Mountain State Water Line

A Publication of the West Virginia Rural Water Association

Winter 2022

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West Virginia Rural Water Association

Winter 2022

Hurricane, WV
Photo by: Amanda McGinnis

Mountain State Water Line is published by:
WVRWA, 100 Young Street,
Scott Depot, WV 25560
Phone: (304) 201-1689 1-800-339-4513
Fax: (304) 201-1694 *http://www.wvrwa.org*

Articles and Features

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.

By Eric Bennett, WVRWA President

President's Message

I hope everyone had a wonderful holiday season with friends and family and have entered the new year refreshed and ready to tackle anything that arises. With the new year comes the State's annual legislative session in Charleston. The staff will provide you with updates on bills that can have an impact on our water and sewer utility's daily operations. Please stay abreast of these bills and provide feedback to your legislators.

I would recommend that if you do not already have a relationship with the delegates and senators in your area that you make a point to introduce yourself, either personally or by phone and email. Let your representatives know that you are available to discuss any issue that could impact the water and sewer utilities of the State. We, as water and sewer service providers, can be an asset to our State representatives by providing them with guidance and information on what we do on a daily basis and how proposed laws can impact these operations.

The WVRWA staff has coordinated and scheduled a full calendar of training courses for the new year and, by this time, you should have received a printed training calendar in the mail. It is great to get back to something close to normal in providing an abundance of training opportunities for our membership and their employees.

However, as we all know, COVID has not yet released us from its grips. So, it is imperative that we all take the necessary precautions to protect ourselves, loved ones, and fellow employees so we can continue to provide the residents of our great state with the essential services that we provide to our local communities without interruption.

I look forward to a great year and welcome any thoughts from our members on any legislative issues you feel WVRWA should pursue to improve our abilities as water and sewer service providers. ■

WWW.WVRWA.ORG

Online Training Classes

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

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

Course	CEH Hours	Approved for	Price
Drinking Water Mathematics	10	Water/WW	$180
Surface Water Treatment	10	Water	$180
Basic Environmental Chemistry	10	Water/WW	$180
Small Water Systems I	5	Water	$100
Chlorinator Systems & Chemical Handling	10	Water/WW	$180
Water Transmission and Distribution	10	Water	$180
Practical Personnel Management	7	Water/WW	$125
Water Utility Calculations	10	Water	$180
Pumps & Motor Maintenance	10	Water/WW	$180

By Todd Grinstead, Executive Director

From Your Executive Director

What's Happening on the Federal Front with Water and Wastewater!

On behalf of West Virginia Rural Water Association's members and all rural communities across the Mountain State, I recently had the honor of testifying before the U.S Senate Committee on Environment and Public Works, entitled, "Identifying Unique Challenges for Small, Rural and Disadvantaged Communities in Accessing and Maintaining Drinking Water and Wastewater Treatment Infrastructure Services," Chaired by Senator Thomas Carver and Ranking Member, Shelly Moore Capito. This hearing gave me an opportunity to express the needs and challenges that rural West Virginia faces to meet regulations, maintain, and expand our water and wastewater services.

We are very excited by the completion of the Bipartisan Infrastructure Investment and Jobs Act (H.R.3684), which is a great benefit to rural West Virginia. This historic legislation includes approximately $55 billion for EPA water programs. There are numerous helpful provisions throughout the bill, such as increased funding for West Virginia's Clean Water State Revolving Fund of $223 million, Drinking Water State Revolving Fund of $143 Million, principal forgiveness, or grants for a new dedicated lead service line replacement fund and PFAS remediation, to small and disadvantaged communities to target emerging contaminants, just to name a few.

WVRWA applauds the bill to secure more that $350 million to modernize and fix aging water and sewer systems while also fighting for no new or increased taxes. This legislation does not include any new federal mandates on local governments. West Virginia's small and rural communities have more difficulty affording public drinking water and wastewater service due to lack of population density and lack of economies of scale. Likewise, they have a much more challenging time complying with federal Clean Water Act permits and Safe Drinking Water Act regulations.

WVRWA is excited to leverage the enhanced technical assistance funding included in H.R. 3684. West Virginia's small and rural communities have relied on WVRWA for on-site technical assistance and training for compliance with the myriad of federal EPA regulations, avoiding EPA fines, and operating drinking water and wastewater systems. Local initiatives are the most effective environmental protection efforts for drinking water and wastewater, ground water, source water, and compliance with the Clean Water Act and Safe Drinking Water Act. All West Virginia communities want to ensure quality water and stay in compliance—West Virginia Rural Water Association provides them the shared technical resources to do it.

This bill is, indeed, a win for West Virginia. Thank you very much Senator Manchin and Senator Capito, as well as Congressman McKinley, for supporting this historic bill. ■

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

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

United States Environmental Protection Agency New England

How do I know what my backup power needs are?

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

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

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

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

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

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

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

-Massachusetts Operator

What other considerations are there?

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

	Diesel[1]	Natural Gas[2]	Propane[3]	Gasoline
Fuel Storage	+	+	+	-
Fuel Delivery Method	-	+	-	-
Generator Availability	+	-	-	+
Generator Portability	-	-	-	+

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

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

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

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

Transfer Switch

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


Camlock

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

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

- *Environmental considerations.* It is important to prevent contamination of source water by fuel, and state requirements, such as containment measures, should be checked. Generators and their fuel storage tanks must be located above potential floodwater levels. Generators should also be protected by using a weatherproof enclosure. Check with your state for other requirements.

- *Siting considerations.* A flat surface (e.g., concrete slab) without obstacles is needed for a portable generator. In addition, be sure that the generator is in a well-lit or patrolled area to avoid theft and vandalism.

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


VFD mounted in box

Should I purchase, rent, borrow, or share?

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

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

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

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

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

Operation and Maintenance Tips

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

Where can I go to find out more about generators?

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

"When the power went out, we couldn't pump and pressurize our system. But we are a small utility, and can't afford a generator. We joined the WARN as one way to locate a generator the next time we need one."
- Maine Operator

Who can I contact in my state?

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

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

www.wvwarn.org
www.vawarn.org
www.pawarn.org
www.ohwarn.org
www.kywarn.org
www.tnwarn.org

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

Instructions – Side 1

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

Contact Information

Name: _____

Title: _____

Day Phone: _____

Emerg. Phone: _____

System Name: _____ PWSS ID: _____
Street Address, City, and State: _____
Max Day Demand (MGD*): _____ Avg. Daily Demand (MGD*) _____
** Million Gallons per Day*

Critical Utility Electrical Needs: (copy form as necessary)

Location (Name/#): _____
Location (Name/#): _____
Location (Name/#): _____

Generator Needs: (copy form as necessary)

Location (Name/#): _____
Existing transfer switch: Yes___ No___; Existing 'add-a-phase' or 'roto-phase' unit: Yes___ No___
(These units convert a single phase line to a three-phase line)
Size of electrical main breaker: _____ Amps
System Voltage: 240 volt single phase _____ 240 volt three phase _____
208 volt three phase _____ 480 volt three phase _____
Major motors, in starting order, used for facility operations:
(example: 75 HP 2 Quantity 460 Volts 3 Phase)
___ HP ___ Quantity ___ Volts ___ Phase
___ HP ___ Quantity ___ Volts ___ Phase
___ HP ___ Quantity ___ Volts ___ Phase
___ HP ___ Quantity ___ Volts ___ Phase

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

Existing concrete pad to locate generator? Yes___ No___ Distance of pad to connection point: _____
System meter kilowatt reading: _____
Generator Type (from AWWA Water & Wastewater Mutual Aid & Assistance Resource Typing Manual):

_____

Additional comments: _____

_____

_____

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

Instructions – Side 2

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

Contact Information

Name: _____

Title: _____

Day Phone: _____

Emerg. Phone: _____

System Name: _____ PWSS ID: _____
Street Address, City, and State: _____
Max Day Demand (MGD*): _____ Avg. Daily Demand (MGD*) _____
** Million Gallons per Day*

Existing Generators: (copy form as necessary)

On-site generator location (name/#): _____
Is on-site generator portable? Yes____ No____
If facility has an off-site generator ready for use in an emergency, what is the source/location of the generator? _____
Existing transfer switch: Yes____ No____ AND, if yes, is switch manual? ____ or automatic? _____
If automatic, what brand is the switch and how many wires are required to start? _____
_____
Size of generator: _____kilo Volt Amperes (kVA)_____kilowatts (kW)
Configuration: (Wye or Delta): _____ (A Wye configuration is in the shape of a "Y", and a Delta configuration is in the shape of the Greek letter delta "Δ", a triangle)
Load cable length:_____ Feet Load cable size:_____Thousand Circular Mils (MCM)
or _____ American Wire Gauge (AWG)
Ground cable length: _____ Feet Ground cable size: _____(MCM or AWG)
Generator connection point: _____ Fuel tank size: _____
Fuel type: diesel_____ natural gas_____ propane gas_____ gasoline_____ other_____
Fuel available on-site? Yes_____ No_____ If yes, how much?_____ How stored?_____
_____
Who provides generator maintenance and testing service? _____
What is the testing cycle and last test date? _____
Does utility have access to an electrician? Yes____ No____ # of power company transformers: _____
Transformer size(s) painted on front of the unit(s): kVA _____ kVA _____ kVA _____ kVA _____
Generator Type (from AWWA Water & Wastewater Mutual Aid & Assistance Resource Typing Manual):

System is WARN member and willing to list as an available WARN resource? ____Yes _____No
_____
Additional comments: _____
_____
_____
_____

By Bertis M. McCarty, Water Circuit Rider

Terminating Water Service

Several reasons can lead to terminating water service:

1. Non payment of the bill (water or sewer)
2. A customer moving out of the premise
3. Not adhering to the system's backflow policy
4. Customer's leak that hasn't been fixed and is causing the system low-pressure issues
5. Customer of record passes away

These are just a few that come to mind while writing this article.

Regardless of what reason it is, the West Virginia Public Service Commission has certain rules that pertain to the situation.

Just in case you didn't know, the new "Rules for the Government of Water Utilities" went into effect September 14, 2021. They replaced the old rules from May 8, 2011. If you haven't downloaded a copy to your office computer, I would advise you to do so. The link is http://apps.sos.wv.gov/adlaw/csr/ruleview.aspx?document=17353&KeyWord=

In this article, we will go over the rules for terminating water service. I will copy and paste the rules from the newest version 9-14-2021. The print will be noticeable because it will be in a different font and size.

6.7. Customer discontinuance of service.

6.7.1. Any customer requesting service to be discontinued shall give notice thereof to the utility, during regular business hours. Unless a different period shall be mutually agreed upon by written contract, the utility will discontinue service by the end of the next business day. Until the utility receives notice, the customer may be held responsible for all service rendered.

As you can see above, the customer shall give notice to the utility during regular busisness hours. If you get a notice by phone or in-person to any staff member, it can be changed by the customer very easily. They can dispute the date and time that was given. I'm sure everyone in the office has had this happen to them. To make this a smoother transaction with the customer, I would recommend a policy to only accept written contracts for discontinuation. It can be a fairly simple one-page document with the time and date of the discontinuation, along with the customer of record's signature. The document could be put on your website and made fillable for ease of use by the customer and this would make it easier to read for yourself.

6.8. Utility discontinuance of service.

6.8.1. Notice of discontinuance.

6.8.1.a. The utility may not discontinue service sooner than ten (10) days following the date that a utility has mailed to a customer written notice of scheduled termination of service, in compliance with Water Form No. 1 attached to these rules. Where written notice is required the utility must send the notice by first class mail, address service requested. The written notice shall become void if the utility has not discontinued service within thirty (30) days of the date indicated on the notice.

The first sentence states, "in compliance with Water Form No. 1 attached to these rules." Every system should compare their current "written notice of termination" to the "Water Form No. 1" to make sure they comply. This is a good reason to have a copy of these rules on your office computer. I'm sure everyone knows about the 10 days after the notice is mailed before water can be terminated. The last part of this rule, I would remind people of is "The written notice shall become void if the utility has not discontinued service within thirty (30) days of the date indicated on the notice." Pretty well self-explanatory on that one.

6.8.1.c. Prior to disconnecting water service for non-payment of a water, a stormwater, or a sewer bill, a utility is required to make at least two (2) attempts to notify the customer through personal contact unless it can be reasonably established that the premises are not permanently inhabited. For the purposes of this rule, personal contact includes both face-to-face meetings and telephone calls.

>>>>>>>>>>>>>>>**NOTICE** <<<<<<<<<<<<<<

THE TERMINATION NOTICE THAT WAS MAILED DOES NOT COUNT AS ONE OF YOUR (2) ATTEMPS TO NOTIFY THE CUSTOMER

THROUGH PERSONAL CONTACT.

The other problem with these "2 attempts" is the people who don't pay their bills usually will not give you a good or current phone number. You can try your best to update the numbers for your customers, but they will get a new number after they leave the office so you can't call them anyway.

A few things that might help are:

When they give you a number in person, call it and make sure it rings. You can tell them you just wanted to make sure you wrote it down correctly.

Make sure you have caller ID and update the numbers as they communicate with you.

Post a note on your bill that the system is updating their records and would appreciate it if they would give you their current phone number.

Leave a bright-colored notice on the door of all customers that do not have a phone number on record.

6.8.1.c.1. When the water service is being terminated for non-payment of a water bill, the two (2) attempts to notify by personal contact shall be made on two (2) separate business days at least twenty-four (24) hours prior to the scheduled termination unless it is reasonably established that the premises are not permanently inhabited. The inability to make personal contact shall not prevent the water utility from terminating service.

6.8.1.d. Service shall not be discontinued on a Saturday, Sunday, any day that is a federal or state holiday, a day on which the utility's business office is not open to accept payment, or on the day before such days, unless an emergency exists.

6.8.1.e. All disconnections shall be performed between the hours of 8 a.m. and 4 p.m.

The three rules above should be used together. In the first one, we learn that it takes 3 days to get through the termination process. Since you cannot turn off a customer's water on the day before the office will be closed (see second rule above), a person would have to start the process on a Monday or Tuesday. After all steps have been done, the water could be shut off on Wednesday or Thursday. Of course, this example wouldn't work on Thanksgiving week.

6.8.1.f. The utility may, but is not required to, accept payment at the customer's premises in lieu of discontinuing service for either a delinquent water or sewer bill.

My personal experience tells me nobody should collect any type of payment at the customer's premises unless they are bonded. A written policy for this is also advised.

To keep this article from becoming a book, I must refer you to the rest of the sections of 6.8 in the WV "Rules for the Government of Water Utilities" (150-07), which will cover more details about the discontinuation of service up to the re-connection process. ■

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official sales partner

Master Leak Technologies, LLC

Mike Masterson
100 Home Road
Hatboro, PA 19040

267-236-6184
Mike.Masterson@Masterleaktech.com
www.Masterleaktech.com

FEHR & CUDA SALES, INC.

FEHR AND CUDA SALES, INC.

Eric Fehr
Manufacturer's Representative

662 North Main Street
PO Box 127
Greensburg, PA 15601

724.838.9394 Office
724.396.7612 Mobile
724.832.8211 Fax
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ATTORNEYS

Joe Ward

frostbrowntodd.com | Charleston | 304.345.0111

Dan Nelson
dan@dasgroupinc.com
Mobile: 412-559-8646

305 Plum Industrial Court
Pittsburgh, PA 15239-2913
724-327-8979 ext #4
Fax 724-733-9066

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By Michael Hersman, Water Circuit Rider

Leak Repair Information Collection and Documentation

It is important that, during and after leak repairs, information is gathered and documented regarding the nature of the leak or break, the repair method, the underground conditions, street, weather, and costs. This information can be recorded on a leak repair report. This information is needed to keep appropriate records for legal purposes as well as to identify leakage trends and distribution system condition, and to track the performance of utility staff. Possible parameters might include the time a repair crew was called in, the times that water service was disrupted and restored, paving requirements, valves closed to execute shutdown, fire hydrants opened, chlorine residual, and other useful information.

Leak data can easily be collected in the field using either paper or electronic format. In either case, it is highly desirable to insert the leak repair data into a database. This allows for subsequent analysis of the types of pipe that fail, the possible cause, and their location. Location data is extremely useful in making future decisions about pipe renewal priorities.

So, what information should a leak report entail? Identification of the leak discovery date, time, and location. Type of leak: meter, curb stop, main line, or joint leak. Description of repair: was it repaired or replaced, repair time, what repairs were made, equipment used for repair, materials used, size of the leak, repair costs. Description of damage for mains and services: what part was damaged? Pipe material.

Keeping good leak repair records is imperative to track leak repair time and awareness. It aids in assessing pipe and system conditions and the overall efficiency of the distribution system. ■

NATIONAL RURAL WATER ASSOCIATION

NRWA *America's Largest Utility Membership*

NOW IS THE TIME TO ACT

Get Started on Your Water Utility Construction Project

Do you have a Water Utility Construction Project? Now is the time to act! Rates are at an all time low, and with the current pricing being opportunistic and taking action can result in benefits not only for your-self but for the customer as well. Consider the below items that detail positive reasons to act now that you can present to your governing body.

- Interest rates are at an all-time low.
- More project contractors are available, increasing the number of bids, potentially lowering project costs.
- Fuel costs are low, lowering pipe related costs.
- 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.

USDA

USDA Rural Development is committed to helping improve the economy and quality of life in rural America. Offering loans, grants and loan guarantees are some of the ways Rural Development is supporting rural America.

WEST VIRGINIA RURAL WATER ASSOCIATION

Every drop counts.

By Jerry Dotson, Sourcewater Specialist

USEPA Contaminant Candidate List and Unregulated Contaminant Monitoring Rule

In March 1998, the United States Environmental Protection Agency announced the first Contaminant Candidate List (CCL1). The Contaminant Candidate List is a list of contaminants that are not currently subject to any proposed or promulgated national primary drinking water regulations. The listed contaminants are known or anticipated to occur in public water systems. The contaminants on the list are items that are under scrutiny for future regulatory action under the Safe Drinking Water Act (SDWA). The Act requires the USEPA to publish the CCL every five years and directs the USEPA to consider the health effects and occurrence information to determine what contaminants should go on the list. The contaminants on the list are proposed to be those that present the greatest public health concern related to exposure from drinking water. The EPA then uses the CCL to determine priority contaminants for data collection and regulatory decision making. The CCL includes chemical and microbial contaminants.

After a CCL is finally published, the EPA must determine if they will regulate any contaminants from the list. They must consider at least five. That process is called Regulatory Determinations. The EPA will compile and examine additional data that is available for all the CCL contaminants. From this process, they will determine which contaminants have sufficient data to be evaluated. Keep in mind that part of the methodology is to determine how common the contaminant is in drinking water sources so that a contaminant that only occurs in a few locations does not create a burden of regulation on every drinking water utility nationwide. The Agency also weighs the health concerns. If the health threat is not significant, the Agency is not likely to promulgate regulations. Also, if treatment technology is not available, regulation is unlikely until treatment methods are developed. The SDWA provides three criteria the EPA uses to determine if a contaminant warrants regulation.

1. The contaminant may have an adverse effect on the health of persons.
2. The contaminant is known to occur, or there is substantial likelihood the contaminant will occur, in public water systems with a frequency and at levels of public health concern.
3. In the sole judgement of the Administrator, regulation of the contaminant presents a meaningful opportunity for health risk reductions for persons served by public water systems.

The EPA will make regulatory determinations for the five or more contaminants that provide sufficient data and will continue to collect information and conduct research for contaminants that lack sufficient information to make regulatory determinations.

The federal government published a Request for Nominations for the Fifth Contamination Candidate List (CLL 5) in the Federal Register on October 5, 2018. The Draft of CCL 5 was published on July 19, 2021. The Draft includes 66 chemicals including per- and polyfluoroalkyl substances (PFAS), cyanotoxins, and disinfection byproducts (DBPs), and 12 microbes. The EPA requested comments on the Draft CCL 5 and the comment period closed on September17, 2021. Information on CCL 5 may be found on the USEPA website at https://www.epa.gov/ccl/contaminant-candidate-list-5-ccl-5.

Once the Draft of CCL 5 is finalized, the EPA will examine the information available for the contaminants on the list and determine which contaminants will be considered for regulation. The Agency can determine to take regulatory action or that regulatory action is not currently necessary. It is also noteworthy that the USEPA is not limited to contaminants on the list. If, at any time, the USEPA determines that

any unregulated contaminant presents a health risk in drinking water, they may make regulatory determinations.

An example of the outcome of the Contaminant Candidate List process can be found with CCL 4. On February 22, 2021, the USEPA reissued the final regulatory determinations for the contaminants on the fourth Contaminant Candidate List (CCL 4). The Agency determined to regulate two contaminants, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA); and not to regulate six contaminants, 1,1-dichloroethane, acetochlor, methyl bromide (bromomethane), metolachlor, nitrobenzene, and RDX. From this, the EPA will move forward to implement national drinking water regulations for the two PFAS chemicals.

The current Contaminant Candidate List appears to pay particular attention to the PFAS chemical family, Disinfection Byproducts (DPBs), and microbial contaminants, particularly cyanotoxins caused by Harmful Algal Blooms (HABs).

Another contamination regulation from the Safe Drinking Water Act (SDWA) of concern to systems is the Unregulated Contaminant Monitoring Rule. This rule is in its fifth cycle. Every five years, the USEPA is required to issue a new list of unregulated contaminants to be monitored by Public Water Systems (PWSs). The proposed fifth Unregulated Contaminant Monitoring Rule (UCMR 5) was published on March 11, 2021. UCMR 5 would require systems to sample for 30 chemical contaminants between 2023 and 2025 to provide data of the occurrence of these chemicals in drinking water. The contaminants are 29 compounds from the PFAS family and Lithium. The testing would involve all systems that serve a population of 3,300 or greater and a random sample of systems that serve a population of 3,299 or less.

Information about UCMR 5 is available at the USEPA website https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule. ■

JOIN WVRWA

By Shane Altizer, Water Circuit Rider

Mapping Your Water System

Imagine being dropped off in the middle of Central Park and being told to find Bank Street with no map or help from anyone. Water operators and field workers throughout the state feel this frustration on a daily basis when locating water lines and leaks or even looking for meters and valves, but having proper mapping of your system can alleviate this headache.

A lot of water systems have very little to no up-to-date maps and rely on the knowledge of retired workers who are still living in the area or workers who have been at the system for a long time. This can be very useful, but, when that knowledge is no longer available, finding lines can be extremely difficult. The solution is having adequate maps of your system, but there are a lot of things to consider when planning to map your system, such as what type of map you want, price, time, simplicity, and who will be doing the work.

Types of Maps

- Paper maps: as-built drawings, projected drawings, and drawings done by workers at their own system.
- While these can be very useful, there are a lot of drawbacks with them. Some systems have projected drawings they thought were as-built drawings, but they discovered lines and valves were not where they were supposed to be. Paper maps can fade over time, as well, causing them to be impossible to read. Old maps can also tear easily and taping them back together can be a difficult task.
- Digital Maps: digital maps are similar to paper maps; however, they are saved digitally so some of the drawbacks are removed. Some digital maps are simply scanned paper maps and saved as a PDF so the risk of aging is removed. The problem with PDF maps is that you can't edit them easily if something needs changed or if new lines have been added.
- Google Maps: Google maps can be used to draw water lines, valves, meters, or anything the system wants added to it. Pictures and written information can also be uploaded to have added information of the system. This type of mapping can be done for free if the system has a computer with enough storage to hold the information. The problem with this is that transferring the information from one computer to the next can be difficult and drawing the maps is time consuming.
- Geographic Information System (GIS) maps: GIS maps are another type of digital map that can be extremely detailed, including not only the system's water lines, but also sewer, gas, power, and telephone lines if they have been added to the GIS database. While these can be the most detailed, they can also be the most expensive.

Methods for Mapping

- The first method is to hire a mapping company. Mapping companies have their own mapping software and line locating equipment and, therefore, require very little time and effort from the local system. They will usually ask for any maps the system may have and for someone to show them around the system to see where they will be locating lines. While this may be the easiest method for the system, it can also be the most expensive. A small system with only 10 to 15 miles of water line can cost over $30,000 to locate lines and create the maps.
- The second is for the system to create its own maps. This method can be much cheaper, but requires a lot more time for the workers. The system will need some type of mapping software and possibly line locating equipment. This method is very beneficial for the workers though; while they are studying old maps or tracing water lines, they will become much more knowledgeable about their system. Another benefit for the system to create its own map is that it can be continually updated to correct errors or add new lines or information.

It's never too late to start creating a map of your system. Even if your system has some maps, they can always be updated with new information. If your system has no maps, it can seem like an impossible task to create them, but it's not as difficult as it may seem. Start today creating a map and you will be appreciated for years in the future. ■

By Jim Johnson, Wastewater Technician

System Profile: Webster Springs PSD

Nestled in Webster County West Virginia is the Webster Springs Public Service District. Every year, Webster Springs has the

Wood Chopping Festival. There are many people from many different nations throughout the world that competes in this wood chopping festival. The Town originally became famous because of the salt sulfur springs that were present in the community. The community built a large hotel and people would come in to see and get in them due to the healing properties.

The Webster Springs Public Service District is one of the best operated systems in the great state of West Virginia. Under the direction of General Manager and Chief Operator Shannon Cochran, the system does a very good job at maintaining their sewer system. Webster Springs PSD operates a 300,000 gallon per day sewage treatment plant. The system also operates a 10,000 gallons per day treatment plant at Bergoo. The system serves about 670 customers in the Webster Springs Community.

The System is staffed by General Manager and Chief Operator Shannon Cochran. Shannon is a Class II Wastewater Operator. The system also has Class II Operator, Mike Jordan and Mike McCartney, who has been with the system many years. The Business Manager for the Public Service District is Dianne Sparks. Dianne takes care of all of the accounting and bookkeeping duties. The system is led by Board Chairman Tom Clark. The rest of the PSD Board consists of Co—Chairman William "Chuck" Armentrout and Steve Jordan. The System was formed in about 1980.

The Treatment Plant at Webster Springs PSD is an Activated Sludge Extended Aeration treatment plant.

The plant consists of 2 blowers with diffusers. The treatment plant has two circular clarifiers. The PSD makes use of five drying beds with chlorine disinfection. The System has 6 pump stations with numerous force mains.

The System just completed an upgrade for the Bergoo community. This system was about 14 years in the making. The upgrade allowed the system to take on about 52 additional customers. The upgrade will allow the system to take up to 60 new customers altogether. The Package Plant at Bergoo is Orenco Advan Tex System. The Package Plant has a flow of 10,000 gallons per day. This eliminated some untreated sewage in the community. The Community is very thankful to have this project completed. There is a video you can watch on YouTube about this Bergoo project. The name of the video is "Environment Matters-Wastewater Treatment comes to Leatherwood Creek".

The Webster Springs PSD is going to do an additional upgrade to the main plant. This upgrade will be in two phases. The first stage is to replace the head works with an automatic bar screen. There will be a centrifuge type grit removal system. Both clarifiers will be equipped with completely new weirs. The drying beds will be getting new covers. This will decrease the drying time in the beds. There will be a line replaced that goes to the river that has been causing some problems. All of the electrical controls, control panels, and pumps will be replaced at the lift stations. Many of the generators will be replaced at the lift stations.

This is a very well operated system. They do a good job and I think this system will continue to excel for many years to come. ■

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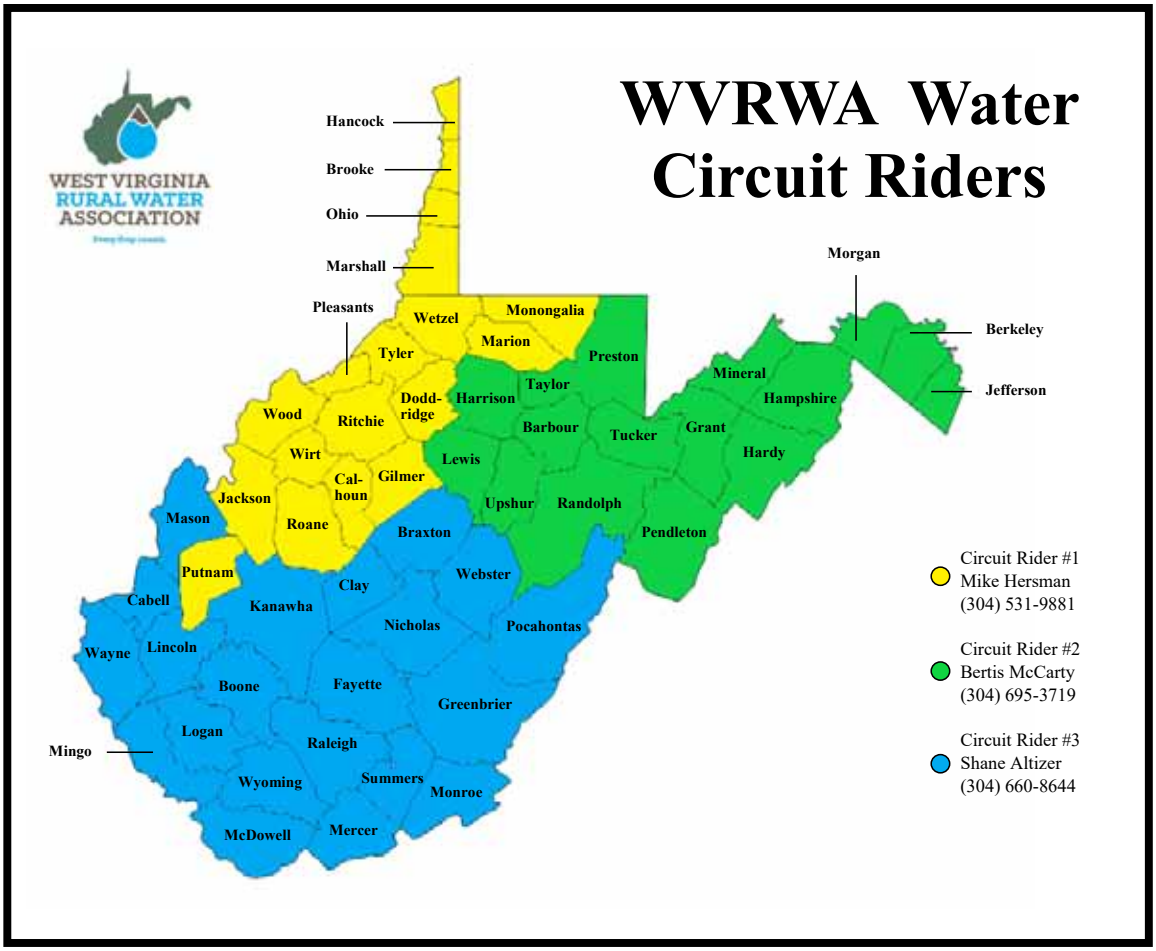
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Recently, WVRWA published its new e-Newsletter, *News Droplets*. *News Droplets* provides information on new programs and benefits, training classes, conference, legislative news, and much more. If you are currently not receiving *News Droplets*, but would like to, please send your name and email address to connect@wvrwa.org to be added to the mailing list.

By Beth Fletcher, Wastewater Technician

I Am Here To Help…

The goal of the Wastewater Technician program is to help promote collaboration between the operating facilities and their governing agencies. I am able to offer a wide variety of assistance in many different areas to help make this happen.

With a focus on violations and non-compliance issues, I am here to help you get things in order and avoid actions being taken by regulatory agencies. As an operator myself, I understand the wastewater plant and collection system operations and am familiar with the day-to-day struggles that can arise in a facility. I am a certified WW lab technician and can help with sampling and operational questions and issues. Process control is the greatest recourse an operator has for understanding the day-to-day functions of his plant. I have equipment available and can help all involved understand the importance of these tests.

Paperwork can sometimes be a struggle of its own. Whether it is just a simple question or training needed for newly appointed officials, I am familiar with the DEP website and the NPDES required forms. Long term control plan development and updating is necessary for permit compliance and project planning. This allows both operators and officials to easily identify areas of priority and plan for future construction.

Collection System evaluation studies and mapping can be a great way to identify and assess problem areas. I have equipment, such as smoke machines and a push camera, available for loan to help do this. Flow meters are also being purchased that will be available for loan.

As with most all facilities, funding is usually always an issue when it comes to addressing issues within the system. The good news is that there is help available. Through the WV Infrastructure and Job Development Council and the State Revolving Fund, many grants can be applied for. You can visit their website at www.wvinfrastructure.com and click on the Project Center tab or contact me to schedule a meeting to discuss.

I am here to help you obtain and sustain all necessary permit compliance. Through experience and the wealth of information and resources available, I look forward to working with you to help protect our most valuable resource.

Elizabeth "Beth" Fletcher
West Virginia Rural Water, WV Wastewater Technician
Call/Text 304-771-4081
elizabethfletcher@wvrwa.org ■

SUDOKU PUZZLE

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

We're on the Web!

For the latest information on what WVRWA is up to, follow us on Twitter, Facebook, & Lindedin

- Twitter: WV Rural Water
- Facebook: WV Rural Water Association
- Linkedin: West Virginia Rural Water Association

Answers to Soduko Puzzle

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

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By Heather Somers, 2% HELP Training Specialist

Preparation and Testing Tips for Water Certification Exams

West Virginia Rural Water has officially released the 2022 Training Calendar! Passing a Water Certification test may be a goal you have for this year. The good news is there are resources available to help prepare you for exams and some test taking strategies to take the pressure off on the big day.

"Give me six hours to chop down a tree and I will spend the first four sharpening the axe." - Abraham Lincoln

Our 16th President understood the value of preparing for a big task. Preparing to cut down a tree manually with an axe involves sizing the tree and axe, sharpening the blade, and planning the direction the tree will fall to minimize damage before the axe blade ever touches the tree. Set yourself up for a successful test day by preparing the same way before class ever starts by utilizing the following resources:

West Virginia Manuals

The WVDHHR has developed manuals for Water Distribution, Class I Water, Class II Water, and a combined manual for Class III and IV Water. At first glance, these manuals may seem overwhelming with hundreds of pages, but take time to familiarize yourself with the manual relevant to your upcoming test. Each manual has a Table of Contents. Pick sections to read over each week, beginning with what is most pertinent to your current duties in the water system. Take notes on questions you have while reading through the material. Ask co-workers for guidance and clarification or come to class and raise the questions during class. In the Appendix, near the end of each manual, is a list of acronyms as well as a glossary. Spend time with terms and abbreviations.

Math Handbooks

An additional resource from WVDHHR is the Basic Math Handbook covering math for WD, Class I, and Class II Water and Advanced Math covering Class III and IV Water. Basic Math Handbook is a useful refresher for math skills, such as multiplication and division, order of operations, and conversions. Both manuals provide explanations and examples of math broken into categories plus practice quizzes and formula sheets. The appendix provides answers to check your work.

All of the WVDHHR Manuals and Handbooks can be accessed for no charge at: https://wvrwa.org/study-material

Sacramento Manuals

The Office of Water Programs (OWP) is a nonprofit, self-supporting unit of University Enterprises, Inc., an auxiliary of California State University, Sacramento. The Drinking Water Courses division offers several manuals useful to prepare for certification and testing. These manuals provide illustrations and explanations for a variety of water related topics. Course enrollment also includes quizzes similar to those found on certification tests in West Virginia, but studying the manuals on their own is also useful. Please note that Continuing Education units and hours may be completed for credit toward meeting licensing requirements.

YouTube

Check out YouTube.com for specific topics and how to videos related to water. During a recent Water Distribution Certification Class, operators watched YouTube videos on how altitude valves operate, conducting a test with a backflow meter, and pigging water mains. Many videos are short and to the point providing real world application on subjects that may be hard to grasp from just reading a page in a book. Recommended YouTube channels include: American Water Works Association and American Water College.

Circuit Riders

West Virginia Rural Water Circuit Riders are Certified Operators that systems call on for technical services, such as understanding regulations, leak detection, or water treatment troubleshooting. Circuit Riders are also available to provide one-on-one test preparation. Reach out to Circuit Riders in advance of your test date for math tutoring and

other test preparation. Find the Circuit Rider for your region at: https://wvrwa.org/water-circuit-riders.

Test Day

After preparing your axe and work site – it is time to finally chop the tree – and take the certification test. All water tests have 100 multiple choice questions and examinees get 4 hours to complete the test. Arrive to the test location well rested, hydrated, and after having had a good breakfast. Avoid stress and distractions as much as possible and plan to arrive at the test site early. The following are test taking tips from educationcorner.com:

1. Read the entire question
   Read a multi-choice question in its entirety before glancing over the answer options. Read each question thoroughly before answering.
2. Eliminate wrong answers
   Eliminate answer options which you are 100 percent sure are incorrect before selecting the answer you believe is correct. Even when you know the right answer, first eliminating those answers you know are incorrect will ensure your answer choice is the correct choice.
3. Use the process of elimination
   Using the process of elimination, cross out all the answers you know are incorrect, then focus on the remaining answers. Not only does this strategy save time, it greatly increases your likelihood of selecting the correct answer.
4. Select the best answer
   It's important to select the best answer to the question being asked, not just an answer that seems correct. Often, many answers will seem correct, but there is typically a single best answer.
5. Read every answer option
   Read every answer option prior to choosing a final answer. This may seem like a no brainer to some, but it is a common mistake test takers make.
6. Make an educated guess
   Since it will not count against your score, make an educated guess for any question you're unsure about.
7. The more information...the better
   More often than not, the correct answer usually contains more information than the other options. This is good to know if you must guess.

There are approximately 2,500 Water Operators in West Virginia. Systems all over the state are in need of hardworking, reliable Operators to provide safe drinking water. Operators are essential and valued. WVRWA is here to support you in achieving your certification goals for the betterment of yourself and our great state. ■

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.

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

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- 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.

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wrussell@ppvs.com
Main: (304) 543-0550

Greg Jarrett
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Where is this located in West Virginia?

Last issue's answer:

Alexander Campbell Mansion in Bethany, WV

Recipes to Tempt Your Taste Buds

Creamy Beef and Shells

Ingredients:

- 1 tablespoon olive oil
- 1 pound lean ground beef
- 1 teaspoon kosher salt
- 1 teaspoon garlic powder
- 1 teaspoon onion powder
- 2 cups beef broth
- 8 ounces dried pasta shells
- 1 (15-ounce) can tomato sauce
- 8 ounces sharp white cheddar cheese, shredded
- 1/2 cup heavy cream or half-and-half

Directions:

Heat 1 tablespoon olive oil in a large skillet over medium heat until shimmering. Add 1 pound lean ground beef and cook until cooked through and browned. Season with 1 teaspoon kosher salt, 1 teaspoon garlic powder, and 1 teaspoon onion powder, and cook until fragrant, about 1 minute more.

Stir in 2 cups beef broth, 8 ounces dried pasta shells, and 1 (15-ounce) can tomato sauce. Cover and cook until the shells are tender and the sauce is slightly thickened, 8 to 10 minutes. Meanwhile, shred 8 ounces sharp white cheddar cheese (about 2 cups).

Remove from the heat and stir in 1/2 cup heavy cream or half-and-half and 2 cups shredded sharp white cheddar until the cheese is melted.

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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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Clinton Water Assoc.
Clover PSD
Coalton
Colfax PSD
Cool Ridge Flat Top PSD
Coolfont Mountainside Assoc.
Cottageville PSD
Cowen PSD
Crab Orchard-MacArthur
Craigsville PSD
Culloden PSD
Danese PSD
Davis
Davy Municipal Water Works
Denver Water Assoc.
Doddridge County PSD
Downs PSD
East Bank
East View PSD
Eastern Wyoming PSD
Eleanor
Elizabeth
Elk Valley PSD
Elkins
Elkins Road PSD
Ellenboro
Enlarged Hepzibah PSD
Fairview
Farmington
Fenwick Mountain PSD
Flatwoods-Canoe Run PSD
Follansbee
Fountain PSD
Frankfort PSD
Franklin
Gauley River PSD
Gilbert Water
Gilmer County PSD
Glen Dale
Glenville
Grandview Doolin PSD
Grant County PSD
Grant Town
Grantsville
Greater Harrison PSD
Greater St. Albans PSD
Green Valley-Glenwood PSD
Greenbrier County PSD #1
Greenbrier County PSD #2
Hammond PSD
Hamrick PSD
Hancock Co. PSD
Hardy County PSD
Harpers Ferry
Harrisville
Hillsboro
Hodgesville PSD
Hughes River Water Board
Hundred-Littleton PSD
Huntington Water Quality Board
Huttonsville
Huttonsville PSD
Ice's Run PSD
Jane Lew PSD
Kanawha PSD
Kenova Municipal
Keyser
Kingwood
Lavalette PSD
Leadsville PSD
Lewisburg
Lincoln PSD
Little Creek PSD
Logan
Logan County PSD
Lubeck PSD
Mannington PSD
Marlinton
Marshall County PSD #3
Marshall County Sewage
Mason
Mason County PSD
Masontown
Matewan
Meadow Bridge
Middlebourne
Midland PSD
Milton
Mineral Wells PSD
Monongah
Monumental PSD
Moorefield
Moorefield Regional Wastewater
Morgantown Utility Board
Moundsville Sanitary/Water
Mount Hope
Mountain Top PSD
Mt. View Water Assoc.
Mt. Zion PSD
Nettie - Leivasy PSD
New Creek Water Assoc.
New Cumberland
New Martinsville
Newburg
Northern Jackson County PSD
Norton-Harding-Jimtown PSD
Nutter Fort
Oak Hill Sanitary Board
Oakland PSD
Oakvale Road PSD
Paden City
Parkersburg Utility Board
Parsons
Paw Paw Municipal
Paw Paw Rt. 19 PSD
Pea Ridge PSD
Pendleton Co. PSD
Pennsboro
Petersburg
Philippi
Piedmont
Pineville
Pleasant Valley PSD
Pocahontas County PSD
Preston County PSD #1
Preston County PSD #4
Preston County Sewer PSD
Putnam PSD
Rainelle
Raleigh County PSD
Ravencliff-McGraws-Saulsville PSD
Ravenswood
Red Sulphur PSD
Reedsville
Reedy
Richwood
Ridgeley
Ripley
Rivesville
Romney
Ronceverte
Rowlesburg
Rupert
Salem
Salt Rock Sewer PSD
Shady Spring PSD
Shinnston
Short Line PSD
Southern Jackson PSD
Southwestern Water PSD
Spencer
St. Albans MUC
St. Marys
Stonewood
Sugar Creek PSD
Summit Park PSD
Sun Valley PSD
Taylor County PSD
Tennerton PSD
Thomas
Tri County Water Assoc.
Triadelphia
Tunnelton Municipal
Tyler Co. PSD
Union
Union PSD
Union Williams PSD
Valley Falls PSD
Village of Beech Bottom
Village of Bethlehem
Vienna
Wardensville
Washington Pike PSD
Wayne
Welch
West Hamlin
West Milford
West Union
Weston Sanitary Board
Wetzel County PSD #1
Wheeling
White Hall PSD
White Oak PSD
White Sulphur Springs
Williamstown
Winfield Sanitary Board
Worthington

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

***Piper Sandler & Company**
405 Capitol Street, Suite 613
Charleston, WV 25301
Phone: (304) 343-7102
See Our Ad Page 27

Attorneys

***Bowles Rice, LLP**
600 Quarrier Street
Charleston, WV 25301
Phone: (304) 347-1100
See Our Ad Page 17

***Frost Brown Todd**
500 Virginia Street E., Suite 1100
Charleston, WV 25301
Phone: (304) 345-0111
See Our Ad Page 15

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

***Jenkins Fenstermaker, PLLC**
325 8th Street
Huntington, WV 25701
Phone: (304) 523-2100
See Our Ad Page 32

***Kay Casto & Chaney, PLLC**
707 Virginia Street, E
Charleston, WV 25301
Phone: (304) 345-8900
See Our Ad Page 22

*****Steptoe & Johnson, PLLC**
P.O. Box 1588
Charleston, WV 25301
Phone: (304) 353-8000
See Our Ad Page 34

Insurance

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

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

****Hayes Insurance Agency**
202 Union Square
Marietta, OH 45750
Phone: (740) 373-2347
See Our Ad Page 24

Consultants

****Burgess & Niple, Inc.**
4424 Emerson Avenue
Parkersburg, WV 26104
Phone: (304) 485-8541
See Our Ad Page 36

***Cerrone & Associates, Inc.**
97 14th Street
Wheeling, WV 26003
Phone: (304) 232-5550
See Our Ad Page 22

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

****Crews & Associates, Inc.**
69 Clay Street, Suite 202
Morgantown, WV 26501
Phone: (304) 292-6600
See Our Ad Page 22

***Dunn Engineers, Inc.**
400 South Ruffner Road
Charleston, WV 25314
Phone: (304) 342-3436
See Our Ad Page 42

*****E.L. Robinson Engr. Co.**
5088 Washington Street, West
Charleston, WV 25313
Phone: (304) 776-7473
See Our Ad Page 24

****Gwin, Dobson & Foreman, Inc.**
3121 Fairway Drive, Suite B
Altoona, PA 16602-4475
Phone: (814) 943-5214
See Our Ad Page 27

****Herbert, Rowland & Grubic, Inc.**
829 Fairmont Road, Suite 201
Morgantown, WV 26501
Phone: (304) 284-9222
See Our Ad Page 14

*****Hornor Brothers Engineers**
P.O. Box 386
Clarksburg, WV 26302
Phone: (304) 624-6445
See Our Ad Page 40

***Potesta & Associates, Inc.**
7012 MacCorkle Avenue, SE
Charleston, WV 25304
Phone: (304) 342-1400
See Our Ad Page 37

***Rockacy & Associates, Inc.**
2528 Thrush Road
Charlottesville, VA 22901
Phone: (800) 836-1011
See Our Ad Page 42

***S & S Engineers, Inc.**
501 Eagle Mountain Road
Charleston, WV 25311
Phone: (304) 342-7168
See Our Ad Page 35

***Stantec Consulting Services, Inc.**
111 Elkins Street
Fairmont, WV 26554
Phone: (304) 367-9401

***Stiffler, McGraw and Assoc., Inc.**
1731 N. Juniata Street
Hollidaysburg, PA 16648
Phone: (814) 696-6280
See Our Ad Page 16

****The EADS Group, Inc.**
250 Scott Avenue
Morgantown, WV 26508
Phone: (304) 212-5927
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*****The Thrasher Group, Inc.**
600 White Oaks Blvd.
Bridgeport, WV 26330
Phone: (304) 624-4108
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Contractors

***Pleasants Construction, Inc.**
24024 Frederick Road
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Phone: (301) 428-0800
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Laboratories

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

***Preiser Scientific**
94 Oliver Street
St. Albans, WV 25177
Phone: (800) 624-8285
See Our Ad Page 37

Services and Products

****Advanced Rehabilitation Technology**
525 Winzeler Drive, Unit 1
Bryan, OH 43506
Phone: (419) 636-2684
See Our Ad Page 32

****American Cast Iron Pipe/ American Flow Control**
2257 Clairmont Drive
Suite 220-222
Pittsburgh, PA 15241
Phone: (412) 721-9509
See Our Ad Page 3

***Ampstun Corporation**
P.O. Box 784
Richmond, KY 40476
Phone: (888) 252-4784
See Our Ad Page 5

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

***Aquafix, Inc.**
P. O. Box 8682
Madison, WI 53708
Phone: (608) 729-6617

***Aulick Chemical Solutions, Inc.**
111 Patton Ct.
Nicholasville, KY 40356
Phone: (859) 881-5422
See Our Ad Page 17

***Benchmark Construction Co., Inc.**
P. O. Box 1018
Hurricane, WV 25526
Phone: (304) 881-1735
See Our Ad Page 15

***BissNuss, Inc.**
7 Court Street, Suite 260
Canfield, OH 44406
Phone: (330) 533-5531
See Our Ad Page 17

***Buchanan Pump Service & Supply Co., Inc.**
P.O. Box 827
Pound, VA 24279
Phone: (276) 796-5473
See Our Ad Page 17

*****CITCO Water**
4034 Altizer Avenue
Huntington, WV 25705
Phone: (800) 999-3484
See Our Ad Page 29

***Concrete Pipe & Precast, LLC**
194 Deep Meadow Drive
Fishersville, VA 22939
Phone: (540) 487-5445
See Our Ad Page 22

***Consolidated Pipe & Supply Co., Inc.**
907 Honeybranch Industrial Park
Debord, KY 41214
Phone: (606) 298-0333
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***Core & Main**
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Dunbar, WV 25064
Phone: (304) 768-0086
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***DAS Group**
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Pittsburgh, PA 15239
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***DN Tanks, Inc.**
672 Main Street, Suite H
Harleysville, PA 19438
Phone: (717) 521-7595
See Our Ad Page 37

***Dorsett Technologies, Inc.**
100 Woodlyn Drive
Yadkinville, NC 27055
Phone: (540) 494-0833

***Duncan-Parnell**
900 S. McDowell Street
Charlotte, NC 28204
Phone: (800) 849-7708
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*****Extreme Endeavors**
1063 Hickory Corner Rd.
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Phone: (304) 457-2500
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***Fehr & Cuda Sales, Inc.**
P.O. Box 127
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Phone: (724) 838-9394
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***Forberg Smith Process Solutions**
800 Old Pond Rd., Suite 705
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Phone: (412) 257-1551
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***Ford Meter Box**
13222 Fairview Road
Newark, OH 43056
Phone: (740) 319-4772
See Our Ad Page 15

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

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

***H&S Controls**
1747 Country Club Road
Grafton, WV 26354
Phone: (304) 265-4433
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***HACH**
712 Creekstone Ridge
South Charleston, WV 25309
Phone: (304) 374-1490

***Hymax/Mueller**
201 Ralston Road
Richmond, VA 23229
Phone: (352) 789-9649
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***JABO Supply Corporation, Inc.**
5164 Braley Street
Huntington, WV 25705
Phone: (304) 736-8333

***Maryland Biochemical Co., Inc.**
712 Tobacco Run Drive
Bel Air, MD 21015
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100 Home Road
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Phone: (267) 236-6184
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*****Master Meter, Inc.**
101 Regency Parkway
Mansfield, TX 76063
Phone: (937) 902-4663
See Our Ad Page 25

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

***Mid Atlantic Storage Systems, Inc.**
1551 Robinson Road
Washington C.H., OH 43160
Phone: (740) 335-2019
See Our Ad Page 32

***Miss Utility of West Virginia**
206 Berkeley Street
Charleston, WV 25302
Phone: (304) 345-3959
See Our Ad Page 16

***Muni-Link**
P.O. Box 250, Stadium Drive
Bellwood, PA 16617
Phone: (814) 742-7700
See Our Ad Page 20

****National Road Utility Supply, Inc.**
P.O. Box A
Valley Grove, WV 26060
Phone: (304) 547-0101
See Our Ad Page 30

***Nexbillpay, LLC**
P.O. Box 19688
Birmingham, AL 35219
Phone: (800) 639-2435

***Pittsburg Tank & Tower Co.**
P.O. Box 913
Henderson, KY 42419
Phone: (270) 826-9000
See Our Ad Page 37

***John P. Place, Inc.**
90 Clairton Boulevard
Pittsburgh, PA 15236
Phone: (304) 343-2607
See Our Ad Page 6

*****Precision Pump & Valve Service, Inc.**
P.O. Box 7027
Charleston, WV 25356
Phone: (304) 776-1710
See Our Ad Page 45

***ProSource Water Products, Ltd.**
14680 Pleasant Valley Road
Chillicothe, OH 45601
Phone: (888) 772-5478
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***Quality Water Services, LLC**
160 John Street
Weston, WV 26452
Phone: (304) 452-9883
See Our Ad Page 20

***Service Pump & Supply Co.**
P.O. Box 2097
Huntington, WV 25721
Phone: (304) 429-6731
See Our Ad Page 5

***Shafer, Troxell & Howe, Inc.**
97D Monocacy Blvd.
Frederick, MD 21701
Phone: (301) 682-3390

***State Equipment Inc.**
P.O. Box 3939
Charleston, WV 25339
Phone: (304) 776-4405
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***Suez Water Advanced Solution**
1230 Peachtree Street, N.E., Suite 1100
Atlanta, GA 30309
Phone: (855) 526-4413
See Our Ad Page 6

***Tepco-Trombold Equipment Co., Inc.**
P.O. Box 897
Mars, PA 16046
Phone: (724) 625-4260
See Our Ad Page 6

***Thompson & Litton**
726 Auburn Avenue
Radford, VA 24141
Phone: (540) 633-1897
See Our Ad Page 35

***Tri State Industrial Coating Contractors Alliance**
512 33rd Street
Parkersburg, WV 26101
Phone: (304) 546-1909
See Our Ad Page 15

***United Systems & Software, Inc.**
P.O. Box 547
Benton, KY 42025
Phone: (800) 455-3593
See Our Ad Page 6

***U.S. Pipe & Foundry Co., Inc.**
2247 Maiden Lane
Roanoke, VA 24015
Phone: (540) 353-7425

*****USABlueBook**
3781 Burwood Drive
Waukegan, IL 60085
Phone: (800) 548-1234
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***Utility Solutions, Inc.**
327 Curtis St.
Delaware, OH 43015
Phone: (740) 369-4300
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****Utility Technologies, LLC**
1054 Monroe Rd., Suite 105
Lebanon, OH 45036
Phone: (513) 488-1940
See Our Ad Page 33

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

***Vermeer of West Virginia**
5900 MacCorkle Avenue
St. Albans, WV 25177
Phone: (304) 768-5965
See Our Ad Page 35

***Warren Pump & Supply**
1551 Jackson Avenue
Huntington, WV 25704
Phone: (304) 429-6723
See Our Ad Page 22

***Water Development Authority**
1009 Bullitt Street
Charleston, WV 25301
Phone: (304) 414-6500
See Our Ad Page 37

***W.C. Weil Company**
P.O. Box 7144
Charleston, WV 25256-0144
Phone: (304) 776-5665
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