



MOUNTAIN STATE WATER LINE

A Publication of the West Virginia Rural Water Association

Summer 2020

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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

When I penned my last article for the Spring 2020 issue of the Mountain State Water Line, I would have never believed that we would have experienced such a lengthy Stay-at-Home order, schools being closed so early, and the shutdown of businesses seemingly lasting forever. The sudden halting of businesses and school closures has resulted in an economic tsunami for virtually every country globally.

These closures have resulted in loss of revenues for every utility across the board. Those dollars are gone and unless congress throws out a life line, we will never be made whole. The National Rural Water Association's Washington D.C. staff is working around the clock to convince members of congress to include us in a future relief package.

Other than reduce spending, there was little else our members could do to decrease the flow of cash going out the door. Debt service payments need to be paid, key employees have to be kept, and emergencies must be dealt with, leaving little or no room to cut costs other than postponing capital improvement projects.

As we end the fiscal year, I hope our members have been able to weather the storm and have been fortunate enough to keep their heads above water and the red ink to a minimum.

As all of our members know, your Board of Directors was tasked with the grim reality that the 35th Annual WVRWA Conference in 2020 had to be cancelled. By no means was it an easy decision, but it was the right one. Our online survey response, or significant lack of responses whichever way you want to couch it, clearly indicated that members would not be able to attend and the cost to benefit ratio to host such a small group would have resulted in financial losses much too great for the association to absorb. With the cancellation of the conference, so went the annual golf outing, which is our source of funding for our WVRWA scholarships. Unfortunately, we will be unable to award scholarships for the next selection year.

We will just remain positive and focus on holding our 35th conference in 2021 and keep our fingers crossed that COVID-19 will have

diminished significantly and a safe vaccine has become available. Of course, weakening the spread will greatly depend on us following social distancing rules and using common sense. Perhaps we are all doomed if we can't manage to do those simple things.

As I end this message I would like to point out that our Public Service Commission of West Virginia waited until June 17, 2020 to issue General Order No. 262.5, informing us that we "should not assess late payment fee for balances accrued during the voluntary termination suspension period." The Public Service Commission should have issued this mandate as part of General Order 262 dated March 17, 2020 regarding the Voluntary Suspension of Service Terminations. It is troubling that the Public Service Commission waited until the last days of the fiscal year to spring this on the regulated community. Going back to reverse those charges is an incredible amount of work on our utility staff, and our revenue losses will be even worse since we are being denied the right to charge fees that are in our Commission-approved tariffs. ■

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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

Living in the Time of COVID-19

There is an old Chinese saying “May you live in interesting times.” I often wondered about that and, I will admit, I thought it was kind of a stupid saying. No more. These times are indeed interesting. They are also confusing, upsetting, and emotionally draining.

For you as essential workers, it is even more unsettling. In the beginning of the pandemic, we didn’t know how the virus was spread. Some said it came through contact with obviously sick people. Then we found out that even people who weren’t obviously sick could spread the virus. Children couldn’t get the virus, then we found out that they could and that they suffered a mysterious syndrome that

adults didn’t seem to get. Some say wearing masks is the single most essential way to keep the virus from spreading. Our president doesn’t wear a mask. What is the right answer? It has been almost too much to bear.

It is important that you take care of yourself. Not just physically, but mentally. People depend on you. I depend on you. Meditation, yoga, and other mindfulness practices have grown exponentially. They are important ways to keep yourself strong. It is very easy to feel isolated. You are not alone. We are here to help.

I taught my first Zoom classes the same week that I am writing this article. It was great to make contact with the outside world and

the operators and general managers who took the class. We talked about movies and tv shows. We talked about water towers in West Virginia. We talked about sustainable systems and what they look like. The students worked through their coursework and things felt almost normal. Almost.

WVRWA staff is making mask distributions throughout the state. The masks came about through requests from WV WARN. I know the staff is very happy to be out and about and to see all of you. It is almost like Christmas as they go from system to system. Almost.

I know that this too, shall pass. If you need us, call us. We are here to help in interesting times and dull times. ■



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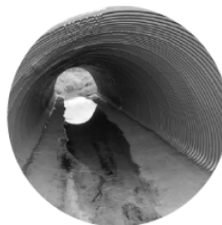
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What is a Pandemic?

Training classes for water and wastewater operators have been cancelled or postponed because of the pandemic. To be honest, I have never given much thought about pandemics. Yes, I have heard about them, but one had never affected me. The questions of when and where the Covid-19 pandemic started is still being debated as I sit down and write this article. And while everyone, myself included, has a theory, I think we should start by asking the question “what is a pandemic?”

A pandemic is a global disease outbreak. Every so often, an influenza pandemic occurs when a virus emerges with little or no immunity in our population. It begins by causing serious sickness to people and then spreads person-to-person worldwide. Over the years, we have had four or five pandemics, depending on how one interprets the numbers.

The following are four common distinguishing facts that pandemics cause. First, it spreads worldwide rapidly. In January, President Trump issued a travel ban, but, as we have seen, you may be able to slow the spread, but it cannot be stopped, and therefore, the whole population is at risk.

Secondly, the pandemic spreads and the health care system gets overloaded. While there is little immunity to the disease, in the case of covid-19, we saw a lack of hospital beds, ventilators, masks, and gloves. Early predictions said the death toll could be in the hundreds of thousands and that we could see a second wave of the virus. This is all true, but doesn't necessarily have to happen to be considered a pandemic. And, even though we haven't seen all this in the United States, it doesn't take away the fact that this disease is bad.

The next fact of a pandemic is that medical supplies are inadequate. The population is waiting for medicines and/or vaccines that will heal or prevent the disease. But the truth is, it takes time to develop these medicines. Sometimes, it can take up to eighteen months for a vaccine to be developed and difficult decisions have to be made regarding some drugs. We have seen this in the last few months. Medical facilities get overwhelmed and temporary locations have to be established. Again, we saw this happen in the last few months.

Finally, we see economic and social disruption during a pan-

demic. Schools and businesses sometimes close. Events get postponed or cancelled. And sometimes, from sickness or from being asked to shelter at home, the workforce is absent from work. All these take a toll on the economics of a home, community, and country.

Those are the facts of what constitutes a pandemic. I realize that many are looking at this time in our country and trying to make sense out of all this. But the simple truth is, no matter your politics, no matter what you read or watch, we are in a pandemic. I am writing this article not to change one's politics or mind, but simply trying to give knowledge and understanding to what makes a pandemic and how it is spread. I know it has affected us all and especially operators who need training. Please check out www.wvrwa.org for updates, zoom training for Continuing Education Hours, and when we will start back with certification classes. My hope and prayer is that this will be over before this article comes out, but, if not, know that West Virginia Rural Water will be there to help however we can. See you, I hope, in class! ■

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By Daniel Vestal, Water Circuit Rider

COVID-19 in the Water & Wastewater Utilities

I know you are probably sick and tired about hearing news or anything about COVID-19, Coronavirus, Chinese Virus, Wuhan Virus, or whatever you call it. Well, so am I! But, as I was thinking about an article for this magazine, the news of this virus hit a horrible milestone of 100,000 deaths. With our great state opening businesses back up and trying to get our lives back to normal, we still need to be diligent and smart to stay safe. So, I decided to write an article of getting back to the basics of staying safe and protected and recap information supplied to us from our very own West Virginia DHHR.

First, I just want to run through a few things that the water systems I serve have been doing, which I thought was great. Most water utilities have been closing their offices and taking payments through a drop box or online payments with a credit card. They have been working their employees by staggering their shifts, so no one has contact with each other. We still have to dig up and repair water leaks and sewer breaks and, at times, we have to work side by side. But, so far, everything that our water and wastewater systems have been doing is very efficient and has kept the water running and the toilet flushing. I think that our operators, field crews, office personnel, and management have really gone out of their way and deserve a Great Big THANK YOU! We really APPRECIATE you all!

The rest of this article is going

to be a few reminders of staying safe and inserted pages from the wv.gov site and WVDHHR. Please read over and remind yourself, your friends, and family to be safe and let's keep America Great.

As of 05/28/2020, West Virginia has 1,899 total number of cases (includes probable and confirmed) and 74 deaths.

How is COVID-19 spread? COVID-19 is a new disease and we are still learning how it spreads, the severity of illness it causes, and to what extent it may spread in the United States.

The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.
- People are thought to be most contagious when they are most symptomatic (the sickest).
- Some spread might be possible before people show symptoms; there have been reports of this occurring with this new coronavirus, but this is not thought to be the main way the virus spreads.

Spread from contact with

contaminated surfaces or objects

It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

Visit the CDC's website to read more about how COVID-19 spreads.

How can I protect myself from COVID-19?

- Take everyday preventive actions to stay healthy.
- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces using a regular household cleaning spray or wipe.
- Wash your hands often with soap and water for at least 20 seconds.
- Follow public health advice regarding school closures, avoiding crowds and other social distancing measures.
- Stay informed. CDC's COVID-19 Situation Summary will be updated regularly as information becomes available.

View other recommendations from the CDC to protect yourself and your family from COVID-19 ■

COVID-19

WHAT TO DO IF YOU WERE EXPOSED TO SOMEONE WITH CONFIRMED COVID-19 - UPDATED MAY 6, 2020

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



www.coronavirus.wv.gov



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[wv_dhhr](https://twitter.com/wv_dhhr)

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.



www.coronavirus.wv.gov



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By Michael Hersman, Water Circuit Rider

The Distribution System: The Final Barrier in Protecting Public Health

Water quality can degrade after leaving the treatment facility as a result of inadequate distribution system management and protection. An effective distribution system management program is regarded as the final barrier to preventing outbreaks of waterborne diseases. Effective system management also contributes to improved service reliability and can help extend the life of the distribution system. Complex interactions of biological, chemical, and physical factors can impact water quality and system integrity and reliability. The importance of the distribution system as a barrier is that water can become contaminated through cross connections, construction breaks, line repairs, and inadequate separation of water supply lines and sewers. These factors are significant contributors to waterborne illnesses.

From 1920 to 1984, cross connections, back siphonage, or contamination of water mains accounted for 185 waterborne disease outbreaks in the United States. From 1975 to 1984, 15 percent of all Giardiasis cases in the United States were related to contaminated water resulting from cross connections, pipeline

damage, or repair of mains. Distribution system deficiencies accounted for 12 percent of waterborne disease outbreaks in the United States from 1991 to 1992.

Water quality entering the distribution system should have sufficient chlorine residual, be low in turbidity, and have a good microbial quality. Proper corrosion control and pH are also important. Some causes of water quality deterioration within the distribution system are longer detention times and loss of disinfectant residual. When these occur, there can be an increase in microbial activity and taste and odor problems. Internal corrosion can deteriorate water quality causing red water, tuberculation and sediments, and a formation of biofilm habitat. The greatest consequence of water quality deterioration is unreasonable risk to health.

Preventing waterborne disease should be the priority of every drinking water utility. Other consequences are noncompliance with drinking water regulations and excessive or persistent complaints from water consumers. Water loss through leakage or impaired physical integrity (breakage) and con-

struction accidents can contribute to contamination. When installing water mains, use proper depth, bedding, and supports. Use proper materials, pipe, and fittings. If the system is designed poorly, such as inadequately sized mains and storage facilities, inadequate pumping capacity or improper valve or gate settings can reduce carrying capacity or system pressure.

Water main flushing is an important element of a distribution system management plan. Frequency of flushing can be based on the complexity and size of the system and availability of water. Flushing is often conducted in response to consumer complaints. Water main flushing should be done annually or semi-annually, spring and fall. Flushing should be unidirectional; valves should be opened and closed in areas of the system to ensure all lines are flushed and scoured. By practicing unidirectional flushing, not only do all the lines get cleaned, but the valves get a much-needed exercising. Water main flushing removes settled material from water mains, increases disinfectant levels in low flow areas, and improves the water quality and taste.


Another element is cleaning and lining of mains. Cleaning and lining improves the carrying capacity of heavily tuberculated mains, decreases habitat for biofilm growth, and can extend the system life by up to 50 years. Poor water mains can contribute to contamination through intrusion and leakage. The decision to rehabilitate or replace will be determined by the overall condition of the pipeline section. If the utility is constantly repairing a section of main due to leaks, it would be more feasible to replace that main

and decrease the chance of a disease outbreak. Storage tank maintenance also plays a vital role in preventing waterborne disease. Inspect interior/exterior surfaces and coatings for signs of corrosion and wear. Inspect valves and piping and the integrity and security of hatches and vents. Remove accumulated sediments if needed.

Distribution system operations specialists and managers have a variety of tools available to manage and protect the distribution system from contamination and maintain

acceptable water quality. Effective distribution system management constitutes the final barrier to preventing outbreaks of waterborne illnesses and diseases and extending the life of the system. With an effective water quality monitoring program making public health protection a top priority and a management plan with a functionality of maximization of water quality, routine system operation and maintenance can significantly decrease the chance of a disease outbreak in your utility. ■

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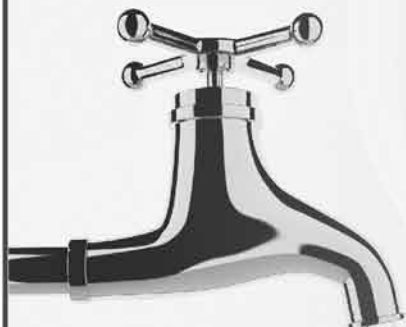


FLEET Program

- 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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By Jerry Dotson, Sourcewater Protection Specialist

Pfas or Pslow: We're Going to Have to Deal with It

What do a microwave popcorn bag, your Gore-Tex hunting clothes, your non-stick skillet, and firefighting foam all have in common? A contaminant that is showing up in drinking water sources everywhere. Per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that companies began using in the 1940s to produce products that we have really enjoyed. Who would not want a skillet that eggs won't stick to, waterproof clothing to keep you dry while hunting or working, carpet and upholstery that doesn't stain when you spill something on it, and food containers where the food comes right out without sticking? These have all been very popular products that made our lives much easier and more comfortable.

Unfortunately, we now see that those conveniences came at a price. A class action suit against the DuPont Company in western West Virginia and eastern Ohio came about because of health issues, including kidney and testicular cancer and ulcerative colitis. In this case, the ailments were linked to prolonged exposure to the chemical C8 produced at the Washington Works Plant, also known as perfluorooctanoic acid, a member of the PFAS fam-

ily of chemicals. Some cases were thought to be from working at the plant and some from ingesting local water tainted with the chemicals. While C8 is no longer used, there are other members of this chemical family that still have the potential to create problems.

Knowing the risk that these chemicals present, the West Virginia Legislature has been working to produce acceptable legislation to work through the issue. The new laws are expected to do things like designate state maximum contaminant levels for PFAS, to establish accepted treatment techniques, and to require companies that use PFAS chemicals to report their use. The USEPA began recognizing the problem in 2016 when they established a health advisory for PFOA and PFOS, setting the level at 70 parts per trillion (ppt). In February of 2019, the EPA issued the PFAS Action Plan that outlines the tools the EPA is developing to address PFAS in drinking water. The plan includes identifying and cleaning up PFAS contamination, expanding monitoring of PFAS manufacturing, increasing scientific research for PFAS, and promoting effective enforcement tools. For water systems, the EPA has determined that

states may offer Drinking Water State Revolving Fund assistance to fund equipment for upgrades to add PFAS removal capabilities to treatment facilities and that set-asides from the capitalization grant program may be used for laboratory or testing equipment for research or contamination prevention.

Some states have already begun widespread testing of every public water system to establish where PFAS is currently present in source waters. This will help them determine the extent of the contamination and identify where action is need. It is likely that West Virginia will be one of the next states to implement statewide testing.

PFAS is a concern for several reasons. Aside from the obvious concerns for public health, PFAS is turning up everywhere - not just around manufacturing facilities. It was found in Martinsburg, where the source appears to be firefighting foam used at the local Air National Guard base. PFAS has been found in humans, fish, and wildlife worldwide. All the products mentioned at the beginning of this article, along with manufacturing and disposal of the chemicals, have caused human exposure. This brings up another concern: PFAS does not readily

break down. That means it stays in the environment for a very long time and is readily absorbed into the air, water, soil, plant, and animal life. PFAS most certainly had some influence on the new water source designation Surface Water Influenced Groundwater (SWIG). Filtering through soil does not remove chemicals like PFAS. Even if a source well can pass the Ground Water Under Direct Influence (GWUDI) of surface water test, chemicals like PFAS can still infiltrate because the soil is not able to filter or percolate the chemicals out. Check out Jim Johnson's article in the Winter 2019 issue of the Mountain State Water Line for PFAS from a sewer treatment perspective.

Fortunately, technology is al-

ready available to remove most PFAS chemicals. Several communities around the Washington Works plant have already implemented treatment activities to meet the contaminant limits for PFAS. So, we are not starting from square one. Some current treatment techniques are effective in removing some PFAS chemicals. Activated carbon treatment, ion exchange resins, and high-pressure membranes, like nanofiltration or reverse osmosis, are found to be very effective in removing the chemicals from water. State and federal agencies are working to set standards for PFAS removal so that each system can have guidance available to deal with the contamination.

There are some things to remem-

ber. This situation did not occur overnight and solving the problem will take time and resources. There is help available; the USEPA, WVDHHR OEHS, WVDEP, WVRWA, and others are gearing up to assist in dealing with this problem. Also, we need to understand that the chemicals do not affect everyone and the effects are not immediate, but occur over time. So, while the City of Vienna experienced an overnight catastrophe when the EPA lowered the limit, their water was the same as it had been the day before. PFAS may be the next big hurdle that water systems must deal with to continue to provide good, healthy drinking water to their customers, but it can be dealt with and you are not alone. ■



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August 24-28	Class I Wastewater Certification		Belington
August 31 - September 4	WD Certification	24 W	Scott Depot
September 9	CPR/First Aid	7 W/WW	Elkins
September 10	Flagger Certification/Barricade Procedures	6 W/WW	Elkins
September 23	Hydraulics for the W & WW Industry	6 W/WW	Flatwoods
September 29	Hydrants & Valves	6 W	Morgantown
September 30	Basic Math	6 W/WW	Morgantown
October 5-9	Class II Water Certification		Elkins
October 6	Field Maintenance	6 W/WW	Petersburg
October 19-23	Class I Water Certification		Kingwood
October 19-23	Class II Wastewater Certification		Flatwoods



H.E.L.P Program

Wastewater Program

WVRWA EPA Program

August 2020				
Mon	Tue	Wed	Thu	Fri
3	4 Hydrants & Valve	5 Chief Operator Course; CPR/First Aid	6 Flagger Certification/Barricade Procedures	7
10	11	12	13	14
17	18	19	20	21
24 Class I WW Cert.	25 Class I WW Cert.	26 Class I WW Cert.	27 Class I WW Cert.	28 Class I WW Cert.
31 WD Cert.				

September 2020				
Mon	Tue	Wed	Thu	Fri
	1 WD Cert.	2 WD Cert.	3 WD Cert.	4 WD Cert.
7	8	9 CPR/First Aid	10 Flagger Certification/Barricade Procedures	11
14	15	16	17	18
21	22	23 Hydraulics for the W & WW Industry	24	25
28	29 Hydrants & Valves	30 Basic Math		

October 2020				
Mon	Tue	Wed	Thu	Fri
			1	2
5 Class II W Cert.	6 Class II W Cert.; Field Maintenance	7 Class II W Cert.	8 Class II W Cert.	9 Class II W Cert.
12	13	14	15	16
19 Class I W Cert.; Class II WW Cert.	20 Class I W Cert.; Class II WW Cert.	21 Class I W Cert.; Class II WW Cert.	22 Class I W Cert.; Class II WW Cert.	23 Class I W Cert.; Class II WW Cert.
26	27	28	29	30



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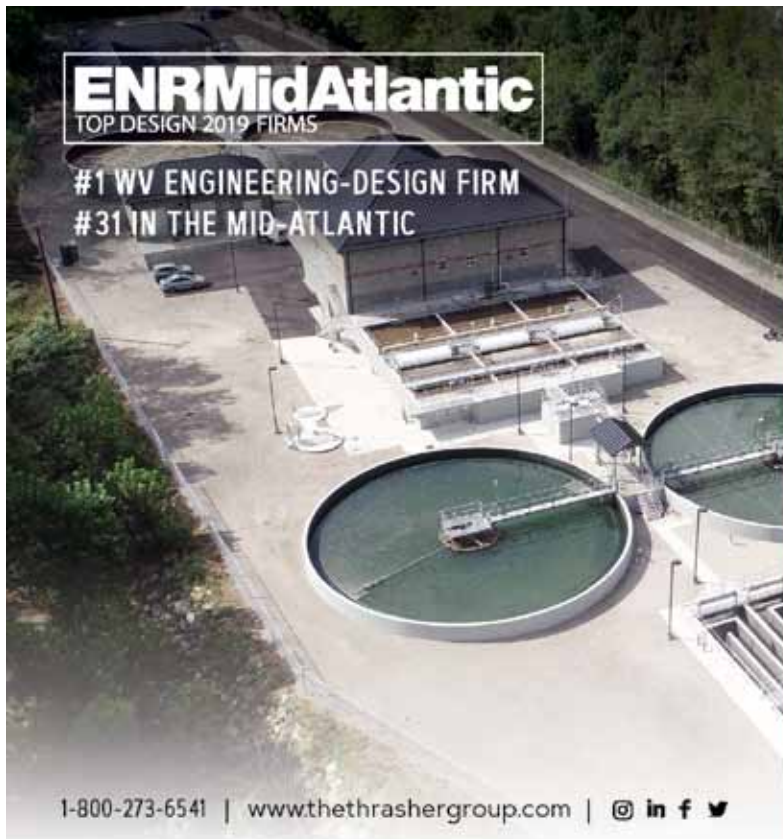
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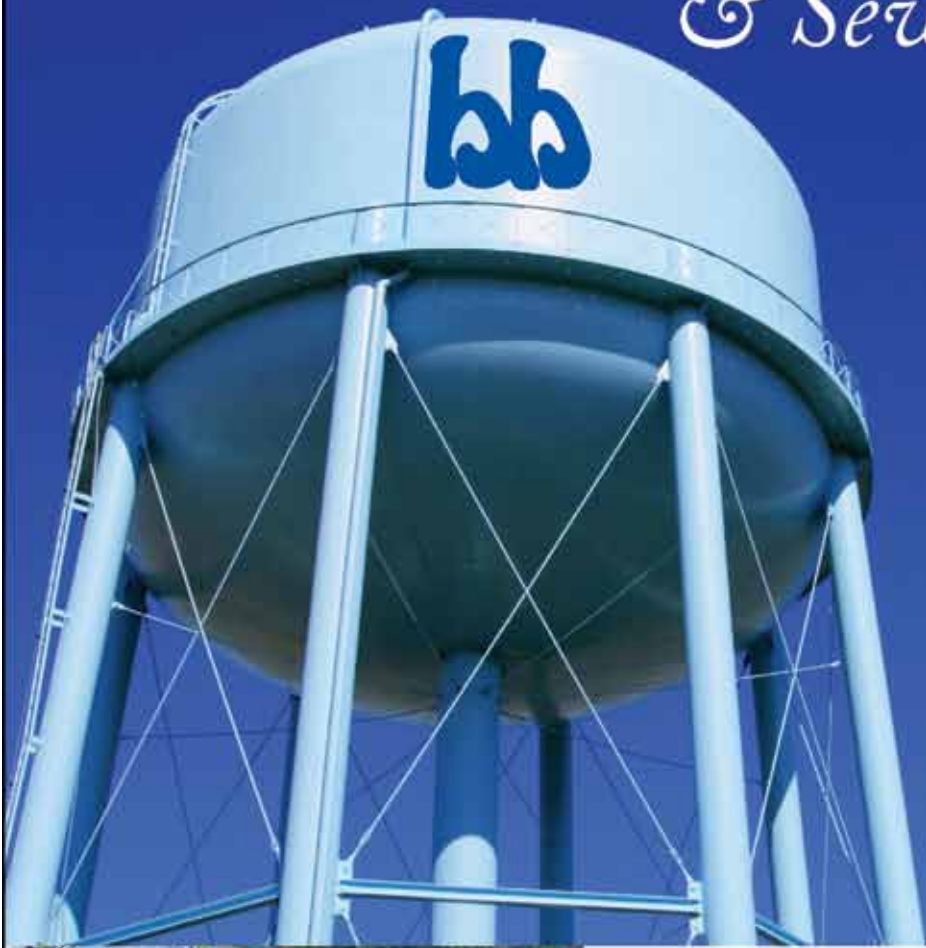
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Reasons to apply

- 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:
Rural Water Loan Funds
2915 South 13th
Duncan, OK 73533

For help, please call 1.800.332.8715 or email nrwarwlf@nrwa.org.



National Rural Water Association working in conjunction
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SUDOKU PUZZLE

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

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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America's Water Infrastructure Act

America's Water Infrastructure Act (AWIA) was signed into law in October 2018. AWIA Section 2013 requires community drinking water



systems serving more than 3,300 people to develop or update risk assessments and emergency response plans (ERPs).

The law specifies the components that the risk assessments and ERPs must address and establishes deadlines by which water systems must certify to EPA completion of the risk assessment and the ERP.

REMINDERS OF DEADLINES:

Risk and Resilience Assessments

Each community water system serving a population of greater than 3,300 persons shall assess the risks to, and resilience of, its system.

Population Served	Certification Deadlines
≥100,000	100% completion in Region 3!
50,000 – 99,999	December 31, 2020
3,301 – 49,999	June 30, 2021

Risk and Resilience Assessment assistance resources are posted on EPA's webpage at: <https://www.epa.gov/waterresilience/americas-water-infrastructure-act-risk-assessments-and-emergency-response-plans>. This includes such documents as the Baseline Information on Malevolent Acts for Community Water Systems and Vulnerability Self-Assessment Tool.

EPA recently released a Small System Checklist to assist with completion of this task. The checklist may be useful to systems serving fewer than 50,000

persons. This checklist does not address emergency response plans (ERPs).

Emergency Response Plans (ERP)

Population Served	ERP Certification Deadlines*
≥100,000	September 30, 2020
50,000 – 99,999	June 30, 2021
3,301 – 49,999	December 31, 2021

*Emergency response plan certifications are due six months from the date of the risk assessment certification. The dates shown above are certification dates based on a utility submitting a risk assessment on the final due date.

How to Submit the Electronic Certifications

EPA strongly recommends electronic submission of your community water system's certification statement. This is the only reporting method where EPA will be able to provide an acknowledgement of receipt of your certification statement. There are separate links on the AWIA webpage, one for the Risk Assessment Certification and a second for the ERP certification.

Please have your PWSID number(s) available before you begin the certification process. Ensure the person registering for or logging into your account is also the certifying official for the community water system.

For additional information, contact Patti Kay Wisniewski, EPA Region 3 Drinking Water Preparedness and Resilience Coordinator, at wisniewski.patti-kay@epa.gov or 215-814-5668. ■

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

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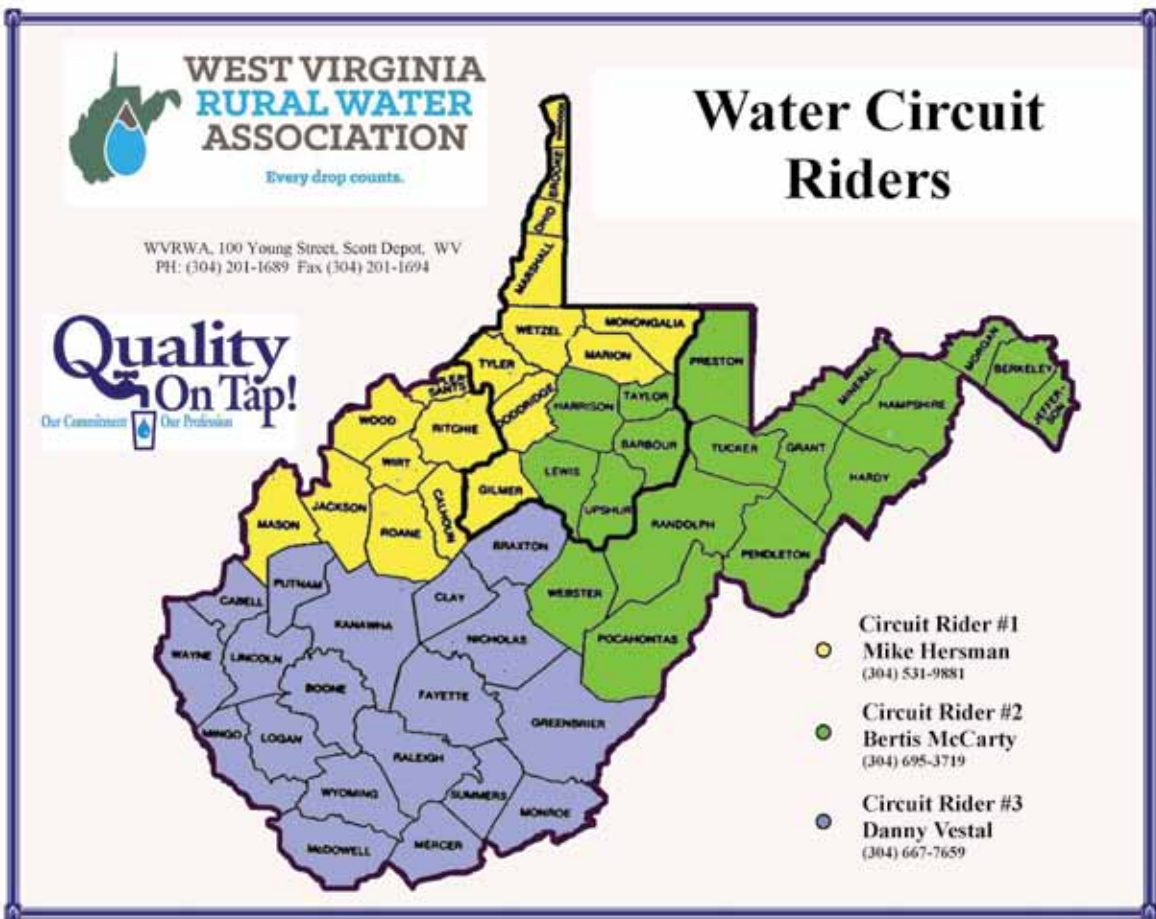
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Micro Pollutants in Wastewater Treatment

Wastewater operators are very familiar with the normal contaminants that we deal with in the wastewater business. Things such as BOD, nutrients, and pathogens are commonplace for most of us. Recently, a more complex group of contaminants have begun to come into the picture. Micro Pollutants are a more complex and challenging problem than the common contaminants, especially for a conventional treatment facility. Micro Pollutants are made up of about 10,000 different, yet complex, substances with a wide variety of chemical makeups. Therein lies the problem. These micro pollutants potentially pose a lot of problems at very small concentrations. In addition, very few wastewater treatment plants are equipped for reduction of this type of contaminant.

This is not really a new issue. We have known that our pharmaceuticals and personal care products have been adding trace amounts of chemicals to our receiving waters for years. What is happening is new technologies for testing are allowing them to be found in the water more easily. This is also beginning to get more media attention, which is leading to a greater concern over their presence. The worldwide consumption of these products is also increasing over the last 35 years or

so. This, obviously, increases the chance that there will be more of them in our waters. We now have a group of items known as contaminants of emerging concern.

Contaminants of emerging concern include the following items:

- 1) Personal care products
- 2) Agricultural products
- 3) Prescription drugs
- 4) Over the counter and off the shelf drugs
- 5) Veterinary drugs
- 6) Cosmetics
- 7) Sunscreen
- 8) Others

These products of emerging concern potentially pose a risk to human health and they may have various environmental impacts. The extent of their contamination is not well understood. One of the biggest issues is there are so many of them. They tend to enter the environment from humans and animals. Medications tend to leave the body in much the same make-up as they come in. The body only uses about 10% of the medication it takes. The rest (about 90%) leaves when we use the restroom. Other personal care products are getting in our water when we shower or bathe. These are also highly intact when they go down the drain. Most of these compounds have no trouble dissolving in water. Many of these compounds are de-

signed to have very specific affects at very low concentrations so it is of great concern what issues they could pose. There is also the issue of not knowing what occurs when so many of them mix together. Contaminants of emerging concern have raised a growing concern the last few years. The concern is growing among regulators, industry, municipalities, public service districts, and the public. An increase in the use of pharmaceuticals is anticipated as the age of the general population increases and there is also an increase in the use of veterinary drugs.

We are just now beginning to understand the amount of these emerging contaminants in our water, the health effects of these products, and the treatment options that may be available to us. Studies are beginning to take place that will assess some of the health risks we may be dealing with, as we are now able to measure these emerging contaminants in the parts per trillion range. In past studies, parts per billion was the best that could be achieved so more things are going to be found in our water with better technology. With that said, these concentrations are much lower than even one recommended medical dose, so it remains to be determined if this small amount causes any issues.

General treatment plants are

not very effective in removing the emerging contaminants. Some treatment technologies have had quite a bit of success. Some of the emerging contaminants can be removed to about 90% with some of the existing technologies used for our wastewater treatment. Some of the more effective treatment processes are: activated carbon, reverse osmosis, advanced oxidation, UV, nanofiltration, and ozone with advanced oxidation. These processes can be very

effective in removing a large amount of the contaminants of emerging concern in our wastewater. Very few wastewater systems are equipped with this technology. Chances are that these technologies will become more common in some areas. This will all depend on how much of a concern the Micro Pollutants prove to be. The treatment of these could prove to be quite costly.

Just because emerging contaminants have been detected in the

water does not automatically imply great risk. We still need to do a lot of research to see what the effects, or lack thereof, may be, but, with the improved technology for detecting these contaminants, hopefully, we will soon have a better understanding of their presence and effects in our water supply. The professionals who are already in the field should be able to work with the advanced technology and, with a little additional training, get the job done. ■

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Where is this located in West Virginia?

Last issue's answer:

**“Lighthorse Harry” Lee Cabin
in Mathias, WV**

Recipes to Tempt Your Taste Buds

Chicken Broccoli Stuffed Peppers

Ingredients:

- 3 bell peppers, tops and seeds removed, halved lengthwise
- 2 c. shredded chicken
- 2 cloves garlic, minced
- Kosher salt
- 1 small head broccoli, cut into florets
- 2 c. cooked white rice
- 1 1/2 c. shredded white cheddar, divided
- 1/2 tsp. dried oregano
- Freshly ground black pepper

Directions:

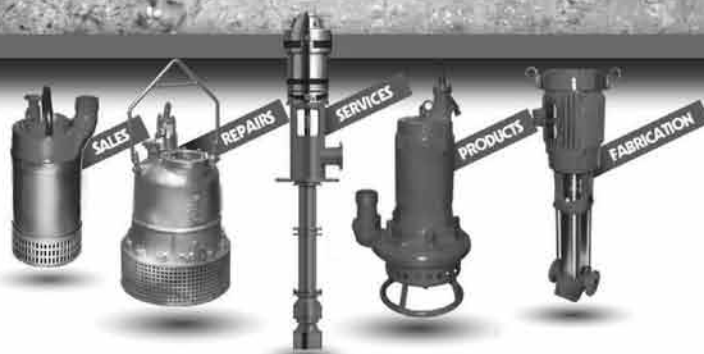
Preheat oven to 350° and grease a medium baking dish with cooking spray. Place halved peppers cut side up in baking dish.

In a large bowl, stir together broccoli, chicken, rice, 1 cup cheddar, garlic, and oregano, and season with salt and pepper.

Fill each pepper with chicken mixture, then top with remaining cheese. Fill the bottom of the baking dish with 1/4 cup water. Cover with foil and bake 20 minutes, then remove foil and bake 8 to 10 minutes more, until peppers are tender and cheese is melted and bubbly.



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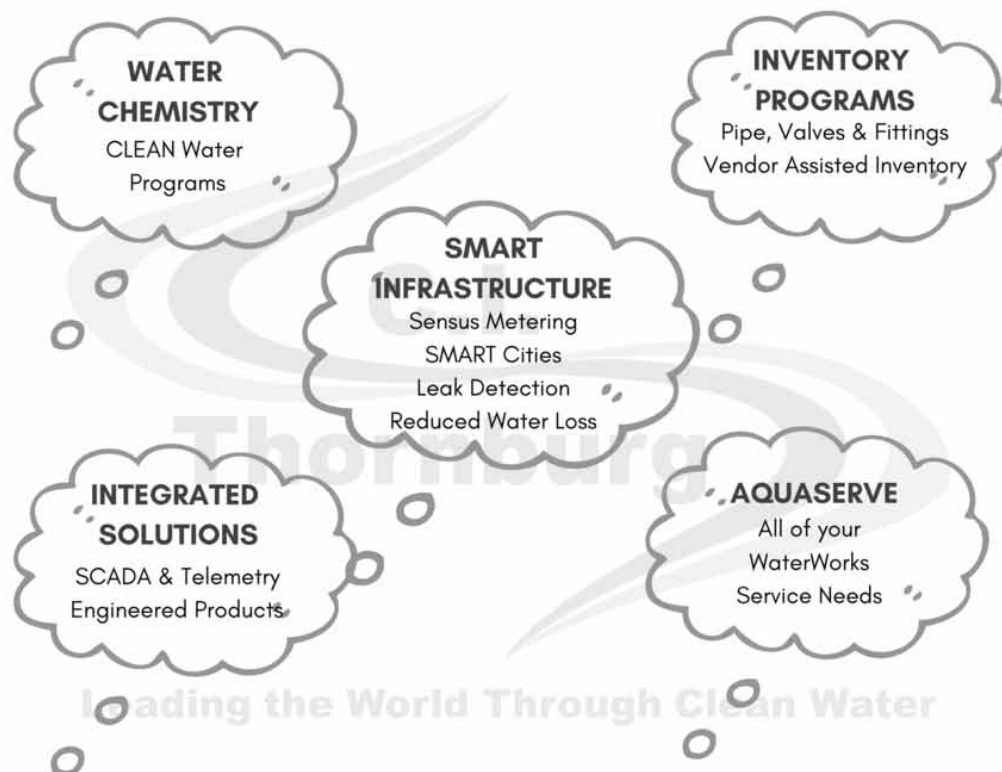
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PSC Rules

Annual Report - Must be filed on or before 3 months after the end of a system's fiscal year. PSC Rule 2.4.a

Water Utilities PSC financial Classification: PSC Rule 2.5.c

- Revenue of less than \$200,000 is a Class C
- Revenue of \$200,000 to \$999,999 is a Class B
- Revenue of \$1,000,000 or more is a Class A

Any utilities' special rules and regulations (policies adopted by the board) that conflict with the PSC Water Rules dated before August 10, 2011 are null and void. They must be ratified and approved by the PSC. PSC Rule 2.3.b

A customer cannot be denied service due to an unapproved rule or policy (see Rule 2.3.b) the water system has, as long as they are within the rules of the PSC. PSC Rule 2.3.c

Water meters in a group shall be tagged to indicate the customer served by each one. PSC Rule 3.2.b

All grouped meters should follow this rule, regardless of what type of reading system you have.

Any water meter with a remote read must be checked at least every 6 months. (Compare the remote register to the factory register) Rule 3.2.c. I would suggest a written log of this data.

A notice, **in LARGE TYPE**, shall be placed in a conspicuous location informing the customers that the Law, PSC Rules and Rates, are kept for their inspection. PSC Rule 4.1.d.2

Security Deposits must be in a separate interest-bearing account that is federally insured. 1% simple interest shall be paid when a security deposit is returned. PSC Rules 4.2.a.5 and 4.2.a.6.

The pressure shall not fluctuate more than 50% higher or lower than the standard pressure in the distribution system. PSC Rule 5.8.a

Every water utility should establish an elevation in every pressure zone which it cannot serve a customer

with the minimum pressures. The elevations should be displayed in a prominent area in the office. If a low-pressure waiver is signed, it must be recorded with the county clerk. PSC Rule 5.8.b

The minimum pressure shall be no less than 20 psi in the customer's home and 30 psi at the meter setting. A customer's pressure must not be over 135 psi. PSC Rule 5.8.d

Water Meters shall be tested on a regular basis as the table below shows: PSC Rule 6.4.a

- ¾" or less in size---At least once every 10 years
- 1" in size -----At least once every 7 years
- 1 ¼", 1 ½", & 2" ---At least once every 5 years
- 3" in size -----At least once every 3 years
- 4" and larger-----At least once each year

Each utility shall submit, to the PSC, a list of qualified meter testers working in their system before February 1st of each year. PSC Rule 6.6.d.1

I attached the actual PSC Rule Numbers so you could read it from the 150-07 rules on the WV Secretary of State website. The explanation above does not cover the whole rule, but highlights the important parts of each one of them, in my opinion.

WVBPH and USEPA Regulations

CCR Rule by EPA (40 CFR § 141.152)

Section (d)(1) states that all Community Water Systems (CWS) selling for resale must provide CCR data to purchaser no later than April 1 of each year

- WV Bureau of Public Health, Data Management division requires a copy of the CCR be faxed to them after you have finished it and before you distribute it.
- Section (b) states that the CCR must be distributed to the customers by July 1 of each year.
- The CCR Certification Form must be submitted to Data Management by October 1 or 90 days after distribution, whichever is first.

MOR's and Fluoridation forms (EW-103, EW-210, EW-90, & EW-80) must be submitted to data manage-

ment, via fax, within 10 days after the end of the month.

EW-104 is a Personnel Status Report that should represent the Certified Operators on staff as of July 1. It must be completed and faxed to the WV Bureau of Public Health, Certification and Training Division by July 15 of each year.


Lead (Pb) and Copper (Cu) is collected between July and December if you are on a reduced monitoring schedule. Standard monitoring would require a second set of samples between January and June. WV Bureau of Public Health requires a new Sample Site Plan in the year the system is collecting samples. It should be submitted at least 30 days before samples are collected because it must be approved. Only the 90th percentile is reported. The 90th percentile is the amount of samples collected times 0.9. If only five samples are collected, the 4th and 5th highest would be averaged to get your 90th percentile.

“Request for Reduced Water Monitoring” is the name of the form you would use to apply for reduced instead of standard monitoring for Pb and Cu. Check with your local WVBPH engineer to see when you can apply for reduced monitoring. They will not reduce it unless you fill out and send in the application or form.

Disinfection By-Products (DBP) is another sample that is collected on a yearly or quarterly basis. The WVBPH has set up the sample plan based on the system’s original plan filled out years ago. The WVBPH runs two calculations every time the system sends in a new sample. If you get an OEL, it means that the last sample times two, plus the last two quarters, divided by four was over the limit. If you get a Violation, it means the running annual average (or last four quarters, divided by four) was over the limit. Experience tells us there are a few ways to help reduce DBPs. One is a good flushing program set up for that purpose. The other is tank mixing to keep uniform water temperature throughout the tank. Some systems low cycle the tank levels in the hot months of the year and others overflow them to waste the hot water in top of the tank.

The WVBPH is **Not required** to send a sampling schedule to you every year. Since they have always been nice enough to do so, every system should take advantage of the information on it. The 1st of the year, you always have wall calendars given to you by vendors. Put one up and transfer the information the health department gives you to it, so you don’t forget to take a sample.

As always, I sincerely hope this information helps you do your job more efficiently. ■




WV WARN Quarterly Meetings

May 8, 2020
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August 7, 2020
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By Amy Swann, Executive Director

Board Member Spotlight

Valli Davis

Valli Davis was born in 1962 and was brought home to the same address that she currently lives. Valli has lived on the Union Road in Philippi, WV for 58 years. She is married and has two grown children and two grandchildren.

Valli has worked for Central Barbour Public Service District for 34 years. When she began, she worked from her home, and did this for 10 years until she moved into an office on her property. In 2004, the District secured a property and built an office along Barbour County Highway, where it is currently located.

When Valli first started with this utility, the district had 385 customers and 18 miles of main line. Currently, the district has 1,100 customers and 100 miles of main line. The City of Philippi did the District's billing until the District moved the office to Valli's. The District purchased a billing program and Valli began doing the billing.

In the beginning, the District maintained its accounting information on manual ledger books and that was a big challenge. Valli was quite pleased when the District moved into the future in 1999 and started using QuickBooks.

Valli said that she loves her job and she is a friend or a relative to 80% of her customers. Since she only works 3 days a week, she en-

joys her time off.

During her years at Central Barbour PSD, there have been many changes. The main one that affected her was issued from the Bureau for Public Health that required all public water systems to have a Class I water operator on staff. The District's chief operator was having a hard time passing the exam, so she decided to give it a try. She said it was a big adventure. She remembers when she first received the information about the test that there was a list of words associated with water. Aquafer was one of the words, and she remembers thinking that must be some sort of equipment in a water plant. On the first day of class, Dawn Newell was one of the instructors and she spoke of aquifers and how abundant West Virginia was with natural formations of water underground. Valli knew right then that she had a long way to go. It was a very good week for her, as she learned a lot and made new friends. Although the test scared her because she had not taken an exam in over 25 years, she passed. The grade didn't matter, it was a pass or fail exam.

So Valli added another hat when she became the chief operator of her water utility. When the Department of Health added a new type of water operator for purchasing systems, she was pleased that her operator was able to pass with flying colors and he was once again their chief operator.

Valli realized that she really en-

joyed learning about water and water plants, so she decided to continue on with her education and she received her Class II operator certification in 2007. She then had to find a water plant that would be willing to work with her and help her obtain the required hours to become a Class II water operator. She first tried the City of Philippi, but the manager was not interested, so she began volunteering at the City of Belington with Robert Smithson. She found the work to be very interesting.

Then the City of Parsons called and offered Valli an apprentice position, where she worked with Bill Hymes and Mike Helmick. Valli said they were both great teachers and she was able to work there for \$7.00 an hour until she had the required hours. During this time, her father became very ill and died, and then her mother also became very ill. Valli was needed at home, so she had to leave her position at the City of Parsons. Valli said that she hated it because she really loved the work at the top of the mountain. It is very peaceful work if your water plant is running fine. One day, she remembers that she put 18 miles on her Fitbit when the plant wasn't running well.

Then her good friend Oscar Mills called and said there was a position at Stonewall Resort for a relief operator and she started working there, mostly the midnight shift or weekends when needed. It was a small water plant and Valli always

called it a girl water plant. The entire plant, except the tank, was contained in one building. She learned a lot about water plants from this job and she enjoyed working the midnight shift, too. When the Resort closed down its water plant and began purchasing water from West Virginia American, this caused Valli to lose her position there.

Then the Town of Beverly called Valli looking for a relief operator. It was a great opportunity and Valli worked there for over two years. The best part of being an operator is working alone and the beautiful sunrises. Valli said that she believes water operators are up before the sun across America.

Many things happened to Valli during her time at Beverly. There was an electric socket that burnt up and couldn't be found, but she could smell it. And then there was a big gas leak one morning. Thank goodness for Bob Johnson, who always came to her rescue when she was

lost or confused. He joked and said one time, "if it is going to happen, it will happen while Valli is working." One thing she learned from water plants is that spiders, snakes, frogs, toads, bees, and lizards love them. They are always plentiful at a water plant.

Valli left Beverly when her grandson was born because she felt she was needed at home. She misses working at a water plant and she is sure she will do it again. All water operators in West Virginia have more than one job.

Valli said that she loves the water business

and, when she learned of an opening on the Board of Directors of WVRWA, she thought she would give it a try. Water is an ever-changing line of work and we must constantly keep learning and building our knowledge.

She enjoys working with the general public and fellow water and wastewater operators, as they are a very special group of people and, basically, the world depends on them. ■

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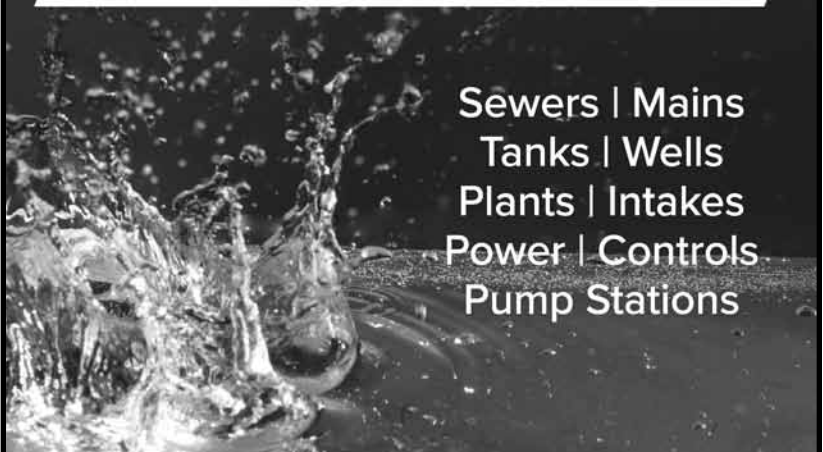
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Acid Mine Drainage

Looking at a new way to improve West Virginia Source Water: WVU Partners with Extreme Endeavors for Rare Earth Elements Extraction

Acid mine drainage (AMD) is not only a problem throughout West Virginia, but the rest of the world as well. AMD is discharged from old mining sites, introducing a low PH water into source water tributaries. As a plant draws water in, if the PH is lower, certain solids will be suspended in the water, in which water operators must increase the PH and allow the solids to settle out, increasing time and money to produce clean drinking water.

Scott Gillespie

When Paul Ziemkiewicz, Ph.D., director of the West Virginia Water Research Institute, was looking for a better way to remove rare earth elements from acid mine drainage, he turned to Extreme Endeavors, who also happens to be developing state of the art automation systems to water districts throughout West Virginia. Why is this so important to water operators in West Virginia? Stick with us a bit in this article and we will explain!

Dr. Ziemkiewicz's organization at West Virginia University had just received a \$5 million award from the U.S. Department of Energy to scale up its Rare Earth Recovery Project and his researchers needed some outside assistance and expertise.

Everything from smartphones to

lighting to rechargeable batteries are powered by rare earth elements. They are among the most desired natural resources in the world today. Approximately 15,000 tons of rare earth elements are used annually in the United States, nearly all of it imported. China produces more than 80% of the world's rare earth elements.

Rare earth elements are 17 chemical elements in the periodic table.

Despite their name, rare earth elements are relatively plentiful in the earth's crust, but are typically dispersed and not often found concentrated in minerals. Processing rare earth elements is unwieldy and expensive. Conventional extraction efforts often involve grinding through layers of rock and up-setting undeveloped land.

Rare earth elements, however, are abundant in a seemingly odd source – Appalachia acid mine drainage.

Ziemkiewicz's grant will build a research facility in rural Mt. Storm, West Virginia, at a new acid mine drainage treatment plant. With the construction of the Mt. Storm facility still a year away from completion, however, Dr. Ziemkiewicz wanted a portable way to study preconcentrated field, or acid mine drainage suspended solids, at different sites.

"We asked Extreme Endeavors to find a way to create an upgraded acid mine drainage product," said Ziemkiewicz. "We were very

pleased with what they created and provided."

Specifically, Extreme Endeavors produced a mobile plant with the ability to create a preconcentrated field from which rare earth elements may be captured and removed.

The mobile plant is able to take pretreated acid mine drainage and upgrade it to create a preconcentrate of a much higher concentration. This allows more amounts of rare earth elements to be captured from the acid mine drainage.

Up to 5% of the mass of a typical bucket of acid mine drainage preconcentrate is comprised of rare earth elements. Acid mine drainage as a source of rare earth elements tends to be skewed toward the heavier elements, which are more valuable.

Ziemkiewicz said he was impressed with the speed, professionalism, and technological acumen of Extreme Endeavors' solution.

"Extreme Endeavors was able to build a one-off prototype facility within a week of me coming up with the idea. They built the entire lab within three weeks. I was astonished. Mike Masterman and his crew were a godsend," said Ziemkiewicz.

Before Extreme Endeavors' contribution, WVU researchers were working with raw sludge, which included many materials unnecessary to rare earth element extraction. With the mobile plant, scientists are able to create a preconcentrate

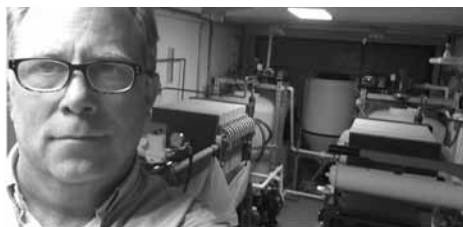
more suitable for laboratory use.

“Now we don’t have to contend with all the other excess metals you get in acid mine drainage sludge. We’re able to take that material and upgrade it almost 100% pure rare earth oxide,” said Ziemkiewicz.

The upgraded material significantly improves the economics of the entire process chain.

“What Extreme Endeavors did was very important,” said Dr. Ziemkiewicz. “It allows us to generate enough material to take into the WVU laboratory and refine in our solvent extraction process. Now we can develop a preconcentrate at our DEP sites in the field.”

Mike Masterman is the founder of Extreme Endeavors. His company has made its name in the drinking water field of late, as it works with several West Virginia public service districts on modernizing and digitizing their water management systems.



Masterman said he sees a dual purpose from his work with the West Virginia Water Research Institute.

“We’re helping prepare water that’s been cleaned of its impurities and had its PH level adjusted properly for its reentry into West Virginia’s streams and rivers,” said Masterman. “That alone is an important job. But we’re also assisting WVU in extracting rare earth

elements, which is a very important field today.”

Masterman sees the WVU project as one combining green intentions with the profit motive.

“There is the ability to generate a for-profit business out of mining rare earth elements from acid mine drainage preconcentrate with this technology,” said Masterman. “With this project, people could make money by doing the right thing environmentally and generate profit from cleaning the water.”

Masterman founded Extreme Endeavors two decades ago in Antarctica on an ice plateau thousands of miles removed from the nearest human dwelling. He served as station manager for the U.S. research facility at the South Pole and spent 28 months “ice time” there, including two winters.

Based near Philippi, West Virginia, Extreme Endeavors serves its neighbors by providing innovative answers to humanity’s biggest

challenges.

“We’ve been involved in the water industry for a number of years. We’ve got several environmental projects underway. That experience combined made us a natural fit for this project with the West Virginia Water Research Institute,” said Masterman.

Under the federal Clean Water Act, the U.S. Geological Survey supports a center in each U.S. state and territory. Since 1967, the West Virginia Water Research Institute (WVWRI) at West Virginia University has served the people of the state by developing solutions to important environmental and economic development issues and disseminating the results to the public, legislators and government officials.

For more information on Extreme Endeavors, visit extreme-endeavors.com and for the West Virginia Water Research Institute visit <https://wvwri.wvu.edu/>. ■



Special Interest

Roy Alvin Bolyard, Jr, 47, of Newburg, WV passed away on Monday, July 6, 2020. He was born on September 23, 1972 in Kingwood, son of Roy A. Bolyard, Sr. and Linda Kay Dillsworth Bolyard. He graduated from Central Preston High School in 1991. Roy served his country in the United States Marines and was stationed in the Persian Gulf from 1991-1995. He worked for the Town of Tunnelton as a Chief Water Opera-



tor. He enjoyed hunting, fishing, camping, and riding four-wheelers. Roy is survived by his parents; his life partner, Gina Bowman; one son, Dillion Bowman, OH; one daughter, Jade Bolyard, Newburg; two brothers, Jason Bolyard, Grafton, and Alex Bolyard and Shirlyn, Masontown; father-in-law, Eddie Jackson; special niece, Ally; several aunts, uncles, and cousins. Roy was preceded in death by one brother, Steve Bolyard in 2019. ■



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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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Phone: (304) 342-7168
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Phone: (859) 866-2980
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****The Thrasher Group, Inc.**

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****Appalachian Software, Inc.**

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Phone: (336) 294-4102

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

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Phone: (606) 298-0333
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*Master Leak Technologies, LLC

100 Home Road
Hatboro, PA 19040
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***Master Meter, Inc.

101 Regency Parkway
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*Mid Atlantic Storage Systems, Inc.

1551 Robinson Road
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5608 MacCorkle Avenue, S.W.
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1429 Three Degree Road
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*Muni-Link

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14680 Pleasant Valley Road
Chillicothe, OH 45601
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*Quality Water Services, LLC

329 Buckeye Road
Horner, WV 26372
Phone: (304) 452-9883
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*R. A. Ross NE, Inc.

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Brecksville, OH 44141
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*Service Pump & Supply Co.

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*Tri State Industrial Coating

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St. Albans, WV 25177
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10994 Leadbetter Road
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1551 Jackson Avenue
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1009 Bullitt Street
Charleston, WV 25301
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*W.C. Weil Company

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Addison, TX 75001
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