



# MOUNTAIN STATE WATER LINE

*A Publication of the West Virginia Rural Water Association*

**Fall 2025**

## **In This Issue**

- ◆ **Emergency Preparedness for Small Water Systems**
- ◆ **2025 WVRWA Conference Wrap-Up**
- ◆ **When do You Need to Replace Your Filter Media?**

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# WEST VIRGINIA RURAL WATER ASSOCIATION



## Fall 2025

## Articles and Features



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West Virginia Rural Water Association, WVRWA, is a non-profit organization of rural and small publicly owned water and wastewater systems. The vision of the WVRWA is to be the recognized leader and respected voice for water and wastewater systems. The mission or purpose of WVRWA is to provide and promote the highest level of utility service, technical assistance, training, and advocacy for all West Virginia water and wastewater systems.

WVRWA is affiliated with the National Rural Water Association.

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By Shane Altizer, Water Circuit Rider

# Emergency Preparedness for Small Water Systems

Most small systems in West Virginia run on limited staff, limited money, and old infrastructure. A lot of operators are like I used to be — busy fixing leaks, reading meters, and doing whatever else the town needs. It's easy to get focused on "today" and not think about what will happen when something goes wrong. But being prepared ahead of time can prevent trouble later.

In West Virginia we deal with flooding, ice storms, power outages, mudslides, and old equipment. If a flood gets into your system you could lose your pump station. If the power goes out and you don't have a generator, you can't make water. If you don't have parts on hand, a simple leak can turn into a bigger emergency. Any one of these issues can shut down your system or cause a boil water notice.

Emergency preparedness is not about buying everything at once.

It's about planning ahead and being ready for the most common problems. Here are a few simple steps you can take to be better prepared.

### Risk Assessment

Know what your most likely problems are. In our region that usually means: flooding, freezing, power loss, landslides, and mechanical failures.

### Emergency Response Plans

Have a written plan in place. It should include who is called first, what valves to shut, where spare parts are located, how to notify customers, and how to contact other agencies. Make sure all your operators know where this plan is and have read it.

### Backups and Spare Parts

Have basic critical spare parts and maintain your backup equipment. A generator that doesn't work isn't helpful. A pump that has never been started isn't a backup. Make a list of the parts you use most and try

to keep some in stock. Even a small spare parts shelf can keep you from shutting down half the system while waiting on parts.

### Operator Training


Operators should know how to respond during an emergency. Don't wait until something breaks to learn how to fix it or who to call. If you have questions, reach out to someone who can help.

### Work With Others

Your local health department, emergency services, and WWRWA can help during emergencies. Build relationships with them before you need them.

### Bottom line

Disaster doesn't wait until you have time. Prepare now so you aren't scrambling when something goes wrong. If you don't have an emergency plan or don't know how to start, reach out to WWRWA and we will help you get one started. ■



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# Decentralized Wastewater Communities

## \*Can We Help You\*

**Need some help with your small rural community's wastewater treatment plant? Tired of not having a plan to address and tackle the challenges that face many small communities! Struggling to know what to do, when to do it and how? I think we all know the answer is YES. These questions and struggles are common with small communities across West Virginia. With aging infrastructure, increasing cost of labor and materials small rural communities struggle to maintain their systems, find funding and retain their workforce.**

The need for small rural wastewater systems has increased over the last two decades and will continue to grow into the future. The need comes from increasing cost of infrastructure to build large wastewater treatment systems and maintain them. Due to the small footprint a rural wastewater treatment system can be installed locally for the community, not pumped a long distance for treatment, easily expanded with demand and cost a fraction of the cost to build compared to a large wastewater treatment plant.

That being said small rural wastewater treatment systems are not going out of existence anytime soon. Very important for small communities to have a wastewater treat-

ment system to be able to maintain community health and keep waterways clean. With increasing cost of new systems and to maintain and improve existing infrastructure small rural communities continue to struggle. **Have you considered getting some help?** What about teaming up with WVRWA USDA Decentralized program and allowing us to come along beside your system and provide managerial and technical help.



**In this article, I would like to cover 4 Ways WVRWA USDA Decentralized program can help a system gain some traction against many of the challenges they face.**

**#1 Operator training.** Many rural wastewater systems struggle with having a properly trained operator to help maintain the system. Licensed wastewater operators are in high demand across the state and with the retirement of many of the operators, systems struggle to have a trained licensed operator. WVRWA is dedicated to training wastewater operators whether it's in class or even onsite training, WVRWA is here to help develop

operators for today and the future. I can't express enough the importance of having a trained operator that knows the system and is dedicated to maintaining it.

Without a trained operator the system will suffer due to the lack of preventative maintenance and potential endanger community health and waterways. WVRWA can come to your system and help train your operator so that they are better equipped to manage and operate the system.

**#2 Process control.** While onsite WVRWA can assist with process control of the wastewater system and ways to tackle ongoing problems. Facts are friends they say and the more facts we can help a system know about their treatment system the more the system can better be prepared to know how to fix the problems they are facing. Here are a few items that a WVRWA technician will be able to perform for process control: sludge depth testing, smoke testing for I&I, DO readings, PH readings, 30 min settleometer, microscope to help determine biological health and sludge profile.

**#3 Funding.** Many small systems are not aware of the funding possibilities out there that are available for their community. Funding is difficult for small communities to obtain at times due to lack of staff-

ing with the knowledge of where to locate funding. WVRWA can help the community obtain the property resources and contacts to help the community navigate funding. Small systems need to maintain their system to be able to provide safe waterways for their customer base and uninterrupted service. It is critical for a rural community to be able to obtain funding to provide essential services to the community.

**#4 Site Assessment Reports.** We talked earlier in the article that


decision making is difficult for rural communities to know what, how and when to do it. Site assessment reports take an evaluation of the whole picture of the community and get it documented, the good and the challenges. **The Waste-water Community Assessment Report (WCAR)** is a great tool to be used for communication to community leadership, customer base, engineers and state compliance offices. Along with the WCAR a **community action plan (CAP)**

can be created to help the community determine infrastructure needs, goals and solutions.

In summary of CAN WE HELP YOU we will defiantly try to! Give me a call today and let's see if your system qualifies to receive technician assistants from our decentralized program. With the rising cost to replace and maintain systems, have qualified and licensed operators and obtain funding let WVRWA come along side you and give you the assistance you need. ■

**Chuck Rockacy**

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# Water Capacity vs. Fresh Potable Water

**D**uring the summer months, the ambient temperature rises and the distribution chlorine residual falls off considerably. There are a lot of systems in WV that lower tank levels at this time to keep fresh chlorinated water cycling through the distribution system. Pumping two to five feet at a time in a low tank also has its problems, which I will explain later in this article. When the tank is lowered, the capacity of the system is sometimes cut in half. The problem with this is that no individual or system can anticipate when the next emergency will happen. Whether it be a storm that knocks out the power or a large fire that requires a huge amount of water, it would be nice to have the recommended three to five days of water in the tanks when called upon. I would recommend that if a system lowers the tank for turnover to fill it back up, and wait about ten to fifteen days, and cycle it down again during the summer months. If a large user is available and it can be done, divert the water to them to cycle it down. This will save time and money vs. flushing the water out on the ground.

## EFFECT OF TEMPERATURE DIFFERENCES ON MIXING

Extensive modeling has been conducted to study the effect of different temperature inlet water and tank water on mixing. When inlet and tank water temperatures differ, buoyant jets are formed, and the circulation patterns can be significantly altered. This effect can be observed year-round, but is mostly problemat-

ic in summer when the inlet water is colder. Colder inlet water is denser, heavier, and therefore is negatively

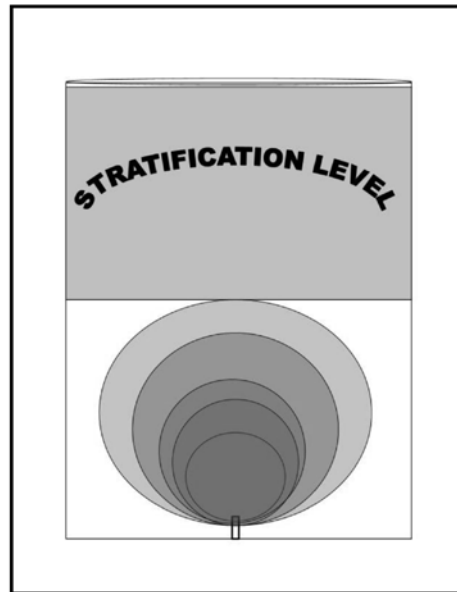


Figure 1

buoyant - it sinks. Figure 1 shows a model of the fill cycle of a standpipe with the inlet pipe through the floor. The inlet water is colder, and the jet does not have enough momentum to overcome the negative buoyancy, so the jet stalls, reverses direction, and falls back to the floor. There is no mixing above the height where the jet stalls and stratification develops. Each tank and system has different velocities pushing the fresh water in, and the amount of time spent pumping is one of the most overlooked processes of tank mixing. In order to minimize water age, tanks must be turned over, whereby water volume is exchanged to and from the tank by fluctuating tank levels. The required amount of turnover varies depending on the system, but a

fairly common turnover goal is 3-5 days, or 20-33% daily fluctuation. However, tanks can have a significant localized increase in water age when they short-circuit and are not completely mixed, even if they are fluctuated by 20-33%. The simplistic description of short-circuiting is that the last water that entered the tank is the first water drawn from the tank (last in, first out), see Figure 1. Water quality problems develop for two reasons: 1) the entire tank volume is not completely mixed, and 2) the oldest water cannot be drawn from the tank.

In this case, that is about 40% of the water depth. The water in the bottom 40% has good water quality because it is well-mixed. However, the top 60% of the water volume is not mixed. This is how stratification develops in tanks. With each consecutive fill and draw cycle, the localized water age in the top part of the tank continually increases, and water quality problems develop, such as loss of residual, nitrification (chloramines), THM spikes, and bacteria regrowth. Note that sampling outside the tank will never indicate there is a water quality problem until, for example, there is a large drawdown, a fire, or a line-break. Even fall turnover, where colder ambient temperatures cool the water in the top of the tank, has also been the cause of poor water quality in the distribution system, as the cooling water in the top of the tank falls to the bottom and is drawn out into the distribution system. ■

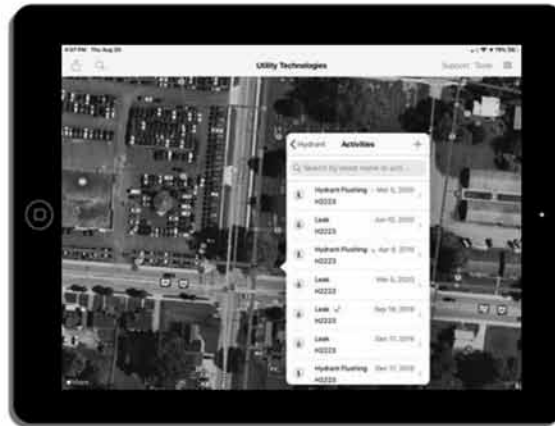
# RURAL WATER FLEET PROGRAM

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# Training Water & Wastewater Operators in West Virginia

In the hills and hollows of West Virginia, drinking water doesn't just magically appear—it flows thanks to the steady, skilled work of the men and women who operate our water and wastewater systems. In this state, where rural communities often mean small utilities and stretched-thin crews, the importance of proper training for water and wastewater operators cannot be overstated. In this article I want to dive into **why** training matters, **what** it looks like in West Virginia, and **how** we can strengthen our workforce now so our communities remain safe and healthy for decades to come.

## Why Training Matters

**Public health protection.** At its core, operator training is about safeguarding the health of every person who turns on a tap or flushes a toilet. Water and wastewater operators serve their neighbors by protecting public health and they are our first line of defense against waterborne diseases and contamination that can cause serious, even fatal illnesses.”

Training ensures that operators know how to detect problems, take corrective actions, and keep systems running within regulatory and safe limits—even when things get challenging.

**Evolving technical and regulatory demands.** The world of water & wastewater is always changing: contaminants, treatment technologies, distribution systems, regulatory requirements all evolve.

Our understanding of drinking water quality and chemical and

biological contaminants in water is changing almost daily. All certified operators have a responsibility to keep up with changes in monitoring and reporting requirements.

Without regular training and continuing education, operators risk falling behind, which can jeopardize system performance and public safety. Training plays a central role in preparing a new generation to take over, and in ensuring current operators are competent and up to date.

## What Training Looks Like in West Virginia

**Certification and continuing education.** In West Virginia, operators are required to receive education, training, certification, and, in many cases, continuing education to maintain competence. The certification program for public water systems is approved by the Office of Certification and emphasizes that “certified operators play a crucial role in protecting the health and welfare of West Virginia citizens.

For continuing education: All certified operators, as well as system owners and managers, have a responsibility to keep up with changes. West Virginia requires all certified operators to obtain continuing education hours (CEHs). This structured approach ensures that training isn't a one-time event but an ongoing process.

**Training providers and programs.** Organizations across the state are delivering training:

- West Virginia Rural Water Association (WVRWA), offers certification training and continuing

education hours for operators throughout the state. Hundreds of hours of training and all classes are free of charge.

- The West Virginia Environmental Training Center (ETC), established in 1983, offers workshops, certification courses, and continuing education seminars for water and wastewater professionals—around 75 programs per year reaching approximately 1,200 participants. [mountainstateesc.com](http://mountainstateesc.com)
- The ACTAT program at WVU provides customized assistance and training focused on rural and small systems—helping to link training with real-world utility needs.
- Apprenticeship pathways: The West Virginia Rural Water Association (WVRWA) sponsors a 2-year water/wastewater apprenticeship program that combines classroom and on-the-job training.
- Internships: A newer program, WaterWORCs in Appalachia, funded by the U.S. Department of Labor, is bringing students into summer internships to gain hands-on experience and earn hours toward certification.

**Small system focus.** Many of West Virginia's water systems are small (serving rural communities). Training programs increasingly tailor to the needs of such systems—where operators may wear many hats (treatment, distribution, maintenance, regulatory compliance). The West Virginia Rural Water Association

tion's training includes short courses on process control, troubleshooting, management topics, etc.

### **How Training Strengthens the System**

**Improved operations & compliance.** When operators are well-trained, systems are more likely to operate reliably, meet regulatory standards, and avoid costly violations or failures. They can better monitor for contaminants, maintain equipment, respond to emergencies, and assure high-quality water for their communities.

**Risk reduction.** Inadequate treatment or distribution failures can lead to health crises, environmental damage, or loss of public confidence. Training helps reduce those risks—especially important in rural West Virginia, where backup resources may be limited and the impact of a system failure could be significant.

**Workforce sustainability.** Training is not just about today—it's about building the pipeline for tomorrow. With many operators nearing retirement and fewer younger entrants, training programs help attract new talent and prepare them to step into critical roles. The workforce survey found significant concerns about insufficient qualified applicants and an aging workforce.

**Economic and community benefits.** Reliable water and wastewater services are foundational to public health, residential quality of life, and economic development. Training ensures that utilities can function effectively—supporting local businesses, property values, and overall community stability.

### **Challenges & Opportunities**

**Recruitment and retention.** Training alone isn't enough if utilities struggle to recruit and retain operators. A recent workforce survey revealed that over half of current op-

erators and managers believe their staffing levels may not be adequate. Key barriers: lack of qualified applicants, pay rates, certification/experience requirements.

But there is opportunity, we need to expand outreach to younger people and non-traditional entrants using training pipelines (internships, apprenticeships) and emphasize the meaningful, well-paid career opportunities in the water sector.

**Ensuring relevance and access.** Training must stay current—and accessible. For small, rural systems, travel, scheduling, cost, and time away from work can be barriers. Programs through WWRWA help by delivering short, relevant sessions and customized support. More flexibility (online, hybrid) may further expand access.

**Completing the full pipeline—from training to certification to ongoing professional development.** It's one thing to attend a training; it's another to apply that learning daily and maintain competence. Ensuring that training translates into improved operations is critical.

**Supporting small systems.** Many utilities in West Virginia are small, under-resourced, and face unique challenges (aging infrastructure, staffing, remote locations). Training tailored for small systems' needs (multi-task operators, broader role expectations) is crucial.

### **What Can Be Done Moving Forward**

- 1. Expand apprenticeship and internship programs** to bring new entrants into the field, especially those from rural communities, with on-the-job training + classroom instruction. This builds workforce capacity while operators still gain hands-on experience.
- 2. Promote water/wastewater op-**

**erator careers** as good, stable jobs with living wages, career advancement, and community impact—particularly to younger people and underrepresented populations.

- 3. Enhance continued professional development** by making training more accessible (online options, regional workshops), updating curriculum to reflect emerging issues (PFAS, cybersecurity, asset management), and integrating mentorship from experienced operators.
- 4. Support small utilities** with targeted training, flexible delivery, peer networks, and technical assistance so they can make the most of limited staff and resources.
- 5. Encourage utilities to value training and offer incentives** such as pay increases, recognition, and career pathways tied to training/certification milestones to help retention and build a culture of professional excellence.
- 6. Link training with infrastructure investment** so that when systems are upgraded, the staff operating them are ready and capable, too. Infrastructure renewal only succeeds when accompanied by people who know how to use and maintain it.

### **Conclusion**

In West Virginia, the safe delivery of drinking water and the effective treatment of wastewater is far more than pipes and pumps—it's about people with the right knowledge, skills, and judgment. Training our water and wastewater operators isn't simply a regulatory checkbox—it is a strategic imperative for public health, environmental protection, community vitality, and economic resilience.

By investing in operator training,

certification, and professional development—especially tailoring efforts for our unique rural, small-system context—we ensure that every West

Virginian’s glass of water is safe, every wastewater stream is responsibly managed, and our utilities are prepared for the future. The hillside

mines, the small towns on mountain roads, the streams that flow into our homes—all of them depend on it.

See you in Class! ■



**BUSINESS ESSENTIALS: RELATIONSHIPS**

with high-powered  
teamwork, the  
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**SOLUTIONS FOR YOUR INFRASTRUCTURE  
AND ECONOMIC DEVELOPMENT NEEDS**

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# Water and Wastewater Operations Solutions



## Grow with us.

### Who We Are

Apex is a trusted partner in the water/wastewater industry, offering comprehensive support for your operational needs. Whether you're looking for temporary assistance or long-term solutions, Apex is here to ensure your facility runs smoothly and in compliance with all regulatory requirements.

### Mission

As an award-winning engineering and environmental service, we know the struggles of the water/wastewater field. From the shortage of operators to the demanding permit requirements it can feel a bit overwhelming. Apex can help with operations and maintenance challenges at your water/wastewater facility.

### We Can Help

Our goal is to provide essential operating services that keep your facility compliant and running efficiently. With experienced Certified Operators and a commitment to excellence, we are your trusted partner for water/wastewater management.

### Contact Us

Let Apex provide the solutions you need to keep your facility running smoothly.

Contact: Nicole Weiers, Senior Project Manager  
Tel: (878) 645-6753

Email: [nicole.weiers@Apexcos.com](mailto:nicole.weiers@Apexcos.com)

[www.apexcos.com](http://www.apexcos.com)

[info@apexcos.com](mailto:info@apexcos.com) • (800) 733-2739

## Representative Baseline Services

- **Back-Up Operators:** When your staff is unavailable due to vacations, health reasons, or other unforeseen circumstances, we can step in to keep your operations running smoothly.
- **Interim Certified Operators:** If you are unexpectedly short a Certified Operator, we can serve as your certified professional until a permanent operator is hired.
- **Operator License Training:** We provide training to unlicensed staff, helping them obtain their Operator License and enhance your team's capabilities.
- **Circuit Rider Operators:** Whether you need full oversight or occasional support, we offer flexible Certified Operator services based on your specific requirements.
- **Sample Collection & DMR Assistance:** From sample collecting, transporting, to reporting, we ensure that your facility meets all required deadlines, including the Discharge Monitoring Report.
- **SOP Development:** Our team can help design and implement an effective Standard Operating Procedure for your facility.
- **Compliance Assistance and Permitting:** Navigating water and wastewater regulations can be complex. Our expert team provides comprehensive compliance assistance, ensuring your operations meet all local, state, and federal requirements. With a full engineering staff on hand, we monitor permit changes and offer tailored solutions to help you adapt seamlessly, minimizing risk and promoting sustainability.



# Clean Water State Revolving Funds Program

The CWSRF was created by the 1987 amendments to the Clean Water Act (CWA) as a financial assistance program for a wide range of water infrastructure projects, under 33 U.S. Code §1383. The program is a powerful partnership between EPA and the states that replaced EPA's Construction Grants program. States have the flexibility to fund a range of projects that address their highest priority water quality needs. The program was amended in 2014 by the Water Resources Reform and Development Act.

Using a combination of federal and state funds, state CWSRF programs provide loans to eligible recipients to:

- construct municipal wastewater facilities,
- control nonpoint sources of pollution,
- build decentralized wastewater treatment systems,
- create green infrastructure projects,
- protect estuaries, and
- fund other water quality projects.

Building on a federal investment of \$52.4 billion, the state CWSRFs have provided \$172 billion to communities through 2023. States have provided over 48,900 low-interest loans to protect public health, protect valuable aquatic resources, and meet environmental standards benefiting hundreds of millions of people.

## How the CWSRF Works

Under the CWSRF, EPA provides grants to all 50 states plus Puerto Rico to capitalize state CWSRF loan programs. The states contribute an additional 20 percent to match the federal

grants. EPA also provides direct grant funding for the District of Columbia, U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of Northern Marianas.

The 51 CWSRF programs function like environmental infrastructure banks by providing low interest loans to eligible recipients for water infrastructure projects. As money is paid back into the state's revolving loan fund, the state makes new loans to other recipients for high priority, water quality activities. Repayments of loan principal and interest earnings are recycled back into individual state CWSRF programs to finance new projects that allow the funds to "revolve" at the state level over time.

States are responsible for the operation of their CWSRF program. Under the CWSRF, states may provide various types of assistance, including loans, refinancing, purchasing, or guaranteeing local debt and purchasing bond insurance. States may also set specific loan terms, including interest rates from zero percent to market rate and repayment periods of up to 30 years. States have the flexibility to target financial resources to their specific community and environmental needs.

States may customize loan terms to meet the needs of small communities, or to provide incentives for certain types of projects. Beginning in 2009, Congress authorized the CWSRFs to provide further financial assistance through additional subsidization, such as grants, principal forgiveness, and negative interest rate loans. Through the Green Project Reserve, the CWSRFs target critical

green infrastructure, water and energy efficiency improvements, and other environmentally innovative activities.

## Project Eligibilities

CWSRFs fund a wide range of water infrastructure projects with different eligibility categories.

The following eleven types of projects are eligible to receive CWSRF assistance:

- **Construction of publicly owned treatment works**  
Assistance to any municipality or inter-municipal, interstate, or state agency for construction of publicly owned treatment works (as defined in CWA section 212).
- **Nonpoint source**  
Assistance to any public, private, or nonprofit entity for the implementation a state nonpoint source pollution management program, established under CWA section 319.
- **National estuary program projects**  
Assistance to any public, private, or nonprofit entity for the development and implementation of a conservation and management plan under CWA section 320.
- **Decentralized wastewater treatment systems**  
Assistance to any public, private, or nonprofit entity for the construction, repair, or replacement of decentralized wastewater treatment systems that treat municipal wastewater or domestic sewage.
- **Stormwater**  
Assistance to any public, private, or nonprofit entity for measures to manage, reduce, treat, or re-

capture stormwater or subsurface drainage water.

- **Water conservation, efficiency, and reuse**

Assistance to any municipality or inter-municipal, interstate, or state agency for measures to reduce the demand for publicly owned treatment works capacity through water conservation, efficiency, or reuse.

- **Watershed pilot projects**

Assistance to any public, private, or nonprofit entity for the development and implementation of watershed projects meeting the criteria in CWA section 122.

- **Energy efficiency**

Assistance to any municipality or inter-municipal, interstate, or state agency for measures to reduce the energy consumption needs for publicly owned treatment works.

- **Water reuse**

Assistance to any public, private, or nonprofit entity for projects for reusing or recycling wastewater, stormwater, or subsurface drainage water.

- **Security measures at publicly owned treatment works**

Assistance to any public, private, or nonprofit entity for measures to increase the security of publicly owned treatment works.

- **Technical assistance**

Assistance to any qualified nonprofit entity, to provide technical assistance to owners and operators of small and medium sized publicly owned treatment works to plan, develop, and obtain financing for CWSRF eligible projects and to assist each treatment works in achieving compliance with the CWA.

### **Types of Assistance**

CWSRFs may offer a variety of financial assistance:

#### **Loans**

- The terms of the loan may not exceed 30 years or the useful life of the project.

- Interest rates must be at or below market rate, including interest-free.

#### **Purchase of Debt or Refinance**

- A community's debt may be purchased by a CWSRF program.

- The purchase may have terms up to 30 years, or the useful life of the project.

- A CWSRF program may refinance previously issued debt.

#### **Guarantees and Insurance**

- Guarantees or insurance can be used where such assistance will result in improved credit market access or reduced interest rates.

- The CWSRF program does not disburse funds for construction; such funds are procured by a borrower in the market.

#### **Guarantee SRF Revenue Debt**

- CWSRF programs may issue debt guaranteed by CWSRF funds. The revenue generated is used to provide assistance to borrowers for eligible projects. This expands the capacity of a program in the near-term.

#### **Provide Loan Guarantees**

- Similar revolving funds established by municipalities or inter-municipal agencies can receive loan guarantees.

#### **Additional Subsidization**

- Under certain conditions, CWSRF programs may provide up to a fixed percentage of their capitalization grants as additional subsidization in the form of principal forgiveness, negative interest rate loans, or grants.

- The annual CWSRF appropriation must be greater than \$1 billion.

- The recipient must be a municipality or inter-municipal, interstate, or state agency.

- Additional subsidization

may only be used to help address affordability issues or to implement a process, material, technique, or technology that addresses water or energy efficiency goals; mitigates stormwater runoff; or encourages sustainable project planning, design, and construction.

#### **Earn Interest**

- CWSRFs may invest available funds in short-term investments.

- All interest earnings must remain in the fund to be used for eligible purposes.

#### **Apply for CWSRF Assistance**

Preparation of the FY2027 Priority List have begun. If you wish to be listed on the priority list, you must submit an application that can be found on the [www.dep.wv.gov](http://www.dep.wv.gov) website under Water and Waste, Clean Water State Revolving Fund (CWSRF) Program documents and publications or directly at [www.dep.wv.gov/WWE/programs/SRF](http://www.dep.wv.gov/WWE/programs/SRF).

All information requested on the application must be provided. Please note that the last page of the priority list application needs to be completed only if you have a project that you feel meets the requirements to be qualified as a "green project" or an "emerging contaminants project". If you wish to be considered for funding opportunities under either of these categories, then you must complete this portion of the application. If your project is identical (except for costs) from last year's application, you may submit our CWSRF Short Form application.

**Applications must be completed and returned no later than January 30, 2026, if a CWSRF loan closing is anticipated for the project during state fiscal year 2027 (July 1, 2026 – June 30, 2027). Submit Priority List Applications to: [depsrfpl@wv.gov](mailto:depsrfpl@wv.gov)**

. Any questions, please contact John Giroir at (304) 926-0499 ext. 43836 or by email at [john.giroir@wv.gov](mailto:john.giroir@wv.gov). ■

# Awaiting the Final Lead and Copper Rule Improvements: What Happens Next?

**F**rom “Revisions” to “Improvements,” the EPA is making further changes to the Lead and Copper Rule to keep drinking water systems working toward the ultimate goal.

Over the past few years, community and public water systems have been focused on meeting the October 2024 deadline of building their service line inventories as directed by the U.S. EPA’s Lead and Copper Rule Revisions (LCRR).

But late last November, the EPA’s highly anticipated Lead and Copper Rule Improvements (LCRI) was released in draft form. Utilities, agencies, and consultants had until February 5, 2024, to submit comments, and the EPA Office of Water is now sifting through those comments and working to release the final LCRI.

So now what happens, and how can water utilities prepare for the final LCRI?

There are many important details

that answer this question, but to summarize, LCRR will roll into the LCRI — the next stage of the process in the Lead and Copper Rule regulatory journey. While we understand changes could still be made to LCRI as the EPA reviews public comments, we know that additional requirements are coming and that all community and public water systems will need to comply.

### What To Know

Three components in the LCRR will take effect October 16, 2024. Those are as follows:

- Submit an initial service line inventory to your state regulatory agency. The inventory must be available publicly. For water systems serving more than 50,000 people, the inventory must be provided online.
- Within 30 days after submission, provide notification to people served by the water system at the service connections with a

lead, galvanized requiring replacement (GRR), or lead status unknown service line. Delivery must be by mail or by another state-approved method.

- Notify all customers within 24 hours following a lead action level exceedance (15 parts per billion).

Once water systems satisfy the LCRR requirements this October, it will be time to plan for the next stage as LCRI comes into play. However, the timing of the final LCRI is still unknown.

The various compliance deadlines in the proposed LCRI stretch out anywhere from three to 10 years after the final rule goes into effect. One of the key pieces to the LCRI is that it will require every community water system to submit a baseline inventory within three years after the final rule becomes effective (expected late 2027), in addition to the service line inventory due this October under LCRR.

The baseline inventory must include the material of the goosenecks or connectors that make up each service line. We advise water systems to begin capturing gooseneck material right away during records review and any field work tasks as they build their initial inventory. In addition, this allows utilities to keep tackling the “lead status unknowns” that end up being submitted within the initial inventory.

Why is this important? Well, the baseline inventory will determine the replacement rate, in which systems will have to remove all lead,



GRRs, and unknowns from their systems between 2027 and 2037.

The LCRI intends to push the lead service line replacement (LSLR) plan deadline to late 2027. However, some states may still require it to be submitted in 2024 — so check with your state regulatory agency. The nationwide goal is that all lead service lines (and goosenecks) and GRRs can be replaced at a rate of about 10% per year for 10 years, resulting in total replacement.

Another major proposed requirement within the LCRI is an improved tap sampling program. Under the LCR and LCRR, systems are required to sample first draw (first liter) from home taps when performing lead and copper sampling. However, the LCRI intends to require systems to collect first- and fifth-liter samples for lead P90 levels. The higher result from the two samples will be used for compliance purposes, and on top of that the LCRI is calling for a reduced lead action level from 15 ppb to 10 ppb. We recommend that utilities begin piloting this process so they can grasp an idea of what their new P90 levels will be when compliance begins in 2027. If there is a concern that your utility will be near the new 10 ppb threshold, you have time now to implement corrosion control measures, where applicable.

Additional public outreach and education requirements will also come into play under LCRI. Public outreach materials will be required for daily typical operations, such as potholing activities, meter replacements, and corporation/curb stop or valve turning. Also included is a proposed procedure for sampling results, which should be postmarked within three calendar days, and required information documents related to replacements. Public outreach will also be required for planned

or emergency work, meter replacement, and more.

We encourage utilities and public water systems to keep costs and planning for public outreach in mind as they develop their compliance plans.

### **How To Prepare**

While it may feel like 2027 (and beyond) is a long time from now, it's best for public water systems to remain proactive. So, what can you do to prepare for the changes that LCRI will likely bring?

#### **1. Reduce unknowns.**

One of the keys to timely, successful service line replacement and compliance with LCRI is to reduce “unknowns.” Any unknowns remaining by the time of submission of the baseline inventory will be included in your replacement target (10% per year). Unknowns will be required to be replaced, so the more data available for a system, the more accurate and cost-effective the LSLR plan can be.

#### **2. Discontinue partial replacements.**

Once the LCRI compliance date goes into effect, partial service line replacements will no longer be allowed under a LSLR program. The utility is required to make a “reasonable effort” with four attempts using at least two different modes of communication to reach out to customers for a private side replacement. If a customer declines, the utility is not permitted to make a partial replacement of their utility-owned side of the service line. The only exception to this is when there's an emergency or during planned infrastructure work (such as water main replacement).

#### **3. Determine your funding strategy.**

According to a recent statement

from the American Water Works Association, it's estimated that replacement of all lead service lines in the U.S. could top \$90 billion. The EPA has designated \$15 billion from 2022-2026 (\$3 billion per year for five years) for lead service line inventory development and lead or GRR service line replacements. Each state will have programs to administer the money, and each state gets to decide how it is administered. We recommend utilities research funding options as early as possible, and if necessary, partner with a consultant that can help.

#### **4. Establish new sampling programs.**

Launching a sampling pilot program will be crucial during this stage to ensure future compliance when the action level is lowered to 10 ppb. If there is a lead action level exceedance, the public must be notified within 24 hours (beginning October 16, 2024, at 15 ppb). Additionally, utilities that are prepared can begin performing sampling at schools and registered childcares prior to 2027. Consider checking with your state to learn whether school programs in your service area have utilized the “Water Infrastructure Improvements for the Nation” (WIIN) 2107 grant program. The EPA awarded \$58 million in WIIN grant funding for FY 2022 and FY 2023.

As LCRI sets additional expectations, many public water systems recognize the major undertaking ahead. But with proper preparation, smart funding strategies, and ongoing planning, we are confident water systems of all sizes across the U.S. will be able to comply successfully.

Brendan O'Brien, PE, project manager at Stantec ■

# Is Your Water or Wastewater System Prepared? What You Need to Know About Generators.

**L**oss of electricity quickly becomes a major challenge during natural disasters and could raise public health concerns. Without backup power for an extended period, many water and wastewater services cannot be provided. However, as demonstrated during incidents such as hurricanes and ice storms, not all utilities are prepared to get their systems operational again. This brochure provides tools and prompts utilities to better prepare for emergency generator needs, provides tips on running and maintaining generators, and includes an easy-to-copy form to determine and document backup power needs.



## How do I know what my backup power needs are?

### 1. Classify the electrical needs at your utility:

- *Critical need.* Equipment essential to maintain public health protection (e.g., pumps).
- *Secondary need.* Equipment that would enhance operation, but is not critical (e.g., SCADA components).
- *Noncritical need.* Equipment provided for convenience/comfort, but not essential (e.g., pumphouse lights).



Only consider needs critical to maintaining an acceptable level of service during power outages at your utility.

**2. Identify** the electrical equipment within the critical needs at your utility and determine their voltage, phase configuration, and horsepower/amperage requirements. Remember, electrical equipment starting power demands are usually two to three times higher than their running demands, which may dictate a larger generator. A licensed electrician can provide assistance in determining your backup power needs.

**3. List** all your critical electrical equipment and their starting order to determine your required starting power. At a minimum, your generator(s) must have the capacity to supply the maximum starting power demands and the running demands of the connected equipment.

**4. Determine** your generator needs. Make it easy by using the attached form.

*“Having a backup generator is essential, but ours failed when we needed it most. It is critical to keep your generator maintained and to test it regularly under its operating load. Our lesson learned? Make sure you get to know your local emergency planners and have a plan for backup power.”*

*-Massachusetts Operator*

# What other considerations are there?

**1. Fuel Type** - Fuel type greatly influences emergency generator(s) selection. Diesel generators are the most common, and offer the largest selection, availability, and power range (from 5 kilowatts [kW] to over 2,000 kW). To select an appropriate fuel supply, consider:

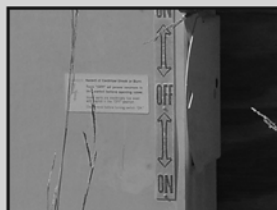
	Diesel <sup>1</sup>	Natural Gas <sup>2</sup>	Propane <sup>3</sup>	Gasoline
Fuel Storage	+	+	+	-
Fuel Delivery Method	-	+	-	-
Generator Availability	+	-	-	+
Generator Portability	-	-	-	+

<sup>1</sup> Assume a consumption rate of 0.07 gallons per hour for every 1kW of power generated.  
<sup>2</sup> Assumes access to a pipeline. Can use propane as a backup fuel, but requires an adapter.  
<sup>3</sup> Use the generator specification sheet to calculate expected runtime for a given load and propane tank capacity.

Also check any local or state regulations regarding air quality, as these may affect the generator(s) you select.

**2. Hook-Up Method** - Generators do not simply plug into a piece of equipment that you would like to power. You have to install a connection that will enable you to rapidly hook up the generator to your well or sewer lift station pumps, and not accidentally “backfeed” electricity into utility company lines, which could electrocute a line worker. Connection methods include transfer switches and camlocks.

**Transfer switches** can be either automatic or manual, and will let you easily switch back and forth between commercial and generator power sources. These switches are typically installed close to your main breaker box.



Transfer Switch

**Camlocks** are connectors that can be used to connect a generator directly to a critical piece of equipment, such as a pump at a wellhead or lift station.



Camlock

You will need a licensed electrician to help you determine which method is best for you and to assist with installation. A licensed electrician can also help you size the connector and ground cables.

**3. Location** - Emergency generators must be able to withstand climate extremes and be able to operate under all conditions. Things to consider when locating a generator at your utility include:

- *Environmental considerations.*  
It is important to prevent contamination of source water by fuel, and state requirements, such as containment measures, should be checked. Generators and their fuel storage tanks must be located above potential floodwater levels. Generators should also be protected by using a weatherproof enclosure. Check with your state for other requirements.
- *Siting considerations.*  
A flat surface (e.g., concrete slab) without obstacles is needed for a portable generator. In addition, be sure that the generator is in a well-lit or patrolled area to avoid theft and vandalism.

**4. Other Options** - For added flexibility, consider a variable frequency drive (VFD). The VFD is easy to operate, can convert single-phase power from small generators to three-phase power, and can supply power under a variety of horsepower demands. Small, portable generators that can be used with a VFD are readily available from the nearest hardware supplier. Consult your licensed electrician to see if a VFD is right for your utility.



VFD mounted in box

# Should I purchase, rent, borrow, or share?

Many factors affect the decision to buy, rent, borrow, or share a generator(s). Funding, maintenance requirements, rental availability, and mutual aid and assistance agreements should all be considered. If you are sharing, who gets the generator first? It is probably easiest to make the decision by considering the advantages and disadvantages of having a generator onsite (purchase) versus obtaining a generator offsite (rent, borrow, or share).

The tables shown here highlight some of the advantages and disadvantages of each option.

<b>Onsite Generator (Purchase)</b>	
<i>Advantages</i>	<i>Disadvantages</i>
Immediate start-up during a power failure, as it's already at your utility and ready to go	Up-front capital investment could be costly
You are familiar with the generator and its operation	Long-term maintenance is required
Can be any size	A disaster that damages your plant may also damage your generator

<b>Offsite Generator (Rent/Borrow/Share)</b>	
<i>Advantages</i>	<i>Disadvantages</i>
No large up-front capital cost if rented, or, if purchase cost shared with other utilities	Travel time delays to get generator to your site, especially if roads are impassable
Flexibility in where you get it from, could have multiple sources	May require special equipment (e.g., crane) and extra personnel (e.g., electrician) to install
Shared (or no) long-term maintenance costs	In a large incident, may be hard to locate a generator due to competing demands

Unique circumstances at your utility will ultimately determine whether purchasing, renting, borrowing, or sharing a generator will work best. Regardless, once you have determined your backup power needs, you should communicate those needs to your Local Emergency Planning Committee (LEPC) or emergency management director. This allows them to be aware of the generator resources that you already have (if any) and what generator resources you will need during a power emergency, and any priority public health aspects related to power loss.

## Operation and Maintenance Tips

- Exercise your generator periodically under the actual electrical load required of the unit to keep it ready for use;
- Develop a "start and connect" checklist specific to each individual generator and keep it where staff can easily find it;
- Do not operate the generator in excess of its rated capacity;
- Be sure the generator is properly grounded;
- Keep portable generators outside and at least 10 feet away and downwind from inhabited, enclosed areas to prevent the buildup of carbon monoxide fumes;
- Maintain 3 to 4 feet of clear space on all sides and above a generator for adequate ventilation;
- Perform scheduled maintenance as recommended by the generator manufacturer;
- Incorporate fuel management into the maintenance schedule to ensure availability of clean, reliable fuel;
- Do not refuel the generator while it is running, turn it off first and let it cool, especially if the generator uses gasoline;
- Keep the generator dry by keeping it elevated and away from possible flooding;
- Support electrical cords off the ground and do not let cords run through low-lying areas or puddles;
- Replace any cords with damaged insulation;
- Train all staff on how to operate the generator safely; and
- Wear hearing protection if you have to work close to a generator.

## Where can I go to find out more about generators?

Emergency Response Portal, U.S. Army Corps of Engineers (USACE) <a href="https://eportal.usace.army.mil/sites/ENGLink/EmergencyPower/default.aspx">https://eportal.usace.army.mil/sites/ENGLink/EmergencyPower/default.aspx</a>	Information sharing tool to build federal, state and local capabilities to respond to disasters. Contains links to documents on Standard Operating Procedures of the Temporary Emergency Power Mission
Electrical Generating Systems Association (EGSA) <a href="http://www.egsa.org/index.cfm">http://www.egsa.org/index.cfm</a>	Association dedicated to on-site power generation that includes over 500 companies that make, sell, distribute, and use onsite power generation technology and equipment.
Water & Wastewater Mutual Aid & Assistance Resource Typing Manual <a href="http://www.nationalwarn.org">www.nationalwarn.org</a>	This manual provides guidance to water and wastewater utilities when they request and provide mutual aid and assistance resources (such as generators) during and after an emergency.
OSHA Hurricane Safety Tips <a href="http://www.osha.gov/pls/publications/publication.athruz?pType=Industry&amp;pID=107">http://www.osha.gov/pls/publications/publication.athruz?pType=Industry&amp;pID=107</a>	Although dedicated to hurricanes, this site contains many safety tips regarding generator usage and other topics that are common to all disasters.
FlaWARN Best Management Practices For Water and Wastewater Systems <a href="http://www.flawarn.org/Documents/BMPs.pdf">http://www.flawarn.org/Documents/BMPs.pdf</a>	Guidance document produced by the Florida WARN including Best Management Practices for water facility emergency preparedness and response.

*“When the power went out, we couldn’t pump and pressurize our system. But we are a small utility, and can’t afford a generator. We joined the WARN as one way to locate a generator the next time we need one.”*

*- Maine Operator*

### Who can I contact in my state?

Call your consulting engineer or licensed electrician if you have specific questions regarding a generator(s) at your utility. Each utility is unique in its critical treatment processes and its design, and you will want your own experts to help you answer any questions you may have regarding backup power generation. Also, check with your state drinking water primacy agency to see what (if any) generator or fuel storage requirements there are for utilities in your state.

**TIP: Joining a Water/Wastewater Agency Response Network ( WARN) is one way to borrow or share generators.**

**[www.ctwarn.org](http://www.ctwarn.org)**

**[www.mawarn.org](http://www.mawarn.org)**

**[www.mewarn.org](http://www.mewarn.org)**

**[www.nhwarn.org](http://www.nhwarn.org)**

**[www.rwarn.org](http://www.rwarn.org)**

**[www.vtwarn.org](http://www.vtwarn.org)**

**EMERGENCY GENERATOR INFORMATION FORM – Side 1 (complete prior to an emergency)**

**Instructions – Side 1**

- Get a licensed electrician to help complete this form.
- Fill out a copy of the form for each generator location.
- Store copy in multiple safe places (ERP, truck, offsite file).
- Share the form with LEPC, WARN or state primacy agency.
- Update form periodically.

**Contact Information**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Day Phone: \_\_\_\_\_

Emerg. Phone: \_\_\_\_\_

System Name: \_\_\_\_\_ PWSS ID: \_\_\_\_\_

Street Address, City, and State: \_\_\_\_\_

Max Day Demand (MGD\*): \_\_\_\_\_ Avg. Daily Demand (MGD\*) \_\_\_\_\_

\* Million Gallons per Day

**Critical Utility Electrical Needs: (copy form as necessary)**

Location (Name/#): \_\_\_\_\_

Location (Name/#): \_\_\_\_\_

Location (Name/#): \_\_\_\_\_

**Generator Needs: (copy form as necessary)**

Location (Name/#): \_\_\_\_\_

Existing transfer switch: Yes \_\_\_\_\_ No \_\_\_\_\_; Existing 'add-a-phase' or 'roto-phase' unit: Yes \_\_\_\_\_ No \_\_\_\_\_

(These units convert a single phase line to a three-phase line)

Size of electrical main breaker: \_\_\_\_\_ Amps

System Voltage: 240 volt single phase \_\_\_\_\_ 240 volt three phase \_\_\_\_\_

208 volt three phase \_\_\_\_\_ 480 volt three phase \_\_\_\_\_

Major motors, in starting order, used for facility operations:

(example: 75 HP 2 Quantity 460 Volts 3 Phase)

\_\_\_\_\_ HP \_\_\_\_\_ Quantity \_\_\_\_\_ Volts \_\_\_\_\_ Phase

\_\_\_\_\_ HP \_\_\_\_\_ Quantity \_\_\_\_\_ Volts \_\_\_\_\_ Phase

\_\_\_\_\_ HP \_\_\_\_\_ Quantity \_\_\_\_\_ Volts \_\_\_\_\_ Phase

\_\_\_\_\_ HP \_\_\_\_\_ Quantity \_\_\_\_\_ Volts \_\_\_\_\_ Phase

Note: at a minimum, a generator must have capacity to supply maximum starting power demands and running demands of connected electrical equipment.

Existing concrete pad to locate generator? Yes \_\_\_\_\_ No \_\_\_\_\_ Distance of pad to connection point: \_\_\_\_\_

System meter kilowatt reading: \_\_\_\_\_

Generator Type (from AWWA Water & Wastewater Mutual Aid & Assistance Resource Typing Manual):

\_\_\_\_\_

Additional comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**EMERGENCY GENERATOR INFORMATION FORM – Side 2 (complete prior to an emergency)**

**Instructions – Side 2**

- Get a licensed electrician to help complete this form.
- Fill out a copy of the form for each generator location.
- Store copy in multiple safe places (ERP, truck, offsite file).
- Share the form with LEPC, WARN or state primacy agency.
- Update form periodically.

**Contact Information**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Day Phone: \_\_\_\_\_

Emerg. Phone: \_\_\_\_\_

System Name: \_\_\_\_\_ PWSS ID: \_\_\_\_\_

Street Address, City, and State: \_\_\_\_\_

Max Day Demand (MGD\*): \_\_\_\_\_ Avg. Daily Demand (MGD\*) \_\_\_\_\_

\* Million Gallons per Day

**Existing Generators: (copy form as necessary)**

On-site generator location (name/#): \_\_\_\_\_

Is on-site generator portable? Yes \_\_\_ No \_\_\_

If facility has an off-site generator ready for use in an emergency, what is the source/location of the generator? \_\_\_\_\_

Existing transfer switch: Yes \_\_\_ No \_\_\_ AND, if yes, is switch manual? \_\_\_ or automatic? \_\_\_\_\_

If automatic, what brand is the switch and how many wires are required to start? \_\_\_\_\_

Size of generator: \_\_\_\_\_ kilo Volt Amperes (kVA) \_\_\_\_\_ kilowatts (kW)

Configuration: (Wye or Delta): \_\_\_\_\_ (A Wye configuration is in the shape of a “Y”, and a Delta configuration is in the shape of the Greek letter delta “Δ”, a triangle)

Load cable length: \_\_\_\_\_ Feet Load cable size: \_\_\_\_\_ Thousand Circular Mils (MCM)

or \_\_\_\_\_ American Wire Gauge (AWG)

Ground cable length: \_\_\_\_\_ Feet Ground cable size: \_\_\_\_\_ (MCM or AWG)

Generator connection point: \_\_\_\_\_ Fuel tank size: \_\_\_\_\_

Fuel type: diesel \_\_\_ natural gas \_\_\_ propane gas \_\_\_ gasoline \_\_\_ other \_\_\_\_\_

Fuel available on-site? Yes \_\_\_ No \_\_\_ If yes, how much? \_\_\_\_\_ How stored? \_\_\_\_\_

Who provides generator maintenance and testing service? \_\_\_\_\_

What is the testing cycle and last test date? \_\_\_\_\_

Does utility have access to an electrician? Yes \_\_\_ No \_\_\_ # of power company transformers: \_\_\_\_\_

Transformer size(s) painted on front of the unit(s): kVA \_\_\_\_\_ kVA \_\_\_\_\_ kVA \_\_\_\_\_ kVA \_\_\_\_\_

Generator Type (from AWWA Water & Wastewater Mutual Aid & Assistance Resource Typing Manual): \_\_\_\_\_

System is WARN member and willing to list as an available WARN resource? \_\_\_ Yes \_\_\_ No

Additional comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



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# 2025 WVRWA Conference Wrap-Up

The 40th Annual Water on the Mountain Conference was held August 17-20 at Oglebay Resort and Conference Center. The golf tournament, competitions and picnic on Sunday were a great success. This year's conference hosted over 500 attendees with 75 exhibit booths and over 100 systems in attendance.

Our conference agenda included a packed exhibit hall, 12 CEH hours, competitions and our annual awards banquet. Door prize drawings were held in the exhibit hall as well as raffle drawings at the awards banquet.

The annual golf tournament was first on the agenda early Sunday afternoon. Sunday also provided the backdrop for the picnic and competitions. Food trucks were a refreshing change this year and provided for an amazing picnic atmosphere. Live music was provided by country music artist Nathan Bartgis. Fun was had by all in our annual competitions. Below are the winners of the events.

- Cornhole – Jodie Taylor & Brian Moreland, Tunnelton Water Works
- Tapping – Travis Coates & Justin Timberlake, Berkeley Co. PSWD
- Hillbilly Horseshoes – Nathan Bartgis & Chad Mingis, Berkeley Co. PSWD
- Meter Toss – Jodie Taylor, Tunnelton Water Works

Monday through Wednesday provided training sessions for operators, office personnel and decision

makers. A special thank you goes out to all the presenters for their professionalism and expertise on the subjects that were taught. If you have a topic that you would like to see presented or have a presentation you would like to give, please send an email to [connect@wvrwa.org](mailto:connect@wvrwa.org) with the information.

The exhibit hall was the place to be with 75 exhibit spaces with services and products being demonstrated by our vendors. Door prize drawings were held throughout the exhibit hall hours on Monday evening and Tuesday morning. The exhibit hall is one of the highlights of the conference and West Virginia Rural Water Association would like to give a special thank you to all the exhibitors who were in attendance this year. It is your support for the West Virginia Rural Water Association that makes this conference possible, and for that we are thankful.

Tuesday evening was the annual banquet with an attendance of over 250 people. The evening began with attendees socializing as the awards presentation began. This is when WVRWA acknowledges those systems and individuals who have excelled throughout the year in the following categories. We would like to congratulate the following winners.

- Office Manager of the Year
- Water System of the Year
- Water Operator of the Year
- Wastewater System of the Year
- Wastewater Operator of the Year
- Taste Test System of the Year

After the award were presented, an amazing meal was had by all. The evening concluded with a performance from country music artist



ist Matt Stillwell.

## Thank you to our 2025 Water on the Mountain Conference Sponsors

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### Exhibitors' Reception

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### Golf Hole

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**Picnic**

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**Making Waves Luncheon**

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**Training Lunch**

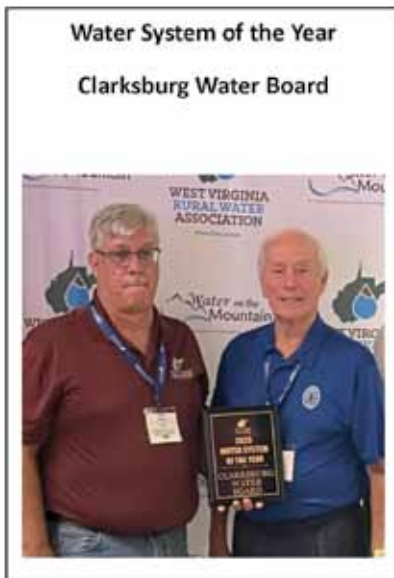
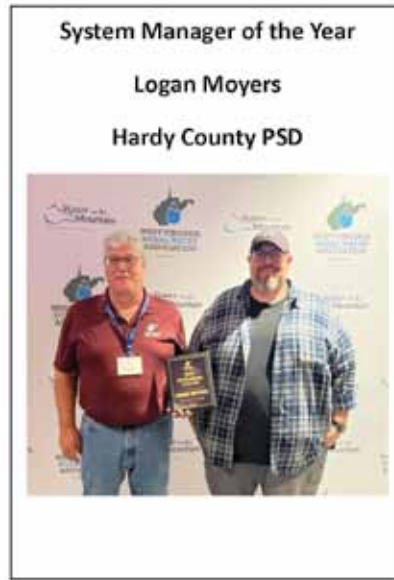
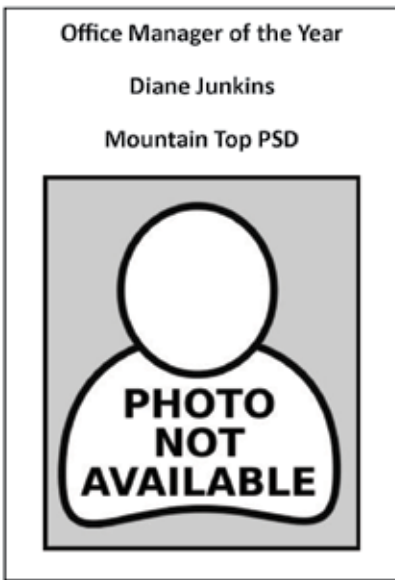
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 THANK YOU to all our attendees,  
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 ference would not be possible with-  
 out you. We hope to see everyone  
 next year at Oglebay Resort August  
 9-12, 2026. ■

# 2025 Award Winners



2025 Water Taste Test

Champions

Berkeley County Public Water Service District



2025 Scholarship

Award Recipients

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Adam Sherman

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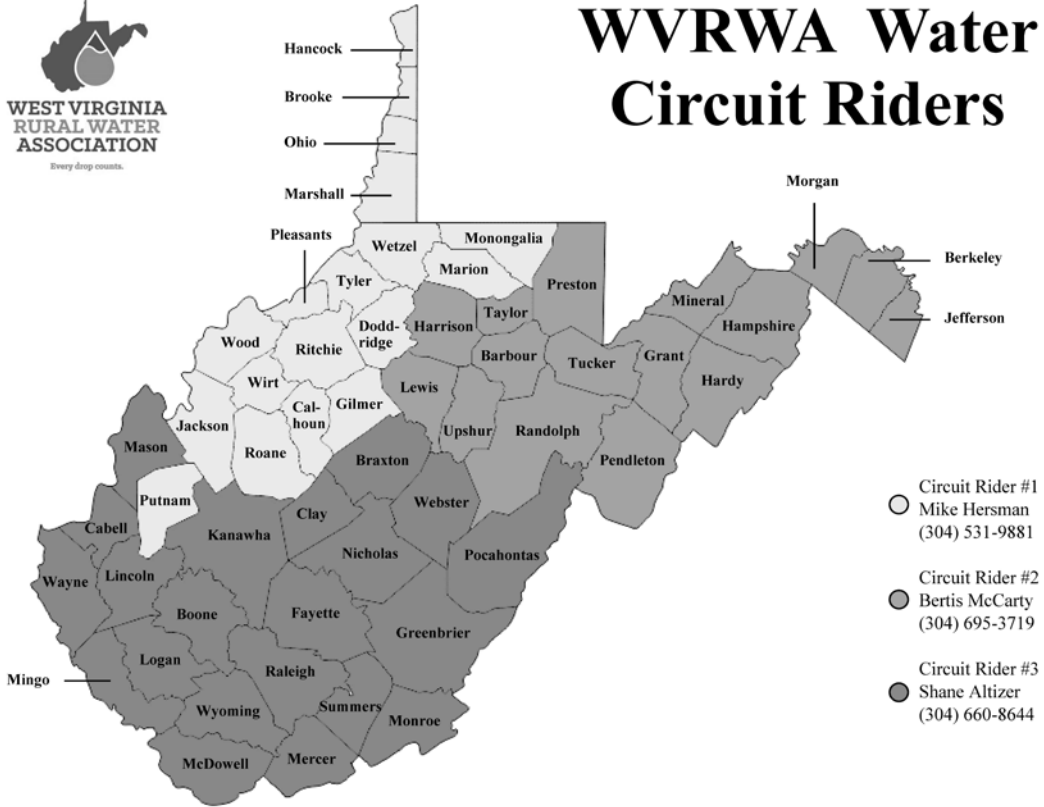
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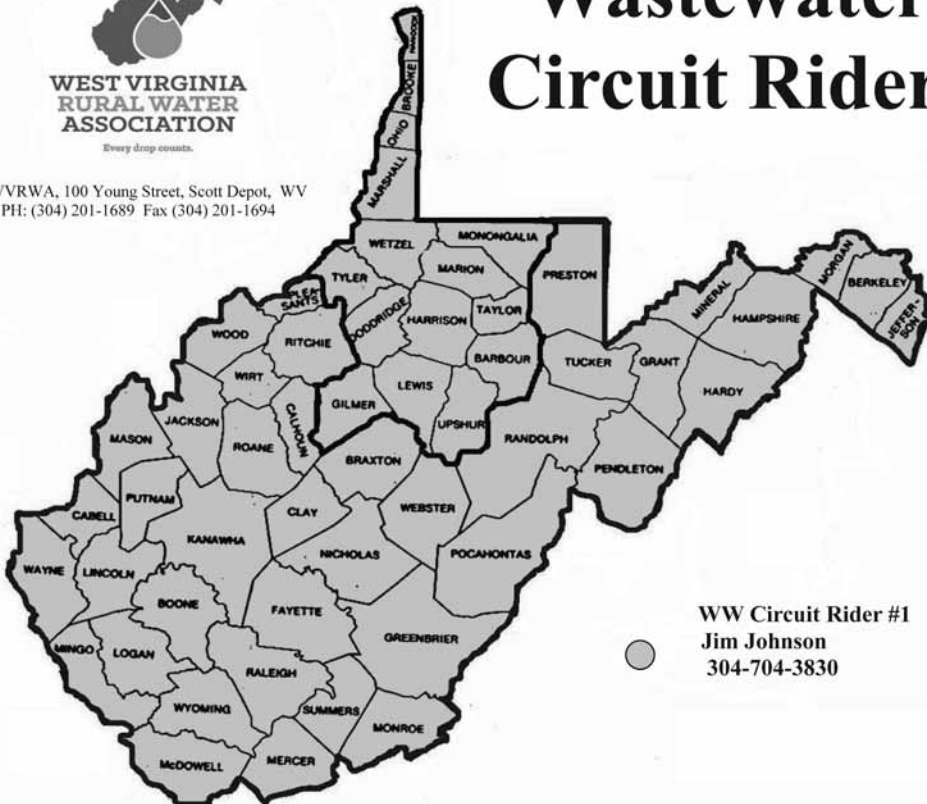


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- Low construction costs and available contractors are not guaranteed to last.



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## SUDOKU PUZZLE

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

The aim of the canonical puzzle is to enter a numerical digit from 1 through 9 in each cell starting with various digits given in some cells (the "givens"). Each row, column, and region must contain only one instance of each numerical. Completing the puzzle requires patience and logical ability.

Answers can be found on page 38.



**Will Michael**  
*Municipal Sales*

---

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# When do You Need to Replace Your Filter Media?

Deciding when to replace your filter media can be difficult, especially when your filter continues to remove contaminants to acceptable levels. However, periodic media replacement is an essential part of your filter's asset management plan in order to ensure optimal equipment performance and life cycle. Filter media to have an average life of 15 years with a range of 10 to 20 years depending on site-specific factors, like backwash type and frequency, operational frequency, media type and condition, and overall filter performance. Unless there is a major issue, filter media does not simply fail. Rather, it changes over

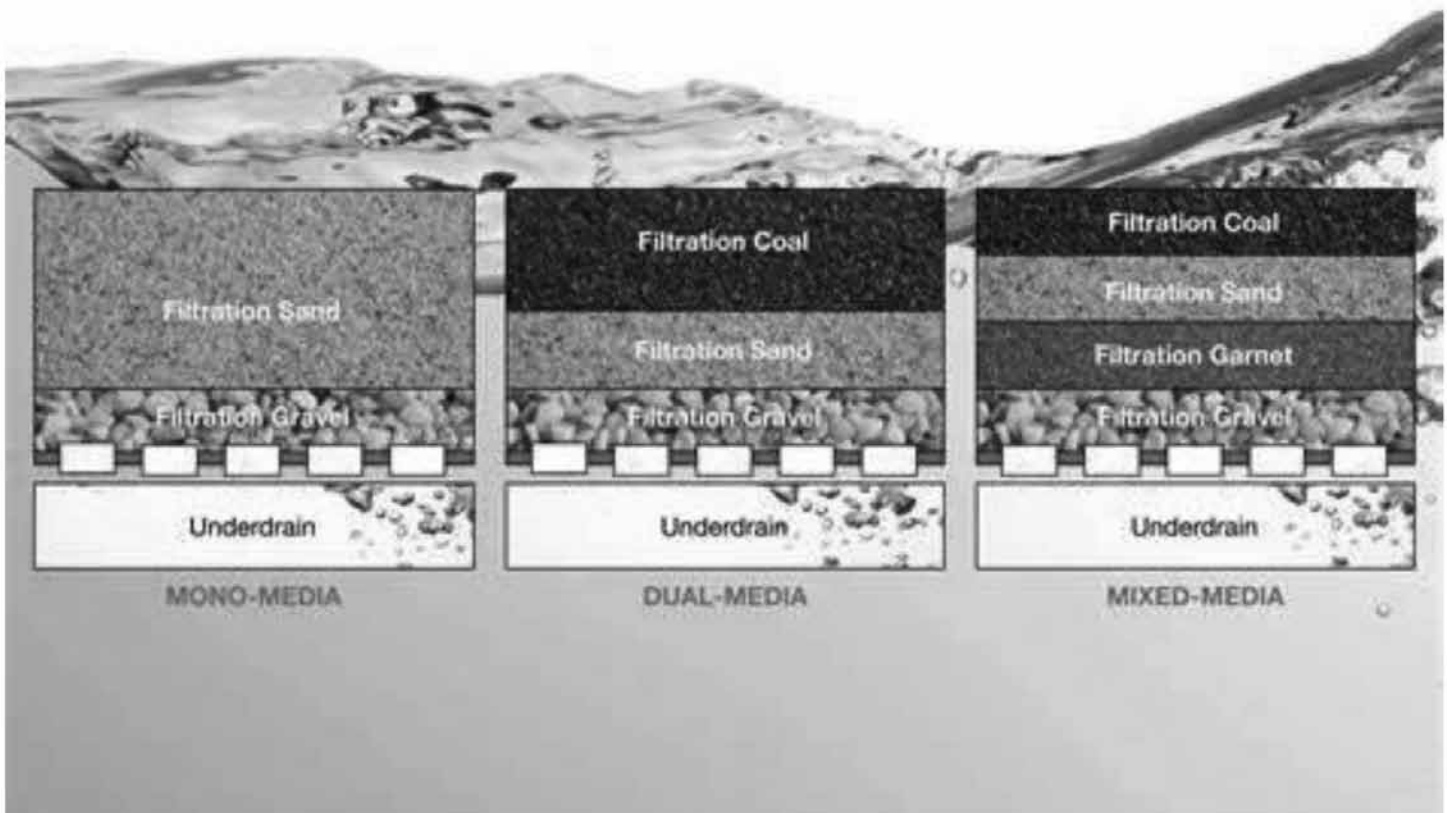
time in properties like size distribution, roughness, depth, and composition (solids buildup), all of which can impact filter run length and effectiveness. As these changes occur gradually over months and even years, it is difficult to discern differences in operation and performance. For this reason, we recommend planning for media replacement every 10 to 20 years even if it does not seem obvious based on performance alone.

If you are considering changing your filter media, here are some signs that would support the decision:

- Filter performance has de-

creased, such that contaminants are detected at higher concentrations than normal throughout the filter run.

- Contaminants are breaking through sooner, requiring more frequent backwashing.
- Media depth is significantly different from the original specification.
- Up to one inch of loss per year is considered normal; however, media depth can also grow from build-up of solids over time.
- Filter is building differential pressure faster than normal or very little before seeing breakthrough. ■





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## Answers to Soduko Puzzle

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



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# Water Facts

**T**he only water we will ever have is what we have right now.

Showers use 9 gallons of water per minute. A bath requires 30-50 gallons.

Once groundwater is polluted it may remain that way for several thousand years.

It can take 120 gallons of water to produce one egg.

A hot water faucet that leaks 60 drops per minute can waste 192 gallons of water and 48 kilowatt hours of electricity per month.

Human blood is 83% water. Human bones are 25% water.

Running the tap waiting for the water to get hot or cold can waste 5 gallons per minute.

97% of the water on earth is salt-water; only 3% is freshwater. Most of the freshwater stored on the earth is frozen in glaciers.

Each day the sun evaporates

1,000,000,000,000 (a trillion) tons of water.

The earth's surface is approximately 80% water. That's about 362,000,000,000,000 (362 trillion) gallons of water.

Watermelon is 93% water.

"Water" was the first word that Helen Keller learned. "Water" was the last word spoken by President Ulysses S. Grant.

In some deserts, rain is so uncommon that the natives do not have a word for it.

Over 42,000 gallons of water are needed to grow and prepare the food for a typical Thanksgiving dinner for eight in the United States. This is enough water to fill a 30 by 50 foot swimming pool.

The people in the United States use as much as 700,000,000,000 (700 bil-

lion) gallons of water each day.

Heating water is the second largest energy user in the home.

The Koala bear and the desert rat do not drink water.

There are 8,000,000,000,000,000,000,000 (8 septillion) water molecules in one glass of water.

In a one hundred year period, a water molecule spends 98 years in the ocean, 20 months as ice, about 2 weeks in lakes and rivers, and less than a week in the atmosphere. ■

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# Maintenance at Wastewater Treatment Facilities

**M**aintenance, one of the most important things we do at a wastewater treatment facility. Obviously, no operator wants their plant to be performing poorly. Proper maintenance and preventive maintenance can go a long way in preventing your wastewater system from poor performance. Poor maintenance, whether by lack of knowing what needs performed when or the lack of time to perform the maintenance can be a big and costly problem at a wastewater treatment facility.

Let's look at some tips to improve the maintenance at your wastewater system. The first tip is frequent inspections. This will let you identify wear and tear and potential issues before they become big problems, this includes checking all equipment such as tanks, valves, pumps, pipes, mixing and aeration equipment and anything else your system may have.

Cleaning and debris removal is another maintenance tip to help keep your plant in tip top shape.

Clean racks, screens, filters and other equipment daily. Especially that equipment which could allow debris to pass through, if not operating properly and clog or destroy other equipment. Also, clean all of your equipment to keep it clean as needed. This not only improves the appearance of the system but it will make most of the equipment last longer.

Follow a scheduled preventative maintenance program to replace worn parts as well as performance testing and checking for leaks. Also, follow proper greasing and lubrication procedures on all the equipment. Proper preventative maintenance can keep a lot of equipment operating at peak performance for a longer time. It will also assist in preventing unexpected breakdowns.

Have an emergency response plan in place to try to be prepared for system failures and disasters.


This should include contact information for key personnel. It should also include contacts for companies to replace or repair key equipment

as well as chemical suppliers. This should include steps to minimize the damage and restore the key operations of the system.

Provide staff training to ensure they are aware of new technologies and procedures to keep thing. operating properly. Ensure staff has the proper certifications to operate and maintain the system.

Maintain compete records on all maintenance procedures and policies. Document all maintenance, lubrication, repairs and replacements. Maintain a safe working environment. Have a safety policy in place that is easy to understand and have the equipment and training necessary to follow it.

Proper maintenance is a must at a properly operating wastewater facility. Proper training and equipment is also necessary to keep your wastewater system in tip top shape. Good maintenance takes work, a good spare parts inventory and budgeting and staff to make the program work. If you do this you will find it is well worth it. ■



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## Early Warning Systems for Surface Water (Part 1)

**G** lot of consideration is involved in designing and constructing a water treatment system. One of the things that must be determined early on is where will the water come from; what will be used as the source for the drinking water. Will it be surface water, will it be ground water, will it be a combination (not that this happens very often). It may be that there is only one obvious option. Or there may be several potential sources to choose from.

Ground water has some benefits. It typically requires less treatment and it appears to be harder to contaminate, although that is becoming less real as we learn about more and different types of contamination, like forever chemicals. Once a well is contaminated it is usually contaminated forever. If the contaminant can't be treated out economically, then a new source has to be found and developed.

On the other hand, surface sources frequently offer a larger volume of available water (except in a drought like last year), but surface water is very desirable for larger populations. When a contaminant is found in surface water, and the origin of the contaminant is found and eliminated, it is frequently possible to simply shut off the intake and allow the contaminant to flow by. Then production can resume once it has passed. But the surface sources that are available may be of such poor quality that they are not a viable option for a drinking water source.

Ground water may lack sufficient quantity to meet the need. So, finding the best source may take some effort. Once that source is found, then someone has to design a treatment system for that water source to make it acceptable for human consumption, and to meet government regulations. Such are the birth pains of a drinking water system.

Fortunately for most of us, that work was already done before we came along. And we are just tasked with the responsibility of operating and maintaining that system to continue to provide a safe and reliable volume of adequately treated drinking water to our customers. But that task presents its own challenges. Generally, a lot goes into operating and maintaining a water system. There is monitoring the operation, maintaining the equipment, record keeping and reporting, sampling, meeting regulatory requirements and tracking new regulations, maintaining certifications and all the other work required to produce water. But there is one thing that can upset all the good work that goes into the operation. Contamination. Anyone that has had the experience of a contaminant being introduced into their water system can tell you this is where the nightmare begins. No matter how well your system is operated, contamination will ruin all your efforts. So, anything that can prevent contamination is worthwhile.

Today we are going to focus specifically on contamination as it relates

to surface water sources, and some things we can do to help protect our source water and our customers from contamination. West Virginia statute now includes requirements for Source Water Protection Plans. Because of the Freedom Industries chemical spill that contaminated the Elk River near the West Virginia American water treatment plant in Charleston in 2014; all surface water systems, all GWUDI system, and all the systems that have been designated SWIGs (Surface Water Influenced Groundwater) are required to fulfill this source water protection plan requirement, which is to prepare a plan and update it every three years. The purpose of these source water protection plans is to 1) identify the source water protection area; 2) inventory potential sources of significant contamination (or PSSCs) within the protection area; 3) prioritize those contaminant risks; and, 4) look for potential risk management actions that can be put in place to mitigate those risks.

Under the source water protection plan's Contingency Plan section is the tab labeled Surface Monitoring. This tab is specifically about Early Warning Monitoring Systems. These systems are used to detect changes in source water quality or characteristics that might indicate the potential of contamination and signal reactionary actions such as closing intakes or changing sources. There is equipment available that is capable of testing a variety of pa-

rameters, that is customizable to the utility's needs, and is reasonably affordable that utilities can purchase and install to provide information about water quality that can indicate when a contaminant may be present. Several plants in West Virginia have this type of early warning equipment.

Some considerations you need to address if you are thinking about Early Warning Systems: What parameters do you want to monitor? How much does it cost and how to pay for it? Where will you install it and how? What will it take to maintain the equipment? And, how will you store and analyze the data? These questions will help to determine what equipment you might decide to purchase.

For this article we are going to look at what parameters you want to monitor. Standard monitoring usually includes parameters like pH, temperature, Dissolved Oxygen (DO) or Oxygen Reduction Potential (ORP), and Conductivity. Sometimes turbidity is included. Keep in mind that you may be able to purchase a single probe or sonde that includes more than one of these parameters. Since the control unit has a limited number of inputs, a multi-parameter probe may be very desirable.

So, what else might you want to monitor? You may want to monitor for petroleum hydrocarbons that are possible if there is oil & gas activity. Harmful Algae might be an issue. Or nitrates if you have agricultural installations that cause concerns. This will be limited by the probes that are available. Some things cannot be tested with a probe. That is why systems like ORSANCO use Gas Chromatographs for monitoring specific chemicals or compounds. This presents another

criterion for choosing a manufacturer. Do they have the probes you want and need? Also, this is where your Source Water Protection Plan comes in to play. Your plan should include an inventory of Potential Sources of Contamination.

When reviewing your Source Water Protection you may find a couple different PSSC lists. There should be one called the Local and Regional list, and you might have a Regulated PSSC list. You may also have a Regulated list that is confidential that includes Above Ground Storage Tanks, Underground Storage Tanks, and Tier II sites. All of these will be a great help in determining the potential contaminants you may encounter and what characteristics you might want to monitor. Knowing what characteristics they would affect in the water can alert you to their presence. Once you determine what potential contaminants are in the protection area, there are a couple resources available to determine their potential effects on the water. First, if you go to the Health Department's Source Water Protection page, you will find the Supplemental Guides. You will notice there is an Early Warning System Supplemental Guide that you should review if you are considering installing an early warning system. But if you go to the Potential Sources of Significant Contamination Guide, there is a very helpful inventory of types of PSSCs. And if you scroll down through that guide, you will eventually find these categorically listed PSSCs.

The categories are A = Agriculture, C = Commercial, I = Industrial, M = Municipal, R = Residential, and D = Databases (these are things listed in government databases like NPDES permittees, Solid Waste Facilities, Coal Dams, and things

like that). Once you find the specific contaminant you are concerned with, you can look at the Associated Chemicals Box to determine the compounds associated with that potential contaminant. There is a Key at the bottom that explains what the initials in the box represent. From this, you can determine if there is a specific compound that you want monitoring equipment to detect. You can take this information to the vendor to help determine what probes you want to include in your Early Warning System. You want probes that will monitor the characteristics to detect the contaminants you are most concerned with. But understand, there is no magic wand for this. They may not have an answer for every concern. This type of monitoring is broad based. It will not always identify the exact contaminant. There are some like oil and gas or nitrates that will detect an exact chemical, but much of the time the system will identify changes in characteristics that may indicate the presence of contamination. For instance, if your pH is normally 7.0 to 7.6 and suddenly it drops to 5.0, then there is an indication that something acidic has found its way into your water stream and has caused a dramatic drop in pH. That is when the work starts. Now you have to determine what exactly has caused this condition. You get to be the detective who examines the evidence and tries to make a determination for what might be causing the change in water characteristics. Also know that Early Warning Systems are often criticized for False Alarms. This type of equipment is susceptible to giving misinformation. But that does not render it useless. It can be worth the trouble if it saves you from distributing contaminated water to your customers.

Another tool you that will be helpful to you is the EPA's Water Contaminant Identification Tool (WCIT) <https://www.epa.gov/waterdata/water-contaminant-information-tool-wcit> . Being a public water utility, you may be able to obtain access to WCIT. First you must go to the Central Data Exchange (CDX) website and set up an account. Then you can access the tool from there. It is a bit laborious to get set up and going but it offers a wealth of information. There are currently over 800 priority contaminants of concern listed in the tool. The tool can help you determine what a suspected contaminant might be. If information applies to the suspected chemical, the tool may tell you what characteristics to look for. Information may include

Early Warning Indicators for Water Quality that describe the affect the chemical has on things like pH, and DO, and Conductivity. It may also list what tests are appropriate to detect the chemical, and how the contaminant can be treated. The EPA's Saved Webinars page contains sessions on how to use WCIT.

If you suspect the presence of a contaminant, after shutting down the intake, it is a good idea to call your District Office of the West Virginia Department of Health and your County Emergency Services Director. The Emergency Services Director may be able to tell you if some sort of spill has occurred or help you look for the source of the suspected contaminant. And your District Health Department will

help you determine what the contaminant might be and what type of samples to take to identify the contaminant. You also need to have an open line of communication with a laboratory that can analyze the samples as quickly as possible.

Having an Early Warning System that monitors specific parameters can help detect potential contaminants earlier than relying on grab samples and customer reactions. In future articles we will look at cost, installation, maintenance, and data management. If you need help or have questions about early warning systems or other source water issues, contact me, Jerry Dotson, Source Water Specialist for WVRWA at [jerrydotson@wvrwa.org](mailto:jerrydotson@wvrwa.org) or 304-483-3497. ■

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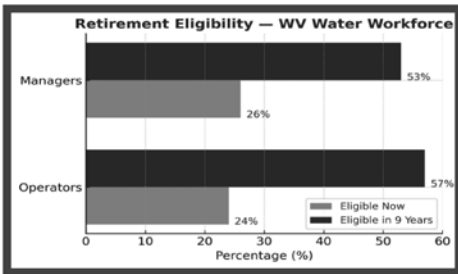
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# WVRWA Registered Apprenticeship Programs and Funding Available Through Workforce Development Boards

## The Operator Workforce Shortage

According to a 2023 Water Workforce survey, 24% of water and wastewater operators are eligible to retire now, and 57% will reach retirement age within the next nine years. Additionally, 26% of managers within the water/wastewater industry are eligible to retire now.



Graphic created from 2023 WVU Water Workforce survey

With a wave of experienced workers leaving at a time when utilities already struggle to fill positions what is the potential solution?

## Registered Apprenticeship Programs (RAPs).

### WVRWA Registered Apprenticeship Programs-(RAPs)

WVRWA’s RAPs provide a structured pathway to develop skilled operators and sustain the workforce. Approved by the U.S. Department of Labor, apprentices gain the skills, knowledge, and credentials necessary to succeed in water and wastewater operations.

#### Program Highlights:

- Two-year program
- Earn Class II Water or Wastewater Operator License
- Micro-credentials including CPR, First Aid, Flagger, and more
- Certificate of Completion from

the Department of Labor

Earn-as-you-learn model eliminates student debt

RAPs ensure a continuous pipeline of skilled talent, ready to step in as experienced operators retire.

## REGISTERED APPRENTICESHIP PROGRAMS

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### Elements of a RAP

#### What is a Workforce Development Board?

Workforce Development Boards (WDBs) operate under the Workforce Innovation and Opportunity Act (WIOA) and provide funding through the U.S. Department of Labor.

#### Their mission:

- Train Adults, Dislocated Workers, and Youth in in-demand occupations
- Support employers with training and wage reimbursement programs
- Strengthen local workforce by

matching skilled workers to employer needs

- West Virginia is divided into seven Local Workforce Development Areas (LWDAs), each with a dedicated WDB serving a set number of counties. Boards provide training, apprenticeships, and wage reimbursement programs tailored to local workforce needs.



West Virginia (LWDAs) and counties served

## Workforce Development Board Funding Opportunities

### 1. Individual Training Accounts (ITAs)

- Covers tuition and education-related costs for eligible Adults, Dislocated Workers, and Youth
- Training for in demand occupations
- Payments go directly to training providers like WVRWA.

### 2. Incumbent Worker Training (IWT)

- Upskills current employees who have been employed at least 6+ months employment to meet industry demands.
- Can cover tuition, manuals, software, and other consumables.

- Employers contribute 10–50% based on local workforce development board policies.

### 3. On-the-Job Training (OJT)

- Provides wage reimbursement for new hires or employees transitioning into operator roles.
- Can cover up to 75% of wages for a set number of hours.
- Jobseeker/Employee income eligibility is based on household income of all residents.

### 4. Youth Paid Work Experience

- Targets young adults who are primarily considered out of school who have received their (high school diploma or equivalency)
- Offers paid, supervised work experience to build skills and confidence.
- WDBs handle employment logistics and workers' compensation.

West Virginia RAP Support

According to the *West Virginia Combined State Plan 2024-2027*,

the state supports the continued growth of registered apprenticeship program opportunities for youth and young adult learners. As stated in **Goal#2** to *Expand work-based learning opportunities for both youth and young adult learners*. One method purposed to achieve this goal is through the support of RAP's. The state plan purposes **“Increasing the number of WV pre-apprenticeship and apprenticeship programs and number of learners enrolled in these programs.”** Not only is the State supporting the increase in apprenticeship learners, but each Local Workforce Development Board responds and supports the goals for their assigned region within the plan. To read more visit <https://workforcedb.wv.gov/state-plan>.

#### Why RAPs Work

##### Registered Apprenticeships:

Prepare workers for in-demand, skilled jobs without debt

Ensure utilities remain staffed with certified operators

Support local economies by keeping trained talent in the state

For utilities, RAPs are a practical solution to a critical workforce gap. For apprentices, they offer career stability, hands-on learning, and credentials that open doors for years to come.

#### The Bottom Line

West Virginia's water and waste systems face a looming workforce shortage, but through participation with the WVRWA's Registered Apprenticeships, and support from Workforce Development Board funding, RAPs are building the next generation of skilled operators ensuring safe, reliable water for every community.

To learn more about the WVRWA apprenticeship program details and help with navigating your local workforce development board, contact Miranda Lough WVRWA Apprenticeship Coordinator at [mirandalough@wvrwa.org](mailto:mirandalough@wvrwa.org) or 304-488-3054. ■

## Funding Opportunities Through WDBs

Program	Purpose	Key Points
<b>Individual Training Accounts (ITAs)</b>	Tuition & education for eligible job seekers	Paid directly to providers; priority based on income & need
<b>Incumbent Worker Training (IWT)</b>	Upskill current employees	Covers tuition, manuals, software; employer pays 10–50%
<b>On-the-Job Training (OJT)</b>	Wage reimbursement for new hires/upskilling	Up to 75% of wages reimbursed; ideal for distribution → operator transitions
<b>Youth Paid Work Experience</b>	Paid work for 16-24 youth	Gain career experience; WDB handles employment & workers' comp

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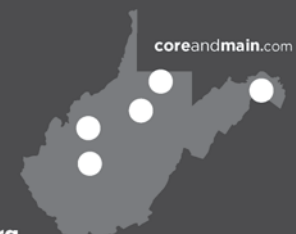
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# Will AI One Day Operate Wastewater Treatment Plants?

**A**rtificial intelligence (AI) has made remarkable strides across industries, from self-driving cars to automated stock trading, from smart home devices to advanced medical diagnostics. As machine learning algorithms continue to evolve, one question looms over the environmental sector: Will AI one day be trusted to operate complex systems like wastewater treatment plants? Technology and water management may soon converge, leading to major changes.

## The Complexity of Wastewater Treatment

Wastewater treatment plants are the unsung heroes of modern infrastructure. Each day, millions of gallons of water are cleaned and returned to the environment, safeguarding public health and preserving natural resources. The process isn't simple: it involves multiple stages, including the removal of solids, biological breakdown of contaminants, chemical treatments, and careful monitoring of countless variables. Traditionally, these plants have relied on skilled operators with years of experience to make judgment calls, respond to emergencies, and maintain regulatory compliance.

## AI: The Next Generation Operator?

The prospect of AI running these vital facilities is not just science fiction. Already, the sector is seeing early adoption of artificial intelligence for tasks such as predictive

maintenance, process optimization, and real-time monitoring. Machine learning models can analyze historical data to forecast equipment failures before they occur, reducing downtime and costs. Advanced sensors, paired with AI-driven analytics, can detect anomalies in water quality, chemical levels, and flow rates even suggesting adjustments to maximize efficiency.

Yet the leap from targeted applications to fully autonomous operation is significant. Wastewater plants are dynamic environments. Incoming water composition changes hourly, and unpredictable weather events or industrial spills can introduce volatile new challenges. Although artificial intelligence demonstrates strong capabilities in pattern recognition and recommendation, addressing entirely new or ambiguous situations (which often demand creativity and intuition) continues to represent a significant area for advancement.

## Benefits of AI-Driven Plants

If AI systems reach a level of reliability and adaptability that matches experienced human operators, the potential benefits are considerable:

- **Efficiency:** AI can continuously analyze and optimize plant operations, often finding savings or improvements invisible to human eyes.
- **Consistency:** Automated systems can reduce human error, providing more stable outcomes

and compliance with environmental standards.

- **Rapid Response:** AI can react to sensor data in real time, potentially responding more quickly than manual intervention during emergencies.
- **Labor Shortages:** With many skilled operators approaching retirement, AI could help bridge gaps in workforce availability.

## Challenges and Ethical Considerations

Despite the promise, several hurdles remain. AI models require vast amounts of high-quality data to train effectively, and not all wastewater plants have the resources to digitize their operations. Cybersecurity is another concern: an AI-run plant might be vulnerable to hacking or sabotage, with serious consequences for public health and the environment.

Moreover, there is the question of accountability. If a malfunction leads to environmental damage, who is responsible? The creators of the AI, the plant's managers, or the algorithm itself? Trust in technology is built painstakingly, and the stakes in water management are too high to allow for reckless experimentation.

## The Human Element

Perhaps the greatest challenge is the irreplaceable value of human judgment and oversight. Seasoned operators possess a wealth of practical knowledge, able to recognize problems based on smell, sound, or

a glance at the water's color. While AI can supplement this intuition, replacing it entirely is a distant goal. Most experts agree that, for now, a hybrid approach is ideal: AI assists with routine monitoring and optimization, while humans remain in control of critical decisions.

### Conclusion

So, will AI one day operate wastewater treatment plants entirely on its own? The answer is: potentially, but not currently. Progress towards automation is incremental, characterized by continual advancements and a measured assessment

of technological potential alongside practical considerations. As artificial intelligence continues to evolve, its contribution to water management will expand; however, collaboration between humans and machines is expected to remain essential for many years ahead. ■

## USDA WATER & WASTE WATER DISPOSAL LOAN AND GRANT PROGRAM

Improve Your Facility

### About the Program

This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.

### Funding

Long-term, low-interest loan funding is available. If funds are available, a grant may be combined with a loan if necessary to keep user costs reasonable.

### USE YOUR FUNDS TO FINANCE THE ACQUISITION, CONSTRUCTION, OR IMPROVEMENT OF:

- 01 Drinking water sourcing, treatment, storage, and distribution
- 02 Sewer collection, transmission, treatment, and disposal
- 03 Solid waste collection, disposal, and closure
- 04 Storm water collection, transmission, and disposal
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# Bridging the Gap: Innovative Tools for Sustainable Infrastructure Financing

**F**inancing infrastructure projects is essential to the economic and social vitality of communities across the United States, particularly in rural areas. Quality infrastructure—such as water and sewer systems, roads, bridges, schools,



and fire stations—forms the backbone of local communities. In rural America, where populations are more dispersed and private investment is often limited, public financing tools like municipal bonds and innovative financing programs play a crucial role in bridging the funding gap. These investments not only improve day-to-day life for residents but also make rural regions more attractive for businesses, helping to retain local jobs and spur new economic opportunities.

Bridging this gap necessitates strategic financial investments, and that's where the significance of financing tools like the Rural Water Financing Agency ("RWFA") comes into play. RWFA is a public agency headquartered in Bowling

Green, Kentucky, and its primary function is to mobilize financial resources for governmental projects. Raymond James serves as Bond Underwriter for the RWFA Interim Program and as Municipal Advisor for the RWFA Flex Term Program. My fellow colleagues at Raymond James and I have worked with RWFA and its predecessor (Kentucky Rural Water Finance Corporation) since 1995 to finance more than 800 projects for over \$1.8 billion. The RWFA and Raymond James are committed to providing borrowers with quick access to affordable infrastructure financing in my home state of Kentucky and throughout the country.

The Rural Water Financing Agency plays a pivotal role in mobilizing financial resources from various channels, including the municipal bond market, to offer funds that can be strategically deployed for a variety of projects. The RWFA funding is available through its two financing programs to governmental borrowers throughout the country:

## **RWFA Interim Program**

- Provides tax-exempt construction financing to borrowers with a USDA Takeout
- Streamlined and efficient application and documentation
- Fixed rate for the term of construction

- All costs included in the loan rate
- All interest is capitalized until the end of construction

## **RWFA Flex Term Program**

- AA- rated program offers borrowers access to tax-exempt markets at low rates
- No debt service reserve requirement
- Fixed rate terms from 1-30 years for a variety of project types
- Funding can be provided in 60-120 days (depending on regulatory requirements)
- Projects not subject to federal regulations (BABA Act, American Iron and Steel, Davis Bacon)

The RWFA Flex Term Program has been particularly active recently as communities have determined that financing their projects quickly and without some of the federal regulations (BABA Act, American Iron and Steel, etc.) is most beneficial to them. Just in 2025 the RWFA Flex Term Program issued over \$150,000,000 to fund 36 projects in 11 states. The upcoming December 2025 issuance is expected to provide approximately \$70,000,000 in financing to nine projects in seven states. This increasing momentum has led to a variety of projects being financed by RWFA around the

country such as water and sewer improvements, a new library, fire trucks and fire station renovations, a new parking facility, a new multi-purpose event center, healthcare facility improvements, a new correctional facility, school building improvements, land purchases, and refinancing.

These RWFA Flex Term loans have been secured by revenues, general obligation pledges, special obligation pledges or other tax revenues. This flexibility ensures that the unique challenges faced by different communities are addressed and fostered by a more effective, efficient and consistent financing approach.

Furthermore, the Rural Water Financing Agency plays a pivotal role in leveraging partnerships and collaboration. By facilitating alliances with governmental bodies and state rural water associations, RWFA amplifies its impact and creates a network of support for infrastructure projects. To date, RWFA has partnered with **19 state rural water associations** that are contributing to enhancing the financial resources available to borrowers in their states.

Strategic infrastructure investment is about resilience and the

future. Well-financed projects strengthen a community's ability to withstand and recover from natural disasters, economic downturns, and demographic shifts. Financing tools such as the ones that RWFA provides allow local governments to plan beyond short election cycles and focus on projects that will serve residents for generations. In rural America, where every dollar must stretch further, thoughtful infrastructure financing is not just an economic necessity, it's an investment in future generations, connectivity, and the enduring strength of community life.

RWFA and Raymond James pride ourselves on being able to provide financing to borrowers quickly and efficiently and it all starts with a simple application. Please visit the website at [www.ruralwaterfinance.com](http://www.ruralwaterfinance.com) to learn more and to fill out your application for financing.

*Raymond James & Asso-*

*ciates, Inc. serves as underwriter to the Interim Loan Program and municipal advisor to the Flex Term Program. This overview may not be representative of the experience of other clients and is not a guarantee of future performance or success. Past performance is not indicative of future results. The information contained herein is solely intended to facilitate discussion of potentially applicable financing applications and is not intended to be a specific buy/sell recommendation, nor is it an official confirmation of terms. The information contained herein has been obtained from sources considered to be reliable, but we do not guarantee the foregoing material is accurate or complete. ■*

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# PFAS Cost Recovery Program

## Phase 2

In partnership with the National Rural Water Association and Napoli Schkolnik PLLC, we are sharing this call to action with you concerning the Phase 2 Settlement Deadline for the PFAS Cost Recovery Program.



### Is this supported by our Association?

Yes, this program was initiated in 2018 when National Rural Water Association engaged the law firm of Napoli Law to file litigation on behalf of its members and all public water supplies. We encourage your system to register into the settlement to lessen the financial burden on your system and rate payers.

#### Act Now to Access Funding

Gain access to \$15.4 Billion Dollar Settlement for PFAS Detections and Contamination. Systems must register to receive this funding. There is zero cost to register into the program.

#### Who is Eligible?

Any public water system that has tested and found detections of ANY PFAS chemical, at any level, is eligible to receive an award from this settlement based on level of detection and maximum daily flows. This includes all 29 PFAS compounds included in the UCMR5 monitoring rule.

#### Deadlines and Urgency

##### 3M/DuPont Settlements

- Phase 1 of the 3M/DuPont settlement has ended.
- Phase 2 of the settlement is now open for systems that tested after June 22, 2023. The deadline to register in the program to be eligible for the settlement is **July 12, 2026**.

##### Additional Settlements

- Twelve other companies are in the settlement process with no set deadlines yet. Napoli Law will ensure your system is included in all applicable settlements.



#### Contingent Cost

There is no cost to register into the cost recovery program. Your utility will have no costs unless Napoli Law recovers funds for your system.



#### How much will my utility receive?

The amount will depend on the level of detection, the compound detected, and maximum daily flows.



#### Unrestricted Funds

There are no strings attached to the funding your system receives; the decision to utilize funds is at the discretion of the utility. There are no approvals or reporting requirements.





## PFAS Contamination

Many systems have tested positive for PFAS across the nation. Time is of the essence, act now and protect your utility and ratepayers from the costs of PFAS remediation and treatment. To date, Napoli Law has recovered:

**\$179M**

\$179,184,509.11 in settlements

**314**

Rural Water Members

## Estimated Awards

	3M	Dupont	Tyco	Additional Settlements
High	\$28,771,300	\$3,409,409	\$2,167,854	Ongoing
Low	\$3,824	\$453	\$286	Ongoing
Average	\$1,607,481	\$169,368	\$129,076	Ongoing

## Additional Information

Register your system into the settlement at [www.napolilaw.com/nrwa-pfas](http://www.napolilaw.com/nrwa-pfas). There is no obligation. Hank Naughton or Sam Wade with Napoli Law will contact you to provide additional details and answer any questions you may have.

### *Is someone available to meet with our board/council?*

Napoli Law welcomes the opportunity to connect with your board/council, staff or legal representative just give them a call or email.

## Contact

- **Sam Wade, Water Consultant**  
swade@napolilaw.com  
580-917-1425
- **Hank Naughton, Managing Partner**  
hnaughton@napolilaw.com  
978-852-3643

## Documentation

In order to participate in these settlements, public water systems need to submit four different forms to the Claims Administrator:

01	A completed IRS Form W-9.
02	Evidence of any remedial action taken for PFAS.
03	Documents showing the maximum flow rate per source.
04	Documents showing the maximum permitted flow rate per source.

## Looking to Learn More?

You can visit NRWA's website by scanning the QR Code below to learn more about the PFAS Cost Recovery Program and PFAS in general.



---

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2528 Thrush Road  
Charlottesville, VA 22901  
Phone: (800) 836-1011  
*See Our Ad Page 8*

**\*Stantec Consulting Services, Inc.**  
320 Southview Drive, Suite 102  
Bridgeport, WV 26330  
Phone: (304) 816-5199  
*See Our Ad Page 6*

**\*\*The EADS Group, Inc.**  
250 Scott Avenue  
Morgantown, WV 26508  
Phone: (304) 212-5927  
*See Our Ad Page 38*

**\*\*\*The Thrasher Group, Inc.**  
600 White Oaks Blvd.  
Bridgeport, WV 26330  
Phone: (304) 624-4108  
*See Our Ad Page 28*

## CONTRACTORS

**\*Breckenridge Corporation**  
P.O. Box 247 Brickyard Road  
Buckhannon, WV 26201  
Phone: (304) 472-3350  
*See Our Ad Page 38*

## Laboratories

**\*Mineral Labs, Inc.**  
P. O. Box 549  
Salyersville, KY 41465  
Phone: (606) 349-6145

**\*Pace Analytical**  
225 Industrial Park Road  
Beaver, WV 25813  
Phone: (800) 999-0105  
*See Our Ad Page 32*

**\*Pleasants Construction**  
24024 Frederick Road  
Clarksburg, MD 20871  
Phone: (301) 428-0800

**\*Preiser Scientific**  
94 Oliver Street  
St. Albans, WV 25177  
Phone: (800) 624-8285  
*See Our Ad Page 36*

# WVRWA Associate Members - Fall, 2025

\*Associate Member • \*\*Sponsoring Associate Member  
\*\*\* Sustaining Associate Member

## Services and Products

### **\*Advanced Rehabilitation Technology**

525 Winzeler Drive, Unit 1  
Bryan, OH 43506  
Phone: (419) 636-2684  
*See Our Ad Page 31*

### **American AVK**

128 Pistole Rd.  
Sparta, TN 38583  
Phone: (775) 232-4429

### **\*\*American Cast Iron Pipe/**

#### **American Flow Control**

2257 Clairmont Drive  
Suite 220-222  
Pittsburgh, PA 15241  
Phone: (412) 721-9509  
*See Our Ad Page 3*

### **\*AMS**

1127 Judson Road, Unit 233B  
Longview, TX 75601  
Phone: (844) 475-8343

### **\*\*\*Apex Companies, LLC**

165 East Union Street  
Somerset, PA 15501  
Phone: (724) 365-6620  
*See Our Ad Page 14*

### **\*Appalachian Software, Inc.**

44 Amber Way  
Scott Depot, WV 25560  
Phone: (304) 757-1260  
*See Our Ad Page 40*

### **\*Benchmark Construction Co., Inc.**

P. O. Box 1018  
Hurricane, WV 25526  
Phone: (304) 881-1735  
*See Our Ad Page 40*

### **\*BissNuss, Inc.**

7 Court Street, Suite 260  
Canfield, OH 44406  
Phone: (330) 533-5531  
*See Our Ad Page 40*

### **\*Buchanan Pump Service &**

**Supply Co., Inc.**  
P.O. Box 827  
Pound, VA 24279  
Phone: (276) 796-5473  
*See Our Ad Page 8*

### **\*C2G Engineering, Inc.**

641 Industrial Park Road  
Beaver, WV 25813  
Phone: (681) 368-3400

### **\*\*CITCO Water**

4034 Altizer Avenue  
Huntington, WV 25705  
Phone: (800) 999-3484  
*See Our Ad Page 6*

### **\*Clow Valve Co.**

5908 Sodom Hutchings Road  
Farmdale, OH 44417  
Phone: (330) 360-4550  
*See Our Ad Page 6*

### **\*Consolidated Pipe & Supply Co., Inc.**

907 Honeybranch Industrial Park  
Debord, KY 41214  
Phone: (606) 298-0333  
*See Our Ad Page 39*

### **\*Core & Main**

2825 Fairlawn Ave.  
Dunbar, WV 25064  
Phone: (304) 768-0086  
*See Our Ad Page 49*

### **\*CUES, Inc.**

3600 Rio Vista Ave.  
Orlando, FL 32805  
Phone: (321) 400-5144

### **\*Daman Superior**

754 Kittanning Hollow Road  
East Brady, PA 16028  
Phone: (724) 664-6089  
*See Our Ad Page 5*

### **\*Dorsett Controls**

486 N. Patterson Ave., Suite 301  
Winston-Salem, NC 27101  
Phone: (855) 387-2232  
*See Our Ad Page 50*

### **\*DRV, Inc.**

6 Commerce Drive  
Pittsburgh, PA 15239  
Phone: (412) 247-4816  
*See Our Ad Page 40*

### **\*Eastcom Associates**

185 Industrial Parkway, Suite G  
Branchburg, NJ 08876  
Phone: (908) 722-7774

### **\*Edmunds GovTech**

301 Tilton Road  
Northfield, NJ 08225  
Phone: (609) 645-7333

### **\*\*E.J. Prescott, Inc.**

7980 Center Point 70 Blvd.  
Huber Heights, OH 45669  
Phone (937) 941-5716

### **\*\*EPC Ltd.**

201 North 4th Street  
Clarksburg, WV 26301  
Phone: (252) 362-0680

### **\*Extreme Endeavors**

1063 Hickory Corner Rd.  
Philippi, WV 26416  
Phone: (304) 457-2500  
*See Our Ad Page 36*

### **\*Ferguson Waterworks**

698 Middletown Rd.  
White Hall, WV 26554  
Phone: (681) 404-2857  
*See Our Ad Page 35*

### **\*\*Forberg Smith**

800 Old Pond Road, Suite 705  
Bridgeville, PA 15017  
Phone (412) 420-7262

### **\*Ford Meter Box**

775 Manchester Avenue  
Wabash, IN 43056  
Phone: (260) 563-3171  
*See Our Ad Page 40*

### **\*Fortiline Waterworks**

7025 Northwinds Drive NW  
Concord, NC 28027  
Phone: (704) 788-9800  
*See Our Ad Page 36*

### **\*\*\*FPG**

605 Sheridan Rd., Suite 100  
Noblesville, IN 46060  
Phone: (317) 565-5012  
*See Our Ad Page 26*

### **\*Gilson Engineering Sales, Inc.**

535 Rochester Road  
Pittsburgh, PA 15237  
Phone: (304) 342-0012

### **\*Golden Equipment Co., Inc.**

P.O. Box 873  
Mars, PA 16046  
Phone: (800) 242-1494

### **\*Hawkins, Inc.**

1161 Commercial Ave., S.E.  
New Philadelphia, OH 44663  
Phone: (573) 881-0756  
*See Our Ad Page 32*

### **\*HESCO**

26620 Rose Rd.  
Westlake, OH 44145  
Phone: (440) 249-9367  
*See Our Ad Page 40*

### **\*Infratech Solutions, LLC**

6004 Wellesley Drive  
Wilmington, NC 28409  
Phone: (910) 617-0291  
*See Our Ad Page 49*

### **\*\*ISCO Industries**

100 Witherspoon 2 West  
Louisville, KY 40202  
Phone (502) 439-8211  
*See Our Ad Page 50*

### **\*\*\*JABO Supply Corporation, Inc.**

5164 Braley Street  
Huntington, WV 25705  
Phone: (304) 736-8333  
*See Our Ad Page 27*

### **\*JHA Companies**

466 S. Main Street  
Montrose, PA 18801  
Phone: (844) 542-4757  
*See Our Ad Page 40*

# WVRWA Associate Members - Fall, 2025

\*Associate Member • \*\*Sponsoring Associate Member  
\*\*\* Sustaining Associate Member

## \*Learco Equipment Company

13032 Frankstown Road  
Pittsburgh, PA 15235  
Phone: (412) 221-4888  
*See Our Ad Page 8*

## \*Maryland Biochemical Co., Inc.

712 Tobacco Run Drive  
Bel Air, MD 21015  
Phone: (800) 771-7252  
*See Our Ad Page 49*

## \*\*\*Master Meter, Inc.

101 Regency Parkway  
Mansfield, TX 76063  
Phone: (937) 902-4663  
*See Our Ad Page 25*

## \*McWane Ductile

2266 South 6th Street  
Coshocton, OH 43812  
Phone: (330) 260-9292  
*See Our Ad Page 6*

## \*Mid Atlantic Storage Systems, Inc.

1551 Robinson Road, SE  
Washington Court House, OH 43160  
Phone: (740) 335-2019  
*See Our Ad Page 56*

## \*Miller Environmental, Inc.

320 S. 17th Street  
Reading, PA 19602  
Phone: (610) 376-9162  
*See Our Ad Page 36*

## \*\*Mountaineer Generator Service

400 Airport Road, Suite 7  
Elkins, WV 26241  
Phone: (304) 636-0011

## \*Nexbillpay, LLC

2416 Green Springs Highway  
Birmingham, AL 35209  
Phone: (800) 639-2435

## \*\*Nicholas Printing Inc.

1109 Broad Street  
Summersville, WV 26651  
Phone: (304) 872-5906  
*See Our Ad Page 38*

## \*\*Pittsburg Tank & Tower Maintenance Co.

P.O. Box 913  
Henderson, Ky 42419  
Phone (270) 826-9000

## \*\*Pennoni

117 E. Piccadilly St.  
Winchester, VA 22601  
Phone: (540) 771-2091  
*See Our Ad Page 8*

## \*\*\*Precision Pump & Valve Service, Inc.

P.O. Box 7027  
Charleston, WV 25356  
Phone: (304) 776-1710  
*See Our Ad Page 2*

## \*ProSource Water Products, Ltd.

14680 Pleasant Valley Road  
Chillicothe, OH 45601  
Phone: (888) 772-5478  
*See Our Ad Page 6*

## \*\*PumpMan West Virginia

1740 Union Carbide Drive, Bldg 740  
South Charleston, WV 25303  
Phone: (304) 444-0227  
*See Our Ad Page 45*

## \*\*Pump Tech, Inc.

P.O. Box 263  
Milton, WV 25541  
Phone (304) 743-6573

## \*Quality Water Services, LLC

160 John Street  
Weston, WV 26452  
Phone: (304) 269-0072  
*See Our Ad Page 8*

## \*Service Pump & Supply Co.

P.O. Box 2097  
Huntington, WV 25721  
Phone: (304) 429-6731  
*See Our Ad Page 6*

## \*\*Shafer, Troxell & Howe, Inc.

97D Monocacy Blvd.  
Frederick, MD 21701  
Phone: (301) 682-3390  
*See Our Ad Page 5*

## \*\*Smith-Midland Corporation

P.O. Box 300  
Midland, VA 22728  
Phone: (540) 439-3266  
*See Our Ad Page 31*

## \*Southern Corrosion, Inc.

738 Thelma Road  
Roanoke Rapids, NC 27870  
Phone: (434) 262-1613  
*See Our Ad Page 50*

## \*State Equipment Inc.

P.O. Box 3939  
Charleston, WV 25339  
Phone: (304) 776-4405  
*See Our Ad Page 6*

## \*\*Sullivan Environmental

2146 Chamber Center Drive  
Ft. Mitchell, KY 41017  
Phone (412) 580-2753

## \*Tepco-Trombold Equipment Co., Inc.

P.O. Box 897  
Mars, PA 16046  
Phone: (724) 625-4260  
*See Our Ad Page 31*

## \*Thompson & Litton

1105 Mercer Street  
Princeton, WV 24740  
Phone: (304) 425-9555  
*See Our Ad Page 35*

## \*United Systems & Software, Inc.

91 Southwest One Blvd.  
Benton, KY 42025  
Phone: (800) 455-3293

## \*\*U.S. Pipe & Foundry Co., Inc.

2247 Maiden Lane  
Roanoke, VA 24015  
Phone: (540) 353-7425

## \*\*\*USA Bluebook

3781 Burwood Dr.  
Waukegan, IL 60085  
Phone (847) 689-3000

## \*Utility Solutions, Inc.

327 Curtis St.  
Delaware, OH 43015  
Phone: (740) 369-4300  
*See Our Ad Page 49*

## \*\*Utility Technologies, LLC

1054 Monroe Rd., Suite 105  
Lebanon, OH 45036  
Phone: (513) 488-1940  
*See Our Ad Page 10*

## \*Valtronics, Inc.

P.O. Box 490  
Ravenswood, WV 26164  
Phone: (304) 273-5356  
*See Our Ad Page 32*

## \*\*\*Verdantas

2001 Main Street  
Wheeling, WV 26003  
Phone (304) 232-2784  
*See Our Ad Page 49*

## \*Warren Pump & Supply

1551 Jackson Avenue  
Huntington, WV 25704  
Phone: (304) 429-6723  
*See Our Ad Page 41*

## \*Water Development Authority

1009 Bullitt Street  
Charleston, WV 25301  
Phone: (304) 414-6500  
*See Our Ad Page 36*

## \*Zenner USA

15280 Addison Road, Suite 240  
Addison, TX 75001  
Phone: (972) 386-6611

## \*120Water

250 S. Elm Street  
Zionsville, IN 46077  
Phone: (317) 507-2024  
*See Our Ad Page 36*

## WVRWA Welcomes New Members

**Associate Members**  
Civil & Environmental Consultants, Inc.  
Cues, Inc.



**Sponsoring Members**  
David Grossman & Associates, PLLC  
E.J. Prescott, Inc.  
Forberg Smith  
Ghosh Engineers, Inc.  
ISCO Industries  
Pittsburg Tank & Tower Maintenance Co.  
Pump Tech, Inc.  
Sullivan Environmental

**Sustaining Members**  
USA Bluebook  
Verdantas



## NON-COMMUNITY MEMBERS

Big Bear Lake Camplands  
National Radio Astronomy Observatory

Peterkin Camp & Conference Center  
Valley Vista Adventist Center

## AFFILIATE MEMBERS

Ashland Scenic Campground  
Black Bear Woods Resort  
Global Capital of World Peace, Inc.  
Knobley Mountain Water System

Mettiki Coal, LLC  
The Newell Company  
Spring Heights Camp

## INDIVIDUAL MEMBERS

Jay Anderson	John E. Cobb	Kevin "Ricky" Ham-	Patricia Lee	Courtney Neese	Paul David Stover
Kelly Arnold	Brandon Conley	rick, Jr.	Jessie Linville	Richard Ohalek	Mark Sullivan
Brooke Barnhart	Bruce Darner	Kevin R. Hamrick, Sr.	Janna Lowery	Mark Place	Shawn Thompson
Timothy Bennett	Matt Dawson	Michael Hawranick	Julie Merow	Colin Rimel	Doug Urling
Tyler Bragg	Mark Dearman	John Inghram	Dean Miller	Jason Roberts	Kristina Ward
John Bresland	Jeff Ekstrom	Ernie Jack	James Mitchell	Tony Shirkey	Frank Welch
H. Tom Brown	Benjamin Erste	Jim Klein	Kelly Ann Naylor	Jonathan Stanley	Louis Wooten
Kennon Chambers	Samme Gee	Brian Lanham	Gregory Neely	Matthew Stanley	Gary Young



# RURAL WATER Loan Fund

## About The Program

The NRWA Rural Water Loan Fund (RWLF) is a funding program specifically designed to meet the unique needs of small water and wastewater utilities.

The RWLF provides low-cost loans for short-term repair costs, small capital projects, or pre-development costs associated with larger projects. The RWLF was established through a grant from the USDA/RUS, and repaid funds used to replenish the fund and make new loans.

Apply today by contacting your State Rural Water Association or NRWA!



## Reasons to Apply

- Reasonable interest rates
- No administrative or processing fees
- Straightforward application process and quick turnaround
- Systems must be public entities serving up to 10,000 persons, or in rural areas with no population limits
- Loan amounts may not exceed \$200,000 or 75% of the total project cost, whichever is less
- Emergency loans are 90-day no interest, with immediate turn around on applications

## Eligible Projects

- Pre-development (planning) costs for infrastructure projects
- Replacement equipment, system upgrades, maintenance and small capital projects
- Energy efficiency projects to lower costs and improve sustainability
- Disaster recovery or other emergency loans available

Applications, information and forms can be downloaded from the NRWA website at [nrwa.org](http://nrwa.org) or by scanning the QR Code above. For help, please call 1.800.332.8715 or email [nrwarwlf@nrwa.org](mailto:nrwarwlf@nrwa.org).



National Rural Water Association is an equal opportunity provider and employer. This material is based upon work supported by the Rural Utilities Service, United States Department of Agriculture.

WEST VIRGINIA RURAL WATER ASSOCIATION  
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# RURAL WATER STRONG



**USDA Rural Development Water and Environmental Programs has consistently supported rural communities in completing necessary upgrades to their water and wastewater facilities.**

**WEP is instrumental in helping rural America maintain affordable water access for all rural people, and it is imperative that Rural Water's voice and priorities are heard within the Halls of Congress and within our nation's leadership. Through our combined thousands of rural leaders from every state, we can ensure Congress and the Trump Administration know that WEP is the trusted partner for rural America and must be maintained.**

**Please Sign the Pledge  
Scan the QR Code**

