

# MISSOURI WATER LINES

A PUBLICATION FOR MISSOURI'S WATER AND WASTEWATER INDUSTRY



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### Clarence Cannon Wholesale Water Commission

**\$1,200,000**  
**Water Revenue Bonds**

Proceeds were used for engineering design and design related services associated with the acquiring, constructing and equipping of distribution system and appurtenance facilities for the connection Cities of Laddonia and Monroe City to the system.

### City of Russellville, Missouri

**\$1,146,000**  
**Junior Lien Combined  
Waterworks and Sewerage  
System Revenue Bonds**

Proceeds were used to acquire and construct improvements and/or extensions to the City's Combined Waterworks & Sewerage System.



### Thomas Hill PWSD No. 1 of Randolph County, Missouri

**\$1,539,500**  
**Lease Purchase Agreement**

Proceeds were used to construct a metal building for office space, work and storage areas, bathrooms and four drive thru equipment bays.

### City of Mansfield, Missouri

**\$2,885,000**  
**Certificates of Participation**

Proceeds were used to pay the costs of construction and installation of upgrades and improvements to the City's Wastewater Treatment Plant.

### City of Rosebud, Missouri

**\$1,272,000**  
**Combined Waterworks and  
Sewerage System  
Revenue Bonds**

Proceeds from the sale of the bonds were used to extend and improve the City's Combined Waterworks and Sewerage System

### City of Cameron, Missouri

**\$3,050,000**  
**Certificates of Participation**

Proceeds were used to reconstruct and improve roads and sidewalks, including new asphalt pavement, curb and gutter improvements and 5-foot wide ADA compliant sidewalks.

### Lake Area Waste Water Association, Inc.

**\$13,028,000**  
**Bank Loan**

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

### Missouri Public Utilities Commission

**\$80,000,000**  
**Interim Construction Notes**

Proceeds of the Notes were issued to provide interim funding for Missouri municipal projects being funded through the United States Department of Agriculture, Rural Development.

### City of Windsor, Missouri

**\$3,200,000**  
**Sewerage System  
Revenue Bonds**

Proceeds from the sale of the bonds were used for the purpose of extending and improving the City's Sewerage System.



### PWSD No. 1 of Grundy County, Missouri

**\$440,957**  
**Equipment Lease  
Purchase Agreement**

Proceeds were used to improve the District's Waterworks System to include approx. 13,200 LF of 6" HDPE water mains and appurtenances.

### City of Jonesburg, Missouri

**\$707,768**  
**Equipment Lease  
Purchase Agreement**

Proceeds from the sale of the Lease were used for the Hoelscher Sanitary Sewer Extension and costs in connection with the execution and delivery of the lease.



### PWSD No. 4 of Texas County, Missouri

**\$1,340,000**  
**Junior Lien Waterworks  
Revenue Bonds**

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



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### About the Cover:

Pictured is blue skies and the MRWA sign. The sign sits in front of the MRWA offices in Ashland, MO. If you're traveling through Ashland on Hwy 63 and you want to stretch your legs, we'd love to see you face-to-face. Our office is located at 901 Richardson Drive. Traveling south on Hwy 63 from Columbia, take the Peterson Lane exit and Richardson Drive is the first street to your right.

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

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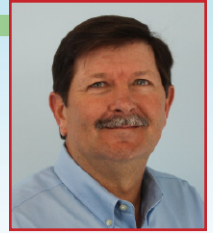


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## From the Executive Director

Howard Baker, MRWA Executive Director



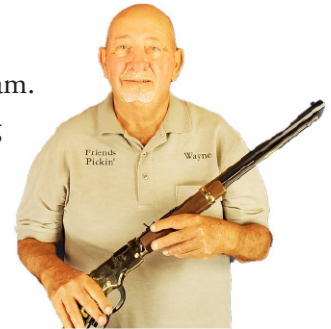
MRWA had three retirees this year: Billy Everett, Wayne Roderman and Elizabeth (Liz) Grove. I want to thank them for their service to the rural water systems of Missouri, they truly represented the core values of MRWA.



Billy has been here the longest, starting in August 1984. Billy spent all but the last four years of his time with MRWA as a Circuit Rider. I would bet that he has been to every water system in Missouri or at least knows who has worked there at one time or another. Those that he has helped along the way will tell you that Billy did not leave their system until the problem was fixed, or a plan to fix the problem had been made.

The last four years Billy has been the Apprenticeship Coordinator. His passion to help system operators and the fact that he knows everyone, has made him instrumental in building an Apprenticeship Program that has changed the way we train water and wastewater operators. The US Department of Labor and National Rural Water Association have recognized it as one of the top programs in the nation.

Wayne started with MRWA in January 1999, in the Source Water Protection Program. After six years of that he spent the next eight years building the GIS Mapping Program. Now there is a story that goes with that, as it turns out Wayne was at a MRWA Board Meeting and suggested that MRWA look at helping systems get better maps. He tells the Board that GIS would be a great way to do that. Well, they thought about it and made Wayne the GIS Mapping Specialist. It was an excellent choice, although he will tell you at the time that he had no idea how GIS worked, it has turned out to be one of the most widely used programs MRWA offers.



Wayne has spent the last eleven years in the Resource Conservation Circuit Rider Program chasing down leaks all over the state. This work has saved systems vast amounts of money in the form of electric cost, chemical cost, lost revenue, purchased water cost and not to mention help ensure the ability of the systems to maintain safe water supplies.

Although Wayne has helped countless people, he is most recognized for his work in the Exhibit Hall at our conferences for so many years. You never really knew what wild game he was going to play, but you could be sure that you were going to hear "Cold Hard Cash" at some point.



Elizabeth (Liz) Grove started with MRWA in August 2008, as the first Technical, Managerial, Financial (TMF) Specialist. This position was to help clerks and managers with the everyday problems of running water and wastewater systems in a way MRWA had never done before. With her knowledge of the rules and regulations of the water industry and her strong desire and willingness to help management, Liz was perfect for the program. Setting up classes and even going out to those systems for one-on-one training was making an impact but she wanted to do more, so she started the Certified Office Professional Program. The program recognizes the importance of office and

(continued on page 10)





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# Waterdrop



Office Professional of the Year - 2023  
Brad Bryant - Jefferson Co PWSD # 12



Office Professional Scholarship - 2023  
Amanda Leija, City of Morehouse



Water Operator of the Year - 2023  
Brad Engelhard - City of Marceline



Wastewater Operator of the Year - 2023  
Dennis Cupp - City of Marceline



**For more information on the MRWA Waterdrop Awards for Excellence, or to nominate an individual or a system for an award, visit:**

**<https://morruralwater.org/waterdrop-awards-for-excellence/>**



# Awards for Excellence



Wastewater System of the Year - 2023

City of Slater



Water System of the Year - 2023

City of Carthage



Associate Member of the Year - 2023

Sidener Environmental Services



Sourcewater Protection System of the Year - 2023

Lafayette Johnson Saline Counties C-PWSD # 2



Randy Johnson Memorial Scholarship - 2023

Dustin Owens - City of Bonne Terre



Dell Cornell Memorial Scholarship - 2023

Garrett DeMent - City of Ellington



(continued from page 4)

managerial activities in the water industry and gives those individuals working in the Office Professional fields an opportunity to nurture and demonstrate their knowledge and professionalism. Liz has also been the driving force in the development of MRWA's Small Utility Billing Software or S.U.B.S. Again, this is something no other State Association offers their members...well not yet anyway.

I know they are all looking forward to the time off to do the things they love to do, and they deserve it. They have worked hard and left their mark on MRWA. Although the loss of all this talent in such a short time is a challenge, you might say they have trained us well, and the rest of the staff with that same dedication will pick up right where they have left off.

I have always heard "You are an average of the people you are around," and I believe that to be true. It only stands to reason that if you are around good, positive, and caring people, you are going to be better. And that, is why it has been an honor working with Billy, Wayne, and Liz.



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# Planning a Great Damage Prevention Program

Randy Norden – Executive Director, Missouri 811



Damage Prevention is a term that applies to anything, but in the utility world, it means mitigating the risk of damage to utility infrastructure from excavation activities and overlays to include the prevention of human injury or death. These conveniences and services come to us underground in the form of drinking water, sanitary sewers, and storm sewers, as well as the internet, gas, and electricity for our homes, businesses, and schools. Installing our utilities in the underground public rights-of-way has served us well for years.

As a utility, you possess drinking water, wastewater, storm water, gas lines, electric lines, street trafficking systems, and even fiber or broadband. You are a utility owner AND you are an excavator. How do you move forth and help protect your utilities from damage, interruption of services, enhance economic growth, and protect the lives of your staff as they excavate? Your city or district must have a GREAT working Damage Prevention Program.

The first thing you can do is to contact Missouri 811 (formerly known as Missouri One Call or commonly known as “Dig Rite”) and have one of the Damage Prevention Managers visit with you. The Damage Prevention Manager can not only help you set up a Damage Prevention Program but can also provide training for your staff about the legal requirements of Statute 319, how to properly submit and manage excavation tickets, and provide beneficial information about safety.

Your Damage Prevention Program should address the following areas:

## Mapping

In our mindfulness of the perfect world, we would GIS map our utilities with pinpoint accuracy on content and location. (I am still waiting for the arrival of X-Ray glasses that allow us to see what is underground!) The reality is that we can not achieve perfection in our mapping scenarios, but we can strive for excellence. Especially so for municipalities, as it is possible that your utilities have been in the ground for years, if not decades, and you simply may have no idea where they are really at...you just know they are “somewhere” in that given area.

However, I did just say a three-letter word; G.I.S. I strongly urge you to move in that direction and do not rely on “as-built” or especially on someone’s memory. Utilizing a GIS tool for your mapping not only allows you to document your mapping, but it also allows you to update that mapping with digital ease. GIS Mapping tools have great benefits that paper maps do not have such as being able to make notes and annotations on the map as well as linking accounts to the map.

Finally, it is important to keep your notification area up to date with Missouri 811. State law requires you to update your notification area at least once per year, but it is best to keep it updated as changes occur because that allows the best representation to excavators who are digging near your underground utilities.

## Operations

The operations of a Damage Prevention Program could very well warrant its own article due to the unique intrinsic needs for each utility. The operational questions that every utility should address are:

- What are the Standard Operating Procedures when the utility is excavating?
- What are the Standard Operating Procedures when the utility is responding to excavations, i.e., locating?
- What are the Standard Operating Procedures of the utility when establishing ordinances and/or a permitting system regarding excavators?

Likewise, your utility may be considering hiring a third-party company to perform your utility locating. Please consider that even though your utility has contracted this service, it is still the utility's legal responsibility to ensure that the proper actions happen when responding to a locating ticket. Do not just pay invoices; manage your contract with your locating company. It is advisable that you, as the utility, monitor ticketing activity and pay especially close attention to performance.

## Training

Always keep an eye on our website, [www.missouri-811.org](http://www.missouri-811.org) and watch the events and training page. Missouri 811 provides FREE training to excavators and utilities, and we will post these training events well ahead of time for your staff to be able to attend any one of them. Additionally, Missouri 811 will partner with trade associations such as Missouri Municipal League and Missouri Rural Water Association to offer training at those venues to provide the best possible accessibility to opportunities for you and your staff.

Here is what I recommend for keeping up to date with training:

### Municipal Administration

- Legal requirements relating to Missouri Statute 319
- Membership requirements for your utility's Missouri 811 activity
- How to maintain your Missouri 811 account and keep contact information and mapping up to date

### Municipal Operations

- Utilizing the Missouri 811 iSite Ticketing System to properly enter locate requests and manage tickets involving your utility
- How to properly locate and mark underground utilities in accordance with Common Ground Alliance Best Practices (*see [www.commongroundalliance.com](http://www.commongroundalliance.com)*)
- How to properly status and close tickets involving excavations within your notification area
- How to properly initiate and execute a locate request (as an excavator) and understand the best practices as established with Common Ground Alliance Best Practices



Best of all, training does not have to be traveling to sit in a classroom. Two other opportunities exist to serve your needs:

- 1) Missouri 811 Damage Prevention Managers and the Member Operations Manager
- 2) Missouri 811 Learning Management System

(continued on page 14)



(continued from page 11)

Missouri 811 staff will come to your location and provide personalized training for you and your staff covering comprehensive subjects or tailor-made to specific subjects. Additionally, this provides an opportunity to establish a relationship with Missouri 811 staff to help you if you experience issues with an excavator, ticketing, completing locates on time, or questions about how to update your information or mapping. These services are free of charge.

The Missouri 811 Learning Management System offers professional online training that is accountable. Accessible at the Missouri 811 website, the Learning Management System offers the opportunity for staff to log in and process through training modules that are beyond just “watching a video”. The courses are topic specific and to complete the course, the student must move through the material and pass quizzes before progressing onward. Once completed, the student will receive documentation of completion. The course can begin at any time and the student can work through the course at their own pace as well as stop and start as needed. Likewise, the Learning Management System is free of charge.

Your utility is a member of Missouri 811, and we are here to serve you. If your utility, regardless of size, does not have a Damage Prevention Program, I strongly encourage you to develop one. Contact Missouri 811 for assistance for this program at any time.

Especially so, as the Executive Director of Missouri 811, contact me at any time regarding your ideas, challenges, and suggestions on making Damage Prevention an easier task to live with. If I can help you, then we will both be pursuing greatness instead of just settling for good enough.



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# Scholarship Recipients for the 2024-2025 School Year

Crystal Cooper, MRWA Chief Financial Officer



## College Recipients

Sydney Mattson recently graduated from Truman State University in May. In her free time, she loves to spend time in nature, be active, and hang out with family. This summer she is starting the Master of Arts in Education program at Truman. She is currently teaching a combination class of incoming 4th and 5th grade for summer school at Ray Miller Elementary School along with taking classes for her masters. This fall, she will continue taking classes while starting her first year of teaching. She will be a 5th grade teacher at Holden Elementary, and is so excited to start her career as an educator!



Lancing Alias Moore is a dedicated student at the University of Missouri-Columbia (Mizzou), hailing from Shelbina, Missouri. She is currently pursuing a major in Architectural Studies, complemented by minors in Construction Management and Engineering Sustainability. This summer, Lancing will be gaining valuable experience through an architectural internship at Klingner and Associates PC. Her future goals include securing a position at a firm where she can serve communities similar to her hometown, with a particular focus on sustainable methodologies and historic preservation. Lancing's interests extend beyond architecture to music and visual art history.



Amelia Stone is from Lockwood, MO. This summer her plans include working at the daycare located at College of the Ozarks and having an externship at the hospital in labor and delivery. She is excited to graduate in May of 2025 and pursue her career in Nursing.

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## High School Recipients



Kase Overstreet is a recent graduate and Salutatorian of Lamar High School. His interests include business, archery, hunting, and above all aviation. During the current summer he is working in a warehouse at Jones Twine where he has and will continue to develop a more mature growth-oriented mindset. Later in the summer he will attend New Student Indoctrination (NSI) at Naval Station Great Lakes to prepare for his entrance to the Navy ROTC program. While at the University of Missouri he plans to double major in Biomedical and Mechanical Engineering. After completing his degree, he will continue into his career with the US Navy in hopes of becoming a fighter pilot.



Autumn Cousatte is a 2024 graduate of Worth County R-III High School. This summer she plans to work as a lifeguard and her future goals are to attend NCMC for an associate's degree in nursing and then to attend Northwest for her bachelor's degree in nursing.



Johnnie Thomas is the 18-year-old son of Kevin and Leah Thomas of Madison. Johnnie graduated early from Madison C-3 High school this past December and then walked across the stage in May with his fellow classmates. He started at the Grand River Welding Institute in Brookfield in February. His future plans after he graduates from Grand River is to become a traveling welder for a few years and come back to his small hometown of Madison and open a welding shop and take over the family farm. In his spare time, he enjoys hunting, fishing, being a volunteer firefighter and first responder, all while helping on the farm and spending time with family.



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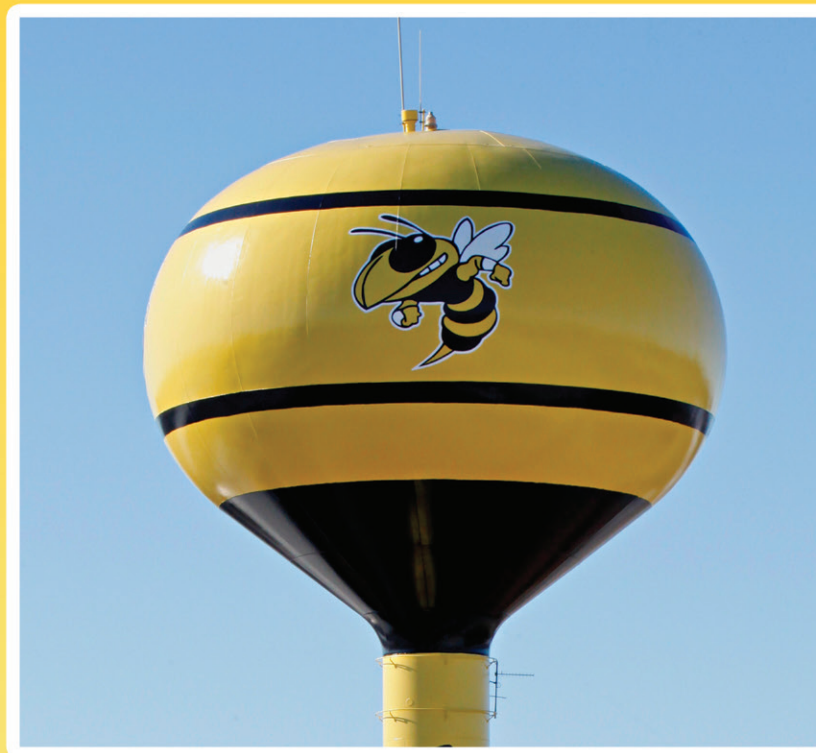
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Topics covered are:

- 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](http://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](mailto:oralhealth@health.mo.gov) for CE credits to be awarded.**



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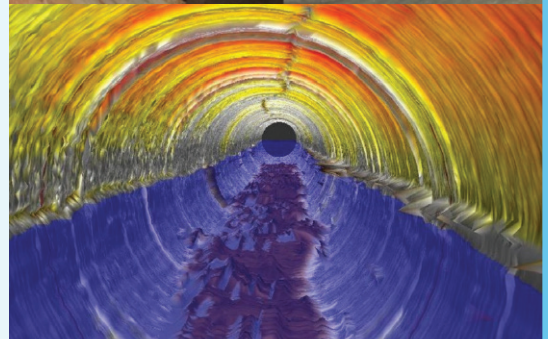
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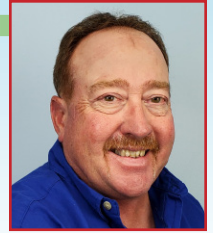
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# Pharmaceuticals in Source Water

*Klark Bohling, Source Water Protection Specialist*



In the last decade, traces of pharmaceuticals have been reported in the water cycle including surface water, wastewater, ground water and to a lesser extent, drinking water. Advances in analytical technology have been a key factor driving their increased detection. Their presence in water, even at very low concentrations, has raised concerns among stakeholders; drinking water suppliers and the public consumer. Those concerns are the potential risks to human health from exposure to traces of pharmaceuticals in drinking water.

While wastewater and drinking water treatment processes are primarily designed for their respective purposes and not specifically to remove pharmaceuticals, they can inadvertently remove some pharmaceutical compounds to differing extents. The effectiveness of removal varies depending on the physical and chemical properties of the pharmaceuticals involved. In instances where regulations necessitate controls for mitigating exposure to pesticides, treatment barriers may already be in operation that incidentally remove pharmaceuticals. Advanced water treatment processes such as ozonation, advanced oxidation, activated carbon, membrane processes, and reverse osmosis can achieve higher removal rates for targeted pharmaceutical compounds.

Having established that raw sewage and wastewater effluents are a major source of pharmaceuticals found in surface waters and drinking water, it is important to consider and characterize the efficiency of processes for the removal of pharmaceuticals during wastewater and drinking water treatment. Most of this research has been conducted at laboratory scale or at full scale in developed countries including the US.



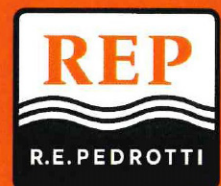
Consumers are accustomed to disposing of unwanted and expired medicines through household waste and sewers. Such improper disposal practices release pharmaceuticals into our environment, wastewater, and water sources. Therefore there is a need to raise public awareness and encourage consumers to adopt a proper disposal practice for unwanted or expired pharmaceuticals.

So, let's stop the problem before it starts. Drug-Take-Back programs have been established by government and private organizations in several countries to reduce the amount of pharmaceutical compounds from entering our environment and source water. The US has many scheduled drug-take-back events to facilitate prudent disposal of unwanted medications at the regional level. The USEPA has awarded grants to support the take-back of unused medications with the appropriate involvement of law enforcement.

For more information on the proper disposal of household pharmaceuticals waste, National Prescription Drug-Take-Back Day, or year-round national public collection sites, you may contact the Missouri Department of Natural Resources Waste Management Program @ 800-361-4827, or contact me at [kbohling@moruralwater.org](mailto:kbohling@moruralwater.org).

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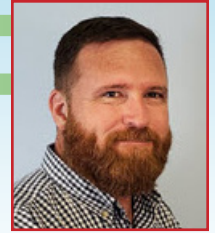
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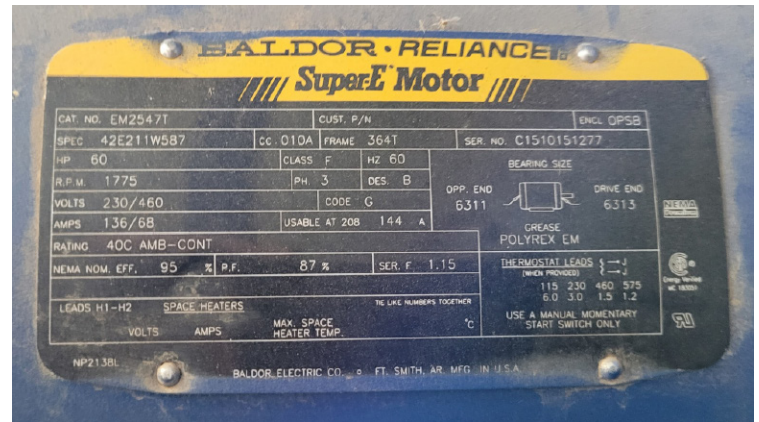
# Flowing Forward: A Wastewater Facility's Energy Efficiency Journey – “A Modern Fairytale”

Michael Bertschinger, Energy Efficiency Circuit Rider



In the heart of Clear River, Missouri, Bobby Stanz, a dedicated wastewater operator, tirelessly worked to ensure the purity of the town's waters. However, Bobby faced an uphill battle as the wastewater facility grappled with aging infrastructure and a tightening budget. (*Sound familiar?*) Repairs were desperately needed, but funds were scarce, and rising operational costs only added to the strain.

With a single 60 horsepower (HP) aerator running continuously, the facility's electricity bills were a significant burden on the budget. Bobby knew that something had to change. That's when he stumbled upon the concept of Time-of-Use (TOU) Rates - a potential solution to their financial woes.



Under the current flat-rate system, the total daily energy consumption of the 60 HP aerator was calculated as follows:

$$\text{Energy Consumption}(kWh) = \text{Power}(kW) \times \text{Time(hours)}$$

$$\text{Energy Consumption}(kWh) = 44.8kW \times 24 \text{ hours} = 1075.2kWh$$

Using the flat rate of \$0.11/kWh, the total daily cost under the current system was:

$$\text{Total Cost (Flat Rate)} = \text{Energy Consumption (kWh)} \times \text{Flat Rate}$$

$$\text{Total Cost (Flat Rate)} = 1075.2kWh \times \$0.11/kWh = \$118.272$$

Next, Bobby explored the TOU rates for Clear River's utility provider:

- Off-Peak Hours (10pm to 2pm): \$0.06/kWh
- Transition Hours (2pm to 4pm and 8pm to 10pm): \$0.08/kWh
- Peak Hours (4pm to 8pm): \$0.12/kWh

During off-peak hours, Bobby calculated the energy consumption of the aerator:

$$\text{Energy Consumption (Off-Peak)} = 44.8kW \times 16 \text{ hours} = 716.8kWh$$

During transition hours, a portion of the aerator's operation was allocated:

$$\text{Energy Consumption (Transition)} = 44.8kW \times 4 \text{ hours} = 179.2kWh$$

During peak hours, the aerator's operation was minimized to mitigate costs:

$$\text{Energy Consumption (Peak)} = 44.8kW \times 4 \text{ hours} = 179.2kWh$$

The total energy cost for one day under the TOU rate structure was calculated as follows:

$$\begin{aligned} \text{Total Cost (TOU Rates)} &= (716.8\text{kWh} \times \$0.06/\text{kWh}) + (179.2\text{kWh} \times \$0.08/\text{kWh}) + (179.2\text{kWh} \times \$0.12/\text{kWh}) \\ \text{Total Cost (TOU Rates)} &= (\$43.008) + (\$14.336) + (\$21.504) \\ \text{Total Cost (TOU Rates)} &= \$78.848 \end{aligned}$$

Finally, Bobby compared the total costs for one day under the TOU rate structure with that of the flat rate to determine the difference:

$$\begin{aligned} \text{Difference in Cost} &= \text{Total Cost (Flat Rate)} - \text{Total Cost (TOU Rates)} \\ \text{Difference in Cost} &= \$118.272 - \$78.848 \\ \text{Difference in Cost} &= \$39.424 \end{aligned}$$

By adjusting the rate schedule from the flat rate to the Time-Of-Use rates, the facility stood to save a substantial **\$39.424 per day** by embracing Time-of-Use Rates.

Armed with this knowledge, Bobby presented his proposal to the town council. With their support, he implemented the optimized rates, leading to significant cost savings and a brighter future for Clear River's wastewater facility.

As Bobby presented his proposal to the town council, he emphasized not only the potential cost savings but also the broader benefits of embracing TOU rates. By optimizing energy usage, the facility could reduce its environmental impact, thus ensuring a more sustainable future for Clear River.



To Bobby's delight, the council embraced his proposal with enthusiasm. With their support, he set his plan into motion, implementing a new schedule that aligned the facility's operation with the fluctuating electricity rates.

In the months that followed, the results were undeniable. The facility's energy bills plummeted, providing much-needed relief to the strained budget. With the savings accrued, Bobby was able to allocate funds towards much-needed repairs and maintenance, ensuring the continued operation of Clear River's vital wastewater infrastructure.

But perhaps most importantly, Bobby's initiative sparked a newfound sense of optimism within the community. Clear River's wastewater facility was no longer seen as a burden but as a beacon of innovation and resilience, setting an example for sustainable practices that rippled throughout the town.

As Bobby looked out over the clear waters of Clear River, he couldn't help but feel a sense of pride. Through perseverance and ingenuity, he had transformed a struggling facility into a model of efficiency and sustainability, ensuring a brighter future for Clear River and generations to come. And as the sun set on another day in Clear River, Bobby knew that the journey towards a cleaner, greener tomorrow had only just begun.

(continued on page 32)





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(continued from page 29)

As word of Clear River's success spread, Bobby received inquiries from neighboring towns facing similar challenges. Inspired by Clear River's story, they too sought to implement TOU rates at their wastewater facilities, hoping to replicate the cost-saving benefits.

Bobby gladly shared his experience and expertise, guiding them through the process of analyzing energy consumption, negotiating with utility providers, and implementing optimized rates. One by one, these small towns began to see positive results – reduced energy costs, improved operational efficiency, and a renewed sense of financial stability.

The moral of the story became clear: Time-of-Use Rates were not just a solution for Clear River; they were a viable option for many small systems grappling with financial woes. With determination, ingenuity, and a willingness to embrace new approaches, they could overcome even the most daunting challenges.

As Bobby reflected on the journey, he realized that the transformation of Clear River's wastewater facility was more than just a success story – it was a testament to the power of collaboration, innovation, and community spirit. By sharing knowledge and working together, small towns across the region could build a brighter, more sustainable future for all.

In the end, Bobby's message to his fellow operators was clear: don't be afraid to think outside the box, explore new ideas, and leverage available resources. Time-of-Use Rates were just another tool in their toolbox, waiting to be utilized to overcome financial obstacles and pave the way towards a more prosperous tomorrow.

And as more small systems followed in Clear River's footsteps, Bobby knew that together, they could achieve great things – one wastewater facility at a time.

As enjoyable as this narrative was to craft, it contains a kernel of truth. Exploring Time of Use (TOU) rates holds potential benefits for any water system, whether for drinking or wastewater. Similar to Bobby's journey in the story, evaluating whether these rate structures could be advantageous for your system requires careful consideration and number crunching, especially for larger electrical motors. While some facilities may seamlessly transition to TOU rates and reap the rewards, others may need to adjust their equipment's operating hours to maximize efficiency. However, investing the time to explore the possibility of switching to TOU rates could yield significant long-term financial gains for your system, with minimal impact on its finances.




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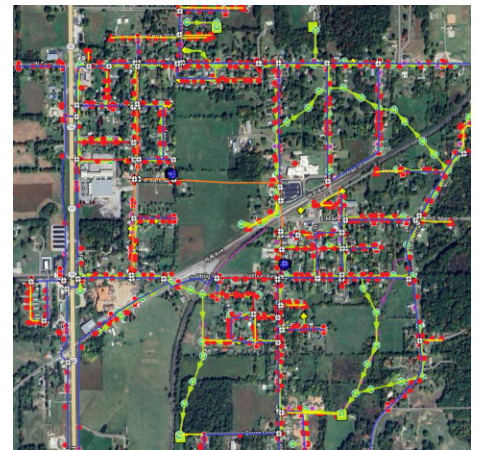
If you work in the water or wastewater world I guarantee in the last year or two you have worked alongside someone that has recently retired or is looking to retire soon from the industry. Over the last 2 years, I have had 5 amazing coworkers who have all retired or will be retired by the time you read this article. Out of those 5, every single one of them has been reached out to by one or more of the MRWA staff since their departure from MRWA for advice on some problem at hand. The knowledge these individuals have combined between their 5 minds will take the rest of us decades to accumulate if we last that long in the industry. They were the backbone of our team and thankfully don't mind too much when we reach out for that off-the-wall problem that usually only comes around once in a blue moon. In most circumstances, they have, "been there...and done that!"

As I travel the state and go system to system, I am seeing an alarming rate of veteran operators who have been in the business a very long time, either retire or they are very close to retirement and are on their way out the door. This can be very scary for water systems across the state. Many ask, "What are we going to do when they leave? Who is going to know where everything is at?" And others say, "He was the only one who knew what valves to turn!" These are common questions and statements that are being repeated across the state in a lot of city halls and water districts. The days of relying on one individual to know and operate your systems are sadly ending.



So how do we move forward and ensure that our system will be successful in the future? Here are a few things I would recommend every system to consider:

- *GIS Mapping* - Even if your operator doesn't think you need it, there will come a time when the new guy or gal will need to know what is in the ground and where it is. We have a full-time GIS Mapping Specialist who would love to sit down and visit with you to discuss your system's mapping options.
- *Workforce Development* - Invest in training. There are great programs and classes out there to help all operators, new and experienced alike. Our growing apprenticeship program has all the tools necessary to help an operator succeed and excel. MRWA also offers multi-day certification classes to keep your system compliant with MoDNR operator requirements.
- *Succession Planning* - Don't wait to hire your next operator. Budgets can be tough, especially for the very small system that only has one employee on the payroll. The more time a new employee can spend with the outgoing operator, the better off the system will be.



(continued on page 38)

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(continued from page 36)

If you are an experienced veteran operator, please teach and guide the new employee. They are going to test your patience and I know it's easier to just *do it yourself* but try to think in the long term. The more they know, the less they are going to bother you while you're trying to relax and catch fish or whatever you're doing to enjoy your retirement.

New operators soak in as much of that knowledge as your brain can hold. Write it down and do whatever you can to collect and retain as much of the knowledge they have from years of experience as you possibly can.

If you are the one reading this who misses and wishes you had more time with the retirees, just remember that someday, not that far down the road, there will be a younger newer version of you that needs the same mentoring. You will someday be that irreplaceable "backbone" of the team that no one will know how to replace.

To my fellow retired coworkers, I hope the fish are biting, the gardens are growing, the traveling is amazing, and the wine tastes better than ever. Thank you for all the knowledge you passed along to me over the years.



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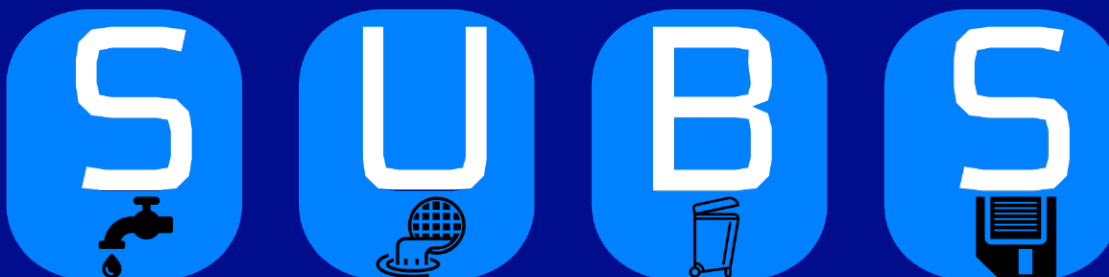
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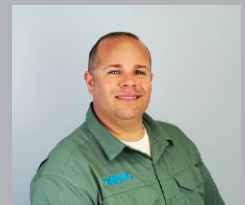
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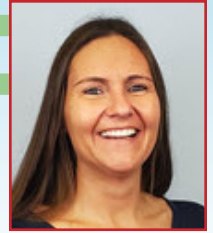


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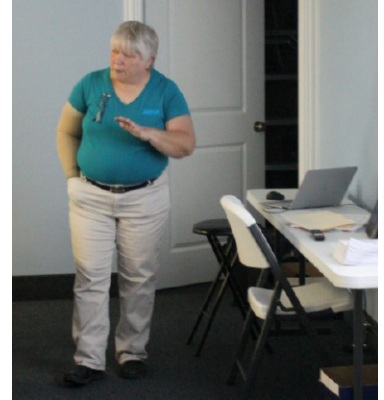
# Riding the Waves of Change: My Journey with MRWA

*Valarie Main, TMF Specialist*



Life has a funny way of keeping us on our toes, doesn't it? Some days it's all sunshine and smooth sailing, while others feel like you're paddling upstream without a paddle. For those who haven't had the pleasure, I'm Valarie Main. I joined the Missouri Rural Water Association (MRWA) in September 2022, taking over for the legendary Liz Grove, who was set to retire in 2024. The timeline was fuzzy at first, but the idea was clear: I would learn the ropes from Liz before she sailed off into the sunset of retirement. For those who know MRWA folks, we're not exactly the 9-to-5 type. Honestly, I can't imagine going back to a 9-to-5 or a cubicle.

I first crossed paths with Liz while working at the City of Otterville. Knowing her professionally was one thing, but working side-by-side with her? That was next-level. Liz quickly became my "work mom," guiding, protecting, and nurturing me through every twist and turn. I'm forever grateful to MRWA for that opportunity. Liz is one of the most extraordinary people I've ever met, and though I was hired to replace her, let's be real—no one could truly replace Liz Grove. I'm just a small-town gal from Central Missouri with a background in medical billing and a brief stint in the water/wastewater industry. I may not have Liz's encyclopedic knowledge yet, but I'm pretty good at figuring things out on the fly.



The last couple of years at MRWA have been a whirlwind. The faces have changed a lot, and it's been quite the adventure. MRWA has always been known for being the best in the biz, and while we still hold that title, we've seen some of our key players retire. Tom Hyatt, Mark Klaus, Wayne Roderman, Billy Everett, and, of course, Liz Grove—each brought a wealth of experience that's now retired along with them. It's a massive loss, but also a well-deserved break for them. Their contributions to the industry were immense, and I was lucky to learn from them whenever I could.

Despite all the changes, the MRWA family remains strong. We've got plenty of knowledge left in our ranks. This shift in generations means new faces and fresh perspectives, which is exciting in its own way. I'll never be another Liz Grove, but that's okay. I'm here to be Valarie Main, and I'm looking forward to getting to know each of you as we work together.

One thing I'm particularly passionate about is the SUBS billing software. I used it at my previous job and loved it for its simplicity and top-notch support. It's comforting to call for help and get a friendly, local voice on the other end. Change can be uncomfortable—trust me, I get it. I recently visited a system where computers were practically non-existent, not because they couldn't do the job, but because learning something new is daunting. As a society, we tend to stick to what we know, even if a new method might be easier in the long run.



I'm passionate about helping people, which is why I originally considered nursing—until I realized the "dirty" parts weren't for me. Instead, I've found my calling in assisting other clerks and office professionals. I love traveling, meeting new people, and tackling new adventures. Conferences, though? Not my favorite. I'm not a natural public speaker and crowds make me anxious. Over the years, I've mastered the art of blending into the background. But at conferences, there's no hiding, and that pushes me way out of my comfort zone. As uncomfortable as that may be, the more I get to know the rural water family, the easier it will be.

I wish I'd had more time with Liz, Wayne, Billy, Tom, and Mark, but they've earned their retirement. We miss them dearly, and I'm sure you do, too. But here's to embracing the new faces at MRWA. Change is never easy, but give it a chance—you might just be pleasantly surprised.



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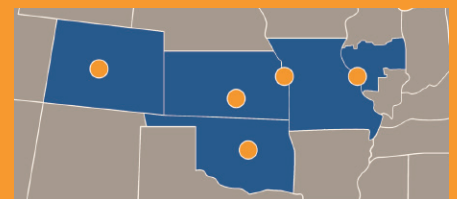
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# The Silent Guardians: Maximizing Efficiency in Wastewater Treatment

Matt Marshall, Decentralized Wastewater Specialist



Wastewater treatment plants often play a silent yet pivotal role in safeguarding public health and the environment. While their importance might go unnoticed amidst the hustle and bustle of daily life, the significance of maintaining these facilities at peak efficiency cannot be overstated.

## Protecting Public Health

Wastewater treatment plants are the first line of defense against the spread of waterborne diseases. Proper maintenance ensures that these facilities continue to effectively remove harmful pollutants and pathogens from wastewater before it is discharged back into the environment or reused.

Failure to maintain equipment or infrastructure can compromise treatment processes, leading to the release of untreated or inadequately treated wastewater, posing a serious risk to public health.



## Preserving the Environment

Healthy aquatic ecosystems are essential for maintaining biodiversity and ecological balance. Wastewater treatment plants play a crucial role in preserving water quality and protecting natural habitats. Regular maintenance prevents leaks, spills, and other environmental incidents that can harm nearby water bodies, aquatic life, and ecosystems. By ensuring that treatment processes operate efficiently, maintenance efforts contribute to the conservation of natural resources and the sustainability of our planet.

## Ensuring Regulatory Compliance

Compliance with environmental regulations is non-negotiable for wastewater treatment plants. These facilities are subject to stringent regulations governing discharge limits, effluent quality, and operational standards. Regular maintenance is essential for meeting regulatory requirements and avoiding fines, penalties, or legal action. By keeping equipment well-maintained and operating within specified parameters, wastewater treatment plants demonstrate their commitment to environmental stewardship and regulatory compliance.

## Optimizing Resource Efficiency

Wastewater treatment is an energy and resource-intensive process. From electricity and chemicals to manpower and equipment, significant resources are invested in the operation of treatment

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(continued on page 50)



(continued from page 49)

plants. Proper maintenance helps optimize resource efficiency by minimizing energy consumption, reducing chemical usage, and extending the lifespan of equipment. By identifying and addressing inefficiencies, maintenance efforts contribute to cost savings and sustainability in the long run.

## Enhancing Operational Reliability

Reliable operation is essential for uninterrupted wastewater treatment and service delivery. Equipment failures, breakdowns, or malfunctions can disrupt operations, leading to service interruptions, odors, and environmental incidents. Planned maintenance activities, such as routine inspections, preventive maintenance, and equipment servicing, help identify and address potential issues before they escalate into costly problems. By promoting operational reliability, maintenance efforts ensure continuous wastewater treatment and reliable service provision to communities.

In conclusion, the importance of good maintenance at a wastewater treatment plant cannot be overstated. From protecting public health and preserving the environment to ensuring regulatory compliance and optimizing resource efficiency, maintenance plays a vital role in the efficient and effective operation of these facilities. By investing in regular maintenance and proactive upkeep, wastewater treatment plants can fulfill their critical mission of safeguarding public health, protecting the environment, and promoting sustainability for generations to come.



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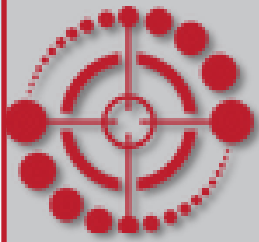
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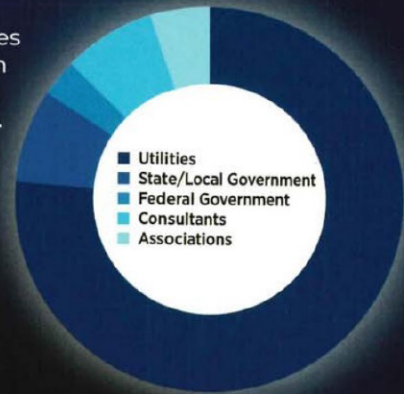
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We maintain two-way communication with DHS, FBI, EPA, fusion centers, and other federal, state, and local agencies in order to help protect and share information. WaterISAC members receive threat advisories and alerts with information regarding knowledge that impacts the safety and resilience of water and wastewater utilities.

Every day water and wastewater utilities face numerous security threats – **ARE YOU PREPARED?**



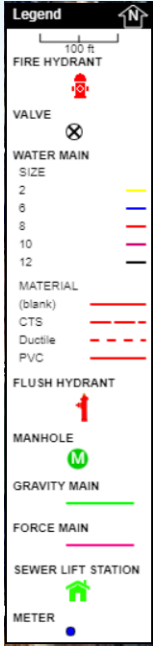
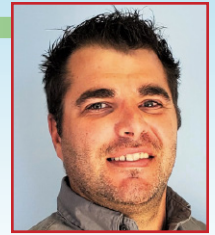
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# Let's Digitalize Your Assets!

Brandon Deckor, GIS Mapping Specialist





Can you name every asset in your water and sewer system? Can you tell me the function of that asset and the last time it was maintained? I would like to say most of you would answer “No” to those two questions. If you answered yes, how easily could you access the maintenance records on them. Let’s discuss some options and allow me to share some ideas with you.

Have you ever considered digitalizing your assets? Better yet, do you understand what that means? That simply means placing all of your assets, their operating procedures, and their maintenance records into GIS software to easily assess whenever they are needed. I know record keeping can be tough, but it can be a lot simpler than it looks. When you change out a meter how many of you write the meter and endpoint number on a sheet of paper and leave it at that? Or, when it comes to your flush reports, how many keep a binder full of reports on the dash of the truck and grab it when needed? What happens when either of those are damaged or you have lost all record of both? Doing jobs twice by going back and rewriting down that information is not very efficient in my book.

Included in this article, you will see photos I’ve added for reference. The first photo I would like to reference

is that of a legend. Paying close attention in the legend, you can see that each asset has its own symbol or shape and can be color coded per different identification point. In the grand scheme of things, that will help separate assets when looking at the big picture. Next, record keeping within the software can be from as basic to as advanced as you would like it. Let’s take a customer’s meter for example. You can have the account number, name, address, phone number, photo of meter, etc., underneath every customer’s meter so all system employees have full access to that information to make their jobs easier. The last example is what I touched on earlier; the flush report. You can store the flush report or gallons flushed, date, and time under each hydrant in your system to keep a separate record for each hydrant which will all but eliminate any mix ups or confusion.

| FIRE HYDRANT     |   |      |                 |      |                 |          |      |      |
|------------------|---|------|-----------------|------|-----------------|----------|------|------|
| NUMBER           | 17  |      |                 |      |                 |          |      |      |
| SIZE             | 5 1/4   |      |                 |      |                 |          |      |      |
| MADE BY          | MUELLER   |      |                 |      |                 |          |      |      |
| VALVE FOUND      | YES   |      |                 |      |                 |          |      |      |
| FLOW             | 220 GPM   |      |                 |      |                 |          |      |      |
| FLUSH PROGRAM    | <table border="1"><thead><tr><th>DATE</th><th>TIME</th><th>GALLONS FLUSHED</th></tr></thead><tbody><tr><td>11/11/23</td><td>2:45</td><td>6182</td></tr></tbody></table> |      | DATE            | TIME | GALLONS FLUSHED | 11/11/23 | 2:45 | 6182 |
|                  | DATE  | TIME | GALLONS FLUSHED |      |                 |          |      |      |
| 11/11/23         | 2:45  | 6182 |                 |      |                 |          |      |      |
| Expand Log Sheet |   |      |                 |      |                 |          |      |      |
| Description      | Dead End Hydrant off 6 inch PVC Main  |      |                 |      |                 |          |      |      |

| METER             |   |
|-------------------|---|
| ACCOUNT NUMBER    | 987654  |
| METER NUMBER      | 109   |
| ADDRESS SERVED    | 109 Airline Drive   |
| PHONE NUMBER      | 1-234-567-8912  |
| CURRENT READ      | 248,997   |
| CURRENT READ DATE | 2023-12-11 today  |
| COMMENTS          |   |
| ATTACHMENTS       | <div><br/>Screenshot_2024-05-01_132024.png</div> <div><br/>Screenshot_2024-05-01_132052.png</div> |

Of course, we could go much deeper into this subject, but I wanted to share a couple basic points that may bring to light what you can do by digitalizing your system’s assets. To discuss mapping your system or what digital mapping has to offer, shoot me an email or give me a call: [bdecker@moruralwater.org](mailto:bdecker@moruralwater.org) (573) 789-7661





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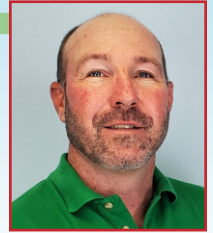
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## Do Not Hesitate to Call

Barry Barnes, Wastewater Technician

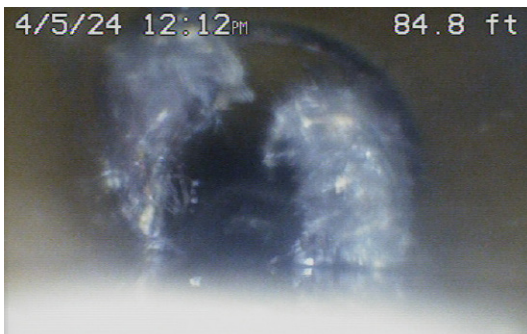


There are a lot of things that we can offer as Wastewater Technicians of Missouri Rural Water Association. Training and technical assistance are a couple that I knew about before I started working here. We also offer smoke testing assistance. We have recently purchased two new sewer inspection cameras. Rate studies and asset management are also things we can help you with.

Any time you need some advice or assistance with something you can't quite wrap your head around, give us a call. I ask that everyone is patient with us (MRWA). Due to people retiring and short staffing, the training we offer has been somewhat limited. We are working on that every day and do have training, it just might not be in your immediate area. If you are struggling with or just do not quite understand the paperwork that you have to turn in to attend an MRWA training class or conference, give us a call.



Are you having trouble with the dreaded I and I? Let us know about this and we can schedule a time to get you in the process of attacking these issues. If you think it is too embarrassing, the amount of I and I (inflow and infiltration) that you must let anyone know about it, do not worry, I guarantee I have seen worse.



Do you have a main line that keeps backing up or causing SSO's (sanitary sewer overflows)? MRWA has just purchased two new sewer main push cameras that we can bring to help bring to light what is causing the issues. If you just need to know where a main runs through a neighborhood, we can use the camera along with our locator to pinpoint where it is and at what depth. I know you have a customer that always says that the problem is the municipality or district's fault, this is a good tool to help with that problem.

EDMR's, sludge reports, and the numerous other forms we must fill out and tests we have to run can be overwhelming at times. Believe me when I tell you, **I feel your pain**. Between the hundreds of years of experience that is on the MRWA staff and you, we can get it figured out.

After I finish this article, I'll remember forty other things that I would have wanted to include. One thing I hear quite a bit on the road when I meet you all, is "Well, I hated to bother you." This is our job, and we are glad to help. If anything, please **do not ever** feel like you are bothering us. The main point I'd like to make clear: You are not alone in this. Do not hesitate to call. Take care out there.



Barry Barnes, Wastewater Technician MRWA

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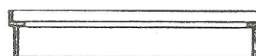
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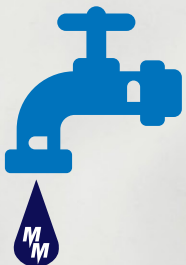
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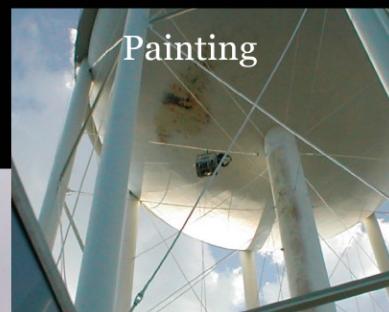
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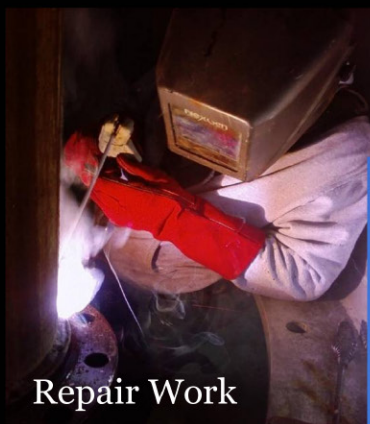
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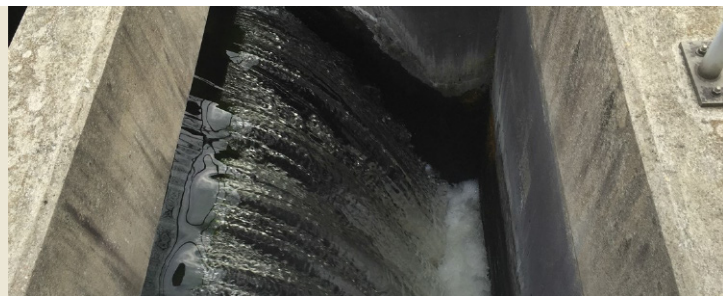
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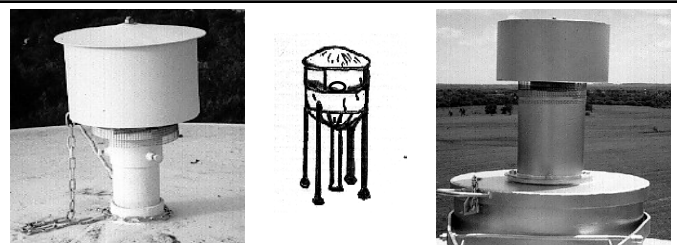
Fax: 573-764-6255

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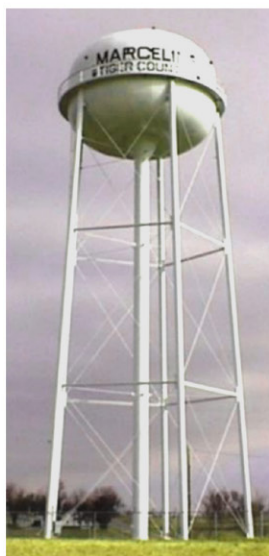




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# MRWA Calendar of Events

## July



|    |   |         |
|----|---|---------|
| 4  | Independence Day Observed –<br>MRWA office closed | Ashland |
| 17 | MRWA Staff Meeting                                | Ashland |
| 24 | 3rd Quarter MRWA Board Meeting                    | Ashland |

## August



|         |  |              |
|---------|--|--------------|
| 16      | MRWA Southwest Apprenticeship<br>Class Promotion | Lebanon      |
| 19      | Board & Council Training                         | Poplar Bluff |
| 20      | Bootheel Expo Office Pro's Expo                  | Poplar Bluff |
| 20 – 21 | MRWA Bootheel Expo                               | Poplar Bluff |

## September



|        |  |              |
|--------|--|--------------|
| 2      | Labor Day Observed –<br>MRWA office closed | Ashland      |
| 9 – 11 | WaterPro Conference (NRWA)                 | Savannah, GA |

## October



|                |  |            |
|----------------|--|------------|
| Oct.5 – Nov 14 | 10-Day DW/DS Certification<br>Course begins                  | Willard    |
| 14             | Columbus Day/Indigenous Peoples' Day –<br>MRWA office closed | Ashland    |
| 29 – 30        | Office Professionals' Seminar                                | Lake Ozark |
| 29             | 4th Quarter MRWA Board Meeting                               | Lake Ozark |
| 30             | Legislative Planning Session                                 | Lake Ozark |

Oct 31 – Nov 1

|    |  |            |
|----|--|------------|
|    | Fall Operations &<br>Maintenance Symposium | Lake Ozark |
| 31 | Board & Council Training                   | Lake Ozark |
| 31 | Happy Halloween                            |            |

## November



|         |  |         |
|---------|--|---------|
| 3       | Daylight Saving Time Ends                      |         |
| 5       | Election Day                                   |         |
| 11      | Veterans' Day Observed –<br>MRWA office closed | Ashland |
| 28 – 29 | Thanksgiving – MRWA Office closed              | Ashland |

## December



|         |                                |         |
|---------|--------------------------------|---------|
| 24 – 25 | Christmas – MRWA Office closed | Ashland |
|---------|--------------------------------|---------|

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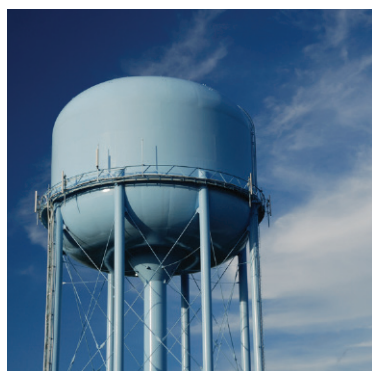




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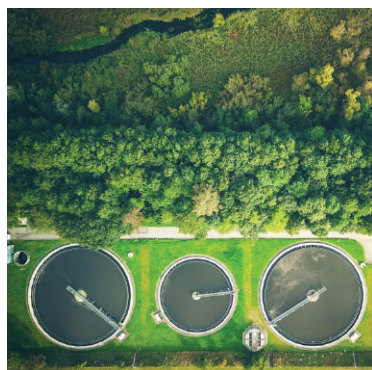
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\*Source: Results from a survey conducted by MRWA in partnership with D.A. Davidson from December 2022 – February 2023. Sample of 197 survey respondents.





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