FROM YOUR CHIEF EXECUTIVE OFFICER

Dennis Sternberg

Winter is here! I awoke on Monday, November 17, 2014 to about three inches of snow on the ground at my house north of Greenbrier, Arkansas and temperature in the twenties. Hopefully everyone is ready for the cold winter weather that we can get this time of year. You have made sure that all your lines that are not buried are protected from freezing, pump stations or booster stations are heated and working properly. Wind chill alone can cause pumps and sensor lines to freeze and cause problems with your normal operation. Above ground sewer lift stations can freeze if the pumps and lines are not protected with an adequate heater equipped with a thermostat that can be set to run when the temperature drops below thirty-two degrees.

Simple preventative maintenance can prevent you from having to perform emergency maintenance later on when the elements of the winter are not the best. Customers’ water meters are another area where freezing can occur when not properly installed to the proper depth in the ground, or if the meter lid has been removed or not properly secured. Again a little preventative maintenance ahead of time can prevent you from having to be out doing emergency maintenance in the cold weather at night or on weekends. Think ahead and take action where you think you might have vulnerable areas on your water or sewer system.

I hope that everyone has looked at their expenses for the past twelve months and have adjusted their 2015 budgets accordingly for their systems. I would encourage everyone to do small rate increases annually rather than waiting until you have to implement a large rate increase. Customers will accept and appreciate small rate increases annually as needed rather than being shocked with a large increase that should have been implemented over several of the previous years when the system needed the money to stay (at the very least) at the breaking even point. Every year there are cost increases to your system in purchasing supplies and normal operational costs such as electricity, fuel, insurance, and many more things that increase every year. Systems need to stay aware of the different costs on their expenses, and have a rate study performed annually to see exactly what has changed, and whether it is going to be reoccurring cost. This will allow you to figure out if it is necessary to make a small increase in rates and prevent your system from digging itself into a black-hole (financially) that isn't easily corrected.

Also, has your system looked at the bad debts they have on their books? If you haven’t, you need to and start collecting those bad debts!

Look into the Water Utility Data Base system (WUDB). This system was designed and developed to assist utility companies with the tracking of their delinquent accounts. As a customer leaves owing a bill with no intention of paying, WUDB can assist in tracking them to their next utility. Certain legislation has been passed so the new utility can refuse service until the previous utility has been paid.

Now with WUDB’s web-based system, water and utility companies can manage their information through their own account. Water and utility companies can communicate with each other using WUDB’s built in notification system when a match is found. This will help establish the course of action taken to get your money and resolve the matter.

Thousands of dollars in delinquent accounts have been collected through WUDB that would have otherwise been written off as bad debt. Let’s work together and go after those who owe instead of raising rates on those who pay. So don’t delay the capture of your bad debt any longer! Go to http://www.wudb.com and become a member of WUDB and start the process of stopping bad debt.

Another opportunity that is available now and every water and wastewater utility is RuralWaterImpact (RWI). RuralWaterImpact.com is the recommended website provider for all our Utility Members. For only $199 setup and $29.95/month, you can have an easy-to-edit website that actually saves you time and money—and helps you to stay compliant. Post forms and reports, news and alerts, rate information and much more. Even offer Online Bill-pay as an added option.

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Your systems have insurance needs and I would encourage ALL systems that are members of Arkansas Rural Water Association (ARWA) to take a look at the “Specialty Insurance Program Endorsed by ARWA.” David Feild with Risk Services of Arkansas is located in Little Rock Arkansas and is the agent that handles all the AQUASURE insurance needs for systems, so feel free to contact him at 501-666-6653 or email him at DFeild@riskservicesar.com

Please remember to call ARWA for any of your assistance needs at 501-676-2255.

Wishing you and yours a safe and Merry Christmas and

Happy New Year!
Arkansas Rural Water Association

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Cover Photo
Hawcreek Falls
Photo courtesy of Arkansas Department of Parks and Tourism

ARWA Mission Statement

To provide Arkansas’ Rural Water Utilities the highest level of
Training and Technical Services in order to obtain
Quality Water at the lowest possible cost.

Arkansas Rural Water Association is a non-profit organization of rural and small publicly owned water and wastewater systems. Our goal is to enhance the lives of Arkansans. Our efforts to achieve this goal are focused on providing training and technical assistance to the managers and operators of all eligible systems serving populations not greater than 10,000. We work with other non-profit organizations in representing the interest of public water and wastewater systems at both the local and national levels.

• ARWA is affiliated with the National Rural Water Association •
Many of us actually drink very little water. We get our water from food, fruits, and drinks such as coffee, soda pop, juices, milk, and other liquids. It has been determined that a person's body is around sixty percent water. For us to protect against dehydration, we have to take in a lot of water. Author Becca Borawski Jenkins, gives the following synopsis of why we need to drink more water.

Ten Life-Changing Reasons to Drink More Water

If you don’t drink water, you will die. It's that important. Depending on our environment, we can live only a few days without water - maybe a week. We can live much longer without food. For most of us, we should prioritize the consumption of water far more than we currently do.

Prevent cancer. Yes, that's right – various research says staying hydrated can reduce risk of colon cancer by forty-five percent, bladder cancer by fifty percent, and possibly reduce breast cancer risk as well.

Be less cranky. Research says dehydration can affect your mood and make you grumpy and confused. Think clearer and be happier by drinking more water.

Perform better. Proper hydration contributes to increased athletic performance. Water composes seventy-five percent of our muscle tissue! Dehydration can lead to weakness, fatigue, dizziness, and electrolyte imbalance.

Lose weight. Sometimes we think we are hungry, when actually we are thirsty. Our body starts turning on all the alarms when we ignore our thirst. For those of you trying to drop some pounds, staying hydrated can serve as an appetite suppressant and help with weight loss.

Have less joint pain. Drinking water can reduce pain in your joints by keeping the cartilage soft and hydrated. This is actually how glucosamine helps reduce joint pain, by aiding in cartilage's absorption of water.

Flush out waste and bacteria. Our digestive system needs water to function properly. Waste is flushed out in the form of urine and sweat. If we don't drink water, we don't flush out waste and it collects in our body causing a myriad of problems. Also combined with fiber, water can cure constipation.

Prevent headaches. Sometimes headaches can be caused by dehydration, so drinking water can prevent or alleviate that nasty head pain. Next time your head hurts, try drinking water.

Make your skin glow. Our skin is the largest organ in our body. Regular and plentiful water consumption can improve the color and texture of your skin by keeping it building new cells properly. Drinking water also helps the skin do its job of regulating the body's temperature through sweating.

Feed your body. Water is essential for the proper circulation of nutrients in the body. Water serves at the body's transportation system, and when we are dehydrated things can't get around as well.

In her opinion, if you are thirsty, you are already dehydrated to a certain degree, and the thirst you feel is your body calling for re-hydration. That means when we are dehydrated we are affecting the performance of our body. Our systems do not function as well without proper water intake.

Ms. Jenkins also gave us four quick rules of thumb for drinking water:

- Drink half of your body-weight in ounces of water. For example, if you weigh 160 pounds, drink eighty ounces of water each day.
- Carry a bottle of water everywhere you go as a reminder to keep drinking.
- Eat raw fruits and vegetables – they are dense in water. You can get water from food, not just from beverages.
- Drink water and other fluids until you urinate frequently and with light color.
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Drinking water tanks are surrounded by threats daily, but most problems associated with emergency tank repairs can be prevented. Extra time and maintenance may be needed to ensure the tank is protected, and water operators should have an effective plan to restore water services if a tank emergency does occur.

Most problems that lead to emergency tank repairs can be prevented with proper maintenance and regular inspections. Obtaining accurate information and saving the documentation of every inspection and repair can enable a deeper level of understanding about the tank’s history. The knowledge gained from its history can then be used to help create a more effective strategy in preventing and limiting future tank repairs.

Harsh winter weather often increases the risk for tank damage and emergency repairs. Last winter, several drinking water tanks nationwide experienced damage, leaks, and failures as a result. A Minnesota tank froze twice over the winter because of the prolonged deep freeze (1). And, according to The Old Farmer’s Almanac’s for 2014-2015, “this winter will be another arctic blast with above-normal snowfall throughout much of the nation.” Therefore, measures should be taken now to protect the tanks and help prevent damage that could be caused by snow, ice and freezing temperatures.

Drinking water tanks are more susceptible to freeze during nighttime hours when water demand and turnover rate is low. Moving water is less prone to freezing, so keeping the turnover rate high or adding a mixing system can help. The National Fire Protection Association (NFPA) recommends maintaining the water temperature at or above 42°F to prevent tank freezing, and the water temperature can be monitored by installing a low-water temperature alarm (2). But, to maintain appropriate temperature, heating may be necessary. Insulation and standby electric heaters can be used for systems not already setup for steam or hot water.

All heater pipes, heating elements and temperature alarms should be tested, inspected and replaced as needed before the heating season begins and monthly thereafter or malfunctions are likely to occur. For example, the heater in a wooden Chicago water tank malfunctioned in March and the water inside froze solid. The tank’s structural integrity was compromised and the tank had to be dismantled later that month (3).

Changes in temperature can cause pipes to expand and contract making them vulnerable to breaks and leaks. Therefore, all pipes subjected to freezing or temperature change should be protected with insulation and heat tracing. The pipes inside small dry risers of elevated water tanks should also be insulated to prevent the inlet and outlet pipes from freezing. In January, a water pipe broke underneath the foundation of a Minnesota water tower and nearly 500,000 gallons of water was drained from the tank in a mere thirty minutes (4).

Pipe connections and expansion joint connections should be monitored closely for leaks. Leaks hidden
behind insulation can be difficult to locate, and insulation should be inspected and replaced as needed to reveal any defects hidden behind it and to remain effective. The American Water Works Association (AWWA), NFPA, and Occupational Safety & Health Association (OSHA) have devised a system of codes and standards that contain several recommendations on pipe inspections and a suggested timetable for inspecting each type of pipe.

Pumps, altitude valves, and overflow pipes should be checked before winter to prevent malfunctions. An overflow to grade may freeze solid if screens are plugged or flap valves are stuck, and vents can become clogged with ice and snow if they are not vacuum pressured and frost proof. Pumps or altitude valves that fail to shut off during tank filling can cause the tank to overflow. AWWA states, “A properly operated tank should not overflow during normal operation. An overflowing tank is considered an emergency condition and the malfunction causing the overflow should be determined and corrected as soon as possible.” AWWA does not recommend the use of an internal overflow, because if an overflow failure occurs it could go unnoticed and empty the tank (5). This past winter, five water distribution pumps in Arkansas froze overnight, leaving the city’s above-ground storage tanks empty. Without water, the city’s fire hydrants became useless and firefighters were left with nothing but the water on their trucks (6).

All valves, pipes, controls, alarms, and liquid level indicators must be in proper working order for adequate water to be available. Failure of any component could have dire consequences, and all components may need to be inspected daily during extreme weather for signs of frozen, cracked, or damaged areas. Sometimes despite all measures taken emergency repairs may still be needed. Therefore, effective strategies must be devised for a quick response and recovery. An established relationship with a dependable and experienced tank professional, already familiar with the tank, can be extremely useful. The selected full-service tank company should be educated, certified and have received the proper safety training necessary to perform tank inspections, repairs and modifications. They should be available 365 days a year to answer questions, address concerns, and be flexible enough in their scheduling to make emergency repairs when needed. Please do not attempt to thaw or drain the tank without professional help if water freezing does occur; further damage or a tank rupture could result. Please contact the author, Ericka Henderson, or Don Johnston, djohnston@watertank.com at 270-826-9000 for more information on emergency tank repairs.

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Today, one of the biggest topics in many cities and towns across Arkansas is water rates. Just how big is this issue across the United States? And what are other areas doing to remedy this ongoing problem? Across the United States, regions face different challenges but the results are the same: They drive water prices up. In Milwaukee, due to the loss of industry, usage has dropped forty-one percent from 1976 to 2008. Milwaukee has a vast amount of water and infrastructure, but a lack of customer base is driving up the price for water.

Due to this fact, a local business owner, Richard Meeusen has created a group called Water Attracting Valued Employers (WAVE) to lobby for cheaper rates for industry. Meeusen told the AWWA (American Water Works Association) “For more than twenty years industry has been moving south looking for cheaper labor. I’m hoping that now they’ll start coming back looking for cheaper water.” In the Southwest, they face a little different problem. Places like Santa Fe and Phoenix have had to cut back on usage because of the lack of sustainable water sources. Phoenix uses roughly the same amount of water as they did ten years ago, but have added close to 400,000 people. Problems like this have led to costly projects to distribute water to regions that face similar difficulties. The major issues we face in our area are finding a relatively close sustainable source, and dealing with aging infrastructure. According to the New York Times, the EPA estimated that $335 Billion would be needed to fix the country’s aging water supply system in the next few decades. However, no one knows where that money will come from. Water rates and some residents’ inability to pay have captured international attention. In Detroit, customers being shut off for non-payment have called upon the U.N. to investigate and intervene. Catarina de Albuquerque, the U.N. High Commission on Human Rights Special Rapporteur on safe water and sanitation, visited the United States and determined the shut-offs to violate human rights. The U.N. has called a special meeting with the Obama administration to try to resolve the issue. Incidents like this should really get legislatures and water purveyors to think about their own rates and policies, and what this could mean for the future of Arkansas.

References


Arkansas Rural Water Association’s Debt Collection Program

Eliminate Your Delinquent Accounts With Our Web Based Solution For Tracking Collections.
With the rising cost of operations can you afford to absorb lost revenue from those leaving your service still owing you money.
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<td>Debt Customer Entry</td>
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<td>Built In Request Forms</td>
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Rock Reed Filters  
*By Jim Barkie, ARWA Wastewater Trainer/Technician*

Although they are not popular throughout the state, wastewater treatment plants that utilize rock reed filters are still used in some areas of Arkansas. The most common rock reed system collects the wastewater in one or more facultative lagoons, the flow passes through the rock reed filter, and is then disinfected or discharged into receiving waters depending on permit requirements. When first constructed and put into service they function very well, but many problems can arise several years down the road.

Many systems have installed a dividing curtain to add to the detention time, which is needed to biologically process the wastewater. This reduces short-circuiting, and allows heavier solids to settle to the bottom before the water enters the filter. Some systems have installed surface aerators or diffused air. This will add dissolved oxygen to the wastewater, break up the surface of the water, and reduce the amount of sunlight penetration, which will help reduce the algae growth. Even after all this added cost and effort, the treatment plant may still produce an effluent that is below the permit requirements.

A rock reed filter should look like a field of stone with reed type plants planted in a grid like pattern. All you should see is dry stone and plants; the water entering the filter should rapidly disappear from view. By design, the water makes its way evenly through the media and plants. The plants consume a portion of the water, and encourages small colonies of bacterial growth that further process the water. The result is a good clean effluent that meets or exceeds permit requirements.

A common problem with rock reed filters is plugging of the media when algae and other suspended solids are in high concentration. When this happens, the water will find a few channels through the filter where it is no longer being processed. Keeping the algae and other suspended solids under control will add to the life of the filter, some of which have been in use for fifteen years or more. Pull the reeds when they die and replace them with new plants. You may be able to agitate the media in problem areas to restore normal flow. However, once the filter is plugged it may have to be rehabilitated. There is a lot of labor involved with rock reed filters, but if you maintain them properly, you can get ten years of service or more before they have exceeded their life span.

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Energy and Effective Utility Management

By Bruce Anderson (ARWA)
USDA/RD Energy Tech & EPA Wastewater Specialist

I would like to thank all of the personnel that attended the Effective Utility Management classes in Lonoke, Nashville, and Clarksville. I think that we had good open discussions on the Ten Key Management areas. The follow-up assessments on the four questions were very informative. Thanks for taking the time for me so I could complete this. I hope that in the future, the EPA will fund another program like this one. Everyone seemed to enjoy and learn a great deal from this type of class.

I am currently in the process of trying to do Energy Assessments for the USDA/RD. I have visited with several systems and you have all been very gracious and helpful. I have to get a copy of energy bills, and gallons pumped and gallons sold from the office personnel, and pump and motor information from the managers, operators, etc. I know that this requires a lot of time on your part. I hope that in the future this will be changed so there will be more classes offered on energy to all systems who want to attend, and also have follow-up questions like the EPA Program. Water leaks on water systems, and inflow-infiltration on wastewater systems, and poor maintenance are the main energy cost in my opinion. If we had strap on flow-meters to check the GPM on wastewater pumps, and infrared to check the hot spots on electrical and bearings, we could save a lot of money on energy. It is not feasible to put variable frequency drives on small horsepower motors, but you can install premium efficient motors when they need to be replaced. On large horsepower motors, VFD’s could be the correct choice. I will be traveling throughout the state to try to get this information spread to each system. With your help, we can make this project a success.

For more information, you can call ARWA at 501-676-2255.

Once again thanks for all the help.
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WATER INSIGHT • WINTER 2014

WATER OPERATOR LICENSE EXAMINATIONS
DECEMBER 2014 – DECEMBER 2015 – SCHEDULE

Most current Exam Schedule is available at http://www.healthy.arkansas.gov/eng/autoupdates/oper/operexam.htm
You must register for the exam 45 days in advance. Call (501) 661-2623, ask for Water Licensing Program.
Listed below are the dates and locations of examination sessions as scheduled, as of October 2, 2014. All Treatment
and Distribution exam grades will be available at the sessions. Acceptable photo identification (Drivers License or
equivalent) will be required to sit for an Exam. Cell phones, pagers and other electronic communication devices are
not allowed. Non-Programmable calculators are allowed in exam sessions.

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<td>6/5/2015</td>
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The above exam session information is subject to change. You should confirm this information just prior to the
scheduled examination period. Also, the latest exam schedule information can be viewed on the Internet at:
Water Operator License Exam Schedule


You must register for the exam 45 days in advance. Call (501) 661-2623, ask for Water Licensing Program.

Please verify that your license application has been filed with this office and that the required exam fee for each exam has been paid. The license exams require significant preparation prior to sitting for the exam. The preparation must include extensive study utilizing the study guide and recommended reference materials. Credit for the mandatory Certification Training Courses must be obtained before taking an exam. Copies of your training documentation must be provided when registering for an exam or provide documentation of its attendance by the exam session.

Computer-Based Water License Examinations
Provided By Applied Measurement Professionals
Information & Reservation Instructions

Computer-based Arkansas Water Operator License Examinations are available utilizing Applied Measurement Professionals (AMP) Assessment Centers. This is an optional method of examination with an additional administration fee of $64.00 per exam. This option allows exams to be scheduled with a large degree of flexibility as to day of the week (open Monday through Saturday) and time of day (morning or afternoon sessions).

To utilize AMP, the Water Operator Licensing Program must be contacted to start the process. To schedule an exam utilizing AMP, the License Program must be in receipt of the candidate’s (exam taker) Water Operator License application, the required License and Exam fees must be paid, and the mandatory training requirements must be documented as met.

The Licensing Program will arrange for AMP to contact the candidate. AMP will provide needed information and directions to schedule the computer-based exam. The AMP computer based exam administration fee of $64.00 must be paid directly to AMP when the exam is scheduled. The time needed to complete the examination process, from a few days to several weeks, depends on several factors. Has the license application and licensing fees been paid? Mandatory training attendance is documented to the Water License Program. The mode of communication, internet versus US mail, can influence the time needed significantly.

The exams are administered via computer terminals in an AMP Assessment Centers, they are not paper based. AMP provides a paper copy of the ABC exam formula sheet and scratch paper. A practice exam to become familiar with the computer process is available at the time of examination. The process is very user friendly and is suitable for non-computer users.

Computer-administered examination is scored at the conclusion of the exam with your score and mastery report provided to you prior to leaving the Center. AMP will furnish the Licensing Program your exam results. The Licensing Program will follow-up the exam results with the appropriate documents based on the exam results.

AMP has assessment centers in Fayetteville, AR; Little Rock, AR; Memphis, TN; Jackson, MS; Shreveport, LA; Tulsa, OK; Springfield, MO; and other AMP Assessment Centers throughout the United States. Any Center may be utilized. For additional site information, examination concepts, and examination procedures, see AMP’s website, www.goamp.com. Under Candidates, click/select “Get Started”. I suggest, at a minimum, you review the Arkansas handbook, view the “What To Expect” video, and review the “General Recommendations” before you “Schedule an Exam”.

PREPARATION = SUCCESS
**Banana Bread**

½ cup butter (1 stick) at room temperature
1 cup of sugar
½ teaspoon salt
2 eggs
1 teaspoon vanilla
1 ½ cups all-purpose flour, sifted
1 teaspoon baking soda
1 teaspoon baking powder
3 ripe bananas, mashed

Preheat the oven to 375 degrees. Grease a 9x5 inch loaf pan. In a mixing bowl, combine the butter and sugar; mix well. Add the salt, eggs, vanilla, flour, baking soda, baking powder, and bananas. Mix well. Pour the batter into the prepared pan and bake for 50 minutes. Be sure to check for doneness with a toothpick before you take it out of the oven. It takes a little longer than 50 minutes so be sure to check it every 5 minutes or so. Yields 1 loaf.

**Sausage Swirls**

This is a Paula Deen recipe that I tried at our family Christmas Eve gathering, it was a big hit, and super easy. Everyone needs a simple recipe for the holidays or Super Bowl Party.

Two 8 ounce cans refrigerated crescent dinner rolls
1 pound ground sausage, mild for kids, hot for adults, or sage if you prefer

Separate one can of dough and form into four rectangles. Firmly press the perforation to seal. Take the uncooked sausage and cut it into eight chunks. Using four of the chunks of sausage, spread each of the rectangles with a thin layer. Roll each rectangle tightly into a cylinder. Repeat with the other can of dough and remaining sausage. Place on a plate, cover with plastic wrap, and chill until firm, about thirty minutes, then cut each roll into four slices.

When ready to bake, preheat the oven to 375 degrees F. Place the sausage swirls an inch apart on an ungreased baking sheet. Bake for 18 to 20 minutes, until golden brown and the sausage is thoroughly cooked. These can be made in advance, then reheated in a warm oven before serving.

**Corn Dip**

This corn dip is an absolute hit at all of our church and family functions. I serve it with Tostito round chips and it is also excellent with Frito Scoops.

2 cans Mexi-Corn (drained)
1 large Pimento (drained)
2 bundles Green Onions (chopped including greens)
10 ounces Sour Cream
8 ounces Cream Cheese (softened)
10 ounces Mayonnaise
1 tablespoon Garlic Salt
1 teaspoon Accent Seasoning

Be sure to drain the Mexi-Corn and Pimento really good. Mix the green onions, sour cream, cream cheese, and mayo. Mix in the corn and pimento then add the remaining ingredients. The dip is better chilled before serving.

**Chicken and Slick Dumplings**

4 leg quarters or breast
1 onion quartered
2 stalks of celery cut into big chunks
2 chicken bouillon cubes
2 cups self-rising flour
1/4 cup vegetable shortening
1/4 cup boiling water
1/2 cup milk

Cook chicken in enough water to cover it along with the onion, celery, salt, pepper, and 2 bouillon cubes. When chicken is tender take out of the broth then remove the vegetables. Measure 1 ½ quarts of the broth put back in the pan. Debone the chicken, put back in the broth, and bring to a boil. Put flour in large bowl; cut in shortening with pastry blender or forks. Add boiling water. Shape mixture into a ball and roll in a 1/8” thickness on a lightly floured board. Cut into strips. Add the dumplings to the boiling broth and cook covered on medium heat about 10 minutes. I like to add about a ½ cup of milk right after the dumplings are put in the broth to cook. Salt and pepper to taste.

**Cowboy Beans**

½ pound ground beef
¼ pound bacon
15 oz can Butter Beans
15 oz can Kidney Beans
15 oz can Great Northern Beans
31 oz can Pork N Beans
1/2 cup sugar
1/2 cup brown sugar
1/2 tsp dried mustard
2 tablespoons molasses
1/4 cup catsup

Drain butter, kidney, and great northern beans. Do not drain pork n beans. Brown meat and bacon. Mix everything together and bake for 30 minutes at 350 degrees. DO NOT OVERBAKE. If you cook them too long, they will become mush.

**Never Fail Biscuits**

2 cups Martha White self-rising flour
1/4 teaspoons soda
2 tablespoons shortening
1 cup buttermilk

Sift flour and soda together. Work in shortening with a fork or pastry cutter until crumbly. Add half of the buttermilk; mix well. Add the rest of the buttermilk to form a dough; mix well. Pour onto a floured surface. Add flour as needed and knead the batter enough to be able to pinch off biscuits, not over 4 or 5 times. Don’t over do it, you’ll just have to learn the right consistency that handles well. It will be sticky at first until you add enough flour. Pinch off or cut into biscuits. Bake in a 400 degree oven for 10 minutes.
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Zoeller Pumps
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WE APPRECIATE YOUR BUSINESS
Water Loss  By Tim Carey/ARWA Circuit Rider

Many systems have had a problem with water loss in the past. A lot of systems have issues with it now. When we arrive at a system, we are usually told, “I’ve driven all of my lines and I can’t find anything.” My response is, “you can’t find your leaks from your truck seat.” The process starts with looking at your water sales verses your master meter readings. These readings are found at your well house or the meter that you purchase your water from another water system. Then I need to see your water line maps. This gives us an idea as to where we can separate the water system in order to listen to a smaller area. Through this process, we can determine the area that has a leak or leaks.

The first thing that happens to a system that indicates a leak is to see that your meter has jumped way up from what the operator deems as normal. The second thing that happens is total panic. Everybody jumps into their trucks and starts riding the water system. Sometimes you get lucky and find a water line broken and water going everywhere. One of the hardest things to understand, is that the total amount of gallons lost is important, but what you’re looking for is the gallons you are losing per minute. The way you find this is to calculate the known total of gallons you are losing, divided by 1440 minutes in twenty-four hours. That figure lets you know what you are looking for. Most of the time people think, wow I should be able to find a pond. In reality, the leak can be a small stream going straight down, or running into something that isn’t seen easily.

At this point, calm down and think about all dead end lines where you can access a shut off valve. Go to these dead end lines and shut the valve. Wait for about four minutes and just crack the valve slightly open. Listen to the valve wrench, and often you can hear the water rushing through the partially open valve. If it is a leak on that line, the sound will never stop.

The timing of this is usually after the consumers have gone to bed. By ruling out all dead end lines, the next area has to be divided into smaller areas using shut off valves. This issue has been written about and talked about many times.

When you find that you have a problem with a leak that can’t be found, please have the following items ready for review: #1 your master meter readings, #2 your sales readings (how many gallons billed for the month), and #3 all maps of your water system, then give us a call. Without all of these materials, it makes it very hard for us to start the process.
Lost Revenue Due to Residential Meters

By Josh Freeman, ARWA Circuit Rider

One of the most common things I have found while visiting water systems, is that many do not have a meter change out program in place. What is a meter change out program? A meter change out program is a program designed to change meters out when they reach a certain amount of gallons (1,000,000) on them or have been in use a certain number of years (ten). Some systems are still using the same meters that were installed when the system was put in fifty years ago. That means that there is a good chance that you have meters that are not registering all the water that goes through it; that is lost revenue that can be easily fixed.

Residential meters are tested by using three different flow rates: high flow (10gpm), medium flow (2gpm), and low flow (1/4 gpm). I’ve found that most meters are still accurate using the high flow rate. Meters set at the medium or low flow rates are where the system starts losing money. In a lot of cases, the low flow is not working at all. That means if the customer has a toilet leaking or any small leaks, the meter may not be showing any water going through the meter at all: that’s lost revenue. I know it’s very costly to change out meters, but think how much it is costing the water system to be using that meter. For example, if you have a customer that has a toilet that is not functioning properly, and it has been running for a month, the customer is being charged $4.80 per thousand gallons of water. The system has lost $52.80 in revenue on that one meter in a month (based on ¼ gpm). Ask yourself how many meters are in your system that are over a million gallons or ten years old.

Check with your supplier or manufacturer to find out the cost of doing a meter change out for your system, and also ask what type of meter would be best for your system to make sure you have the right meter for the job. It’s a good idea to go around to your bigger meters that have two or more stationary zeros, and check to make sure that your billing program is adding more than one zero. You may say that would never happen, but I’ve seen it occur, usually because the person reading the meter is not the one entering the meter readings.

If you have any questions, please feel free to contact me at Arkansas Rural Water Association 501-676-2255.
Lost water can be found on meters that do not register all the water that flows through them. Lost water can also be in water used, but not accounted for. We see some of these losses through water used for fires but not reported, which means that we are not keeping up with our records. Unmetered water use such as city halls, parks, wastewater plants, schools, and other public areas account for lost water, resulting in lost revenue. Then there are leaks that get put on the back burner because we consider them small, or those that are in areas that are hard to find.

With cost to produce water, it is more important than ever to locate the areas that are losing water and fix them. It may mean fixing leaks, replacing meters, or installing meters where there is no meter. It’s important to make sure you are using the correct chemical and dosage to control cost, have master meters checked yearly, and make sure you’re using the correct meter in the application that you need metered.

When you manage your water use today, you make sure that your system is viable and ensure that we will have water in the future. We at ARWA are here to assist you in accomplishing these goals.
ARWA GEts Letters and E-Mails From Systems

Please tell David how much we appreciate his work.

Thanks,

Steve DiCicco
Water Department Manager
Benton Utilities

Dear ARWA and Mr. Sternberg,
November 17, 2014
I would like to take this opportunity to thank Arkansas Rural Water Association and those who provide support for the Ernie Faucett Scholarship Fund. These scholarships are a great blessing to not only myself but to all who receive them.

Thank you again for helping me as I continue to work toward furthering my education and achieving my degree.

Courtney Zolliecoffer
Arkansas Tech University-Ozark Student
(Ozark Water Department)

Arkansas Rural Water Association,
November 19, 2014
We, the City of Havana, are very thankful for your participation in the repairs of our Sewer Lift Station project on October 28, 2014. ARWA saved us time and thousands of dollars by allowing us to use your equipment. We are proud to be a member and look forward to working with you on future projects you may assist us with. We appreciate your services!!

Sincerely,
Hope Patton, RTC
Rick Bryant, Mayor
City of Havana

Dear Mr. Sternberg,
November 24, 2014
I would like to thank you and ARWA for coming out when I needed your help with the Poplar Grove Sewage Improvement System. I really do appreciate the service you rendered at ARWA for a small community like this one. May God keep blessing you all.

I would also like to thank Mr. Rodney Baldwin for all the time, hard work, assistance, and training he put in and gave to get Poplar Grove Sewage Improvement System in full operation again.

Sylvester Rose, Operator/Maintenance
Poplar Grove Sewage Improvement District

Dear Dennis,
December 11, 2014
I just wanted you to know how much I enjoy coming to these classes. I've been a duel license holder for years, but I always take away something from every class I attend. I am going to take a T2 test tomorrow and after coming to Jim's math class as a refresher, I feel I'm prepared for the test. He makes it a fun class and you retain what he teaches.

I don't attend any other classes or conferences so this is my only way to get renewal or prepare for a test. I think this is the best of the best teaching our operators.

Thank you,

Roy Richards
Augusta City Light, Water, and Gas

• Dear Susan,
October 27, 2014
We want to thank you for coming all the way to Springdale and having a Wastewater II class. It was very helpful and we hope you can teach a Class III up this way soon.

Thanks again from the Rogers Pollution Control Operators.

Armando Garcia
Mike Hartwig
Marco Segura

• Dear Mr. Sternberg,
November 10, 2014
We want to express our continued appreciation for the many services that Arkansas Rural Water Association (ARWA) has provided to the rural water and wastewater systems throughout Arkansas during the past years and we want to call special attention to your Wastewater Trainer/Technician Program. After the tornado on April 27, 2014 devastated the rural cities of Mayflower and Vilonia, ARWA staff assisted these communities and their water and wastewater systems with emergency and follow up assistance in order that they could bring back their utility systems in a safe and timely manner.

Arkansas has a large number of rural communities that have aging water and wastewater systems. ARWA has continually benefitted these communities through the knowledge, professionalism, and expertise that you and your staff have provided over the years and this has been invaluable to these rural communities.

We look forward to another year of interaction with your staff and those rural communities that benefit from the services that your organization has provided and continues to provide. We fully support your work plans and applications for funding to continue these needed services.

Lawrence McCullough, State Director
United States Department of Agriculture

• Dennis,
November 12, 2014
I would like to express my sincere thanks to ARWA, especially David Quattlebaum, for his assistance to our utility in preparing our Contingency Plan, Emergency Action Plan, and the verification of our Source Water Protection Plan. He compiled a great usable document for us that includes pictures of our source water areas, ADH Rules and Regulations, watershed maps, as well as current activities and recommendations for our utility.

Arkansas Rural Water Association is such a great organization that is available to us in this industry. The work that David expended on this project for us at a cost of $0 is remarkable. I would appreciate it if you would forward this letter to the proper people that can help your organization keep the funding you need to continue performing as remarkably as you do.

I know this is one of the many services that ARWA provides for its members. I really don’t know what some of the utilities in Arkansas would do without the assistance you provide because many do not have adequate funding or the expertise needed to perform some of these jobs.

Keep up the good work and I will be calling on you for some more assistance in the near future!
Great day fellow operation specialists!

Now is the time to recruit young men and women into our profession. For many years, I’ve heard how the water and wastewater industry will go through a massive changing of the guards in the next few years as the baby boomer generation retires. Well folks, that time is now. In this changing cultural environment, we must look beyond physical markers that the younger generation so proudly show and be more proactive in reaching out to High Schools, Trade Schools, Community Colleges, Arkansas Universities, and veterans. We need to recruit talented individuals into a career of public service, and maintaining human health by providing safe drinking water, and wastewater disposal.

Now is the time to plan for your certification training. The Arkansas Rural Water Association is committed to providing the highest quality training for operators throughout the state. Please check the ARWA calendar to find the training location near you for 2015. Classes for all water licenses will be offered on a rotating basis, allowing easier planning for course scheduling.

Now is the time to plan for your renewal training for the 2013-2015 cycle. ARWA has for several years, provided a three day "specialized" class designed for both water and wastewater operation specialist to renew both licenses in one convenient, learning environment. These classes will now be listed as water or wastewater renewal training. Attending all three days will renew an Arkansas water license, or an Arkansas wastewater license, or both! ARWA will host one session per month starting January at DeGray State Park Lodge. Check our website or calendar for all dates and locations.

Now is the time to plan on attending the ARWA annual conference scheduled for September 13-16, 2015, in Hot Springs. Remember to pre-register early this year and bring your best tasting water for the competition to determine what systems, di-hydrogen mono-oxide, will represent Arkansas in Washington, D.C. for the top water honor.

Now is the time to write your newly elected representatives and let them know what a huge asset Arkansas Rural Water has been to your system. Providing training, technical assistance, emergency equipment, or answers when needed, are just a few of the services we offer to every county in Arkansas.

Until I write again, please continue to work safe, educate your public, be professionals, and
KEEP THAT WATER FLOWING!

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Hugh Philipp, MPA, USEPA Training Specialist
It’s renewal time again ending June 30th, 2015 for water and wastewater licenses. Although we love having you attend our certification classes, we do get a little overwhelmed at the numbers of people who are only there for renewal hours (and more than likely are repeating a course they took when they got their original license). This year consider Specialized Training, which is another renewal hours alternative packed full of interesting speakers with great topics that pertain to your job. These courses are geared to give you valuable information that you can take back and utilize at your facility. If you have never attended one, starting in January 2015, we will be having this type of training monthly until the end of June at various locations throughout the state. This will allow an operator to obtain all of the hours necessary for both water and wastewater license renewal, and meeting your direct and indirect hours requirements in just three days. Once you have attended the three days you leave with twenty-four hours each for water and wastewater (twelve direct and twelve indirect).

Topics that are being scheduled this year will include control panel troubleshooting, pumps and motors, variable frequency drives, lagoon aeration, meters and valves, bad debt collection, collection and distribution system, loss and leak detections, etc. If you have a suggested topic you would like to see included, please contact me and I will be glad to look into getting it added.

I hope to see you there at one of our many locations in 2015. You can visit our website at www.arkansasruralwater.org to see the specific training topics scheduled for the location you select. There is no fee for attending these courses, and we strive to continue to be your “One Stop Full-Service Water and Wastewater Training Organization.”

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### ARWA WATER TRAINING SCHEDULE – 2015

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<td>February 18-19, 2015</td>
<td>Water Renewal Training</td>
<td>Lonoke</td>
</tr>
<tr>
<td>February 24-26, 2015</td>
<td>Basic Treatment</td>
<td>Lonoke</td>
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<td>March 4-5, 2015</td>
<td>Water Exam Review</td>
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<td>March 11-12, 2015</td>
<td>Basic Water Math</td>
<td>Mountain Home</td>
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<td>March 17, 2015</td>
<td>ADH Compliance Course</td>
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<td>March 18, 2015</td>
<td>Applied Water Math</td>
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<td>March 24-26, 2015</td>
<td>Intermediate Treatment</td>
<td>Lonoke</td>
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<td>April 22-33, 2015</td>
<td>Water Renewal Training</td>
<td>Mountain View State Park</td>
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<td>April 28-30, 2015</td>
<td>Advanced Water Treatment</td>
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<td>May 5-7, 2015</td>
<td>Basic Distribution</td>
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<td>May 13-14, 2015</td>
<td>Water Renewal Training</td>
<td>Mountain Home</td>
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<td>May 19-21, 2015</td>
<td>Advanced Distribution</td>
<td>Lonoke</td>
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<td>June 3-4, 2015</td>
<td>Water Exam Review</td>
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<td>June 9-11, 2015</td>
<td>Basic Treatment</td>
<td>Mountain Home</td>
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<tr>
<td>June 17-18, 2015</td>
<td>Water Renewal Training</td>
<td>Piggott</td>
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</tbody>
</table>

### ARWA WASTEWATER CLASS SCHEDULE – 2015

<table>
<thead>
<tr>
<th>Date</th>
<th>Course</th>
<th>Location</th>
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<tbody>
<tr>
<td>January 13-14, 2015</td>
<td>Wastewater License Renewal Training</td>
<td>DeGray State Park</td>
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<td>January 27-29, 2015</td>
<td>Class I Wastewater</td>
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<td>February 23-27, 2015</td>
<td>Wastewater Renewal Training</td>
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<td>March 9-12, 2015</td>
<td>Class III Wastewater</td>
<td>Springdale</td>
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<td>March 10-11, 2015</td>
<td>Wastewater Renewal Training</td>
<td>Ashdown</td>
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<td>April 6-9, 2015</td>
<td>Class II Wastewater</td>
<td>Nashville</td>
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<td>April 13-17, 2015</td>
<td>Class III Wastewater</td>
<td>Arkadelphia</td>
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<td>April 21-22, 2015</td>
<td>Wastewater Renewal Training</td>
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<td>May 12-13, 2015</td>
<td>Wastewater Renewal Training</td>
<td>Mountain Home</td>
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<td>May 20-21, 2015</td>
<td>Wastewater Microbiology (Fee Based)</td>
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<td>June 16-17, 2015</td>
<td>Wastewater Renewal Training</td>
<td>Piggott</td>
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</table>

To see our entire schedule of classes or to get more details please go to our website: arkansasruralwater.org
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Don’t forget to mark your calendars for the upcoming events for 2015!

The Jack Lambert Scholarship Golf Tournament at Hurricane Golf Course in Bryant is a day of fun and fellowship for everyone. This Tournament was started by Jack Lambert in 2001 for the Ernie Faucett Scholarship Fund to assist the dependents of our water community who want to attend college. In 2014 we were able to give away twenty-two scholarships with the help of our players, sponsors, and our great corporate sponsors, HD Supply and Crews and Associates. We look forward to seeing you at in Bryant on June 24, 2015!

The operator EXPO will be July 22nd, 2015 at the Arkansas Rural Water Training Center at Lonoke. Come out and see new products, hands on demonstrations, and actually try out many of the products. You can talk with other operators, vendors and friends. Lunch will be provided for all attendees as well.

The 2015 ARWA Annual Technical Conference Golf Tournament will again be held at Diamondhead Golf Course near Hot Springs, AR on September 13, 2015. It’s a great golf course, a great place to start the conference, visit with old friends, and make new friends as well. This event also supports the Ernie Faucett Scholarship Fund.

The ARWA Annual Technical Conference will begin setup and registration on Sunday September 13th. Exhibitor Setup will start at noon on Sunday and registration will open at 1:00pm. The conference will start at 8:00am on Monday September 14, 2015 in the convention center.

Remember if you plan to take an exam in upcoming year, you MUST register with the ADH forty-five days prior to the exam date or you will not be able to sit for an exam.

Also notice the Jack Lambert Golf Tournament and EXPO are no longer together on back-to-back days. Hopefully, this will give everyone a chance to plan in advance to attend on separate months for those who can’t be away two days in a row.
BACKFLOW CLASSES

Please fill out information below and mail to Arkansas Rural Water, with payment, ten working days prior to the class date you wish to attend:
ARWA - P.O. Box 860, Lonoke, AR 72086. You may also fax your registration form to 501-676-2266 and we can take a credit card payment over the phone.

REGISTRATION FORM
Class Time: 8:00 a.m. - 5:00 p.m.

NAME: ______________________________________________________________________
ADDRESS: ____________________________________________________________________
CITY:________________________STATE:__________ ZIP:___________________
PHONE____________________________________
EMPLOYER:_____________________________________ARWA MEMBER: YES___ NO___
NAME OF CLASS: _____________________________________________________________
DATE OF CLASS: _____________________________________________________________

BACKFLOW CLASSES IN 2015

February 9-13, 2015  Tester Certification ............................................Lonoke
April 6-10, 2015  Tester Certification ............................................Lonoke
July 13-17, 2015  Tester Certification ............................................Lonoke
October 12-16, 2015  Tester Certification ............................................Lonoke

February 9, 2015  Tester Re-Certification.......................................Lonoke
April 6, 2015  Tester Re-Certification.......................................Lonoke
July 13, 2015  Tester Re-Certification.......................................Lonoke
October 12, 2015  Tester Re-Certification.......................................Lonoke

March 17-19, 2015  Repair Course.....................................................Lonoke
June 24-26, 2015  Repair Course.....................................................Lonoke
August 18-20, 2015  Repair Course.....................................................Lonoke
Arkansas Rural Water has been approved by the Arkansas Department of Health and is now offering training courses for persons wishing to be certified in backflow prevention and cross-connection.

Below, you will find courses offered and their cost. If you wish to attend a course, please fill out and return this registration form, along with a check for the amount of the course.

Please mail to: Arkansas Rural Water Association, P.O. Box 860, Lonoke, AR 72086
You may also fax your registration form to 501-676-2266
and we can take a credit card payment over the phone.

**ASSEMBLY TESTER CERTIFICATION COURSE**

COST: ARWA MEMBER: $400.00 NON-MEMBER: $445.00

The Assembly Tester Course is a 40-hour course that consists of classroom training and actual hands-on training to train the student to field test various backflow prevention devices.

NOTE: (It is required by the Arkansas Department of Health that anyone wishing to be a Certified Tester, attend and pass this type of approved course and also pass a test given by the Arkansas Department of Health after completion of this course.)

**ASSEMBLY TESTER RE-CERTIFICATION COURSE**

COST: ARWA MEMBER: $100.00 NON-MEMBER: $125.00

The Assembly Tester Re-Certification Course is an 8-hour course that consists of classroom training and lab training to re-certify CERTIFIED TESTERS.

NOTE: (It is required by the Arkansas Department of Health that Certified Testers attend and pass this type of an approved course every two years in order to maintain Certification.)

**ASSEMBLY REPAIR CERTIFICATION COURSE**

COST: ARWA MEMBER: $300.00 NON-MEMBER: $345.00

The Assembly Repair Course is a 24-hour course that consists of classroom training and hands-on lab training to train the student to be able to repair Assemblies in the field.

NOTE: (It is required by the Arkansas Department of Health that before someone can be a Certified Assembly Repair person they must be a Certified Tester, attend and pass an Assembly Repair Course and also pass a test given by the Arkansas Department of Health after completion of this course.)

PLEASE FILL OUT THE INFORMATION ON THE FOLLOWING PAGE & MAIL IT TO ARKANSAS RURAL WATER
10 WORKING DAYS PRIOR TO THE CLASS DATE YOU ATTEND.
ARKitANS WASTEWATER OPERATOR LICENSING PROGRAM
RECOMMENDED STUDY REFERENCE MATERIALS

ORDER FORM

Arkansas Rural Water Assn.
P.O. Box 860
Lonoke, AR 72086

Name: ________________________________ System: __________________________
Street Address: __________________________ City, State, Zip: _______________

MATERIALS:

<table>
<thead>
<tr>
<th>Training Materials Title</th>
<th>Quantity</th>
<th>Price</th>
<th>Total</th>
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<tr>
<td>Operation of Wastewater Treatment Plants, Vol. 1 - 7th Edition</td>
<td></td>
<td>$50.00</td>
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</tr>
<tr>
<td>Industrial Waste Treatment, Vol. 1 - 3rd Edition</td>
<td></td>
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<tr>
<td>Operation of Wastewater Treatment Plants, Vol. II - 7th Edition</td>
<td></td>
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<tr>
<td>Advanced Waste Treatment - 5th Edition</td>
<td></td>
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</tr>
</tbody>
</table>

Please make checks payable to: ARWA Wastewater Education Account – P.O. Box 860 – Lonoke, AR 72086
Prepayment is required on all book orders!

Shipping & Handling: $8.00 per book or $20.00 per set.
Shipping/Handling must be included for order to be processed.
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