In This Issue

- WVRWA Completes 2nd Emergency Water Treatment Plant
- 2005 Fleet Vehicle Program Now Available to WVRWA Systems
- WV Senate and House Member Listing
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President’s Message – The Tradition of Excellence Continues
Drinking Water Lab Procedures Class: Is There a Need?
Proficiency – Use It Or Lose It
WV Rural Water Completes 2nd Emergency Water Treatment Plant
2005 Fleet Vehicle Program Now Available to WVRWA Systems
The Boiling Point
Where Does All This Used Equipment Go?
Distribution System Biofilms
Coal Mine Cones of Depression
Maintaining SCADA Security
Cross-Connections, Backflow and Testers
Training Calendar – January, February, March 2005
WVRWA Annual Conference Wrap-Up – Foundations for Success
Internet Security Issues
So You Want To Be A Surveyor
Preston County Emergency
Distribution System Vigilance “The Price of Peace of Mind”
You Get What You Work For
Safety Notes – Hazardous Waste
West Virginia Senate and House of Delegates 2005 Listing
Creation or Alteration of a PSD
WVRWA Membership Listing

West Virginia 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 West Virginians. Our efforts to achieve this goal are focused on providing training and technical assistance to the managers and operators of systems. We work with other non-profit organizations in representing the interests of public water and wastewater systems at both the local and national levels.

WVRWA is affiliated with the National Rural Water Association.
Fall is in the air, and the leaves are beautiful, I know because I have a yard full. I am glad that is one of Darrell’s honey-do-jobs. It does not seem a year has passed since I wrote my first President’s Message. I have enjoyed this year and am looking forward to the coming year.

I am very pleased to announce since the first message that our membership has grown by 27 water and sewer utilities. Ms. Hilda Legg, Administrator of the Rural Utilities Service presented the board and staff of WVRWA with a special “Award of Grateful Recognition” for outstanding achievements to the people of West Virginia in March 2004. The tradition of excellence continued for WVRWA as once again the association received the Excellence in State Legislation Award at the National Rural Water Association conference in Biloxi, Mississippi. This award recognizes the great cooperation between our membership and West Virginia’s legislative leaders.

Winning this award three consecutive years has earned the association a special place among national peers. The portable water plant has been completed for use in emergency situations through the effort of several people and businesses. A big thanks to Darrell Wellman from Lavalette PSD who spearheaded this project. The WVRWA conference held in September at Canaan Valley was a success with attendance at an all time high. All of these accomplishments were due to the board and staff working together.

With success comes problems and on the horizon we will need to address completing the search for a new executive director. A big thank you to the staff (especially Interim Director Debbie Britt) for the excellent job they have done during this search.

My first article ended with asking for your input and that request continues in this one. The association is only as good as its members and our members are the best in the business. Let’s continue building strong traditions and working together to uphold our creed of “Enhancing the Lives of All West Virginians”.

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WWW.WVRWA.ORG
Drinking Water Lab Procedures
Class: Is There a Need?

Before we can address the issue of how to prepare a water operator in performing Drinking Water Laboratory Procedures, we need to examine what they need to know to function in a responsible and safe manner. First and foremost is a thorough knowledge of environmental regulations, followed by the knowledge of chemistry, laboratory techniques, quality control and laboratory safety.

A water operator works within a compliance monitoring framework and certain test methods are approved while others are not. Having the most recent copy of *Standard Methods for the Examination of Water and Wastewater* on hand, will not satisfy regulatory needs. Usually the most recent copy is probably not the approved edition for compliance monitoring methods and not all the methods found in *Standard Methods* are approved for use. The water operator must be familiar with the Code of Federal Regulations, plus any State environmental regulations that govern the water system and water operator. The quickest way to have analytical results rejected is to use unapproved test methods to generate the data.

An in-depth knowledge of the chemistry of the test and technique is necessary of the test so that the water operator has an awareness of the limitations of the test. No test procedure works equally well for all samples and the water operator must know the symptoms that indicate when the test is not working. Learning to avoid or correct for test interferences is an important aspect of laboratory analysis.

Without quality control there is no confidence in results. Quality control is always a part of every approved method. Knowledge of how to interpret the quality control results is needed to assist the water operator in making the determination of whether the test is working or not working for any particular sample. The knowledge of specific quality controls must also be accompanied by a knowledge of where they fit within the overall quality assurance program.

It is not in our best interests to teach laboratory techniques, then when that subject is finished move on to the next item on the list. We also cannot sit the water operator down in a class for one or two weeks, drill them with everything they need to know, and then move them to the lab and expect them to remember or understand everything that was covered. Successful training can never be passive. The simple presentation of a block of information in a class is rarely sufficient by itself. It must be followed up with hands-on practical applications with the person receiving the training being evaluated.

The Drinking Water Lab Procedures class is a week long class which has been approved for 26.5 CEHs (continuing education hours). The class is a joint effort between West Virginia Rural Water Association, West Virginia Environmental Training Center and the West Virginia Bureau for Public Health. During the week, the water operator is taught the approved methods for the following water analysis: pH, chlorine, iron, manganese, aluminum, hardness, alkalinity, turbidity and jar testing. The instruction includes both lecture and hands-on applications. The other important topics discussed are: regulatory requirements; general
laboratory techniques; specific test procedures; quality control; and safety and chemical hygiene.

This course is usually offered three times each year at Cedar Lakes at the WV Environmental Training Center. However, in July the class was offered at Eastern West Virginia Community and Technical College in Moorefield. The class was attended by eleven water operators representing seven water systems: Angela Findley (Petersburg); Don Graham and Gary Durr (Fort Ashby); Bob Whetzel (Mill Creek); Bill Henry, Chester Shreve, and Donald Eye (Moorefield); David Hively (Beverly); James Evers (South Putnam); and Jack McIntosh (WVRWA).
"We never know the worth of water till the well is dry."
- Thomas Fuller, 1732

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Proficiency—Use It Or Lose It

While traveling around West Virginia, it has come to my attention that sometimes we develop an attitude that our equipment must be state of the art and have all the bells and whistles needed to accomplish tasks. I know, and concede, that better equipment makes the job easier. But, sometimes the better equipment is not available. What do you do now? You use what you have on hand.

It does not matter how simple or fancy the piece of equipment is. If you don’t use the equipment occasionally, you won’t have the proficiency to use it. Whether you have a leak detector, a line locator, a metal detector or a lab instrument, you need to use it on a regular basis to be comfortable and competent when using it. Operator technique is often important to the accurate usage of a piece of equipment. The very best equipment is almost useless if you do not know how to use it and maintain it properly.

While in a system recently, I observed that they were still using a set of geophones. Does everyone remember geophones? Don’t get upset with me. I know there are some systems that are still using old technology and are having good luck with it and there is nothing wrong with that. These systems put the effort into using them so they can learn what to listen for and recognize the sounds that indicate a leak. The same holds true for line locators and metal detectors. You need to use them so you know how they will act in a given situation. If you don’t use them often enough, you will likely misinterpret the sounds or reactions of the piece of equipment. These misinterpretations can often lead to more work, expense, and wasted time than necessary. In the case of lab equipment, you need to insure that the piece is clean, operational and properly calibrated. Having the proper reagents and knowing that they are fresh and the proper strength or quantity of reagent for the tests you are performing are essential. For accuracy, be sure to double-check your manual. If you have followed these procedures, then actually using the equipment is easy.

If you don’t use the equipment occasionally, you won’t have the proficiency to use it.

The need for knowledge and proficiency can also apply to the newer automated water treatment plants. This might be an unpopular opinion, but please hear me out. In the case of water treatment plants, I often say that technology is great when it works. That is not to say that you don’t want to need the best technology. Getting the best quality water treatment plant that you can afford or is available to you is a great benefit. Also, be sure to keep the operation and maintenance manuals available to everyone who might need them. At some point, even with the best of preventative maintenance, something will malfunction. If that happens, you will have to get the problem fixed. Hopefully, you are or have on hand someone who is capable of diagnosing and correcting the problem. There is still the chance that you might need parts or assistance that isn’t available to you on short notice. That puts you in a bad situation. Can you operate the plant properly the old fashioned way? Do you know what valves to turn, switches to flip or tests to run? Do you know where and when to adjust the flow rates or the right order to perform a backwash cycle so you can produce good water? If you make it a normal procedure to make a test run without the automated controls you will know what to do in an emergency. It won’t be hard once you get the procedure figured out. It will be time consuming and possibly labor intensive, but worthwhile in the long run. If you make it a habit to do a test run, maybe once a month or even once a quarter, it will become second nature and save you time. These procedures will give you the knowledge that as long as you have power and chemicals you
can produce quality, safe water for your customers.

The proficiency mentioned at the beginning of the article can pertain to every aspect of a job in a system. As water operators or distribution system workers, we need to strive to be the best and most professional employees we can be. If we do, there will be multiple rewards for your efforts. You will gain respect and possibly appreciation from your employer and your fellow employees. You will make your job easier and the system more efficient. You will save your system money. You will often produce better quality water and ensure its quality all the way to the meter. All of these things are good and could possibly lead to better pay or benefits due to the system saving money by operating more efficiently. Last, but certainly not least, you will gain self respect knowing that you have done your best to insure the quality of the drinking water in your system. This is something that should be important to all of us. Without respect for ourselves and from others, we are just another warm body trying to get a paycheck instead of the dedicated water professionals we should be.
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WV Rural Water Completes 2nd Emergency Water Treatment Plant

Just over four years ago, West Virginia Rural Water Association (WVRWA) transformed a 200 gpm Neptune microfloc modular plant into a mobile water treatment unit capable of being transported to any disaster scene. The concept of a mobile surface water treatment plant for emergency response was soon put to the test when devastating floodwaters swept through the coalfields of southern West Virginia during the summer of 2001. The WVRWA water treatment plant literally saved the day for the town of Mullens, West Virginia. The small Wyoming County community of nearly 1,800 residents saw its water plant destroyed during the flooding that took place on July 8, 2001. West Virginia Rural Water Association responded to that disaster by transporting its mobile plant to the scene. Within a few hours of arriving, the WVRWA plant, manned by circuit riders and volunteers from member systems, was producing potable water that met or exceeded regulatory requirements. The plant worked so well that it remains on the job today in Mullens. The Eastern Wyoming Public Service District whom has since constructed a building to house the unit now owns the plant. The PSD and Mullens residents are awaiting the construction of a new $14.5 million regional water treatment plant and distribution system.

Learning from the experiences of developing that first emergency water treatment plant, WVRWA has recently completed work on a second mobile water treatment plant. This second plant is a smaller 100 gpm Neptune microfloc unit. Like the first plant, this 100 gpm unit was used and in need of serious repair. However, this smaller plant is much easier to transport as a four-wheel drive truck can deliver the plant to any destination.

Darrell Wellman, General Manager of the Lavalette Public Service District in Wayne County, West Virginia, spearheaded the project to develop a second emergency response water treatment plant. Wellman also serves as the Secretary and Treasurer for West Virginia Rural Water Association and during this second water plant project; Darrell wore many other hats as well. Not only was he the plant’s designer, he did much of the grinding, sanding, and welding. He also became a fund-raiser for the project. As a result of Darrell’s efforts, over $9,000 in equipment and donations were received from associate members of WVRWA. Businesses who donated to the project included Eastern Tank & Utility Service, E.L. Robinson Engineering Company, Service Pump & Supply, Gould Pumps, Sherwin Williams Paint, C.I. Thornburg Company, Hughes Supply, American Flow Control, W.C. Weil Company, Flynn Metering Systems, and Hach Company.
In addition to support from within the WVRWA membership, Darrell Wellman gained the support of Delegates Don Perdue and Richard Thompson, members of the West Virginia Legislature. Delegates Perdue and Thompson were able to secure a $6,000 grant from the Governor’s Office to help fund the restoration and equipment for the emergency response plant that has now been dubbed “Water Boy.”

The WVRWA Secretary and Treasurer was greatly impressed by the tremendous support for the project. “It was really quite easy to obtain support from suppliers and volunteers for this project,” Darrell commented. “Everyone was eager to help. West Virginia Rural Water Association employees Jack McIntosh, Rick Dennison, Mike Hersman and Mary Hutson were super. Also, Rob Weaver and Richard Smith who work for me at the District were tremendous.”

WVRWA Circuit Rider Jack McIntosh also participated in developing WVRWA’s first emergency response plant. He saw first hand the tremendous impact that plant had for the residents of Mullens in the aftermath of the 2001 flooding. “It was a life saver,” McIntosh recalled. “The plant helped restore the quality of life in Wyoming County. It provided hope and enabled the community to begin again.”

“We’ve made a number of improvements from the first plant, and that plant worked well,” he added. “We feel with this plant we can reduce the setup time from a few hours to a matter of minutes and that’s important for a community that’s in dire need of water.”

Both Darrell Wellman and Jack McIntosh know that the “Water Boy” will be on the job in the not too distant future. “Right now, it’s a great feeling looking at the shiny, newly painted portable plant,” Wellman stated. “The bad part is, it is only a matter of time until it will be used out of necessity and that will be a sad day for those involved. Nevertheless, it is ready and available for the next emergency and West Virginia Rural Water Association will be there to help.”

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Join WVRWA
2005 Fleet Vehicle Program Now Available to WVRWA Systems

West Virginia Rural Water Association is excited to offer a brand new membership benefit for voting and associate members of WVRWA. The 2005 Fleet Vehicle Program with Daimler Chrysler will enable voting and associate members to purchase a wide variety of Daimler Chrysler vehicles at greatly reduced prices. This program, designed by National Rural Water Association, Alpha Procurement Sources Inc., and Daimler Chrysler has been designed to be competitive with state bid purchase programs. If a system chooses, financing is also available through the Chrysler Financing Corporation. The program allows a system to choose from a full line of vehicles with the options it needs. It also permits the system to order through a local dealer anytime throughout the year. The discount off the base dealer invoice is different for each type of vehicle. From Jeep Wrangler, discounts of $2,000 to $5,500 for a quad cab Dodge pick-up can be offered.

The deep discounts through this fleet vehicle program are intended to be deducted from or near the base dealer invoice price. Fleet dealers are accustomed to fleet purchases with discounts taken from the dealer base invoice cost. A key point to remember, fleet dealers are not obligated to offer the vehicle at the dealer invoice prices, nor are they obligated to share the dealer cost with buyers through this program. So, buyers are encouraged to research the dealer cost for the vehicles they are considering by visiting the Consumer Reports or Auto Trader web sites. Through research, a system can determine what the dealer cost should be for a particular model. Systems are advised to check with different fleet dealers to obtain the very best price. Daimler Chrysler has 300 fleet dealerships across the country. Local fleet dealerships can be found by going online at www.fleet-chrysler.com. The pricing is expected to be aggressive and the potential for big savings is very good. For example, a 2005 Ram 1500 regular cab, 4.7L Magnum V8, long bed, ½ ton pick-up has a retail price of $21,030. The dealer base invoice price is $19,030. The rural water fleet discount is taken off of the $19,030 base price and then the $4,500 fleet discount is deducted, leaving the purchase price at $14,530. Vehicles cannot be purchased for individuals through this program. The vehicle must be purchased and titled in the name of the system.

To participate in this program...
1. A system must first determine the type of vehicle it wishes to purchase.
2. Research the dealer base invoice price for this vehicle by visiting consumerreports.org or autotrader.com (There is a $12.00 fee to utilize the Consumer Reports site).
4. Obtain the program authorization number by contacting WVRWA at 1-800-339-4513.
5. Place the order from the fleet dealer and be sure you are receiving the volume incentive fleet discount through the NRWA fleet program.

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<thead>
<tr>
<th>Model</th>
<th>Program Discount</th>
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<tr>
<td>All Ram Pickups – Reg Cab</td>
<td>$4,500</td>
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<td>All Ram Pickups – Quad Cab</td>
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<td>All Dakota Pickups</td>
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<td>All Durangos</td>
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<td>All Minivan – short wheelbase</td>
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<tr>
<td>All Neons</td>
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To place an order for a vehicle, an authorization number must be obtained from WVRWA. Please call the WVRWA office at 1-800-339-4513 with any questions about the Fleet Vehicle Program.
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National and State Rural Water Associations
Thank You Letters

October 18, 2004
Dear Ms. Britt:
I wish to extend my sincerest gratitude to the West Virginia Rural Water Association that I was the recipient of the Fred Stottlemyer Systems Manager of the Year Award.

It is an honor to be recognized for one’s accomplishments, especially among such a vast group of well-qualified potential recipients.

Please accept my apology for not attending the conference to accept the award, however, due to a situation that required my attention it was not possible for me to attend. This award was presented at the City of Martinsburg’s October City Council Meeting by Mr. Taylor Whittington, Board Member of the West Virginia Rural Water Association.

I would like to acknowledge the superb performance of Mr. Whittington during this presentation. I appreciate the recognition of my dedication, and the acknowledgement that this is possible because of the dedication and support of my family and co-workers.

In closing, I would once again like to express my appreciation to you and the West Virginia Rural Water Association for bestowing this honor upon me.

Sincerely,
Stephen M. Knipe
Utilities Director
City of Martinsburg

August 4, 2004
I would like to take this opportunity to thank you for allowing Michael Hersman to come to our office to assist our employees with their math skills in preparation for the upcoming Operator testing. This gesture is greatly appreciated by myself as well as the employees with whom Mr. Hersman was working.

Thank you again,
Sincerely,
James Woods
Superintendent
Moundsville Water Board

September 29, 2004
Please find this letter of thanks to the West Virginia Rural Water Association (WVRWA) for your continued excellent support of water and sewer systems throughout the state of West Virginia. I believe this to be the most worthwhile association of its kind in existence. The reason: 1) the quality of personnel, 2) your commitment to excellence, and 3) the passion of your personnel and their commitment to members, non-members, and to members like Flatwoods-Canoe Run Public Service District. I guess you could call us a current member in absentia. We, like many other PSD’s have been on the edge financially for several months but are slowly pulling out of it. As soon as that happens, we will be listed once more as members in good standing.

I especially want to thank you for Jeff Martin. Our computer, with the daily DEP reports and all other pertinent information concerning the operation of our wastewater plant, was zapped by lightening this past month. A cry for help went out and Jeff answered in a heartbeat. Not only did he come to aid, he loaned us one of his computers until our new one arrived and helped us retrieve old, fried information and get up and running again. And this all took place during your busiest time of the year, right before the annual conference.

People like Jeff Martin and the rest of the staff at WVRWA do make a difference. That difference is professionalism and that professionalism is contagious. We all should try and catch a bit of it.

Sincerely,
Steven J. Sanders
General Manager
Flatwoods Canoe Run P.S.D.
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The Boiling Point

With winter upon us, we tend to start thinking of the warm summer nights, higher than normal temperatures, green grass, flowering gardens and the songbirds of summer singing in the background while taking a snooze in your hammock. But the repair of a main line break in frigid temperatures will soon bring us to reality. The hectic weather along with the emergency repairs cause us to sometimes reach the boiling point, the stressful work days of winter. Fortunately, the boiling point of this article is not about your agitated emotional state of mind, but merely about the WV Bureau for Public Health/Environmental Engineering Divisions procedure on Boil Water Orders, AWWA Standards, and EPA’s definition for boiling water.

In the past, questions of when to issue and how long to have a Boil Order in effect, have crossed my path from all parts of the state. In July, 1998 the Office of Environmental Health Services Director issued a memorandum DW-23 that replaced the DW-23 dated May 17, 1988.

There are three levels of situations involving consideration of Boil Orders. The criteria and response to these situations, in increasing order of public health significance, are:

A.) Routine Repairs, Construction, and Minor Main Breaks – Normally, under these conditions, Boil Water Orders will not be issued as long as the affected portion of the system is properly flushed, the water is not cloudy after flushing, water pressure in the vicinity remains near normal, total chlorine residual is present, there are no unusual customer complaints about water quality and the work is completed in accordance with the latest AWWA Standards.

B.) Utility Issued Orders – Boil Water Orders are to be issued by the affected PWS. The form of the Order will be similar to the Example within this Article. Orders are generally issued when an unscheduled major emergency occurs necessitating system repair and there is little public health concern. Conditions where water pressure is low (but still positive), total chlorine residuals are present, cloudy water exists, and there are customer complaints about water quality may call for an Order. It is the responsibility of the PWS to immediately provide copies of the Order Notice to both State BPH/EED and the Local Health Dept.

C.) Health Department Issued Boil Water Orders – Boil Water Orders will normally be issued by the state district office and/or local health departments. Orders will be issued when a water system’s storage reserve has been exhausted resulting in large, noticeable pressure drops or outages and/or flow reversals have occurred, no chlorine residual is detected, water is continuously cloudy, and customer complaints are numerous. Any one of these conditions may be the basis for the Order. Copies of the Order will immediately be sent by Fax (telephone if fax is not available) by the issuer of the BPH/EED, Local Health Department(s), and the water system are promptly notified. A follow-up copy of the Order will also be mailed as soon as possible. Lifting an Order will normally follow the same procedure used in issuing an Order.

In all cases, a system’s compliance and operational history and the capability of its personnel will be considered in determining whether a Health Dept. Order is issued. Order to assure the State

Of course, the AWWA standards and EPA’s definition of boiling water are two items that go hand in hand with the Boil Orders. They are:

Disinfection Procedures When Cutting Into or Repairing Existing Mains, Section 4.7 of AWWA C651-99.

The following procedures apply
primarily when existing mains are wholly or partially dewatered. After the appropriate procedures have been completed, the existing main may be returned to service prior to the completion of bacteriological testing in order to minimize the time customers are without water. Leaks or breaks that are repaired with clamping devices while the mains remain full of pressurized water may present little danger of contamination and therefore may not require disinfection.

1.1.1 Trench treatment: When an existing main is opened, either by accident or by design, the excavation will likely be wet and may be badly contaminated from nearby sewers. Liberal quantities of hypochlorite applied to open trench areas will lessen the danger from this pollution. Tablets have the advantage in this situation, because they dissolve slowly and continue to release hypochlorite as water is pumped from the excavation.

I want to interject at this point and let you know to verify this procedure with DEP because this practice may interfere with discharge limits set by them!

1.1.2 Swabbing with hypochlorite solution: The interior of all pipe and fittings (particularly couplings and sleeves) used in making the repair shall be swabbed or sprayed with a 1% solution of hypochlorite before they are installed.

1.1.3 Flushing: Thorough flushing is the most practical means of removing contamination introduced during repairs. If valve and hydrant locations permit, flushing toward the work location from both directions is recommended. Flushing shall be started as soon as the repairs are completed and continue until discolored water is eliminated.

1.1.4 Slug chlorination: Where practical, in addition to the procedures previously described, the section of the main in which the break is located shall be isolated, all service connections shut off, and the section flushed and chlorinated as described in Section 4.4.4. The dose may be increased to as much as 300 mg/l and the CT reduced to as little as 15 minutes. After chlorination, flushing shall be resumed and continued until discolored water is eliminated and the chlorine concentration in the water exiting the main is no higher than the prevailing water in the distribution system or that which is acceptable for domestic use.

4.4.4. Slug Method: The slug method consists of placing calcium hypochlorite granules in the main during construction: completely filling the main to eliminate all air pockets: flushing the main to remove particles and slowly flowing through the main a slug of water dosed with chlorine to a concentration of 100 mg/l. The slow rate of flow ensures that all parts of the main and its appurtenances will be exposed to the highly chlorinated water for a period of not less than 3 hours.

1.1.5 Bacteriological samples: Bactis shall be taken after repairs are completed to provide a record for determining the procedures effectiveness. If the direction of the flow is unknown, then samples shall be taken on each side of the main break.

EPA says “that the present information available indicates that a vigorous boil (at or near) 100 degrees C for one minute is adequate to render water safe for drinking. The specifications for a 1 minute boil at 100 degree C, refers to the total time the water is held at the boiling point.” According to EPA, Boiling water for 1 minute is effective in killing vegetative cells of most bacteria, viruses, and the cysts of Giardia.

As we shift into gear for a New Year, and awareness of the new distribution system regulations for our aging infrastructure become more evident, the necessity of reiterating policies, procedures, and standards for situations water systems face seems to be a Hot Topic.
National Rural Water Association (NRWA) announced on October 13, 2004 that West Virginia Rural Water Association (WVRWA) is the recipient of the Excellence in State Legislation Award presented during NRWA’s Annual Tribute to Excellence Awards Ceremony held in Biloxi, Mississippi. This award is presented annually to the State Association that has excelled in educating and representing their membership while also educating state legislators on legislative issues. This also marks a record third consecutive year that WVRWA has won this prestigious award. WVRWA wishes to acknowledge the past efforts of Mike McNulty and plans on striving to continue their efforts in achieving future awards in State Legislation.

Accepting the award is Bonnie Serrett, WVRWA Board President and Debbie Britt, Executive Director
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Where Does All This Used Equipment Go?

As I sat in one of my classes a few months ago, the instructor said something that got me thinking. His statement was concerning all the used equipment throughout the state. He said that when wastewater and water plants are up-graded or rebuilt, a lot of good equipment is either scrapped or just set aside and forgotten about. This set me to thinking. How many of the systems across the state have used equipment just sitting around gathering RUST?

Let’s take a look at this situation. You have a system, be it water or wastewater, that has completed, is doing, or plans on doing an up-grade and is changing from chlorine to UV. What are they going to do with all their chlorine equipment? JUNK IT? WHY? Let the contractor have it, WHY? All the water plants I know use chlorine for disinfection. To replace that equipment is expensive and some small systems just do not have the funds to buy new.

What about pumps? When a wastewater treatment plant upgrades a lift station, they take out 10hp (horse power) pumps and replace them with 20hp. If that is the only station that they have that uses 10hp pumps, what happens to the ones they removed? In today’s world, money is getting tight. With company’s closing and residences moving in search of work, the revenue for some systems is decreasing forcing them not to be able to do the necessary maintenance to keep their plants in compliance. There may be a solution to this problem that no one has thought of.

What if we all looked around our plants and took inventory of all the equipment we no longer use or don’t need because it has been replaced with newer equipment and make a list and put a REASONABLE price on it and send it to WEST VIRGINIA RURAL WATER ASSOCIATION and ask that it be put on our web site.

We will post it with your contact information and just maybe you can turn that equipment that has been sitting around in your way gathering DUST into good cold cash that you can use for other things you would like to have. I know there is a wealth of used equipment out there that another small system that is struggling could use. This could be a good thing for all the systems, large and small, in the state.

Plan ahead when you are doing an up-grade or going to build a new plant and make sure that the used equipment that is taken out doesn’t get thrown in the junk box or the back of the contractor’s truck. When this happens, everyone loses.

Now this does not just include pumps and chlorine equipment. It can be lab, control panels, jet machines, roder, trucks and many other things.

On the next rainy day, sit down and make a list, put a price on it and get it approved by your board to advertise these items for sale. Send it to WVRWA and ask that it be put on the web. Who knows, we might start something that will help everyone and give you that extra money to buy a new spare pump for your system.

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Biofilms are formed in distribution system pipelines when microbial cells attach to pipe surfaces and multiply to form a film or slime layer on the pipe. The slime that forms on rocks in a creek or stream are biofilms as are the microbial cells that attach to pipe walls, sediments, and tuberculations. Biofilm formation takes place as cells attach themselves to solid surfaces and as nutrients, such as carbon-containing molecules and other elements are transported to the solid surfaces such as a pipe wall. There are biological and other contributors to biofilm formation such as algal blooms, rainfall, seasonal temperature fluctuations, and the availability of nutrients. Depending on how severe these events are depends on how rapidly the biofilms will form. If you have a high occurrence rate of coliforms in your system, that may be a sign of biofilm. If the occurrence is frequently seasonal, beginning in the spring and peaking in the fall, it will usually decline during the winter months. The number one consequences of biofilm and regrowth are the unreasonable health risk to your customers. Of course other consequences include noncompliance with the Total Coliform Rule, public notification, the loss of consumer confidence in a utility’s ability to provide a safe supply of drinking water, and the disruption of normal operations. None of these are good for business.

Since potable water is not sterile some biofilm will exist. There is no totally effective method known for biofilm control. Treatment facilities should strive to produce a finished water turbidity of less than 0.1 ntu at all times and implement or continue corrosion control programs. It is also important to maintain disinfectant residuals throughout the distribution system. Swabbing lines can be effective in biofilm control, because biofilm cannot adhere to squeaky-clean lines. All utilities should have a flushing program, especially for dead-end areas. An effective distribution system maintenance program is critical for biofilm control. Flushing and mechanically cleaning distribution lines can be effective preventive procedures, but may not be sufficient to resolve biological growth once the problem has become severe.
Coal Mine Cones of Depression

W hat’s a “cone of depression” due to mining? It’s not an economic term referring to coal towns after a mine closes, nor is it some kind of mental disorder. What we’ve got here is a description of groundwater extraction at a coal mine.

The term “cone of depression” is commonly used in describing what happens to the water table (top of the groundwater) when a water well is pumped. For a single well, aquifer dewatering may occur in a generally conical pattern, with the deepest draw down of the water table at the well. At an underground mine, removal of groundwater may not be so nearly conical in shape, but federal government regulators still describe it as a “cone of depression”.

Underground mining that occurs below the water table requires dewatering of an aquifer. If the mine is hundreds of feet below the surface, and underlies an area measured in square miles, then a huge amount of water must be pumped. This far exceeds the depth and breadth of a “cone of depression” created around a town’s drinking water wells.

Assuming the groundwater to be removed exists primarily within fractures in coal and the surrounding bedrock (up to 200 feet or more above the coal), and the fractures make up only a few percent of the rock’s volume, then every square mile of underground mine could require the removal of a billion gallons of groundwater from the bedrock above coal seam.

Sometimes, an underground mine will do more than dewater the deep aquifer in the coal and its surrounding rock, it will also dry up water wells in the more shallow aquifers. This can occur suddenly if groundwater in a well becomes drained via fractures in its bedrock aquifer that lead down to the dewatering zone. On the other hand, a well can go dry over time, if a mine is also dewatering much of the aquifer’s annual recharge from infiltrating rain and melted snow.

The West Virginia Division of Environmental Protection (WVDEP) uses a “rule of thumb” for infiltration into a mine of 0.5 gallons per minute per acre. This equates to about 10 inches of infiltration per year, which may be about right, more or less. In comparison, the US Geologic Survey has estimated the annual infiltration rate to vary quite a bit in the state, ranging from 6.7 inches per year in Wirt County to 31.6 inches per year in Nicholas County.

Underground mining, and its impact on water resources, is regulated by state and federal agencies. The federal Office of Surface Mining has requirements for mining permits, including a Comprehensive Hydrologic Impact Assessment (CHIA) for the proposed mine plus any nearby mines, regarding both surface and groundwater resources.

OSM’s CHIA guidelines recommend the use of groundwater flow models to delineate a proposed underground mine’s “cone of depression”, and determine whether it intersects the “cone” of any nearby public drinking water wells. An intersection of the two “cones” could mean a likely significant impact on water quality and quantity for the public supply, due to the proposed mine.

Unfortunately, the CHIA guidelines’ predictive models are recommendations only. In West Virginia, while mining permits may contain information regarding depth to groundwater in the area prior to mining, and quarterly monitoring of wells as undermining progresses, the permits haven’t included OSM’s dewatering models. The reason given by WVDEP’s Office of Mining and Reclamation for not requiring modeling as well as monitoring: it does not currently recognize groundwater modeling as being sufficiently accurate enough to be defensible in court.

Nor have the state’s permits required simple metering of dewatering discharges, to compare billions of gallons of water actually being removed to billions of gallons predicted, based on WVDEP’s “rule of thumb”. This is unfortunate, as metering of discharges would be a good means of testing and improving models (and “rules of thumb”). More importantly, metering may give a warning of unintended consequences such as lost wells and streams, or tapping...
into adjacent flooded mines.

There is some provision in the regulations, however, for replacement of lost sources of drinking water due to mining. Any drinking water supply lost due to mining must be replaced by a temporary alternate supply within 24 hours, and by a permanent alternate supply within 30 days. If you are concerned about mining’s impact to a public supply well contact me at WVRWA, or call the WVDEP Office of Mining and Reclamation (304 – 759 – 0510).
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Severeral security issues should be addressed prior to purchasing a SCADA (Supervisory Control And Data Acquisition) system for your utility. Be certain to contact the computer company or software vendor to obtain the best security available to your system. One primary concern is remote access to the system. Generally, it is best not to allow access through the Internet to the system, since computer hackers may take it as a challenge to gain access to your system and create havoc and/or a health hazard to your customers. SCADA systems can generally be set up to allow equipment to be turned on and off from remote locations. Most utilities will opt to be able to turn off pieces of equipment remotely, but not be able to turn it back on in case there is a problem with the equipment. Normally, it is best to be present when the equipment is turned back on. Of course, if the option to turn off equipment remotely is available, then any unwanted intruder can also turn the equipment off, which could also be devastating. As stated earlier, to avoid unwanted access, the best thing is not to allow Internet access at all. If it is deemed necessary to allow Internet access, it is imperative that the best security is provided to protect vital computer resources. The best protection is a good firewall between your computer and the Internet. This can be purchased from a third-party vendor and is available automatically with Windows XP. Of course, one needs to be certain that the firewall is turned on. With good firewall protection, a computer is very well protected from hackers through the Internet.

As a secondary precaution, password protection is recommended. Passwords should not be family members’ names and should include random numbers as well. Password cracking software is available and generally uses a dictionary to crack the password. Therefore, it is much better to use letters that do not spell words, such as initials or words spelled backward along with numbers. Passwords should also be changed on a regular basis. It is usually recommended that they be changed once per month.

One primary concern is remote access to the system.

Also, it is imperative that all computers that log into the central SCADA computer by remote dialup or by Internet be treated as a part of the SCADA system. This means that the remote computers should be protected by firewall and password security the same as the server or mainframe.

The operators should log off after every use. It is up to the operators to maintain the security of the system and they must assume the responsibility. If possible, the SCADA software should be set to become disabled after a set number of minutes of inactivity. This is to protect against unwanted use in case the operator is called away unexpectedly and forgets to log off.

Another line of defense is to maintain control of the computer by limiting physical access to the computer. Security of the building or room is important! It may be necessary to lock the computer in a cabinet at night or when operators are away. If this is necessary it is imperative that the cabinet is made in such a way as to provide adequate ventilation and that dust does not become a factor. A build-up of dust in a computer can allow the processor or other components to overheat and result in a crash.

This brings me to the next important security factor. Back-ups are necessary. Take it from me. My laptop computer just crashed and if I had not had adequate backups, it would have been disastrous! First of all, it is necessary to have back-ups of the operating system and all of the computer software that is being used on the computer. Secondly, all data must be backed up. The best ways to back up data is on CDs or DVDs. Also, flash drives or disks are available that can hold up to 1 gigabyte of information. Some people still prefer to use tape drives for back-ups. Personally, I am not too fond of them. I have had several of them and have not had success anytime I have needed to restore information. Also, back-ups should be kept in a safe place off the premises.

Regarding the remote sites, such
as lift stations or pump stations, building security is again paramount. Control panels that contain sensitive computer equipment must be locked. These pieces of equipment will be listed in your systems vulnerability assessment and should be treated as critical components. As with any locks, they should be replaced in the event that an employee is let go of an unfavorable manner. Other security measures should be done to insure that all doors and windows are sufficiently protected against intruders.

These suggestions, of course, are not all-inclusive and are offered as a suggested guideline in providing security for your SCADA system.

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The recent legislative session approved two regulations that affect public water systems. The old Cross-Connections and Backflow Prevention Regulations, approved by the Legislature in 1976, were repealed and replaced with the new regulations that became effective on March 13, 2004. A sister regulation, Certification of Backflow Testers, was also approved and became effective on March 13, 2004.

A common complaint of the repealed rule was that no approvable backflow prevention program could be developed because the State did not have a backflow tester certification program. The new backflow tester rule establishes requirements to obtain and retain tester certification. A program has already been established for obtaining certification and approximately 77 persons have a valid certificate. Inquiries for valid certificate holders can be made to Mary Mather at 304-558-6991. Any person interested in becoming certified may contact Rich Weigand at the Cedar Lakes Conference Center at 304-372-7878. The final examination includes “hands on” testing and evaluation of backflow assemblies, thus, limiting the number of persons that may attend each 40-hour training session to twelve students per session.

The revised Cross-Connections and Backflow Prevention Regulations have been upgraded to reflect current standards and vocabulary of the industry, expanded the coverage from systems regulated by the Public Service Commissions to all public water systems, and eliminated the split responsibility between the regulatory agency and the public water system. The regulations also specify that the backflow preventers must be inspected/tested upon installation and at least once per year. Air gaps, which are the easiest and simplest backflow preventer, are the easiest to bypass. There is not testing to be done for such a preventer, but still there must be a record that the preventer was inspected at least annually to verify that the air gap has not been bypassed. The public water system must retain records of these inspections and/or tests for a minimum of two years and must be available for West Virginia Bureau for Public Health personnel to review. Systems are encouraged to retain records on every backflow assembly for as long as the assembly is in operation. The requirement for the two-year retention of documentation ensures that the public water system has a current, ongoing, inspection program. The cost and responsibility for the test/inspection lies with the customer. Considering the appearance of a conflict of interest, the purveyor of water may not wish to have their employees test/inspect their systems’ backflow preventers, but may wish for someone within the public water system to be knowledgeable in backflow testing for the development of a written backflow prevention program. Public water systems needing assistance in preparing the written program may wish to contact Dan Parker at (304) 558-6748.

Persons can obtain copies of the new rules from the Secretary of State for a fee, or can download the rules at http://www.wvsos.com. Look for “Search for Information”, then “Search for online databases”, then “Code of State Rules”. Click on this line and at the bottom of the page, click on “Agriculture-Health”. Click on “Health” on the next page. The Cross-Connections and Backflow Prevention Rules are identified as 64-15 and the Certification of Backflow Testers are identified as 64-25.
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Groundbreaking Ceremony for Central Barbour PSD

On September 30, 2004, Central Barbour PSD dedicated their new office building with a groundbreaking ceremony. Central Barbour PSD was founded in 1972 and was operating in a personal home. In 1994, they moved into a small office building. A grant from Water 2000 was utilized in financing this project through USDA and Central Barbour PSD is now located in their new building.

The groundbreaking ceremony was conducted with a ribbon cutting ceremony. In attendance were Jenny Phillips, RUS, Mike Green from Green Engineering who was the engineer on the project, WVRWA President Bonnie Serrett, Central Barbour PSD Chairman Stewart Jones and Board Member Becky Burner.

Above is a picture of the office where System Manager Vallie Davis runs the operation throughout the day.

WVRWA congratulates Central Barbour PSD on their accomplishment.
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# Training Calendar

**January, February, March 2005**

## EPA Training Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Location</th>
<th>CEH Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERP Implementation &amp; Water Lab/Plant Safety</td>
<td>January 5, 2005</td>
<td>Martinsburg</td>
<td>6</td>
</tr>
<tr>
<td>ERP Implementation &amp; Water Lab/Plant Safety</td>
<td>January 18, 2005</td>
<td>Beckley</td>
<td>6</td>
</tr>
<tr>
<td>ERP Implementation &amp; Water Lab/Plant Safety</td>
<td>February 9, 2005</td>
<td>Newell</td>
<td>6</td>
</tr>
<tr>
<td>ERP Implementation &amp; Water Lab/Plant Safety</td>
<td>February 23, 2005</td>
<td>Lavalette</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Filter Operation &amp; Maintenance</td>
<td>March 2, 2005</td>
<td>Clarksburg</td>
<td>6</td>
</tr>
<tr>
<td>ERP Implementation &amp; Water Lab/Plant Safety</td>
<td>March 16, 2005</td>
<td>Moundsville</td>
<td>6</td>
</tr>
<tr>
<td>ERP Implementation</td>
<td>March 23, 2005</td>
<td>Charleston EXPO</td>
<td>3</td>
</tr>
</tbody>
</table>

## H.E.L.P. Training Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Location</th>
<th>CEH Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Training</td>
<td>January 4-5, 2005</td>
<td>Beckley</td>
<td></td>
</tr>
<tr>
<td>4.5 Day Drinking Water Lab Procedures</td>
<td>January 10-14, 2005</td>
<td>Kearneysville</td>
<td>26.5</td>
</tr>
<tr>
<td>Basics of Being a Chief Operator</td>
<td>January 25, 2005</td>
<td>Weirton</td>
<td>6</td>
</tr>
<tr>
<td>Ethical Considerations for Chief Operators</td>
<td>January 26, 2005</td>
<td>Weirton</td>
<td>6</td>
</tr>
<tr>
<td>Principles of Jar Testing/Pump Calibration</td>
<td>February 3, 2005</td>
<td>Ripley</td>
<td>6</td>
</tr>
<tr>
<td>PVR Maintenance Program</td>
<td>February 8, 2005</td>
<td>Hurricane</td>
<td>6</td>
</tr>
<tr>
<td>Valve Location/System Design</td>
<td>February 9, 2005</td>
<td>Hurricane</td>
<td>6</td>
</tr>
<tr>
<td>Source Water Variables</td>
<td>February 15, 2005</td>
<td>Logan</td>
<td>6</td>
</tr>
<tr>
<td>Basic Math</td>
<td>February 23, 2005</td>
<td>Beckley</td>
<td>6</td>
</tr>
<tr>
<td>Drinking Water Microbiology</td>
<td>February 24, 2005</td>
<td>Vienna</td>
<td>6</td>
</tr>
<tr>
<td>Basic Math</td>
<td>March 2, 2005</td>
<td>Hurricane</td>
<td>6</td>
</tr>
<tr>
<td>Class I Training</td>
<td>March 8-9, 2005</td>
<td>Beckley</td>
<td></td>
</tr>
<tr>
<td>Class I Training</td>
<td>March 15-16, 2005</td>
<td>Moundsville</td>
<td></td>
</tr>
<tr>
<td>Basics of Being a Chief Operator</td>
<td>March 22, 2005</td>
<td>Moorefield</td>
<td>6</td>
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<td>Ethical Considerations for Chief Operators</td>
<td>March 23, 2005</td>
<td>Moorefield</td>
<td>6</td>
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<tr>
<td>Chloramination Basics</td>
<td>March 24, 2005</td>
<td>Charleston EXPO</td>
<td>6</td>
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<tr>
<td>Making Microsoft Access Work For You</td>
<td>March 29, 2005</td>
<td>Scott Depot</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Microsoft Excel</td>
<td>March 30, 2005</td>
<td>Scott Depot</td>
<td>6</td>
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</tbody>
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## Wastewater Training Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Location</th>
<th>CEH Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Aid &amp; CPR**</td>
<td>January 6, 2005</td>
<td>Petersburg</td>
<td>7</td>
</tr>
<tr>
<td>Pesticide &amp; Herbicide Application</td>
<td>January 13, 2005</td>
<td>Clarksburg</td>
<td>3</td>
</tr>
<tr>
<td>Wastewater Process Control &amp; ORP</td>
<td>January 20, 2005</td>
<td>Shepherdstown</td>
<td>5</td>
</tr>
<tr>
<td>Wastewater Sampling</td>
<td>February 10, 2005</td>
<td>Vienna</td>
<td>5</td>
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<tr>
<td>Blueprint Reading</td>
<td>February 17, 2005</td>
<td>Hurricane</td>
<td>5</td>
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<td>March 10, 2005</td>
<td>Beckley</td>
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<td>Petersburg</td>
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<tr>
<td>Wastewater Security &amp; Wastewater Math</td>
<td>March 24, 2005</td>
<td>Richwood</td>
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** CEH for water operators
The theme of this year’s conference was “Foundations for Success” and that was evident by the record number of attendees, exhibitors, speakers and the feeling that everyone was at home. West Virginia Rural Water Association (WVRWA) moved its annual conference back to Canaan Valley this year and I’m not sure if Canaan Valley was as glad to see us as we were to see them. This location has seemed home to the WVRWA conference for many years and attendees were glad to be back as shown by the record attendance.

The conference kicked off on Sunday morning with a golf tournament with 122 golfers vying for the title of 1st place team. That title went to the team of Joe Burdett, Mike Criniti, Tim Pittman and Robert Wade with a score of 59. The team of Fred Bell, Dan Ferrell, Steve Gee and Jeff Lawrence finished in 2nd place. Closest to pin on hole #4 went to Mark Via, closest to pin on hole #12 went to Jim Graver, long drive on hole #5 went to Fred Bell and long putt on hole #18 went to Scott Perfater. WVRWA congratulates the winners and thanks all those who participated in making this event a success. Proceeds from the golf tournament fund two WVRWA Scholarships each year.

Later in the afternoon on Sunday, attendees tried their skill at the many contests offered. The winner of the backhoe contest was Wayne Earhart from Berkeley Co. PSD. The winners of the horseshoe pitching competition were Frank Sharp from Petersburg and Jimbo McQuain from Water Works Industrial. The team of Chad Bowles and Jason Davis from South Putnam PSD won the tapping competition with a time of 40.40. The City of Philippi won the water taste test contest for bragging rights to the best tasting water in West Virginia.

The annual picnic was held Sunday evening featuring a buffet of barbequed chicken, hamburgers, hot dogs, potato salad, corn, dessert and drinks. The evening was beautiful as the sun started to fade into the night and attendees mingled for a fun evening of fellowship among new and old friends. After the picnic, attendees participated in a game of bingo or could listen to music provided by Soundsation DJ’s & Karaoke.

Beginning on Monday morning and going through Wednesday at noon, twenty-two training classes were offered pertaining to water, wastewater, groundwater, source water, office and decision making classes. Attendees were able to gain CEH’s for attending these classes and a special thank you goes to all the speakers who participated in making our training classes so successful.

One of the big attractions for the WVRWA conference is the exhibitors. A record 83 exhibitors showcased their products and discussed the services they provide. The exhibit hall was full to capacity as door prizes were announced throughout the evening from the prizes that the exhibitors’ submitted. WVRWA wishes to thank all the exhibitors who were in attendance at this year’s conference and we look forward to seeing all of you again next year.

The annual awards banquet was held on Tuesday evening and began with a slide show of the 2003 conference attendees. After partaking of prime rib, the guest speaker was Rodney Tart from North Carolina Rural Water Association. WVRWA wishes to thank Mr. Tart for taking his time to join WVRWA at their conference.

One of the main attractions of the banquet is announcing the award winners. These are the people or systems that have exhibited excellence throughout the year. The award winners for 2004 were:

- Water Operator of the Year
  - Vincent Cambarare, City of Ravenswood
- Water System of the Year
  - Red Sulphur PSD
- Wastewater Operator of the Year
  - George S. Sparks
Wastewater System of the Year
- City of Shepherdstown
System Manager of the Year
- Steven N. Knipe, City of Martinsburg
Office Manager of the Year
- William Baisden, Logan Co. PSD

The success of any conference can be defined in many ways, but we at WVRWA like to think it is with the help of attendees, exhibitors, speakers and sponsors that are always willing to lend a hand to make the conference a success. Sponsors play a major role in helping to keep the cost down for attendees to attend and we would like to acknowledge the following companies who helped sponsor this years’ conference.

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The conference tote bags were sponsored by NESC (formerly the National Drinking Water Clearinghouse). The Exhibitors Tuesday morning breakfast was sponsored by Jackson & Kelly. The coffee mugs were sponsored by the Water Development Authority.

As you can see, the WVRWA conference was a great success. We are proud to acknowledge that we are the largest water/wastewater conference in West Virginia and are dedicated to seeing that continues throughout the coming years. If at any time we can be of assistance, please do not hesitate to contact us at 1-800-339-4513. We are your association and we are here to provide the services you want and need.
WVRWA 2004 Award Winners

Larry Rader Water Operator of the Year
Vincent Cambarare, City of Ravenswood

Water System of the Year
Red Sulphur PSD - accepting award
Porter Robertson, General Manager

Wastewater Operator of the Year
George S. Sparks - accepting award
Beth Smith, Office Manager

Wastewater System of the Year
City of Shepherdstown - accepting award
Kenny Shipley, Chief Operator

Office Manager of the Year
William Baisden, Logan Co. PSD

Fred Stottlemeyer System Manager of the Year
Steven Knipe, City of Martinsburg
WVRWA 2004 Award Winners

Backhoe Contest Winner
Wayne Earhart, Berkeley Co. PSD

Water Tapping Contest Winners
Chad Bowles & Jason Davis, So. Putnam PSD

Taste Test System of the Year
City of Philippi - accepting award
Bill Knight

Horseshoe Pitching Winner
Frank Sharp, Petersburg & Jimbo McQuain,
Water Works Industrial (photo unavailable)

Special Recognition Award
Fred Stottlemyer

Special Recognition Award
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Trey Hornor, P.E., President and Managing Partner
After a recent incident at a system in the state, I felt it imperative to share some pertinent information on Internet security. The operator of the treatment plant had tried to access his computer without success. The computer was stuck in safe mode. Even after a call to the computer manufacturer for tech support, the problem was not able to be resolved. The system called me and I arrived on the following Monday morning. Of course, the computer used to create monthly reports. The date of the call was the date that the reports were supposed to be received by the state. The operator had to call the state and tell them that the reports were not going to be done on time. The state graciously offered to give the system until Friday to mail the reports.

When I arrived, sure enough, the system was stuck in safe mode. The system would not boot from a floppy disk or from a CD. After several attempts to get the computer out of safe mode, we decided to attempt to reinstall the operating system from within Windows®. First, we had to locate the setup file. Once we reloaded the operating system, we were finally out of safe mode. But, that didn’t take care of everything. That was just the beginning. The system still would not boot from a floppy or CD. We then went into the BIOS setup to see if we could find anything wrong there. Finally, we realized that there were two floppy drives and two CD drives listed. I had never seen anything like that before. Apparently, a virus had created two new drives in the BIOS setup. Once we realized that, we changed the selection to the proper drives and restarted the computer. Then we were finally able to boot from the floppy or CD.

Now we were cooking. No! Then we found that we were not able to access any files. The Control Panel, Windows® Explorer, and My Computer were blank. The only thing that I knew to do was to reinstall Windows® again. At least this time we were able to install from the CD. After the second installation, the files were back. So, we decided to install Windows® Updates to make sure the computer was up-to-date. When we attempted to dial the Internet Service Provider (ISP), a questionable icon was placed on the desktop (which I immediately deleted). When we clicked on the Windows® Update icon, we were redirected to a search web page. We were able to access some other websites, but not the Windows® Update. So, we decided to check the files again, and again the pages were blank. So, we reinstalled Windows® for a third time. We ran an antivirus program that showed that there were 4 viruses on the computer and 1 worm, which the antivirus software quarantined. Of course, we deleted these files immediately.

That was the last time that we had to reinstall the operating system. Again, we connected to the Internet and when we clicked on Windows® Update a search page came up again. So, we went to Internet Options in the Control Panel to change the homepage. The next time we clicked on Windows® Update, it went to the same web page! This was very aggravating because we thought that if we could install the updates some of the security issues would be resolved. I told that operator that I wished that we had the new Internet Explorer on CD to install. That could solve some of the problems. As luck would have it, he had a CD in his vehicle that his home ISP had provided. We installed the Internet Explorer update and it worked fine. Luckily, by a fluke, we were able to get on the Windows® Update page and to obtain the first major update, which went longer than I was able to stay.

That was the end of my first day. We decided that since the files were accessible, that the operator could go ahead and do his reports and get them done. It is also important that e-mails are not opened if you don’t know who sent them.
sent in and we would attempt to fix the rest of the problems on Thursday when I came back through the area.

In the meantime, I did some research on the Internet to see if there was a way to get rid of that annoying search page. It turns out that some search pages hijack your web page. I got information on the Internet about how to edit computer’s registry file to delete the search page. After following all of the directions that were given on Microsoft®’s website, the problem still occurred. As a last ditch effort, we looked on the Internet to see if there was a solution. We found a solution that a programmer had created that was specific to this particular problem. Then came the next problem. Every time we clicked to download the file, the same search page came up. Time after time, with different websites, the same thing happened. Finally, I saw the file on a German website, and I was able to remember enough German to be able to read some of the text. I think, because it was in German that the virus was not about to read the text from the website. We clicked on the file, downloaded it and installed the small program, which ran a scan of several parameters and found one that was a problem. We were able to delete the website from the computer and all was well.

This is a long explanation to drive a point home. Unfortunately, this was the best-case scenario because the utility system did not lose any files and computer is in perfect operating condition after all the work. The bad thing is that it took many hours to correct the problems and the system was unable to complete its paperwork. This problem created a hardship for the system and the operator.

The sad thing is that all of this could have been avoided by taking a few precautions. The first that I would suggest is to keep Windows® up-to-date by running Windows® Update on a regular basis. With Windows® 98, updates can be setup so that when you connect to the Internet an icon will appear on the right side of the task bar if updates are available. With Windows® XP, the computer can be set to automatically download updates when they become available and a dialog box will appear to ask you if you want to install the updates.

The second thing that needs to be done is to go to the Control Panel and set the Internet Options security settings either to medium-high or high. In Windows® XP, there are more detailed options.

Thirdly, in Windows® XP, protect your computer from unwanted access from the Internet by going to the “Start” menu, point to “Connect to” and select “Show all connections.” Right-click on each Internet connection that you use and select “Properties” with the left mouse button. On the dialog box that appears, select the “Advanced” tab. Put a check mark in the box in front of “Protect my computer and network by limiting or preventing access to this computer from the Internet.”

Last, install antivirus software and be certain to keep it updated, as well. There are several programs available. Some of the most popular antivirus programs are Computer Associates®, McAfee, Inc.®, and Norton™ (by Symantec™). Most antivirus programs are available for download from the Internet. Downloads are best for broadband connections, since they are quite large. Updates can be obtained for one year for a nominal fee. Updates to antivirus software come at least once per week. My recommendation is that when the updates on your computer are installed, go ahead at that time and run the virus scan on “My Computer.” Make sure that your antivirus software is set to quarantine any viruses that are found. Then delete the quarantined viruses immediately.

Even though the last four items are taken care of, it is important to be careful about the websites that are visited. Systems should have a policy against access to certain “questionable” websites. It is almost a certainty that access to certain sites will result in viruses obtaining access to your computer. That is exactly what happened in this instance. The security settings on the computer were set to the lowest possible settings and the trusted sites list have been changed to include the questionable sites that had been visited. It was obvious when looking at the computers “cookies” which websites had been visited and when. Cookies are small programs that are loaded on your computer to access information on your computer and to send that information to a website. The cookies can do things that you don’t want. My opinion is that a cookie that got on the computer that told the registry to change the search page to the one that kept popping up. I think that the cookie had installed a file on the computer that automatically changed the registry back to the same search home page. So, every time I changed the registry, the virus changed it back. It is important to delete the cookies on a regular ba-
sis. In Windows® XP, run disk cleanup and then defragment the hard drive. You can also go to the Windows® Explorer and delete the cookies from the Cookies folder. You can select all except the Index file and delete.

It is also important that e-mails are not opened if you don’t know who sent them. Hackers are notorious about creating worms and Trojan viruses that wreck havoc on computers. An immediate problem may not occur. These viruses may be set to activate on a certain date. These viruses may also attach to your address book and send viruses out from your e-mail account to everyone in your e-mail list. But, they may also attack your computer and keep you from ever being able to use it without formatting the hard drive. In that case, all your information is lost, which brings up my next point. Backup. This is probably the most important aspect of computer maintenance. If all of your data files are backed up, then your hard drive could be formatted, your operating system and the computer programs could be reinstalled and your data could all be restored.

A pop-up blocker should also be installed to keep those pesky pop-ups from appearing. Some pop-ups do not have an active close button on them. When you click on the cost button, they open. This could be a way for a virus to gain access to your computer. Pop-up blockers are available for download from the Internet. Also, many pop-ups and downloads, especially peer-to-peer downloads; such as illegal music downloads contain spy ware that searches your computer for personal information. This spy ware can be very damaging to your computer. There is also free software, such as Lavasoft Ad-aware®, that will search for spy ware and eliminate it from your computer.

These are a few ideas that I hope will help you protect your computer from the Internet. As a final thought, as I was writing this article, Windows® XP Service Pack 2 just became available. It is jam packed with security features that will be able to resolve a lot of the aforementioned problems. And, expect a lengthy 3-5 hour download with a 56K modem. Even with DSL, it took me a little over an hour to download and install.
A surveying and mapping class was held in St. Mary’s, WV on July 21st and 22nd. Mike Lawson, from Lawson Engineering, located in Beckley was the instructor for this class. Mike Hersman, EPA Training Specialist and myself were pleased with the turnout, as this was the first class of this type offered.

On the first day of class, the students were taught how to read and understand topographical maps as well as tax maps. They learned how to use these maps to do the preliminary work on laying a sewer line. They were also instructed in the type of equipment that would be used and how to read the “rod” as well as the terminology used in surveying.

On the second day (with drizzling rain), the students went outside and surveyed a sewer line extension from an existing manhole. They installed the line, marked a second manhole installation and marked off another line to that manhole.

After this demonstration, the class went back inside and learned how to draw a profile of the work they had done. To close out the class, Mike talked to the class about I&I evaluation and how to do flow studies on their collection system.

Look for future surveying classes on next years calendar and plan to attend one close to you. I bet you will have a great time and get some great information.
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To protect your system, order your warning signs today by calling WVRWA at 1-800-339-4513.

Title 64 Legislative Rule
Series 15

Cross Connection and Backflow Prevention

All public water systems are required to establish a Program/Policy. If you haven’t adopted a policy or an ordinance and begun your program, beware of violations that will be issued. The violations will be a Tier II Public Notification.

Information regarding this Program can be obtained from Dan Parker at the WVBPH EED in Charleston at 304-558-6748, your Environmental Engineering District Office of WVBPH or from West Virginia Rural Water Association by calling 1-800-339-4513.

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Toxic chemicals were spilled from a train above Rowlesburg’s water plant intake, and students at the school were terribly sick. It was quickly learned their sickness wasn’t from chemical fumes, but from an Anthrax attack. The train incident was only a diversion. With all the attention placed on getting the students to the hospital, and without keeping others from being exposed to anthrax, no one got around to warning the water plant about the chemical spill.

This was not a real emergency, only a drill. Like most drills, it found the weakest links in preparedness is in communication. Through role-playing dry runs such as this, everyone involved gets better acquainted with new procedures and personnel. In this case, Preston County’s emergency responders (firefighters, police, emergency services, health and medical staff) were introduced to the regional team from Clarksburg, of the new Center for National Response (CNR).

“Students” from Rowlesburg School simulated symptoms of a biological attack. Local emergency responders were not allowed to make contact with the students, and had to wait several hours for the Clarksburg team to arrive. In a real incident this part of the scenario would no doubt be strongly contested by local responders, and students’ parents, due to a strong desire to help immediately.

After several hours the regional response team arrived. Once on-scene, the team was quick to assess the situation and set up a decontamination tent. Students were run through the tent prior to being sent to the hospital. A second decon tent was set up outside the hospital, and a busload of students sent there.

At the site of the toxic spill, local firefighters waited for the regional team to finish at the school and then come to this now secondary scene. The exercise at the school had taken precedence. At this scene, local responders were briefed as to what would have taken place had this been a real incident.

Jack Hovatter, operator for
Rowlesburg had a routine day, although the emergency drill occurred just upstream of his intake. Jack expected to be notified of the “spill”, so he could have pretended to shut down his intake and protect Rowlesburg’s drinking water. The call never came. Maybe that too was just one of the simulated realities.

Preston County’s Local Emergency Planning Committee (LEPC) made a critique of the drill at their next meeting. The LEPC is composed of local first responders (county emergency services, fire departments, police, medical and health officials, and water system personnel). There was a good, frank discussion of what went well, what didn’t, and where some improvements could be made. This was a real step forward in emergency preparedness. Communities everywhere (and their public water supplies) could benefit from participating in emergency drills.

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Distribution System Vigilance
“The Price of Peace of Mind”

The late Senator Barry Goldwater is often remembered for having stated, “The price of peace is eternal vigilance.” Making certain that a public water utility’s distribution system is at peace also requires vigilance along with a sense of commitment and dedication. Regular visual inspections of the distribution system should be conducted to ensure that all is quiet on the distribution front. Critical components should be inspected at scheduled times and records of these inspections should be maintained as part of a system’s standard operating procedures.

Distribution lines can break for a variety of reasons. Excessive weight, such as increased traffic regularly driving above a buried line, can also lead to a break situation. There also are cold bitter snaps when the mercury drops well below zero for a number of days and any lines that are buried at a marginal depth, can over time, freeze and break. There are also some rare occasions where pipes may have sustained some defect in the manufacturing processes and are unable to handle surges and higher pressures. Then there are the instances where lines have been installed improperly in the trenches. Inadequate bedding and thrust blocking will lead to problems over time.

The operation and maintenance of the distribution system also includes the upkeep of the storage tanks and pumps that are used to convey water from the treatment plant to customers. There is a host of activities that are part of the complete package of distribution system operation and maintenance. A cross connection control and backflow prevention program and a program for water main and hydrant flushing are key components in properly maintaining a distribution system.

Not to be overlooked is the flushing of mains and hydrants. This should be carried out to remove any accumulated sediments or other impurities which have been deposited in the distribution system. Water main flushing also improves the flow of water throughout the system, allowing it to work at capacity. Flushing is best performed by isolating sections of the distribution system and opening valves or hydrants to direct a large volume of flow to pass through the isolated lines to remove settled sediments.

Water mains can also be cleaned through the use of swabs or pigs which are pulled through a section of line to scrape and remove accumulated debris from the inside of the pipe. Water main repair and replacement must be performed to water systems to replace or repair broken, corroded, or leaking pipes. The broken pipe section is either replaced or as is often the case, a repair sleeve is placed around the outside of the broken pipe section and clamped into place. Following the repair of the pipe, the line is typically flushed and then disinfected with a chlorine solution a per WVBPH standards.

Storage tank maintenance requires frequent inspection and may require occasional repairs. The most frequent types of repairs are repainting of the tanks and replacing screens over vents and other points of access to insects, birds and small animals. Most tanks are made of steel and are subject to corrosion. Therefore, tanks should be painted on a regular basis. Pump maintenance must be performed by a water system to ensure booster and other distribution system pumps are functioning properly. Maintenance of the pumps involves inspecting the pumps at regular intervals for excessive vibration or noise, providing lubrication for bearings and packing glands.

Lastly, a system should not forget each month to analyze the sales of water with the records of water purchased and produced. Not every leak makes its way to the surface. So it’s a good business practice to conduct a basic water audit each month. This practice can help sound the alarm for distribution system problems when a nasty hidden leak is robbing the distribution system.
Regular flushing of hydrants is a good maintenance habit for any water system.

Circuit Rider, Rick Dennison is shown inspecting a storage tank with Roger Thornton of Greenbrier County PSD #2.
Water Quiz

1. A cross connection is described as a connection between:
   A. a potable and a non-potable water supply
   B. a high pressure system and a low pressure system
   C. two different pipe sizes
   D. a cross on a water main
2. High fluoride levels in a water system can lead to:
   A. heart disease
   B. tooth decay
   C. discoloration of teeth
   D. taste and odor complaints
3. A vacuum is formed in the chlorinator by the:
   A. chlorine cylinder pressure
   B. pressure differential through the ejector
   C. chlorine feed pump
   D. rotameter
4. According to the Lead and Copper Rule, the action for the 90th percentile lead level is:
   A. 0.005 mg/l
   B. 0.015 mg/l
   C. 0.030 mg/l
   D. 0.050 mg/l
5. A chlorine feed room should be:
   A. closed with no ventilation
   B. open at the top
   C. ventilated near the floor
   D. ventilated near the ceiling
6. The main purpose of the jar test is to determine the best:
   A. filtration rate
   B. detention time
   C. coagulant dosage
   D. chlorine residual
7. A permit required confined space must be monitored for hazardous atmospheres:
   A. before entry only
   B. before entry and then every 5 minutes
   C. before entry and then every 15 minutes
   D. continuously
8. The purpose of a rotameter is to:
   A. create a vacuum
   B. maintain a smooth fluid flow
   C. meter the flow of fluid
   D. reduce pressure
9. If a 3,000,000-gpd flow is to be dosed with 1.2 mg/l, what should the chlorinator reed rate be set at in lbs. Of chlorine per day?
   A. 3.0 lbs./day
   B. 4.5 lbs./day
   C. 10 lbs./day
   D. 30 lbs./day
10. Which of the following does not affect the friction loss in a given length of pipe:
    A. hardness of the water
    B. number of fittings
    C. roughness of the interior of the pipe
    D. velocity of the flow

Answers to Water Quiz on Page 54
Give yourself a boost…
JOIN UP!
THINK ABOUT IT

You don’t buy a newspaper; you buy news.
You don’t buy glasses; you buy vision.
You don’t buy insurance; you buy security for others.
You don’t buy awnings; you buy shade.
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Sometimes when you are doing a good job operating your water treatment plant you can become comfortable with the level of treatment that you are accomplishing. This isn’t always bad, maybe you are getting maximum performance already but how do you know unless you check? One operator and his staff, Scott Rader from Wilderness PSD, asked that question.

How can we improve our facility to get maximum treatment from it and the chemicals available to us? They asked their engineer and were told that the improvement they wanted to try probably would not be worth the effort. They had doubts so they initiated a series of jar testing and experiments using several different treatment chemicals. They discovered that mechanical flocculation would improve the treatment efficiency of their plant considerably with all flocculants tested especially their current primary flocculant.

I came into this in the middle so to get the specific details you might need to talk to the Wilderness PSD staff. The details that I have are these, they could install flocculators for approximately $35,000, but if they were to buy them and use local contractors for some fabrication and do most of the work in-house they would save some of that cost. It turned out that they were able to install them and get them operational for less than $28,000, a significant savings. After the installation they were able to adjust their treatment processes and even try different chemical application points to fine tune their treatment. They aren’t finished yet but are already enjoying a significant savings in chemical costs, longer filter runs, and greatly improved treatment efficiency. These all resulted in an overall increase in water plant output of almost 20% due to less backwashing, with a decrease in labor expenses and power savings as well. Scott has estimated that the equipment will pay for itself in about 4 years with the chemical savings alone. Since the reasonable life expectancy of the equipment is over 20 years that makes it a very good bargain. The resulting improvements are detailed in the accompanying graphs and charts.

The main point of this article is that they were curious enough and determined enough to go the extra mile in an attempt to improve the performance of their facility. They were able to do extensive representative jar testing. That jar testing was their basis for continuing with the experiment. I am sure they made some wrong adjustments along the way but because they kept track of various changes to treatment and adjustments and to chemical doses and feed points they were able to go back and take a different path. You need to have enough confidence to attempt the testing and later make adjustments to try to improve your level of treatment. You must also be willing to accept that you might be wrong. Don’t be discouraged, sometimes we take wrong turns get lost or bypass the direction we need to go to achieve the improvements we desire. If we remember where we were we can always backtrack and try something else. If we never try then we will never know what the treatment facilities are really capable of.

---

**WATER QUIZ ANSWERS**

1. A 6. C
2. C 7. D
5. C 10. A

9. lbs/day = Dose(mg/L) x Vol(MGD) x 8.34 = 1.2
   mg/L x 3MGD x 8.34 = 30 lbs/day
From the Board and Staff of WV Rural Water Association

Merry Christmas and Happy New Year!

Quality on Tap

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Can You Exercise With a Cold?

Is it okay to exercise if you have a cold? Follow this rule of thumb.

If your symptoms are from the neck up – runny nose, watery eyes, mild sore throat – you can give it a try. If you’re a runner, though, you might want to cut your mileage in half.

But if you have a deep cough, or general achiness (which usually means a fever), you need to rest.

Source: American Running Association

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Safety Notes

Hazardous Waste

While researching the Internet for information on a safety article, I came across the following information. There is a growing threat in our collection systems in the country and I don’t believe anyone has thought about it. What is this hazard you ask? It is the growth of Meth Labs in our communities.

To quote from a Public Health Service, “clandestine methamphetamine laboratories have been a growing problem across the United States”. If you watch your local newscast, you will hear of the police raiding these labs and removing quantities of hazardous chemicals. Now and then you hear of a house fire that results in the location of a meth lab. It is time we woke up to the fact that they are in our communities and they pose a serious hazard not only to the local law enforcement officials and firefighters, but to our system employees like meter readers and collection system personnel.

Meth labs may be set up at campgrounds, rest areas, rental property, abandoned cars, garages, storage sheds and vacant buildings. A typical lab looks like a collection of glass bottles, glassware, hoses and propellant tanks like scuba tanks or soda dispensers. These tanks usually contain ammonia or hydrochloride acid, which are highly poisonous and corrosive.

- Some of the common meth lab chemicals are:
  - Acetone, toluene, alcohol or paint thinner
  - Iodine
  - Red phosphorous
  - Anhydrous ammonia (in propane tanks or collars)
  - Camp stove fuel (naphtha)
  - Starter fluid (ethyl ether)
  - Sulfuric Acid, muriatic acid, phosphoric acid
  - Sodium Hydroxide (lye)
  - Hydrogen peroxide

While these are not all the things that could be used in a meth lab, you should take a look at this list to see if some of these ingredients could get into your collection system causing contamination and poisoning. For this reason, you need to always wear the proper protective clothing when working in a collection system.

Now what if the chemicals get into the waste treatment plant? If it would be a small amount, there might be no adverse reaction. But say it was acetone, sulfuric acid or sodium hydroxide; this would cause your plant some problems.

- Notice that windows have been boarded up or there is unusual activity or security in a particular area.

Meter readers and maintenance crews can be a valuable tool to local law enforcement by being observant in their daily travels throughout the community. Human health risks become a much greater concern when contamination byproducts are discarded into the environment (air, sewers, drains, small streams, and soil).

There is little known about the health effects from chronic (long-term) contaminants left behind after a meth lab is dismantled. Therefore, it is a good recommendation that all those employees that are designated to work in or around sanitary systems, be instructed to always use all the proper safety equipment when they are cleaning a sewer or working in a manhole or making a line repair or tap. Rubber gloves, boots, safety glasses and facemasks are a necessity. It is the employer’s responsibility to provide their employees with the proper safety equipment and training so they can do their job safely. It is the employee’s responsibility to use and care for the safety equipment provided by their employer and follow all safety rules set forth. For further information or safety training classes, contact the West Virginia Rural Water Association at 1-800-339-4513 or go on line to www.wvrwa.org for a current list of up-coming classes.■
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Thirty-second  Bill Proudfoot (D)  Randolph  PO Box 2371, Elkins, WV  26241
Thirty-third  Douglas K. Stalnaker (R)  Lewis  568 W. 2nd Street, Weston, WV  26452
Thirty-third  Bill Hamilton (R)  Upshur  PO Box 1192, Buckhannon, WV  26201
Fortieth  Mary M. Poling (D)  Barbour  Rt. 1 Box 331, Moatsville, WV  26405
Fortieth  Ron Walters (R)  Barbour  Rt. 1 Box 331, Moatsville, WV  26405
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Forty-first  Tim Manchin (D)  Marion  1543 Fairmont Avenue, Fairmont, WV  26554
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Forty-second  Cindy Frich (R)  Monongalia  1248 Baker’s Ridge Road, Morgantown, WV  26505
Forty-second  Nancy Houston (D)  Monongalia  141 Lamplighter Drive, Morgantown, WV  26505
Forty-second  Ron Walters (R)  Monongalia  141 Lamplighter Drive, Morgantown, WV  26505
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Forty-third  Charlie Marshall (D)  Preston  Rt. 2 Box 68-B, Tunnelton, WV  26444
Forty-third  Larry A. Williams (D)  Preston  Rt. 2 Box 68-B, Tunnelton, WV  26444
Forty-third  Debbie Stevens (R)  Preston  Rt. 2 Box 68-B, Tunnelton, WV  26444
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Forty-third  Allen V. Evans (R)  Hardy  PO Box 220, Old Fields, WV  26845
Forty-fourth  Robert A. Schadler (R)  Mineral  PO Box 251, Keyser, WV  26726
Forty-fourth  Ruth Rowan (R)  Hampshire  HC 60, Box 113A, Points, WV  25437
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Forty-fourth  Craig Blair (R)  Berkeley  167 Wasser Drive, Martinsburg, WV  25401
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64
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Creation or Alteration of a PSD

The procedure for the creation or alteration of Public Service Districts is outlined in Rules 7.1 through 7.4 of the Rules and Regulations for the Government of Sewer Utilities and Rules 8.1 through 8.4 of the Rules and Regulations for the Government of Water Utilities, and in W.Va. Code §16-13-A-2. An important item to note is the requirement, under Water Rule 8.1.a.2, that county commissions must now notify this Commission within ten (10) days of entering an order proposing an alteration of a public service district of the time and place of the required hearing. Since the Commission’s Water and Sewer Rules mirror one another pertaining to the creation or alteration of public service districts, only one set of Rules will be referenced, the respective water rules are as follows:

§150-7-8. Creation or Alteration of Public Service Districts
1.1 Creation or alteration of a public service district.

8.1.a. A county commission upon entering an order on its own motion, or upon receipt of a petition, or upon receipt of a recommendation of the Commission, proposing the creation, expansion, merger, consolidation, reduction or dissolution of a public service district pursuant to W.Va. Code §16-13A-2, shall:

1. At the same session, fix a date of hearing in the county which date shall be not more than forty (40) days nor less than twenty (20) days from the date of action;

2. Within ten (10) days, provide the Executive Secretary of the Commission with a copy of the order or petition and notification of the time and place of the hearing to be held by the county commission;

3. If the territory proposed to be included is situated in more than one county, when fixing the date of hearing, provide for notifying the county commission and clerk thereof of each of the other counties into which the territory extends of the date so fixed;

4. Publish, at least ten (10) days prior to the hearing, a Class I legal advertisement giving notice of the hearing;

5. Post notice in at least five (5) conspicuous locations in the proposed public service district as required by W.Va. Code §16-13A-2; and

6. File with the Executive Secretary of the Commission affidavits of publication pursuant to Rule 4. above, and affidavits of posting pursuant to Rule 5. above as soon as the same are available.

2.2. Notification to the Commission of county commission action.

2.2.a. If the county commission enters an order creating, enlarging, reducing, merging, dissolving, or consolidating a public service district, the county commission shall, within ten (10) days of entering such order, file a copy of such order with the Executive Secretary of the Commission. If the county commission declines to enter such an order, the county commission shall, within ten (10) days of declining, file with the Executive Secretary of the Commission notice that it has declined to enter any such order.

2.2.b. Commission hearing.

2.2.c. The Commission shall hold a hearing or hearings in each county affected by a county commission order(s) filed pursuant to Rule 8.1.a. and the Commission shall publish a Class I legal advertisement giving notice of such hearing or hearings.

2.2.d. Commission consideration of proposed creation or alteration.

2.2.e. After public comment and hearing the Commission shall, by order, approve, Disapprove or modify a county commission order creating, expanding, merging, consolidating, reducing or dissolving a public service district. In deliberating on approval, modification or disapproval the Commission may consider, among other things:

1. the public convenience and necessity;

2. the economic feasibility, including sources of funding, costs and related benefits of the county commission’s order;

3. the adequacy of facilities;
4. other facilities in the area; and
5. other possible alternatives.

Staff notes that mergers and consolidation of Public Service Districts produce nearly identical results. A merger is the absorption of a District of one or more Districts. A consolidation is the unification of two or more Districts by dissolution of existing Districts and the creation of a single new District. The only significant difference between mergers and consolidations is the name of the surviving District. Both result in the blending of all management, personnel and services. A new Board is appointed by the county commission in either instance. Another item to consider in mergers or consolidations is the existence of outstanding long term debt. This requires the approval or all bondholders from all the District affected by the merger or consolidation.

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<table>
<thead>
<tr>
<th>VOTING MEMBERS</th>
<th>MOUNTAIN STATE WATER LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denver Water Assoc.</td>
<td>Man Water Works</td>
</tr>
<tr>
<td>Downs PSD</td>
<td>Mannington</td>
</tr>
<tr>
<td>Dunbar Sanitary Board</td>
<td>Mannington PSD</td>
</tr>
<tr>
<td>East View PSD</td>
<td>Marlinton</td>
</tr>
<tr>
<td>Eastern Wyoming PSD</td>
<td>Marmet Sanitary</td>
</tr>
<tr>
<td>Eleanor</td>
<td>Marshall County PSD #1</td>
</tr>
<tr>
<td>Elizabeth</td>
<td>Marshall County PSD #2</td>
</tr>
<tr>
<td>Elkins</td>
<td>Marshall County PSD #3</td>
</tr>
<tr>
<td>Elkins Road PSD</td>
<td>Marshall County PSD #4</td>
</tr>
<tr>
<td>Ellesboro-Lamberton PSD</td>
<td>Martinsburg</td>
</tr>
<tr>
<td>Evans PSD</td>
<td>Mason</td>
</tr>
<tr>
<td>Fairview</td>
<td>Mason County PSD</td>
</tr>
<tr>
<td>Farmington</td>
<td>Masonstown</td>
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<tr>
<td>Fayetteville</td>
<td>Matewan</td>
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<tr>
<td>Follansbee</td>
<td>Matoaka</td>
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<tr>
<td>Fort Ashby PSD</td>
<td>McDowell County PSD</td>
</tr>
<tr>
<td>Fort Gay</td>
<td>McMechen</td>
</tr>
<tr>
<td>Franklin PSD</td>
<td>Middlebourne</td>
</tr>
<tr>
<td>Friendly PSD</td>
<td>Mill Creek</td>
</tr>
<tr>
<td>Gauley River PSD</td>
<td>Milton</td>
</tr>
<tr>
<td>Gilbert</td>
<td>Mineral Wells PSD</td>
</tr>
<tr>
<td>Gilmer County PSD</td>
<td>Ministers Run Water Assoc.</td>
</tr>
<tr>
<td>Glasgow</td>
<td>Monongah</td>
</tr>
<tr>
<td>Glen Dale</td>
<td>Montana Water Association</td>
</tr>
<tr>
<td>Glen Dale Heights PSD</td>
<td>Monumental PSD</td>
</tr>
<tr>
<td>Glen Rogers PSD</td>
<td>Morgantown Utility Board</td>
</tr>
<tr>
<td>Glen White-Trap Hill PSD</td>
<td>Moundsville</td>
</tr>
<tr>
<td>Glenville</td>
<td>Mount Hope</td>
</tr>
<tr>
<td>Grandview-Doolin PSD</td>
<td>Mount Hope Water Assoc.</td>
</tr>
<tr>
<td>Grant County PSD</td>
<td>Mountain Top PSD</td>
</tr>
<tr>
<td>Grant PSD</td>
<td>Mountain View Water Assoc.</td>
</tr>
<tr>
<td>Grantsville</td>
<td>Mullens Sanitary Board</td>
</tr>
<tr>
<td>Greater Harrison PSD</td>
<td>Nettie-Levisay PSD</td>
</tr>
<tr>
<td>Greater St. Albans PSD</td>
<td>New Creek River PSD</td>
</tr>
<tr>
<td>Green Spring Valley PSD</td>
<td>New Creek Water Assoc.</td>
</tr>
<tr>
<td>Green Valley-Glenwood PSD</td>
<td>New Haven</td>
</tr>
<tr>
<td>Greenbrier County PSD #2</td>
<td>Newburg</td>
</tr>
<tr>
<td>Hammond PSD</td>
<td>New Cumberland</td>
</tr>
<tr>
<td>Hamrick PSD</td>
<td>New Martinsville</td>
</tr>
<tr>
<td>Hardy County PSD</td>
<td>Nitro Sanitary Board</td>
</tr>
<tr>
<td>Harpers Ferry</td>
<td>North Beckley PSD</td>
</tr>
<tr>
<td>Harpers Ferry-Bolivar PSD</td>
<td>Northern Wayne County PSD</td>
</tr>
<tr>
<td>Harrisville</td>
<td>Northfork</td>
</tr>
<tr>
<td>Hartford</td>
<td>Norton-Harding-Jimtown PSD</td>
</tr>
<tr>
<td>Hepzibah PSD</td>
<td>Nutter Fort</td>
</tr>
<tr>
<td>Hodgesville PSD</td>
<td>Oak Hill Sanitary</td>
</tr>
<tr>
<td>Hughes River Water Board</td>
<td>Oakland PSD</td>
</tr>
<tr>
<td>Hundred Littleton PSD</td>
<td>Oakvale Road PSD</td>
</tr>
<tr>
<td>Hurricane</td>
<td>Oceana</td>
</tr>
<tr>
<td>Huttonsville</td>
<td>Paden City</td>
</tr>
<tr>
<td>Huttonsville PSD</td>
<td>Page-Kincaid PSD</td>
</tr>
<tr>
<td>Jane Lew PSD</td>
<td>Parsons</td>
</tr>
<tr>
<td>Jefferson County PSD</td>
<td>Paw Paw Municipal</td>
</tr>
<tr>
<td>Junior</td>
<td>Pea Ridge PSD</td>
</tr>
<tr>
<td>Kanawha Falls PSD</td>
<td>Pennsboro</td>
</tr>
<tr>
<td>Kenova Municipal</td>
<td>Petersburg</td>
</tr>
<tr>
<td>King Valley PSD</td>
<td>Philippi</td>
</tr>
<tr>
<td>Kingwood</td>
<td>Pine Grove</td>
</tr>
<tr>
<td>Lavalle PSD</td>
<td>Pineville</td>
</tr>
<tr>
<td>Leadville PSD</td>
<td>Pleasant Valley PSD</td>
</tr>
<tr>
<td>Lester</td>
<td>Poca</td>
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<tr>
<td>Lewistown</td>
<td>Pocahontas County PSD</td>
</tr>
<tr>
<td>Lincoln PSD</td>
<td>Point Pleasant</td>
</tr>
<tr>
<td>Little Creek PSD</td>
<td>Pratt</td>
</tr>
<tr>
<td>Logan</td>
<td>Preston County PSD #1</td>
</tr>
<tr>
<td>Logan County PSD</td>
<td>Preston County PSD #2</td>
</tr>
<tr>
<td>Lubeck PSD</td>
<td>Preston County PSD #4</td>
</tr>
<tr>
<td>Lumenport Area Public Service</td>
<td>Princeton Sanitary</td>
</tr>
<tr>
<td>Malden</td>
<td>Rainelle</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Raleigh County PSD</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Ravenswood</td>
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<td>Malden PSD</td>
<td>Red Sulphur PSD</td>
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<td>Route 16 Water Corp.</td>
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<td>Rowlesburg</td>
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<td>Rupert</td>
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<td>Spencer</td>
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<td>Star City</td>
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<td>Sugar Creek PSD</td>
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<td>Tennerton PSD</td>
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<td>Terra Alta</td>
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<td>Thomas</td>
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<td>Tomlinson PSD</td>
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<td>Triadelphia</td>
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<tr>
<td>Malden PSD</td>
<td>Tunelton Municipal Water Works</td>
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<tr>
<td>Malden PSD</td>
<td>Union</td>
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<tr>
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<td>Union Williams PSD</td>
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<td>Valley Falls PSD</td>
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<td>Malden PSD</td>
<td>Vienna</td>
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<tr>
<td>Malden PSD</td>
<td>Village of Beech Bottom</td>
</tr>
<tr>
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<td>Village of Bethlehem</td>
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<td>Malden PSD</td>
<td>Village of Valley Grove</td>
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<td>Walton PSD</td>
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<td>Malden PSD</td>
<td>War</td>
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<td>Warm Springs PSD</td>
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<td>Washington Pike PSD</td>
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<td>Wayne</td>
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<td>Weirton</td>
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<td>West Hamlin</td>
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<tr>
<td>Malden PSD</td>
<td>West Milford Water</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Weston Sanitary Bd.</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Westover Sanitary</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>West Union</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Wetzel County PSD #1</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Whitehall PSD</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Whitmer Water Assoc.</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>White Oak PSD</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>White Sulphur Springs</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Whitewall PSD</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Williamsburg</td>
</tr>
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<td>Malden PSD</td>
<td>Williamstown</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Winfield Sanitary Board</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Woods Homeowners Assoc.</td>
</tr>
<tr>
<td>Malden PSD</td>
<td>Woods Homeowners Assoc.</td>
</tr>
</tbody>
</table>
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*Chapman Technical Group
200 Sixth Avenue
St. Albans, WV 25177
Phone: (304) 727-5501
See Our Ad Page 3

*Dunn Engineers, Inc.
400 South Ruffner Road
Charleston, WV 25314
Phone: (304) 342-3436
See Our Ad Page 41

**E.L. Robinson Engr. Co.
5088 Washington St., West
Charleston, WV 25313
Phone: (304) 776-7473
See Our Ad Page 32

**Geary Associates
106 North Main Street
Petersburg, WV 26847
Phone: (304) 257-2022
See Our Ad Page 41

**Ghosh Engineers, Inc.
723 Kanawha Blvd., East
Charleston, WV 25301
Phone: (304) 343-5300
See Our Ad Page 35

**Gilson Engineering
505 Capitol Street
Charleston, WV 25301
Phone: (304) 342-0012
See Our Ad Page 2

**Greenhorne & O’Mara
12 Moran Circle
Fairmont, WV 26554
Phone: (304) 367-9401
See Our Ad Page 3

**Gwin, Dobson & Foreman, Inc.
P.O. Box 386
Charleston, WV 25322
Phone: (304) 366-0505
See Our Ad Page 11

**HNTB
#3 Mission Way
Scott Depot, WV 25560
Phone: (304) 757-0888
See Our Ad Page 45

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

**Howard K. Bell
3983 Teays Valley Rd., #202, P.O. Box 266
Clarksburg, WV 26302
Phone: (304) 394-5214
See Our Ad Page 41

**J. Gordon Jones, Inc.
3121 Fairway Drive, Suite B
Fairmont, WV 26554
Phone: (304) 342-0012
See Our Ad Page 5

**Kappe Associates, Inc.
426S Northern Pike
Monroeville, PA 15146-2733
Phone: (412) 393-9303
See Our Ad Page 23

**L. A. Gates Company
P.O. Drawer AF
St. Albans, WV 25177
Phone: (304) 727-5501
See Our Ad Page 3

**Leggette, Brashears & Graham
950 Taylor Station Rd., Suite K
Gahanna, OH 43230
Phone: (614) 416-9100
See Our Ad Page 57

**MS Consultants
206 Capitol Street
Charleston, WV 25301
Phone: (304) 346-1211
See Our Ad Page 48

**Pentree, Inc.
P.O. Box 1309
Princeton, WV 24740
Phone: (304) 431-7800
See Our Ad Page 19

**Potesta & Associates, Inc.
2300 MacCorkle Avenue, S.E.
Charleston, WV 25304
Phone: (304) 342-1400
See Our Ad Page 5

**Q4
418 Goff Mountain Rd., Suite 201
Charleston, WV 25313
Phone: (304) 776-8213
See Our Ad Page 19

**Rummel, Klepper & Kahl, LLP
One Grand Central Park, Suite 2040
Keyser, WV 26726
Phone: (304) 788-3370
See Our Ad Page 62

**S & S Engineers, Inc.
501 Eagle Mountain Road
Charleston, WV 25311
Phone: (304) 342-7168
See Our Ad Page 62

**Stafford Consultants, Inc.
P.O. Box 5849
Princeton, WV 24740
Phone: (304) 425-9555
See Our Ad Page 3

**Terradon Corporation
P.O. Box 519
Nitro, WV 25143
Phone: (304) 755-8291
See Our Ad Page 8

**Thrasher Engineering, Inc.
P.O. Box 1532
Clarksburg, WV 26301
Phone: (304) 624-4108
See Our Ad Page 24

**VIEW Engineering
300 Foxcroft Avenue, Suite 301
Martinsburg, WV 25401
Phone: (304) 267-9759
See Our Ad Page 3

**Wheeler, Jackson & Ferrell, Inc.
401 N. Ohio Avenue
P.O. Drawer AF
Clarksburg, WV 26301
Phone: (304) 623-6131
See Our Ad Page 57

**Woolpert Consultants
606 Virginia Street, East
Charleston, WV 25301
Phone: (304) 344-2223
See Our Ad Page 60
### WVRWA Associate Members - Winter, 2004

#### CONTRACTORS

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
<th>See Our Ad Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>D&amp;S Contractors</em></td>
<td>P.O. Box 6635</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><strong>Reliance Laboratories, Inc.</strong></td>
<td>200 West Willmont Rd.</td>
<td>(209) 826-3292</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><em>American AVK Company</em></td>
<td>7241 Peppermill Parkway</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
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<tr>
<td><strong>American Development Corp.</strong></td>
<td>106 B North 37th Street</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
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<tr>
<td><em>American Leak Detection of WV</em></td>
<td>200 West Willmont Rd.</td>
<td>(209) 826-3292</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><strong>American Water Services</strong></td>
<td>4143 Weaver Court</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
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<tr>
<td><strong>Analabs, Inc.</strong></td>
<td>P.O. Box 962</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
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<tr>
<td><strong>Appalachian Software, Inc.</strong></td>
<td>5313 Luray Lane</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><strong>Atlantic Machinary, Inc.</strong></td>
<td>P.O. Box 37206</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><strong>BIFMC, Inc.</strong></td>
<td>132 Sherwood Dr., Suite 101</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><strong>BissNuss, Inc.</strong></td>
<td>Olde Courthouse Bldg., Suite 210</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><strong>Breitrag Mid-South, Inc.</strong></td>
<td>319 1st Street, North</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
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<tr>
<td><strong>Charlotte of America</strong></td>
<td>P.O. Box 968</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
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<tr>
<td><strong>Clow Water Systems Company</strong></td>
<td>534 Fidges Creek Road</td>
<td>(800) 257-9283</td>
<td><strong>26</strong></td>
</tr>
<tr>
<td><strong>Control Equipment Co.</strong></td>
<td>P.O. Box 1207</td>
<td>(800) 257-9283</td>
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#### Laboratories

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<td><em>Earth Science Laboratories</em></td>
<td>106 B North 37th Street</td>
<td>(800) 257-9283</td>
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<td><em>Fisher Research Laboratory</em></td>
<td>200 West Willmont Rd.</td>
<td>(209) 826-3292</td>
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<td><em>Reliance Laboratories, Inc.</em></td>
<td>P.O. Box 625, Benedum Airport Ind. Park</td>
<td>(209) 826-3292</td>
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<td><strong>REIC Laboratory</strong></td>
<td>P.O. Box 286</td>
<td>(800) 999-0105</td>
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<tr>
<td><strong>American AVK Company</strong></td>
<td>7241 Peppermill Parkway</td>
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<td>4143 Weaver Court</td>
<td>(800) 999-0105</td>
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<td><strong>Atlantic Machinary, Inc.</strong></td>
<td>P.O. Box 37206</td>
<td>(800) 999-0105</td>
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<tr>
<td><strong>BIFMC, Inc.</strong></td>
<td>132 Sherwood Dr., Suite 101</td>
<td>(800) 999-0105</td>
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<td><strong>BissNuss, Inc.</strong></td>
<td>Olde Courthouse Bldg., Suite 210</td>
<td>(800) 999-0105</td>
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<td><strong>Breitrag Mid-South, Inc.</strong></td>
<td>319 1st Street, North</td>
<td>(800) 999-0105</td>
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<tr>
<td><strong>Charlotte of America</strong></td>
<td>P.O. Box 968</td>
<td>(800) 999-0105</td>
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<tr>
<td><strong>Clow Water Systems Company</strong></td>
<td>534 Fidges Creek Road</td>
<td>(800) 999-0105</td>
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<td><strong>Control Equipment Co.</strong></td>
<td>P.O. Box 1207</td>
<td>(800) 999-0105</td>
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#### Services and Products

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<td><em>American AVK Company</em></td>
<td>7241 Peppermill Parkway</td>
<td>(800) 999-0105</td>
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<td><strong>American Development Corp.</strong></td>
<td>1830 Pulaski Hwy., P.O. Box 620</td>
<td>(800) 999-0105</td>
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<td><em>American Leak Detection of WV</em></td>
<td>P.O. Box 625, Benedum Airport Ind. Park</td>
<td>(800) 999-0105</td>
<td><strong>26</strong></td>
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<tr>
<td><strong>American Water Services</strong></td>
<td>4143 Weaver Court</td>
<td>(800) 999-0105</td>
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<td>P.O. Box 962</td>
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<td><strong>Breitrag Mid-South, Inc.</strong></td>
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<td>(800) 999-0105</td>
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<td><strong>Control Equipment Co.</strong></td>
<td>P.O. Box 1207</td>
<td>(800) 999-0105</td>
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**Associate Member** • **Sponsoring Associate Member** • **Sustaining Associate Member**
**WVRWA Associate Members - Winter, 2004**

*Associate Member  •  **Sponsoring Associate Member  •  ***Sustaining Associate Member

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
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<tr>
<td><em>Miss Utility of West Virginia</em></td>
<td>2323 Windham Road, South Charleston, WV 25303</td>
<td>(304) 345-3919</td>
<td>See Our Ad Page 17</td>
</tr>
<tr>
<td><strong>Moody and Associates, Inc.</strong></td>
<td>11548 Cotton Road, Meadville, PA 16335</td>
<td>(800) 856-5040</td>
<td>See Our Ad Page 8</td>
</tr>
<tr>
<td><strong>Mountaineer Computer Systems</strong></td>
<td>P.O. Box 982, Lewistown, WV 24901</td>
<td>(304) 343-8006</td>
<td>See Our Ad Page 67</td>
</tr>
<tr>
<td><em>M.S. Jacobs &amp; Associates, Inc.</em></td>
<td>P.O. Box 523, Charleston, WV 25322</td>
<td>(304) 343-8906</td>
<td>See Our Ad Page 18</td>
</tr>
<tr>
<td><em>Mueller Company</em></td>
<td>4119 Wharf Circle #408, Glen Allen, WV 23060</td>
<td>(800) 856-5040</td>
<td>See Our Ad Page 67</td>
</tr>
<tr>
<td><strong>Natgun Corporation</strong></td>
<td>3960 Brown Park Dr., Suite B, Hilliard, OH 43026</td>
<td>(614) 777-9834</td>
<td>See Our Ad Page 17</td>
</tr>
<tr>
<td><strong>National Road Utility Supply, Inc.</strong></td>
<td>P.O. Box A, Valley Grove, WV 26060</td>
<td>(304) 547-0101</td>
<td>See Our Ad Page 9</td>
</tr>
<tr>
<td><em>Neptune Technology Group</em></td>
<td>1600 Alabama Highway 229, Tallassee, AL 36078</td>
<td>(800) 243-0421</td>
<td>See Our Ad Page 5</td>
</tr>
<tr>
<td><strong>Packaged Systems, Inc.</strong></td>
<td>P.O. Box 13399, Sissonville, WV 25360</td>
<td>(304) 984-3333</td>
<td>See Our Ad Page 32</td>
</tr>
<tr>
<td><em>Panhandle Pipe &amp; Supply, Inc.</em></td>
<td>P.O. Box 764, Martinsburg, WV 25402</td>
<td>(304) 263-6986</td>
<td>See Our Ad Page 53</td>
</tr>
<tr>
<td><em>Patriot Services, Inc.</em></td>
<td>HC 63, Box 57, Red House, WV 25168</td>
<td>(304) 586-4495</td>
<td>See Our Ad Page 19</td>
</tr>
<tr>
<td><em>Pittsburg Tank &amp; Tower Co.</em></td>
<td>P.O. Box 913, Henderson, KY 42419-0913</td>
<td>(270) 826-9000</td>
<td>See Our Ad Page 62</td>
</tr>
<tr>
<td><em>John P. Place, Inc.</em></td>
<td>90 Clairton Boulevard, Pittsburgh, PA 15236</td>
<td>(304) 435-3919</td>
<td>See Our Ad Page 26</td>
</tr>
<tr>
<td><strong>Pollarwater.com</strong></td>
<td>17515 NE 67th Court, Redmond, WA 98052</td>
<td>(800) 437-1146</td>
<td>See Our Ad Page 57</td>
</tr>
<tr>
<td><em><strong>Precision Pump &amp; Valve</strong></em></td>
<td>517 Old Goff Mt. Road, Cross Lanes, WV 25313</td>
<td>(304) 776-7170</td>
<td>See Our Ad Inside Front Cover</td>
</tr>
<tr>
<td><em>Procon Corporation</em></td>
<td>27819 State Route 7, Marietta, OH 45750</td>
<td>(888) 996-9494</td>
<td>See Our Ad Page 19</td>
</tr>
<tr>
<td><strong>Pro Source Water Products</strong></td>
<td>14680 Pleasant Valley Rd., Chillicothe, OH 45601</td>
<td>(740) 256-2300</td>
<td>See Our Ad Page 8</td>
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<tr>
<td><em>PW Eagle</em></td>
<td>Rt. 3, Box 338A, Buckhannon, WV 26201</td>
<td>(304) 427-9617</td>
<td>See Our Ad Page 28</td>
</tr>
<tr>
<td><em>Renoilds, Inc.</em></td>
<td>6451 Germantown Road, Middletown, OH 45424</td>
<td>(513) 424-7287</td>
<td>See Our Ad Page 57</td>
</tr>
<tr>
<td><em>Renoilds Memorial Hospital</em></td>
<td>800 Wheeling Avenue, Glen Dale, WV 26038</td>
<td>(304) 843-3202</td>
<td>See Our Ad Page 57</td>
</tr>
<tr>
<td><em>Romac Industries</em></td>
<td>6106 Langgate Road, Middletown, VA 23112</td>
<td>(304) 258-7448</td>
<td>See Our Ad Page 57</td>
</tr>
<tr>
<td><em>Sal Chemical Co., Inc.</em></td>
<td>3036 Birch Drive, Weirton, WV 26062</td>
<td>(304) 748-8200</td>
<td>See Our Ad Page 28</td>
</tr>
<tr>
<td><strong>Schenstedt Instrument Co.</strong></td>
<td>P.O. Box 309, Kearneysville, WV 25430</td>
<td>(304) 725-1050</td>
<td>See Our Ad Page 60</td>
</tr>
<tr>
<td><strong>Sensus Metering Systems</strong></td>
<td>119 Evans Street, Uniontown, PA 15401</td>
<td>(724) 438-0937</td>
<td>See Our Ad Page 23</td>
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<tr>
<td><em><strong>Service Pump &amp; Supply Co.</strong></em></td>
<td>4446 Waverly Road, Huntington, WV 25704</td>
<td>(304) 429-6736</td>
<td>See Our Ad Inside Back Cover</td>
</tr>
<tr>
<td><strong>Severn Trec Services</strong></td>
<td>11700 South Cicero Avenue, Alsip, IL 60803</td>
<td>(708) 768-6544</td>
<td>See Our Ad Page 23</td>
</tr>
<tr>
<td><em>Sherwin Williams</em></td>
<td>1001 Tower Road, Little Hoskins, OH 45742</td>
<td>(304) 377-1189</td>
<td>See Our Ad Page 48</td>
</tr>
<tr>
<td><strong>SLC Meter Service, Inc.</strong></td>
<td>10375 Dixie Hwy., Daviscburg, MI 48350</td>
<td>(740) 364-1169</td>
<td>See Our Ad Page 2</td>
</tr>
<tr>
<td><em>Smith Blair, Inc.</em></td>
<td>3003 Morning Mist Lane, Charlotte, NC 28273</td>
<td>(704) 256-2300</td>
<td>See Our Ad Page 8</td>
</tr>
<tr>
<td><strong>S. R. Harper, Inc.</strong></td>
<td>448 Munntown Road, Eighty Four, PA 15330</td>
<td>(724) 942-9520</td>
<td>See Our Ad Page 54</td>
</tr>
<tr>
<td><strong>Stanco Equipment Co., Inc.</strong></td>
<td>P.O. Box 833, Charleston, WV 25339</td>
<td>(304) 355-3612</td>
<td>See Our Ad Page 60</td>
</tr>
<tr>
<td><strong>State Equipment Inc.</strong></td>
<td>6410 Commonwealth Drive, Roanoke, VA 24018</td>
<td>(540) 984-3333</td>
<td>See Our Ad Page 44</td>
</tr>
<tr>
<td><strong>State Water Development Authority</strong></td>
<td>180 Association Drive, Charleston, WV 25311</td>
<td>(304) 558-3612</td>
<td>See Our Ad Page 30</td>
</tr>
<tr>
<td><strong>W.C. Weil Company</strong></td>
<td>357 Flaugherty Run Road, Unit 105, Moon Township, PA 15108</td>
<td>(800) 355-3612</td>
<td>See Our Ad Page 57</td>
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<tr>
<td><strong>Water Development Authority</strong></td>
<td>180 Association Drive, Charleston, WV 25311</td>
<td>(304) 558-3612</td>
<td>See Our Ad Page 30</td>
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<tr>
<td><strong>Valtronics, Inc.</strong></td>
<td>P.O. Box 940, Ravenswood, WV 26164</td>
<td>(304) 273-5356</td>
<td>See Our Ad Page 29</td>
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<tr>
<td><strong>Vermeer of West Virginia</strong></td>
<td>5900 MacCorkle Avenue, St. Albans, WV 25177</td>
<td>(304) 768-5965</td>
<td>See Our Ad Page 60</td>
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<td><strong>Valtronics, Inc.</strong></td>
<td>P.O. Box 940, Ravenswood, WV 26164</td>
<td>(304) 273-5356</td>
<td>See Our Ad Page 44</td>
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<tr>
<td><strong>Water Works &amp; Ind. Supply Co.</strong></td>
<td>P.O. Box 585, Huntington, WV 25710</td>
<td>(304) 525-7888</td>
<td>See Our Ad Page 29</td>
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<tr>
<td><strong>W.C. Well Company</strong></td>
<td>P.O. Box 7144, Charleston, WV 25317</td>
<td>(304) 525-7888</td>
<td>See Our Ad Page 60</td>
</tr>
</tbody>
</table>
WVRWA Welcomes New Members

Voting Members
- Center PSD
- Eastern Wyoming PSD
- Malden PSD
- Ministers Run Water Association
- Weston Sanitary Board
- Whitmer Water Association

Individual Members
- Harry Treadaway
- Peggy Wolford

Affiliate Member
- Bayer Material Science, Inc.

Associate Members
- Fisher Research Laboratory
- Leggette, Brashears & Graham, Inc.
- Ross, Sinclaire & Associates
- Wheeler, Jackson & Ferrell, Inc.

Sponsoring Member
- Sensus Metering Systems
- Severn Trent Pipeline Services

NON-COMMUNITY MEMBERS

Big Bear Lake Camplands
Bishop Hodges Pastoral Center
Camp Washington Carver

Grand Badger Community Water System
Valley Vista Adventist Center
WV Baptist Conference Center

AFFILIATE MEMBERS

Bayer Material Science, Inc.
- Newell Company
- Snowshoe Water & Sewer
- Timberline Four Seasons Utility
- Twin Falls State Park
- USDA-Natl. Center for Cool & Cold Water Agriculture
- Wiley Ford Water Co., Inc.

INDIVIDUAL MEMBERS

Verlin Adkins, Jr.
Brian Arthur
Lewis Baker
Mark Barton
Phillip Boggs
Thomas Bowyer
Thomas Bratton, III
Stuart Bruce
Eric Bumgardner
Mike Burkardt
Dan Burns
Wesley Burns

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