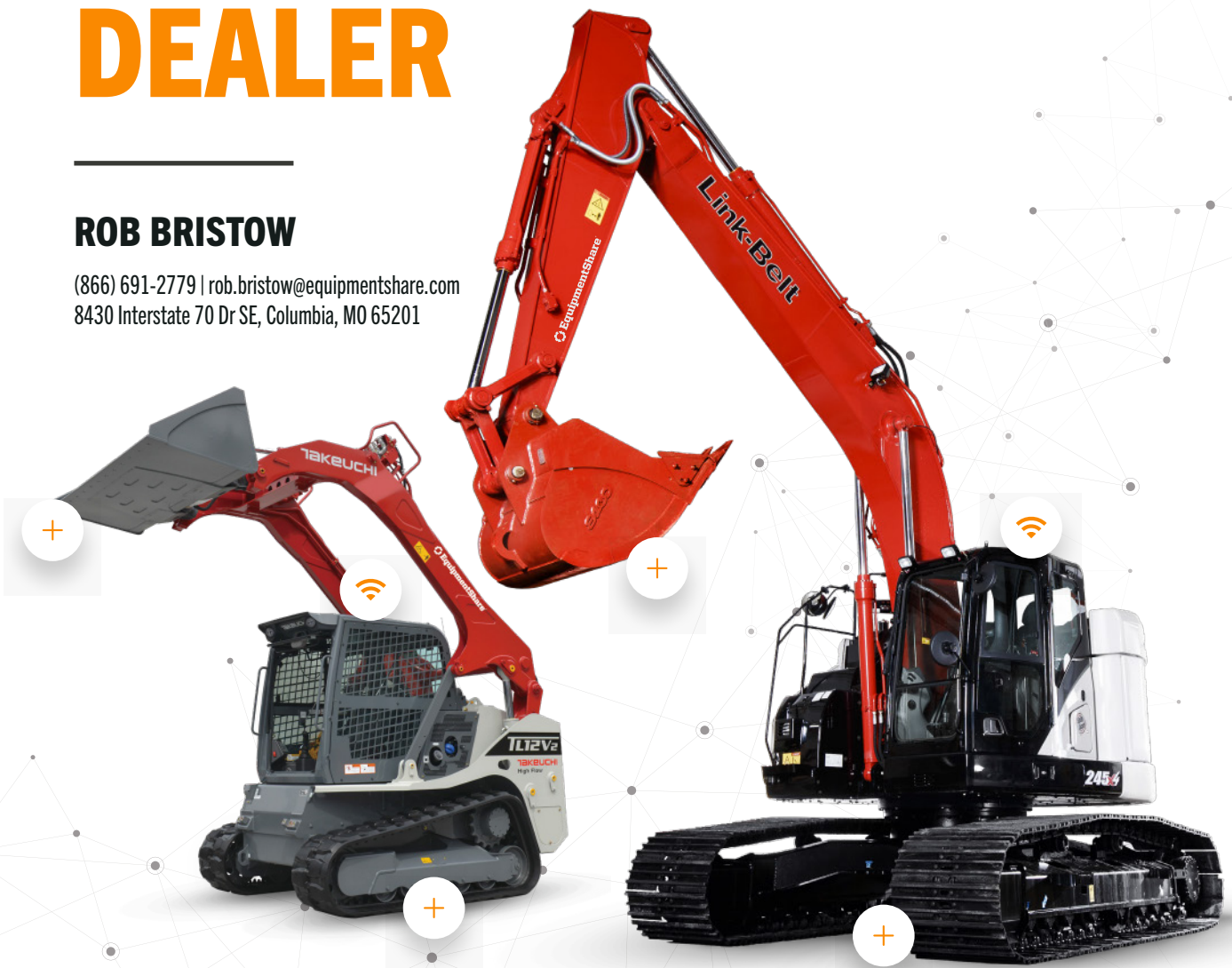


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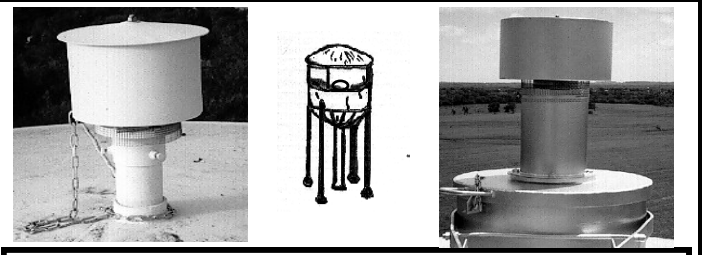
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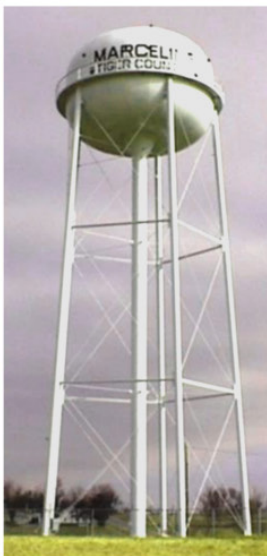
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MRWA Calendar of Events

July



- 4 Independence Day Observed – MRWA office closed Ashland
- 20 3rd Quarter MRWA Board Meeting Ashland

- 25 Legislative Planning Session Lake Ozark
- 26 – 27 Fall Operations & Maintenance Symposium Lake Ozark
- 31 Happy Halloween

August



- 10 MRWA Staff Meeting Ashland
- 11 MRWA Central Apprenticeship Class Promotion Lebanon
- 21 Board & Council Training Poplar Bluff
- 22 Bootheel Expo Office Pro's Expo Poplar Bluff
- 22 – 23 MRWA Bootheel Expo Poplar Bluff

November



- 5 Daylight Saving Time Ends
- 7 Election Day
- 11/8 – 12/19 10-Day DW/DS Certification Course begins Columbia
- 10 Veterans' Day Observed – MRWA office closed Ashland
- 23 – 24 Thanksgiving – MRWA Office closed Ashland

September



- 4 Labor Day Observed – MRWA office closed Ashland
- 9/6 – 10/11 10-Day DW/DS Certification Course begins Cameron
- 25 – 27 WaterPro Conference (NRWA) Aurora, CO

December



- 25 – 26 Christmas – MRWA Office closed Ashland

October



- 10/5 – 11/14 10-Day DW/DS Certification Course begins Willard
- 9 Columbus Day/Indigenous Peoples' Day – MRWA office closed Ashland
- 24 – 25 Office Professionals' Seminar Lake Ozark
- 24 4th Quarter MRWA Board Meeting Lake Ozark



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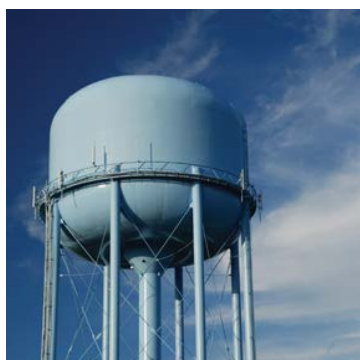
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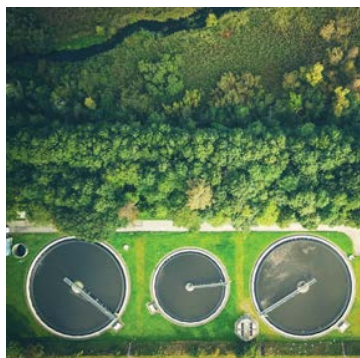
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*Source: Results from a survey conducted by MRWA in partnership with D.A. Davidson from December 2022 - February 2023. Sample of 197 survey respondents.



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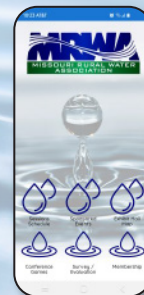
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