Spring 2020

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- Cross-Connection and Backflow Prevention
- How to Stay Viable in a Changing Profession
• **SmartRun** technology greatly reduces energy costs with pre-programmed functions and parameters that maximize run-time and self cleaning efficiency.

• **Adaptive-N** impellers move axially upward when necessary to allow bulky objects such as rags and other tough debris to pass through smoothly.

• **Flygt’s N-technology** utilizes adaptive hydraulics to provide clog-free, self cleaning performance.

• The **Experior’s** Premium Efficiency motors are engineered to maintain lower temperatures in the motor which drastically extends life of the motor and bearings.

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**24/7/365**
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.
As I sit here in March 2020 and begin to write my message for the Spring issue of the WVRWA Mountain State Water Line, I, like many of you, wonder what is going to happen with the spread of the COVID-19 virus. I have asked myself a hundred times, “Have I done enough to protect my family, my coworkers, and the community I serve?” The answer to that question will come with time. If there were issues with supply chains and we could not get the necessary chemicals or repair materials, I could be second guessing myself about if/what more could have been done. I imagine that each of you will have asked yourself the same questions and experienced this shared anxiety. I hope and pray that by the time our 35th Annual Training and Technical Conference is held this coming August the worst will be far behind us and everyone we love, know, and serve will have come through this pandemic safe and healthy.

In my last message, I let our members know that WVRWA was not going to actively pursue further deregulation, instead we would give Charlotte Lane, Chairperson of the Public Service Commission of West Virginia, the opportunity to demonstrate her commitment to improving the way rate cases are processed by the PSC. It gives me much pleasure to report that Chairperson Lane has been true to her word. By lifting the two (2) year funding limit for the 1/8 Working Capital Fund, she is allowing the Municipalities and Public Service Districts to have the revenues desperately needed for major repairs and significant infrastructure replacement.

As I applaud Chairperson Lane for recognizing the need for additional revenues and putting her trust in West Virginia’s Municipalities and Public Service Districts to make the right decisions for our customers, I can’t help but think that if the Commission never would have ordered a cap to be placed on the 1/8 Working Capital Fund, every Municipality and Public Service District would be in a much better financial state to confront this COVID-19 pandemic.

Throughout my career in the water and wastewater industry, Municipalities and Public Service Districts have been plagued by the “Regulatory Uncertainty” of the Public Service Commission. Even when legislation is passed addressing revenue requirements, the Commission has found a work-around to circumvent the legislative intent and to issue its own directives. Water and wastewater utilities should always be able to count upon the regulatory authority of the Commission to be stable and certain, but this has not been the case.

Chairpersons come and go; with their own ideas, intentions, and objectives as to how Municipal and PSD utilities should be regulated going with them. As we move forward, perhaps, Chairperson Lane will provide more regulatory stability for our industry. With many of our WVRWA members being affected by the Appalachian Power Company request for a rate increase, we are looking to the Commission for proof of a stable and predictable regulatory authority. Instead of placing unnecessary obstacles in our way to recovering those expenses, I hope the Commission will make the pass-through seamless for our members when that time comes.
Online Training Classes

WVRWA has teamed up with SunCoast Learning Systems, Inc. to bring online computer-based water and wastewater training to operators throughout the state. Through WVRWA Online Learning, you now have the freedom to learn from home, the office, or your local library. Training can be accessed directly from your personal computer using your internet connection.

Water and wastewater operators registering for e-Learning courses will have a menu of courses from which to choose. We are constantly adding and updating courseware to reflect changing industry needs and regulations. For more information, you can visit www.wvrwa.org or contact the office at 800-339-4513. Some of the available courses are shown below.

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The rules of the Kentucky Supreme Court require the following statement: This is an advertisement. Jackson Kelly PLLC has a wholly-owned subsidiary law firm, JK Minerals Law Group PLLC.
The 2020 session has come and gone and it was a busy one for water issues of all shapes and sizes! What looked to be a somewhat sleepy session soon became one full of debate, discussion, and resolution. From issues dealing with distressed and failing water and wastewater systems to whose responsibility back flow prevention devices are to updating boil water advisory notices to today’s technology to new regulatory initiatives to encourage system acquisitions to debate about developers accessing publicly owned water and wastewater mains to testing and regulatory limits of PFOS and PFOAs, there was truly a lot to talk about.

We were able to work through several of these issues and were able to kill a few issues and, all in all, I think we had a pretty good session. As usual, I owe a big thanks to the board members who comprise our legislative committee for their counsel as we began the session, knowing there were some big issues coming our way. I also want to thank our two lobbyists, Howard Mullens and Joe Ward.

This is Howard’s last session because he is retiring. I cannot measure Howard’s worth in terms of his wise advice, calm demeanor, and legislative people and process knowledge. We wish him well in what lies ahead.

While Howard is leaving us, Joe came on board and quickly proved his worth as we were thrown into the backflow prevention device bill. He worked very well with the bill sponsor to ensure that WVRWA’s position was properly presented. He was also at the capitol on the last night of the session until 11:00 pm to ensure that the bill properly completed legislative actions. His insight and smarts are a big asset.

Last, but most certainly not least, a huge thank you to all of you. Because of your continued action and interaction with your legislative delegation, we were able to pass beneficial legislation and to kill bad legislation. Keep up the good work throughout the remainder of the year.

This is my last legislative session and it ends an adventure that began for me the first week of February 1976 when I came to Charleston for a legislative internship through Parkersburg Community College. I could never have imagined that the legislative and public policy bug would hit me, but it did. I have seen many legislators come and go and many great friends, as well. Thank you for allowing me to spend the last six sessions representing you. It has been an honor and a privilege.
Since 1976, all water systems are required to have and implement a Cross Connection/Backflow Prevention Control program. Unfortunately, these programs were written and shoved in a desk and not given any more thought. But, should we stop and give Cross Connection some more thought? I can answer that question – YES! This year the Legislature passed House Bill 2961. It is currently awaiting the Governor’s signature. You should review the bill and its requirements before doing anything.

First, let’s ask the question, what is a Cross Connection Control Program? Simply, it is a program, or a process, to identify, eliminate, monitor, protect, and prevent cross-connection from allowing the backflow of non-potable water into the potable water supply. Therefore, as our number one priority as operators is to protect public health, then it is our job to protect the water of our Public Water System from questionable water.

When a cross-connection exists in our Public Water System, it can allow the backflow of liquids, gases, or other substances into the water system. Backflow is liquid flowing through a pipe in the opposite direction that it was intended to flow. Equal pressure in the piping means that there will be no movement of liquids in the pipe, when pressure less than, or greater than, exists in the pipe; it will cause the liquid to flow toward the area of lowest pressure to equalize the pressure in both pipes.

The cross-connection can happen from a direct link, such as when the home owner is hooked up to city water and also keeps a personal well. It can also be an indirect link - this can be the spray hose from a sink left in the water. Also, temporary connections can be a cross-connections - this can be an outside hose left in a small swimming pool. Cross-connections are a dynamic problem because piping systems are continually being installed and altered. These problems can be handled through a comprehensive plan based on knowledge and vigilance.

West Virginia requires that all cross-connections have a backflow prevention device based on degree of health hazard and pressure conditions. Hazards can either be high or low. High meaning that a potential health risk exists from a cross-connection, while low meaning that it is a non-health risk. The degree of hazard at the cross-connection will determine the type of device or assembly required for protection. A backflow preventer is a device, assembly, or method that prohibits the backflow of non-potable water into the potable water supply system through a cross-connection.

Currently, West Virginia recognizes three devices and/or methods. The first is an “air gap.” An “air gap” is a physical separation between the Public Water System and a non-potable system. The gap must be two times the inside diameter of the pipe, but never less than one inch. The air gap can be used in areas of high hazard. When installed properly, it prevents any backflow from occurring, regardless of pressure or degree of hazard. It is one hundred percent effective if installed properly and not altered. The advantages of an air gap is there are no moving parts, no testing required, and it is inexpensive and easily installed. The next approved device is a “Double Check-valve
Assembly.” This is an assembly composed of two independently acting approved check valves, including tightly closing resilient seated shut-off valves located at each end of the assembly, and fitted with four properly located test cocks. The DCVA is only used in low hazard situations. While this assembly has test cocks, one does not know when it is in fail mode by sight - it has to be tested. The final backflow device is the one most utilities will see in the system, it is the “Reduced Pressure Zone Assembly (RPZ).” This is an assembly consisting of a mechanical, independently acting, hydraulically dependent relief valve, located between two, internally loaded, independently operating check valves, located between two tightly closing resilient-seated shutoff valves with four properly placed resilient-seated test cocks. This unit is used in high hazard areas, such as funeral homes and hospitals. When it is in fail mode, water leaks from the unit, so one knows immediately that is in fail mode. The device is required to be tested every year, at the customers’ cost, by a certified backflow device tester.

So where is your cross-connection backflow prevention plan? Maybe it’s time to get it out and update the plan. This is one barrier in the “multi-barrier approach” to provide safe potable water to our customers, let’s work the plan. See you in class! ■

WWW.WVRWA.ORG

FLEET Program

- The National Rural Water Association has created partnerships with motor groups to offer discounts to State Rural Water Associations and their utility system members.

- Member utilities should contact their State Rural Water Association to access the Rural Water Fleet Program.
Community water fluoridation (CWF) is safe, effective, and necessary to protect teeth at all ages. That’s the conclusion of every major health organization in the United States, including the American Water Works Association. Evidence from years of experience demonstrates that communities with fluoridated water have less tooth decay.

For years, water operators across the nation have utilized Fluoridation Facts as a quick, go-to reference when confronted with questions from customers, such as do adults benefit from water fluoridation, does water fluoridation adversely affect human health, and is fluoride a medicine? For a FREE copy of Fluoridation Facts, please contact Gina Sharps at sharpsg@marshall.edu or you can download a FREE copy at https://ebooks.ada.org/fluoridationfacts/

Here are a few interesting facts specific to community water fluoridation to assist you in your day-to-day operations.

1. Fluoride is good for teeth, and to have good health, you need healthy teeth.

Fluoride is a mineral known to be safe and effective at preventing tooth decay. There is no scientifically valid evidence to show that fluoride causes cancer, kidney disease, or other disorders.

The Facts:
- A U.S. Public Health Service review concluded that “Expert panels which reviewed this international body of literature agree that there is no credible evidence of an association between either natural fluoride or adjusted fluoride in drinking water and human cancer.”
- Drinking fluoridated water has not been shown to cause or worsen conditions of the thyroid, kidney, heart, or other glands/organs. The only proven risk associated with excess fluoride is a cosmetic condition known as dental fluorosis.

2. The fluoride in water does not typically cause fluorosis.

Dental fluorosis is a minor change in the appearance of the teeth, usually resulting in faint white marks on the enamel. People anywhere can have fluorosis, even in communities that do not add fluoride to the water.

The Facts:
- Fluorosis occurs when young children get too much fluoride, over an extended period of time, while their teeth are still growing under the gums. Toothpaste contains a higher concentration of fluoride than water. This is why parents of children under the age of 6 are advised to supervise toothbrushing and use the right amount of toothpaste.
- In 2015, the Department of Health and Human Services recommended a reduced amount of fluoride in water. This is good news. As we get fluoride from a variety of sources, we can add less to our water.

3. The fluoride added to drinking water is regulated for safety.

Fluoride is a mineral that is mined from phosphate rock. In nature, fluoride dissolves into water and is found in water throughout the world. Much like iron and calcium, fluoride is also present in a wide variety of consumer products.

The Facts:
- Fluoride is mined from phosphate rock, a process that also results in ingredients for other consumer products. For example, phosphoric acid is added to beverages like Coke and Pepsi. Although fluoride is extracted from the same phosphate rock that is used to create fertilizer, it is not a by-product of the fertilizer industry.
- The quality and safety of fluoride additives are ensured by Standard 60, a program commissioned by the Environmental Protection Agency (EPA). Standard 60 is a set of standards created and monitored by an independent committee of health experts. This committee provides regular reports to the EPA.

4. Well water in some locations can have too much natural fluoride.

In some U.S. communities, the natural fluoride levels in well water or aquifers are unusually high, sometimes higher than the recommended amount in public water systems, according to the National...
Research Council.

The Facts:

• In 2006, a National Research Council (NRC) report raised concerns about high levels of fluoride, but stated that its report was not an evaluation of community water fluoridation, which was “outside the scope of this report and is not evaluated.”

• The Centers for Disease Control and Prevention (CDC) wrote that the NRC’s findings “are consistent with CDC’s assessment that water is safe and healthy at the levels” used for water fluoridation.

5. Comparing fluoridated and non-fluoridated communities shows that fluoride is really effective.

All over the world, comparisons show that people living in communities with fluoridated water have better oral health than those who don’t.

The Facts:

• There is lots of proof that fluoridated water protects teeth. Since 2010, studies from Nevada, New York, and Alaska have added to the overwhelming evidence that fluoridated water protects teeth from decay. Earlier studies from New Zealand and Great Britain also showed better oral health where there was fluoridation.

• Products such as fluoride toothpaste, tablets, and varnish are proven effective through tests called randomized clinical trials.

• “Randomized” studies of fluoridation can’t be performed. That would require dividing a community into two groups: where one group of homes receive fluoridated water and the other does not. The danger of removing fluoride is that those households will, over time, have more tooth decay. Instead of setting up such a study, we rely on the entire body of evidence to demonstrate the effectiveness of fluoride.

6. Fluoridated water is safe for plants, animals, and fish.

Fluoride occurs naturally in streams, rivers, and lakes all over the world. The average fluoride level in ocean water is much higher than public water systems.

The Facts:

• The amount of fluoride added to public water systems does not harm plants or animals. And research shows that even high levels of fluoride do not have a toxic effect on plants in places like ponds.

• The average fluoride level in ocean water (1.4 milligrams per liter) is much higher than what is used to fluoridate public water systems. No reputable source has identified any negative effects on salmon or other fish that live in the ocean.

7. Fluoride, like iron and calcium, is a mineral, not a medicine.

Fluoride is added to water for the same reasons that vitamin D is added to milk: it’s a brilliantly simple way to provide many, many people with an important health benefit.

The Facts:

• Fluoride is a nutrient, not a medicine. Medicine is used to cure or control a medical problem that has already been diagnosed, such as hay fever or high blood pressure. Fluoridated water is not a cure; it’s a proven way to prevent a medical problem: tooth decay.

• Fortifying drinking water with fluoride is a lot like fortifying milk with Vitamin D. These additives prevent poor health. America has a history of fortifying foods or beverages to strengthen health—for example, adding iodine to table salt, fortifying milk with Vitamin D, and adding folic acid to breads and cereals.

No one can feel healthy when their teeth are infected and causing pain. The bad news is that tooth decay is still really common. The good news is that it’s really easy to prevent. Fluoride is both safe and effective.

A special thank you to Sugar Creek Public Service District for their commitment to community water fluoridation. Pictured here are Garland Rose and Lucas Marks accepting the Centers for Disease Control and Prevention, American Dental Association, and Association of State and Territorial Dental Directors 50 Year Award for their contributions made on behalf of community water fluoridation. Congratulations!
Sources


18 Micronutrient Information Center: Fluoride. Linus Pauling Institute, Oregon State University website.
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The Greenbrier County Public Service District #2 is located in western Greenbrier County in Rainelle, West Virginia. The Public Service District was formed in 1970 to supply the towns of Rainelle, Rupert, and Quinwood with sanitary sewer services, which previously had all these towns sewers flowing into the nearby streams. During the process of planning for all the new sewer mains, the District was approached with the opportunity to take over and run the old Crichton Water Treatment Plant located in Quinwood, WV, and has been a part of the PSD ever since.

The District has three board members: Chairman Howard McQuain, who has been with the District since 1998, Treasurer Gene Whisman, who has been with the District since 2005, and Secretary Panfilo Dimascio, who has been with the District since 2008. Each of the board members represents the areas that the District serves. Between these gentlemen, they have close to fifty years of service to the District and its customers.

Kevin Williams (Left) is the District’s General Manager and has been with the District for almost forty years. Kevin was also the Chief Operator at the wastewater treatment plant for twenty-five years and still holds his class 2 wastewater license.

When you stop in at the District’s Office, you will be greeted by four lovely ladies who really know their stuff and are the backbone of the system. Pictured above from left to right are Annie Legg, who has been the Office Clerk for close to eight years; Donna Moore, who is Office Manager with thirty-one years of service to the District; Tammy Redden, who has been a Water Clerk for thirty years; and Donna Gilkeson, who has been a Wastewater Clerk for nineteen years. As Office Manager, Donna Moore’s reliability keeps the cogs turning and the wheels rolling smoothly with very few bumps.

The Greenbrier County Public Service District #2 serves 3,431 customers with sanitary sewer services and prime drinking water. The wastewater from the towns of Rainelle, Quinwood (2,670 customers) all flow to the wastewater treatment plant in Rainelle. The District’s water treatment plant at Quinwood serves drinking water to 761 customers. 469 of those customers are in the Quinwood and surrounding area, while the other 292 customers are among the new water extension project that consists of 38 miles of new water lines extending past Rupert to US interstate 64 at Sam Black, WV.

Several years ago, the Greenbrier County Commission approached the Greenbrier Co. PSD #2 about extending water services to the Sam Black area. I’m sure that most of you know it literally takes years to secure grants, loans, permits, easements, jumping through the hoops for the Public Service Commission, Health Dept., DEP, and any other primacy agencies that I didn’t mention in order to just break ground. In essence, it took a very, very long time to come up with the right plans, the right people, and the right time to “Git-R-Done”. And that right time (for breaking ground to finish) was June 2018 through approximately July 2019.

In order to supply an extra 292 customers with prime drinking water, the District would have to make a few upgrades to their water treatment plant, such as, a whole new water treatment plant and installation of over 38 miles of new water lines. The
District has relied on The Thrasher Group for their engineering firm for a very long time and they also designed the water treatment plant. The new water treatment plant construction crew of Brackenridge & Associates Corp. performed far and beyond expectations. Tribute Construction & Consultants handled the water line extension. And Mid Atlantic Storage Systems built a new 183,000-gallon storage tank (below left) and a 303,000-gallon settling tank (below right) at the water treatment plant site.

(Pictured below) The water treatment plant is manned by Chief Operator Stephen Howard Jr. (left). Stephen has over 22 years with the District and is a Class 1 Water Operator and Class 2 Wastewater Operator. Rusty Loudermilk (middle) has over 10 years with the District and is a Distribution Operator. John Hamrick (right) has over 12 years with the District and is an OIT for Water and has a WW Collection System Certification.

With a brand-new water treatment plant, Chief Operator Stephen Howard Jr. just grins from ear to ear every time I drop by to see him and ask how the new plant is running. When asked what his favorite thing about the new plant is, Stephen replied; “It’s all automated.” Before, everything that was done was done manually. Now, all you have to do is click a button on a computer screen to turn on pumps, motors, backwashing, etc. The new filter tanks are all stainless steel and are beautiful. The system was able to seriously upgrade their production of raw water pumping from 300 gallons per minute to 600 gallons per minute and average a rate of 500 gallons per minute.

Before the upgrade to the system, the District had three primary raw water sources and, with the upgrade, were able to add a fourth, which, in combination, they call the Old Leslie Mine Source. (Absolutely, some of the clearest, coldest, and best water I have tasted). Their secondary raw water source is a well approximately ¾ of a mile away from the treatment plant. More upgrades for the system include four water storage tank rehabilitations and the painting of two existing tanks inside and out. With the 38 miles of new water line extension, the system was able to upgrade to all radio read meters (Sensus I Pearls). Last, but not least, the District is waiting on a new utility truck (2020 Model Ford F250) with a tool bed, hopefully, to be received before summer. Total cost for the project was $8,903,301 through DWTRF (Drinking Water Treatment Revolving Funds) Loan and an IJDC Grant.
Thank You Letters

Town of Elizabeth
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Mayor: Bill Smith
Council: Earl South, Charles F. Taylor, Brian Saller, Bobbi Moore
February 20, 2020
West Virginia Rural Water Association
100 Young Street
Scott Depot, WV 25560

To Whom It May Concern:
The Town of Elizabeth would like to take this opportunity to say a huge thank you to Rural Water and especially Mr. Jim Johnson for the service he provided to the Town.

Mr. Johnson came and performed some smoke testing for us and it proved to help us considerably. As a small system we cannot afford to purchase this equipment to only be used occasionally and the service you provide is invaluable to us.

We have used your services for both our water and wastewater systems, we feel this is a very valuable resource to small departments such as ours and indeed very valuable these services very much.

Again thank you for the service and your time.

Dale Clark
Dale Clark
Supervisor
Bobbi Moore
Bobbi Moore
Mayor

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MOUNTAIN STATE WATER LINE 19
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- E-Verify
- Credit Reports
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The water profession has seen many changes over the last several years. With regulatory compliance issues and advances in technology being the driving forces of our profession, we must develop the courage and confidence to change. This is why we need to develop a new way of thinking, a way to operate our utilities in an efficient and economical manner without sacrificing water quality and customer service.

There are three important components of the thinking process that I call the “CCT approach”. It stands for courage, confidence, and tenacity. It requires the courage to admit that we need to change our way of thinking to remain viable as a rural utility. It means having the confidence to develop a plan and having the tenacity to implement that plan. For a utility to remain successful and viable, it must work toward achieving full capacity. Capacity is the water system’s ability to consistently provide safe drinking water for its consumers. It is the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Capacity, as outlined in the 1996 Safe Drinking Water Act Amendments, has three components and they are technical, managerial, and financial. Adequate capacity in all three areas is necessary for a system to achieve its “full” capacity. The process of capacity development entails that there is no static endpoint. That is, to maintain capacity, a system must work daily to continually improve its financial and managerial operations. It must also work to improve its performance in providing safe water that meets or exceeds all regulatory standards. This process of capacity development implies adaptability. A system with capacity has the ability to adapt to change and meet higher standards.

Capacity development requires a continual process of self-assessment by the utility’s administrators and managers. Does the utility have adequate and quality staff to conduct necessary operations and maintenance tasks? Is the administration committed to water quality first and quantity second? Is an adequate budget being provided? Poor rate structuring can create a lack of funding for staffing, maintenance, and capital improvements. This in turn creates a poor work environment that is plagued with low employee morale.

Decision makers need to fully understand their responsibility for public health and the need to make safe drinking water a top priority. Utilities should be as self-sustaining as possible with a sound budget and adequate staff. Insufficient rates can also result in a dependence upon grants, which in reality are cross-subsidies by taxpayers. While various grant programs can alleviate short-term financing burdens for recipients, they can also obliterate the incentive to be fiscally responsible by charging adequate rates to support the financing and investments needed for long-term viability.

Viability requires a commitment to excellence. It involves planning and teamwork. It means never resting on your laurels. It includes providing system personnel with the resources to do their jobs correctly. It includes training for staff and board/council members, purchasing new equipment, and embracing new technology. It entails providing competitive compensation for employees. Viability also requires regular communication with customers to build their support and trust. Courage, confidence, and tenacity can make it all happen.
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For NRWA assistance, please contact:

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Products & Services Coordinator
and Corporate Membership
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580.251.5081
dawn@nrwa.org

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Eligible Projects

- Planning costs for infrastructure projects
- Replacement equipment, system upgrades, maintenance and replacement capital projects
- Energy efficiency projects to lower costs and improve system sustainability
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- Disaster recovery or other emergency loans available

Contact your State Rural Water Association or National Rural Water Association for help with the application process.

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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.
Patients with COVID-19 have experienced mild to severe respiratory illness.

Symptoms* can include

- **FEVER**
- **COUGH**
- **SHORTNESS OF BREATH**

*Symptoms may appear 2-14 days after exposure.

If you have been in China or in close contact with someone with confirmed COVID-19 in the past 2 weeks and develop symptoms, call your doctor.

For more information: [www.cdc.gov/COVID19](http://www.cdc.gov/COVID19)
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- Avoid close contact with people who are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Avoid touching your eyes, nose, and mouth.
- Clean and disinfect frequently touched objects and surfaces.
- Stay home when you are sick, except to get medical care.
- Wash your hands often with soap and water for at least 20 seconds.

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I
nflow and infiltration, one of the big trouble spots at many wastewater facilities in WV. I & I probably cause operators and collection system supervisors more headaches than any other issue in the business. Plants that, otherwise, operate wonderfully, struggle under high flow conditions. Sometimes, there is just so much water that it is hard to do anything with it all. Since the implementation of the Clean Water Act in 1972, most systems have put a high flow plan in place. Most systems, at this point, have dry weather pollution under control, so the focus of regulators have shifted to wet weather contamination. Overflows at the treatment facility and bypassing at Combined Sewer Overflow points significantly affect the quality of the receiving waters. The effects of these discharges can have varying effects on the receiving water depending on the water quality, frequency, and the amount discharged.

Some of the strategies for dealing with CSO events is to provide preliminary and primary treatment to all the waste flow and then bypassing it around secondary treatment. Other systems have put additional storage units in place to capture the flow the treatment plant cannot handle. This wastewater would then be treated on a day when it can be treated with no adverse effects to the system. Other systems have done sewer separation projects to keep some of the storm water out of the system all together. The main regulatory controls that systems are required to meet with I & I issues are the Nine Minimum Controls. These controls require communities to maximize flow to the treatment plant. As of 1994, any system that had CSO’s and a NPDES permit were required to come up with a “Long Term Control Plan.” This plan requires systems to demonstrate that their plan is adequate to meet water quality standards or implement a minimum level of treatment. A few states have implemented some legislation that go above and beyond the federal government requirements. Most systems have some degree of treatment for all wet weather flows.

The Nine Minimum Controls are:
1. Proper operation and regular maintenance programs for the sewer system and combined sewer overflow points.
2. Maximum use of the collection system for storage.
3. Review and modification of the industrial pretreatment program to assure CSO impacts are minimized.
5. Prohibition of CSO discharges during dry weather.
6. Control of solids and floatable material in CSO discharges.
7. Pollution prevention programs that focus on contaminant reduction activities.
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts.
9. Monitoring of effectively characterized CSO impacts and the efficacy of CSO controls.

Often, treatment plants will have storm water clarifiers or storage tanks to divert some of the flow to during wet weather periods. Sometimes, this flow is held and treated later. Other times, storm flows will have a much lower concentration of contaminants due to the high amount of storm water and the low amount of actual sewage; although, the first flush of storm water may have a very high contaminate concentration. Many systems turn off the air in all or part of the aeration tank. This may be an okay practice for a few hours; however, it is not recommended for treatment plants to be without air for an extended amount of time. If the air is turned off for long periods, other violations could occur, so try to keep turning the air off to as short a time frame as possible. If the air is turned off,
the solids will begin to settle in the aeration tank. This will give the clarifiers more capacity for water because there will be almost no solids present in the clarifiers. Another way to help with high occurrences of inflow and infiltration is to keep your mixed liquor suspended solids at the correct concentration for your plant. This will vary with the type of system you have and many other factors. A mixed liquor suspended solids concentration that is elevated will always result in the plant having less capacity for storm flow, so keep the concentration where it needs to be if you can.

Most wastewater operators are not big fans of treating using chemicals. Sometimes, however, chemical coagulants can aid in making the solids come together and making large flocs. This will aid in settling, thus allowing the clarifier to treat more water. Make sure you know what other effects the coagulant may have on the plant before adding it. Some chemicals may have multiple functions.

Inflow and infiltration issues are becoming a bigger and bigger focus of the regulatory agencies. Many systems are being required to complete some type of project to get their wet weather discharges under control. These are big, and often expensive, issues. But, in the end, it will help to make our receiving waters cleaner.
Recipes to Tempt Your Taste Buds

Chicken Biscuit Bake

Ingredients:

- 1 can (10 3/4 ounces) condensed cream of chicken soup, undiluted
- 2/3 cup mayonnaise
- 2 to 3 teaspoons Worcestershire sauce
- 4 cups cubed cooked chicken
- 3 cups chopped broccoli, cooked
- 1 medium onion, chopped

- 1 cup shredded cheddar cheese
- 2 tubes (12 ounces each) refrigerated buttermilk biscuits
- 2 large eggs
- 1/2 cup sour cream
- 2 teaspoons celery seed
- 1 teaspoon salt

Directions:

In a large bowl, combine the soup, mayonnaise, and Worcestershire sauce. Stir in the chicken, broccoli, and onion. Transfer to a greased 15x9 inch baking dish. Sprinkle with cheese. Cover and bake at 375°F for 20 minutes.

Separate biscuits; cut each in half. Arrange, cut side down, over hot chicken mixture.

In a small bowl, combine the remaining ingredients; pour over biscuits. Bake, uncovered, 28-32 minutes longer or until biscuits are golden brown and completely baked.

*Note: reduced-fat or fat-free mayonnaise is not recommended for this recipe.
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SOLUTIONS FOR YOUR INFRASTRUCTURE AND ECONOMIC DEVELOPMENT NEEDS

John C. Stump • Richard L. Lewis • Marc C. Bryson • Todd M. Swanson
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DON’T FORGET!!!

Mark your calendars for August 15-19, 2020

To attend the WVRWA 35th Annual Technical Conference

To be held at Snowshoe Mountain Resort

Every drop counts.

Watch for information and forms to be mailed out in spring 2020
Telemetry is used for quick and easy access to pertinent system information. It saves time, and TIME IS MONEY.

The water system in this example pumps at a rate of 300 gpm and has a storage capacity of 300,000 gallons in one tank that is 60 feet tall. The normal usage is 120,000 gallons per day. Normally, the water treatment plant runs seven hours per day to keep up with the demand. Since the treatment plant is now running thirteen hours per day, a simple calculation would tell us that the system has a leak and is losing 108,000 gallons per day. When a circuit rider gets a call from the system, this is the number normally given to them. The first thing the circuit rider does is divide the number by 1440, which is the number of minutes in a day. This gives the circuit rider an idea of the size of the potential leak in gallons per minute. In this case it would be approximately 75 gpm lost. The 100,000 gallon tank in my example is not in use at this time.

Whether the system’s telemetry is radio, cell, or satellite, it gives the operations specialist tank levels at ten increments per foot. Our example system has a 300,000 gallon tank and the tank is sixty feet tall; simple math would tell us that every foot of water would contain approximately 5,000 gallons. Since telemetry reads in tenths of a foot, we would divide the 5,000 by 10 to know approximately how many gallons of water is in each tenth. My math tells me I have 500 gallons of water in every tenth of a foot in my storage tank. I hope you calculated the same.

So, we have all this information on the system at our fingertips. Let’s discuss how we would use it for leak detection.

When the water treatment plant is shut down and after midnight, if possible, shut valves 5 and 7. If the 75 gpm leak is between the intersection and the tank, it will take how long to change the level in the tank? Since there are 500 gallons in one tenth you would divide that by 75. I usually round down with this calculation. This particular leak would take about 6.6 or 7 minutes to change the level in the tank one tenth. If, after 7 minutes, the tank level indicator does not change, then the lines toward the tank are not leaking. At least, they are not leaking at the rate of 75 gpm. It is always possible to have more than one leak when doing leak detection.

Note that I started with a large area being shut off for my first test cycle. This not only checks the line from the tank to your valves, but it also can keep you from turning an enormous number of valves to do the job. I always try to get a large section checked before I start breaking down the areas of concern.

Our next step would be to open one of the two valves and wait another 7 minutes to see if the next area has the possible 75 gpm leak in it. I would open valve 7 because it would be checking the town and the stream crossing. If the level indicator changes in the time frame, it would tell us a leak is in that direction.

Note that when the level changes, you should wait the complete cycle starting at the time it does so. This
would tell you if the whole 75 gpm was in that direction. If it does not change in the 7 minutes, you could wait until it did change and do the math on the number of minutes to see how big the leak was in that direction.

Let’s say it took 20 minutes to change the level indicator. Take the 500 gallons in a foot and divide that by 20 minutes. This calculation would tell you that a leak of around 25 gpm was in that direction. Now, with this information, a person would think that the other amount, 50 gpm, would be on the other side of valve 5. In order to check this section, a person would want to shut valve 7 and open valve 5. If the time and calculations are correct, then it would be in that area. 500 gallons divided by 50 means it would change the level indicator in 10 minutes.

With this information, a person would move away from the intersection, closing one valve at a time and waiting for the telemetry to tell you which two valves the leak is between.

OK, now let’s talk about another part of the telemetry that tells a person there is a leak.

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**WV WARN Quarterly Meetings**

**May 8, 2020**  
Braxton County Technology Center

**August 7, 2020**  
Braxton County Technology Center

**November 6, 2020**  
Gilmer County Fire Station

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**The Pump and Usage cycle**

The “UP” cycle is the pump filling the tank. The steeper the line, the faster it is filling the tank. With a leak, the pump cycle line will get longer and the usage cycle will get steeper. This means you are taking longer to fill and the water is leaving the tank faster than normal. An operation specialist that looks at these graphs daily will use this and other indicators to tell him something is wrong. With multiple tanks and graphs, the telemetry can help send the crew in the right direction to look for a leak.

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Kevin Kruse

Seeing with 20/20 vision is a good thing. As we welcome 2020, and a new decade, it’s also a good idea for leadership development directors to have a vision for the future of their department. We’re in the midst of a Fourth Industrial Revolution, yet over the last decade or more, most of leadership development has remained stagnant. What is trained, how it is trained, and who is trained is much the same today as it was 10 or even 20 years ago.

To be relevant for the next decade, directors of leadership development have to embrace transformations in every area of training and executive education. Once only talking points, these five areas hold significant promise as they become a reality in 2020.

TREND 1: A Focus on Applying and Sustaining Behaviors

For too long, leadership development has been approached as a one-and-done experience. Many programs take new managers, push them through an organization’s “academy,” then send them out into the world. These leaders are checked on sporadically, perhaps with a 360 or engagement survey. But little attention is paid to sustaining knowledge in the long-term.

What a waste. Most estimates put the global investment in leadership development at over $300 billion. Further, according to CLO’s Business Intelligence Board data, 94% of learning organizations plan to increase or maintain their current investment in leadership development.

The “knowing-doing gap” and Ebbinghaus’s forgetting curve point to the severity of the problem: We quickly forget most of what we learn unless we consistently apply it. If leaders aren’t doing it, they’re going to lose anywhere from 40 to 80% of what they encountered in learning and development programs.

Leadership development professionals need to start spending as much time helping people sustain new knowledge and behaviors as they do helping those leaders acquire new knowledge and behaviors. Behavioral nudges are moving from the world of social psychology into everyday use by companies, governments, and other organizations. This might include nudges:

- Reminding new managers to review weekly task lists and delegate to team members.
- Prompting middle managers to practice inclusion in their meetings.
- Encouraging senior executives to schedule time for strategic thinking.

Successful leadership development professionals will develop hyper-personalized nudge strategies to deliver the right reminder to the right person at the right time.

TREND 2: Mobile Learning for Millennial Managers

With the average age of the first-time manager being 30, we have entered the age of millennial management; nearly 30% of Millennials hold managerial-level roles. Surveys from a variety of sources show that millennial managers value learning and growth experiences more than previous generations. They are also three times more likely than Baby Boomers to take responsibility for their own re-skilling, according to Upwork’s Future Workforce Report. Yet,
they want training and development delivered in a new way. They expect mobile access to learning opportunities, anytime, anywhere. Leadership development professionals need to tailor programs to this group of managers and offer more flexible online programs. According to the Korn Ferry Institute, research shows Millennials learn more through online development than time spent in the classroom.

**TREND 3: Group Coaching & Democratization of Leadership Development**

Traditionally, senior executives are given executive coaches and development via executive education programs at elite universities along with executive seminars and retreats. New managers are typically put through a leadership development academy or boot camp. Middle managers are largely forgotten.

In this new decade, everyone needs to be a leader who actively engages their people. Awareness of this will see leadership development pushed down through the organization, and coaching will become a standard part of every manager’s experience.

But how will organizations afford it? One way is to offer group coaching experiences that utilize one human executive coach for every ten managers. By synchronizing monthly or quarterly topics, one coach can effectively support each manager’s needs on a weekly basis, and bring everyone together using video conferencing on a monthly basis. Additionally, companies can now leverage AI-powered coach bots and hyper-personalized nudges from companies like LEADx, Butterfly.ai, Qstream, and others.

**TREND 4: Alignment to the Engagement Survey**

Gallup research has shown that 70% of the variance in employee engagement ties back to the manager. People join a company, but they leave their boss. One reason? What is taught in leadership development academies and included in leadership competency models is often very different than what is measured in employee engagement surveys. Employee experience and employee engagement are hotter than ever before. While most of the emphasis has been on measurement, leadership development professionals must also now realize that changing managerial behaviors is the best way to move the needle on survey outcomes.

In the book *Knowing-Doing Gap*, Pfeffer and Sutton use Intuit as an example of a firm that uses its engagement survey as more than a metric generator. “The measurement, nothing more than an employee survey, but one that is taken very seriously, affords a way of focusing managerial effort on those dimensions of the culture that most need attention at a given moment.”

To promote employee engagement, the first obvious step is training and coaching managers in how to apply behaviors that unlock emotional commitment. Each organization is different, but, in general, managers need to learn specific behaviors such as: using a coach approach to develop team members, giving effective timely feedback, providing strategic recognition, building trust, and fostering belonging.

**TREND 5: AI Becomes Invisible**

Artificial intelligence (AI) has been hyped for the last several years. Vendors use the term to get attention and convince us there is some magic in their solutions. Yet in the new decade, AI will become the norm, an assumed part of leadership development experiences. We already mentioned the power of executive coach chatbots answering questions and providing guidance using natural language processing technology. At the same time, AI is going to be making an impact in personalization. With AI, leaders will be offered hyper-personalized content based on the manager’s personality, competencies, and objectives. As it does for Netflix, Amazon, and Spotify, AI can present targeted information in a learning management or nudge system.

AI is also going to support leadership development directors in gaining the respect of other senior leaders. The cold hard truth is those with the seats at the table can talk in numbers. With AI technol-
ogy, leadership development can increase its use of dashboards and correlation matrices. More telling than the number of workshop participants or the latest smile sheet survey ratings, metrics in 2020 will quantify:

- How many people are ready to move into leadership
- How many people are ready to advance from front line to middle manager
- Which training courses correlate to higher engagement scores
- Which leadership development experiences correlate to faster promotions
- Performance review rankings

Leadership development cultivates the human capital of an organization. As we move into the 2020s, it’s an exciting time for top-to-bottom transformation of our departments. Shaped by these five trends, we can move forward with developing a clear vision for ongoing success in training and sustaining successful leaders.

Kevin Kruse is the CEO of LEADx, a platform that helps leadership development professionals sustain and scale their programs with nudges, digital coaching, and micro-learning modules. Kevin is also the author of Great Leaders Have No Rules, Employee Engagement 2.0, and 15 Secrets Successful People Know About Time Management.
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Eric Bennett was born in Parkersburg and currently resides in the Palestine area of Wirt County on the farm where his father was raised. He is a graduate of Parkersburg South High School and is a proud Patriot. During high school and while attending college, Eric worked as an assistant manager for Jur Theatre Circuit, Inc. and performed maintenance at five indoor and four drive-in theaters.

Eric was active in Cub Scouts and Boy Scouts in his early years, achieving the rank of Life Scout. Eric was also very active in his community, growing up in the local fire department in which he served from the age of 12 as a junior firefighter and then reaching the rank of Lieutenant prior to relocating to Wirt County.

Eric joined the United States Army in September 1986. Uncle Sam sent him to South Korea in the position of Recovery Non-Commissioned Officer in Charge for Service Battery, 1st Battalion, 15th Field Artillery at Camp Casey. It was in Korea that he met his wife, Yong Ju, and they were married in 1990 in Seoul.

After leaving active duty, Eric continued his service in the Army Reserves as a Senior Heavy Wheel Mechanic in Parkersburg at the 463rd Engineer Battalion in Parkersburg and as an Instructor/Writer for the 5/80th Ordnance Battalion at Aberdeen Proving Grounds in Maryland. Eric retired from the Army Reserves in 2009 with the rank of Sergeant First Class.

Eric’s career at Parkersburg Utility Board began in 1994 as a CAD operator. Eric’s abilities were recognized and he progressed through the ranks, first as a technical assistant, then assistant general manager, and, finally, his current position as general manager.

Prior to enlisting in the Army, Eric pursued an Associates in Applied Sciences Degree in Drafting/Engineering Technology from West Virginia University at Parkersburg. However, his finest achievement is his son, Cory. When Eric isn’t working, he enjoys hunting, fishing, and restoring antique engines and equipment with his father and son.
New WaterPro Online Community

A utility manager stares at the computer monitor in his small utility office. There's a stapled packet of receipts and purchase orders for a newly-purchased pump on one corner of the desk. On the other: a stack of wastewater logs and TMDL documents printed from the EPA website.

Across the country, a wastewater superintendent is searching for pricing information on a new pump. On the corner of the desk sits a stack of reports that detail how a few procedure changes helped them meet new TMDL regulations.

In the past, these water professionals might only meet by chance at a national conference, if they ever met at all. A simple meeting could unlock valuable knowledge and experience in their overlapping areas of interest. Today though, the WaterPro Community gives these professionals a chance to network on-line, to ask questions and exchange experiences for the benefit of their utilities.

"Today's world is an on-line world." Explained NRWA CEO Sam Wade. "Professional networking is no longer limited by time or geography: the internet allows water professionals from all over the world to share their valuable knowledge and experience."

WaterPro Community forums provide more than a simple question and answer session or a quick networking session. These discussions collect into persistent, categorized, and searchable institutional knowledge - a question need only be answered one time for all members. These forums have the power to put the knowledge and experience of lifelong water professionals at each member's fingertips.

The power of the WaterPro community is that it combines the power of several, common web tools into a single, easy-to-navigate platform. These tools include forums, blogs, file libraries, wikis, and networking tools. The community platform gives members one login to access the full array of tools. Additionally, it adds a layer of search and tag functionality that makes finding information easier than ever. A simple search for "Arsenic," for example, could yield blog posts on new arsenic regulation and new remediation technology, forum discussions about systems' experience dealing with arsenic, sample presentations on how to deal with arsenic, and links to webinars on arsenic reduction.

The WaterPro Community blogs will focus on regular updates on industry issues, ranging from technical operations to regulations and compliance. Expert authors share regular news links, insights, and analysis on various industry topics. Various subscription options ensure members are always up-to-date on the latest news in their favorite topic area. WaterPro Conference blogs also have commenting options that allow members to continue the discussion, to ask questions, and to increase learning.

File libraries are a community warehouse of documents, files, videos, and presentations. They can include everything from training presentations to official documents. The file libraries will grow dependent on the interest from the members, but could include utility documents, including sample work orders and job descriptions or a sample boil order notice.

A WaterPro Community membership also includes a free NRWA membership, which provides access to other benefits and discounts. The primary benefit is that NRWA members are helping support national's efforts to support continued utility funding, sensible regulations, and protection of water resources. NRWA members also receive special discounts on NRWA events, webinar events, and other vendor deals. This membership also includes a free subscription to Rural Water magazine, and access to special interviews with decision makers in the water industry.

Come on in! Check out ALL the benefits and information available only to members!

WaterPro Online Community

Where Water Pros Go!

http://waterprocommunity.org
# HONORARY MEMBERS

We would like to give a special thanks to all of our current and former Board Members and Staff who have helped shape WVRWA.

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WVRWA Associate Members - Spring, 2020

**ACCOUNTING/FINANCIAL**

*Continental Utility Solutions, Inc.*  
300 S. Church St., Suite 200  
Jonesboro, AR 72401  
Phone: (800) 240-1420  
See Our Ad Page 53

*Griffith & Associates, CPA's*  
950 Little Coal River Road  
Alum Creek, WV 25003  
Phone: (304) 756-3600  
See Our Ad Page 53

*Lowe & Associates, PLLC*  
1156 South Main Street  
Milton, WV 25541  
Phone: (304) 743-5573  
See Our Ad Page 35

*Piper Sandler & Company*  
405 Capitol Street, Suite 613  
Charleston, WV 25301  
Phone: (304) 343-7102  
See Our Ad Page 13

*Goodwin & Goodwin*  
300 Summers Street, Suite 1500  
Charleston, WV 25301  
Phone: (304) 346-7000  
See Our Ad Page 14

*Jackson Kelly PLLC*  
500 Lee Street, E., Suite 1600  
Charleston, WV 25301  
Phone: (304) 340-1000  
See Our Ad Page 4

*Kay Casto & Chaney, PLLC*  
707 Virginia Street, E  
Charleston, WV 25301  
Phone: (304) 345-8900  
See Our Ad Page 24

**INSURANCE**

*Bill Bailey Insurance Agency, Inc.*  
P.O. Box 246  
Williamstown, WV 26187  
Phone: (304) 375-4900  
See Our Ad Page 31

*Bray & Oakley Insurance Agency, Inc.*  
P.O. Box 386  
Logan, WV 25601  
Phone: (304) 752-6850  
See Our Ad Page 39

*Hayes Insurance Agency*  
202 Union Square  
Marietta, OH 45750  
Phone: (740) 373-2347  
See Our Ad Page 23

*USI Insurance Services*  
1 Hillcrest Drive East, Suite 300  
Charleston, WV 25311  
Phone: (304) 993-3331  
See Our Ad Page 5

**CONSORTIUMS**

*Burgess & Niple, Inc.*  
4424 Emerson Avenue  
Parkersburg, WV 26104  
Phone: (304) 485-8541  
See Our Ad Page 51

*Cerrone & Associates, Inc.*  
97 14th Street  
Wheeling, WV 26003  
Phone: (304) 232-5550  
See Our Ad Page 24

*Chapman Technical Group*  
200 Sixth Avenue  
St. Albans, WV 25177  
Phone: (304) 727-5501  
See Our Ad Page 38

*CMX Operations*  
975 Georges Station Road  
Greensburg, PA 15601  
Phone: (724) 672-4800  
See Our Ad Page 6

**Contractors**

*Breckenridge Corporation*  
#1 Brickyard Road  
Buckhannon, WV 26201  
Phone: (304) 472-3350  
See Our Ad Page 38

**Laboratories**

*Pace Analytical*  
P.O. Box 286  
Beaver, WV 25813  
Phone: (800) 999-0105  
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WVRWA Associate Members - Spring, 2020

*Preiser Scientific
94 Oliver Street
St. Albans, WV 25177
Phone: (800) 624-8285
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*Reliance Laboratories, Inc.
P.O. Box 4657
Bridgeport, WV 26330
Phone: (304) 842-5285
See Our Ad Page 48

Services and Products

**Advanced Rehabilitation Technology
1116 County Road 17
Bryan, OH 43506
Phone: (419) 636-2684
See Our Ad Page 6

**American Cast Iron Pipe/
American Flow Control
2257 Clairmont Drive
Suite 220-222
Pittsburgh, PA 15241
Phone: (412) 721-9509
See Our Ad Page 42

**Ampstun Corporation
P.O. Box 784
Richmond, KY 40476
Phone: (888) 252-4784
See Our Ad Page 3

**Appalachian Software, Inc.
44 Amber Way
Scott Depot, WV 25560
Phone: (304) 757-1260
See Our Ad Page 16

*Aqueous Sales, Inc.
13630 Hailsham Circle
Midlothian, VA 23113
Phone: (804) 379-0019
See Our Ad Page 8

*Benchmark Construction Co., Inc.
P. O. Box 1018
Hurricane, WV 25526
Phone: (304) 881-1735
See Our Ad Page 8

*Bluetick, Inc.
1501 Highwoods Blvd., Suite 104
Greensboro, NC 27410
Phone: (336) 294-4102
See Our Ad Page 48

*Bortek Industries, Inc.
4713 Gettysburg Road
Mechanicsburg, PA 17055
Phone: (717) 737-7162
See Our Ad Page 44

**Buchanan Pump Service &
Supply Co., Inc.
P.O. Box 37
Oak Hill, WV 25901
Phone: (304) 999-3484
See Our Ad Page 42

**C.I. Thornburg Co., Inc.
4034 Altizer Avenue
Huntington, WV 25705
Phone: (800) 999-3484
See Our Ad Page 42

**Consolidated Pipe & Supply Co., Inc.
907 Honeybranch Industrial Park
Debord, KY 41214
Phone: (606) 298-0333
See Our Ad Page 38

*Core & Main
2825 Fairlawn Ave.
Dunbar, WV 25064
Phone: (304) 768-0086
See Our Ad Page 16

*Das Group
3251-C Old Frankstown Road
Pittsburgh, PA 15239
Phone: (724) 327-8797
See Our Ad Page 8

*DN Tanks, Inc.
672 Main Street, Suite H
Harleysville, PA 19438
Phone: (267) 521-7595
See Our Ad Page 15

*Dorsett Technologies, Inc.
P.O. Box 1339
Yadkinville, NC 27055
Phone: (356) 518-1300
See Our Ad Page 44

*Gilson Engineering Sales, Inc.
535 Rochester Road
Pittsburgh, PA 15237
Phone: (304) 342-0012
See Our Ad Page 9

*Duncan-Parnell
900 S. McDowell Street
Charlotte, NC 28204
Phone: (800) 849-7708
See Our Ad Page 19

*Godwin Pumps a Xylem Brand
5329 Sissonville Drive
Charleston, WV 25312
Phone: (304) 984-0200
See Our Ad Page 7

*Golden Equipment Co., Inc.
P.O. Box 873
Mars, PA 16046
Phone: (800) 242-1494
See Our Ad Page 8

*H&S Controls
1747 Country Club Road
Grafton, WV 26354
Phone: (304) 265-4433
See Our Ad Page 32

*Harmsco, Inc.
7169 49th Terrace N.
Riviera Beach, FL 33407
Phone: (561) 848-9628
See Our Ad Page 15

*Hymax/Mueller
201 Ralston Road
Richmond, VA 23229
Phone: (352) 789-9649
See Our Ad Page 15

*Leslie Equipment Co.
19 Goff Crossing Drive
Cross Lanes, WV 25313
Phone: (304) 204-1818
See Our Ad Page 13

*Maryland Biochemical Co., Inc.
712 Tobacco Run Drive
Bel Air, MD 21015
Phone: (410) 734-9100
See Our Ad Page 23

*Master Leak Technologies, LLC
100 Home Road
Harborc, PA 19040
Phone: (267) 236-6184
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<th>Company</th>
<th>Address</th>
<th>Phone Number</th>
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<td><strong>Master Meter, Inc.</strong></td>
<td>101 Regency Parkway, Mansfield, TX 76063</td>
<td>(800) 765-6518</td>
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<tr>
<td><strong>Mid Atlantic Storage Systems, Inc.</strong></td>
<td>1551 Robinson Road, Washington C.H., OH 43160</td>
<td>(740) 335-2019</td>
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<tr>
<td><strong>Miss Utility of West Virginia</strong></td>
<td>5608 MacCorkle Avenue, South Charleston, WV 25309</td>
<td>(304) 345-3959</td>
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<tr>
<td><strong>Charles Morrow &amp; Associates</strong></td>
<td>1429 Three Degree Road, Valencia, PA 16059</td>
<td>(412) 400-5517</td>
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<tr>
<td><strong>Muni-Link</strong></td>
<td>P.O. Box 250, Stadium Drive, Bellwood, PA 16617</td>
<td>(814) 742-7700</td>
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<td><strong>National Road Utility Supply, Inc.</strong></td>
<td>P.O. Box A, Valley Grove, WV 26060</td>
<td>(304) 547-0101</td>
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<td><strong>Neptune Technology Group</strong></td>
<td>2305 W 18th Street, Wilmington, DE 19806</td>
<td>(302) 824-6918</td>
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<td><strong>Perma-Patch</strong></td>
<td>6123 Oakleaf Avenue, Baltimore, MD 21215</td>
<td>(410) 764-7117</td>
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<tr>
<td><em>Pittsburg Tank &amp; Tower Co.</em></td>
<td>P.O. Box 913, Henderson, KY 42419</td>
<td>(270) 826-9000</td>
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<td><em>John P. Place, Inc.</em></td>
<td>90 Clairton Boulevard, Pittsburgh, PA 15236</td>
<td>(304) 343-2607</td>
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<tr>
<td>*<strong>Precision Pump &amp; Valve</strong></td>
<td>517 Old Goff Mt. Road, Charleston, WV 25313</td>
<td>(304) 776-1710</td>
<td>Front Cover</td>
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<td><strong>ProSource Water Products, Ltd.</strong></td>
<td>14680 Pleasant Valley Road, Chillicothe, OH 45601</td>
<td>(888) 772-5478</td>
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<td><em>Quality Water Services, LLC</em></td>
<td>329 Buckeye Road, Horn, WV 26372</td>
<td>(304) 452-9883</td>
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<td><strong>R. A. Ross NE, Inc.</strong></td>
<td>10280 Brecksville Road, Brecksville, OH 44141</td>
<td>(440) 546-1190</td>
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<td><em>Service Pump &amp; Supply Co.</em></td>
<td>P.O. Box 2097, Huntington, WV 25721</td>
<td>(304) 429-6731</td>
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<td><strong>SERVPRO</strong></td>
<td>7 Poverty Lane, Nitro, WV 25143</td>
<td>(304) 755-9510</td>
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<tr>
<td>*<strong>USA Blue Book</strong></td>
<td>3781 Burwood Drive, Waukegan, IL 60085</td>
<td>(800) 548-1234</td>
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<td><em>Utility Solutions, Inc.</em></td>
<td>97C Monocacy Blvd., Frederick, MD 21701</td>
<td>(301) 682-3390</td>
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<td><em>Sherwin-Williams</em></td>
<td>450 2nd Street, Saint Albans, WV 25177</td>
<td>(304) 727-4359</td>
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<td><em>State Equipment Inc.</em></td>
<td>P.O. Box 3939, Charleston, WV 25339</td>
<td>(304) 776-4405</td>
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<td><em>Suez Water Advanced Solution</em></td>
<td>1230 Peachtree Street, E., Suite 1100, Atlanta, GA 30309</td>
<td>(855) 526-4413</td>
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<td><em>Tepeco-Trombold Equipment Co., Inc.</em></td>
<td>P.O. Box 897, Mars, PA 16046</td>
<td>(724) 625-4260</td>
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<td><strong>Total Equipment Company</strong></td>
<td>400 Fifth Avenue, Coraopolis, PA 15108</td>
<td>(412) 269-0999</td>
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<td><strong>Water Development Authority</strong></td>
<td>1009 Bullitt Street, Charleston, WV 25301</td>
<td>(304) 414-6500</td>
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<td><em>Warren Pump &amp; Supply</em>*</td>
<td>1551 Jackson Avenue, Huntington, WV 25704</td>
<td>(304) 429-6723</td>
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<td><em>Vermeer of West Virginia</em></td>
<td>5900 MacCorkle Avenue, St. Albans, WV 25177</td>
<td>(304) 768-5965</td>
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<td><em>Visu-Sewer East, LLC</em></td>
<td>10994 Leadbetter Road, Ashland, VA 23005</td>
<td>(804) 752-6737</td>
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<td><em>W.C. Weil Company</em></td>
<td>P.O. Box 7144, Charleston, WV 25301</td>
<td>(304) 776-5665</td>
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<td><em>Zenner USA</em></td>
<td>15280 Addison Road, Suite 240, Addison, TX 75001</td>
<td>(972) 386-6611</td>
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WVRWA Welcomes New Members

Individual Member
Matt Diederich

Voting Member
Town of Coalton

NON-COMMUNITY MEMBERS
Big Bear Lake Camplands
National Radio Astronomy Observatory

Peterkin Camp & Conference Center
Valley Vista Adventist Center

AFFILIATE MEMBERS
Ashland Scenic Campground
Global Capital of World Peace
The Greenbrier Hotel Corp.

Mettiki Coal (WV) LLC
Newell Company
Twin Falls State Park

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Michael Barkley  Steve Cornwell  David Foster  Ernie Jack  David Stover  Louis Wooten
Timothy Bennett  Randall Cottrill  Samme Gee  Danny Kirk  Shawn Thompson  Gary Young
Mike Burkardt  Bill Cunningham  Michael Giannini  Jerry Metheny  Calvin Upton, P.E.
Ron Byrnsdide  Matt Dawson  Kevin Hamrick  Richard Ohalek  Doug Urling
Rod Carmichael  Matt Diederich  David Holstein  Jason Roberts  Frank Welch
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lets you safely neutralize chlorine/chloramines during hydrant flushing. Lightweight and easy to use, it reduces spray pressure while dechlorinating water—simply add dechlorination tablets. As part of the USABlueBook family of products, this diffuser is guaranteed to deliver great performance at a great price.

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2½” Flow Testing Diffusers include a gauge so you can easily measure flow during hydrant flushing. A built-in baffle and rotating head let you control discharge pressure and direction.

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