

Developing necessary plans and procedures for systems

The water operator's changing role



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Letter From the Director



Nathan Ohle RCAP Executive Director

he key to the work of the RCAP network, and the reason we are so successful, is the trusted relationships that have been built with small rural and tribal communities across the country. Trust is built on relationships focused on accountability, expertise and transparency. RCAP is successful because we know these communities, understand the issues they face, and communicate potential solutions that are locally based, identifying opportunities based on the local conditions. The ability to not only understand issues facing these communities, but to communicate risks and opportunities in identified solutions, is what drives our work.

Whether we are talking about rate adjustments, the need for a more regional approach, or technical adjustments that need to be made, providing clear and concise solutions is key to ensuring local communities and the leaders we work with make the right decisions for the systems they serve. Not only does the RCAP network focus on providing solutions based on local assets and resources, we also work with operators and local elected officials to better communicate the needs of a water or wastewater system to their community, ensuring that every person affected understands the strategy behind the decisions that are made.

For a water or wastewater system, often the only times that they are thought of is when the monthly bill arrives, or when there is a problem, so the ability of a water operator or local mayor or council member to communicate the needs of the system is imperative. RCAP spends time with the systems we work with to not only find the solutions, but to communicate those solutions effectively.

In this issue of Rural Matters, you will read about how effective communication strategies impact the communities we serve. Every community has a story, and it is our job to help them tell it.

Nathan Ohle RCAP Executive Director





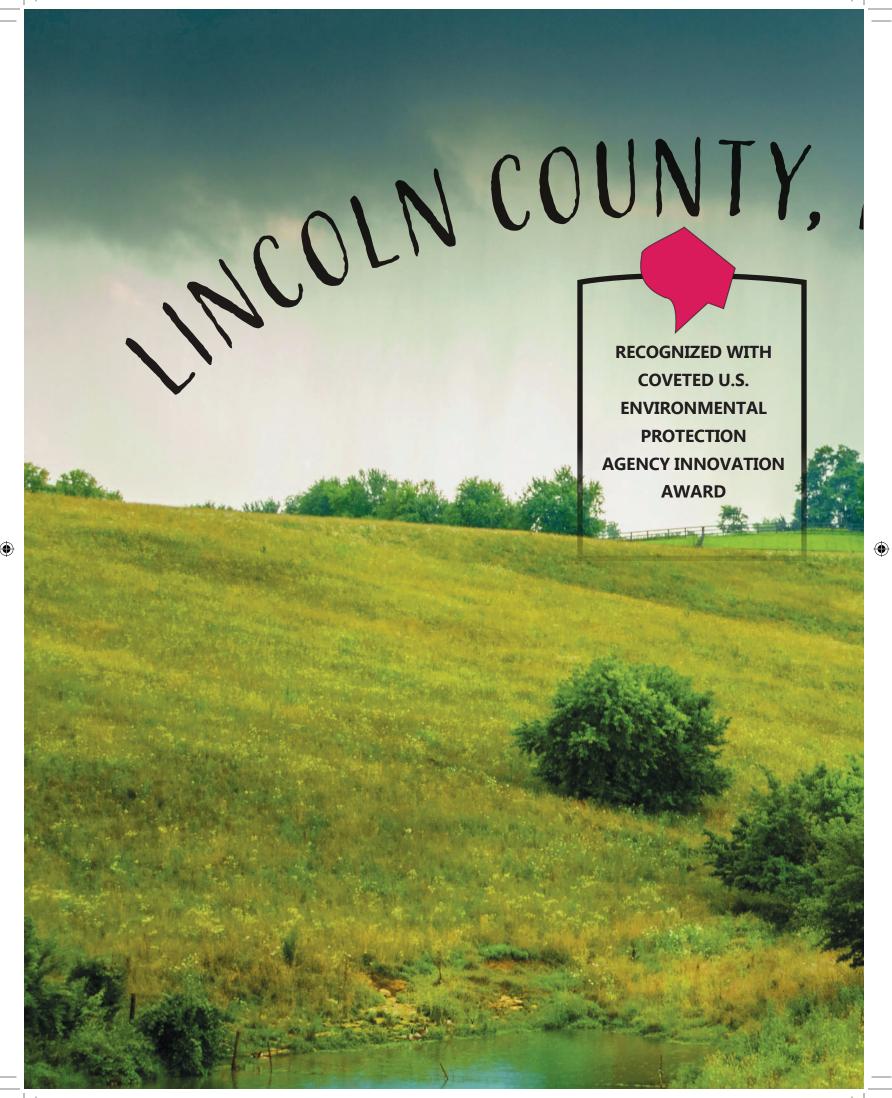
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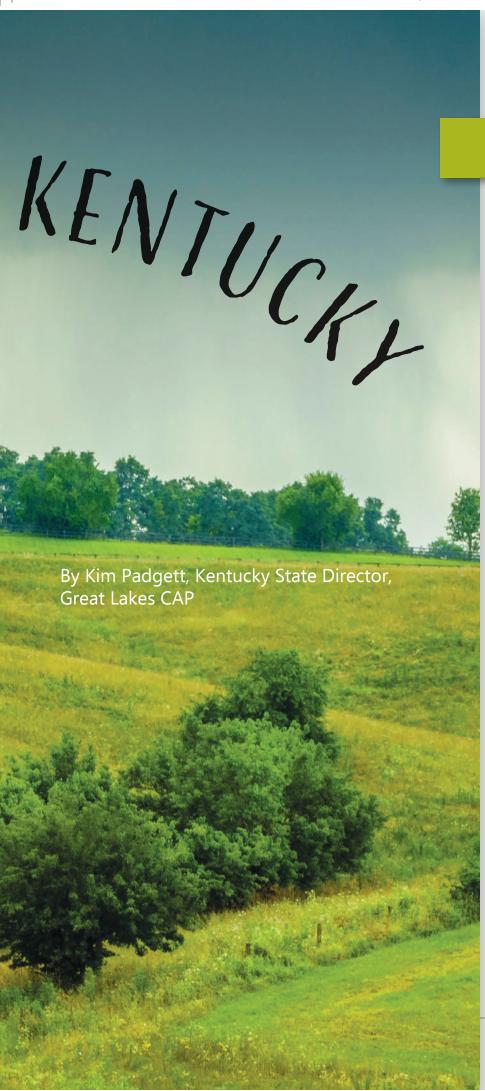
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Pine Bluff, Arkansas ruralrise.org









Feature Article

hen Margaret Meade said, "Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has," she very well could have been describing a small group of public servants in rural Lincoln County, Kentucky.

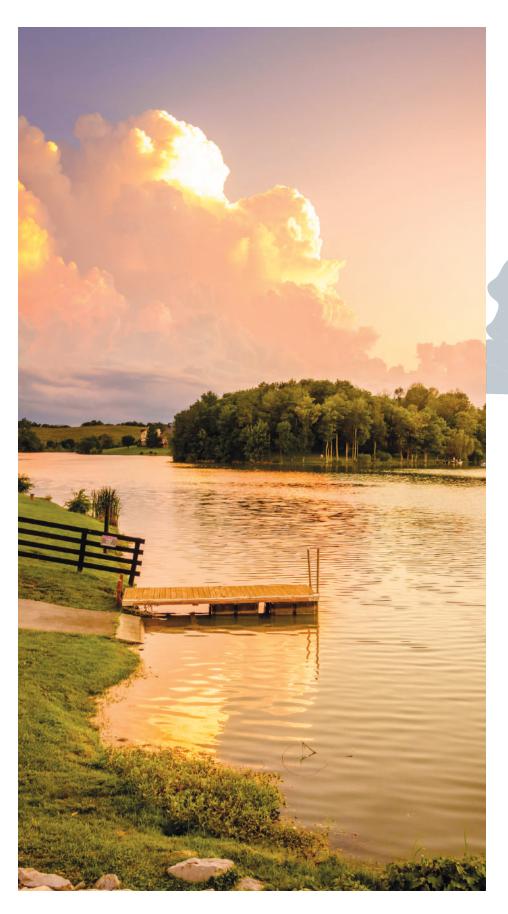
Located in the central part of the Commonwealth of Kentucky, beautiful Lincoln County is divided into three distinct topographical areas. The northern half of the county, located in the southern edge of the Bluegrass Region, is known for its excellent farmland and is drained by the Dix River and its smaller tributaries. Stretched from west to east across Lincoln County is the Knobs region, with wood covered hills ranging from one to two hundred feet in height. The remainder of the county lies in the Pennyroyal region, which is dominated by broad plateau-like areas and ridges separated by deep fertile valleys and streams.

According to John Webb of the Kentucky Division of Water, the Dix River Watershed has been receiving special attention by the U.S. Environmental Protection Agency and the Kentucky Division of Water since its selection as a Clean Water Action Plan Priority in 1998. The river and its impoundment serve as a drinking water supply source for several counties in the region.

Under an EPA 319 grant from the Kentucky Division of Water, Third Rock Consultants performed water quality monitoring from March 2006 to February 2007 for the Hanging Fork Watershed Plan, which includes the Dix River and its smaller tributaries. Despite the dominant agricultural land use of the watershed, the study overwhelming noted human waste as the highest contributor

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during low stream flow conditions. E. coli concentrations in area streams often ranged from ten to 1,000 times greater than the statewide limit for safe wading or swimming.

The residents of Lincoln County utilize septic tanks for wastewater disposal, even though the soil quality is not favorable for septic systems. The first objective in the best management practices of the consulting report was to reduce human fecal inputs from septic systems by addressing failing and improperly maintained septic systems and replacing those septic systems with a sanitary sewer collection system.

When the results of the watershed study were released to the local chief elected official, County Judge-executive Jim Adams, he realized at that very moment the wellbeing of the children of his county and the health of the local environment rested upon his shoulders. After careful consideration, he made the difficult decision to do what was best for his county rather than what might be best for his political career.

Judge Adams began by creating the Lincoln County Sanitation District. Upon its formation and appointment of commissioners, an engineering firm was procured, and the planning of providing wastewater service to Lincoln County residents was set into motion by first addressing the issues identified by the Hanging Fork Watershed study.

The Lincoln County Sanitation District Phase 1 project, located south of Junction City along the Highway 127 corridor to the City of Hustonville, consisted of a collection system to provide service to 535 residential and 50 commercial customers in the western portion of Lincoln County who did not have public sewer service. This project was designed to eliminate approximately 223 failing septic tanks, 101 raw water sewage discharges (straight pipes), and 2 package treatment plants; 1 of which was located at the Hustonville Elementary School. Kentucky has a recent history of regionalizing water sys-



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tems; this continues that trend. The sanitation district's collection system will send the waste water to the city of Danville for treatment and the city of Hustonville, the local water provider, will provide billing services.

Project funding in the amount of \$7,924,293 came from a variety of sources: a \$1,663,500 grant and \$350,000 loan from the U.S. Department of Agriculture's Rural Development agency; a \$500,000Appalachian Regional Commission grant; a \$1,000,000 Community Development Block Grant from the U.S. Department of Housing and Urban Development; a \$4,365,793 State Revolving Fund (SRF) loan from the Kentucky Infrastructure Authority; and a local cash contribution of \$45,000.

Near the end of a long and difficult construction phase, Sanitation District Chairman Bill Payne, an Air Force veteran tirelessly dedicated to serv-He assembled a group of stakeholders which included the Kentucky Division of Water, RCAP, and the Kentucky Association of Counties to exhaust all funding opportunities.

RCAP and the Kentucky Division of Water EPA 319 Section partnered to devise the Lincoln County Homeowner's Assistance Program. The program will pay up to 90 percent of connection costs, depending on eligibility based on income and home ownership. Approved recipients must provide proof of property ownership, proof of income, an invoice from a licensed plumber, a copy of the plumbing permit from the health department, and a certification of installation form from the sanitation district.

RCAP conducted several public events at a local church in the project area to assist the residents with submitting the applications with required documentation. Payne and representatives from the Kentucky Division of Water attended these events to provide face-to-face updates on the project and the newly formed district's operations. In addition, RCAP conducted training for contractors who wanted to participate in the program.

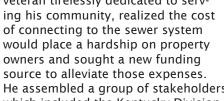
So far, 344 applicants have been approved for the Lincoln County Homeowner's Assistance Program funding assistance. More than \$610,000 of project funds have been provided to connect 263 recipients, and 378 total sewer connections have been completed.

Local Judge-executive Jim Adams and the fiscal court passed a mandatory sewer use ordinance requiring every property within a 200-foot distance from the collection system to connect to the public sewer system. Officials anticipate that every structure will comply with the ordinance as weather conditions allow for additional construction.

In November 2018, the Lincoln County Sanitation District project was recognized by the U.S. Environmental Protection Agency (EPA) as one of 30 clean water infrastructure projects for excellence and innovation within the Clean Water State Revolving Fund program. EPA's Performance and Innovation in the SRF Creating Environmental Success (PISCES) program celebrates innovation demonstrated by Clean Water SRF programs and assistance recipients, and Lincoln County received this prestigious award.

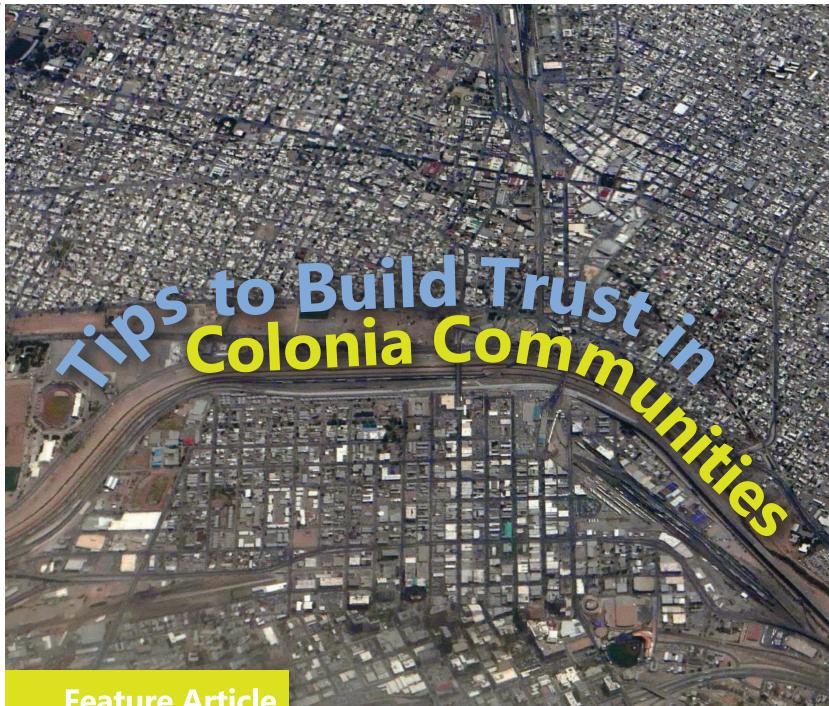
RCAP has been involved with this project since the beginning by obtaining signed petitions from property owners in the county. RCAP also helped the project by completing necessary USDA Rural Development processing checklist items so USDA could obligate project funds, addressing requirements set forth in the USDA Rural Development Letter of Conditions, and administering the Homeowner's Assistance Program.

As a direct result of RCAP's assistance, infrastructure - both physical and social - is being put in place to address the significant environmental and human health concern in the project area. The Sanitation District is very pleased with Kentucky RCAP's efforts in Lincoln County., "We greatly appreciate the assistance that RCAP provided," said Sanitation District Chairman Payne. "Whatever situation or issue we encounter, we know that Kentucky RCAP is always willing and able to help. I would definitely recommend them to other systems in need."









Feature Article

By Elizabeth Zach **RCAC** staff writer

Olga Morales is an assistant director for Rural Community Assistance Corporation's (RCAC) environmental programs. She oversees RCAC's regionalization and colonias work, providing technical assistance to water and wastewater systems and assisting communities to seek funding for infrastructure improvements, regulatory compliance or emergency events. Colonias are low-income, unincorporated communities along the Mexico-United States border.

These areas struggle with substandard housing and often lack basic services such as potable water, electricity, paved roads and sewage management.

Various land use zones in different counties along the border, the lack of any type of zoning ordinances and the numerous jurisdictions in which the colonias are located have made it difficult for the U.S. government to accurately measure economic and infrastructure progress. At the same

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Working with community volunteers who juggle many responsibilities requires patience and perseverance.

time, it is difficult for these communities to access federal funding. RCAC has worked with colonia residents since the early 1990s, following federal recommendations for infrastructure projects while establishing trust among colonia residents. In some cases, the recommendations extend to other infrastructure needs such as reliable roads and electricity; encouraging community involvement and local leadership; and increasing technical, managerial and financial capacity.

Reflecting on her experience working with colonias, Morales offers tips for

gaining trust in colonias and small rural communities as their leaders aim to better serve residents:

We react as quickly as possible to the needs of the community, night or day, regardless of the issue at hand.

If we don't have the answer, we'll find someone who does.

Consistency: we get communities what they need when they need it. We follow through on quick delivery and with accessible language.

Commitment: We help them achieve the level of sustainability they reasonably can, with the understanding that sustainability looks different to different communities.

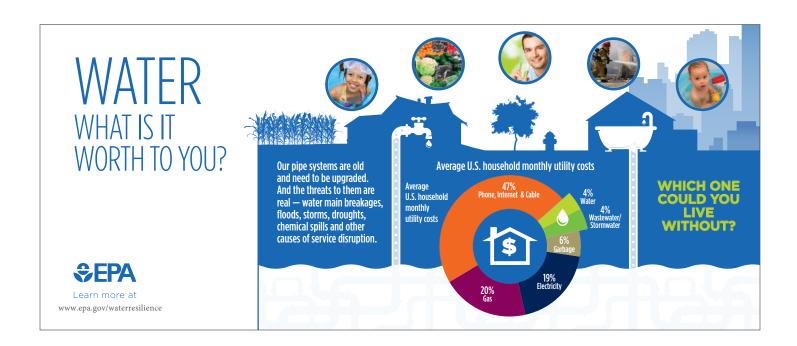
Listening to all sides: we're not there to enforce positions. We must be impartial. Acknowledging the problem is critical, whatever it is, and focusing on the solution is key; this leads to credibility.

Credibility: We value and respect local knowledge and local vision. Communities know what is best for them. We greatly appreciate the fact that

they trust us to be part of the solution-seeking process along with local leaders. We are a community resource and want to serve in that capacity.

Contribute as best you can and persevere. Working with community volunteers who juggle many responsibilities requires patience and perseverance. As a community resource many times our role is to present community leaders with alternatives for them to consider. Part of our assistance sometimes also includes evaluating and presenting, in an objective manner, pros and cons of each alternative so that they can make informed decisions.

Morales co-authored and translated the RCAC Leadership Program, which is designed for emerging community leaders in rural and Tribal communities and she is nationally recognized for facilitating partnership efforts and processes to create sustainable regional entities among small utilities. Before joining RCAC in 2004, Morales was an environmental scientist for the New Mexico Environment Department, Drinking Water Bureau and as a laboratory technician for the New Mexico State University Soil, Water, Air Testing Laboratory.





How Can Your SYSTEM Develop Necessary Plans and Procedures? By Richard Watson, Technical Assistance Provider, Great Lakes CAP

Inventory Control, Preventative Maintenance & Capital Improvement Planning

nventory control, preventive maintenance and capital improvement planning go together because they all require that understanding a system's assets. Therefore, initiating any one of those three programs will help start the others. Preventive maintenance and capital improvement planning are more extensive than inventory control. Inventory control is simply knowing where and when replacement parts are required. However, all three programs are vital, enabling adequate management and financial processes. As a management tool, systems implementing these programs can control the use and disposition of assets. As a financial tool, systems can control costs and know where expenses have been or will be incurred.

Inventory control identifies what you have, how many you have, where it is located and when you need to reorder or restock an item. Your system inventory applies to buildings, equipment, parts, tools and vehicles,

etc. Your inventory should identify each property item by an identification number, name, serial number, size or unique information, such as date of construction, make, year, date of purchase, etc.

Preventive maintenance keeps your system operating and minimizes downtime and/or plant equipment failure. If your system has automobiles, basins, buildings, electric motors, ladders, meters, pipes, pumps, storage tanks, etc., their usage results in wear and tear - and sometimes component failure. Periodically inspecting, checking and servicing these items eliminates, prevents, or reduces equipment failure. In addition, regular service and maintenance (e.g., changing oil, changing packing, painting, etc.) will usually prolong useful life.

Implementing a written preventive maintenance program will save money, maximize equipment's useful life and identify where a system is incurring maintenance costs. A program also will provide important budget planning information, reduce or eliminate downtime and system disruption, and provide necessary rate increase justification/documentation. Remember, replacing your treatment plant, distribution lines, equipment,

and tools is expensive. Replacement money is limited, difficult to acquire, and more expensive than proper maintenance. Maintain your system because replacements will be difficult and expensive.

A capital improvement plan (CIP) is a tool to help you plan, fund, and carry out necessary infrastructure replacements and improvements. Your CIP should demonstrate that you are financially prepared to repair or replace worn out equipment, can afford any new equipment required to support a growing service population, and can comply with current and future Safe Drinking Water Act requirements. Failure to develop a CIP - identifying maintenance, repair, and re- placement costs and incorporating them into your budget - can result in deteriorating infrastructure, increased water loss, increased operating expenses, reduced customer service, unreliable operation, and potential health threats associated with unsafe drinking water.

Capital improvement planning consists of developing a detailed inventory of system components – determining age, remaining useful life, and replacement costs (this information should be available from your inventory control pro-

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gram) - and determining the cost of infrastructure replacement and upgrade. Plans should identify the components in the poorest condition and those most critical to treatment/distribution/collection, schedule of capital expenditures and determination how you will pay for the improvements. The final product is a system budget (incorporating costs identified in your CIP) and a five-year budget projection.

EMERGENCY RESPONSE PLANNING

Having a written emergency plan/procedure and trained personnel helps limit the negative impact or deter unplanned events. Emergencies can cause your customers and/or staff minor or major inconveniences, service disruption, contamination, injury or even death. Emergencies can be caused by cross-connection, miscommunication, unspecified responsibilities, equipment failure, safety violations, inadequate maintenance, accidents, natural disasters, and/or vandalism and even terrorism.

Emergencies require quick, responsible action. Implementing a written emergency plan/procedure will help you avoid costly downtime, customer dissatisfaction, liability/litigation and additional damage.

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SYSTEM HEALTH & SAFETY PROGRAMS

Your system should have a written Health and Safety (H&S) program in place and must provide a safe working environment. The law dictates that you assure each employee a safe working environment and, where required, provide the training, personal protective equipment, and all other necessary safety apparatus.

Unsafe acts and unsafe conditions cause accidents. Accidents are costly and can result in employee absence, legal liability, diminished employee productivity, property damage, injury or death. Initiating a few simple steps and implementing these suggestions will get your H&S program started. The first step is formulating, endorsing, and establishing your safety philosophy. Once you have an H&S program you can tailor it to meet your unique needs, problems and concerns.

Once management is firmly behind developing and implementing an H&S program, next steps are designating someone responsible for H&S, determining your needs, developing a written program endorsed and supported by management, and implementing the program. Your designated

H&S manager should have some knowledge of safety practices and program administration, be experienced and understand your system operations and have the time to administer, coordinate, and enforce your safety program.

Your H&S program should contain a written policy/program, designate authority, assign manager's and employee's responsibilities in H&S policies/practices/programs and system equipment and process training, and identify personal protective equipment (PPE) (appropriate for your system conditions) for all employees and site visitors. It should also specify required or necessary safety apparatus, protective guards, warning devices, etc., require a safety training video, informational handouts, etc. for all system visitors and contractors, and outline your safety policies/procedures. The plan should specify regularly scheduled H&S policies and procedures review to ensure continued safety.

Creating and implementing these plans and procedures will help communities along the path of sustainability. Communities that would like assistance in developing these plans and procedures can contact their nearest RCAP.

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ystems managers and operators know the cost of treating and distributing water or collecting and treating wastewater continues to increase from year to year. For many, however, convincing a governing body to adjust rates is like asking for permission to pull their teeth. For others, perhaps the board is willing, but customers will not accept an increase to their bill without a fight. Even in the best of situations, there will be those that complain loudly when their rates are increased. For this reason, many systems tend to be quiet about decisions being made, which worsens complaints and erodes any trust that may have been built between the system and the customers.

To improve success in requesting approval of a rate adjustment, be ready to justify the need. This starts with good recordkeeping. If a governing body can see that a system has been operated efficiently and costs have been managed through proper preventive maintenance, they will have more confidence in a request for an increased budget. When the need for a rate change is documented and justified with data, such as the current year's actual operating expenses, needed routine maintenance and the replacement of short-lived assets, the decision makers are usually willing to accept the inevitable need.

If water loss is a problem for your system, obtain assistance through a technical assistance provider in completing a water loss audit and a leak detection program. Use these findings to support the need for improvements to infrastructure. In many cases, the lost water represents a significant loss of income as well as an increase in costs. The savings that could be a long-term result of money spent to replace sections of line may be enough to fund the needed work, even when financing is required. An increase in rates when there are high percentages of water loss, without making efforts to remedy the situation, is a quick way to turn customers against the system. A rate increase can be used once as a stop-gap measure to cover costs and build a small reserve, but this should never be used over multiple years without correcting the rate of loss. In the same respect, if your collection system is taking in too much inflow and/or infiltration and driving up treatment costs, a project should be considered to make repairs or replacements and funded by a rate adjustment rather than just raising rates to continue to pay for treating rainwater or to expand the capacity of the treatment facility.

Once an operator has the board's agreement, what can they do to improve customer relations as they perceive a

negative or adverse impact? This starts well in advance of a change in rates, by providing a quality product with excellent customer service. Having friendly, competent staff goes a long way in creating a positive image of the system. Additionally, take the opportunity to discuss the costs of the system and the need for periodic rate adjustments with customers who have been supportive in the past, and who will use their influence with others by speaking positively about what the system is doing. Consider forming a committee, including customers, to examine the finances of the system and prepare the budget for the next year, and a long-term budget covering five years. Encourage attendance at board meetings, especially annual meetings, and use those gatherings to demonstrate to the customers what the operating budget for the coming year is projected to be, and converse about upcoming projects or system improvements.

When mailing out the annual required Consumer Confidence Report (CCR), include a one-page summary sheet explaining the findings about local drinking water quality in plain English instead of in technical jargon. Give your customers information that helps them understand the significance of your work and the consequences of not keeping the system in compliance. In many cases, customers have a belief that the employees of the water or sewer system are unskilled workers and not deserving of a decent salary. A common misperception is, "They only dig ditches and handle sewage all day, how important is that?" If customers are taught the complexity of meeting mandated standards and that water and wastewater operators have responsibilities as a public health officials, they may be more understanding of increased funding needed to retain well-trained, experienced staff. Include a paragraph showing the accomplishments of the system over the past year, and proposed work to be done in the next. Educate the customers on where their money is going. Make use of social media to keep customers informed of potential outages, work areas, and estimated times for resuming service. Participate in career days at local schools or give tours to classes, and provide handouts highlighting the work done by a water or sewer system. These will find their way into the hands of many of the parents, so the learning experience is expanded beyond the classroom.

Will this stop all complaining about an increase in rates? No, but informing customers can eliminate or alleviate the majority of complaints.









Changing Role

By Charles "Bud" Mason, Sr. Rural Development Specialist, Great Lakes CAP Imost 40 years ago I was taken under the wing of Buck, my first boss. He was a Coxswain in the U.S. Navy in World War II. Although he was not on water anymore, he looked at the water system as his ship, and he navigated it through many a storm. Buck instilled many traits in me. Everything had its place, all tools were kept oiled, and battleship grey was the color of choice. The longest lasting trait has been the importance of capturing and tracking

data. Others have fell by the wayside, like flaring K copper. Some have just changed throughout the years. However, the biggest change I have seen is the role of the operator.

There are three capacities of any system: Managerial, Financial and Technical. When I started, the operator's focus was only technical. My priority was to keep the elevated storage tank above 47 psi (pound-force per square inch)









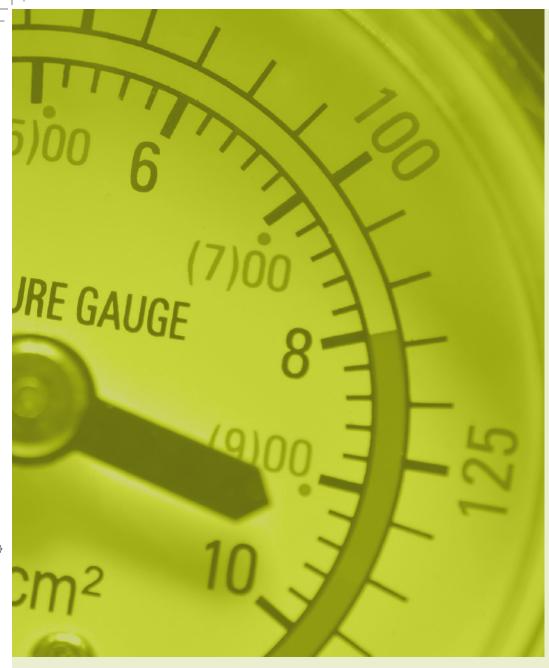
Just when an operator thought that was all they had to do, another role became clear: being a diplomat.

at the plant. Below 47 psi, we were in the bowl and did not have many gallons left in reserve. If we accomplished above 47 psi, then we did our job. That and keeping the parks mowed in the summer, streets plowed in the winter, and the flags put up on patriotic holidays. As the regulations started to get tighter our role started to become more administrative. This meant we could not just do the work, but we had to make sure the reporting was also done on time. The next role the successful operator had to take on was on the financial side. Cost of production, fixed costs, variable costs, budgets and debt ratio became a language that needed to be spoken.

Just when an operator thought that was all they had to do, another role became clear: being a diplomat. It started with trying to educate the board on taking on a project. How was that accomplished? It was accomplished by the operator documenting the need, identifying the options, and explaining the costs and the benefits. They needed to be able to answer questions and calm emotions in a sensitive and effective way. That role really started to take shape with the Consumer Confidence Report (CCR). The CCR put the operator almost face to face with their public on a yearly basis having to explain any violations, the impact of those violations, and what they were going to do to prevent







it from happening again. That was when our customer base began to evolve from uninformed to informed. It was easy to be prepared to answer their questions with the regulations in front of you. However, all of that changed in 2015 with the Flint [Michigan] water crisis. The operator now had a public relations nightmare through guilt by association. The seriousness of an accusation outweighs the value of the facts and existing regulations that we have at hand. As the lead and copper issue began to settle down, along came PFAS (perand polyfluoroalkyl substances). As a diplomat how do you handle those situations? You are dealing with customers who range on the thought scale from "I do not drink any [tap]

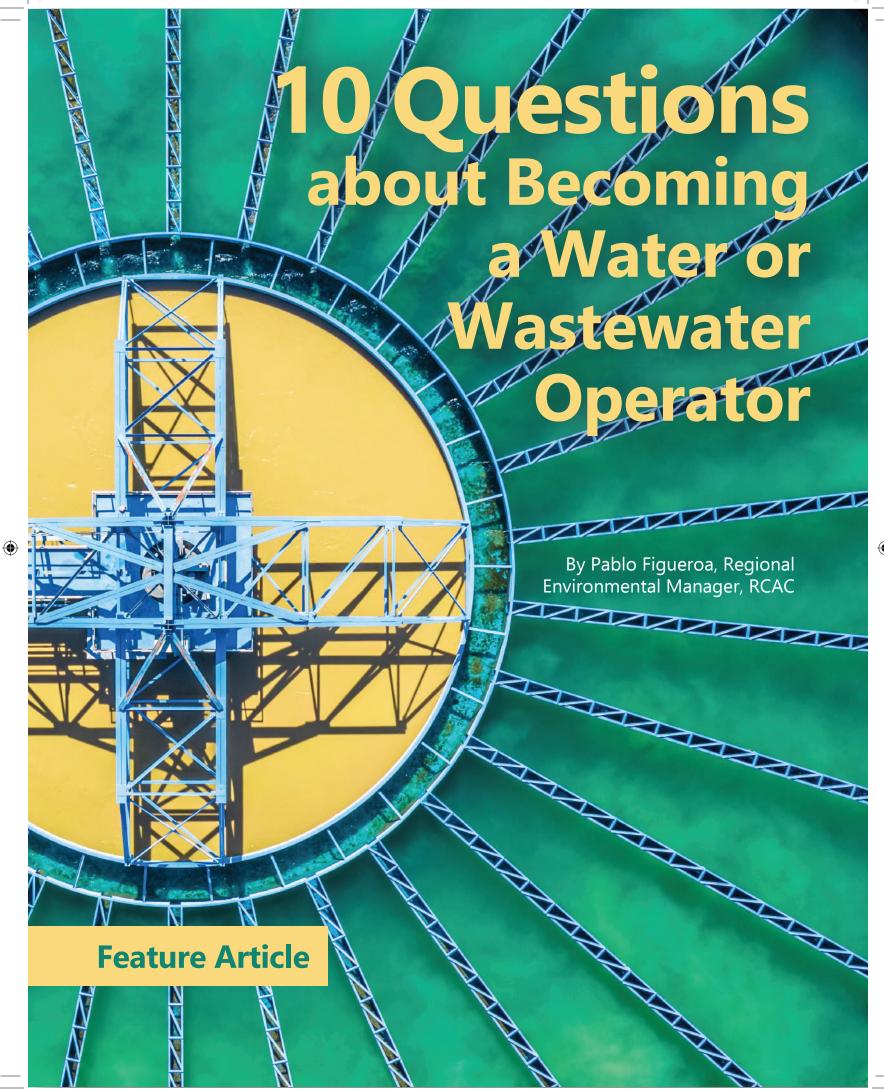
water because of the risk" to the "I have been drinking that water all of my life and it has not hurt me" type. You will find extremes with fellow operators.

Of all the roles the operator plays, I think the Diplomat has the most challenges. However, remember that challenges are opportunities, so, to fellow operators, I would say to be prepared to highlight what you are doing to maintain water quality in your system when you are asked a question. Are you being proactive, inactive, or reactive in relationship to your customers? My parting question is: How are you prepared to answer "Is my water safe to drink?"

However, all of that changed in 2015 with the Flint [Michigan] water crisis.

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Is a degree required to work in the water field?

No, many states require only a high school diploma or GED to sit for an operator certification exam.

What skills are required to become a good water/wastewater operator?

While being mechanically inclined is still an important skill, willingness to learn is by far the most important skill. Understanding computers and control systems becomes more important every day. The regulatory framework can always be learned.

Do I have to work for a water or wastewater system to sit for the exam?

Not in every state. Some states will allow you to take the OIT (operator in training) or grade 1 exam before you are employed at a water or wastewater system.

What can I expect as far as pay and benefits?

Pay scales vary, but a highly certified operator can expect to make \$50,000 - \$70,000 per year in many areas. Since these are typically municipal positions, good benefits are often available.

Is there potential for job growth?

Yes. The average water operator today is at or nearing retirement age, and this signals many opportunities for advancement.

In states that have four disciplines (treatment, distribution, collections and wastewater treatment), which exams are easiest?

Typically, the water distribution and wastewater collection exams are easier than both water and wastewater treatment.

What type of prior job experience is helpful?

Most job experience will help as the water industry has many specialization areas. Customer service, technical or vocational and computer technology experience all make great starting points.

How sustainable is a career in water?

A career in water is as sustainable as careers in the medical field or any field that impacts our daily lives. Water is an essential part of life and providing safe drinking water or treating wastewater will continue to become more and more important in years to come.

Is relocating a challenge for water or wastewater operators?

No. Many states accept operator licenses from other states, making relocation an easy process.

What are some study resources?

Here are some links to point you in the right direction:

https://www.awwa.org/Professional-Development/Operators http://www.abccert.org/testing_services/study_guides.asp 🚙

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Upcoming Events 8 Trainings

SPONSOR	EVENT	DATE
US EPA Region 9	Risk Assessment & Emergency Response Plan Training	September 12, 2019
Great Lakes CAP/USDA	Rural Development Funding Opportunities for Infrastructure & Community Facilities	September 17, 2019
Water Environment Federation	WefTec 2019	September 21-25, 2019
RCAC	Financial Management for Small Water Systems	October 8, 2019
American Water Works Association (AWWA)	Water Infrastructure Conference & Exposition	October 20, 2019
American Water Works Association (AWWA)	Effective Utility Management Seminar	October 22, 2019
RCAP Solutions/ AWWA	Achieve & Maintain Compliance with Safe Drinking Water Act (SDWA)	October 23, 2019
SERCAP	Water and Wastewater Sam- pling and Preservation	November 6, 2019
Midwest Assistance Program	Small System Training	November 6, 2019

For more events and trainings, visit rcap.org/training and wateroperator.org.

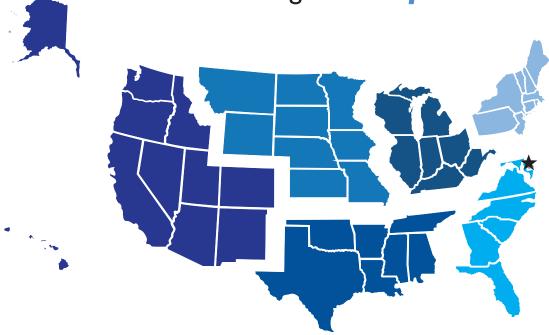






Rural Community Assistance Partnership

A non-profit network reaching rural and small communities in all fifty states to improve quality of life by starting at the tap.



Western RCAP

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Southeast RCAP

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Assistance Project (SERCAP)

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