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RURAL WATER
ASSOCIATION**

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MOUNTAIN STATE WATER LINE

A Publication of the West Virginia Rural Water Association

Fall 2020

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- ◆ **Old and New Meter Technology**
- ◆ **Tips for a Safe Excavation**
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NRWA

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.



President's Message

After 32 years serving the people of West Virginia, Amy Swann has decided to retire. Her accomplishments are numerous, too many to list. No battle was too tough for her to take on, especially during the passage of Senate Bill 234. Just tell Amy what she can't do and that is merely motivation for her to out-work anyone just to prove them wrong.

I have a different perspective than most about Amy. You see, she hired me after I graduated from college in 1989. I started working with her when she was the Director of the Public Service District Division with the Public Service Commission of West Virginia. I was very fortunate to start my career with Amy. I can best describe her as a mentor and teacher. She has always wanted her staff to be the best they possibly could be. More importantly, she always supported us.

When Amy arrived at the Public Service Commission, she was handed the thankless and tumultuous task of managing the County Planning initiative that was set into motion by the West Virginia Legislature. At that time in the late 1980s, the Legislature believed that there were too many PSDs in West Vir-

ginia and, perhaps, they could operate more efficiently if they were consolidated. Amy and her team were charged with making that determination of the value of consolidating PSDs in each county.

To say that County Planning was unpopular would be an understatement. However, in typical Amy Swann style, she approached each County Plan with only one thought in mind, "how does this plan benefit the customers and the residents in each county?" She had to bear the weight of tremendous political pressures. Local and state officials would publicly rail against that initiative, but, in private, complain about this little PSD or that little PSD. When County Planning was ended, Amy shifted her focus to providing more technical assistance and training. She wanted to provide more and better opportunities for PSDs to learn and become more efficient. She worked hard to raise the bar for PSD staff members, as well as board members. She recognized the importance of providing adequate funding for operations, maintenance, and future capital additions. She frequently took her fight to the 3rd floor of the PSC and advocated on behalf of the PSDs.

She has always understood that providing adequate funding is better for the future success of the utilities and their customers.

After Amy left the PSC and joined West Virginia Rural Water Association, she quickly realized she could do more for West Virginia's PSDs and municipalities working outside of State Government more so than when she was on the inside.

Today, all of our members enjoy the benefits of Amy's tireless work on West Virginia Rural Water Association's behalf. We are all sad to see her leave the Rural Water Family, but we are excited for her and wish her the best as she moves on to the next chapter in her life.

Amy can look back at her career in West Virginia's water and wastewater industry with a great sense of pride and accomplishment knowing that she truly made a difference. She has improved the quality of life for our citizens and has opened doors for desperately needed economic development opportunities.

On behalf of the West Virginia Rural Water Association Board of Directors and its members, we thank you Amy for your service and dedication to the water and wastewater industry. ■

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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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By Amy Swann, Executive Director

From Your Executive Director

Re•tire, /rə' tī(ə)r/, verb

leave one's job and cease to work, typically upon reaching the normal age for leaving employment. "*he retired from the navy in 1966*"

Did you know there are 48 synonyms for the word leave? I didn't. So, allow me to let you in on some of them in my final magazine article. When I started my time with you, it was sort of like an elopement, in that I left the Public Service Commission one day and the next day, I started with WVRWA. The split from the Commission was a walk out of sorts because I felt that, with my eligibility for retirement secure, the time had come to take a hike. It was hard to decamp from my fellow employees, but the time had come to head out. And so, my time began with you.

First, I want to thank the Board of Directors (Board) for agreeing to fly on a new course with a former regulator at that helm. There may have been times when it seemed like fleeing was the best course, but the Board held firm and didn't ditch me. For that, and so many other things, I am forever grateful. The friendships that I made and the dedication to the cause of rural water is something you as members should never underappreciate. Board members have stepped down and new board members have come on, but the desire to see the best for you never waivers. It has been great to watch new board members set out on the journey and to grow into great board members. It has been a privilege to wish retiring

board members the best in the next phase of their lives, as they vamoose into the sunset and their next chapter.

Second, I want to thank the Technical Staff. This is a crew who will move out, pull out, and push off at a moment's notice to help you. I have seen them get the mobile water treatment plant and vanish into the freezing cold to help a system that was down. They migrate to each other's territories to help when a call is made. They never relinquish their pleasant demeanors in the face of situations that would try many people's patience, mine included. They teach classes with a genuine desire to see people learn new things and practice new skills. Teaching is one of the things I will miss most and I will admit, it is tough to break away.

Third, I want to thank the Office Staff for not defecting on me and deserting the ship. When you work with people every day, they become a part of your life. Janie and I have discussed retirement and grandchildren (my first grandchild is coming in March), cooking and cleaning, and, oh yeah, work. I took a non-profit and governmental accounting class a year or so before I took this job, but Janie brought it to life for me.

Lamar worked to bring my ideas to life in our IT department. He created the online training cal-

endar and the online registration/cancellations. He embarked on the new process to bring online payment for the conference registrations and earned the thanks of our associate members. Amanda slips out of the office once a month for the WV IJDC meetings and creates the newsletter to keep you informed on the activities there. She works tirelessly to bring new ideas for the conference and I am very appreciative of that. When you go to Conference, she works tirelessly to see that your registration desk experience is pleasant and that you go away knowing that she wants you to have a good experience.

Finally, I want to thank you, the members. The last seven years went by in a blink. I hope you believe that I leave WVRWA in better shape than I found it. As I sally off into the sunset, with so many positive memories flitting before my eyes, I wish each of you the best. Keep doing everything you do to make this state a better place and never forsake the belief that you are the pride of West Virginia.

On October 31st, I will go, move, quit, retire, take off, withdraw, abscond, issue, part, scream, vacate, beat it, clear out, come away, go forth, ride off, run along, say goodbye, take my leave, and remove myself. My best wishes to Todd as he takes the reins for the next chapter. ■

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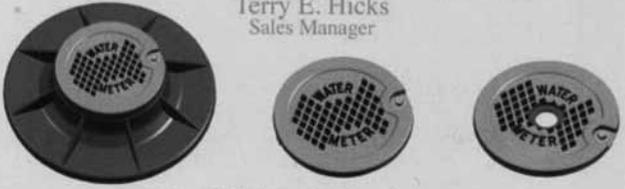
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Tips for a Safe Excavation

This is the time of the year that we normally write about the WV Rural Water Conference, but this year we bring you the pandemic. I don't think any of us saw how this year was going to be, virtual meetings, Zoom classes, and no travel became the norm. The staff at West Virginia Rural Water, working remotely, jumped into action to serve their members. Multiple calls were made to systems, masks were delivered, and Zoom classes were set up to ensure operators could receive the continuing education needed.

One of the Zoom classes that we put together was Trench Safety. Many years ago, the system that I worked at was putting in a gravity feed sewer system. Some of the trenches were really deep to be able to serve existing homes. One day, a trench collapsed that a contractor was digging and a young man was killed. That day changed my life forever when working in or near an excavation. It was an accident that could have been avoided if a trench box would have been used. I know that many of our members work

in trenches with less than ideal conditions, so let's take a look at some safety tips when it comes to excavations.

First, before any excavation is started, make sure WV 811 is called. This is to ensure that all other utilities are contacted to mark any lines that they might have in the area. It can create a lot of headaches and cost a lot of money when another utility line is dug into. Once all lines have been marked and before excavation starts, have a competent person who will be in charge of the dig. This will be the person looking out for the safety of those working in the trench. This person is checking soils, watching for trench collapse, and monitoring the air quality in the trench when needed. Most of the time, we are making a repair and the trench is saturated with water. Before entering the trench, make sure that you have your Personal Protective Equipment: hard hat, safety glasses, gloves, and proper footwear at a minimum. Also, remember to make a safe way to enter and exit the excavation.

The common hazards associated with excavation are the collapse of the sides of the excavation, materials falling onto people, and nearby structures collapsing into the excavation. Other hazards that are possible include, electrocution, explosion, gas leak, or flooding caused by damage to underground services.

Protective systems like benching, sloping, shoring, and shielding must be created before entering the excavation. Collapsing should be avoided by supporting the sides by using one of these methods. Materials from the excavation should be stored at a safe distance from the trench, which will help reduce the risk of them falling onto people. Adding barriers to the excavation is a good precaution to help avoid people falling into the trench.

Trench safety is not something to be taken lightly. One mistake can alter the life we know forever. Remember, we all want to go home when the work is finished. Follow these steps and be safe whenever an excavation is necessary. See you in class! ■



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If you think you have been exposed to someone with laboratory-confirmed COVID-19, follow the steps below to monitor your health and avoid spreading the disease to others if you get sick.

WHAT IS COVID-19?

A respiratory disease caused by a new coronavirus. The most common symptoms of the disease are fever, cough, and shortness of breath.

HOW DO I KNOW IF I WAS EXPOSED?

You generally need to be in close contact with a sick person to get infected. Close contact includes any of the following:

- Living in the same household as a sick person with COVID-19
- Caring for a sick person with COVID-19
- Being within 6 feet of a sick person with COVID-19 for about 10 minutes
- Being in direct contact with secretions from a sick person with COVID-19 (e.g., being coughed on, kissing, sharing utensils, etc.)

If you have not been in close contact with a sick person with COVID-19, you are at low-risk for infection. Monitor your health for 14 days after contact and stay away from others if you get sick.

SHOULD I GET TESTED FOR COVID-19?

Not everyone needs to be tested for COVID-19. We currently do not have medications to treat COVID-19, so whether you test positive or negative, your healthcare provider's advice for managing your symptoms will be the same. Those who are sick with fever or cough and who are at a higher risk for severe illness (e.g., older people, those with chronic medical conditions including immunosuppression and pregnant women) should call their healthcare provider to discuss whether they should be tested for COVID-19.

WHAT SHOULD I DO IF I WAS IN CLOSE CONTACT WITH SOMEONE WITH COVID-19 WHILE THEY WERE ILL BUT I AM NOT SICK?

You should monitor your health for fever, cough, and shortness of breath during the 14 days after the last day you were in close contact with the sick person with COVID-19. You should not go to work or school, and should avoid public places for 14 days.

WHAT SHOULD I DO IF I WAS IN CLOSE CONTACT WITH SOMEONE WITH COVID-19 AND GET SICK?

If you get sick with fever, cough, or shortness of breath (even if your symptoms are very mild), you likely have COVID-19. You should isolate yourself at home and away from other people. If you have any of the following conditions that may increase your risk for serious infection:

- Age 60 years or older
- Pregnancy
- Serious underlying medical conditions or are immunocompromised

Contact your physician's office and tell them that you were exposed to someone with COVID-19. They may want to monitor your health more closely or test you for COVID-19.

If you do not have a high-risk condition but want medical advice, call your healthcare provider and tell them you were exposed to someone with COVID-19. Your healthcare provider can help you decide if you need to be evaluated in person or tested. If you have a medical emergency and need to call 911, notify the dispatch personnel that you may have been exposed to COVID-19. If possible, put on a facemask before emergency medical services arrive or immediately after they arrive.

WHAT IF TESTING IS NOT AVAILABLE?

If testing is not available and you become symptomatic, follow the same guidance for individuals with suspected or individuals diagnosed with COVID-19.

DISCONTINUING HOME ISOLATION

Monitor your health for fever cough and shortness of breath during the 14 days after the last day you were in close contact with a sick person with COVID-19. For sick contacts of COVID-19 patients, discontinue home isolation under the following conditions:

- At least 10 days have passed since symptoms first appeared; **AND**
- At least 3 days (72 hours) have passed since recovered which is defined as resolution of fever without the use of fever reducing medications and improvement in respiratory symptoms (e.g., cough, shortness of breath).

Questions and concerns can also be directed to the 24/7, toll-free COVID-19 information hotline:

1-800-887-4304



The West Virginia Department of Health and Human Resources (DHHR) has developed a fact sheet regarding the COVID-19 case numbers it shares with the public.

DHHR is the official reporting agency for COVID-19, and in turn provides official case numbers to the CDC. Medical providers and laboratories are required to report test results to their local health departments, which provide them to DHHR. Commercial/private labs are also required to report test results to DHHR.

Q: What must be reported to DHHR?

A: COVID-19 is a new disease and therefore, newly reportable to West Virginia's public health system. Medical providers and laboratories are required to report test results to their local health departments, which provide them to DHHR. Commercial (private) labs are also required to report test results to DHHR.

Q: What COVID-19 data is DHHR releasing?

A: The figures on coronavirus.wv.gov include statewide totals for:

- All officially reported positive results in West Virginia
- All official deaths
- All laboratory results reported to DHHR

The online dashboard also provides:

- Cumulative percentage of positive test results (both to date and by date)
- Cumulative number of laboratory confirmed cases, by date reported
- Cumulative number of laboratory results reported to DHHR, by date reported
- Outbreak information for West Virginia's nursing homes
- Comparisons between West Virginia and bordering states for:
 - Case Fatality Rates
 - Percentage of Population Tested
 - Percentage of Population Positive
 - Percentage of Test Positive

Q: What details are DHHR providing about positive cases?

A: DHHR is providing increasingly detailed information about positive cases, including:

- Breakdowns of laboratory confirmed cases by:
 - Race
 - Age group
 - Gender
 - County (both cumulative cases and deaths)
- Data from Long-Term Care Facilities (LTCFs) subject to [Gov. Justice's Executive Order 27-20](#), including:
 - Name and county of nursing home
 - Number of positive residents
 - Number of positive staff
 - Deaths
- Unofficial tallies for:
 - Active cases by treatment setting (hospital, LTCF and home quarantine)
 - Recoveries
 - Treatment setting breakdowns of Top 5 counties for positive cases

Q: How frequently is DHHR updating these COVID-19 numbers?

A: DHHR is updating figures **twice each day, at 10 a.m. and 5 p.m.**

Q: Are these figures truly totals for all of West Virginia?

A: For positive cases, **yes**. Because of the reporting requirements, **the official “Total Positive Cases” figure is the most reliable available statewide for West Virginia.**

DHHR has also bolstered the electronic reporting of both positive and negative test results through an April 16 order that requires every laboratory, including commercial/private facilities, subject to the state reporting requirement to immediately provide both positive and negative results to the Bureau for Public Health.

Q: Why are DHHR’s numbers sometimes different from those reported by other sources?

A: Local health departments receive reports of cases in their areas before DHHR does. Some hospitals, meanwhile, can now test more quickly than before. As a result, these sources sometimes announce results before reporting them to DHHR.

As CDC explains: “State and local public health departments are now testing and publicly reporting their cases. In the event of a discrepancy between CDC cases and cases reported by state and local public health officials, data reported by states should be considered the most up to date.”

While reporting the number of known cases serves an important public purpose, **all West Virginians should be conducting themselves as if positive cases have been reported in their counties and communities.**

As Gov. Justice’s Stay at Home executive order makes clear: every West Virginian should remain in their residence unless performing an essential activity. When performing such activities, every West Virginian must stay at least six feet from others and avoid gatherings of 10 or more people.

Q: Does a positive case reported in my county mean I should be tested?

A: Not everyone needs to be tested for COVID-19, even with known cases in their area. DHHR will provide specific guidance regarding testing whenever appropriate. Local health departments also have discretion regarding testing, as do individual health care providers. Guidance on testing is available from CDC, which also offers an online “Self-Checker” tool: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html>.

Q: I’ve been tested, but I’ve not received my results. Can DHHR or my local health department provide them?

A: Contact the provider or lab that tested you for your results. The DHHR state lab and the local health departments can only provide results for tests they conducted.





Preventive Maintenance

One of the most important, and very much overlooked, programs at any type of business is Preventive Maintenance. This time of year is as good as any to try to start one with winter right around the corner. As an operator, we have learned from the very start of our career about the importance of our Preventive Maintenance Plan. We all get caught up in our day-to-day routines and activities that, sometimes, we just get a little too relaxed. So, let's take some time to think about it.

The life of any treatment plant, pumping station, or other water or wastewater system structure is determined in part by such factors as the materials of construction, the design engineer, the contract specifications, and the facility's location and cost. But the major contributor to an effective life span is, more often than not, a well developed and implemented maintenance program that keeps equipment running and buildings and structures sound. Without proper maintenance, the usable life of any piece of equipment is much shorter than its design life, sometimes by 30 percent.

All you guys and ladies out there probably have some kind of maintenance program in place. In many instances, however, maintenance amounts to repairing equipment that has broken down, or abandoning it and replacing it with new equipment. Breakdown maintenance is far removed from what is considered good maintenance practice.

A good maintenance program will extend equipment life and reduce breakdowns. But regardless of how intensive such a program is, sooner or later, a piece of equipment will break down. If preventive maintenance is planned and carried out, however, such occasional breakdowns will be few and far between.

There are important benefits, other than the prevention of breakdowns, which a maintenance program will generate. In many instances, these hidden results are not necessarily associated with maintenance, but are recognized for improving general operations. A good program will ensure:

- Routine inspection of equipment
- Periodic calibration and adjustments

- Development of a long term overhaul / outage program
- Better scheduling and utilization of personnel
- Reduced overtime for emergency repairs
- Better coordination between departments, especially if equipment is shared
- Improved knowledge and understanding of equipment
- Better organization of equipment maintenance procedures
- Efficient use of lubricants
- Efficient purchase of spare parts
- Better organization of maintenance department operations

The bottom line of any maintenance program is that it can be one of the most economical tools available for achieving a cost-effective operation. Maintenance is often viewed as overhead, but it keeps costs down when implemented properly.



A maintenance program, based on either computer software or some alternative system, can be self-generated or purchased. No two operations are alike, and each program will be site specific. Purchased programs must be flexible, user friendly, and adaptable to accommodate the local application.

A thorough inventory of each operation and its related equipment is the simplest way to organize what must be maintained. Items that should be a part of the inventory can be secondary equipment, such as pump motors, compressors, and mounting hardware, must not be overlooked. All such items require maintenance, either by in-house personnel or contracted help.

A second part of the inventory should be a listing of support capabilities. The inclusion of personnel is important. If too few personnel are on the staff to maintain the equipment at a desired level, steps must be taken to acquire more help from outside contractors

or suppliers. Situations like this have to be considered when managers are establishing the maintenance budget.

After all items have been accounted for, the maintenance list should be prioritized according to the intensity of maintenance required. This procedure provides the foundation for the development of a program based on need. It also keeps the program in perspective as it relates to staffing requirements.

Many managers of water or wastewater treatment plants have the attitude that developing a maintenance program is beyond their capabilities or that they do not have the time. This is not necessarily true, and a predesigned computer package or other purchased maintenance program could help accomplish the task. But there are disadvantages that go along with the advantages. A package will provide basic procedures, charts, and other paperwork needed to get started. Its format must be followed and it may not be flexible enough to be modified or adapted to an operation, even though it may be user friendly. And in many cases, the program allows only limited space for each item of maintenance.

Also, two features of computer programs should be considered. First, they generate large amounts of paper, some of which is useful for permanent records and storing inventory data, and some of which is simply not useful. Second, certain computer programs may be so complex that they require a full-time operator.

It is advisable to develop part of a maintenance program before any commercial software system is investigated. This will indicate what a computer package should be able to do and the data collected in the exercise is available for insertion in the computer program. This data collection and insertion is required by any purchased program.



Developing a maintenance program is not as complex as it may appear because plant personnel already have knowledge of the facility's equipment. All that is required to get this information into a usable form is to organize and schedule work activities. This organization is based on the inventory priority list and should be accomplished as three separate tasks:

1. Acquire as much name plate data as possible from each piece of equipment. Utilize reference

manuals, catalogs, drawings, and other manufacturer's information. This data provides the basis for a record file of what has to be maintained. Pre-printed forms are available for this machinery history or you can develop your own.

2. List all items for each piece of equipment that will require maintenance and note a maintenance frequency for each. Refer to the manufacturer's literature for guidance.
3. Develop a spare parts list for each piece of equipment. This list can be included as part of the machinery history. It does not have to include every nut and bolt, but should cover items that are hard to find or require long lead times. If there are duplicate pieces of equipment, then the number of spare parts can be reduced to provide parts for at least one or two units. The list should be based on useful life. The faster a part wears out, the more parts are needed.

The frequency at which a piece of equipment or machine should be maintained is governed by its type, location, the hours it runs, and the type or level of maintenance to be accomplished. Two types of maintenance have to be considered: routine and scheduled.

Routine maintenance comprises the periodic inspections and tests performed on equipment at regular intervals. Included are daily, weekly, monthly, quarterly, semi-annual, and annual inspections during which minor routine maintenance tasks are carried out. Lubrication, vibration tests, packing adjustments, and other activities are part of this program.

Whileroutinemaintenanceisunderway,housekeeping chores, including landscaping if applicable, can become a part of the routine and is helpful if the plant covers a large area. Bringing all operating logs/records up to date can be done at this time. These items should be incorporated in the program and put down on paper rather than left to the discretion of the maintenance staff. If it is not on paper as a maintenance item, it may never be carried out.

Routine maintenance can be organized in several ways: by types of equipment, location, time required to complete the work, maintenance frequency, available personnel, etc. If most of the equipment is located in a general area, the easiest way to schedule maintenance is by equipment type. Tasks will be similar or repetitive, encouraging work continuity and efficient time utilization. This approach presumes that one person will do the same task for all equipment

On the other hand, if the work sites are scattered, then grouping the work tasks for several different pieces of equipment situated relatively close to each other is probably more effective. In this case, several different tasks may be scheduled for the same period. For example, some 30- or 90-day checks might be done along with hourly or daily checks.

A maintenance frequency schedule based on time can be changed depending on how the life cycle of the equipment progresses. For example, if electronic maintenance tests are performed at 30-day intervals, perhaps these could be extended to 45 or 60 days if the equipment has demonstrated satisfactory performance without any apparent need for the 30-day checks. Extending frequency intervals can produce significant cost savings. But if the need for maintenance should increase due to some new condition, the schedule can be readjusted.

Scheduled maintenance is also carried out on a time basis, but not a daily, weekly, or other timed schedule. Instead, it can be defined as the systematic and periodic removal from service of a piece of equipment for the replacement of parts or for reconditioning and overhaul. The time cycle is based on wear and the expected life cycle of the equipment's individual components.

For example, if a centrifugal pump ran 24 hours a day without being shut off, it would accumulate more than 17,000 hours in two years. If the expected or normal bearing life is 15,000 running hours, a decision has to be made when to take the pump out of service for bearing replacement. Proper maintenance standards would say that when the bearings are being replaced, the pump impellers, wear rings, seals and casing should be inspected. Items that appear to have wear should be replaced. In addition, the drive motor, couplings, and electrical gear also should be included in any overhaul project. It is advisable and sensible to have all parts on hand before work is started.

Many plant personnel believe it may be cheaper to wait until a piece of equipment breaks down before it is repaired. This is economically false. Scheduled overhaul is less expensive because only parts showing normal wear are replaced, and the time required to accomplish the work can be managed by scheduling around other activities. Planning such activities avoids emergency overtime or having to recall personnel from other routine work. Another advantage of scheduled maintenance is that equipment can be removed from service during off-peak operations when it is not needed and more time can be devoted to thorough inspection.

A preventive maintenance program requires a variety of records and forms. They should be developed locally to suit the specific organization. Experience has shown that the better the records, the more up-to-date and effective the maintenance program will be. Predesigned maintenance programs usually come with forms included.

Work order forms should be developed to assist in scheduling and completing maintenance tasks. A side benefit of the work order is that it provides a place for the notation of equipment and building discrepancies or additional work required. This, in turn, can be added to future routine work orders or handled separately as scheduled maintenance. Additionally, a work order serves as a check on the maintenance activity, the time required to complete the task, and as a reference for work accomplished and materials used.

Task analysis sheets should be completed for every maintenance activity. This task is time consuming and may not be necessary for some plants to perform. But if there is a large staff, or one prone to turnover, the need to perform each maintenance task properly and in the same manner each time requires documentation. The description of the work to be done does not have to be elaborate, but should be concise and clear. It should also include any tools needed to complete the task. They can be included on the work order.

Log books can be kept at each location if buildings are separated or beside any piece of equipment. This log can be used by maintenance or operating personnel to record any repair work or machine adjustments made. A log provides other persons with a historical record and aids in decision making.

Inventory records are helpful, especially if parts are kept at different locations or if large numbers of spare parts are required. This record should not be too detailed, but should include where the parts are stored and to what piece of equipment they belong. Stored parts also should carry this identification. If possible, for future reference, the parts inventory also should show where the parts were purchased.

A preventive maintenance program is a product of careful thought and contains much detail. Every water or wastewater treatment facility is different and requires a site-specific approach to how maintenance should be undertaken. The skill level of the maintenance personnel, the complexity of the equipment, and many other factors all influence the development of a program and its ultimate success.

Thanks for reading my article. Winter is Coming!!!
Reference: Water & Waste Digest ■



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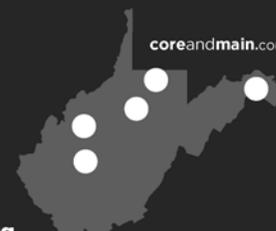
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Safety Training: Protecting Your Most Valuable Asset

We are a technology driven industry. There are many changes being made in the water and wastewater utility industry and everyone is busy and many utilities are short staffed. Today, utility workers are asked to do more with less and are expected to be productive, extremely efficient, and well trained. We work in an environment that requires our full attention to what we're doing. There is no room for mistakes, that's just the way our business operates.

No matter what job you have in the utility, there are responsibilities associated with your job. Part of these responsibilities includes safety – safety for you, your co-workers, and visitors to your facilities. Over the years, safety has evolved into a very high profile responsibility. Safety laws and regulations are becoming more stringent and demanding. Insurance companies that insure our utilities are demanding that we are better trained. This means there is more responsibility in your job today than there was many years ago. Times have changed and so has the industry in which we work.

The goal of a safety training pro-

gram is to help utility employees understand that their job responsibilities include safety. Safety is a major part of your job, no matter what type of job you perform within the utility. Persons who work in areas where it appears there are no hazards, such as in the office, often have a misunderstanding of how safety applies to them. Sometimes, we think that safety doesn't apply to us. Actually, safety applies to everyone in all cases and all the time. You'd be surprised to learn that office accidents can occur as often as any other department, even though the physical hazards appear to be less in an office environment. Safety is your responsibility, no matter where you work or what job you perform within the utility.

It is management's responsibility to provide safety training and information about your specific job, machines, equipment, and other potential hazards. In every utility, there are, or should be, policies and procedures relating to your job and how to perform it. If these policies and procedures exist, it is your responsibility to learn and follow them. If you have ques-

tions, be sure to ask management or your supervisor. If you are new to the utility, there are many questions you'll have during your orientation process. Ask questions if you're not sure about something. There are no dumb safety questions.

Keep in mind that you must be trained and authorized to operate any equipment or machine before you should attempt to use them. If you are operating equipment that has the potential of injury to you and others, more detailed training would be required. Additionally, there are some new safety standards that require "site specific" or job specific training. In other words, if you're assigned to operate a backhoe, you must be trained in backhoe operations and you must also be trained in all other potential hazards of that job.

You see that training is more involved and detailed than most people believe. Years ago, training was fairly simple because safety issues were simple. In today's utility environment, training is an ongoing process. There are always more things to learn, especially about safety. ■



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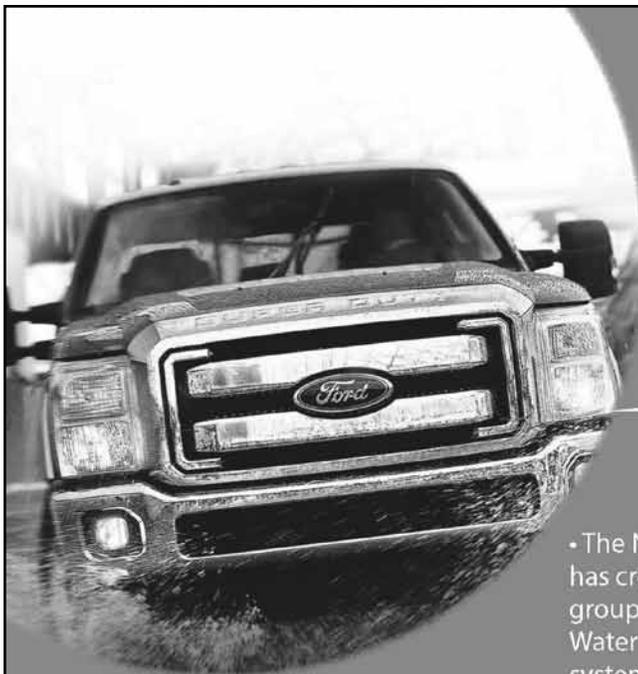
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FLEET Program

• 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.





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- Most material costs for projects are down.
- Shipping costs for many have decreased.
- Road and water projects are easier to schedule due to decreased volume in traffic.
- Low construction costs and available contractors are not guaranteed to last.



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Be Disaster Resilient and Ready

Water utilities today face unprecedented threats to the security and resilience of public water systems. In West Virginia, drinking water services can be disrupted by severe storms, tornadoes hurricanes, and floods which can impact people, property, and critical infrastructure. In these instances, rural water systems serve as a critical lifeline for public health and the community at large. While any natural disaster can be overwhelming, you can take steps to prepare your utility and community in advance.

America's Water Infrastructure Act – Section 2013 Requirements

One of the first steps is to conduct a detailed assessment of your risks. If you have not completed or updated your risk assessment already, you may be required to do so under the America's Water Infrastructure Act (AWIA). Section 2013 of the Act requires Community (drinking) Water Systems (CWSs) serving more than 3,300 people to develop or update a Risk and Resilience Assessment (RA) and Emergency Response Plan (ERP). The law includes the components that the RAs and ERPs must address and establishes deadlines by which water systems must send a certification of completion to the United States Environmental Protection Agency (U.S. EPA).

The certification deadlines are based on system population size

reflected in the Safe Drinking Water Information System (SDWIS) as of the law's date of enactment on October 23, 2018. Systems serving a population 100,000 or greater were required to certify completion of the Risk and Resilience Assessment no later than March 31, 2020. Systems serving population sizes of 50,000 to 99,999 must certify completion no later than December 31, 2020, and systems serving populations of 3,301 to 49,999 must certify no later than June 30, 2021.

Within six months of certifying completion of the Risk and Resilience Assessment, water systems must also certify completion of the ERP. AWIA requires systems to consider factors such as monitoring practices, financial systems, chemical storage, and operations and maintenance in their RAs. For the ERP, AWIA requires utilities to include items such as strategies and resources to improve resilience and procedures to lessen the impact of malevolent acts or natural hazards. See the following webpage for more information and details about AWIA - <https://www.epa.gov/waterresilience/americas-water-infrastructure-act-risk-assessments-and-emergency-response-plans>

AWIA Compliance Resources

The U.S. EPA has developed a suite of tools to help you comply with AWIA. The first tool is the

Vulnerability Self-Assessment Tool (VSAT) Web 2.0. This Tool is a risk assessment application for water, wastewater, and combined utilities of all sizes. Using VSAT Web 2.0, water systems in West Virginia can assess their vulnerabilities to both man-made and natural hazards and evaluate potential improvement opportunities to enhance their security and resilience.

See <https://www.epa.gov/waterriskassessment/conduct-drinking-water-or-wastewater-utility-risk-assessment>. Small CWSs serving greater than 3,300 but less than 50,000 people can conduct a RA using the Small System Risk and Resilience Assessment Checklist - <https://www.epa.gov/waterresilience/small-system-risk-and-resilience-assessment-checklist>. CWSs serving 3,300 or fewer people are not required to conduct risk and resilience assessments under AWIA. EPA recommends, however, that very small CWSs use the checklist or other guidance to learn how to conduct risk and resilience assessments and address threats from malevolent acts and natural hazards that threaten safe drinking water.

A second resource developed to help CWSs conduct a RA is the Baseline Information on Malevolent Acts for Community Water Systems. This document assists CWSs in identifying the types of malevolent acts that could impact them and assist with estimating



the threat likelihood of such acts. <https://www.epa.gov/waterriskassessment/baseline-information-malevolent-acts-community-water-systems>

The U.S. EPA also developed a resource to help CWSs comply with the AWIA ERP requirement. The ERP Template and Instructions describe strategies, resources, plans, and procedures utilities can use to prepare for and respond to an incident, natural or man-made, that could disrupt essential water services. The resource features a blank ERP template that can be easily accessed and modified by utility personnel to meet their own water system needs.

<https://www.epa.gov/waterutilityresponse/develop-or-update-drinking-water-utility-emergency-response-plan>

Other Resources

After completing an RA and

ERP, utilities can further explore how to lower risks and increase efficiency of response with U.S. EPA's tools and resources.

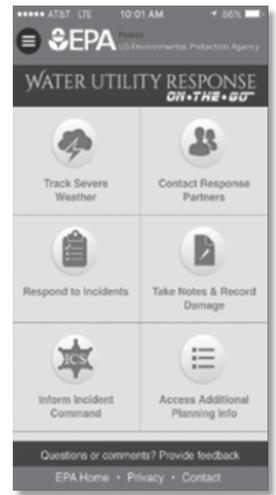


The Hazard Mitigation Guide for Natural Disasters provides examples of mitigation projects for flooding as well as for other disaster scenarios that West Virginia water utilities might face and includes information on eligibility for funding such as federal grants or loans.

The Water Utility Response On-The-Go (Response OTG) Application is an interactive tool allowing you to respond in real time from the field, track severe weather, contact response partners, identify actions to take, and inform incident command. You can learn more about both tools

at: <https://www.epa.gov/waterutilityresponse>

The U.S. EPA provides regular updates on water security and resilience resources that will help water systems meet their requirements to comply with AWIA. To learn more, visit www.epa.gov/waterresilience or join the *What's Going On* newsletter email list by contacting WSD-outreach@epa.gov.



With the help of the additional free water resilience resources, you can continue working toward providing safe and reliable services to customers during emergencies. ■



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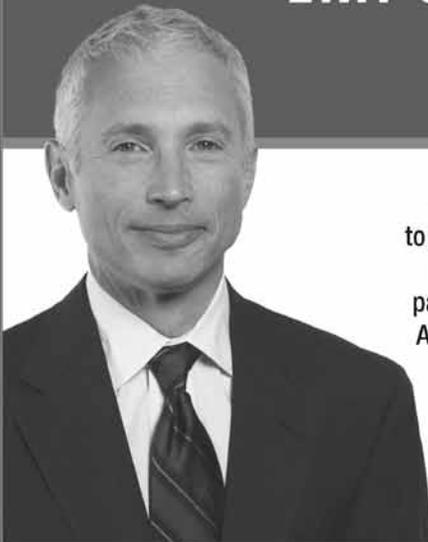
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Coverage Highlights

- Data breach notification and credit or identity monitoring services for up to 100,000 affected individuals, with separate coverage limits for third party claims
- Breach response coverage includes forensic and legal assistance, notification costs, credit monitoring services, loss prevention services and identity theft-related fraud resolution
- Crisis management sublimit for public relations and extraordinary notification expenses
- Low per-incident retentions
- Policy also provides a separate \$1 million limit of liability for privacy, network security and media claims

Contact your State Association today!



NRWA has created partnerships with the Ford Motor Company and the Chrysler Group to offer special fleet 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. Vehicles may be purchased at your local dealer or through the national fleet auto group at www.nrwafleet.com.

Program Details

- Limited to Water/Wastewater utilities that are current members of a State RWA
- There is no limit to the number of vehicles that can be purchased under the program
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- Vehicles must be registered and operated in the 50 United States

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Companies want to hire qualified and talented people to help their business succeed. Having an effective background screening program is an essential step in the process. NRWA teamed up with IntelliCorp to provide members with comprehensive background screening products and solutions at cost-effective rates. IntelliCorp provides validated criminal searches, screening packages, personalized support, training and compliance.

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Only the National Rural Water Association can bring together this unique Products and Services Portfolio. Systems can choose from website design and customer communications, to several insurance packages including health plans, data breach services, line and leak coverage, background screening as well as our Rural Water Loan Fund.

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This NRWA Products and Services Portfolio Toolbox was designed to assist State Associations and their members with up-to-date information and provide exclusive, beneficial products and services at an affordable cost.

You can find additional information on each product or service on the NRWA website, www.NRWA.org.

For NRWA assistance, please contact:

Dawn Myers
Products & Services Coordinator and Corporate Membership
2915 South 13th Street
Duncan, OK 73533
580.251.9081
dawn@nrwa.org



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Affinity Program



The Rural Water Loan Fund (RWLF) is a funding program designed to meet the 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.



Eligible Projects

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

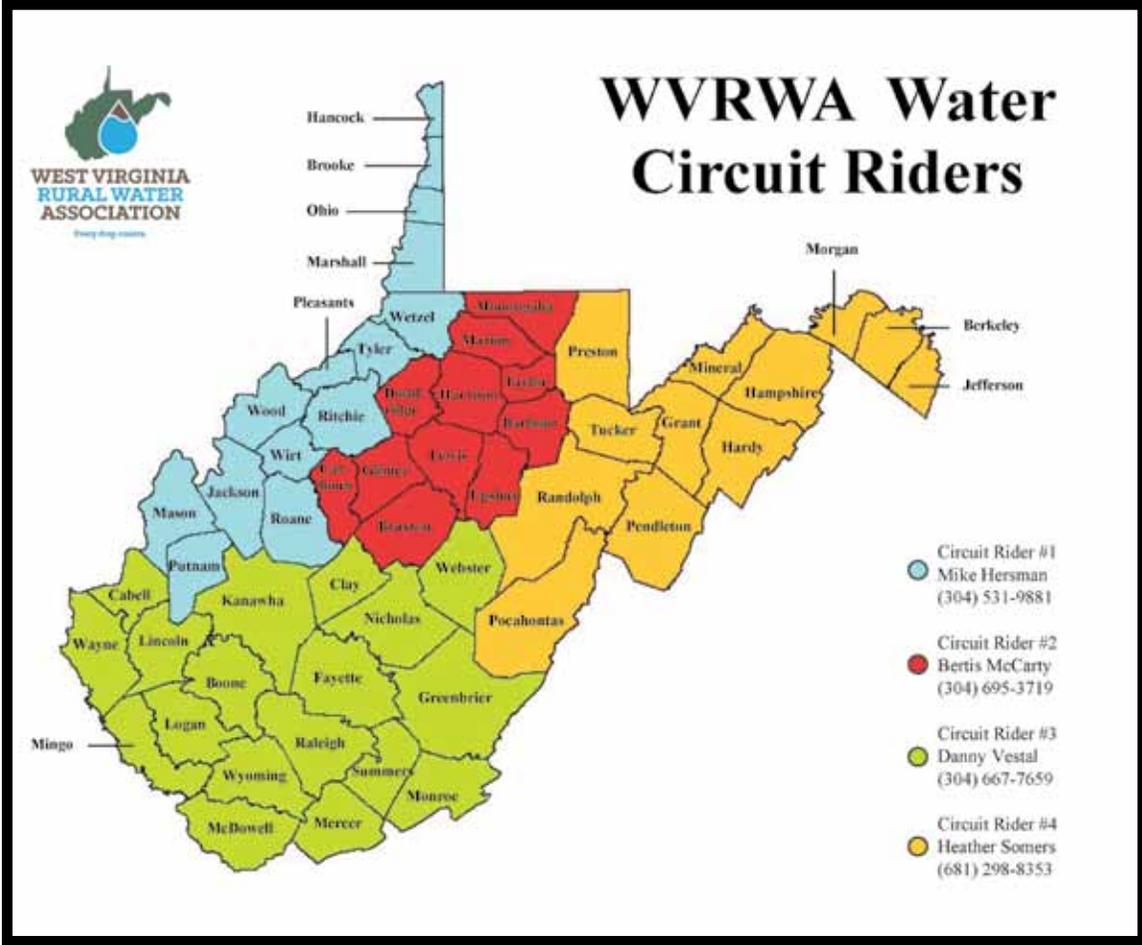
Visit www.nrwa.org, to find out how you can apply for a loan with reasonable interest rates and no processing fees.



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RURAL WATER Loan FUND



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.

Reasons to apply

- Reasonable interest rates
- NRWA does not charge administrative or processing fees
- Straightforward application process
- Quick turnaround

Eligible Projects Include

- 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

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

For More Information:

Applications, information and forms can be downloaded from the NRWA website, www.NRWA.org/loans.

Email applications to:
nrwarwlf@nrwa.org

Or mail to:
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For help, please call 1.800.332.8715 or email nrwarwlf@nrwa.org.



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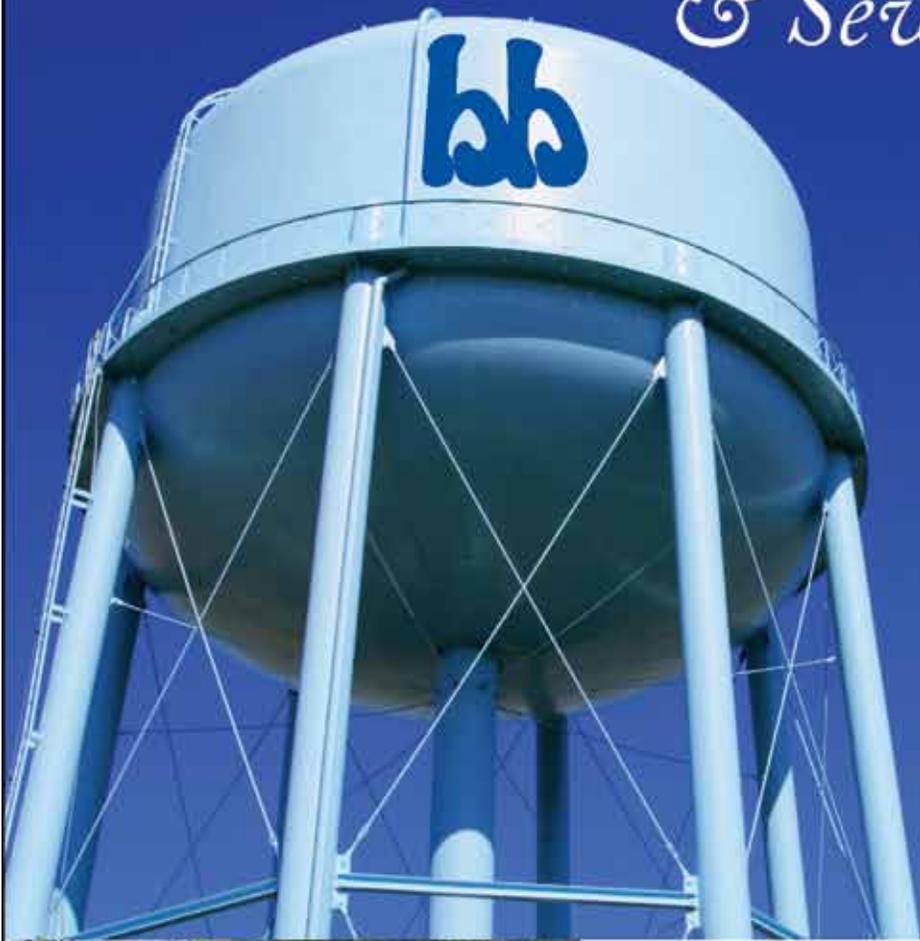
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Leak Detection with Man's Best Friend

Few things stress operators out more than knowing there is a leak in the water system, but being unable to locate it. When you need help locating a leak, you can reach



out to your local West Virginia Rural Water Circuit Rider...OR call on man's best friend. Leak detection canines

are serving water utilities in the same capacity as dogs used to sniff out narcotics or dogs being utilized for search and rescue operations. Using hounds for leak detection is more common throughout Europe, but there are a handful of water systems using them in the United States.

When operators have an idea of where water loss may be occurring, generally one of the first steps to find the leak is to travel the water system looking for suspicious wet areas on the ground and then stopping to test the water for

chlorine or fluoride. This method may not be an effective use of time and does not always yield a useful result. Leak detection dogs are specially trained to signal on the smell of chlorine. Signaling from the canines usually involves laying down and barking or jumping and scratching at the ground. Simply walking a leak detection dog along water mains to sniff out water that has surfaced to the ground would be much less labor intensive. Depending on how deep the water leak is occurring underground, the leak detection dog could also detect the smell of choline even if it has not surfaced to the ground.

I have been in a few plants where employees' dogs hang out on a regular basis. Usually, the dogs are there for companionship when operators are pulling long shifts, but leak detection dogs could be useful at treatment plants, too. A dog on site that could alert the presence of chlorine gas would add an extra layer of protection in the event of a leak. Dogs trained to this extent are usually well behaved and adaptable to different

environments, so a purposeful pooch may easily transition into water plant life.

An ideal leak detection dog would be highly social and playful. A social canine serves better at detection because they can easily separate play and work time. This allows them to be more focused while on the clock leak detecting. Leak detection dogs that work in outdoor environments should also have a low prey drive to keep them from being distracted by people and animals out in the water system. Social dogs are also most comfortable in a community setting. Dogs would also be a valuable public relations tool for outreach and education.

Two years ago, our family rescued an Alaskan husky named Lily, but, if you call me for leak detection, I will bring a traditional leak detector and a set of correlators because our dog is only useful for sniffing out squirrels and treats. However, the most popular chlorine sniffing dog in North America can be followed on Twitter at: [VesseltheWaterDetectiveDog](#). ■

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Trey Hornor, P.E., *President and Managing Partner*

SUDOKU PUZZLE

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

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.



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Answers to Sudoku Puzzle

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



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Thank You Letters

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Council: Paul Russell ~ Douglas Hill ~ Jeremy Smith ~ Pam Nicolais ~ Elise Sheppard
Clerk/Recorder: Brenda Evans

September 2, 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. Mike Hersman for the service he provided to the Town.

Mr. Hersman traveled to Elizabeth to help us with a water leak detection. Mike's expertise is a huge bonus and it proved very helpful to us. 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 use 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 value these services very much.

Again thank you for the service and your time.

Brenda Evans

Brenda Evans

Chief Operator

Bobbi Moore

Bobbi Moore

Mayor



Town of Elizabeth

73 Town Hall Lane ~ P.O. Box 478 Elizabeth, WV 26143
Phone (304) 275-3200 Fax (304) 275-3038

Mayor: Bobbi Moore ~ Alderman: Judith Matheny
Council: Paul Russell ~ Douglas Hill ~ Jeremy Smith ~ Pam Nicolais ~ Elise Sheppard
Clerk/Recorder: Brenda Evans

September 2, 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 traveled to Elizabeth to use a camera to help us determine where water was infiltrating a sewer line. This has been an ongoing issue for our system and Jim's expertise is a huge bonus 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 use 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 value these services very much.

Again thank you for the service and your time.

Dale Clark

Dale Clark

Supervisor

Bobbi Moore

Bobbi Moore

Mayor



Aeration in the Wastewater Treatment Plant

In the opinion of this wastewater technician, proper aeration is the single most important issue in the proper operation of a wastewater treatment plant. Proper aeration allows the microorganisms being used to stay healthy, alive, and to properly do their job. If you are having operational problems at your wastewater facility, I suggest you get your operations and maintenance manual out and see what the proper dissolved oxygen level for your operation needs to be. When I troubleshoot a plant that is not working properly, my first question is always what is your dissolved oxygen? In most plants, an operator would want the dissolved oxygen in the aeration tank to be somewhere between 1.5 and 3 milligrams per liter, but consult your manual for the exact dissolved oxygen level for your plant. All plants are designed differently and they need to be operated according to their design, unless it has been proven by experience that that will not work.

In wastewater, aeration is the process of adding air to your system. This is usually accomplished by some type of mechanical means, such as an aerator. Aeration is part of the secondary treat-

ment process. In biological treatment processes, which is what most systems in West Virginia have, the air is used in conjunction with food and mixing to keep the microorganisms alive and active. The activated sludge process is the most common secondary treatment process. In this process, the tank must be kept aerated to allow the microorganisms to grow. These microorganisms then feed on the incoming wastes. This is what reduces the waste load in these type of treatment systems. The idea is to have the conditions in the aeration tank so that the sludge will settle easily when it goes to the next tank, which is a secondary settling tank of some kind. Aeration provides oxygen to the organisms. This allows the breakdown of organic matter to occur. If enough oxygen is not present, the organic matter will not be broken down quickly enough to keep up with incoming waste. Aeration is probably the most important consideration in most wastewater treatment processes. Aeration has a direct impact on the quality of wastewater being discharged to the receiving water.

The dissolved oxygen is tested with a D.O. meter. Make sure to

calibrate your D.O. meter according to the instructions with the meter. Some of them are calibrated by percent air. Some of them will be calibrated by the altitude of where you are at when taking your readings. Just make sure to read the instructions that accompany your D.O. meter and calibrate it accordingly. They need to be calibrated differently and some of them are calibrated more often than others. Once the meter is calibrated, you can drop your probe in the aeration tank and get a reading. For a few days, I recommend taking the reading several times a day until you get the dissolved oxygen where it needs to be. If your O&M manual recommends that your D.O. be between certain levels, you want to make sure that you have the plant adjusted so that you are between those levels at any time during the day. Dissolved oxygen will be affected by rainwater or low flow conditions, so make sure to check your dissolved oxygen as conditions change.

Aeration is usually provided to wastewater plants by either a blower and diffusers system or by mechanical aerators. Diffusers are usually at the bottom of the aeration tank. They are fed by

a blower that pushes air into the diffuser. The diffuser then releases the air into the water. The air coming out of the diffuser will be in the form of bubbles. The bubbles will come out of the diffuser and move upward through the water, thus releasing air into the water. If you have the correct number of diffusers and the correct number of blowers operating, this system will aerate the tank very effective-

ly. With mechanical aerators, you will have a mixer connected to an electric motor. These usually rotate and have a paddle wheel that goes into the water. These will provide air by splashing water up into the air. As the water is thrown into the air, oxygen is absorbed into the water and aerates the tank.

In closing, I just want to reiterate that I believe aeration to be one of the most important fac-

tors, if not the most important factor, in most wastewater treatment processes. Try to take care to get the aeration level correct in your aeration tank. I think it will be the best operational control you ever implemented. I understand that, sometimes, it is also one of the hardest aspects of the operation to control and it will take some time and adjustment. I believe it will be time well spent in the long run. ■

MICHAEL D. GRIFFITH, CPA, AFI



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Where is this located in West Virginia?

Last issue's answer:

**Blennerhassett Island
in Parkersburg, WV**

Recipes to Tempt Your Taste Buds

Cinnamon Roll Cookies

Ingredients:

Cookies:

- 3 cups all-purpose flour, plus more for surface
- 1 teaspoon baking powder
- 1 teaspoon kosher salt
- 1 cup (2 sticks) butter, softened
- 1 cup granulated sugar
- 1 large egg
- 1 tablespoon milk
- 1 teaspoon pure vanilla extract

Filling:

- 2 tablespoons melted butter
- 1/4 cup packed brown sugar
- 2 teaspoons ground cinnamon

Glaze:

- 1 1/4 cups powdered sugar
- 2 tablespoons milk

Directions:

Heat oven to 350° and line two baking sheets with parchment paper. In a large bowl, whisk together flour, baking powder, and salt.

In a large bowl using a hand mixer (or in the bowl of a stand mixer), beat butter and sugar until fluffy and pale in color. Add egg, milk, and vanilla and beat until combined, then add flour mixture gradually until totally combined. Divide dough in half.

On a floured surface, roll each piece of dough into a 9" x 10" rectangle, about 1/4" thick.

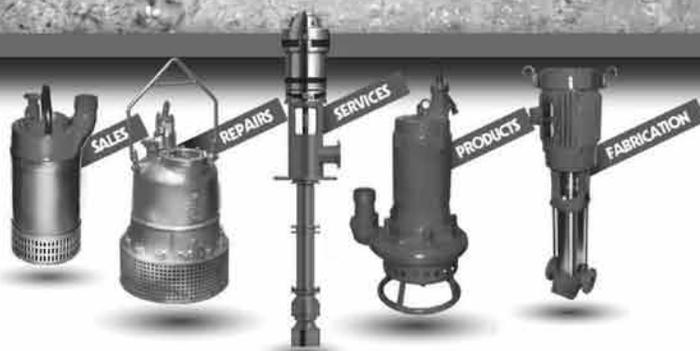
In a small bowl, combine the brown sugar and cinnamon. Brush the rectangles with melted butter and sprinkle with sugar mixture. Tightly roll up each rectangle into a tight log.

Slice into 1/2"-thick slices and transfer to prepared baking sheets, spaced 1" apart. Bake until lightly golden, 12 to 14 minutes. Let cool on sheets for 5 minutes.

In a small bowl, combine powdered sugar with milk and drizzle over cookies.



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Old and New Meter Technology

In the past, meters were only mechanical in the water industry.

- Piston
- Disc
- Oscillating Disc
- Single or Dual Jet
- Turbine

Just to name a few, some of which are still being used today.

The new or advanced meters now use either electromagnetic (MAG) or Ultrasonic flow metering. These devices have the advantage of having no moving parts that come in contact with the water.

Touch read, Radio read, and Fixed Network systems are a lot alike when it comes to meter technology and system benefits. Most of this technology is based on the way we collect and manipulate data.

Let's start from the beginning of this technology.

The First Commercially Available Remote Meter Reading and Load Management System - Metretek, Inc. (1978)



meter Reading and Load Management System - Metretek, Inc. (1978)

In 1972, Theodore George Paraskevakos developed a sensor

monitoring system, which used digital transmission. This system had meter reading capabilities for all utilities. This technology was a spin-off of the automatic telephone line identification system, now known as Caller ID.

In 1974, Mr. Paraskevakos was awarded a U.S. patent for this technology.

In 1977, he launched Metretek, Inc., which devel-

oped and produced the first fully automated, commercially available remote meter reading and load management system. Since this system was developed pre-Internet, Metretek utilized the IBM series 1 mini-computer. For this approach, Mr. Paraskevakos and Metretek were awarded multiple patents.

A couple other terms you may hear are AMR and AMI. AMR stands for Automatic Meter Reading, while AMI is Advanced Metering Infrastructure. This technology saves time, which can easily be translated into saving money. Management, Board Members, Council Members, Accountants, and the PSC want every district or municipality to be more efficient and save money.

Believe it or not, the initial reason for automation of meter reading was not to reduce labor costs, but to obtain data that was difficult to obtain. As an example, many water meters are installed in locations that require the utility to schedule an appointment with the homeowner in order to obtain access to the meter. In many areas, consumers have demanded that their monthly water bill be based on an actual reading. Some water systems read meters every quarter or every year and base the monthly billed usage on the average of the quarterly or yearly reading. Early AMR and some current systems often consist of walk-by and drive-by AMR for residential customers, and telephone-based AMR for commercial or industrial customers. Originally, AMR devices just collected meter readings electronically and matched them with accounts. As technology has advanced, additional data could be captured, stored, and transmitted to the main computer, and often the metering devices could be controlled remotely. This can include event alarms such as tamper, leak detection, low battery, or reverse flow. Many AMR devices can also capture interval data and log meter events. The logged data can be used to collect or control utility time of use or rate of use. The data

can also be used for water usage profiling, time of use billing, demand forecasting, demand response, rate of flow recording, leak detection, flow monitoring, conservation enforcement, remote shutoff, etc. Advanced metering infrastructure, or AMI, is the new term coined to represent the networking technology of fixed network meter systems that go beyond AMR into remote utility management. The trend now is to consider the use of advanced meters as part of an (AMI) Advanced Metering Infrastructure. The meters in an AMI system are often referred to as smart meters, since they can use collected data based on programmed logic. What was once a need for monthly data became a need for daily and even hourly readings of the meters. Consequently, the sales of drive-by and telephone AMR has declined in the US, while sales of fixed networks has increased.

Here's how the new meter technology is saving time and money.

- Less time physically reading meters
- Less re-reads each month
- More accurate readings
- More consistent read dates for customers' satisfaction
- Less time in the office entering readings for the billing process

What does a person do with all that extra time?

Some Accountants or Board/Council members might suggest that they could get rid of personnel because the technology is doing the job now. They might also believe that it should only take one day of driving around in the truck to read the meters.

The truth is, most water utilities DO NOT have a flushing program, a water audit program, a fire hydrant maintenance program, or a valve exercising program. This is because time and personnel does not allow for such programs. They spend their time reading meters, re-reading meters, looking for and fixing leaks, etc.

A couple of the problems associated with these non-maintenance issues are:

- When working on a leak, they sometimes have to replace a valve at the same time, making the job more difficult than it should be and upsetting the customers because the water was off for such a long period of time.

- The local fire department goes to use a hydrant that has not been touched for many years and it slows them down. Does your management know the district could be held responsible for the total loss of a house because you have absolutely no maintenance records for said hydrant?

New meter technology can also help with the magical target of 15% water loss, recommended by the WV PSC.

The only benefit to manually reading meters is finding meter well leaks in a timely manner. Most people that already have technologically advanced meters do not check the meter wells on a regular basis as they should. At least once or twice a year, every meter lid should be removed and the meter well checked for leaks and/or maintenance issues. According to the PCS rule 3.2.c, that refers to remote registers installed when the actual meter is not accessible. They shall be compared every six months. The PSC has not adopted any rules for AMR or AMI technology, but any system with this technology should follow the six-month guideline. This could save the system time and money searching for those small, hidden leaks. Every one should know by now that the small, hidden leaks use more water than the large leaks.

Reading meters needs to be as accurate as possible and is one of the most important jobs for any utility. The whole cycle of a water utility evolves around the meter reading. Keep a good meter reader happy and the district will prosper with more satisfied customers and a better bottom line. New meter technology can make the difference to any struggling water system. The meter reader will finish the job quicker and more accurately than imaginable. The new meter systems will help warn the meter reader of possible leaks, who in turn can warn the customers in a timely manner.

In conclusion, purchasing new meter technology, instead of hiring the much-needed personnel to perform maintenance mentioned in this article, can be beneficial in many ways. The money savings, compared to more personnel, can be calculated easily. Shop around, talk to your peers, weigh in all the benefits and remember "Cheaper is not always BETTER!" ■

Special Interest

John R. Tinney, age 75, of Sutton, WV, went home to be with the Lord on Tuesday, June 16, 2020.

John was born December 24, 1944 in Sutton, WV, the son of the late Amos Brown Greene and Lenora Ruth Tinney Greene.

He retired from the Air Force and the National Guard. John worked for General Motors, Sugar Creek PSD, Glenville PSD, Department of Highways, and Greene-Robertson Funeral Home. He served as a Board Member for the Braxton County Senior Center, Braxton County Cemetery, and Hoover Cemetery where he was also a trustee and the treasurer. He was a member of the WV State Fireman's Association and the WV State Fire Chiefs. John was also a member of Stump Chapel Baptist Church for over 60 years, where he was a Trustee, Sunday School Teacher, and a Choir Member.

John proudly served on the Sutton VFD for 20 years, 10 of which he served as the Fire Chief. He also served as the Gassaway VFD Fire Chief for 18 years.

He is survived by his wife Barbara A. 'Butch' Tyo Tinney; sons Thomas K. Tinney and Diana L. Mollohan, Jonathan "Todd" Tinney and Betty A. Tinney, and Eric S. Tinney and Kathy J. Tinney; grandsons Bryce A. Tinney, Caleb S. Tinney, Isaac Sparks, and Ethan Sparks; granddaughter Abigail C. Tinney; and two great-grandchildren.

Retiring After Pumping Water for 48 ½ Years

James A. Props has been pumping potable water to the residents of Ritchie County since February 1972, when he returned from Vietnam. Upon getting home, he had plans to draw unemployment for



the 14 months that was allowed at that time, but he was told that, to be eligible, he had to put in some job applications. Jim went to Pennsboro where he saw Rannie Allen, a Pennsboro councilman, at his car dealership and Jim was hired on the spot and sent to the water treatment plant and was soon in training for an



From left to right: Town of Harrisville Mayor Alan Haught; Jim Props; former Pennsboro Mayor Wes Merritt

operator's position. He never got to draw a penny of the unemployment or relax from his tour of duty with the Army. He has been pumping water ever since, up until the end of

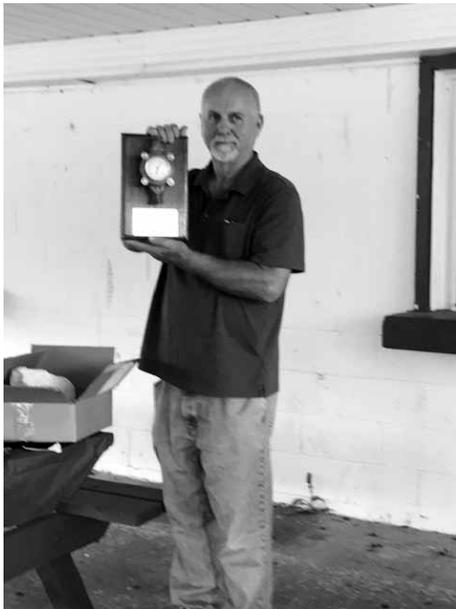
August 2020.

Jim is the son of the late Roy and Mary Props and the second of 5 children, born September 24, 1949. He and wife Becky are the parents of Adam and Kayla, plus one grandchild. He grew up on a hilltop farm in the center of Ritchie County at King Knob, WV. He attended a one-room grade school at King Knob and then graduated from Harrisville High School in 1967. Upon receiving his draft notice for the service, Jim volunteered for the Army and was originally sent to Germany as a heavy equipment mechanic. He later volunteered to go to Vietnam and was assigned to drive a gasoline tanker, following M88 tank recovery vehicles.

The Pennsboro water treatment plant was only capable of 250 GPM and they had to pump 10 to 14 hours per day to keep up with the demand. They pumped mostly at night to get the reduced electric off-peak rates. Jim also worked for the Harrisville water system on an as-needed basis for several years until the Hughes River Water Treatment plant was built and put into operation in 2001. He followed closely as the new plant was being built and took a lot of pictures that have been invaluable since then. He had been the Chief Operator of HRWB until a couple of years ago, turning those duties over to his co-worker, Eric Shoemaker.

Jim has served all of the county water utilities as their distribution supervisor at one time or another. James Props was the WVRWA Water Operator of the Year in 2005 and is a Class III Operator. He credits the late Larry Rader for being an important mentor in his early career and what he misses most today is

the helpful nature of the state officials who were willing to work with the systems and point out things that needed changed or improved upon, instead of nit-picking for things to



write up violations.

Jim's background as a baby boomer, being raised on a farm where he had to work even as a youngster, attending a one-room school, and

going to a dangerous place like Vietnam molded him into a hard-working, dedicated individual who has served his country and community extremely well. Jim's story also goes to point out the plight of the shortage of water and wastewater operators, not only in West Virginia, but across the nation. The average age of licensed operators is 56 years old and many of those have enough years of service to retire now. It is time for the millennial and x-generation to step up and accept their responsibilities to provide the essential services to our great

country.

The people of Ritchie County thank Jim for all of the incalculable millions and millions of gallons of water that he has pumped during his career and wish him well in retirement and that he can enjoy his woodshop and his family. Congratulations on the retirement and also thanks for serving our great country.

Written by Alan Haight, WVRWA Board Member and NRWA representative. ■

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Metal Removal in Wastewater Plants

Elbert Morton and I were out training/visiting several wastewater treatment plants that are having issues with various compliance issues. We were attempting to give them technical assistance with their compliance problems to mitigate the long-term effect of this non-compliance.

We were finished with our visit at the utility that was having problems and had time to just drop-by a couple of systems in the area that aren't having compliance issues. The City of Spencer was on our route toward home, so we decide to stop there. Their Utilities Director, Mr. Brent Wilson, was gracious enough to give us a tour of his facility and show us the recent upgrades that were in the final stages of completion. The upgrades were a new influent grit unit and trash removal system. From there, we followed the flow through the plant and saw the RBC shaft that had broken and the ingenious invention Mr. Wilson and a local welder/metal worker invented to lift the RBC to facilitate the repair to the shaft. From there, it was on to the secondary clarifiers. While viewing the clarifiers, Mr. Wilson told us about his new chemical feed system for metals removal, most specifically copper in the case of Spencer.

In the past, the plant had an effluent copper exceedance problem. As operators with metal compliance issues know, there isn't any biological way to remove metals from the effluent stream. It's important to note here that copper effluent limits on wastewater are more stringent than that of drinking water in most, if not all, instances. The reason for this is

that metals have an adverse effect on aquatic life, fish in particular. He told of how they came upon the solution. Seems one of his workers was at the City's water treatment plant when their chemical salesman was there making a sales call. When the salesman was leaving, he asked if there was anything else he could do for them. The sewer worker told him they were having a copper issue, whereupon the salesman told of a chemical to fix the problem. The worker went back to the sewer plant and relayed what he had learned about the chemical. Mr. Wilson was very skeptical of a "miracle cure." He further researched the chemical and decided to give it a try. Jar testing was completed to determine the proper starting dosage with the assistance of the supplier.

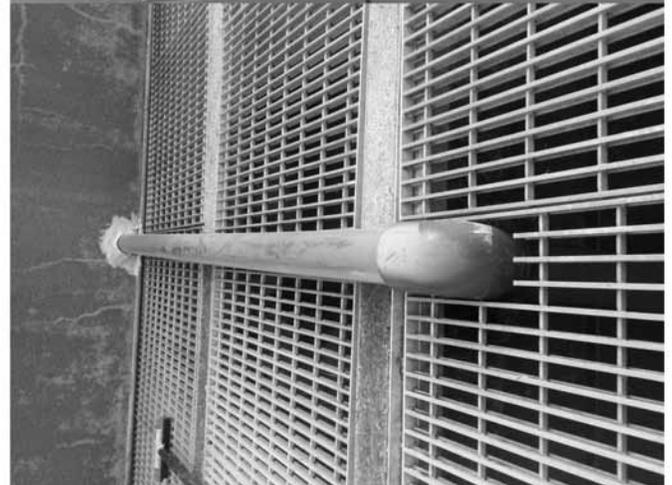
The dosing system consists of two dosing pumps sitting atop the 55 gallon drums of the chemical and the polymer settling agent and one- 2" schedule 80 pvc pipe conduit. The pipe conduit carries the feed lines through the wall of the building to the splitter box prior to the secondary clarifiers, where it is dripped into the flow. The chemical dosing system is very simple and inexpensive to operate. The location allows for easy access and maintenance. The treatment consists of a chemical that, when mixed with water, dissociates into a bisulfide, aqueous hydrogen sulfide and other sulfide anions. These react with the heavy metals to form less soluble and non-toxic metal sulfides. A polymer settling agent must be used to settle the metals out of the waste stream. Aside from the removal of copper, the chemical is

also recommended for use to remove arsenic, lead, zinc, cadmium, molybdenum, and uranium. This isn't the only chemical that works similarly. Walter Higgins of EPA Region III Water Division, Infrastructure and Assistance Section provided another solution that is being used in Pennsylvania with similar success. The chemical that the City of Spencer is using is Remotox Calcium Polysulfide and the chemical being used in Pennsylvania is Thio-Red. An internet search of either of those names will give you valuable information and contact information to find a local supplier. You may wish to contact your current chemical supplier for support. Before installing, as in the case of Spencer and as they are doing in Pennsylvania, we recommend that bench testing be completed to determine the dosing rate and associate polymers to minimize cost while addressing the

metal discharge problems.

The plant hasn't had an exceedance for copper since beginning the use of this solution. The addition of the chemical has not caused any higher copper levels or in other metals in the waste sludge. This has allowed the city to continue the beneficial use of waste sludge for land application from the plant. By sharing this solution, other communities can use the process to address the non-compliance issues on metals cost effectively.

Our visit to Spencer was on a whim and it goes to show that no matter where you find yourself in life, there are always opportunities to learn. By passing the knowledge along, you are helping others better themselves, their communities, and the environment. One last important thought is to check with your permit writer to see if a permit modification is required. ■





Bio

Joining the Circuit Rider team this summer at West Virginia Rural Water has been a great experience. Most little kids don't grow up dreaming of being a water plant operator, but it is a rewarding career that is vital to our community. Workers in this industry are hardworking, unsung heroes and I am proud to be among the ranks. In 2013, I was hired by my local water system as a Water Distribution Operator reading meters, installing taps, and repairing mains. After a few years,

I was able to learn treatment at the water plant, eventually using plant time and college hours to become a Class III Water Operator. While working full-time at my local water plant, I have also worked part-time as a relief operator helping other systems and worked for an engineer building scada and control systems. When not working, my family and I have fun riding ATVs and cooking out. I have enjoyed traveling in the state and visiting water systems the past few months. Circuit Riders are

here to help, please do not hesitate to reach out for any technical assistance needs. I can be reached on my cell at: 681-298-8353 or email at: heathersomers@wvrwa.org.

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West Virginia Rural Water Association Cybersecurity Update

West Virginia Rural Water Association here with a quick update regarding cybersecurity and tips on identifying genuine WVRWA communication.

As our industry continues to integrate digital services like email into our daily work, it becomes increasingly important to ensure that we are taking efforts to be as secure as possible when online. Here are some tips to help confirm that online communication you may receive with our name on it is truly coming from us:

- When you receive an email claiming to be sent from West Virginia Rural Water Association staff, check the email address of the sender to determine if it is correct. If it isn't an @wvrwa.org email address, it likely isn't from us.
- If you were not expecting any direct communication from us, be especially critical of both the sender's information as well as the content of the email.
 - Be particularly careful about the sender's information if you receive communication directly asking you for private information. Feel free to contact us over the phone or through a new email message if you would like confirmation that we reached out to you.
- Be mindful in general when reading an email claiming to be from WVRWA or WVRWA staff. Some inauthentic emails can be convincing, so it is important to take the time to examine the message closely before you respond.

We encourage you to contact us with any questions or information regarding West Virginia Rural Water Association and proper cybersecurity!

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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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*Quality Water Services, LLC

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10994 Leadbetter Road
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Ron Byrnside	Matt Diederich	Kevin "Ricky"	Patricia Lee	David Stover	Louis Wooten
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